CONSTRUCTION DOCUMENTS

Proposed

7-Eleven Store #42378

1106 N. Arendell Avenue
Zebulon, North Carolina
Wake County

WAKE COUNTY NOTES

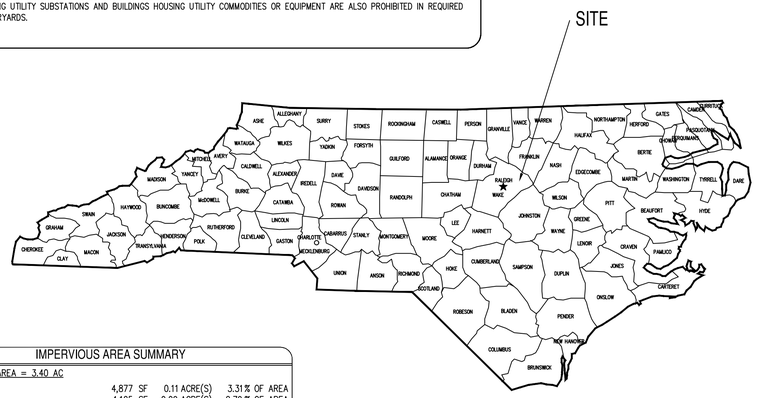
FINAL ZONING AND SITE IMPROVEMENT INSPECTION SHALL BE REQUIRED TO VERIFY SITE PLAN COMPLIANCE BE DONE BEFORE A CERTIFICATE OF COMPLIANCE IS ISSUED BY WAKE COUNTY BUILDING INSPECTIONS

DETERIORATED OR DEAD SCREENING SHALL BE REPAIRED OR REPLACED WITHIN SIX MONTHS

NO PERMANENT CONSTRUCTION CAN OCCUR WITHIN BUFFER YARDS

SEPTIC TANKS, SEPTIC DRAIN LINES ARE PROHIBITED IN REQUIRED BUFFERYARDS

STORMWATER RETENTION AND DETENTION FACILITIES, STORAGE TANKS FOR ANY PURPOSE, UTILITY SUBSTATIONS, AND 3 BUILDINGS HOUSING UTILITY SUBSTATIONS AND BUILDINGS HOUSING UTILITY COMMODITIES OR EQUIPMENT ARE ALSO PROHIBITED IN REQUIRED BUFFERYARDS.



IMPERVIOUS AREA SUMMARY

ON-SITE AREA = 3.40 AC			
BUILDINGS	4,877 SF	0.11 ACRE(S)	3.31% OF AREA
SIDEWALK	4,125 SF	0.09 ACRE(S)	2.79% OF AREA
PAVEMENT	69,870 SF	1.60 ACRE(S)	47.18% OF AREA
TOTAL IMPERVIOUS AREA	78,890 SF	1.81 ACRE(S)	53.27% OF AREA
GREEN/OPEN SPACE	69,213 SF	1.59 ACRE(S)	46.73% OF AREA
EXISTING ON-SITE IMPERVIOUS AREA	5,724 SF	0.13 ACRE(S)	
INCREASE IN IMPERVIOUS AREA	73,166 SF	1.68 ACRE(S)	
OFF-SITE IMPERVIOUS (PUBLIC ROW)			
SIDEWALK	4,730 SF	0.11 ACRE(S)	
PAVEMENT	20,830 SF	0.48 ACRE(S)	
TOTAL OFF-SITE IMPERVIOUS AREA	25,560 SF	0.59 ACRE(S)	

PROJECT DEVELOPMENT DATA

STREET ADDRESS:	1106 N ARENDELL AVE
PIN:	2705-19-1832
REID:	0069358
DEED BOOK/PAGE:	1465/154 & 2755/492
ZONING DISTRICT:	HC-C (HEAVY COMMERCIAL-CONDITIONAL)
(ZONING CASE: ORDINANCE	2024-07 - CONDITIONAL ZONING 2023-03)
SITE AREA:	3.40 AC (3.86 AC - 0.46 AC R/W DEDICATION)
LATITUDE & LONGITUDE:	35°50'11.0"N 78°19'17.4"W
INSIDE TOWN LIMITS:	YES
EXISTING USE:	VACANT (FORMERLY SINGLE FAMILY)
PROPOSED BUILDING USE:	CONVENIENCE STORE WITH GASOLINE SALES
GROSS BUILDING AREA:	4,877 SF
MINIMUM LOT SIZE:	6000 SF
MINIMUM LOT WIDTH:	50 FT
MINIMUM STREET SETBACK:	30 FT
MINIMUM SIDE SETBACK:	5 FT
MINIMUM REAR SETBACK:	25 FT
MAXIMUM LOT COVERAGE:	80%
MAXIMUM BUILDING HEIGHT:	50 FT
OPEN SPACE REQUIRED:	3% OF DEVELOPMENT AREA
	3% OF 3.40 AC = 0.10 AC
PARKING REQUIREMENT:	
TOTAL REQUIRED:	1 FOR EVERY 200 SF
	4,877 SF/200 = 25 SPACES
PARKING SPACES PROVIDED:	35
PARKING SPACE DIMENSIONS:	10 FT X 19 FT MINIMUM
STACKING SPACES REQUIRED:	1 ON EACH SIDE OF OUTERMOST GAS PUMP
STACKING SPACE DIMENSIONS:	9 FT X 25 FT
MIN DRIVE AISLE:	24 FT
ACCESSIBLE SPACES PROVIDED:	2
BICYCLE PARKING:	1 PER 20 OFF-STREET PARKING SPACES
	2 SPACES PROVIDED
LANDSCAPE BUFFERS:	40FT TYPE D BUFFER ADJACENT TO RESIDENTIAL
STREETSCAPE BUFFER:	15 FT WIDTH

BASE POINTS	
Single Use Retail Newly constructed single use, stand-alone building used primarily for retail, restaurant, or similar commercial use.	40
BONUS POINTS	
Section 1B - Roadway Infrastructure Not Warranted by TIA/UDO/CTP	
Accessible ramp improvements at intersection of US Hwy 64 and N Arendell Ave.	5
Section 2C - Stormwater SCM's	
Stormwater - Wetland	5
Section 3A – Outdoor Enhancement	
Installation of Native Shade Tree Species (per Tree up to 10 Trees)	10
Total	**60**

PUBLIC IMPROVEMENT QUANTITY TABLE

	WATER MAIN	SEWER MAIN
LENGTH OF PIPE (L.F.)	405 L.F.	365 L.F.
STUB COUNT	1 SERVICE STUB 1 TIE-IN TO EXISTING MAIN	1 SERVICE STUB 1 TIE-IN TO EXISTING MAIN
MANHOLES	N/A	2

ZONING CONDITIONS (ORDINANCE 2024-07 - CONDITIONAL ZONING 2023-03)

1. DEVELOPMENT OF THE PROPERTY FOR A CONVENIENCE STORE WITH GASOLINE SALES USE SHALL BE SUBSTANTIALLY AS SHOWN ON THE CONCEPT PLAN APPROVED AS A PART OF THIS REZONING REQUEST AND AS SHOWN ON A SITE/DEVELOPMENT PLAN APPROVED SUBSEQUENT AND PURSUANT TO THIS REZONING. DEVELOPMENT OF THE USE ON THE PROPERTY AS DESCRIBED ABOVE SHALL NOT BE SUBJECT TO THE USE-SPECIFIC STANDARD IN UDO 4.3.5.Q.1a, MORE SPECIFICALLY THIS CONDITION PERMITS GASOLINE PUMP ISLAND TO BE LOCATED BETWEEN THE BUILDING AND STREET AS SHOWN ON THE CONCEPT PLAN.

2. THIS REZONING AND THE ASSOCIATED SITE/BUILDING DESIGN PROPOSED AS A PART OF THE REQUEST CONSIDERS CERTAIN UDO REQUIREMENTS IN RELATION TO: THE NATURE OF THE PROPOSED COMMERCIAL USE WHICH IS PERMITTED BY-RIGHT UNDER THE EXISTING HC ZONING; THE PROPERTY BEING ADJACENT TO STREET RIGHTS-OF-WAY ON THREE SIDES, SUBJECTING PROPOSED DEVELOPMENT AT THIS LOCATION TO ADDITIONAL STANDARDS NOT APPLICABLE TO THE SAME DEVELOPMENT TYPE THROUGHOUT ALL HC ZONING; AND, ASPECTS OF THE PROPOSED SITE/BUILDING DESIGN THAT EXCEED THE MINIMUM UDO REQUIREMENTS AS SHOWN AND DESCRIBED IN THE DOCUMENTS SUBMITTED AS A PART OF THE REZONING REQUEST. BASED ON CONSIDERATION OF THESE FACTORS, VARIATION IN THE FENESTRATION REQUIREMENTS FOR THE SOUTH, WEST, AND EAST BUILDING FACADES IS ALLOWED AS SHOWN ON PLANS APPROVED AS PART OF THIS REZONING, MORE SPECIFICALLY:
   - SOUTH WALL: 29% TRANSPARENCY/GLAZING PROVIDED (MINIMUM 30% REQUIRED), WALL DOES NOT FACE AN ADJACENT STREET.
   - WEST WALL: 33% TRANSPARENCY/GLAZING PROVIDED (MINIMUM 30% REQUIRED), USE OF SPANDREL GLAZING DUE TO INTERIOR LAYOUT REQUIREMENTS FOR SPECIFIC BUILDING USE; CANOPIES ARE PROVIDED ABOVE GLAZING ON THIS FACADE
   - EAST WALL: NO TRANSPARENCY PROVIDED (VIEW OF WALL FROM THE ADJACENT STREET WILL BE SCREENED BY MULTIPLE DIFFERENT DESIGN ASPECTS REQUIRED BY THE UDO AND OTHER FEATURES INCLUDING: REQUIRED DUMPSTER ENCLOSURE AND LANDSCAPE SCREENING; STREET TREES; CANOPY AND UNDERSTORY TREES AND SHRUBS WITHIN THE REQUIRED STREET BUFFER; AND THE PROPOSED FUELING AREA AND ASSOCIATED STRUCTURES).

3. THE DEVELOPER SHALL CONSTRUCT/PROVIDE THE FOLLOWING TRAFFIC IMPROVEMENTS AS SHOWN ON THE DIAGRAM TITLED: "PROPOSED LAND CONFIGURATIONS AND TRAFFIC CONTROL, ZEBULON 7-ELEVEN, ZEBULON, NC, FIGURE 14", PREPARED BY IMPACT DESIGNS, INC. AGREED UPON BY DEVELOPMENT TEAM, TOWN OF ZEBULON, AND NCDOT ON 7/27/2023. PLANS/DETAILS OF THESE IMPROVEMENTS SHALL BE SHOWN ON THE SITE/CONSTRUCTION PLANS SUBMITTED TO THE TOWN FOR REVIEW SUBSEQUENT TO REZONING.
   - 125-FOOT EASTBOUND RIGHT TURN LANE ON DOGWOOD DRIVE AT SITE ACCESS A.
   - 150-FOOT WESTBOUND LEFT TURN LANE ON DOGWOOD DRIVE AT N ARENDELL AVE.
   - 300-FOOT LEFT TURN LANE ON US 64 HIGHWAY WB OFF-RAMP
   - RETIME TRAFFIC SIGNALS IN THE AM AND PM PEAK HOURS
   - UPGRADE SIGNAL AT N ARENDELL AVE/DOGWOOD DRIVE/US 64 WB RAMPS TO ACCOMMODATE NEW LEFT TURN LANES

DEVELOPER

C4 CStore Holdings III, LLC
Nick Carroll
801 East Boulevard
Charlotte, NC 28202
(502) 693-0396
ncarroll@csere.com

CURRENT PROPERTY OWNERS

Carl Victor Tart, Jr. and Vickie Newton Tart Burlington
7815 Roxboro Road
Bahama, NC 27503-9045

UTILITY SERVICE NOTES

WATER SERVICE
GENERAL CONTRACTOR TO PROVIDE AND INSTALL A WATER SERVICE LINE FROM MAIN TO BUILDING PER MUNICIPAL REQUIREMENTS.
CONTACT: CITY OF RALEIGH UTILITY DEPARTMENT
TELEPHONE: 919-857-4540

ELECTRIC SERVICE
"POWER CO." TO PROVIDE UNDERGROUND 120/208/3 PHASE SERVICE. GENERAL CONTRACTOR TO PROVIDE AND INSTALL TWO 4" DIA. CONDUIT W/ PULL WIRE TO UTILITY COMPANY POINT OF CONNECTION.
CONTACT: PROGRESS ENERGY
TELEPHONE: 800-636-0581

TELEPHONE SERVICE
"TELEPHONE CO." TO PROVIDE NEW UNDERGROUND SERVICE. GENERAL CONTRACTOR TO PROVIDE AND INSTALL A 4" DIA. PVC CONDUIT W/ PULL WIRE FROM PHONE PANEL BOARD TO UTILITY COMPANY POINT OF CONNECTION.
CONTACT:
TELEPHONE:

SANITARY SEWER
GENERAL CONTRACTOR TO PROVIDE AND INSTALL A 4" SCHEDULE 40 PVC FROM SANITARY SEWER SYSTEM TO LAST CLEAN OUT OUTSIDE OF BUILDING. (MIN. 1% SLOPE). PROVIDE CLEAN OUTS EVERY 75' (TYPICAL).
CONTACT: CITY OF RALEIGH UTILITY DEPARTMENT
TELEPHONE: 919-857-4540

NATURAL GAS
GENERAL CONTRACTOR TO COORDINATE WITH NATURAL GAS UTILITY FOR SERVICE LINE TO PROPOSED BUILDING.
CONTACT:
TELEPHONE:

EROSION CONTROL, STORMWATER AND FLOODPLAIN MANAGEMENT

APPROVED

EROSION CONTROL ☐ SEC-112353-2023
STORMWATER MGMT. ☐ SWF-112350-2023
FLOOD STUDY ☐ S-_____
DATE 01/02/2024

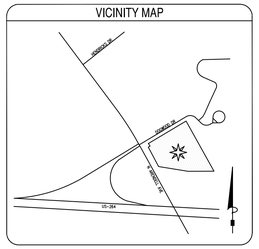
WAKE COUNTY PROTECTION SERVICES

ENVIRONMENTAL CONSULTANT SIGNATURE

CIVIL ENGINEER

Bowman North Carolina, Ltd.
4006 Barrett Drive, Suite 104
Raleigh, NC 27609
(919) 553-6570
mlowder@bowman.com
FIRM# F-1445

VICINITY MAP



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C2.3	EROSION CONTROL PLAN - FINAL
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R1.01	REVIEW BOARD ELEVATIONS

PUBLIC
Water Distribution/Extension System

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

City of Raleigh
Public Utilities Department Permit # W-4087

Authorization to Construct See digital signature

PUBLIC
Sewer Collection/Extension System

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

City of Raleigh
Public Utilities Department Permit # S-5404

Authorization to Construct See digital signature

PRECONSTRUCTION NOTE

A PRE-CONSTRUCTION MEETING IS REQUIRED WITH THE TOWN OF ZEBULON CONSTRUCTION INSPECTOR. CONTACT JASON AT 919-790-5640.

ATTENTION CONTRACTORS

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

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

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

BEFORE YOU DIG
STOP
CALL 1 800 632-4949
N.C. ONE-CALL CENTER
IT'S THE LAW

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

Bowman
Bowman North Carolina Ltd.
4006 BARRETT DR
Suite 104
RALEIGH, NC 27609
Phone: (919) 553-6570
bowman.com

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24484 MATTHEW E. LOWDER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION
1	BRM	02/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	2/5/23	TOWN OF ZEBULON REVIEW
3	MCB	2/21/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
COVER SHEET

DRWG. NO. C0.0

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY LINE	
	ADJACENT PROPERTY LINE	
	LOT LINE	
	RIGHT OF WAY	
	CENTERLINE	
	FLOOD PLAIN	
	LIMITS OF CONSTRUCTION	LOC
	LIMITS OF DISTURBANCE	LOD LOD
	SWALE / STREAM FLOWLINE	
	OVERFLOW RELIEF PATH	
	FENCE LINE	
	EASEMENT	
	EDGE OF PAVEMENT	
	VERTICAL CURB AND GUTTER	
	MOUNTABLE CURB AND GUTTER	
	CONCRETE SIDEWALK	
	ASPHALT SIDEWALK	
	HANDICAP PARKING	HC
	SIGHT TRIANGLE	
	SIGN(S)	
255 VPD	PARKING COUNT INDICATOR	
255 VPD	VEHICLES PER DAY INDICATOR	255 VPD
TP	TEST PIT	TP
MW	MONITORING WELL	MW
350	MAJOR CONTOUR	HC 350
350	MINOR CONTOUR	350
	GRADE BREAK	
	RIDGELINE	
52 22/FG 5236 22/FG	SPOT ELEVATION	52 22/FG 5236 22/FG
	RIP RAP	
W	WATER LINE	W
M	WATER METER	M
	WATER VALVE	
	WATER REDUCER	
	WATER FITTINGS	
	FIRE HYDRANT	
SS	SANITARY LINE	SS
	SANITARY MANHOLE	
	SANITARY CLEANOUT	
	STORM SEWER PIPE	
	STORM SEWER MANHOLE	
	STORM SEWER INLET	
	STORM SEWER FLARED END SECTION	
	STORM SEWER HEADWALL	
OU OU	OVERHEAD UTILITY	OU OU
E E	UNDERGROUND ELECTRIC	E E
OHE	OVERHEAD ELECTRIC	OHE OHE
	UTILITY POLE	
	STREET LIGHT	
CATV CATV	CABLE TV SERVICE	CATV CATV
T T	TELECOM SERVICE	T T
FO FO	FIBER OPTIC SERVICE	FO FO
G	NATURAL GAS SERVICE	G
	TREE	
	TREE LINE	
	WETLANDS	

LEGEND NOTES

1. THIS IS A STANDARD SHEET, THEREFORE SOME ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT BE USED ON THE PROJECT.
2. ADDITIONAL LEGENDS AND NOTES MAY BE FOUND ON OTHER SHEETS ASSOCIATED WITH THIS PLAN. THESE LEGENDS AND NOTES ARE TO BE REFERENCED IN ADDITION TO THIS STANDARD SHEET.

ABBREVIATIONS

A	AREA OF ARC
AASHTO	AMERICAN ASSOCIATION OF STATE HWY & TRANS. OFFICIALS
AB	AS-BUILT
AC	ACRE
AD	ALGEBRAIC DIFFERENCE IN GRADE
AE	ACCESS EASEMENT
ADJ	ADJACENT
AGGR	AGGREGATE
AHD	AHEAD
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APT	ANGLE POINT
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWWA	AMERICAN WATER WORKS ASSOCIATION
B	BREADTH
BOC	BACK OF CURB
BF	BASEMENT FLOOR
BLDG	BUILDING
BM	BENCHMARK
BMP	BEST MANAGEMENT PRACTICES (WATER QUALITY)
BOV	BLOW OFF VALVE
BRG	BEARING
BRL	BUILDING RESTRICTION LINE
BVCE	BEGINNING VERTICAL CURVE ELEVATION
BVCS	BEGINNING VERTICAL CURVE STATION
BW	BOTTOM OF WALL
c,e	CENTER CORRECTION ON VERTICAL CURVE
C	RUNOFF COEFFICIENT
CATV	CABLE TELEVISION
C&G	CURB AND GUTTER
CB	CATCH BASIN
CBR	CALIFORNIA BEARING RATIO
CC	CENTER TO CENTER
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CG(R)	CURB AND GUTTER (REVERSE SLOPE)
CH	CHORD
CHBRG	CHORD BEARING
CIP	CAST IRON PIPE
C	CENTERLINE
CLR	CLEAR
CM	CUBIC METERS
CMP	CORRUGATED METAL PIPE
CMS	CUBIC METERS PER SECOND
CN	RUNOFF CURVE NUMBER
CONT	CONTINUOUS
CO	CLEAN OUT
CONC	CONCRETE
CPP	**CORRUGATED PLASTIC PIPE**
CS	CURB STOP
CT	COURT
CTR	CENTER
CTRL	CONTROL LINE
CY	CUBIC YARD
D	DEPTH
DA	DRAINAGE AREA
DB	DEED BOOK
DD	DIVERSION DIKE
DET	DETAIL
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DI	DROP INLET
DIST	DISTANCE
DL	DOMESTIC LINE
DM	DROP MANHOLE
DOM	DOMESTIC
DR	DRIVE DRAIN
DRN	DRAINAGE
DRNG	DRAINAGE AREA
DS	DOWN SPOUT
DU	DWELLING UNITS
DWG	DRAWING
D/W	DRIVEWAY
Δ	DELTA
E,Ea	EASTING/EAST
EA	EACH
EBL	EAST BOUND LANE
EC	EROSION CONTROL
ECB	EROSION CONTROL BLANKET
EG	EDGE OF GUTTER
EGL	ENERGY GRADIENT LINE
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATION
ENGR	ENGINEER
ENT	ENTRANCE
EOA	EDGE OF ASPHALT
EOC	EDGE OF CONCRETE
EOP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
ESMT	EASEMENT
ETD	EXISTING TO BE DEMOLISHED
ETR	EXISTING TO REMAIN
ETRL	EXISTING TO BE RELOCATED
ETRP	EXISTING TO BE REPLACED
EVCE	ENDING VERTICAL CURVE ELEVATION
EVCS	ENDING VERTICAL CURVE STATION
EW	END WALL
EX	EXISTING
EQC	ENVIRONMENTAL QUALITY CORRIDOR
F	FIRE LINE
FAR	FLOOR AREA RATIO
FOC	FACE OF CURB
FD	FLOOR DRAIN
FES	FLARED END SECTION
FF	FIRST FLOOR OR FINISH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FND	FOUNDATION
FOY	FOYER
FP	FLOOD PLAIN
FPS	FEET PER SECOND
FS	FIRE SERVICE OR FACTOR OF SAFETY
FT	FOOT OR FEET
G	GAS
GAR	GARAGE
GB	GRADE BREAK
GFA	GROSS FLOOR AREA
GR	GUARD RAIL OR GRATE INLET
GV	GATE VALVE
H	HEAD
HC	HANDICAP
HB	HORIZONTAL BEND
HBP	HOT BITUMINOUS PAVEMENT
HGL	HYDRAULIC GRADE LINE
HORZ	HORIZONTAL
HP	HIGH POINT
HR	HAND RAIL
HT	HEIGHT
HW	HEADWATER
I	RAINFALL INTENSITY
ID	INSIDE DIAMETER OR IDENTIFICATION
IE	INVERT ELEVATION
IN	INCH
INV	INVERT
IP	IRON PIPE
IPF	IRON PIPE FOUND
IPS	IRON PIPE SET
IRR	IRRIGATION
JB	JUNCTION BOX
JNT	JOINT

K	SIGHT DISTANCE COEFFICIENT OR RATE OF VERTICAL CURVATURE
Ke	CULVERT ENTRANCE LOSS COEFFICIENT
L	LENGTH
LAT	LATERAL
LCG	LIMITS OF CLEARING & GRADING
LF	LINEAR FEET
LIP	LIP OF PAN
LL	LOWER LEVEL
LOS	LINE OF SIGHT
LP	LOW POINT
LS	LOADING SPACE
LT	LEFT
M	MONUMENT FOUND
MAX	MAXIMUM
ME	MATCH EXISTING
MECH	MECHANICAL
MH	MANHOLE
MI	MILE
MIN	MINIMUM
MISC	MISCELLANEOUS
MPH	MILES PER HOUR
MS	MEDIAN STRIP
MSL	MEAN SEA LEVEL
N	NORTHING/NORTH
N/A	NOT APPLICABLE
NBL	NORTH BOUND LANE
N/F	NOW OR FORMERLY
NFA	NET FLOOR AREA
NO. & #	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OBJ	OBJECT
OD	OUTSIDE DIAMETER
OH	OVERHANG
O/H	OVERHEAD
OHC	OVERHEAD CABLE
OHE	OVERHEAD ELECTRIC
OHT	OVERHEAD TELEPHONE
P	PERIMETER
PL	PROPERTY LINE
P&P	PLAN AND PROFILE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCR	POINT OF CURB RETURN
PCEP	POINT OF CURVE EDGE OF PAVEMENT
PCTC	POINT OF CURVATURE TOP OF CURB
PI	POINT OF INTERSECTION
PG	PAGE
PGL	POINT OF GRADE LINE
PRC	POINT OF REVERSE CURVATURE
PRELIM	PRELIMINARY
PROP	PROPOSED
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE PIPE OR POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PVRC	POINT OF VERTICAL REVERSE CURVE
Q (cfs)	AMOUNT OF RUNOFF (FLOW RATE)
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RDCR	REDUCER
RD	ROAD OR ROOF DRAIN
REINF	REINFORCED
REQD	REQUIRED
RET	RETAINING
REV	REVISION
RGP	ROUGH GRADING PLAN
RMA	RESOURCE MANAGEMENT AREA
ROM	REMOTE OUTSIDE MONITOR
RPA	RESOURCE PROTECTION AREA
RR	RAILROAD
RT	RIGHT
RTE	ROUTE
R/W & ROW	RIGHT OF WAY
S	SPEED OR SLOPE
SAN	SANITARY SEWER
SANMH	SANITARY SEWER MANHOLE
SBL	SOUTH BOUND LANE
SCH	SCHEDULE
SD	SIGHT DISTANCE
SEC	SECTION
SEW	SEWER
SF	SQUARE FEET
SH	SHOULDER
SP	SPACE OR SITE PLAN
SPEC	SPECIFICATIONS
STA	STATION
STD	STANDARD
STK	STACK
STM	STORM SEWER
STMMH	STORM SEWER MANHOLE
STR	STRUCTURE
SVC	SERVICE
S/W	SIDEWALK
SWM	STORM WATER MANAGEMENT
Sx	CROSS SLOPE
SY	SQUARE YARD
T	TANGENT
TB	TOP OF BANK OR TEST BORING
TBR	TO BE REMOVED
TOC	TOP OF CURB
Tc	TIME OF CONCENTRATION
TEL	TELEPHONE
TEMP	TEMPORARY
TH	TEST HOLE
TOF	TOP OF FOUNDATION
TOP	TOP OF PIPE
TP	TEST PIT OR TREE PROTECTION
TW	TOP OF WALL OR TAILWATER
TYP	TYPICAL
UE	UTILITY EASEMENT
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UGT	UNDERGROUND TELEPHONE
UGC	UNDERGROUND CABLE
UD	UNDERDRAIN
UL	UPPER LEVEL
UP	UTILITY POLE
USGS	US GEOLOGICAL SURVEY
UTIL	UTILITY
V OR VOL	VOLUME
V OR VEL	VELOCITY
VAN	HANDICAPPED VAN PARKING SPACE
VB	VERTICAL BEND
VC	VERTICAL CURVE
VF	VERTICAL FOOT
W	WEIGHT OR WIDTH
WBL	WEST BOUND LANE
WL	WATER LINE
WM	WATER METER
W/M OR WM	WATER MAIN
W/TB	WITH THRUST BLOCK
WSEL	WATER SURFACE ELEVATION
WV	WATER VALVE
XING	CROSSING
XF	TRANSFORMER
YI	YARD INLET
YR	YEAR

GENERAL NOTES

1. UTILITY CONFLICTS: ALL EXISTING UTILITIES SHOWN WERE COMPILED USING THE BEST AVAILABLE INFORMATION AND FIELD OBSERVATION. BOWMAN NORTH CAROLINA LTD DOES NOT GUARANTEE THE LOCATION OF UNDERGROUND UTILITIES SHOWN HEREON. CONTRACTOR TO BE RESPONSIBLE FOR FIELD VERIFYING THE LOCATION OF AND PROTECTING ALL EXISTING UTILITIES, INCLUDING THOSE NOT SHOWN OR SHOWN INCORRECTLY ON THE PLANS. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED IN A TIMELY FASHION TO THE SATISFACTION OF THE APPROPRIATE GOVERNING AGENCY AND THE OWNER OF THE IMPACTED UTILITY AT THE CONTRACTOR'S EXPENSE.
2. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS FOR THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT THE JOB SITE AT ALL TIMES THE APPROPRIATE GOVERNING AGENCY'S PUBLIC WORKS MANUAL, ALL APPROVED EASEMENT AGREEMENTS, AND ONE (1) SIGNED COPY OF THE PLANS AS APPROVED BY THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE APPROPRIATE GOVERNING AGENCY FOR ANY VARIANCE TO THE ABOVE DOCUMENTS.
3. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES, STANDARDS, SPECIFICATIONS, PERMITS, BONDS, ETC., WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.
4. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND MUST COMPLY WITH OSHA REGULATIONS.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER/DEVELOPER AND ENGINEER OF ANY PROBLEM CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
6. THE CONTRACTOR SHALL REPAIR ANY EXCAVATIONS OR PAVEMENT FAILURES CAUSED BY HIS/HER CONSTRUCTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ALL MATERIALS WITHIN DEDICATED RIGHT-OF-WAY AND ALL MATERIALS AND WORKMANSHIP SHALL MEET THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS OF THE APPROPRIATE GOVERNING AGENCY.
8. THE CONTRACTOR SHALL NOTIFY THE LOCAL JURISDICTION AT LEAST 24 HOURS PRIOR TO THE START OF CONSTRUCTION. THE APPROPRIATE FIRE DEPARTMENT SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF ANY STREET CLOSURES AND IN THE EVENT THAT ANY FIRE HYDRANTS ARE TO BE TEMPORARILY REMOVED FROM SERVICE. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROVIDING AT LEAST 48 HOURS ADVANCED NOTICE OF ANY NEED TO SHUT DOWN ANY PORTION OF THE EXISTING WATER SYSTEM AND FOR OBSERVATIONS AND/OR INSPECTIONS REQUIRED.
9. THE CONTRACTOR SHALL PROVIDE ALL SIGNS, BARRICADES, FLAGMEN, LIGHTS OR OTHER DEVICES NECESSARY FOR SAFE TRAFFIC CONTROL IN ACCORDANCE WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND AS MODIFIED BY THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD. A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO AND APPROVED BY THE APPROPRIATE GOVERNING AGENCY PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT FOR WORK WITHIN THE RIGHT-OF-WAY.
10. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF NORTH CAROLINA AT 1-800-632-4949 AT LEAST 2 BUSINESS DAYS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH ANY AFFECTED UTILITY COMPANY.
11. THE CONTRACTOR SHALL OBTAIN COPIES OF THE "SOILS AND INVESTIGATION" REPORT FROM GEOTECHNICAL ENGINEER ALONG WITH THE "PAVEMENT THICKNESS DESIGN REPORT". THE CONTRACTOR MUST HAVE COPIES OF SAME ON THE SITE AT ALL TIMES.
12. THE CONTRACTOR IS REQUIRED TO PROVIDE AS-CONSTRUCTED HORIZONTAL AND VERTICAL CONSTRUCTION INFORMATION, INCLUDING THE LOCATIONS OF ALL SANITARY LINES AND SERVICES, WATER LINES AND SERVICES, AND OTHER UTILITY LINES AND SERVICES TO THE ENGINEER FOR PREPARATION OF AS-BUILT DOCUMENTS.
13. LIMITS OF CONSTRUCTION EASEMENTS AND RIGHTS-OF-WAY SHALL BE DELINEATED WITH TEMPORARY STAKING BY THE CONTRACTOR. SAFETY FENCING SHALL BE PER APPROPRIATE GOVERNING AGENCY.
14. WHERE EXCAVATION IS REQUIRED UNDER EXISTING ASPHALT OR CONCRETE PAVEMENT, THE EXISTING PAVEMENT SHALL BE SAW CUT IN A MANNER TO EFFECT A SMOOTH, STRAIGHT-CUT EDGE. ASPHALT PATCH SHALL BE PER APPROPRIATE GOVERNING AGENCY STANDARDS.
15. REFER TO FINAL RECORDED PLAT FOR ACTUAL LOT, TRACT, PARCEL, AND EASEMENT LOCATIONS AND DESIGNATIONS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ALL MATERIALS WITHIN DEDICATED RIGHT-OF-WAYS AND ALL MATERIALS AND WORKMANSHIP SHALL MEET THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS OF THE APPROPRIATE GOVERNING AGENCY.
17. THE CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY TO THE PROJECT WORK SITE (SEE THE EROSION CONTROL PLAN). THE CONTRACTOR SHALL OBTAIN ALL PERMITS NECESSARY (IF APPLICABLE) TO COMPLETE THE CONSTRUCTION AND SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
18. WATER WILL BE PROVIDED BY THE CONTRACTOR TO KEEP WIND EROSION IN CHECK. USE OF WATER AS A DUST PREVENTATIVE SHALL NOT BE PAID FOR SEPARATELY, BUT INCLUDED IN THE COST OF THE WORK.
19. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE PROPERTY LIMITS DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR.
20. ANY CONSTRUCTION DEBRIS OR MUD TRACKING IN THE PUBLIC RIGHT-OF-WAY RESULTING FROM THIS DEVELOPMENT SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL IMMEDIATELY FIX ANY EXCAVATIONS OR PAVEMENT FAILURES CAUSED BY THE DEVELOPMENT AND SHALL PROPERLY BARRICADE THE SITE UNTIL CLEAN UP OR REPAIR IS COMPLETE.
21. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO GRADE STREET CORES, RIGHT-OF-WAY TEMPLATES, AND LOTS ACCORDING TO GRADING INSTRUCTIONS SHOWN ON PLANS.
22. STREET CONTOURS SHOWN AT PROPOSED STREET LOCATIONS REPRESENT FINISHED GRADE ELEVATION TO TOP OF ASPHALT.
23. COMPACTION FILL MATERIAL SHALL BE COMPACTED ACCORDING TO THE APPROPRIATE GOVERNING AGENCY REGULATIONS AND THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
24. TOLERANCE ROUGH GRADING: TOLERANCE SHALL BE +/- 0.1 FEET.
25. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE SURE ALL APPROPRIATE PERMITS FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY HAVE BEEN OBTAINED PRIOR TO GRADING. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL TEMPORARY WATER DIVERSION/CONTROL DEVICES AND EROSION CONTROL DEVICES NECESSARY TO PROTECT ADJACENT PROPERTIES, WATERWAYS AND PUBLIC RIGHT-OF-WAY. CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF SAID DEVICES THROUGHOUT CONSTRUCTION AND UNTIL THE PERMANENT PROTECTION NECESSARY HAS BEEN COMPLETED.
26. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE MOST CURRENT APPROVED ARCHITECTURAL/ MECHANICAL/ELECTRICAL/PLUMBING/STRUCTURAL PLANS AND COORDINATE SAME WITH THE SITE PLAN, PRIOR TO BEGINNING CONSTRUCTION OPERATIONS.
27. WHEN DURING THE COURSE OF CONSTRUCTION, ANY OBJECT OF AN UNUSUAL NATURE IS ENCOUNTERED, THE CONTRACTOR SHALL CEASE WORK IN THAT AREA AND IMMEDIATELY NOTIFY THE OWNER, APPROPRIATE GOVERNING AGENCY, AND/OR THE ARCHITECT/ENGINEER.
28. THE EXISTING UNDERGROUND UTILITIES SHOW HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN IN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE THE CONTINUANCE OF SERVICE.
29. ALL STEPS WITH THREE OR MORE RISERS SHALL HAVE HAND RAILS, PER LOCAL CODE.
30. A SMOOTH GRADE SHALL BE MAINTAINED FROM THE CENTERLINE OF EXISTING ROAD TO PROPOSED CURB AND GUTTER AND/OR PROPOSED EDGE OF PAVEMENT TO PRECLUDE THE FORMING OF FALSE GUTTERS AND/OR THE PONDING OF ANY WATER IN THE ROADWAY. REMOVE AND RECONSTRUCT EXISTING PAVEMENT AND/OR CURB AS DICTATED BY FIELD CONDITIONS TO PROVIDE POSITIVE DRAINAGE AT TIE-IN-POINTS.
31. OVERLAY OF EXISTING PAVEMENT SHALL BE MINIMUM OF 1 1/2 INCH DEPTH; ANY COST ASSOCIATED WITH PAVEMENT OVERLAY, OR THE MILLING OF EXISTING PAVEMENT TO OBTAIN REQUIRED DEPTH, SHALL BE ASSUMED BY THE CONTRACTOR.
32. ALL RIGHT-OF-WAY DEDICATED FOR PUBLIC USE SHALL BE CLEAR AND UNENCUMBERED.
33. AN AIR QUALITY PERMIT SHALL BE OBTAINED IF REQUIRED.
34. ANY LIGHTING SHOWN HEREON IS AS SPECIFIED BY THE CLIENT AND IS INCLUDED FOR INFORMATION PURPOSES ONLY, AS DIRECTED BY THE OWNER AND/OR PUBLIC AGENCY REQUIREMENTS. BOWMAN CONSULTING GROUP, LTD. HAS NOT PERFORMED THE LIGHTING DESIGN, AND THEREFORE DOES NOT WARRANT AND IS NOT RESPONSIBLE FOR THE DEGREE AND/OR ADEQUACY OF ILLUMINATION ON THIS PROJECT.
35. THE CONTRACTOR WILL BE REQUIRED TO NOTIFY ALL RESIDENCES WITHIN VICINITY OF THE PROPERTY BOUNDARY TEN (10) DAYS PRIOR TO ANY BLASTING IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AGENCY REQUIREMENTS.
36. NO BLASTING SHALL BE PERMITTED WITHIN 25' OF EXISTING UTILITY LINES OR STRUCTURES. BLASTING TO BE EXTENDED 25' BEYOND PROPOSED STRUCTURES IF CONDITIONS WARRANT FUTURE EXTENSIONS.
37. ALL RETAINING WALLS 4' IN HEIGHT AND OVER (MEASURED FROM BOTTOM OF FOOTER TO TOP OF WALL) REQUIRE A SEPARATE BUILDING PERMIT.
38. THE APPROVAL OF THIS PLAN DOES NOT CONSTITUTE THE APPROVAL OF FUTURE WORK.
39. ALL HANDICAPPED SPACES SHALL HAVE AN ABOVE GRADE IDENTIFICATION SIGN MEETING APPROPRIATE GOVERNING AGENCY STANDARDS.
40. WHERE A PROPOSED PIPE CROSSES OR PARALLELS A STREET OR DRIVE AISLE, THE ASPHALT SHALL BE NEATLY SAWCUT TO FULL DEPTH. AFTER INSTALLATION OF THE PIPE, THE ROADWAY SHALL BE PATCHED IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AGENCY STANDARDS.
41. REFER TO THE TOWN OF ZEBULON STREET STANDARDS AND SPECIFICATIONS MANUAL FOR APPLICABLE CONSTRUCTION REQUIREMENTS WITHIN THE TOWN OF ZEBULON.

GENERAL NOTES (CONT.)

42. THE CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE AND MAKE ALL INSPECTIONS NECESSARY IN ORDER TO DETERMINE THE FULL EXTENT OF THE WORK REQUIRED TO MAKE THE PROPOSED WORK CONFORM TO THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK, CONDITIONS, AND CONFIRMATION AND CONDITION OF EXISTING GROUND SURFACE AND THE CHARACTER OF THE EQUIPMENT AND FACILITIES NEEDED PRIOR TO AND DURING EXECUTION OF THE WORK. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE CHARACTER, QUANTITY AND QUALITY OF SURFACE AND SUBSURFACE MATERIALS OR OBSTACLES TO BE ENCOUNTERED. ANY INACCURACIES OR DISCREPANCIES BETWEEN THE DRAWINGS AND SPECIFICATIONS MUST BE BOUGHT TO THE OWNER'S ATTENTION IN ORDER TO CLARIFY THE EXACT NATURE OF THE WORK TO BE PERFORMED PRIOR TO THE COMMENCEMENT OF ANY WORK.
43. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING ROADS AND UTILITIES WHICH OCCURS AS A RESULT OF THE PROJECT CONSTRUCTION WITHIN OR CONTIGUOUS TO THE EXISTING RIGHT-OF-WAY.
44. ALL STREET CUT AND PATCH WORK IN PUBLIC RIGHT-OF-WAY REQUIRED FOR UTILITIES INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH CITY, COUNTY, AND/OR APPROPRIATE GOVERNING AGENCY STANDARDS AND SPECIFICATIONS. REFER TO THE TOWN OF ZEBULON STANDARDS AND SPECIFICATIONS MANUAL.
45. THE APPROVAL OF THIS PLAN SHALL IN NO WAY GRANT PERMISSION FOR THE CONTRACTOR TO TRESPASS ON OFF-SITE PROPERTIES.
46. THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE CONTRACTOR OF COMPLYING WITH OTHER APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS.
47. THESE PLANS MAKE NO REPRESENTATION AS TO THE SUBSURFACE CONDITIONS AND THE PRESENCE OF SUBSURFACE WATER OR THE NEED FOR SUBSURFACE DRAINAGE FACILITIES.
48. THE CONTRACTOR IS RESPONSIBLE FOR ARRANGING ALL NECESSARY INSPECTIONS.
49. EMERGENCY VEHICLE ACCESS SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION.
50. ALL FINISHED GRADING, SEEDING, SODDING OR PAVING SHALL BE DONE IN SUCH A MANNER TO PRECLUDE THE PONDING OF WATER.
51. THE ENGINEER SHALL NOT HAVE CONTROL OVER OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK SHOWN ON THESE PLANS. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S SCHEDULES OR FAILURE TO CARRY OUT THE WORK. THE ENGINEER IS NOT RESPONSIBLE FOR ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR THEIR AGENTS OR EMPLOYEES, OR OF ANY OTHER PERSONS PERFORMING PORTIONS OF THE WORK.
52. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DIGGING OF TEST HOLES PRIOR TO BEGINNING OF ANY CONSTRUCTION ON THE PROJECT. IF CONFLICTS ARE DISCOVERED AS A RESULT OF TEST HOLE FINDINGS, NOTIFY OWNER'S REPRESENTATIVE IMMEDIATELY.
53. EXCAVATION SUPPORT SYSTEMS SHALL CONFORM TO THE PROVISIONS OF OSHA CONSTRUCTION STANDARD 29 CFR PART 1926 SUBPART P, OR CURRENT EDITION.
54. AT LOCATIONS WHERE THE FINAL SURFACE COURSE OF ASPHALT PAVEMENT IS TO BE FEATHERED INTO THE EXISTING SURFACE COURSE, THE EXISTING SURFACE COURSE IS TO BE SCABBLED TO A MINIMUM DEPTH OF 1" AND A TACK COAT APPLIED PRIOR TO FINAL PAVING TO INSURE A SMOOTH, WELL BONDED JOINT.
55. ANY NEW PAVEMENT OPENED TO TRAFFIC SHALL RECEIVE A TACK COAT PRIOR TO PLACEMENT OF ANY OVERLYING ASPHALT COURSE.
56. ALL SIDEWALKS TO BE 4" THICK CONCRETE UNLESS OTHERWISE SHOWN ON THE PLAN.
57. ALL DEMOLITION SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE APPROPRIATE GOVERNING AGENCY.
58. ALL APPLICABLE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO COMMENCING DEMOLITION.
59. ITEMS SHOWN TO BE RELOCATED SHALL BE CAREFULLY REMOVED AND STORED BY THE CONTRACTOR UNTIL SUCH TIME AS THEY CAN BE PLACED IN THEIR NEW LOCATION. CONTRACTOR SHALL VERIFY THESE ITEMS WITH THE OWNER, PRIOR TO CONSTRUCTION.
60. CONTRACTOR SHALL COORDINATE REMOVAL OR RELOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD ELECTRICAL, TELEPHONE AND CABLE TV LINES AND REMOVAL OF UTILITY POLES, PEDESTALS AND TRANSFORMERS WITH UTILITY COMPANIES AND WITH DEVELOPER PRIOR TO DEMOLITION.
61. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTMENTS AND/OR RECONSTRUCTION OF ALL UTILITY COVER (MANHOLE FRAMES AND COVERS, VALVE BOX COVERS, ETC.) TO MATCH THE FINISHED GRADES OF THE AREAS EFFECTED BY THE CONSTRUCTION.
62. THE CONTRACTOR MUST HAVE THE APPROVED CONSTRUCTION DRAWINGS IN POSSESSION PRIOR TO THE START OF CONSTRUCTION. AT LEAST ONE (1) COPY OF THE APPROVED PLANS, WITH REVISIONS, MUST BE KEPT ON-SITE AT ALL TIMES.
63. ALL HANDICAP RAMPS SHALL BE BUILT IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE APPROPRIATE GOVERNING AGENCY STANDARDS, NCDOT STANDARDS, AND CURRENT ADA REQUIREMENTS.
64. THE STORM DRAIN, STORMWATER MANAGEMENT AND WATER QUALITY FACILITIES MUST BE MAINTAINED BY THE CONTRACTOR UNTIL SUCH TIME AS THEY ARE NOT ONLY 100% COMPLETE, BUT ALSO THAT 100% OF THE DRAINAGE AREA TO EACH FACILITY IS PERMANENTLY STABILIZED. SEED AND MULCH DOES NOT CONSTITUTE STABILIZATION IN TERMS OF THE CONTRACTOR MAINTENANCE OF THE STORM DRAIN, STORMWATER MANAGEMEN

DEMOLITION NOTES:

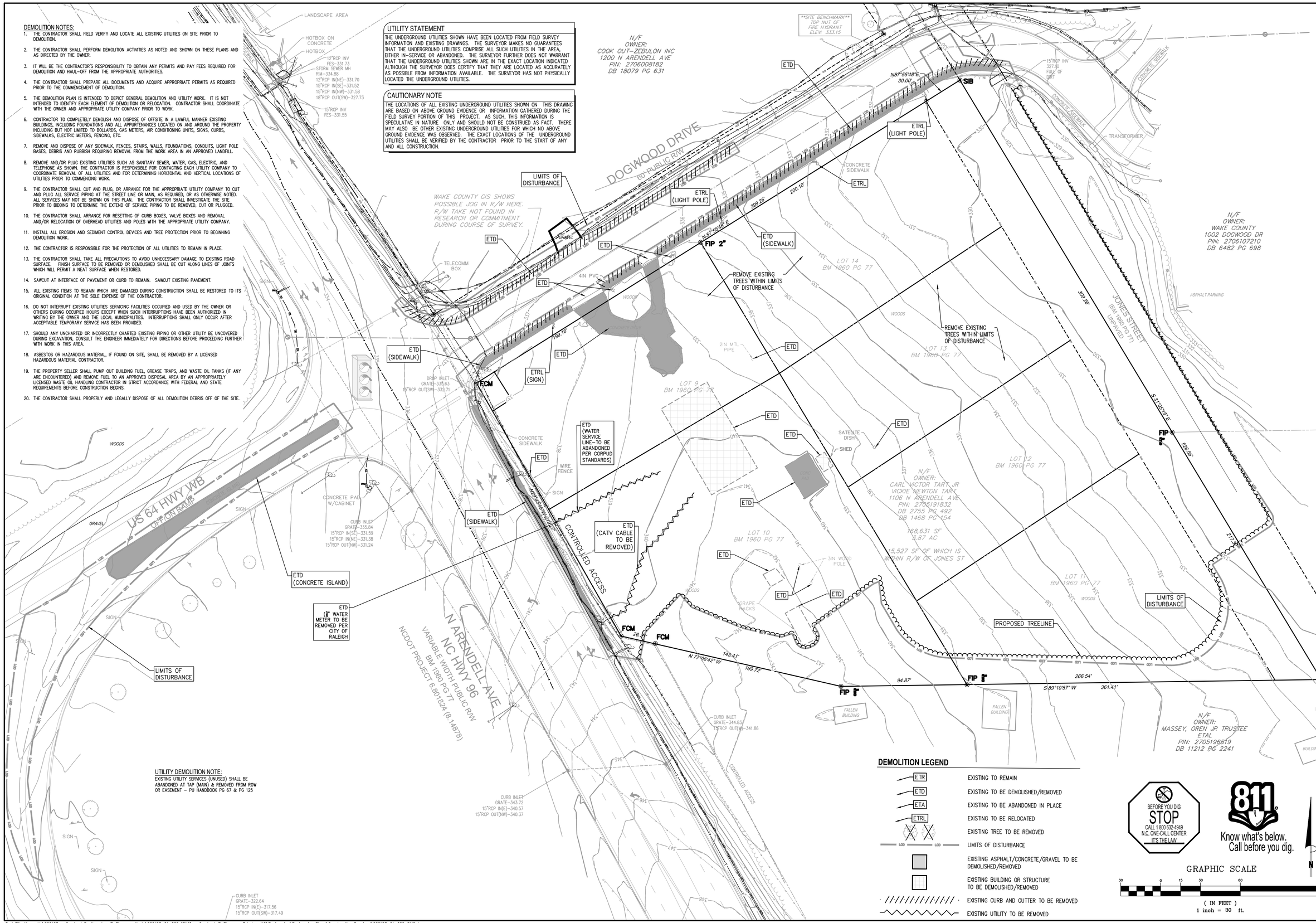
1. THE CONTRACTOR SHALL FIELD VERIFY AND LOCATE ALL EXISTING UTILITIES ON SITE PRIOR TO DEMOLITION.
2. THE CONTRACTOR SHALL PERFORM DEMOLITION ACTIVITIES AS NOTED AND SHOWN ON THESE PLANS AND AS DIRECTED BY THE OWNER.
3. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ANY PERMITS AND PAY FEES REQUIRED FOR DEMOLITION AND HAUL-OFF FROM THE APPROPRIATE AUTHORITIES.
4. THE CONTRACTOR SHALL PREPARE ALL DOCUMENTS AND ACQUIRE APPROPRIATE PERMITS AS REQUIRED PRIOR TO THE COMMENCEMENT OF DEMOLITION.
5. THE DEMOLITION PLAN IS INTENDED TO DEPICT GENERAL DEMOLITION AND UTILITY WORK. IT IS NOT INTENDED TO IDENTIFY EACH ELEMENT OF DEMOLITION OR RELOCATION. CONTRACTOR SHALL COORDINATE WITH THE OWNER AND APPROPRIATE UTILITY COMPANY PRIOR TO WORK.
6. CONTRACTOR TO COMPLETELY DEMOLISH AND DISPOSE OF OFFSITE IN A LAWFUL MANNER EXISTING BUILDINGS, INCLUDING FOUNDATIONS AND ALL APPURTENANCES LOCATED ON AND AROUND THE PROPERTY INCLUDING BUT NOT LIMITED TO BOLLARDS, GAS METERS, AIR CONDITIONING UNITS, SIGNS, CURBS, SIDEWALKS, ELECTRIC METERS, FENCING, ETC.
7. REMOVE AND DISPOSE OF ANY SIDEWALK, FENCES, STAIRS, WALLS, FOUNDATIONS, CONDUITS, LIGHT POLE BASES, DEBRIS AND RUBBISH REQUIRING REMOVAL FROM THE WORK AREA IN AN APPROVED LANDFILL.
8. REMOVE AND/OR PLUG EXISTING UTILITIES SUCH AS SANITARY SEWER, WATER, GAS, ELECTRIC, AND TELEPHONE AS SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING EACH UTILITY COMPANY TO COORDINATE REMOVAL OF ALL UTILITIES AND FOR DETERMINING HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES PRIOR TO COMMENCING WORK.
9. THE CONTRACTOR SHALL CUT AND PLUG, OR ARRANGE FOR THE APPROPRIATE UTILITY COMPANY TO CUT AND PLUG ALL SERVICE PIPING AT THE STREET LINE OR MAIN, AS REQUIRED, OR AS OTHERWISE NOTED. ALL SERVICES MAY NOT BE SHOWN ON THIS PLAN. THE CONTRACTOR SHALL INVESTIGATE THE SITE PRIOR TO BIDDING TO DETERMINE THE EXTEND OF SERVICE PIPING TO BE REMOVED, CUT OR PLUGGED.
10. THE CONTRACTOR SHALL ARRANGE FOR RESETTING OF CURB BOXES, VALVE BOXES AND REMOVAL AND/OR RELOCATION OF OVERHEAD UTILITIES AND POLES WITH THE APPROPRIATE UTILITY COMPANY.
11. INSTALL ALL EROSION AND SEDIMENT CONTROL DEVICES AND TREE PROTECTION PRIOR TO BEGINNING DEMOLITION WORK.
12. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES TO REMAIN IN PLACE.
13. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO AVOID UNNECESSARY DAMAGE TO EXISTING ROAD SURFACE. FINISH SURFACE TO BE REMOVED OR DEMOLISHED SHALL BE CUT ALONG LINES OF JOINTS WHICH WILL PERMIT A NEAT SURFACE WHEN RESTORED.
14. SAWCUT AT INTERFACE OF PAVEMENT OR CURB TO REMAIN. SAWCUT EXISTING PAVEMENT.
15. ALL EXISTING ITEMS TO REMAIN WHICH ARE DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE SOLE EXPENSE OF THE CONTRACTOR.
16. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER AND THE LOCAL MUNICIPALITIES. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.
17. SHOULD ANY UNCHARTED OR INCORRECTLY CHARTED EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE ENGINEER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.
18. ASBESTOS OR HAZARDOUS MATERIAL, IF FOUND ON SITE, SHALL BE REMOVED BY A LICENSED HAZARDOUS MATERIAL CONTRACTOR.
19. THE PROPERTY SELLER SHALL PUMP OUT BUILDING FUEL, GREASE TRAPS, AND WASTE OIL TANKS (IF ANY ARE ENCOUNTERED) AND REMOVE FUEL TO AN APPROVED DISPOSAL AREA BY AN APPROPRIATELY LICENSED WASTE OIL HANDLING CONTRACTOR IN STRICT ACCORDANCE WITH FEDERAL AND STATE REQUIREMENTS BEFORE CONSTRUCTION BEGINS.
20. THE CONTRACTOR SHALL PROPERLY AND LEGALLY DISPOSE OF ALL DEMOLITION DEBRIS OFF OF THE SITE.

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

CAUTIONARY NOTE

THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS DRAWING ARE BASED ON ABOVE GROUND EVIDENCE OR INFORMATION GATHERED DURING THE FIELD SURVEY PORTION OF THIS PROJECT. AS SUCH, THIS INFORMATION IS SPECULATIVE IN NATURE ONLY AND SHOULD NOT BE CONSTRUED AS FACT. THERE MAY ALSO BE OTHER EXISTING UNDERGROUND UTILITIES FOR WHICH NO ABOVE GROUND EVIDENCE WAS OBSERVED. THE EXACT LOCATIONS OF THE UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF ANY AND ALL CONSTRUCTION.



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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24424 MATTHEW E. LAWYER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	2/5/23	TOWN OF ZEBULON REVIEW
3	MCB	2/27/23	WAKE COUNTY REVIEW
4	BRM/MCB	11/8/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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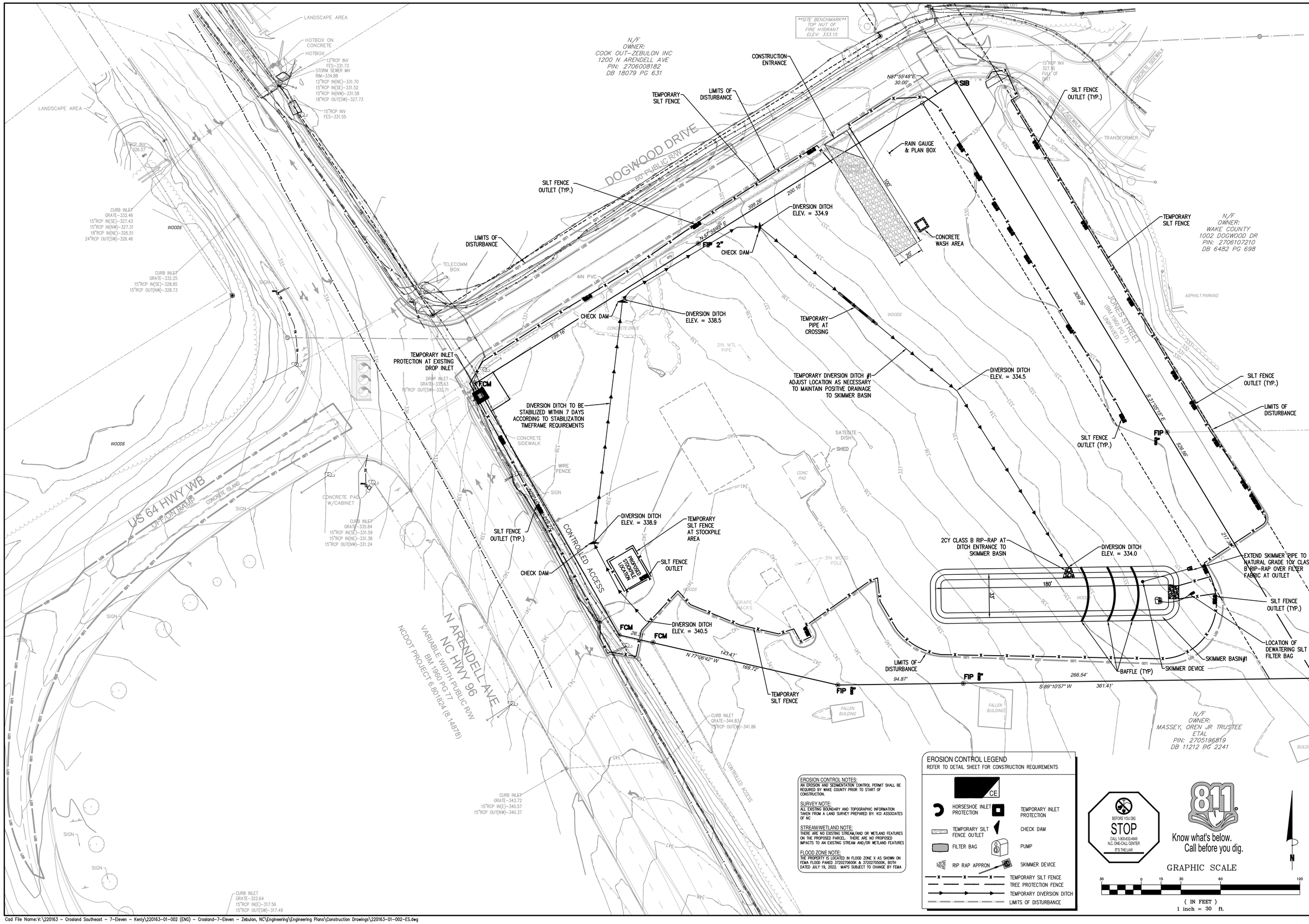
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RV/WR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
DEMOLITION PLAN

DRWG. NO. C2.0



EROSION CONTROL NOTES:
AN EROSION AND SEDIMENTATION CONTROL PERMIT SHALL BE REQUIRED BY WAKE COUNTY PRIOR TO START OF CONSTRUCTION.

SURVEY NOTE:
ALL EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION TAKEN FROM A LAND SURVEY PREPARED BY: KCI ASSOCIATES OF NC

STREAM/WETLAND NOTE:
THERE ARE NO EXISTING STREAM/AND OR WETLAND FEATURES ON THE PROPOSED PARCEL. THERE ARE NO PROPOSED IMPACTS TO AN EXISTING STREAM AND/OR WETLAND FEATURES

FLOOD ZONE NOTE:
THE PROPERTY IS LOCATED IN FLOOD ZONE X AS SHOWN ON FEMA FLOOD PANEL: 3720270600K & 3720270500K, BOTH DATED JULY 19, 2022. MAPS SUBJECT TO CHANGE BY FEMA

EROSION CONTROL LEGEND
REFER TO DETAIL SHEET FOR CONSTRUCTION REQUIREMENTS

- CE
- HORSESHOE INLET PROTECTION
- TEMPORARY INLET PROTECTION
- TEMPORARY SILT FENCE OUTLET
- CHECK DAM
- FILTER BAG
- PUMP
- RIP RAP APPRON
- SKIMMER DEVICE
- TEMPORARY SILT FENCE
- TREE PROTECTION FENCE
- TEMPORARY DIVERSION DITCH
- LIMITS OF DISTURBANCE

BEFORE YOU DIG
STOP
CALL 1-800-632-4949
N.C. ONE-CALL CENTER
IT'S THE LAW

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

N

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

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4006 BARRETT DR
Suite 104
RALEIGH, NC 27609
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24424 MATTHEW E. LAWYER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY:	DATE:	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW
3	MCB	1/21/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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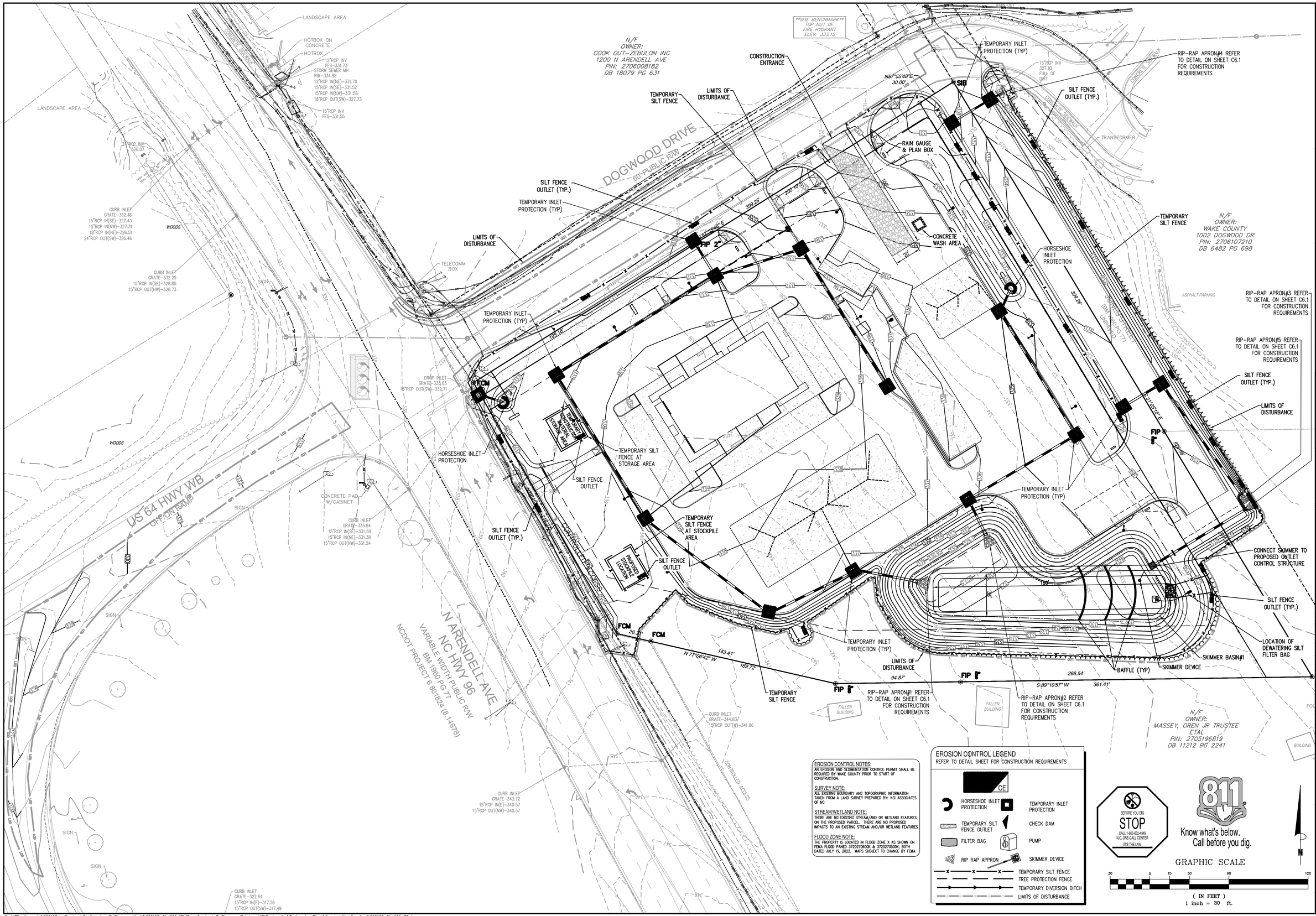
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
EROSION CONTROL PLAN - INITIAL

DRWG. NO. C2.1

Cad File Name:V:\220163 - Crosland Southeast - 7-Eleven - Kenly\220163-01-002 (ENG) - Crosland-7-Eleven - Zebulon, NC\Engineering\Engineering Plans\Construction Drawings\220163-01-002-ES.dwg



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Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY:	DATE:	REVISIONS DESCRIPTION
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5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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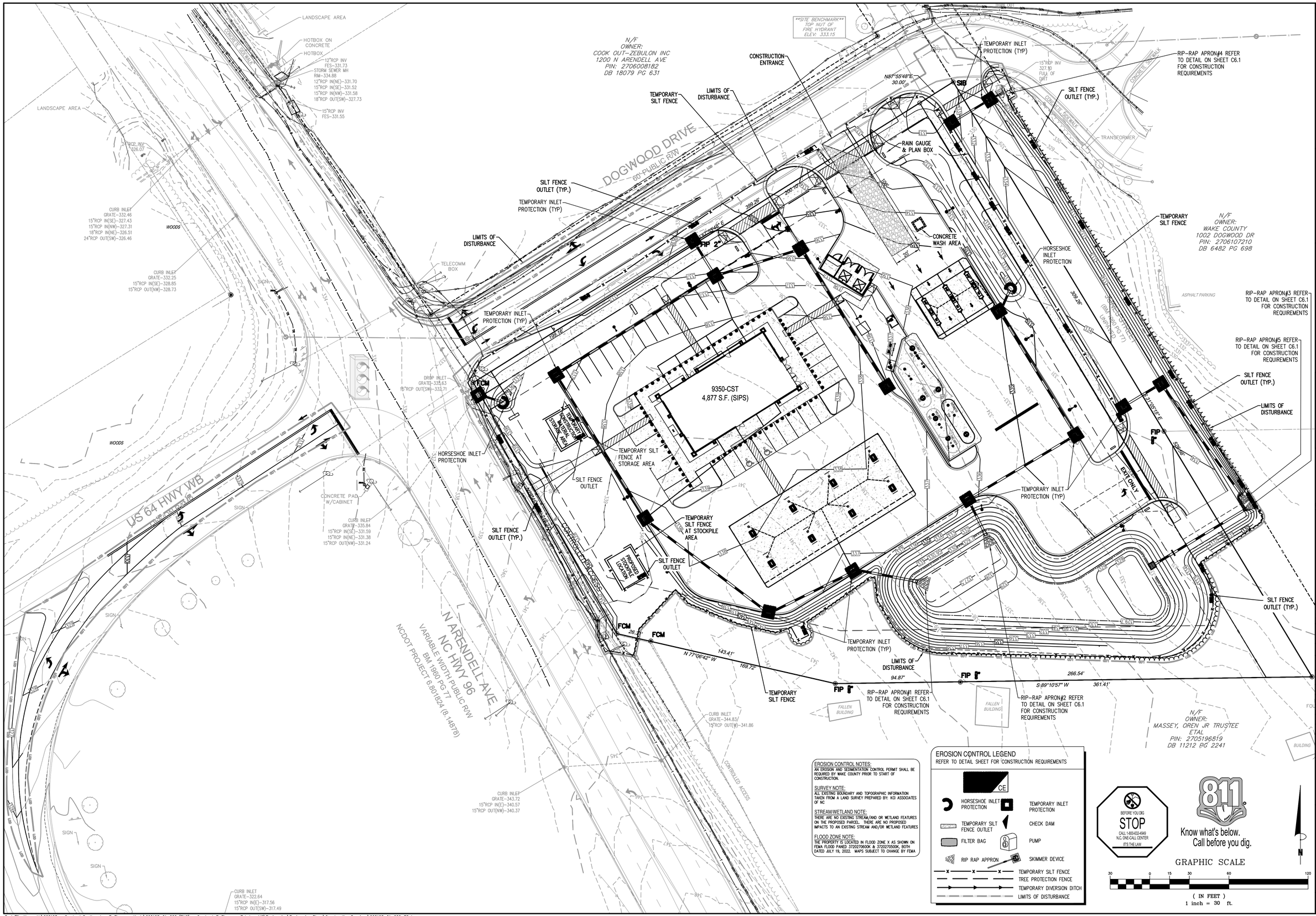
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM/DP. ML
RV/WR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
EROSION CONTROL PLAN - INTERMEDIATE

DRWG. NO. C2.2

Cad File Name:V:\220163 - Crosland Southeast - 7-Eleven - Kenly\220163-01-002 (ENG) - Crosland-7-Eleven - Zebulon, NC\Engineering\Engineering Plans\Construction Drawings\220163-01-002-ES.dwg



EROSION CONTROL NOTES:
AN EROSION AND SEDIMENTATION CONTROL PERMIT SHALL BE REQUIRED BY WAKE COUNTY PRIOR TO START OF CONSTRUCTION.

SURVEY NOTE:
ALL EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION TAKEN FROM A LAND SURVEY PREPARED BY: KCI ASSOCIATES OF NC

STREAM/WETLAND NOTE:
THERE ARE NO EXISTING STREAM/AND OR WETLAND FEATURES ON THE PROPOSED PARCEL. THERE ARE NO PROPOSED IMPACTS TO AN EXISTING STREAM AND/OR WETLAND FEATURES

FLOOD ZONE NOTE:
THE PROPERTY IS LOCATED IN FLOOD ZONE X AS SHOWN ON FEMA FLOOD PANEL 3720270600K & 3720270500K, BOTH DATED JULY 19, 2022. MAPS SUBJECT TO CHANGE BY FEMA

EROSION CONTROL LEGEND
REFER TO DETAIL SHEET FOR CONSTRUCTION REQUIREMENTS

- CE
- HORSESHOE INLET PROTECTION
- TEMPORARY INLET PROTECTION
- TEMPORARY SILT FENCE OUTLET
- CHECK DAM
- FILTER BAG
- PUMP
- RIP RAP APPRON
- SKIMMER DEVICE
- TEMPORARY SILT FENCE
- TREE PROTECTION FENCE
- TEMPORARY DIVERSION DITCH
- LIMITS OF DISTURBANCE

BEFORE YOU DIG
STOP
CALL 1-800-632-4949
N.C. ONE-CALL CENTER
IT'S THE LAW

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

N

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24424 MATTHEW E. LOWER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY:	DATE:	REVISIONS DESCRIPTION
1	BRM	01/22/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	2/25/23	TOWN OF ZEBULON REVIEW
3	MCB	5/22/23	WAKE COUNTY REVIEW
4	BRM/MCB	11/8/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
EROSION CONTROL PLAN - FINAL

DRWG. NO. C2.3

Cad File Name:V:\220163 - Crosland Southeast - 7-Eleven - Kenly\220163-01-002 (ENG) - Crosland-7-Eleven - Zebulon, NC\Engineering\Engineering Plans\Construction Drawings\220163-01-002-ES.dwg

EROSION CONTROL NOTES

- REFER TO GENERAL NOTES SHEET FOR ADDITIONAL EROSION CONTROL REQUIREMENTS.
- REFER TO DETAIL SHEETS FOR CONSTRUCTION DETAILS OF THE PROPOSED EROSION CONTROL MEASURES TO BE USED IN THE DEVELOPMENT OF THIS SITE.
- REFER TO DETAIL SHEETS FOR TEMPORARY AND PERMANENT SEEDING SCHEDULES FOR PROVIDING GROUND COVER THE FOR THE DEVELOPMENT.

BASIN NOTES:

SKIMMER BASIN DESIGN BASED ON 3 DAYS TO DRAIN.

BASIN AND DIVERSIONS SHALL BE SEEDED, MULCHED AND ANCHORED/LINED AND PINNED UPON INSTALLATION OF MEASURES.

NOTE TO CONTRACTOR:

EROSION CONTROL MEASURES TO BE INSTALLED PRIOR TO THE BEGINNING OF DEMOLITION & TREE REMOVAL

NOTE TO CONTRACTOR:

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND THE EROSION CONTROL INSPECTOR OF THE LOCATION OF ANY OFF-SITE BORROW SOURCE OR OFF-SITE WASTE MATERIAL DISPOSAL SITE. OFF-SITE DISTURBANCES COUNT TOWARDS THE OVERALL PROJECT DISTURBED AREA AND MUST BE COVERED BY THE PERMIT FOR THIS PROJECT AND/OR THE PERMIT FROM ANOTHER ACTIVE NCDEQ PERMITTED SITE THAT IS APPROPRIATE FOR THE INTENDED USE (I.E. APPLICABLE MINING REQUIREMENTS). NO OFF-SITE ACTIVITIES SHALL OCCUR UNTIL THE PERMIT FOR THIS PROJECT HAS BEEN MODIFIED TO INCLUDE THE AFFECTED AREAS OR IT HAS BEEN VERIFIED WITH THE EROSION CONTROL INSPECTOR THAT THE OFF-SITE AREAS ARE COVERED UNDER ACTIVE APPLICABLE NCDEQ PERMITS.

EROSION CONTROL NOTES:

1. TOTAL AREA DISTURBED = 4.30 ACRES
   TOTAL SITE AREA = 3.40 ACRES
   SOIL TYPE = WEDOWEE SANDY LOAM & URBAN LAND
2. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NCDEQ EROSION AND SEDIMENT CONTROL HANDBOOK
3. THE CONTRACTOR SHALL INSTALL AND MAINTAIN THROUGHOUT THE PROJECT CONSTRUCTION ALL EROSION CONTROL MEASURES SHOWN WITHIN THESE PLANS IN ACCORDANCE WITH APPLICABLE NORTH CAROLINA EROSION AND SEDIMENT CONTROL REGULATIONS.
4. CONSTRUCTION WORK SHALL BE IN COMPLIANCE WITH REGULATIONS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER GENERAL PERMIT.
5. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO CLEARING AND/OR LAND DISTURBANCE.
6. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND PERMIT SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
7. THE CONTRACTOR SHALL DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL DEVICES AND STRUCTURES TO MINIMIZE EROSION. THE CONTRACTOR SHALL MAINTAIN CLOSE CONTACT WITH THE NCDEQ EROSION CONTROL INSPECTOR SO THAT PERIODIC INSPECTIONS CAN BE PERFORMED AT APPROPRIATE STAGES OF CONSTRUCTION.
8. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS. A REVISED PLAN SHOWING OFF-SITE IMPACTS SHOULD BE SUBMITTED AND APPROVED PRIOR TO ANY OFF-SITE GRADING. CONTACT PROJECT ENGINEER AND PROJECT EROSION CONTROL INSPECTOR TO ENSURE ADDITIONAL EROSION CONTROL MEASURES ARE INSTALLED PRIOR TO OFF-SITE GRADING.
9. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO OFF-SITE BORROW OR WASTE AREAS, STAGING OR STORAGE AREAS), THE CONTRACTOR SHALL PREPARE AND SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND TO NCDEQ FOR APPROVAL. CONTRACTOR SHALL PAY ALL FEES REQUIRED AND SHALL INSTALL NECESSARY MEASURES AT NO SEPARATE PAYMENT. THE CONTRACTOR SHALL PROVIDE THE OWNER AND THE ENGINEER A COPY OF THE AMENDED PERMIT.
10. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED CONTINUOUSLY, RELOCATED WHEN AND AS NECESSARY, AND SHALL BE CHECKED AFTER EVERY RAINFALL. SEEDED AREAS SHALL BE CHECKED REGULARLY AND SHALL BE WATERED, FERTILIZED, RE-EEDED AND MULCHED AS NECESSARY TO OBTAIN A DENSE STAND OF GRASS.
11. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. ALL DISTURBED AREAS WHICH ARE NOT OTHERWISE STABILIZED SHALL BE TOP SOILED AND SEEDED, TEMPORARILY OR PERMANENTLY IN ACCORDANCE WITH THE NCDEQ SEDIMENT CONTROL REGULATIONS. PERMANENT SEEDING AND GRASS ESTABLISHMENT IS REQUIRED PRIOR TO PROJECT COMPLETION AND ACCEPTANCE.
12. WHEN A CRUSHED STONE CONSTRUCTION ENTRANCE HAS BEEN COVERED WITH SOIL OR HAS BEEN PUSHED INTO THE SOIL BY CONSTRUCTION TRAFFIC, IT SHALL BE REPLACED WITH A DEPTH OF STONE EQUAL TO THAT OF THE ORIGINAL APPLICATION.
13. TEMPORARY GRAVEL CONSTRUCTION ENTRANCE SHALL BE REQUIRED AT ALL CONSTRUCTION STAGING AREA ENTRANCES AND ALL CONSTRUCTION ACCESS LOCATIONS INTO NON-PAVED AREA. SIX INCHES OF STONE SHALL BE USED FOR THE TEMPORARY GRAVEL CONSTRUCTION ENTRANCE.
14. ALL DRAINAGE INLETS SHALL BE PROTECTED FROM SILTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE IMMEDIATELY REPLACED AND THE INLET CLEANED. FLUSHING IS NOT AN ACCEPTABLE METHOD OF CLEANING.
15. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UP-SLOPE LAND DISTURBANCE TAKES PLACE.
16. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS COMPLETED.
17. DURING DE-WATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE PRIOR TO DISCHARGE TO RECEIVING OUTLET.
18. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

EROSION CONTROL NARRATIVE:

7-ELEVEN, TOWN OF ZEBULON, WAKE COUNTY, NC

CONTRACTOR WILL FIRST INSTALL THE CONSTRUCTION ENTRANCE. THE CONTRACTOR SHALL THEN MOBILIZE ON SITE AND INSTALL THE TEMPORARY EROSION CONTROL DEVICES INCLUDING SILT FENCE, INLET PROTECTION, SKIMMER BASINS, AND OTHER DEVICES IN ACCORDANCE WITH THE PLANS (CLEARING ONLY AS NECESSARY TO INSTALL THESE ITEMS). BEGIN DEMOLITION, CLEARING AND SITE GRADING OPERATIONS. STABILIZATION OF EARTHEN STRUCTURES IS REQUIRED IMMEDIATELY AFTER INSTALLATION. THE ON-SITE STORM SEWER SYSTEM CAN NOW BE INSTALLED. IMMEDIATELY AFTER AN INLET IS INSTALLED, INLET PROTECTION SHALL BE PROPERLY INSTALLED ON THE STRUCTURE. THE ON-SITE SANITARY SEWER AND WATER SYSTEMS MAY ALSO BE INSTALLED ONCE THE SITE IS BROUGHT UP TO GRADE. THE SITE PAD WILL BE PREPARED FOR THE PROPOSED BUILDING. THE ROUGH GRADE WILL THEN BE ESTABLISHED FOR THE SITE. INSTALLATION OF CURB AND GUTTER WILL THEN BE PERFORMED. BASE STONE WILL THEN BE PLACED AND FINE GRADED. ALL DISTURBED AREAS WILL BE DRESSED AND SEEDED. REMOVE ALL INLET PROTECTION FROM STORM STRUCTURES WHEN PAVING IS TO BEGIN. PAVING AND STRIPING WILL THEN BE COMPLETED. FINALIZE STORMWATER WETLAND STRUCTURE AND DISCHARGE PIPES ONCE UPSTREAM AREAS HAVE BEEN STABILIZED (REMOVE ACCUMULATED SEDIMENT). ALL LANDSCAPING WILL BE COMPLETED. THE ON-SITE STORM SEWER SYSTEM SHALL BE CLEANED OF ANY ACCUMULATED SEDIMENT WHICH SHALL BE DISPOSED OF IN A LAWFUL MANNER. ALL ACCUMULATED SEDIMENT BEHIND SILT FENCE AND OTHER SEDIMENT DEVICES SHALL BE REMOVED AND DISPOSED OF IN A LAWFUL MANNER. ACCORDING TO THE GROUND STABILIZATION REQUIREMENTS ON THIS SHEET, REMOVE ALL REMAINING SEDIMENT CONTROL MEASURES FROM THE SITE. CONTRACTOR SHALL MINIMIZE THE LENGTH OF TIME BETWEEN INITIAL LAND DISTURBANCE AND FINAL VEGETATION STABILIZATION OF THE SITE.

THE PROPOSED EROSION AND SEDIMENT CONTROL MEASURES ARE INTENDED TO TRAP ANY STORMWATER RUNOFF FROM THE CONSTRUCTION SITE AND DETAIN IT LONG ENOUGH FOR SEDIMENT AND POLLUTANTS TO SETTLE OUT OF THE STORMWATER BEFORE DISCHARGE. VARIOUS EROSION CONTROL MEASURES ARE USED TO PREVENT POLLUTANT-LADEN STORMWATER RUNOFF FROM FLOWING ONTO ADJACENT PROPERTIES.

GENERAL NOTES:

1. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL INSPECTIONS, CERTIFICATIONS, EQUIPMENT, ETC. THAT MAY BE REQUIRED.
2. THE CONTRACTOR SHALL NOTE THAT THE DRAWINGS ARE SCHEMATIC IN NATURE AND DO NOT SHOW EVERY OFFSET, TRANSITION, FITTING, ETC. THAT MAY BE REQUIRED FOR A COMPLETE AND WORKING SYSTEM.
3. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.
4. CONTRACTOR SHALL MAINTAIN AN "AS BUILT" SET OF DRAWINGS TO RECORD THE EXACT LOCATION OF ALL PIPING PRIOR TO CONCEALMENT. DRAWINGS SHALL BE GIVEN TO THE ENGINEER UPON COMPLETION OF THE PROJECT WITH A COPY OF THE TRANSMITTAL LETTER TO THE OWNER.
5. IF DEPARTURES FROM THE SPECIFICATIONS OR DRAWINGS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREOF SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. NO DEPARTURES FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE WRITTEN PERMISSION OF THE OWNER.
6. THE CONTRACTOR MUST, AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS OR RUBBISH CAUSED BY HIM, HIS EMPLOYEES OR HIS WORK. ALL DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE ON A DAILY BASIS.

STOCKPILE DESIGN CRITERIA:

1. A 25-FOOT TEMPORARY MAINTENANCE AND ACCESS EASEMENT SHALL BE SHOWN AROUND ALL PROPOSED STOCKPILES (EROSION CONTROL MEASURES SURROUNDING THE STOCKPILE SHALL BE SHOWN AT THE OUTER LIMIT OF THIS EASEMENT).
2. STOCKPILE FOOTPRINTS SHALL BE SETBACK A MINIMUM OF 25' FROM ADJACENT PROPERTY LINES.
3. STOCKPILE HEIGHT SHALL NOT EXCEED 35-FEET.
4. STOCKPILE SLOPES SHALL BE 2:1 OR FLATTER.
5. APPROVED BMP'S SHALL BE SHOWN ON A PLAN TO CONTROL ANY POTENTIAL SEDIMENT LOSS FROM A STOCKPILE.
6. STOCKPILING MATERIALS ADJACENT TO A DITCH, DRAINAGEWAY, WATERCOURSE, WETLAND, STREAM BUFFER, OR OTHER BODY OF WATER SHALL BE AVOIDED UNLESS AN ALTERNATIVE LOCATION IS DEMONSTRATED TO BE UNAVAILABLE.
7. ANY CONCENTRATED FLOW LIKELY TO AFFECT THE STOCKPILE SHALL BE DIVERTED TO AN APPROVED BMP.
8. OFF-SITE SPOIL OR BORROW AREAS MUST BE IN COMPLIANCE WITH WAKE COUNTY UDO AND STATE REGULATIONS. ALL SPOIL AREAS OVER AN ACRE ARE REQUIRED TO HAVE AN APPROVED SEDIMENT CONTROL PLAN. DEVELOPER/CONTRACTOR SHALL NOTIFY WAKE COUNTY OF ANY OFFSITE DISPOSAL OF SOIL, PRIOR TO DISPOSAL. FILL OF FEMA FLOODWAYS AND NON-ENCROACHMENT AREAS ARE PROHIBITED EXCEPT AS OTHERWISE PROVIDED BY SUBSECTION 14-19-2 OF THE WAKE COUNTY UNIFIED DEVELOPMENT ORDINANCE (CERTIFICATIONS AND PERMITS REQUIRED).

STOCKPILE MAINTENANCE REQUIREMENTS:

1. SEEDING OR COVERING STOCKPILES WITH TARPS OR MULCH IS REQUIRED AND WILL REDUCE EROSION PROBLEMS. TARPS SHOULD BE KEYED IN AT THE TOP OF THE SLOPE TO KEEP WATER FROM RUNNING UNDERNEATH THE PLASTIC.
2. IF A STOCKPILE IS TO REMAIN FOR FUTURE USE AFTER THE PROJECT IS COMPLETE (BUILDERS, ETC.), THE FINANCIAL RESPONSIBLE PARTY MUST NOTIFY WAKE COUNTY OF A NEW RESPONSIBLE PARTY FOR THAT STOCKPILE.
3. THE APPROVED PLAN SHALL PROVIDE FOR THE USE OF STAGED SEEDING AND MULCHING ON A CONTINUAL BASIS WHILE THE STOCKPILE IS IN USE.
4. ESTABLISH AND MAINTAIN A VEGETATIVE BUFFER AT THE TOE OF THE SLOPE (WHERE PRACTICAL).

Required Wake County Basin Removal Sequence

1. **Schedule a site meeting with the Environmental Consultant to determine if a basin can be removed. Install silt fencing or other temporary erosion control measures as needed prior to removal of the basin.**
2. **Contact NCDEQ – Raleigh Regional Office (919) 791-4200 to determine the Division of Energy, Mineral and Land Resources contact person to receive dewatering notifications. *At least 10 days prior to beginning dewatering activity*, send Email to NCDEQ-DEMLR contact person and copy Environmental Consultant that met you onsite. The email should include: E&SC Jurisdiction: Wake County, Wake County Project: Name, Number, and Location (city/town), Environmental Consultant Name, and address the following: a)Reason for conversion, b)Basin #, c)Dewatering method, and d) all other necessary info from Part II, Section G, Item 4 of the NCG01. (keep email for your NPDES monitoring documentation)**
3. **After receiving positive confirmation from NCDEQ-DEMLR that you may remove the basin OR on ≥ Day 11, whichever is sooner. Remove Basin(s) and associated temporary diversion ditches. If pipes need to be extended, perform this operation at this time. Fine grade area in preparation for seeding.**
4. **Perform seedbed preparation, seed, mulch and anchor any resulting bare areas immediately.**
5. **Install velocity dissipators and/or level spreaders as required on the Erosion Control Plan.**
6. **When site is fully stabilized, call Environmental Consultant for approval of removing remaining temporary erosion control measures and advice on when site can be issued a Certificate of Completion. Note: A meeting should also be scheduled with the Environmental Consultant to determine when a basin may be converted for stormwater use. Some municipalities may also require this.**

SEDIMENT & EROSION CONTROL NOTES:

1. THE EROSION AND SEDIMENTATION CONTROL MEASURES (BMPS) WERE DESIGNED USING THE NORTH CAROLINA NCDEQ REQUIREMENTS AND SHALL BE INSTALLED ACCORDINGLY. CONTRACTOR SHALL PERFORM ALL ACTIVITIES IN STRICT COMPLIANCE WITH THE NORTH CAROLINA NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES (GENERAL PERMIT).
2. REFER TO THE EROSION AND SEDIMENT CONTROL DETAIL SHEETS FOR EROSION CONTROL DETAILS AND DESIGN TABLES FOR SEDIMENT BASINS, DIVERSION DITCHES, AND CULVERTS, SLOPE DRAINS, RIP-RAP APRONS AND OTHER EROSION CONTROL MEASURES.
3. EXISTING BOUNDARIES, TOPOGRAPHY, 100-YR FLOODPLAIN, UTILITY AND ROAD INFORMATION TAKEN FROM AN EXISTING CONDITIONS SURVEY. ALL EXISTING INFORMATION IS TO BE FIELD VERIFIED BY THE CONTRACTOR.
4. SEE THE LANDSCAPE PLAN FOR LOCATIONS OF PROPOSED PLANTINGS AND FINAL STABILIZATION.
5. TEMPORARY DIVERSION DITCHES AND BERMS SHALL BE MAINTAINED AS THE SITE IS BROUGHT TO GRADE.
6. DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL DEVICES AND STRUCTURES TO MINIMIZE EROSION. THE CONTRACTOR SHALL MAINTAIN CLOSE CONTACT WITH THE EROSION CONTROL INSPECTORS SO THAT PERIODIC INSPECTIONS CAN BE PERFORMED AT APPROPRIATE STAGES OF CONSTRUCTION.
7. SEE THE GENERAL NOTES SHEET AND THE GRADING AND DRAINAGE PLAN FOR OTHER NOTES REGARDING GRADING ACTIVITIES.
8. SEE SITE PLAN, GRADING AND DRAINAGE PLAN, UTILITY PLAN, PLANTING PLAN AND OTHER PLAN SHEETS FOR DETAILED DESIGN INFORMATION OF PERMANENT SITE APPURTENANCES SHOWN ON THIS SHEET.
9. WHERE THE LIMITS OF DISTURBANCE AND TEMPORARY FENCE (SF, SF-PF, OR PF) LIMITS ARE ADJACENT, THE TEMPORARY FENCE LINE IS THE LIMITS OF DISTURBANCE. THE LINE TYPES ARE SHOWN SEPARATED FOR ILLUSTRATIVE PURPOSES ONLY.
10. CONTRACTOR SHALL NOT DISTURB ANY EXISTING VEGETATIVE GROUND COVER OR TREES OUTSIDE OF THE LIMITS OF DISTURBANCE OR WITHIN ANY REQUIRED BUFFER LIMITS UNLESS OTHERWISE NOTED OR ILLUSTRATED.
11. PROVIDE CONTROLS OF POLLUTANTS, INCLUDING, BUT NOT LIMITED TO DUST CONTROL, DE-WATERING, SOLID WASTE DISPOSAL, AND HAZARDOUS MATERIALS.
12. CLEAR ONLY AS REQUIRED TO INSTALL EROSION AND SEDIMENTATION CONTROL MEASURES. MASS CLEARING AND GRUBBING CAN BEGIN ONLY AFTER ALL DOWNSTREAM MEASURES HAVE BEEN INSTALLED.
13. USE ROCK OR WASHED STONE TO BRING CONSTRUCTION EXIT TO GRADE. IMPLEMENT WHEEL WASHES AS NECESSARY THROUGHOUT ALL PHASES OF CONSTRUCTION.
14. DIVERT STORM WATER RUNOFF OFF THE FACE OF THE SEDIMENT BASIN SLOPES USING DIVERSION DITCHES AND SLOPE DRAINS. CONTRACTOR SHALL MAINTAIN AND RELOCATE DIVERSION DITCHES AND SLOPES DRAINS TO ENSURE STORM WATER RUNOFF DOES NOT ERODE THE FACE OF FINAL SLOPES.
15. MAINTAIN POSITIVE FLOW TO THE SEDIMENT BASINS THROUGHOUT ALL PHASES OF CONSTRUCTION. PLACE EXCAVATED SOILS ALONG DOWNSTREAM EDGE OF THE DIVERSION DITCHES TO PROVIDE ADDITIONAL CAPACITY.
16. REFER TO THE GRADING AND DRAINAGE PLAN FOR FINAL SITE AND PAVEMENT GRADES AND ELEVATIONS OF THE PROPOSED STORM SEWER SYSTEMS.
17. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE APPROVED EROSION AND SEDIMENT CONTROL DRAWINGS DURING CONSTRUCTION OPERATIONS.
18. GENERAL CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
19. ALL WORK SHALL BE CONFINED TO PERMIT LIMITS SHOWN ON PLANS. UNLESS OTHERWISE NOTED, THE SITE PLAN PROPERTY LIMITS SHALL BE CONSIDERED THE PERMIT LIMITS.
20. SUFFICIENT EROSION CONTROL PRACTICES MUST BE INSTALLED AND MAINTAINED TO RETAIN SEDIMENT WITHIN THE BOUNDARIES OF THE SITE.
21. ADDITIONAL EROSION CONTROL MEASURES OR SILT BARRIERS TO BE PLACED AS SHOWN AND/OR DIRECTED BY THE PROJECT ENGINEER AND/OR LOCAL JURISDICTIONAL INSPECTOR.
22. FOR ALL CONSTRUCTION ALONG AND/OR ACROSS WATERWAYS, BANK PROTECTION AND STABILIZATION SHALL BE REQUIRED AS PER LOCAL JURISDICTIONAL EROSION CONTROL LAWS.
23. ALL TREE PROTECTION AND EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION AND SHALL BE MAINTAINED IN PROPER WORKING ORDER UNTIL ALL DISTURBED AREAS ARE STABILIZED AND GROUND COVER IS ESTABLISHED. CONSTRUCTION ENTRANCE PADS SHALL BE INSTALLED BY THE CONTRACTOR AT CONSTRUCTION ACCESS POINTS PRIOR TO LAND DISTURBANCE.
24. ALL EASEMENTS DISTURBED MUST BE DRESSED AND GRASSED TO CONTROL EROSION IN ACCORDANCE WITH EASEMENT PLATS PRIOR TO ACCEPTANCE.
25. CONSTRUCTION LIMITS SHALL NOT BE EXCEEDED WITHOUT THE APPROVAL OF NCDEQ INSPECTOR.

NORTH CAROLINA CONSTRUCTION GENERAL PERMIT NOTE:

As of April 1, 2019, all new construction activities are required to complete and submit an electronic Notice of Intent (NOI) form requesting a Certificate of Coverage (COC) under the NCG010000 Construction Stormwater General Permit. This form MUST be submitted prior to the commencement of any land disturbing activity on the above named project. The NOI form may be accessed at deq.nc.gov/NCG01. Please direct questions about the NOI form to **Paul Clark at Paul.clark@ncdenr.gov.**

After you submit a complete and correct NOI Form, a COC will be emailed to you within three business days. Initially, DEMLR will not charge a fee for coverage under the NCG01 permit. However, on or after May 1, 2019, a $100 fee will be charged annually. This fee is to be sent to the DEMLR Stormwater Central Office staff in Raleigh.

Title 15A NCAC 4B .0118(a) and the NCG01 permit require that the following documentation be kept on file at the job site:
1. The approved E&SC plan as well as any approved deviation.
2. The NCG01 permit and the COC, once it is received.
3. Records of inspections made during the previous 30 days.
4. The Certificate of Approval

NOTIFICATION OF COMBINED SELF-MONITORING AND SELF-INSPECTION FORM:

THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH PHASE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. RULES DETAILING THE DOCUMENTATION OF THESE INSPECTIONS TOOK EFFECT OCTOBER 1, 2010.

TO SIMPLIFY DOCUMENTATION OF SELF-INSPECTION REPORTS AND NPDES SELF-MONITORING REPORTS, DWQ AND DEMLR DEVELOPED A COMBINED FORM. THE SELF-INSPECTION PROGRAM IS SEPARATE FROM THE WEEKLY SELF-MONITORING PROGRAM OF THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES. THE FOCUS OF THE SELF-INSPECTION REPORT IS THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES ACCORDING TO THE APPROVED PLAN. THE INSPECTIONS SHOULD BE CONDUCTED AFTER EACH PHASE OF THE PROJECT, AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED. THE FORM CAN BE ACCESSED AT: HTTP://PORTAL.NCDENR.ORG/WEB/LR/EROSION

IF YOU HAVE QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CALL THE APPLICABLE NCDENR REGIONAL OFFICE: (RALEIGH: 919-791-4200) (FAYETTEVILLE: 910-433-3300) (WILMINGTON: 910-796-7215) (WASHINGTON: 252-946-6481) (WINSTON-SALEM: 336-771-5000) (MOORESVILLE: 704-663-1699) (ASHEVILLE: 828-296-4500).

TREE PROTECTION NOTES:

1. THE CONTRACTOR SHALL PROTECT ALL TREES AND SHRUBS OUTSIDE OF CUT/FILL LINES, IN ADDITION TO THOSE THAT RECEIVE TREE/SHRUB PROTECTION BARRIERS. THE CONTRACTOR IS ALSO REQUESTED TO SAVE ALL OTHER EXISTING TREES AND SHRUBS WHERE POSSIBLE.
2. WHEN ROOT PRUNING IS NECESSARY, CUT ROOTS CLEANLY USING A DISC TRENCHER AND IMMEDIATELY COVER ALL ROOT CUT SURFACES LARGER THAN TWO INCHES IN DIAMETER WITH TREE WOUND DRESSING. USE PLYWOOD FORMS WHEN TREE ROOTS ARE ADJACENT TO PROPOSED CURB & GUTTER OR SIDEWALK.
3. NO SOIL DISTURBANCE OR COMPACTION, CONSTRUCTION MATERIALS, TRAFFIC, BURIAL PITS, TRENCHING OR OTHER LAND DISTURBING ACTIVITY ALLOWED IN THE TREE PROTECTION ZONE. TREE BARRICADES MUST BE INSTALLED BEFORE ANY DEMOLITION, GRADING OR CONSTRUCTION BEGINS, AND NOT REMOVED UNTIL FINAL INSPECTION.
4. NO GRUBBING WITHIN TREE PROTECTION ZONE. LEAVE SOIL AND LEAF LITTER UNDISTURBED. SUPPLEMENT WITH 1-2 INCHES OF MULCH. RE-SEED WITH GRASS ONLY IN DISTURBED/GRADED AREAS.
5. TREE BARRICADES MUST BE INSTALLED BEFORE ANY DEMOLITION, CLEARING, GRADING OR CONSTRUCTION BEGINS AND IS NOT TO BE REMOVED UNTIL AFTER CONSTRUCTION.
6. TREE PROTECTION FENCE IS TO BE LOCATED 1 FOOT PER TREE DIAMETER INCH AWAY FROM THE TREE.

STABILIZATION TIMEFRAME

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
BASIN & TEMPORARY DIVERSION DITCHES	IMMEDIATELY	NONE
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50FT IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES

GROUND COVER REQUIREMENTS:

THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, ACCORDING TO THE FOLLOWING CHART, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PROVISIONS FOR PERMANENT GROUNDCOVER SUFFICIENT TO RETAIN EROSION MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS ACCORDING TO THE FOLLOWING CHART FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

CONSTRUCTION NOTE

ALL MATERIALS AND CONSTRUCTION METHODS PER THE LATEST EDITION OF WAKE COUNTY SPECIFICATIONS AND STANDARD DETAILS

WAKE COUNTY CONSTRUCTION SEQUENCE:

1. SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH THE WATERSHED MANAGER, **KARYN PAGEAU WITH WAKE COUNTY AT 919-796-8769**. OBTAIN A LAND-DISTURBING PERMIT.
2. INSTALL GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENICE, SKIMMER BASINS, WAKE COUNTY SKIMMER BASIN OR OTHER MEASURES AS SHOWN ON THE APPROVED PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
3. CALL **KARYN PAGEAU WITH WAKE COUNTY AT 919-796-8769** FOR AN ONSITE INSPECTION BY THE WATERSHED MANAGER TO OBTAIN A CERTIFICATE OF COMPLIANCE.
4. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.
5. INSTALL STORM SEWER, IF SHOWN, AND PROTECT CATCH BASIN CURB INLETS WITH BLOCK AND GRAVEL INLET CONTROLS, PROTECT AREA DRAIN/YARD INLETS WITH STANDARD INLET PROTECTION, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN ON THE PLAN. BEGIN CONSTRUCTION, BUILDING, ETC.
6. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LINNGS, ETC. PREPARE A SEEDBED, FERTILIZE, LIME, SEED, MULCH AND ASPHALT TACK ALL DENUDED AREAS WITHIN NPDES STABILIZATION TIMEFRAME OF COMPLETION OF ANY PHASE OF CONSTRUCTION OR STOPPAGE OF WORK ON ANY PHASE OF CONSTRUCTION.
7. CONTRACTOR TO CONTACT PROJECT ENGINEER BETWEEN SEDIMENT AND EROSION CONTROL PHASES OF DEVELOPMENT AND FOR THE REMOVAL OR CONVERSION OF SEDIMENT AND EROSION CONTROL MEASURES.
8. WAKE COUNTY OR JURISDICTIONAL MUNICIPALITY MUST GRANT PERMISSION TO CONVERT THE SEDIMENT BASIN OVER TO STORMWATER USE PRIOR TO COMPLETING ANY RELATED WORK.
9. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL **KARYN PAGEAU WITH WAKE COUNTY AT 919-796-8769** FOR AN INSPECTION BY THE WATERSHED MANAGER.
10. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
11. WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE WATERSHED MANAGER, **KARYN PAGEAU WITH WAKE COUNTY AT 919-796-8769**. OBTAIN A CERTIFICATE OF COMPLETION.

Bowman
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4006 BARRETT DR
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Phone: (919) 553-6570
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NORTH CAROLINA PROFESSIONAL SEAL 24424 ENGINEER MATTHEW E. LAWYER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE	REVISIONS DESCRIPTION	REVISED BY	DATE	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW			
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW			
3	MCB	2/2/123	WAKE COUNTY REVIEW			
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW			
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW			

This drawing is the property

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

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

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

	Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a)	Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b)	High Quality Water (HQW) Zones	7	None
(c)	Slopes steeper than 3:1	7	
(d)	Slopes 3:1 to 4:1	14	–7 days for slopes greater than 50' in length and with slopes steeper than 4:1 –7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones –10 days for Falls Lake Watershed
(e)	Areas with slopes flatter than 4:1	14	–7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones –10 days for Falls Lake Watershed unless there is zero slope

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

GROUND STABILIZATION SPECIFICATION

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

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

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

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

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

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

PAINT AND OTHER LIQUID WASTE

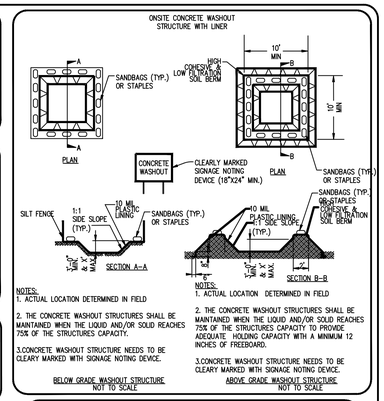
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled,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

PORTABLE TOILETS

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

EARTHEN STOCKPILE MANAGEMENT

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



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

CONCRETE WASHOUTS

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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

HAZARDOUS AND TOXIC WASTE

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

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

PART III
SELF–INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF–INSPECTION

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

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

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

PART III
SELF–INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

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

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

2. Additional Documentation to be Kept on Site

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

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

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically–available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard–copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e–NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF–INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

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

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143–215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

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

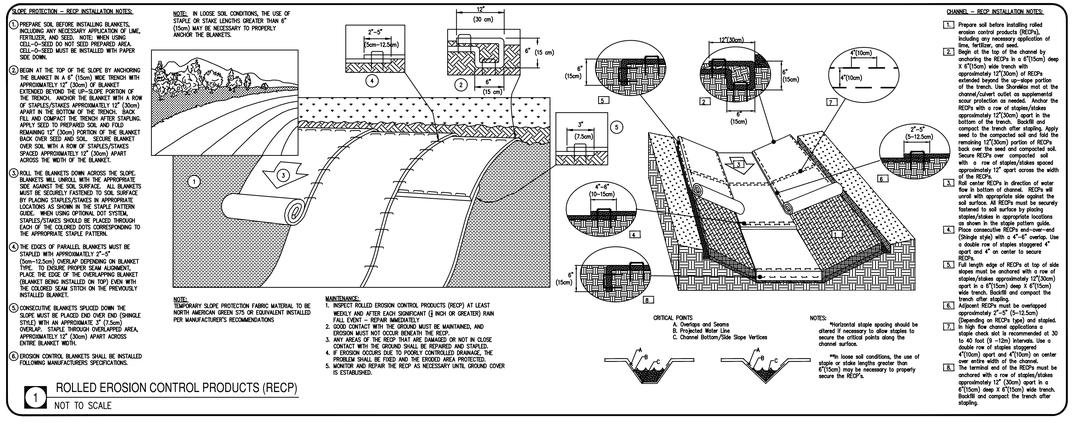
Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6).
	• Division staff may waive the requirement for a written report on a case-by-case basis.

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

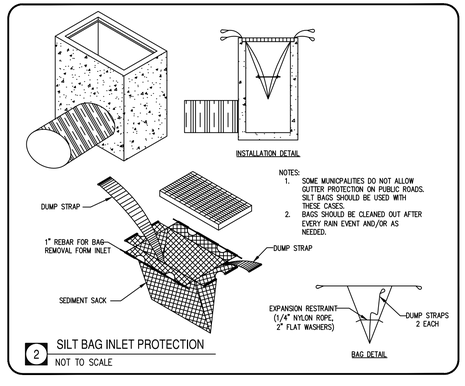
Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw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

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

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



1 ROLLED EROSION CONTROL PRODUCTS (RECP)
NOT TO SCALE



2 SILT BAG INLET PROTECTION
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NORTH CAROLINA PROFESSIONAL SEAL 24826 ENGINEER MATTHEW E. LAWYER

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Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW
3	MCB	12/12/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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STORE OR BLDG NO.: N/A
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PM./DP. ML
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ADDRESS
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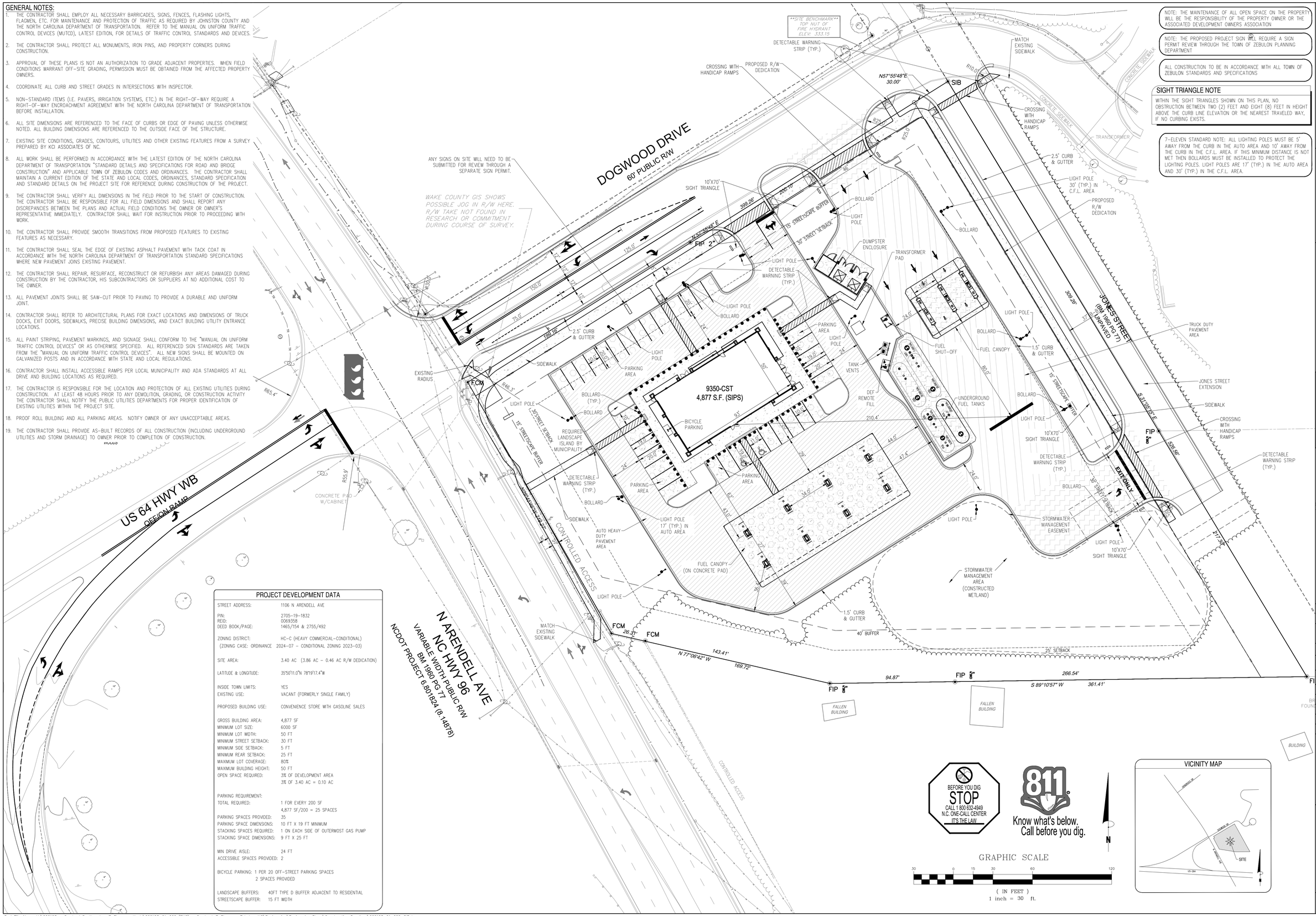
ZEBULON, NC 27597

SHEET TITLE
NC CONSTRUCTION GENERAL PERMIT (NCG01) NOTES

DRWG. NO. C2.5

GENERAL NOTES:

1. THE CONTRACTOR SHALL EMPLOY ALL NECESSARY BARRICADES, SIGNS, FENCES, FLASHING LIGHTS, FLAGMEN, ETC. FOR MAINTENANCE AND PROTECTION OF TRAFFIC AS REQUIRED BY JOHNSTON COUNTY AND THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION. REFER TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION, FOR DETAILS OF TRAFFIC CONTROL STANDARDS AND DEVICES.
2. THE CONTRACTOR SHALL PROTECT ALL MONUMENTS, IRON PINS, AND PROPERTY CORNERS DURING CONSTRUCTION.
3. APPROVAL OF THESE PLANS IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS.
4. COORDINATE ALL CURB AND STREET GRADES IN INTERSECTIONS WITH INSPECTOR.
5. NON-STANDARD ITEMS (I.E. PAVERS, IRRIGATION SYSTEMS, ETC.) IN THE RIGHT-OF-WAY REQUIRE A RIGHT-OF-WAY ENCROACHMENT AGREEMENT WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION BEFORE INSTALLATION.
6. ALL SITE DIMENSIONS ARE REFERENCED TO THE FACE OF CURBS OR EDGE OF PAVING UNLESS OTHERWISE NOTED. ALL BUILDING DIMENSIONS ARE REFERENCED TO THE OUTSIDE FACE OF THE STRUCTURE.
7. EXISTING SITE CONDITIONS, GRADES, CONTOURS, UTILITIES AND OTHER EXISTING FEATURES FROM A SURVEY PREPARED BY KCI ASSOCIATES OF NC.
8. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION "STANDARD DETAILS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND APPLICABLE TOWN OF ZEBULON CODES AND ORDINANCES. THE CONTRACTOR SHALL MAINTAIN A CURRENT EDITION OF THE STATE AND LOCAL CODES, ORDINANCES, STANDARD SPECIFICATION AND STANDARD DETAILS ON THE PROJECT SITE FOR REFERENCE DURING CONSTRUCTION OF THE PROJECT.
9. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FIELD DIMENSIONS AND SHALL REPORT ANY DISCREPANCIES BETWEEN THE PLANS AND ACTUAL FIELD CONDITIONS THE OWNER OR OWNER'S REPRESENTATIVE IMMEDIATELY. CONTRACTOR SHALL WAIT FOR INSTRUCTION PRIOR TO PROCEEDING WITH WORK.
10. THE CONTRACTOR SHALL PROVIDE SMOOTH TRANSITIONS FROM PROPOSED FEATURES TO EXISTING FEATURES AS NECESSARY.
11. THE CONTRACTOR SHALL SEAL THE EDGE OF EXISTING ASPHALT PAVEMENT WITH TACK COAT IN ACCORDANCE WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS WHERE NEW PAVEMENT JOINS EXISTING PAVEMENT.
12. THE CONTRACTOR SHALL REPAIR, RESURFACE, RECONSTRUCT OR REFURBISH ANY AREAS DAMAGED DURING CONSTRUCTION BY THE CONTRACTOR, HIS SUBCONTRACTORS OR SUPPLIERS AT NO ADDITIONAL COST TO THE OWNER.
13. ALL PAVEMENT JOINTS SHALL BE SAW-CUT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
14. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF TRUCK DOCKS, EXIT DOORS, SIDEWALKS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
15. ALL PAINT STRIPING, PAVEMENT MARKINGS, AND SIGNAGE SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" OR AS OTHERWISE SPECIFIED. ALL REFERENCED SIGN STANDARDS ARE TAKEN FROM THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". ALL NEW SIGNS SHALL BE MOUNTED ON GALVANIZED POSTS AND IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
16. CONTRACTOR SHALL INSTALL ACCESSIBLE RAMPS PER LOCAL MUNICIPALITY AND ADA STANDARDS AT ALL DRIVE AND BUILDING LOCATIONS AS REQUIRED.
17. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. AT LEAST 48 HOURS PRIOR TO ANY DEMOLITION, GRADING, OR CONSTRUCTION ACTIVITY THE CONTRACTOR SHALL NOTIFY THE PUBLIC UTILITIES DEPARTMENTS FOR PROPER IDENTIFICATION OF EXISTING UTILITIES WITHIN THE PROJECT SITE.
18. PROOF ROLL BUILDING AND ALL PARKING AREAS. NOTIFY OWNER OF ANY UNACCEPTABLE AREAS.
19. THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES AND STORM DRAINAGE) TO OWNER PRIOR TO COMPLETION OF CONSTRUCTION.



PROJECT DEVELOPMENT DATA

STREET ADDRESS:	1106 N ARENDELL AVE
PIN:	2705-19-1832
REID:	0069358
DEED BOOK/PAGE:	1465/154 & 2755/492
ZONING DISTRICT:	HC-C (HEAVY COMMERCIAL-CONDITIONAL)
(ZONING CASE: ORDINANCE	2024-07 - CONDITIONAL ZONING 2023-03)
SITE AREA:	3.40 AC (3.86 AC - 0.46 AC R/W DEDICATION)
LATITUDE & LONGITUDE:	35°50'11.0"N 78°19'17.4"W
INSIDE TOWN LIMITS:	YES
EXISTING USE:	VACANT (FORMERLY SINGLE FAMILY)
PROPOSED BUILDING USE:	CONVENIENCE STORE WITH GASOLINE SALES
GROSS BUILDING AREA:	4,877 SF
MINIMUM LOT SIZE:	6000 SF
MINIMUM LOT WIDTH:	50 FT
MINIMUM STREET SETBACK:	30 FT
MINIMUM SIDE SETBACK:	5 FT
MINIMUM REAR SETBACK:	25 FT
MAXIMUM LOT COVERAGE:	80%
MAXIMUM BUILDING HEIGHT:	50 FT
OPEN SPACE REQUIRED:	3% OF DEVELOPMENT AREA
	3% OF 3.40 AC = 0.10 AC
PARKING REQUIREMENT:	
TOTAL REQUIRED:	1 FOR EVERY 200 SF
	4,877 SF/200 = 25 SPACES
PARKING SPACES PROVIDED:	35
PARKING SPACE DIMENSIONS:	10 FT X 19 FT MINIMUM
STACKING SPACES REQUIRED:	1 ON EACH SIDE OF OUTERMOST GAS PUMP
STACKING SPACE DIMENSIONS:	9 FT X 25 FT
MIN DRIVE AISLE:	24 FT
ACCESSIBLE SPACES PROVIDED:	2
BICYCLE PARKING:	1 PER 20 OFF-STREET PARKING SPACES
	2 SPACES PROVIDED
LANDSCAPE BUFFERS:	40FT TYPE D BUFFER ADJACENT TO RESIDENTIAL
STREETSCAPE BUFFER:	15 FT WIDTH

NOTE: THE MAINTENANCE OF ALL OPEN SPACE ON THE PROPERTY WILL BE THE RESPONSIBILITY OF THE PROPERTY OWNER OR THE ASSOCIATED DEVELOPMENT OWNERS ASSOCIATION

NOTE: THE PROPOSED PROJECT SIGN WILL REQUIRE A SIGN PERMIT REVIEW THROUGH THE TOWN OF ZEBULON PLANNING DEPARTMENT

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ZEBULON STANDARDS AND SPECIFICATIONS

SIGHT TRIANGLE NOTE

WITHIN THE SIGHT TRIANGLES SHOWN ON THIS PLAN, NO OBSTRUCTION BETWEEN TWO (2) FEET AND EIGHT (8) FEET IN HEIGHT ABOVE THE CURB LINE ELEVATION OR THE NEAREST TRAVELED WAY, IF NO CURBING EXISTS.

7-ELEVEN STANDARD NOTE: ALL LIGHTING POLES MUST BE 5' AWAY FROM THE CURB IN THE AUTO AREA AND 10' AWAY FROM THE CURB IN THE C.F.L. AREA. IF THIS MINIMUM DISTANCE IS NOT MET THEN BOLLARDS MUST BE INSTALLED TO PROTECT THE LIGHTING POLES. LIGHT POLES ARE 17' (TYP.) IN THE AUTO AREA AND 30' (TYP.) IN THE C.F.L. AREA.

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WAKE COUNTY

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VICINITY MAP

SHEET TITLE
SITE PLAN

DRWG. NO. C3.0

PAVEMENT SECTIONS

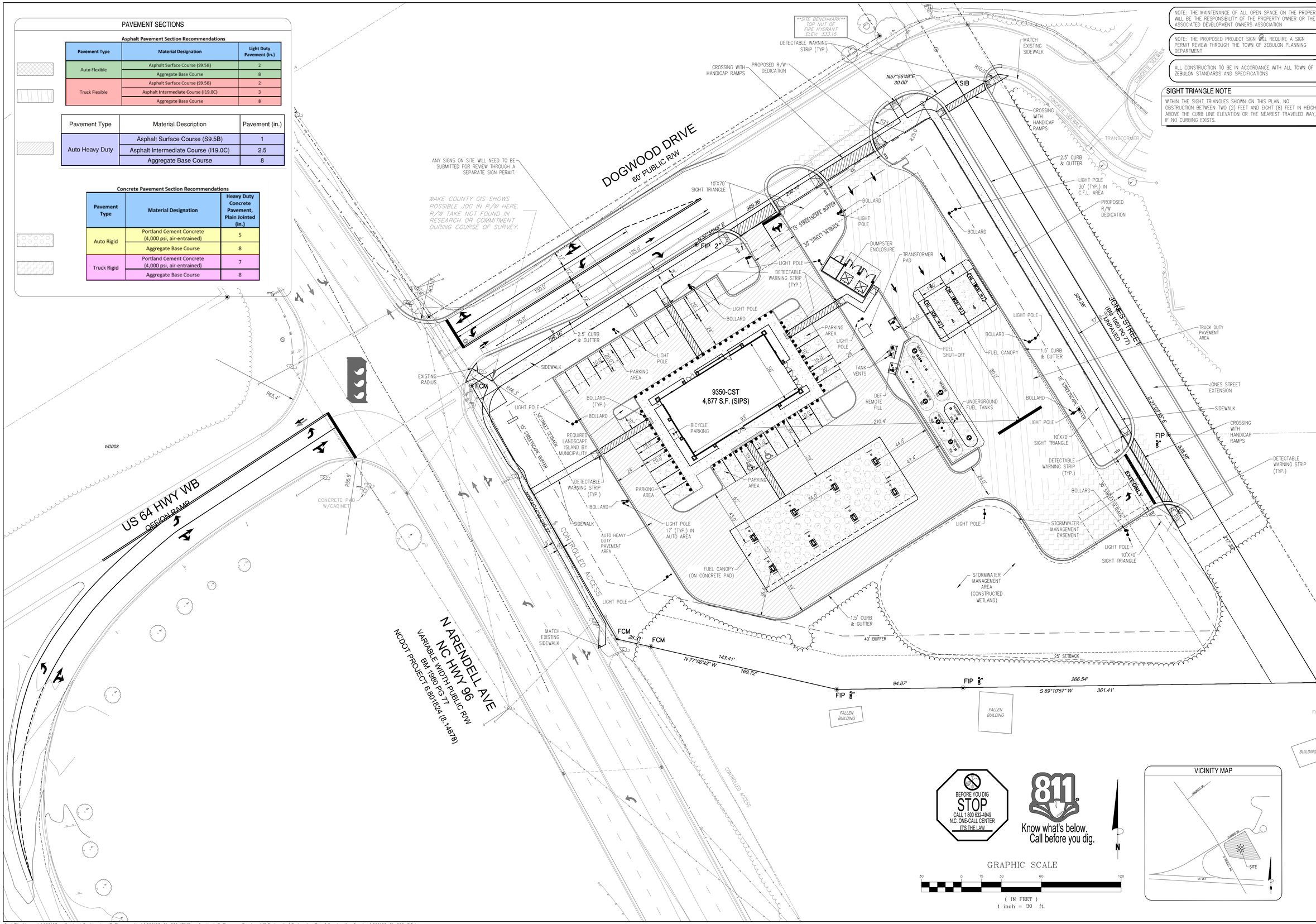
Asphalt Pavement Section Recommendations

Pavement Type	Material Designation	Light Duty Pavement (in.)
Auto Flexible	Asphalt Surface Course (S9.5B)	2
	Aggregate Base Course	8
Truck Flexible	Asphalt Surface Course (S9.5B)	2
	Asphalt Intermediate Course (I19.0C)	3
	Aggregate Base Course	8

Pavement Type	Material Description	Pavement (in.)
Auto Heavy Duty	Asphalt Surface Course (S9.5B)	1
	Asphalt Intermediate Course (I19.0C)	2.5
	Aggregate Base Course	8

Concrete Pavement Section Recommendations

Pavement Type	Material Designation	Heavy Duty Concrete Pavement, Plain Jointed (in.)
Auto Rigid	Portland Cement Concrete (4,000 psi, air-entrained)	5
	Aggregate Base Course	8
Truck Rigid	Portland Cement Concrete (4,000 psi, air-entrained)	7
	Aggregate Base Course	8



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VERSION OR PROJECT ID: N/A

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RVWR. ML

ISSUE DATE: 03/04/2024

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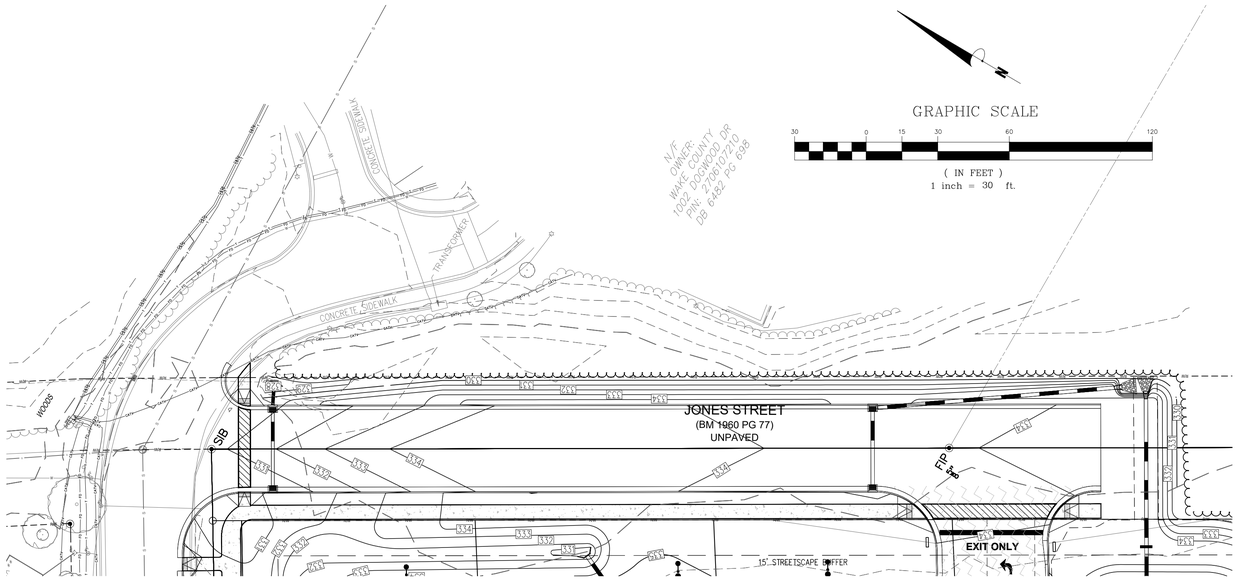
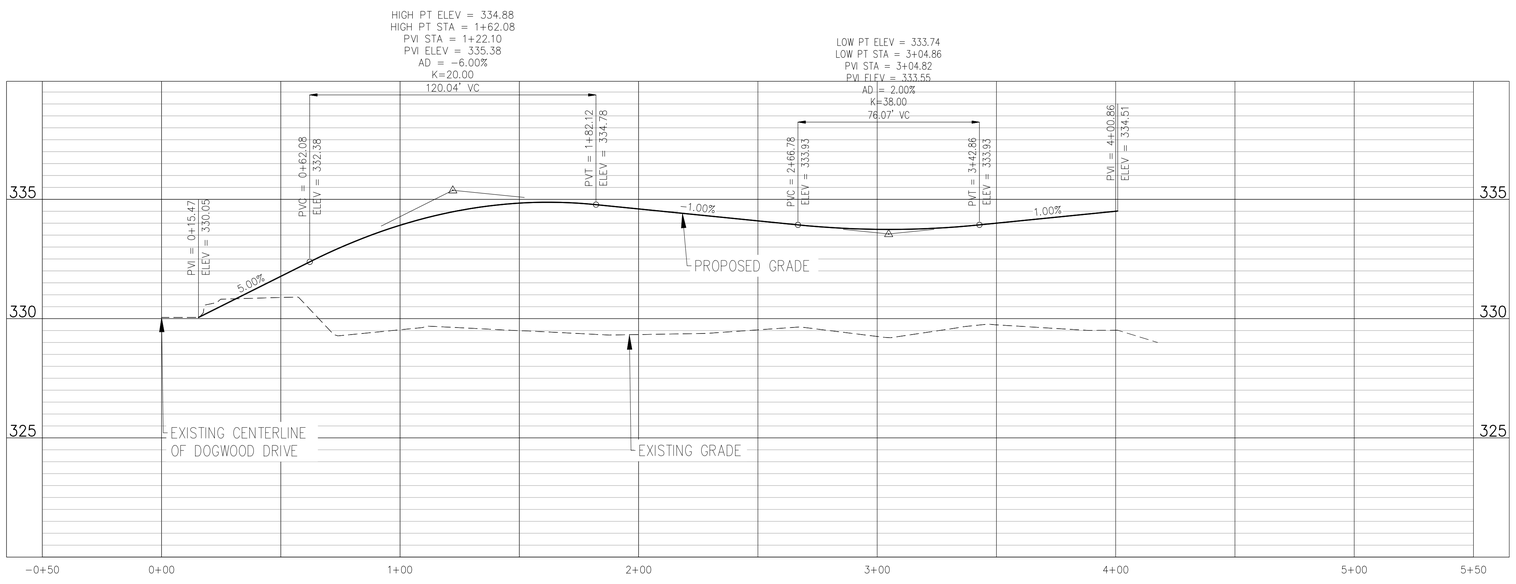
SHEET TITLE
PAVEMENT PLAN

DRWG. NO. C3.1





JONES STREET ROAD (1) PROFILE VIEW
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'

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SHEET TITLE
ROADWAY PROFILE

DRWG. NO. C3.2

JONES STREET

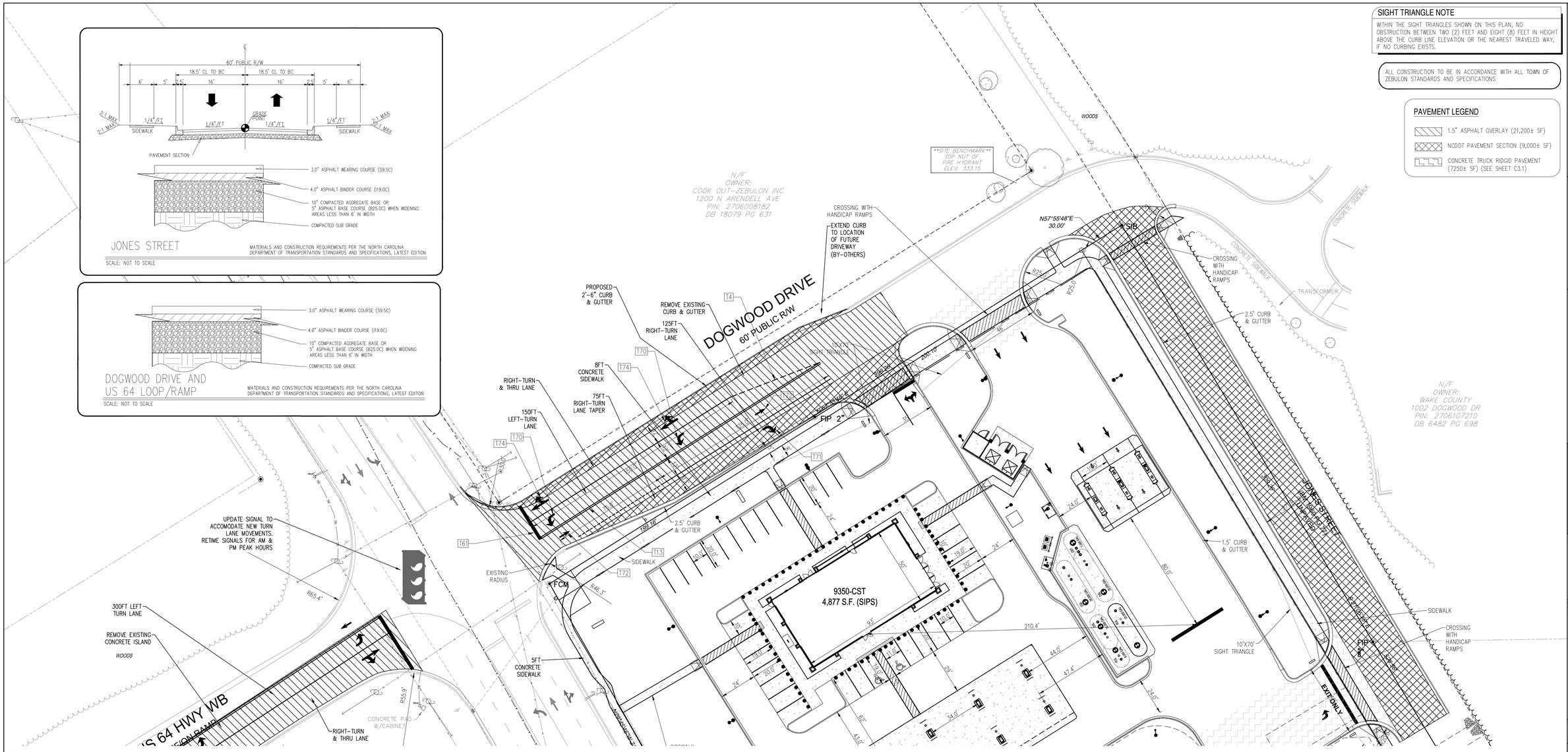
MATERIALS AND CONSTRUCTION REQUIREMENTS PER THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS, LATEST EDITION

SCALE: NOT TO SCALE

DOGWOOD DRIVE AND US 64 LOOP/RAMP

MATERIALS AND CONSTRUCTION REQUIREMENTS PER THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS, LATEST EDITION

SCALE: NOT TO SCALE



SIGHT TRIANGLE NOTE

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ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ZEBULON STANDARDS AND SPECIFICATIONS

PAVEMENT LEGEND

- 1.5" ASPHALT OVERLAY (21,200± SF)
- NCDOT PAVEMENT SECTION (9,000± SF)
- CONCRETE TRUCK RIDGID PAVEMENT (7250± SF) (SEE SHEET C3.1)

PAVEMENT MARKING SCHEDULE

T1	WHITE EDGE LINE (4",90MIL) NCDOT STD DETAIL 1205.01
T13	DOUBLE YELLOW CENTERLINE (4",90MIL) NCDOT STD DETAIL 1205.01
T11	YELLOW SINGLE CENTER LINE(4",90MIL) NCDOT STD DETAIL 1205.01
T14	3" WHITE MINI-SKIP LINE (4",90MIL) NCDOT STD DETAIL 1205.01
T3	10' WHITE SKIP LINE (4",90MIL) NCDOT STD DETAIL 1205.01
T2	WHITE SOLID LANE LINE (4",90MIL) NCDOT STD DETAIL 1205.01
T170	LEFT TURN LANE ARROW (90MIL) NCDOT STD DETAIL 1205.08
T171	RIGHT TURN LANE ARROW (90MIL) NCDOT STD DETAIL 1205.08
T172	STRAIGHT ARROW (90MIL) NCDOT STD DETAIL 1205.08
T173	COMBO LEFT/STRAIGHT TURN LANE ARROW (90MIL) NCDOT STD DETAIL 1205.08
T174	COMBO RIGHT/STRAIGHT TURN LANE ARROW (90MIL) NCDOT STD DETAIL 1205.08
T142	YELLOW DIAGONAL LINES (8",90MIL) NCDOT STD DETAIL 1205.09
T141	WHITE DIAGONAL LINES (8",90MIL) NCDOT STD DETAIL 1205.09
T114	3" YELLOW MINI-SKIP LINES (4",90MIL) NCDOT STD DETAIL 1205.01
T12	YELLOW SKIP CENTER LINES (4",90MIL) NCDOT STD DETAIL 1205.01
T161	STOP BAR (24",90MIL) NCDOT STD DETAIL 1205.01
T102	12" YELLO LINE SYMBOL (90MIL) NCDOT STD DETAIL 1205.08 (THIS SHEET)

ALL PERMANENT PAVEMENT MARKINGS SHALL BE THERMOPLASTIC PER NCDOT REQUIREMENTS

CONTRACTOR TO INSTALL MARKINGS PER NCDOT STANDARD MANUALS AND LOCATIONS TO BE COORDINATED WITH THESE DEPARTMENTS PRIOR TO FINAL INSTALLATION.

TRAFFIC CONTROL NOTES:

THE DISTRICT OFFICE OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) MUST BE NOTIFIED AT LEAST 24 HOURS PRIOR TO CONSTRUCTION.

TRAFFIC MUST BE MAINTAINED AT ALL TIMES AND TRAFFIC CONTROL MUST COMPLY WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND WITH THE CURRENT EDITION OF THE NCDOT STANDARDS AND SPECIFICATIONS.

ALL LANES OF TRAFFIC ARE TO BE OPEN DURING THE HOURS OF 6:00 AM TO 9:00 AM AND FROM 4:00 PM TO 6:00 PM. A MINIMUM OF ONE 12-FOOT LANE SHALL BE MAINTAINED AT ALL TIMES.

ALL ROADWAY SIGNS WHICH ARE TO BE REMOVED DURING CONSTRUCTION ARE TO BE REINSTALLED AS SOON AS POSSIBLE.

DURING NON-WORKING HOURS, EQUIPMENT IS TO BE PARKED AS CLOSE TO THE RIGHT OF WAY LINE AS POSSIBLE AND BE PROPERLY BARRICADED IN ORDER TO PREVENT ANY EQUIPMENT OBSTRUCTION WITHIN THE TRAVEL LANE.

ALL CONTRACTORS DOING WORK WITHIN STATE RIGHT OF WAY ARE TO HAVE A COPY OF THESE PLANS ON THE JOB SITE.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WITHIN 10' OF AN OPEN TRAVEL LANE, THE CONTRACTOR SHALL CLOSE THE OPEN TRAVEL LANE ADJACENT TO THE WORK AREA USING APPROPRIATE TRAFFIC CONTROL MEANS AND METHODS UNLESS WORK IN THAT AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

THE CONTRACTOR SHALL NOT WORK SIMULTANEOUSLY ON BOTH SIDES OF AN OPEN TRAVEL WAY WITHIN THE SAME LOCATION ON A TWO-LANE, TWO-WAY ROAD.

THE MAXIMUM LENGTH OF A LANE CLOSURE ON THE PROJECT SHALL BE ONE MILE, MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.

THE CONTRACTOR SHALL BACKFILL AT 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS A DROP-OFF OF MORE THAN 3".

WHEN BACKFILL IS REQUIRED, IT SHALL BE AT NO EXPENSE TO THE OWNER.

THE MAXIMUM DIFFERENCE IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC SHALL BE 2".

WHEN LANE CLOSURES ARE NOT IN EFFECT, CHANNELIZING DEVICES IN WORK AREAS SHALL BE SPACED NO GREATER THAN TWICE THE POSTED SPEED LIMIT, EXCEPT 10' ON-CENTER IN RADII, AND SHALL BE SET 3' OFF THE EDGE OF AN OPEN TRAVEL WAY.

DURING INSTALLATION, PROPER TRAFFIC CONTROL DEVICES, SIGNS, ETC. BE INSTALLED TO ENSURE PUBLIC SAFETY IN ACCORDANCE WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S STANDARDS AND SPECIFICATIONS

ALL DISTURBED AREAS ARE TO BE FULLY RESTORED TO NCDOT MINIMUM ROADWAY STANDARDS.

MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE NCDOT ROADWAY STANDARDS AND SPECIFICATIONS (LATEST EDITION).

NCDOT ROADWAY STANDARD DRAWINGS TO REFERENCE

200.02 METHOD OF CLEARING – METHOD II
225.02 GUIDE FOR GRADING SUBGRADE – SECONDARY & LOCAL
300.01 METHOD OF PIPE INSTALLATION – METHOD "A"
840.71 CONCRETE AND BRICK PIPE PLUG
846.01 CONCRETE CURB, GUTTER AND CURB & GUTTER
848.01 CONCRETE SIDEWALK
848.05 WHEELCHAIR RAMP – CURB CUT
852.01 CONCRETE ISLANDS
876.02 GUIDE FOR RIP RAP AT PIPE OUTLETS
1101.01 WORK ZONE ADVANCE WARNING SIGNS
1101.02 TEMPORARY LANE CLOSURES
1101.04 TEMPORARY SHOULDER CLOSURES
1101.05 WORK ZONE VEHICLE ACCESSES
1101.11 TRAFFIC CONTROL DESIGN TABLES
1110.02 PORTABLE WORK ZONE SIGNS – MOUNTING HEIGHT & LATERAL CLEARANCE
1115.01 FLASHING ARROW PANELS
1130.01 DRUMS
1135.01 CONES
1145.01 BARRICADES – TYPES I, II, III AND PERMANENT
1150.01 FLAGGERS
1205.01 PAVEMENT MARKINGS – LINE TYPES & OFFSETS
1205.02 PAVEMENT MARKINGS – DIVIDED & UNDIVIDED ROADWAYS
1205.04 PAVEMENT MARKINGS – INTERSECTIONS
1205.05 PAVEMENT MARKINGS TURN LANES
1205.07 PAVEMENT MARKINGS PEDESTRIAN CROSSWALKS

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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

N

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ADDRESS

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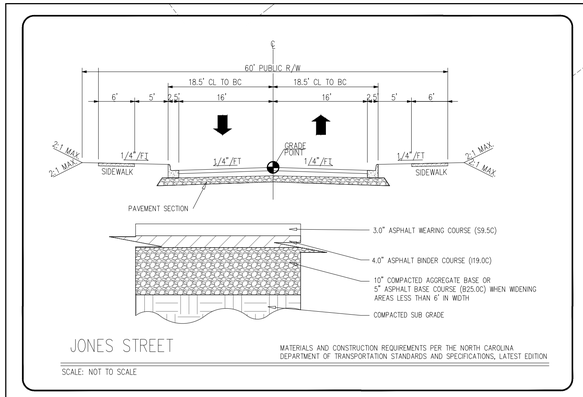
SHEET TITLE

ROADWAY PLAN (1 OF 2)

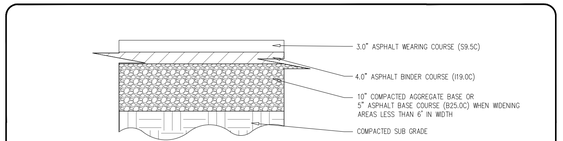
DRWG. NO. C3.3



JONES STREET

MATERIALS AND CONSTRUCTION REQUIREMENTS PER THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS, LATEST EDITION

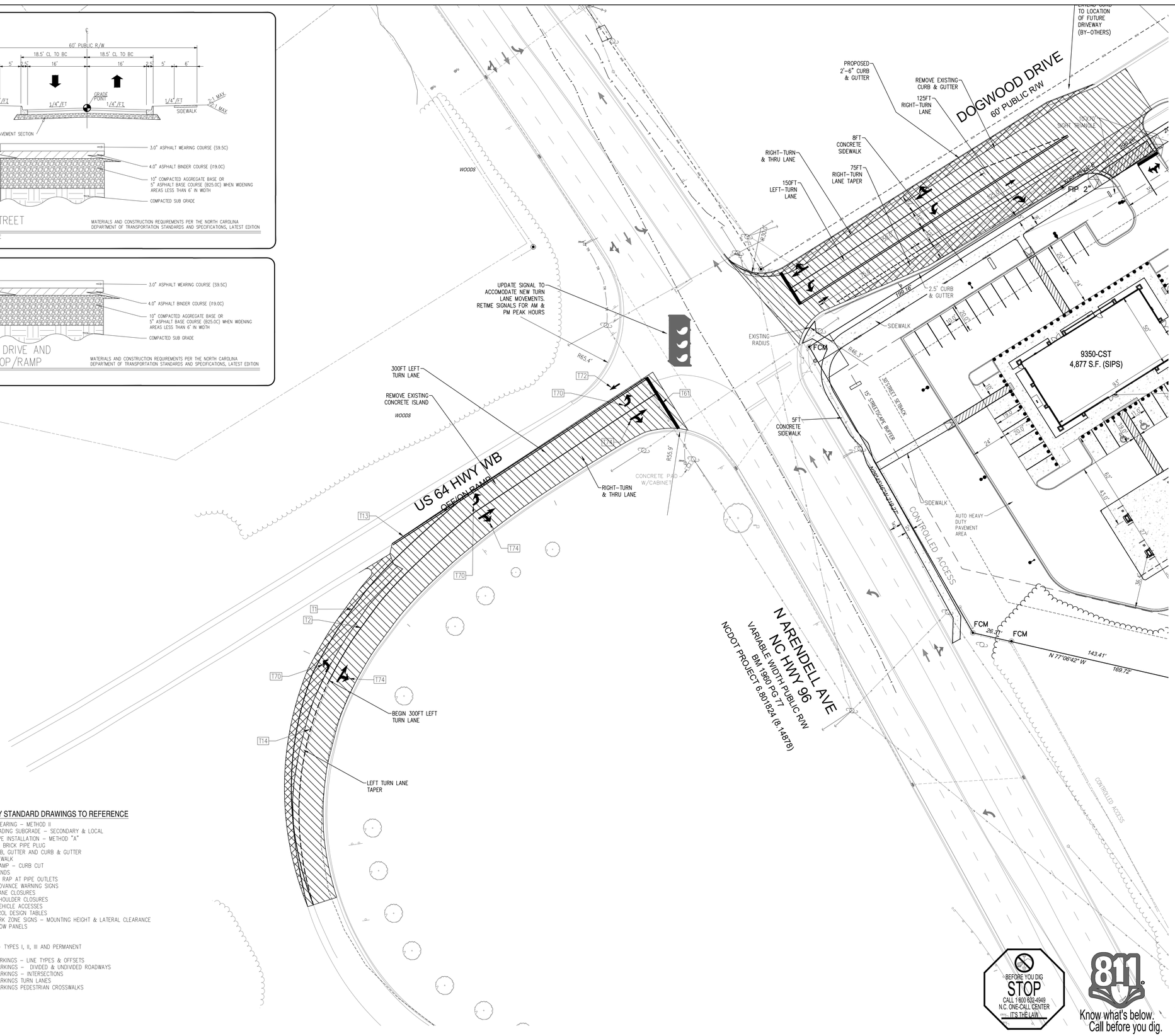
SCALE: NOT TO SCALE



DOGWOOD DRIVE AND US 64 LOOP/RAMP

MATERIALS AND CONSTRUCTION REQUIREMENTS PER THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS, LATEST EDITION

SCALE: NOT TO SCALE



SIGHT TRIANGLE NOTE

WITHIN THE SIGHT TRIANGLES SHOWN ON THIS PLAN, NO OBSTRUCTION BETWEEN TWO (2) FEET AND EIGHT (8) FEET IN HEIGHT ABOVE THE CURB LINE ELEVATION OR THE NEAREST TRAVELED WAY, IF NO CURBING EXISTS.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ZEBULON STANDARDS AND SPECIFICATIONS

PAVEMENT LEGEND

- 1.5" ASPHALT OVERLAY (21,200± SF)
- NCDOT PAVEMENT SECTION (9,000± SF)
- CONCRETE TRUCK RIDGID PAVEMENT (7250± SF) (SEE SHEET C3.1)

PAVEMENT MARKING SCHEDULE

T1	WHITE EDGE LINE (4",90MIL) NCDOT STD DETAIL 1205.01
T13	DOUBLE YELLOW CENTERLINE (4",90MIL) NCDOT STD DETAIL 1205.01
T11	YELLOW SINGLE CENTER LINE(4",90MIL) NCDOT STD DETAIL 1205.01
T4	3' WHITE MINI-SKIP LINE (4",90MIL) NCDOT STD DETAIL 1205.01
T3	10' WHITE SKIP LINE (4",90MIL) NCDOT STD DETAIL 1205.01
T2	WHITE SOLID LANE LINE (4",90MIL) NCDOT STD DETAIL 1205.01
T70	LEFT TURN LANE ARROW (90MIL) NCDOT STD DETAIL 1205.08
T71	RIGHT TURN LANE ARROW (90MIL) NCDOT STD DETAIL 1205.08
T72	STRAIGHT ARROW (90MIL) NCDOT STD DETAIL 1205.08
T73	COMBO LEFT/STRAIGHT TURN LANE ARROW (90MIL) NCDOT STD DETAIL 1205.08
T74	COMBO RIGHT/STRAIGHT TURN LANE ARROW (90MIL) NCDOT STD DETAIL 1205.08
T42	YELLOW DIAGONAL LINES (8",90MIL) NCDOT STD DETAIL 1205.09
T49	WHITE DIAGONAL LINES (8",90MIL) NCDOT STD DETAIL 1205.09
T14	3' YELLOW MINI-SKIP LINES (4",90MIL) NCDOT STD DETAIL 1205.01
T12	YELLOW SKIP CENTER LINES (4",90MIL) NCDOT STD DETAIL 1205.01
T61	STOP BAR (24",90MIL) NCDOT STD DETAIL 1205.01
T102	12" YIELD LINE SYMBOL (90MIL) NCDOT STD DETAIL 1205.08 (THIS SHEET)

ALL PERMANENT PAVEMENT MARKINGS SHALL BE THERMOPLASTIC PER NCDOT REQUIREMENTS

CONTRACTOR TO INSTALL MARKINGS PER NCDOT STANDARD MANUALS AND LOCATIONS TO BE COORDINATED WITH THESE DEPARTMENTS PRIOR TO FINAL INSTALLATION.

TRAFFIC CONTROL NOTES:

THE DISTRICT OFFICE OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) MUST BE NOTIFIED AT LEAST 24 HOURS PRIOR TO CONSTRUCTION.

TRAFFIC MUST BE MAINTAINED AT ALL TIMES AND TRAFFIC CONTROL MUST COMPLY WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND WITH THE CURRENT EDITION OF THE NCDOT STANDARDS AND SPECIFICATIONS.

ALL LANES OF TRAFFIC ARE TO BE OPEN DURING THE HOURS OF 6:00 AM TO 9:00 AM AND FROM 4:00 PM TO 6:00 PM. A MINIMUM OF ONE 12-FOOT LANE SHALL BE MAINTAINED AT ALL TIMES.

ALL ROADWAY SIGNS WHICH ARE TO BE REMOVED DURING CONSTRUCTION ARE TO BE REINSTALLED AS SOON AS POSSIBLE.

DURING NON-WORKING HOURS, EQUIPMENT IS TO BE PARKED AS CLOSE TO THE RIGHT OF WAY LINE AS POSSIBLE AND BE PROPERLY BARRICADED IN ORDER TO PREVENT ANY EQUIPMENT OBSTRUCTION WITHIN THE TRAVEL LANE.

ALL CONTRACTORS DOING WORK WITHIN STATE RIGHT OF WAY ARE TO HAVE A COPY OF THESE PLANS ON THE JOB SITE.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WITHIN 10' OF AN OPEN TRAVEL LANE, THE CONTRACTOR SHALL CLOSE THE OPEN TRAVEL LANE ADJACENT TO THE WORK AREA USING APPROPRIATE TRAFFIC CONTROL MEANS AND METHODS UNLESS WORK IN THAT AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

THE CONTRACTOR SHALL NOT WORK SIMULTANEOUSLY ON BOTH SIDES OF AN OPEN TRAVEL WAY WITHIN THE SAME LOCATION ON A TWO-LANE, TWO-WAY ROAD.

THE MAXIMUM LENGTH OF A LANE CLOSURE ON THE PROJECT SHALL BE ONE MILE, MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.

THE CONTRACTOR SHALL BACKFILL AT 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS A DROP-OFF OF MORE THAN 3".

WHEN BACKFILL IS REQUIRED, IT SHALL BE AT NO EXPENSE TO THE OWNER.

THE MAXIMUM DIFFERENCE IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC SHALL BE 2".

WHEN LANE CLOSURES ARE NOT IN EFFECT, CHANNELIZING DEVICES IN WORK AREAS SHALL BE SPACED NO GREATER THAN TWICE THE POSTED SPEED LIMIT, EXCEPT 10' ON-CENTER IN RADII, AND SHALL BE SET 3' OFF THE EDGE OF AN OPEN TRAVEL WAY.

DURING INSTALLATION, PROPER TRAFFIC CONTROL DEVICES, SIGNS, ETC. BE INSTALLED TO ENSURE PUBLIC SAFETY IN ACCORDANCE WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S STANDARDS AND SPECIFICATIONS

ALL DISTURBED AREAS ARE TO BE FULLY RESTORED TO NCDOT MINIMUM ROADWAY STANDARDS.

MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE NCDOT ROADWAY STANDARDS AND SPECIFICATIONS (LATEST EDITION).

NCDOT ROADWAY STANDARD DRAWINGS TO REFERENCE

200.02 METHOD OF CLEARING – METHOD II
225.02 GUIDE FOR GRADING SUBGRADE – SECONDARY & LOCAL
300.01 METHOD OF PIPE INSTALLATION – METHOD "A"
840.71 CONCRETE AND BRICK PIPE PLUG
846.01 CONCRETE CURB, GUTTER AND CURB & GUTTER
848.01 CONCRETE SIDEWALK
848.05 WHEELCHAIR RAMP – CURB CUT
852.01 CONCRETE ISLANDS
876.02 GUIDE FOR RIP RAP AT PIPE OUTLETS
1101.01 WORK ZONE ADVANCE WARNING SIGNS
1101.02 TEMPORARY LANE CLOSURES
1101.04 TEMPORARY SHOULDER CLOSURES
1101.05 WORK ZONE VEHICLE ACCESSES
1101.11 TRAFFIC CONTROL DESIGN TABLES
1110.02 PORTABLE WORK ZONE SIGNS – MOUNTING HEIGHT & LATERAL CLEARANCE
1115.01 FLASHING ARROW PANELS
1130.01 DRUMS
1135.01 CONES
1145.01 BARRICADES – TYPES I, II, III AND PERMANENT
1150.01 FLAGGERS
1205.01 PAVEMENT MARKINGS – LINE TYPES & OFFSETS
1205.02 PAVEMENT MARKINGS – DIVIDED & UNDIVIDED ROADWAYS
1205.04 PAVEMENT MARKINGS – INTERSECTIONS
1205.05 PAVEMENT MARKINGS TURN LANES
1205.07 PAVEMENT MARKINGS PEDESTRIAN CROSSWALKS

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Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE	REVISIONS DESCRIPTION
1	BRM	1/02/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	1/25/23	TOWN OF ZEBULON REVIEW
3	MCB	2/27/23	WAKE COUNTY REVIEW
4	BRM/MCB	11/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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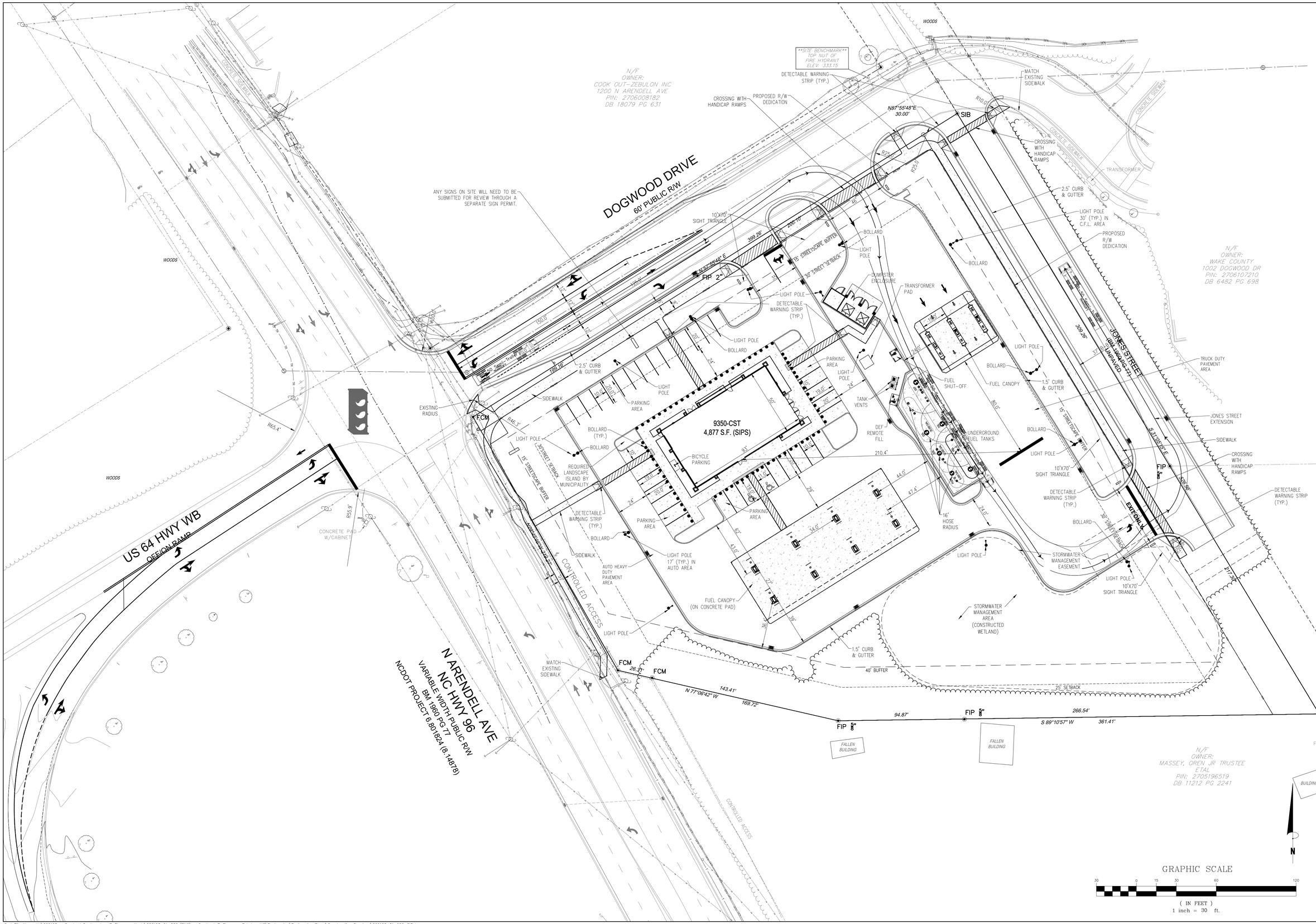
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
ROADWAY PLAN (2 OF 2)

DRWG. NO.
C3.4



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3	MCB	12/21/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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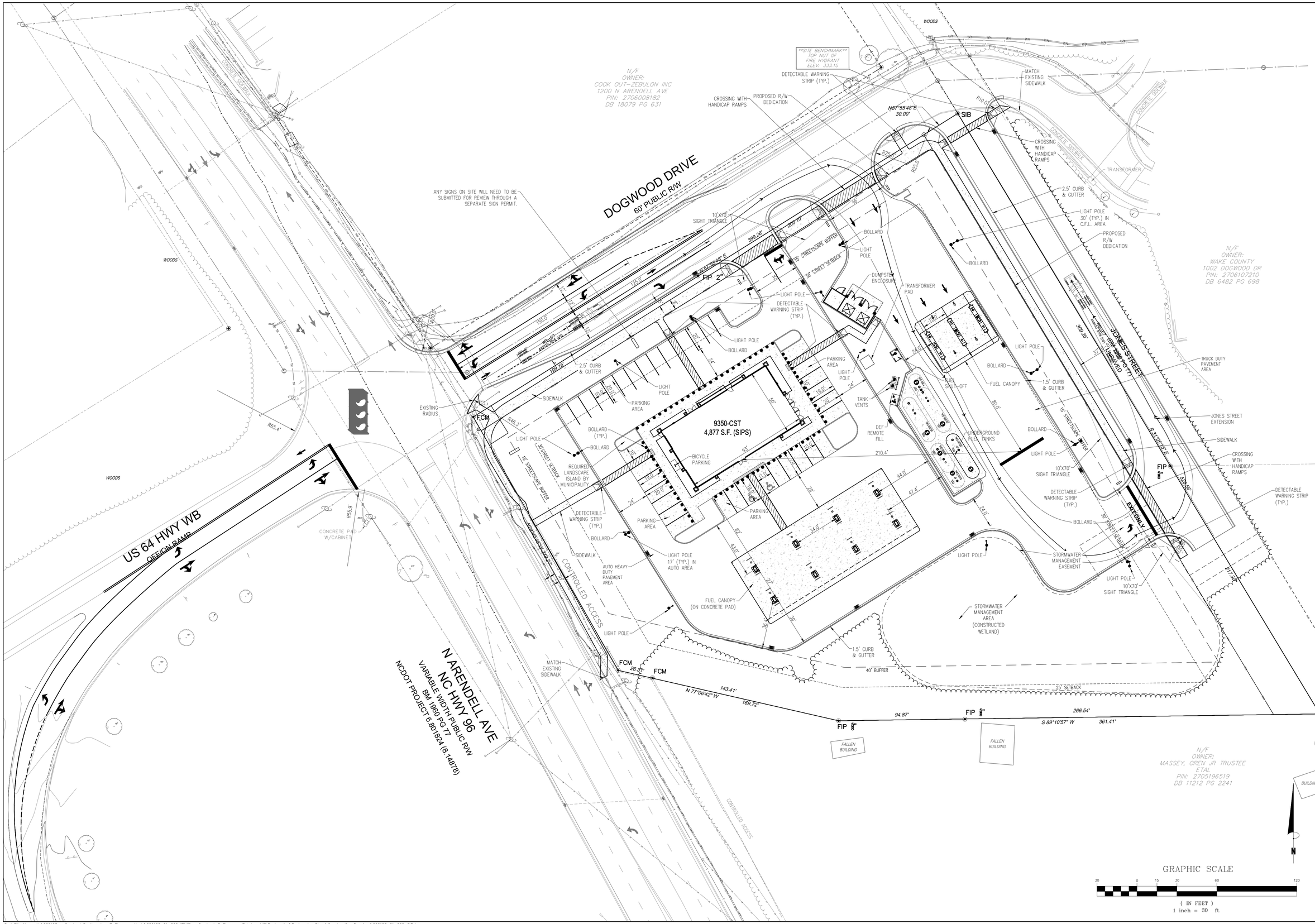
SHEET TITLE
TRUCK TURN PLAN (WB-50)

DRWG. NO. C3.5



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2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW
3	MCB	1/2/1/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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SHEET TITLE
TRUCK TURN PLAN (WB-67)

DRWG. NO. C3.6

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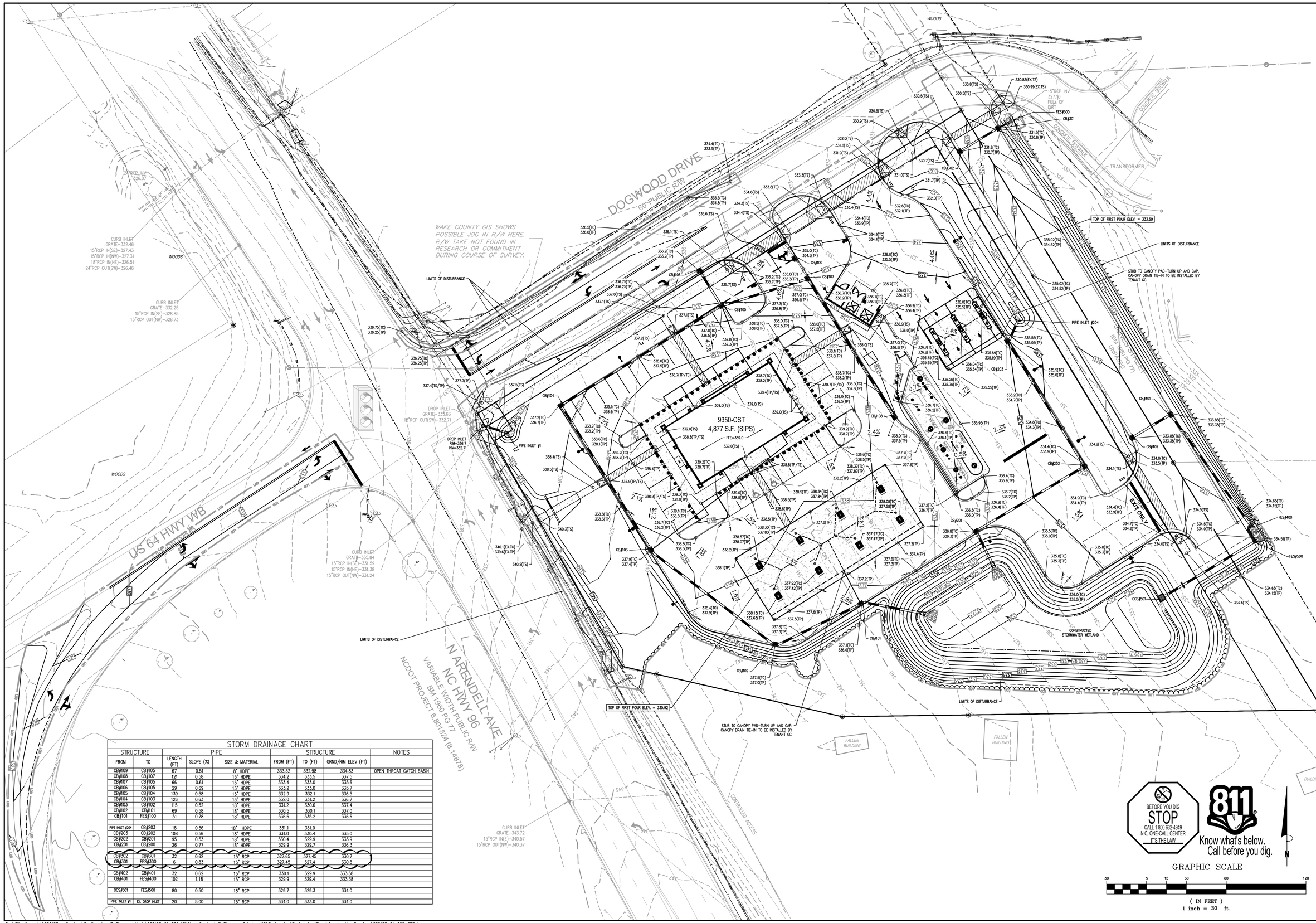

STORM DRAINAGE CHART

STRUCTURE		PIPE			STRUCTURE			NOTES
FROM	TO	LENGTH (FT)	SLOPE (%)	SIZE & MATERIAL	FROM (FT)	TO (FT)	GRND/RIM ELEV (FT)	
CB#109	CB#105	67	0.51	8" HDPE	333.32	332.98	334.83	OPEN THROAT CATCH BASIN
CB#108	CB#107	121	0.58	15" HDPE	334.2	333.5	337.5	
CB#107	CB#105	66	0.61	15" HDPE	333.4	333.0	335.6	
CB#106	CB#105	29	0.69	15" HDPE	333.2	333.0	335.7	
CB#105	CB#104	139	0.58	15" HDPE	332.9	332.1	336.5	
CB#104	CB#103	126	0.63	15" HDPE	332.0	331.2	336.7	
CB#103	CB#102	115	0.52	18" HDPE	331.2	330.6	337.4	
CB#102	CB#101	69	0.58	18" HDPE	330.5	330.1	337.0	
CB#101	FES#100	51	0.78	18" HDPE	336.6	335.2	336.6	
PIPE INLET #204	CB#203	18	0.56	18" HDPE	331.1	331.0		
CB#203	CB#202	108	0.56	18" HDPE	331.0	330.4	335.0	
CB#202	CB#201	95	0.53	18" HDPE	330.4	329.9	333.9	
CB#201	CB#200	26	0.77	18" HDPE	329.9	329.7	336.3	
CB#302	CB#301	32	0.62	15" RCP	327.65	327.45	330.7	
CB#301	FES#300	6	0.83	15" RCP	327.45	327.4	330.8	
CB#402	CB#401	32	0.62	15" RCP	330.1	329.9	333.38	
CB#401	FES#400	102	1.18	15" RCP	329.9	329.4	333.38	
OCS#501	FES#500	80	0.50	18" RCP	329.7	329.3	334.0	
PIPE INLET #1	EX. DROP INLET	20	5.00	15" RCP	334.0	333.0	334.0	

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2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW
3	MCB	12/21/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	3/04/24	TOWN OF ZEBULON REVIEW

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SHEET TITLE
GRADING & DRAINAGE PLAN

DRWG. NO. C4.0

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GRADING NOTES:

1. REFER TO THE SITE PLAN FOR RELATED NOTES.
2. ALL CONTOURS AND SPOT ELEVATIONS REFLECT FINISHED GRADES.
3. ALL ELEVATIONS ARE IN REFERENCE TO THE BENCHMARK, AND THIS MUST BE VERIFIED BY THE GENERAL CONTRACTOR PRIOR TO GROUND BREAKING.
4. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO OWNER ANY DISCREPANCIES FOUND BETWEEN ACTUAL FIELD CONDITIONS AND CONSTRUCTION DOCUMENTS AND SHALL WAIT FOR INSTRUCTION PRIOR TO PROCEEDING.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING EXISTING UTILITIES, AND SHALL REPAIR ALL DAMAGE TO EXISTING UTILITIES THAT OCCUR DURING CONSTRUCTION.
6. THE CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY TO TRANSITION BACK TO EXISTING GRADE.
7. LIMITS OF CLEARING SHOWN ON GRADING PLAN ARE BASED UPON THE APPROXIMATE CUT AND FILL SLOPE LIMITS, OR OTHER GRADING REQUIREMENTS.
8. THE PROPOSED CONTOURS SHOWN IN DRIVES AND PARKING LOTS AND SIDEWALKS ARE FINISHED ELEVATIONS INCLUDING ASPHALT. REFER TO PAVEMENT CROSS SECTION DATA TO ESTABLISH CORRECT SUBBASE OR AGGREGATE BASE COURSE ELEVATIONS TO BE COMPLETED UNDER THIS CONTRACT.
9. THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE SO THAT RUNOFF WILL DRAIN BY GRAVITY FLOW ACROSS NEW PAVEMENT AREAS TO NEW OR EXISTING DRAINAGE INLETS OR SHEET OVERLAND.
10. ANY GRADING, BEYOND THE LIMITS OF CONSTRUCTION AS SHOWN ON THE GRADING PLAN, IS PROHIBITED.
11. LAND DISTURBANCE WITHOUT AN APPROVED ESC PLAN IS PROHIBITED.
12. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. TEMPORARY SEEDING IS NECESSARY TO ACHIEVE EROSION CONTROL ON DENUDED AREAS AND ESPECIALLY WHEN THE CONSTRUCTION SEQUENCE REQUIRES IT.
13. ALL GRADED AREAS ARE TO BE STABILIZED (SEEDED OR LANDSCAPED) WITHIN 14 DAYS OF HAVING REACHED FINAL GRADE.
14. EXISTING GRADES, CONTOURS, UTILITIES AND OTHER EXISTING FEATURES FROM FIELD RUN SURVEY.
15. THE CONTRACTOR SHALL INCLUDE IN THE CONTRACT PRICE ANY DEWATERING NECESSARY TO CONSTRUCT THE PROJECT AS SHOWN ON THE PLANS.
16. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF ALL SHEETING, SHORING, BRACING AND SPECIAL EXCAVATION MEASURES REQUIRED TO MEET OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS PURSUANT TO THE INSTALLATION OF THE WORK INDICATED ON THESE DRAWINGS. THE DESIGN ENGINEER ACCEPTS NO RESPONSIBILITY FOR THE DESIGN(S) TO INSTALL SAID ITEMS.
17. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATION, ELEVATION, AND DIMENSIONS OF EXIT DOORS, RAMPS, BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
18. ALL FILL MATERIALS, EXISTING BUILDING FOUNDATIONS, PAVEMENT AND UTILITY STRUCTURES, TOPSOIL, AND ANY OTHER DELETERIOUS MATERIALS SHALL BE COMPLETELY REMOVED FROM WITHIN THE BEARING ZONE BELOW THE STRUCTURE.
19. ALL FOUNDATION EXCAVATION SHALL BE INSPECTED BY A QUALIFIED GEOTECHNICAL REPRESENTATIVE TO DETERMINE WHETHER UNSUITABLE MATERIAL MUST BE REMOVED. ALL UNDESIREABLE MATERIAL SHALL BE REMOVED, BACKFILLED AND COMPACTED AS REQUIRED BY THE GEOTECHNICAL REPRESENTATIVE.
20. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED OR DEPICTED.
21. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
22. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
23. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
24. ALL UNSURFACED AREAS DISTRURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER.
25. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.

DRAINAGE NOTES:

1. A MINIMUM GRADE OF 0.50 % SHALL BE MAINTAINED ON ALL PIPES, UNLESS OTHERWISE NOTED.
2. PIPE LENGTHS AND SLOPES INDICATED ON THE PLANS ARE APPROXIMATE ONLY.
3. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
   A. NO MORE THAN 500 LF OF TRENCH MAY BE OPENED AT ONE TIME.
   B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
   C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
   D. MATERIAL USED FOR BACK-FILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
   E. RESTABALIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL REGULATIONS.
   F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
4. CATCH BASINS, MANHOLES, FRAMES, GRATES, ETC. SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE TOWN OF ZEBULON STANDARD DRAWINGS AND SPECIFICATIONS.
5. ALL PIPES SHALL BE LAID ON STRAIGHT ALIGNMENTS AND EVEN GRADES USING A PIPE LASER OR OTHER ACCURATE METHOD.
6. STORM PIPE SHALL BE AS FOLLOW UNLESS OTHERWISE NOTED:

   TYPE 1: RCP, CLASS III PER ASTM C-76, WITH FLEXIBLE PLASTIC BITUMEN GASKETS AT JOINTS.

   TYPE 2: HIGH DENSITY POLYETHYLENE PIPE (HDPE) – AASHTO DESIGNATION M252 TYPE S, M294 TYPE S AND MP7-97 TYPE S, SMOOTH INTERIOR/ANNULAR EXTERIOR. ONLY PERMITTED WHEN SPECIFICALLY INDICATED ON THE CONSTRUCTION DRAWINGS. PIPE SHALL BE INSTALLED IN ACCORDANCE WITH PIPE MANUFACTURER'S INSTALLATION GUIDELINES. PIPE JOINTS AND FITTINGS SHALL BE WATERTIGHT.
7. ALL STORM DRAINAGE WITHIN THE PUBLIC ROADS SHALL BE CLASS III REINFORCED CONCRETE PIPE UNLESS OTHERWISE NOTED.
8. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES TO BE CLEANED OUT TO REMOVE SILT AND DEBRIS.
9. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
10. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
11. PRECAST STRUCTURES MAYBE USED AT CONTRACTORS OPTION.
12. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "STORM SEWER".
13. STRUCTURE TOP ELEVATIONS SHOWN HERE ARE APPROXIMATE. CONTRACTOR SHALL ADJUST AS NECESSARY.
14. RIM ELEVATIONS AS NOTED ARE TO THE GUTTER FLOW LINE.

LEGEND

TOS.....TOP OF SIDEWALK
TOC.....TOP OF CURB
FL.....GUTTER FLOW LINE
TOP.....TOP OF PAVEMENT
TW.....TOP OF WALL
BW.....BOTTOM OF WALL
CB.....CATCH BASIN
GI.....GRATE INLET
FES.....FLARED END SECTION
YI.....YARD INLET
GRD.....GROUND
.....FLOW DIRECTION ARROW

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ZEBULON STANDARDS AND SPECIFICATIONS

BEFORE YOU DIG
STOP
CALL 1 800 632-4949
N.C. ONE-CALL CENTER
IT'S THE LAW

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

N

GRAPHIC SCALE

50 0 25 0 100 200

(IN FEET)
1 inch = 50 ft.

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Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW			
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW			
3	MCB	1/22/123	WAKE COUNTY REVIEW			
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW.			
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW			

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STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
GRADING & DRAINAGE NOTES

DRWG. NO.
C4.1

CUT/FILL REPORT

Volume Summary

Name	Type	Cut Factor	Fill Factor	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
CUT-FILL	full	1.00	1.15	168845.47	6104.29	9645.98*	3541.68*

Totals

	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Total	168845.47	6104.29	9645.98*	3541.68*

* Value adjusted by cut or fill factor other than 1.0

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

Bowman
Bowman North Carolina Ltd.
4006 BARRETT DR
Suite 104
RALEIGH, NC 27609
Phone: (919) 553-6570
bowman.com

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NORTH CAROLINA PROFESSIONAL SEAL 24425 ENGINEER MATTHEW E. LOWDER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	ACRONYM	DATE	REVISIONS DESCRIPTION	REVISED BY	DATE	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW			
2	BRM/MCB	2/3/23	TOWN OF ZEBULON REVIEW			
3	MCB	2/27/23	WAKE COUNTY REVIEW			
4	BRM/MCB	11/9/24	TOWN OF ZEBULON REVIEW			
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW			

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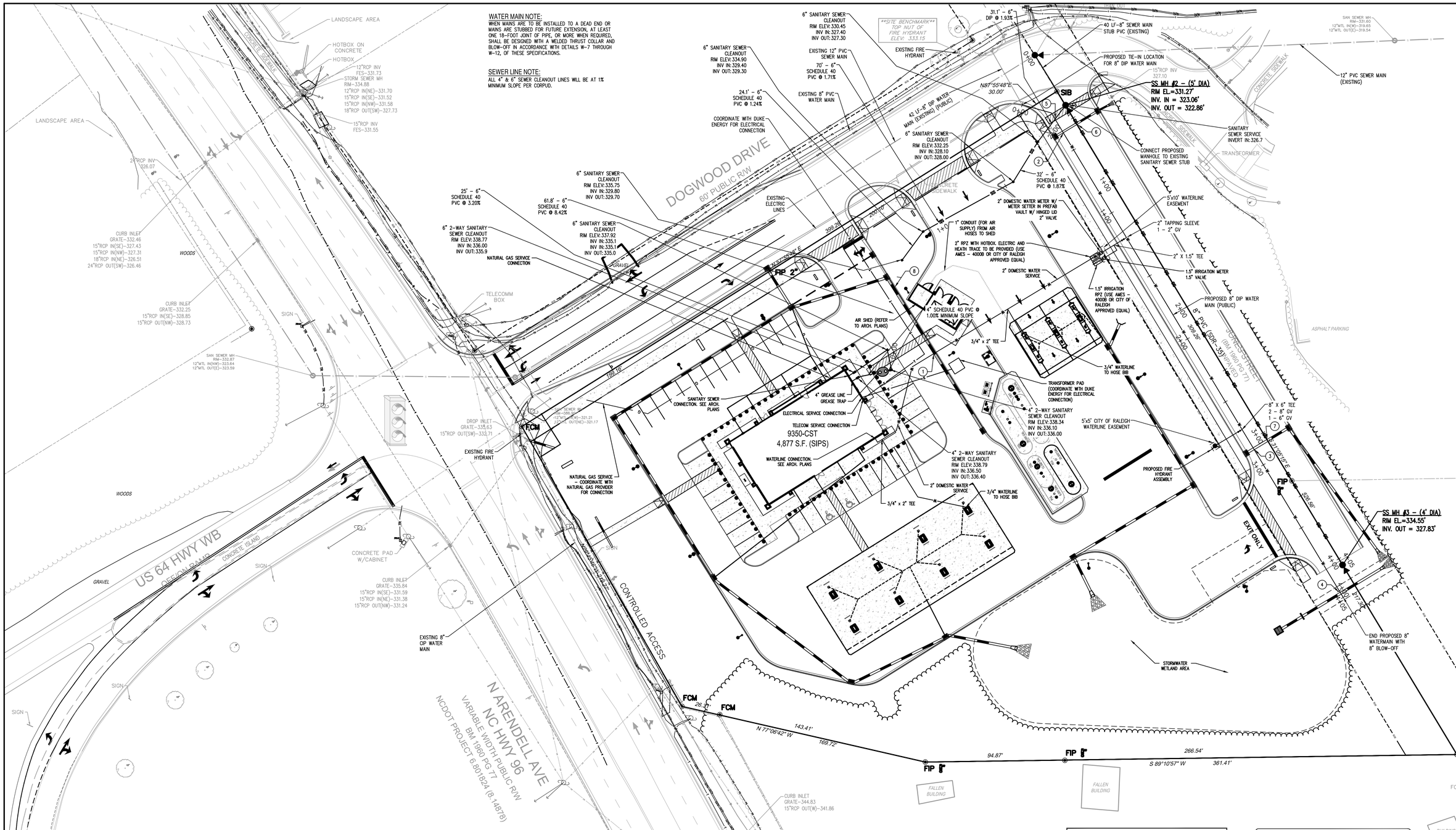
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
CUT/FILL ANALYSIS PLAN

DRWG. NO.
C4.2

Cad File Name: V:\220163 - Crosland Southeast - 7-Eleven - Kenly\220163-01-002 (ENG) - Crosland-7-Eleven - Zebulon, NC\Engineering\Engineering Plans\Construction Drawings\220163-01-002-CUT-FILL.dwg



WATER MAIN NOTE:

WHEN MAINS ARE TO BE INSTALLED TO A DEAD END OR MAINS ARE STUBBED FOR FUTURE EXTENSION, AT LEAST ONE 18-FOOT JOINT OF PIPE, OR MORE WHEN REQUIRED, SHALL BE DESIGNED WITH A WELDED THRUST COLLAR AND BLOW-OFF IN ACCORDANCE WITH DETAILS W-7 THROUGH W-12, OF THESE SPECIFICATIONS.

SEWER LINE NOTE:

ALL 4" & 6" SEWER CLEANOUT LINES WILL BE AT 1% MINIMUM SLOPE PER CORPUD.

UTILITY CROSSING TABLE

CROSSING #	SHALLOWER PIPE SIZE & MATERIAL	DEEPER PIPE SIZE & MATERIAL	SHALLOWER PIPE INVERT AT CROSSING	DEEPER PIPE INVERT AT CROSSING	NOTES
1	15" HDPE	2" PVC	333.8	332.1	STORM PIPE ABOVE WATER SERVICE
2	15" RCP	8" DIP	327.6	324.4	STORM PIPE ABOVE WATER MAIN
3	15" RCP	8" DIP	330.1	327.9	STORM PIPE ABOVE WATER MAIN
4	18" RCP	8" DIP	329.5	327.1	STORM PIPE ABOVE WATER MAIN
5	6" DIP	8" DIP	326.9	324.7	SEWER SERVICE ABOVE WATER MAIN
6	15" RCP	8" PVC	327.6	323.3	STORM PIPE ABOVE SEWER MAIN
7	15" RCP	8" PVC	330	326.5	STORM PIPE ABOVE SEWER MAIN
8	15" HDPE	6" PVC	333.6	331.3	STORM PIPE ABOVE SEWER SERVICE

*CALLOUT USED TO SIGNIFY CROSSING LOCATIONS: (X)

BEFORE YOU DIG
STOP
CALL 1 800 632-4949
N.C. ONE-CALL CENTER
IT'S THE LAW

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

PUBLIC
Water Distribution/Extension System

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

City of Raleigh Public Utilities Department Permit # WI-4087

Authorization to Construct See digital signature

PUBLIC
Sewer Collection/Extension System

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

City of Raleigh Public Utilities Department Permit # S-5404

Authorization to Construct See digital signature

ATTENTION CONTRACTORS

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

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

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

N

GRAPHIC SCALE

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(IN FEET)
1 inch = 30 ft.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24424 MATTHEW E. LOWER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE	REVISIONS DESCRIPTION
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STORE OR BLDG NO.: N/A

VERSION OR PROJECT ID: N/A

DESIGN TEAM

DGNR. BRM & MCB

PM./DP. ML

RVWR. ML

ISSUE DATE: 03/04/2024

ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
UTILITY PLAN

DRWG. NO.
C5.0

Cad File Name:V:\220163 - Crosland Southeast - 7-Eleven - Kenly\220163-01-002 (ENG) - Crosland-7-Eleven - Zebulon, NC\Engineering\Engineering Plans\Construction Drawings\220163-01-002-UTP.dwg

Project Water System Data:

1. Are the total # domestic water services ≥ 15, OR the total # people served ≥ 25?
   Yes No
2. Type of development? (select one)
   - Commercial property
   - Residential Condos or Townhomes
   - Residential Apartments
3. *NOTE: permitting by City of Raleigh on projects having ≥ 15 domestic water services, OR serving ≥ 25 people, requires Developer NOT to re-sell water (or must have a WR designation from NCUC for Apartment projects only)*

UTILITY NOTES:

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH CITY OF RALEIGH STANDARD DRAWINGS AND SPECIFICATIONS.
2. IN THE EVENT THAT A UTILITY ITEM IS NOT COVERED BY THESE PLANS, THEN THE STANDARDS AND SPECIFICATIONS CONTAINED IN THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT HANDBOOK COVERING SUCH ITEMS SHALL APPLY.
3. WATER SERVICES 3/4-INCH TO 2-INCH SHALL BE TYPE "K" SOFT COPPER. ALL OTHER WATER MAINS, SERVICES, AND FITTINGS SHALL BE CEMENT-LINED DUCTILE IRON PIPE PER CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
4. GRAVITY SANITARY SEWER MAINS SHALL BE DUCTILE IRON PIPE OR PVC PIPE, AS SPECIFIED IN THESE PLANS AND CITY OF RALEIGH STANDARDS AND SPECIFICATIONS. SANITARY SEWER SERVICES SHALL BE SCHEDULE 40 PVC.
5. CLEAN-OUT SYMBOLS SHOWN ON THESE PLANS REPRESENT LOCATION OF SURFACE ACCESS POINT. CONTRACTOR SHALL LOCATE WYE APPROPRIATELY BASED ON PIPE DEPTH.
6. ALL MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS. MANHOLE DIAMETER SHALL VARY DEPENDING ON PIPE DIAMETER AND DEPTH, PER CITY OF RALEIGH STANDARDS.
7. LOCATIONS AND SIZES OF EXISTING UTILITIES SHOWN ON THESE PLANS WERE TAKEN FROM MAPS PREPARED BY OTHERS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES AND FOR DAMAGES RESULTING FROM FAILURE TO DO SO.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING RECORD DRAWINGS TO THE ENGINEER SHOWING THE LOCATION OF WATER AND SEWER SERVICES AND ANY DEVIATIONS FROM PLANS MADE DURING CONSTRUCTION. THE ENGINEER WILL PROVIDE THESE RECORD DRAWINGS TO THE OWNER.
9. WATER MAINS SHALL HAVE A MINIMUM COVER OF 36" BELOW PROPOSED GRADE.
10. ALL UNDERGROUND UTILITIES AND FIRE HYDRANTS MUST BE FUNCTIONALLY APPROVED PRIOR TO STRUCTURAL CONSTRUCTION.
11. THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS, TEES, AND FIRE HYDRANTS.
12. DIMENSIONS SHOWN ARE TO CENTERLINE OF PIPE OR FITTING.
13. ALL WATER AND SANITARY LEADS TO BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AT END.
14. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS. MINIMUM TRENCH WIDTH SHALL BE 2 FEET.
15. GENERAL CONTRACTOR SHALL HAVE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER THIS SYSTEM PRIOR TO INSTALLATION.
16. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
17. CONTRACTOR SHALL NOTIFY THE WATER AUTHORITY INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
18. ALL UTILITIES SHOULD BE KEPT TEN (10') APART (PARALLEL) OR WHEN CROSSING 24" VERTICAL CLEARANCE (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE).
19. PRESSURE REDUCING VALVES WILL BE REQUIRED ON THE DOMESTIC WATER MAINS IF THE STATIC PRESSURE AT THE BUILDING EXCEEDS 80PSI.
20. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATERLINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE SANITARY LINE SHALL BE DUCTILE IRON PIPE WITH MECHANICAL JOINTS AT LEAST 10 FEET ON BOTH SIDES OF CROSSING, THE WATERLINE SHALL HAVE MECHANICAL JOINTS WITH APPROPRIATE THRUST BLOCKING AS REQUIRED TO PROVIDE A MINIMUM OF 24" CLEARANCE, MEETING REQUIREMENTS OF ANSI A21.10 OR ANSI 21.11 (AWWA C-151) (CLASS 50).
21. DRAWINGS DO NOT PURPORT TO SHOW ALL EXISTING UTILITIES. EXISTING UTILITIES SHALL BE VERIFIED IN FIELD PRIOR TO INSTALLATION OF ANY NEW LINES.
22. CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE STANDARDS AND SPECIFICATIONS OF THE CITY OF RALEIGH WITH REGARDS TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
23. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES OR UTILITIES BY OTHERS AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
24. ALL CONSTRUCTION METHODS & MATERIALS SHALL CONFORM WITH THE CURRENT SPECIFICATIONS AND STANDARDS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA). THE AWWA CONSTRUCTION STANDARDS ARE SET FORTH IN THEIR CONSTRUCTION SPECIFICATIONS AND STANDARD FOR WATER AND SANITARY SEWERAGE FACILITIES, A COPY OF WHICH MUST BE PURCHASED FROM THE AWWA BY THE CONTRACTOR AND KEPT AT THE JOB SITE AT ALL TIMES. REFERENCE TO NCDOT SHALL MEAN THE CURRENT STANDARDS AND/OR SPECIFICATIONS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION.
25. THE CONTRACTOR SHALL BE REQUIRED TO EXCAVATE BELOW PLAN GRADE ANY MATERIALS WHICH ARE UNSUITABLE FOR FOUNDATIONS, SUB GRADES, PIPE TRENCH BOTTOMS OR OTHER PURPOSES AND BACKFILL THESE AREAS WITH AN APPROVED MATERIAL. THE EXTENT OF UNDERCUTTING AND BACKFILLING SHALL BE DETERMINED BY THE CITY OF RALEIGH AS TO AREAS WITHIN STREET RIGHT-OF-WAY AND THE ENGINEER IN OTHER AREAS. COMPENSATION SHALL BE AS SET FORTH IN THE CONTRACT DOCUMENTS.
26. A MINIMUM VERTICAL SEPARATION OF 24" SHALL BE MAINTAINED BETWEEN SANITARY SEWER & WATER LINES AND A FULL JOINT OF WATER LINE PIPE SHALL BE CENTERED WHERE WATER LINE CROSSES OVER SANITARY SEWER. WHERE CLEARANCE IS LESS THAN 18" BUT GREATER THAN 12", SANITARY SEWER SHALL BE PRESSURE TESTED DUCTILE IRON PIPE 10' FROM WATER-MAIN. WHEN WATER LINE CROSSES UNDER SANITARY SEWER, 18" MINIMUM CLEARANCE MUST BE MAINTAINED, AND SANITARY SEWER SHALL BE PRESSURE TESTED DUCTILE IRON PIPE 10' FROM WATER-MAIN.
27. ALL WATERLINES SHALL HAVE BURIED WITH THE PIPE # 12 COATED ELECTRIC WIRE AND BROUGHT UP INTO THE METER BOXES.
28. THE CONTRACTOR SHALL PROVIDE A SURVEY AS-BUILT RECORD DRAWING OF THE SANITARY SEWER SYSTEM AND THE WATER DISTRIBUTION SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF RALEIGH UTILITY DEPARTMENT.

FIRE PROTECTION NOTE

THE PROPOSED BUILDING WILL NOT HAVE A FIRE SPRINKLER SYSTEM

UTILITY NOTE

THE ESTIMATED WATER USAGE FOR THIS SITE IS ____ GPD BASED ON

METER NOTE:

CONTRACTOR TO CONTACT CITY OF RALEIGH METERS DIVISION FOR METER LAYOUT AND ADDRESSING.

HYDRANT NOTE:

ALL NEW FIRE HYDRANTS SHALL BE EQUIPPED WITH NST THREADS AND SHALL BE EQUIPPED WITH A 5 INCH STORZ CONNECTION.

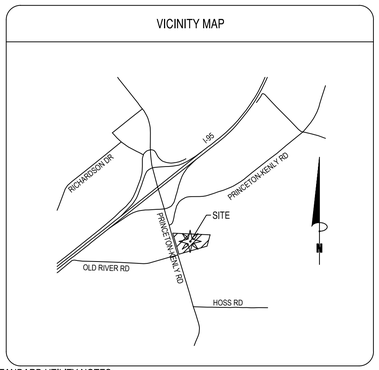
FIRE NOTE:

ELECTRICAL CIRCUIT AND FIRE ALARM CIRCUIT REQUIRED FOR FIRE LINE HOT BOX

UTILITY NOTE:

THERE SHALL BE NO CONSTRUCTION OF ANY FIRE MAINS AND NO SLAB PLACED IN THE FIRE PUMP ROOM OR SPRINKLER RISER ROOM UNTIL HYDRAULIC CALCULATIONS, FOR THE BUILDING(S) ARE SUBMITTED FOR REVIEW AND SUBSEQUENT APPROVAL

VICINITY MAP



STANDARD UTILITY NOTES:

1. All materials & construction methods shall be in accordance with City of Raleigh design standards, details & specifications (reference: CORPUD Handbook, current edition)
2. Utility separation requirements:
   a) A distance of 100' shall be maintained between sanitary sewer & any private or public water supply source such as an impounded reservoir used as a source of drinking water. If adequate lateral separation cannot be achieved, ferrous sanitary sewer pipe shall be specified & installed to waterline specifications. However, the minimum separation shall not be less than 25' from a private well or 50' from a public well
   b) When installing water &/or sewer mains, the horizontal separation between utilities shall be 10'. If this separation cannot be maintained due to existing conditions, the variation allowed is the water main in a separate trench with the elevation of the water main at least 18" above the top of the sewer & must be approved by the Public Utilities Director. All distances are measured from outside diameter to outside diameter
   c) Where it is impossible to obtain proper separation, or anytime a sanitary sewer passes over a watermain, DIP materials or steel encasement extended 10' on each side of crossing must be specified & installed to waterline specifications
   d) 5.0' minimum horizontal separation is required between all sanitary sewer & storm sewer facilities, unless DIP material is specified for sanitary sewer
   e) Maintain 18" min. vertical separation at all watermain & RCP storm drain crossings; maintain 18" min. vertical separation at all sanitary sewer & RCP storm drain crossings. Where adequate separations cannot be achieved, specify DIP materials & a concrete cradle having 6" min. clearance (per CORPUD details W-41 & S-49)
   f) All other underground utilities shall cross water & sewer facilities with 18" min. vertical separation required
3. Any necessary field revisions are subject to review & approval of an amended plan &/or profile by the City of Raleigh Public Utilities Department prior to construction
4. Developer shall provide 30 days advance written notice to owner for any work required within an existing City of Raleigh Utility Easement traversing private property
5. Contractor shall maintain continuous water & sewer service to existing residences & businesses throughout construction of project. Any necessary service interruptions shall be preceded by a 24 hour advance notice to the City of Raleigh Public Utilities Department
6. 3.0' minimum cover is required on all water mains & sewer forcemains. 4.0' minimum cover is required on all reuse mains
7. It is the developer's responsibility to abandon or remove existing water & sewer services not being used in redevelopment of a site unless otherwise directed by the City of Raleigh Public Utilities Department. This includes abandoning tap at main & removal of service from ROW or easement per CORPUD Handbook procedure
8. Install 2" copper* water services with meters located at ROW or within a 2'x2' Waterline Easement immediately adjacent. NOTE: It is the applicant's responsibility to properly size the water service for each connection to provide adequate flow & pressure
9. Install 6" PVC* sewer services @ 1.0% minimum grade with cleanouts located at ROW or easement line & spaced every 75 linear feet maximum
10. Pressure reducing valves are required on all water services exceeding 80 psi; backwater valves are required on all sanitary sewer services having building drains lower than 1.0' above the next upstream manhole
11. All environmental permits applicable to the project must be obtained from NCDWQ, USACE &/or FEMA for any riparian buffer, wetland &/or floodplain impacts (respectively) prior to construction
12. NCDOT / Railroad Encroachment Agreements are required for any utility work (including main extensions & service taps) within state or railroad ROW prior to construction
13. Grease Interceptor / Oil Water Separator sizing calculations & installation specifications shall be approved by the RW FOG Program Coordinator prior to issuance of a UC / Bldg Permit. Contact (919) 996-4516 or fog@raleighnc.gov for more information
14. Cross-connection control protection devices are required based on degree of health hazard involved as listed in Appendix-B of the Rules Governing Public Water Systems in North Carolina. These guidelines are the minimum requirements. The devices shall meet American Society of Sanitary Engineering (ASSE) standards or be on the University of Southern California approval list. The devices shall be installed and tested (both initial and periodic testing thereafter) in accordance with the manufacturer's recommendations or the local cross-connection control program, whichever is more stringent. A Certificate of Compliance shall also be obtained from the RW Cross Connection Coordinator for each device prior to issuance of a UC / Bldg Permit. Contact (919) 996-5923 or cross.connection@raleighnc.gov for more information
15. NOTICE for projects with replaced or oversized mains: If the City's reimbursement for an oversized main or urban main replacement project is $250,000 or greater - the project must be publicly bid

PUBLIC
Water Distribution/Extension System

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

City of Raleigh
Public Utilities Department Permit # W-4087

Authorization to Construct See digital signature

PUBLIC
Sewer Collection/Extension System

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

City of Raleigh
Public Utilities Department Permit # S-5404

Authorization to Construct See digital signature

ATTENTION CONTRACTORS

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

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

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

UTILITY SERVICE NOTES

WATER SERVICE
GENERAL CONTRACTOR TO PROVIDE AND INSTALL A **2" WATER SERVICE** LINE FROM MAIN TO BUILDING PER MUNICIPAL REQUIREMENTS.
CONTACT: CITY OF RALEIGH UTILITY DEPARTMENT
TELEPHONE: 919-857-4540

ELECTRIC SERVICE
"POWER CO." TO PROVIDE UNDERGROUND 120/208/3 PHASE SERVICE.
GENERAL CONTRACTOR TO PROVIDE AND INSTALL TWO 4" DIA. CONDUIT W/ PULL WIRE TO UTILITY COMPANY POINT OF CONNECTION.
CONTACT: PROGRESS ENERGY
TELEPHONE: 800-636-0581

TELEPHONE SERVICE
"TELEPHONE CO." TO PROVIDE NEW UNDERGROUND SERVICE. GENERAL CONTRACTOR TO PROVIDE AND INSTALL A 4" DIA. PVC CONDUIT W/ PULL WIRE FROM PHONE PANEL BOARD TO UTILITY COMPANY POINT OF CONNECTION.
CONTACT:
TELEPHONE:

SANITARY SEWER
GENERAL CONTRACTOR TO PROVIDE AND INSTALL A **6" SCHEDULE 40** PVC FROM EXISTING SANITARY SEWER SYSTEM TO LAST CLEAN OUT OUTSIDE OF BUILDING. (MIN. 1% SLOPE). PROVIDE CLEAN OUTS EVERY 75' (TYPICAL).
CONTACT: CITY OF RALEIGH UTILITY DEPARTMENT
TELEPHONE: 919-857-4540

NATURAL GAS
GENERAL CONTRACTOR TO COORDINATE WITH NATURAL GAS UTILITY FOR SERVICE LINE TO PROPOSED BUILDING.
CONTACT:
TELEPHONE:

CONDITION OF APPROAL

A PLAT WILL NEED TO BE RECORDED WITH THE REGISTER OF DEEDS FOR ALL EASEMENT DEDICATIONS

Bowman
Bowman North Carolina Ltd.
4006 BARRETT DR
Suite 104
RALEIGH, NC 27609
Phone: (919) 553-6570
bowman.com

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NORTH CAROLINA PROFESSIONAL SEAL 24494 ENGINEER MATTHEW E. LAWYER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

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ZEBULON, NC 27597

SHEET TITLE
UTILITY NOTES

DRWG. NO.
C5.1

UTILITY SERVICE NOTES

WATER SERVICE
GENERAL CONTRACTOR TO PROVIDE AND INSTALL A **2" WATER SERVICE** LINE FROM MAIN TO BUILDING PER MUNICIPAL REQUIREMENTS.
CONTACT: CITY OF RALEIGH UTILITY DEPARTMENT
TELEPHONE: 919-857-4540

ELECTRIC SERVICE
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GENERAL CONTRACTOR TO PROVIDE AND INSTALL TWO 4" DIA. CONDUIT W/ PULL WIRE TO UTILITY COMPANY POINT OF CONNECTION.
CONTACT: PROGRESS ENERGY
TELEPHONE: 800-636-0581

TELEPHONE SERVICE
"TELEPHONE CO." TO PROVIDE NEW UNDERGROUND SERVICE. GENERAL CONTRACTOR TO PROVIDE AND INSTALL A 4" DIA. PVC CONDUIT W/ PULL WIRE FROM PHONE PANEL BOARD TO UTILITY COMPANY POINT OF CONNECTION.
CONTACT:
TELEPHONE:

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GENERAL CONTRACTOR TO COORDINATE WITH NATURAL GAS UTILITY FOR SERVICE LINE TO PROPOSED BUILDING.
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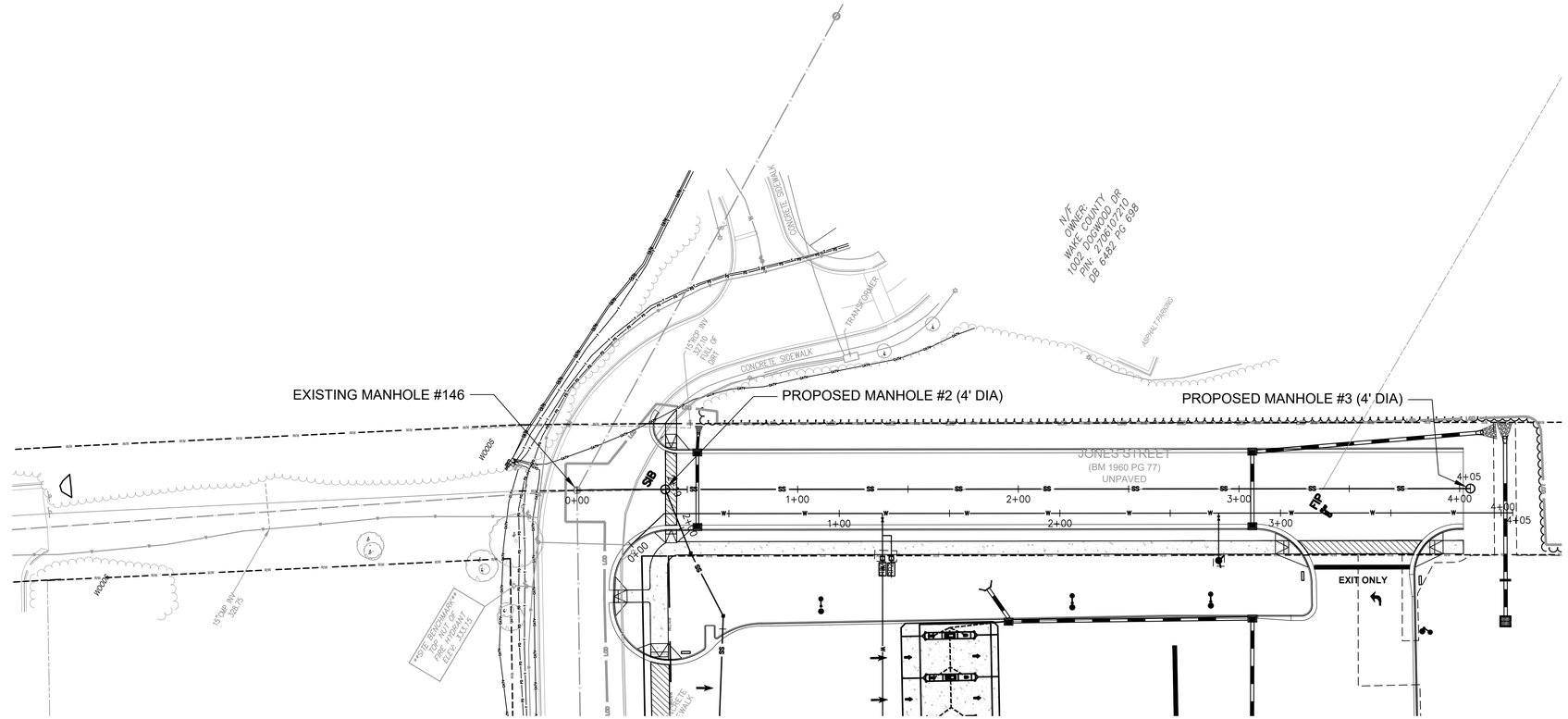
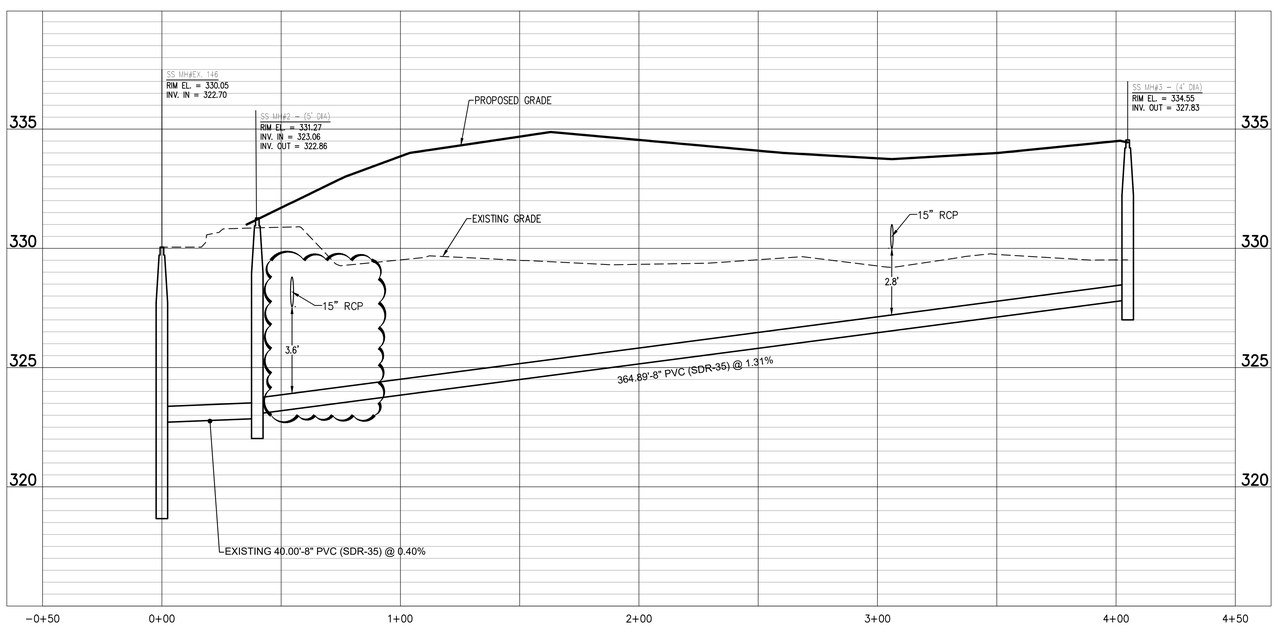
TELEPHONE:





SEWER PROFILE VIEW
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'

CONDITION OF APPROAL

A PLAT WILL NEED TO BE RECORDED WITH THE REGISTER OF DEEDS FOR ALL EASEMENT DEDICATIONS

PUBLIC Water Distribution/Extension System

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

City of Raleigh
Public Utilities Department Permit # W-4087

Authorization to Construct See digital signature

PUBLIC Sewer Collection/Extension System

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City of Raleigh
Public Utilities Department Permit # S-5404

Authorization to Construct See digital signature

ATTENTION CONTRACTORS

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

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

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

STANDARD UTILITY NOTES:

1. All materials & construction methods shall be in accordance with City of Raleigh design standards, details & specifications (reference: CORPUD Handbook, current edition)
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   a) A distance of 100' shall be maintained between sanitary sewer & any private or public water supply source such as an impounded reservoir used as a source of drinking water. If adequate lateral separation cannot be achieved, ferrous sanitary sewer pipe shall be specified & installed to waterline specifications. However, the minimum separation shall not be less than 25' from a private well or 50' from a public well
   b) When installing water &/or sewer mains, the horizontal separation between utilities shall be 10'. If this separation cannot be maintained due to existing conditions, the variation allowed is the water main in a separate trench with the elevation of the water main at least 18' above the top of the sewer & must be approved by the Public Utilities Director. All distances are measured from outside diameter to outside diameter
   c) Where it is impossible to obtain proper separation, or anytime a sanitary sewer passes over a watermain, DIP materials or steel encasement extended 10' on each side of crossing must be specified & installed to waterline specifications
   d) 5.0' minimum horizontal separation is required between all sanitary sewer & storm sewer facilities, unless DIP material is specified for sanitary sewer
   e) Maintain 18" min. vertical separation at all watermain & RCP storm drain crossings; maintain 18" min. vertical separation at all sanitary sewer & RCP storm drain crossings. Where adequate separations cannot be achieved, specify DIP materials & a concrete cradle having 6" min. clearance (per CORPUD details W 41 & S-49)
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8. Install 2" copper* water services with meters located at ROW or within a 2'x2' Waterline Easement immediately adjacent. NOTE: it is the applicant's responsibility to properly size the water service for each connection to provide adequate flow & pressure
9. Install 6" PVC* sewer services @ 1.0% minimum grade with cleanouts located at ROW or easement line & spaced every 75 linear feet maximum
10. Pressure reducing valves are required on all water services exceeding 80 psi; backwater valves are required on all sanitary sewer services having building drains lower than 1.0' above the next upstream manhole
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12. NCDOT / Railroad Encroachment Agreements are required for any utility work (including main extensions & service taps) within state or railroad ROW prior to construction
13. Grease Interceptor / Oil Water Separator sizing calculations & installation specifications shall be approved by the RW FOG Program Coordinator prior to issuance of a UC / Bldg Permit. Contact (919) 996-4516 or fog@raleighnc.gov for more information
14. Cross-connection control protection devices are required based on degree of health hazard involved as listed in Appendix-B of the Rules Governing Public Water Systems in North Carolina. These guidelines are the minimum requirements. The devices shall meet American Society of Sanitary Engineering (ASSE) standards or be on the University of Southern California approved list. The devices shall be installed and tested (both initial and periodic testing thereafter) in accordance with the manufacturer's recommendations or the local cross-connection control program, whichever is more stringent. A Certificate of Compliance shall also be obtained from the RW Cross Connection Coordinator for each device prior to issuance of a UC / Bldg Permit. Contact (919) 996-5923 or cross.connection@raleighnc.gov for more information
15. NOTICE for projects with replaced or oversized mains: If the City's reimbursement for an oversized main or urban main replacement project is $250,000 or greater – the project must be publicly bid

Know what's below.
Call before you dig.

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CALL 1 800 632-4949
N.C. ONE-CALL CENTER
IT'S THE LAW

GRAPHIC SCALE
50 0 25 0 100 200
(IN FEET)
1 inch = 50 ft.

Bowman
Bowman North Carolina Ltd.
4006 BARRETT DR
Suite 104
RALEIGH, NC 27609
Phone: (919) 553-6570
bowman.com
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NORTH CAROLINA PROFESSIONAL SEAL 24484 ENGINEER MATTHEW E. LAWYER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE	REVISIONS DESCRIPTION
1	BRM	1/02/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	1/25/23	TOWN OF ZEBULON REVIEW
3	MCB	1/27/23	WAKE COUNTY REVIEW
4	BRM/MCB	11/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
SEWER PLAN AND PROFILE

DRWG. NO.
C5.2

UTILITY SERVICE NOTES

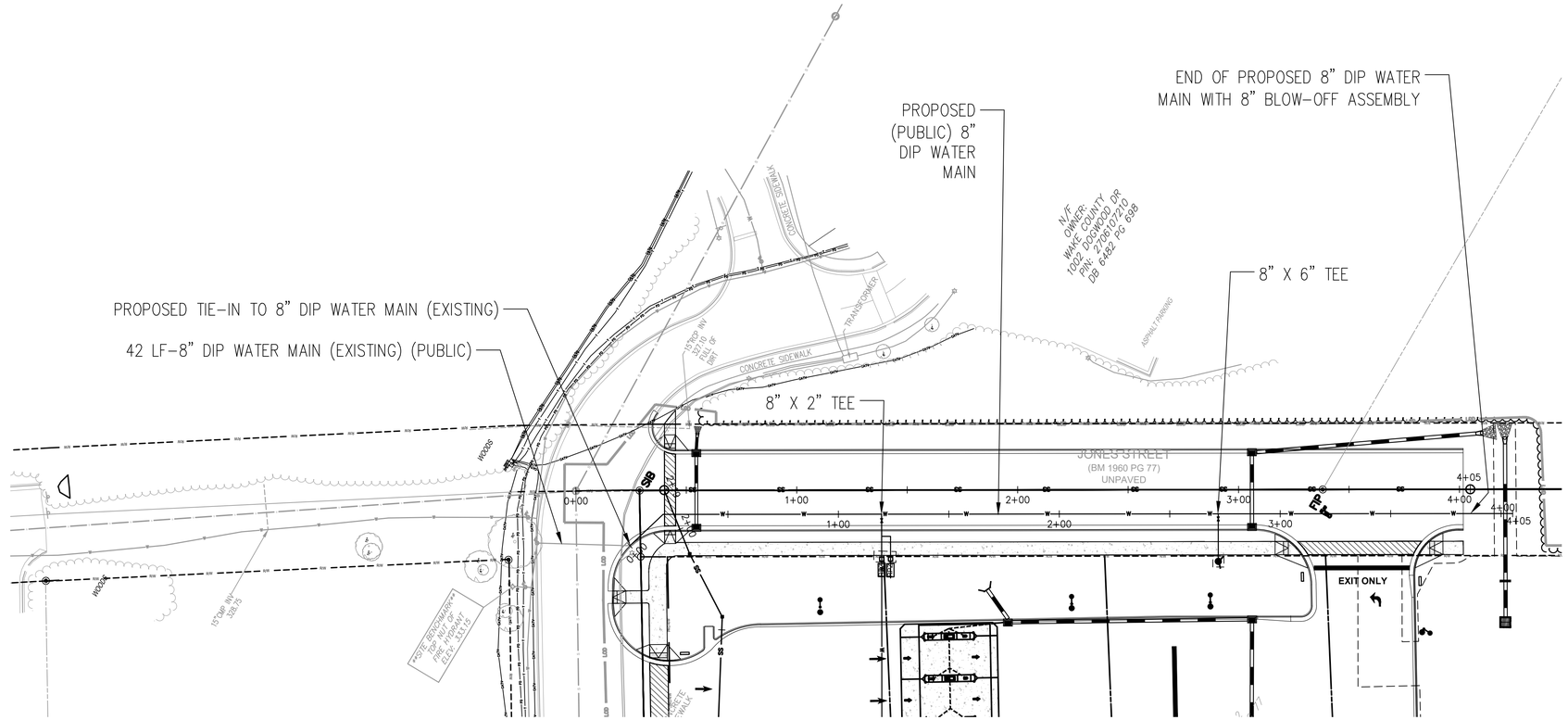
WATER SERVICE
GENERAL CONTRACTOR TO PROVIDE AND INSTALL A 1" WATER SERVICE LINE FROM MAIN TO BUILDING PER MUNICIPAL REQUIREMENTS.
CONTACT: CITY OF RALEIGH UTILITY DEPARTMENT
TELEPHONE: 919-857-4540

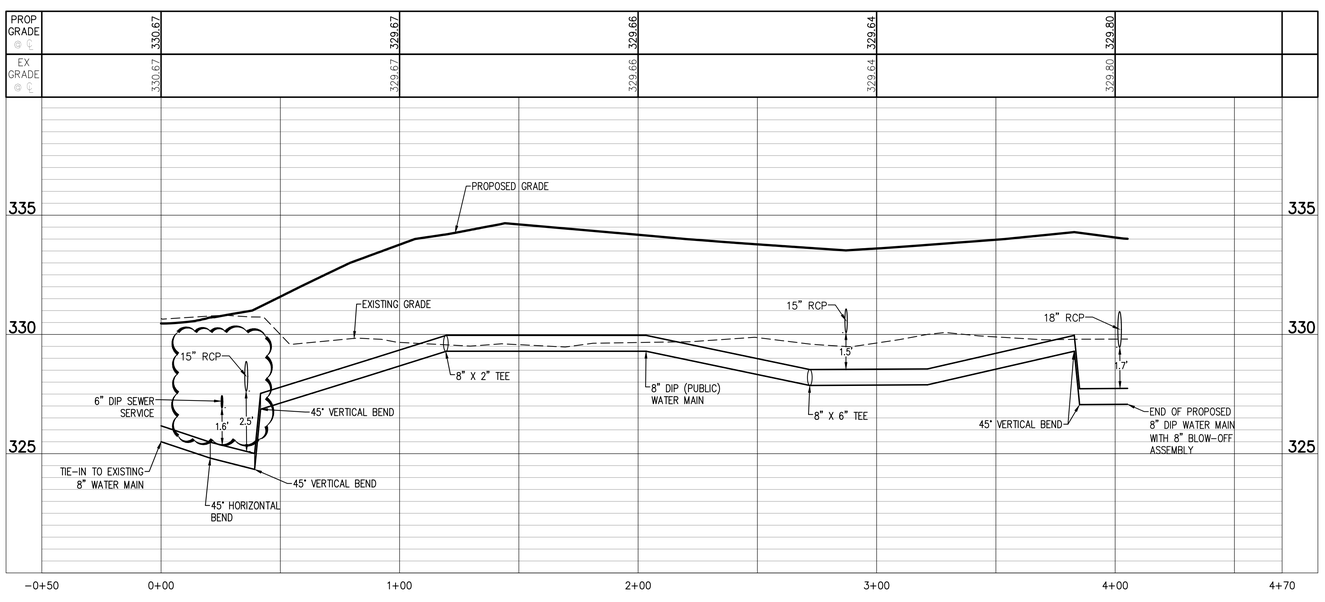
ELECTRIC SERVICE
"POWER CO." TO PROVIDE UNDERGROUND 120/208/3 PHASE SERVICE.
GENERAL CONTRACTOR TO PROVIDE AND INSTALL TWO 4" DIA. CONDUIT W/ PULL WIRE TO UTILITY COMPANY POINT OF CONNECTION.
CONTACT: PROGRESS ENERGY
TELEPHONE: 800-636-0581

TELEPHONE SERVICE
"TELEPHONE CO." TO PROVIDE NEW UNDERGROUND SERVICE. GENERAL CONTRACTOR TO PROVIDE AND INSTALL A 4" DIA. PVC CONDUIT W/ PULL WIRE FROM PHONE PANEL BOARD TO UTILITY COMPANY POINT OF CONNECTION.
CONTACT:
TELEPHONE:

SANITARY SEWER
GENERAL CONTRACTOR TO PROVIDE AND INSTALL A 4" SCHEDULE 40 PVC FROM EXISTING SANITARY SEWER SYSTEM TO LAST CLEAN OUT OUTSIDE OF BUILDING. (MIN. 1% SLOPE). PROVIDE CLEAN OUTS EVERY 75' (TYPICAL).
CONTACT: CITY OF RALEIGH UTILITY DEPARTMENT
TELEPHONE: 919-857-4540

NATURAL GAS
GENERAL CONTRACTOR TO COORDINATE WITH NATURAL GAS UTILITY FOR SERVICE LINE TO PROPOSED BUILDING.
CONTACT:
TELEPHONE:





WATER MAIN PROFILE VIEW
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'

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City of Raleigh Public Utilities Department Permit # W-4087

Authorization to Construct See digital signature

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Authorization to Construct See digital signature

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bowman.com

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NORTH CAROLINA PROFESSIONAL SEAL 24484 ENGINEER MATTHEW E. LOWER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION
1	BRM	1/0/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	1/25/23	TOWN OF ZEBULON REVIEW
3	MCB	1/27/23	WAKE COUNTY REVIEW
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5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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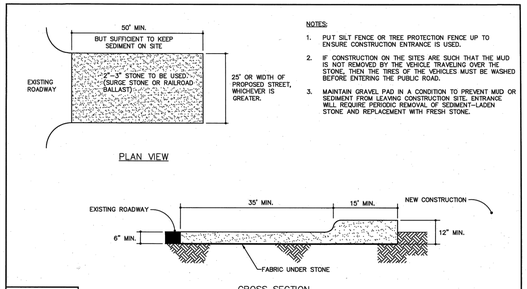
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
WATER PLAN AND PROFILE

DRWG. NO. C5.3



NOTES:

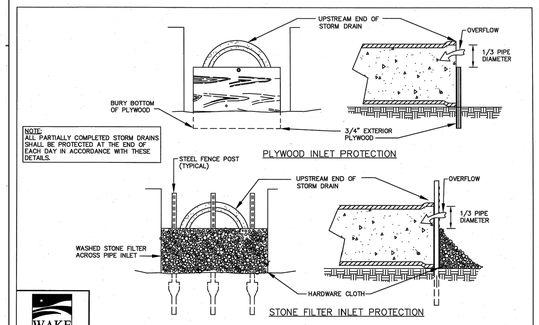
1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.
3. MAINTAIN GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING CONSTRUCTION SITE. ENTRANCE WILL REQUIRE PERIODIC REMOVAL OF SEDIMENT-LADEN STONE AND REPLACEMENT WITH FRESH STONE.

2"-3" STONE TO BE USED (SURGE STONE OR RAILROAD BALLAST)

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD CONSTRUCTION ENTRANCE



NOTE:
ALL PARTIALLY COMPLETED STORM DRAINS SHALL BE PROTECTED AT THE END OF EACH DAY IN ACCORDANCE WITH THESE DETAILS.

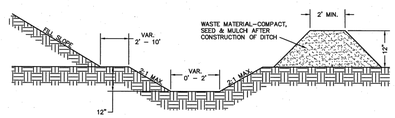
WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)

NOTES:

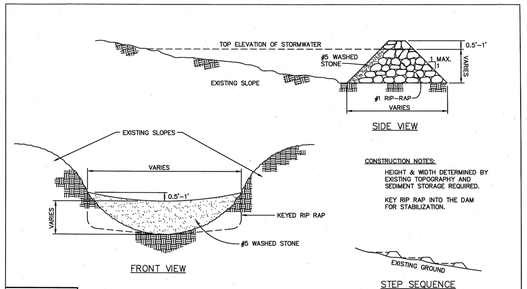
1. TEMPORARY DIVERSION DITCH TO BE USED TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE OR BMP.
2. SILT SHALL BE REMOVED WHEN DITCH IS ONE-HALF FULL.
3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.
4. STABILIZE DIVERSION DITCH BERM WITH TEMPORARY SEEDING, MULCH WITH TAC, AND/OR EROSION CONTROL NETTING.



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD TEMPORARY DIVERSION DITCH



CONSTRUCTION NOTES:

HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.

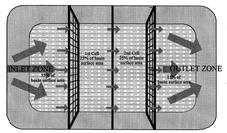
KEY RIP RAP INTO THE DAM FOR STABILIZATION.

NOTE: REMOVE SEDIMENT ACCUMULATION FROM BEHIND CHECK DAMS TO PREVENT DAMAGE TO CHANNEL VEGETATION. FLOW SHOULD BE MAINTAINED THROUGH THE DAM.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD CHECK DAM

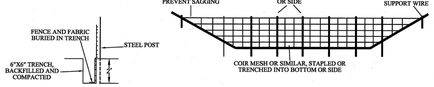


PLAN VIEW

NOTES:

1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
3. PROVIDE 3 BAFFLES (USE TWO IF LESS THAN 20 FEET IN LENGTH). PROVIDE 5 BAFFLES FOR DRAINAGE AREAS GREATER THAN 10 ACRES.
4. BAFFLE SHALL BE 700 G/M2 COIR EROSION BLANKET.
5. TOPS OF BAFFLES SHOULD BE 3 INCHES LOWER THAN THE TOP OF THE BERMS
6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL

CROSS SECTION

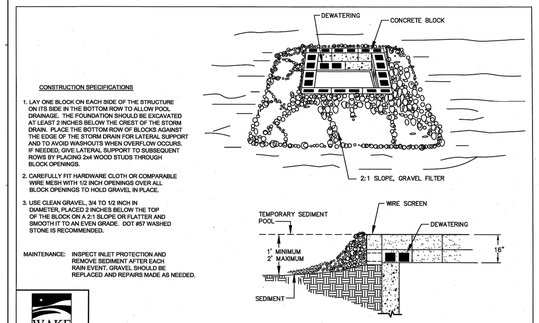


SECTION VIEW AT OPENING

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD BAFFLES DETAIL



CONSTRUCTION SPECIFICATIONS

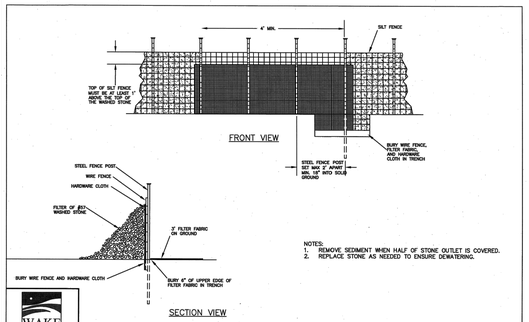
1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE IN THE BOTTOM ROW TO ALLOW POOL DRAINAGE. THE FOUNDATION SHOULD BE EXCAVATED AT LEAST 2 INCHES BELOW THE CREST OF THE STORM DRAIN. PLACE THE BOTTOM ROW OF BLOCKS AGAINST THE EDGE OF THE STORM DRAIN FOR LATERAL SUPPORT AND TO AVOID WASHOUTS WHEN OVERFLOW OCCURS. IF NEEDED, GIVE LATERAL SUPPORT TO SUBSEQUENT ROWS BY PLACING 2x4 WOOD STUDS THROUGH BLOCK OPENINGS.
2. CAREFULLY FIT HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2 INCH OPENINGS OVER ALL BLOCK OPENINGS TO HOLD GRAVEL IN PLACE.
3. USE CLEAN GRAVEL, 3/4 TO 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.

MAINTENANCE: INSPECT INLET PROTECTION AND REMOVE SEDIMENT AFTER EACH RAIN EVENT. GRAVEL SHOULD BE REPLACED AND REPAIRS MADE AS NEEDED.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD BLOCK & GRAVEL DROP INLET PROTECTION



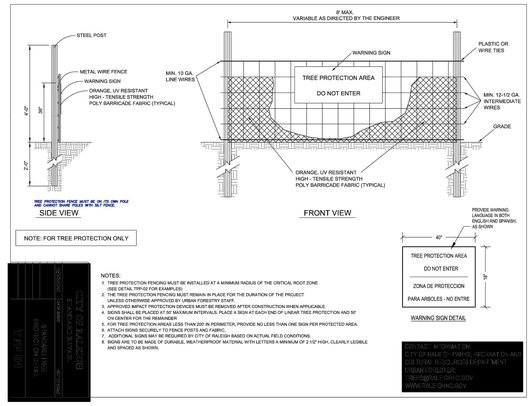
NOTES:

1. REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED.
2. REPLACE STONE AS NEEDED TO ENSURE DEWATERING.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD SILT FENCE OUTLET



NOTE: FOR TREE PROTECTION ONLY

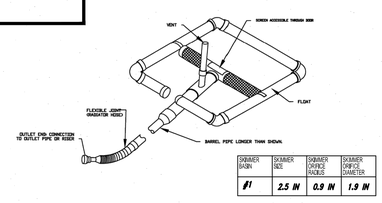
NOTES:

1. TREE PROTECTION FENCING MUST BE INSTALLED AT A MINIMUM RADIUS OF THE CRITICAL ROOT ZONE (1' RADIUS FOR EACH INCH DBH).
2. THE TREE PROTECTION FENCING MUST REMAIN IN PLACE FOR THE DURATION OF THE PROJECT UNLESS OTHERWISE APPROVED BY URBAN FORESTRY STAFF.
3. APPROVED IMPACT PROTECTION DEVICES MUST BE REMOVED AFTER CONSTRUCTION WHEN APPLICABLE.
4. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER FOR THE REMAINDER.
5. FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTED AREA.
6. SIGNS SHALL BE PLACED ON THE PROTECTIVE FENCE.
7. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF RALEIGH BASED ON ACTUAL FIELD CONDITIONS.
8. SIGNS ARE TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL WITH LETTERS A MINIMUM OF 2 1/2" HIGH. CLEARLY LEGIBLE AND SPACED AS SHOWN.

CONTACT: INSPCTIONS@CITY OF RALEIGH.GOV
CITY OF RALEIGH - PARKS, RECREATION AND CULTURAL RESOURCES DEPARTMENT
URBAN FORESTER
919-996-6185 / CHAD.BOW
WWW.RALEIGHNC.GOV

SKIMMER CONTACT INFORMATION

J.R. FARRO, OTH & SONS, INC
P.O. BOX 707
HILLSBOROUGH, NC 27278
919-732-0241
919-732-0286 FX



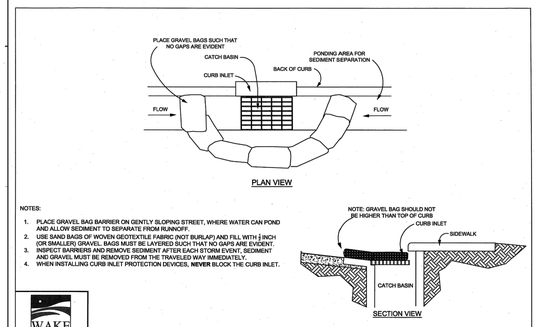
SKIMMER BASIN	SKIMMER SIZE	SKIMMER ORIFICE RADIUS	SKIMMER ORIFICE DIAMETER
#1	2.5 IN	0.9 IN	1.9 IN

SKIMMER BASIN

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD SKIMMER DETAIL



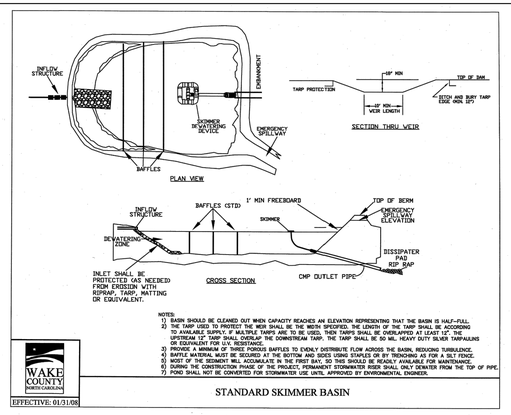
NOTES:

1. PLACE GRAVEL BAG BARRIER ON GENTLY SLOPING STREET, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNNOFF.
2. USE SAND BAGS OF WOVEN GEOTEXTILE FABRIC (NOT BURLAP) AND FILL WITH ⅔ INCH (OR SMALLER) GRAVEL. BAGS MUST BE LAYERED SUCH THAT NO GAPS ARE EVIDENT.
3. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.
4. WHEN INSTALLING CURB INLET PROTECTION DEVICES, NEVER BLOCK THE CURB INLET.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD GRAVEL BAG CURB INLET PROTECTION



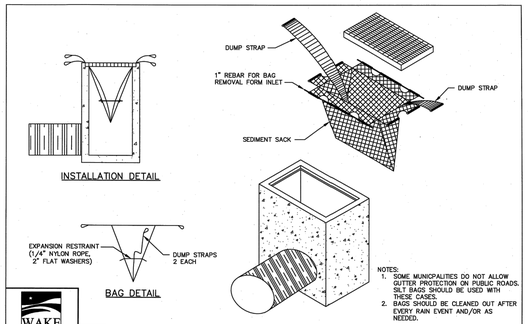
NOTES:

1) BASIN SHOULD BE CLEANED OUT WHEN CAPACITY REACHES AN ELEVATION REPRESENTING THAT THE BASIN IS HALF-FULL.
2) THE TARP USED TO PROTECT THE WEIR SHALL BE THE WIDTH SPECIFIED. THE LENGTH OF THE TARP SHALL BE ACCORDING TO AVAILABLE SUPPLY. IF MULTIPLE TARPS ARE TO BE USED, THEN TARPS SHALL BE OVERLAPPED AT LEAST 12" THE UPSTREAM 12" TARP SHALL OVERLAP THE DOWNSTREAM TARP. THE TARP SHALL BE 55 ML. HEAVY DUTY SILVER TARPAULINS WITH GROMMETS AT 3' INTERVALS.
3) PROVIDE A MINIMUM OF THREE POROUS BAFFLES TO EVENLY DISTRIBUTE FLOW ACROSS THE BASIN, REDUCING TURBULENCE.
4) BAFFLE MATERIAL MUST BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR A SILT FENCE.
5) MOST OF THE SEDIMENT WILL ACCUMULATE IN THE FIRST BAY, SO THIS SHOULD BE READILY AVAILABLE FOR MAINTENANCE.
6) DURING THE CONSTRUCTION PHASE OF THE PROJECT, PERMANENT STORMWATER RISER SHALL ONLY DEWATER FROM THE TOP OF PIPE.
7) POND SHALL NOT BE CONVERTED FOR STORMWATER USE UNTIL APPROVED BY ENVIRONMENTAL ENGINEER.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD SKIMMER BASIN



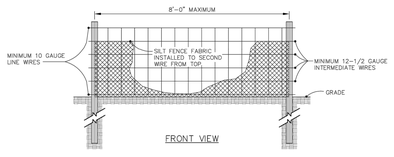
NOTES:

1. SOME MUNICIPALITIES DO NOT ALLOW GUTTER PROTECTION ON PUBLIC ROADS. SILT BAGS SHOULD BE USED WITH THESE CASES.
2. BAGS SHOULD BE CLEANED OUT AFTER EVERY RAIN EVENT AND/OR AS NEEDED.

WAKE COUNTY NORTH CAROLINA

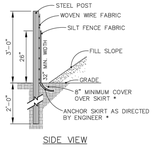
EFFECTIVE: 01/31/08

STANDARD SILT BAG - INLET SEDIMENT CONTROL DEVICE



NOTE:

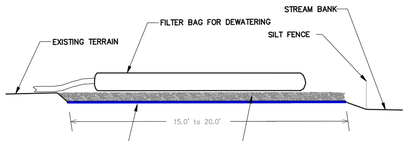
1. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.
2. REMOVE SEDIMENT DEPOSITED AS NEEDED TO PROVIDE STORAGE VOLUME FOR THE NEXT RAIN AND TO REMOVE PRESSURE ON THE SILT FENCE.



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD TEMPORARY SILT FENCE



NOTES

PROVIDE STABILIZED OUTLET TO STREAM BANK. WOOD PALLETS MAY BE USED IN LIEU OF STONE AND GEOTEXTILE AS DIRECTED. A SUFFICIENT NUMBER OF PALLETS MUST BE PROVIDED TO ELEVATE THE ENTIRE FILTER BAG FOR DEWATERING ABOVE NATURAL GROUND.

NOT TO SCALE

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD FILTER BAG FOR DEWATERING ACTIVITIES

Cad File Name: V:\220163 - Crosland Southeast - 7-Eleven - Kenly\220163-01-002 (ENG) - Crosland-7-Eleven - Zebulon, NC\Engineering\Engineering Plans\Construction Drawings\220163-01-002-ES.dwg

Bowman
Bowman North Carolina Ltd.
4006 BARRETT DR
Suite 104
RALEIGH, NC 27609
Phone: (919) 553-6570
bowman.com

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NORTH CAROLINA PROFESSIONAL SEAL 24424 ENGINEER MATTHEW E. LAWYER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY:	DATE:	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	2/23/23	TOWN OF ZEBULON REVIEW
3	MCB	2/27/23	WAKE COUNTY REVIEW
4	BRM/MCB	11/8/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM/DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
EROSION CONTROL DETAILS

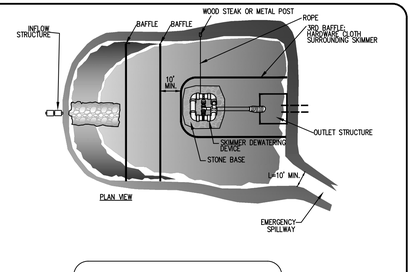
DRWG. NO. C6.0

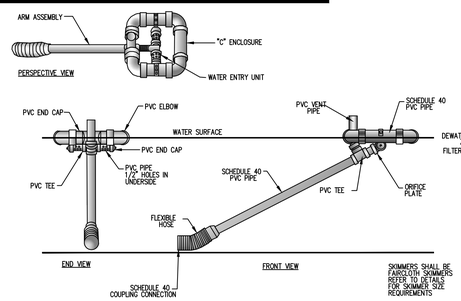
SEDIMENT BASIN REQUIREMENTS:

SEDIMENT BASINS AND TRAPS SHALL MEET THE FOLLOWING REQUIREMENTS:

A) OUTLET STRUCTURES SHALL BE UTILIZED THAT WITHDRAW WATER FROM THE SURFACE.
B) FOR BASINS OR TRAPS THAT HAVE A DRAINAGE AREA OF LESS THAN 1.0 ACRE, DRAW-DOWN DESIGNS SPECIFIED IN THE DIVISION OF LAND RESOURCES OR DELEGATED LOCAL PROGRAM REQUIREMENTS ARE ACCEPTABLE.
C) CHEMICAL TREATMENT:
   1) ALL TREATMENT CHEMICALS MUST BE STORED IN LEAK-PROOF CONTAINERS THAT ARE KEPT UNDER STORM-RESISTANT COVER OR SURROUNDED BY SECONDARY CONTAINMENT STRUCTURES DESIGNED TO PROTECT ADJACENT SURFACE WATERS.
   2) ALL TREATMENT CHEMICALS MUST BE USED IN ACCORDANCE WITH DOSING SPECIFICATIONS AND APPLICATION RATES PROVIDED BY THE MANUFACTURER, SUPPLIER AND AS SPECIFIED BY THE DIVISION OF WATER QUALITY.
   3) THE PERMITTEE MUST ONLY USE CHEMICALS THAT HAVE BEEN APPROVED BY THE NC DIVISION OF WATER QUALITY AND POSTED ON THEIR "NORTH CAROLINA DIVISION OF WATER QUALITY APPROVED PAMS/FLOCCULANTS LIST" FOUND ON THEIR WEB SITE AT: http://portal.ncdenr.org/web/wq/ms/su.
   4) THE PERMITTEE MUST ROUTE STORMWATER TREATED WITH POLYMERS, FLOCCULANTS, OR OTHER TREATMENT CHEMICALS THROUGH SEDIMENT TRAPPING, FILTERING, AND/OR SETTLING DEVICE(S) TO ENSURE ADEQUATE REMOVAL OF SEDIMENT FLOCCULENT PRIOR TO DISCHARGE TO SURFACE WATERS.
D) DISCHARGE REQUIREMENT – DISCHARGES MUST MEET THE STATUTORY REQUIREMENTS OF THE SEDIMENT POLLUTION CONTROL ACT AND UTILIZE THE PROVISIONS OF SECTION 6.74 OF THE DIVISION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL TO ASSURE THAT BUFFERS AND VEGETATED AREAS WILL BE USED TO REDUCE THE POTENTIAL FOR VISIBLE SILTATION OUTSIDE OF THE 25ft BUFFER ZONE NEAREST THE LAND-DISTURBING ACTIVITY.

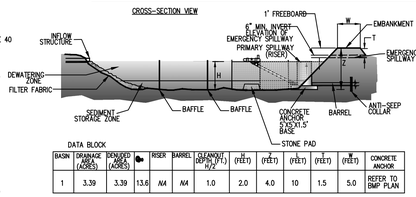
Skimmer Basin #1					
SURFACE AREA REQUIRED	5,792			SF	
SURFACE AREA PROVIDED	5,940			SF	
VOLUME REQUIRED	6,102			CF	
VOLUME PROVIDED	10,240			CF	
STORAGE DEPTH	2.0			FT	
STORAGE ELEVATION	180	x	33	FT	332.00
TOP OF DAM	188	x	41	FT	334.00
EMGY. SPILLWAY LENGTH	10			FT	332.50
BOTTOM OF BASIN	172	x	25	FT	330.00
SKIMMER SIZE	2.5			IN	
SKIMMER ORIFICE DIAMETER	1.9			IN	
SKIMMER ORIFICE RADIUS	0.9			IN	
SIDESLOPES	2:1				
DAYS TO DRAIN	3				





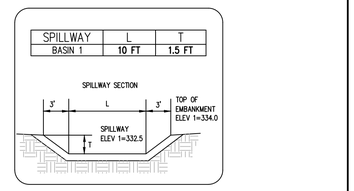
SKIMMERS SHALL BE FAIRCLOTH SKIMMERS. REFER TO DETAILS FOR SKIMMER SIZE REQUIREMENTS

STANDARD SKIMMER DETAIL



NOTES:
1. REFER TO NCESCPDM SECTION 6.61 FOR ADDITIONAL DESIGN SPECIFICATIONS REGARDING SEDIMENT BASINS.

SPILLWAY	L	T
BASIN 1	10 FT	1.5 FT



DATA BLOCK

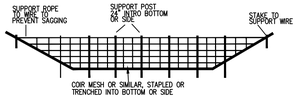
BASIN	DRAINAGE AREA (ACRES)	DEN.DED AREA (ACRES)	%	RISER	BARREL	CLEANOUT DEPTH (FT.) N/2	H (FEET)	(FEET)	(FEET)	T (FEET)	W (FEET)	CONCRETE ANCHOR
1	3.39	3.39	13.6	N/A	N/A	1.0	2.0	4.0	10	1.5	5.0	REFER TO BMP PLAN

SKIMMER CONTACT INFORMATION
J.W. FAIRCLOTH & SONS, INC.
P.O. BOX 757
HILLSBOROUGH, NC 27278
919-732-1244
919-732-1266 FX

NOTES:
1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
3. PROVIDE 3 BAFFLES (USE TWO IF LESS THAN 20 FEET IN LENGTH). PROVIDE 5 BAFFLES FOR DRAINAGE AREAS GREATER THAN 10 ACRES.
4. BAFFLE SHALL BE 700 G/M2 COIR EROSION BLANKET.
5. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS
6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL

CONSTRUCTION SPECIFICATIONS:
1. CLEAR, GRUB, AND STRIP THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNTS OF ORGANIC MATTER, AND STOCKPILE OR DISPOSE OF IT PROPERLY. HAUL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW BASIN AS NEEDED.
2. ENSURE THAT FILL MATERIAL FOR THE EMBANKMENT IS FREE OF ROOTS, WOODY VEGETATION, ORGANIC MATTER, AND OTHER OBJECTIONABLE MATERIAL. PLACE THE FILL IN LIFTS NOT TO EXCEED 9 INCHES, AND MACHINE COMPACT IT. OVER FILL THE EMBANKMENT 6 INCHES TO ALLOW FOR SETTLEMENT.
3. SHAPE THE BASIN TO THE SPECIFIED DIMENSIONS. PREVENT THE SKIMMER DEVICE FROM SETTLING INTO THE MUD BY EXCAVATING A SHALLOW PIT UNDER THE SKIMMER OR PROVIDING A LOW SUPPORT UNDER THE SKIMMER OF STONE OR TIMBER.
4. PLACE THE BARREL (TYPICALLY 4-INCH SCHEDULE 40 PVC PIPE) ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PERVIOUS MATERIAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS BACKFILL AROUND THE PIPE. PLACE THE FILL MATERIAL AROUND THE PIPE SPILLWAY IN 4-INCH LAYERS AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT TO RAISE THE PIPE FROM THE FIRM CONTACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE HAUNCHES. PLACE A MIN. DEPTH OF 2 FEET OF COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT. IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.
5. ASSEMBLE THE SKIMMER FOLLOWING THE MANUFACTURERS INSTRUCTIONS, OR AS DESIGNED.
6. LAY THE ASSEMBLED SKIMMER ON THE BOTTOM OF THE BASIN WITH THE FLEXIBLE JOINT AT THE INLET OF THE BARREL PIPE. ATTACH THE FLEXIBLE JOIN TO THE BARREL PIPE AND POSITION THE SKIMMER OVER THE EXCAVATED PIT OR SUPPORT. BE SURE TO ATTACH A ROPE TO THE SKIMMER AND ANCHOR IT TO THE SIDE OF THE BASIN. THIS WILL BE USED TO PULL THE SKIMMER TO THE SIDE FOR MAINTENANCE.
7. EARTHEN SPILLWAYS–INSTALL THE SPILLWAY IN UNDISTURBED SOIL TO THE GREATEST EXTENT POSSIBLE. THE ACHEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE SPILLWAY. THE SPILLWAY SHOULD BE LINED WITH A LAMINATED PLASTIC OR IMPERMEABLE GEOTEXTILE FABRIC. THE FABRIC MUST BE WIDE AND LONG ENOUGH TO COVER THE BOTTOM AND SIDES AND EXTEND ONTO THE TOP OF THE DAM FOR ANCHORING IN A TRENCH. THE EDGES MAY BE SECURED WITH 8-INCH STAPLES OR PINS. THE FABRIC MUST BE LONG ENOUGH TO EXTEND DOWN THE SLOPE AND EXIT ONTO STABLE GROUND. THE WIDTH OF THE FABRIC MUST BE ONE PIECE, NOT JOINED OR SPLICED; OTHERWISE WATER CAN GET UNDER THE FABRIC. IF THE LENGTH OF THE FABRIC IS INSUFFICIENT FOR THE ENTIRE LENGTH OF THE SPILLWAY, MULTIPLE SECTIONS, SPANNING THE COMPLETE WIDTH, MAY BE USED. THE UPPER SECTION(S) SHOULD OVERLAP THE LOWER SECTION(S) SO THAT WATER CANNOT FLOW UNDER THE FABRIC. SECURE THE UPPER EDGE AND SIDES OF THE FABRIC WITH A TRENCH WITH STAPLES OR PINS.
8. INLETS– DISCHARGE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE TEMPORARY SLOPE DRAINS OR DIVERSIONS WITH OUTLET PROTECTION TO DIVER SEDIMENT-LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE BASIN TRAP EFFICIENCY.
9. EROSION CONTROL–CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED. STABILIZE THE EMERGENCY SPILLWAY EMBANKMENT AND ALL OTHER DISTURBED AREAS ABOVE THE CREST OF THE PRINCIPAL SPILLWAY IMMEDIATELY AFTER CONSTRUCTION.
10. INSTALL POROUS BAFFLES AS SPECIFIED IN PRACTICE 6.65, POROUS BAFFLES.
11. AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND STABILIZE PROPERLY.

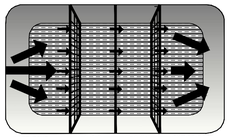
BAFFLE MAINTENANCE
INSPECT BAFFLES AT LEAST ONE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BAFFLES. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.
AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.



CROSS SECTION

SECTION VIEW AT OPENING

SKIMMER BASIN MAINTENANCE
INSPECT SKIMMER SEDIMENT BASIN AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (ONE-HALF INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FIRST BAFFLE. PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN, NOT JUST AROUND THE SKIMMER OR THE FIRST CELL. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.
REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH OR AROUND THEM.
IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLODGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK, PULL THE SKIMMER OVER TO THE SIDE OF THE BASIN AND REMOVE THE DEBRIS. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER TO SEE IF IT IS CLOGGED; IF SO REMOVE THE DEBRIS.
IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AND THE OBSTRUCTION CLEARED WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.
CHECK THE FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREAS.
FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.



PLAN VIEW

1 SKIMMER BASIN
NOT TO SCALE

8. Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand should be more than 60% damaged, re-establish following the original line, fertilizer and seeding rates.
9. Consult Wake County Soil & Water or NC State Cooperative Extension on maintenance treatment and fertilization after permanent cover is established.

Mixture

Agricultural Limestone	2 tons/acre (3 tons/acre in clay soils)
Fertilizer	1,000 lbs/acre – 10-10-10
Superphosphate	500 lbs/acre – 20% analysis
Mulch	2 tons/acre – small grain straw
Anchor	Asphalt emulsion at 400 gals/acre

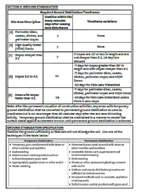
Seeding Schedule

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

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

Seeding Specifications

NPDES Stormwater Discharge Permit for Construction Activities (NCGO1 - 4/1/19)
NCDEQ/Division of Energy, Mineral and Land Resources



SECTION 5 GROUND STABILIZATION TIMEFRAMES

Site Area Description	Stabilization Timeframe Exceptions	Timeframe exceptions
(a) Perimeters dikes, swales, ditches, and perimeter slopes	7	None
(b) High quality water (HQW) zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10 feet or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 or flatter	14	7 days for slopes greater than 50 ft in length and with slopes flatter than 4:1
(e) Slopes 10 ft to 0 L	14	14 days for perimeter dikes, swales, ditches, and perimeter slopes and HQW zones
(f) Slopes with slopes flatter than 10 ft to 0 L	14	14 days for slopes greater than 50 feet in length and with slopes flatter than 4:1
		14 days for perimeter dikes, swales, ditches, and perimeter slopes and HQW zones

Note: After the zero consecutive calendar days of construction activity, stabilization of ground disturbed within the zone defined by perimeter dikes, swales, ditches, and perimeter slopes must be completed within the specified number of calendar days following the last land disturbing activity. Temporary ground stabilization shall be maintained to be in excess to escape the requirements of ground stabilization for the remainder of the land disturbing activity.

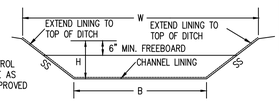
SECTION 6 TEMPORARY STABILIZATION

Minimum Acceptable Temporary Stabilization Measures

Temporary Seeding:
- Consumers guide recommendations are acceptable for temporary seeding recommendations.
- Mulching
- Soil Stabilizers (polymers, polymer emulsions, synthetic/organic gums, water)
- Erosion control blankets and turf reinforcement mats (ECB and TRM)
- Rolled erosion control products (RECP)
- Hydromulch
- Tackifiers (Note: Hydromulch, gums/polymers/tackifiers combined are considered sufficient for a temporary stabilization measure)
- Hydraulic erosion control products (HECP)
- Polyacrylamide (PAM)
- Rolled Erosion control products (RECP)

Seedbed Preparation:

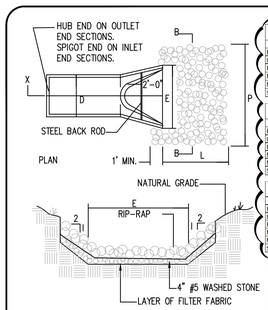
1. Chisel compacted areas and spread topsoil three inches deep over adverse soil conditions, if available.
2. Rip the entire area to six inches deep.
3. Remove all loose rock, roots and other obstructions, leaving surface reasonably smooth and uniform.
4. Apply agricultural lime, fertilizer and superphosphate uniformly and mix with soil (see mixture below).
5. Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared four to six inches deep.
6. Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or cultipack after seeding.
7. Mulch immediately after seeding and anchor mulch.



EROSION CONTROL MAT SHALL BE AS NOTED OR APPROVED EQUAL.

DITCH	FLOW Q(25)	LONG. SLOPE(%)	H	B	W	SS	CHANNEL LINING
TEMPORARY DITCH #1	6.7 CFS	0.90%	1.25'	1.0'	6.0'	2:1	DS75

3 TEMPORARY DIVERSION DITCH DATA BLOCK
REFER TO DETAIL SHEET FOR TEMPORARY DITCH DETAIL



Rip-Rap Apron#1		
	DIMENSIONS	
ENTRY WIDTH	3.0	FT
LENGTH	6.0	FT
EXIT WIDTH	7.5	FT
MIN. THICKNESS	12	IN
MIN. STONE DIAMETER	3	IN
STONE CLASS	A	

Rip-Rap Apron#2		
	DIMENSIONS	
ENTRY WIDTH	3.0	FT
LENGTH	6.0	FT
EXIT WIDTH	7.5	FT
MIN. THICKNESS	12.0	IN
MIN. STONE DIAMETER	3.0	IN
STONE CLASS	A	

Rip-Rap Apron#3		
	DIMENSIONS	
ENTRY WIDTH	3.0	FT
LENGTH	6.0	FT
EXIT WIDTH	7.5	FT
MIN. THICKNESS	12.0	IN
MIN. STONE DIAMETER	3.0	IN
STONE CLASS	A	

Rip-Rap Apron#4		
	DIMENSIONS	
ENTRY WIDTH	2.5	FT
LENGTH	5.0	FT
EXIT WIDTH	6.3	FT
MIN. THICKNESS	12.0	IN
MIN. STONE DIAMETER	3.0	IN
STONE CLASS	A	

Rip-Rap Apron#5		
	DIMENSIONS	
ENTRY WIDTH	2.5	FT
LENGTH	5.0	FT
EXIT WIDTH	6.3	FT
MIN. THICKNESS	12.0	IN
MIN. STONE DIAMETER	3.0	IN
STONE CLASS	A	

NOTES:

RIPRAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.

THERE SHALL BE NO OVERFLOW FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL. THE AREA TO BE PAVED OR RIP-RAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE AT THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE WALL AT THE DOWNSTREAM END.

MAXIMUM TAPER TO RECEIVING CHANNEL 5:1.

THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL.

ALL SUBGRADE STRUCTURE TO BE COMPACTED TO 95% OR GREATER.

THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.

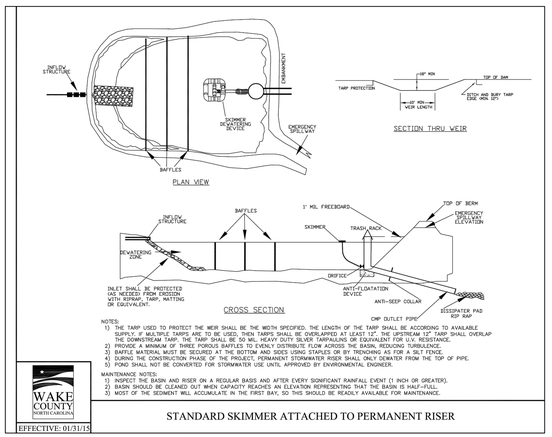
NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON WILL BE PERMITTED.

2 RIP-RAP APRON
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

SUBGRADE PREPARATION–PREPARE THE SUBGRADE FOR RIPRAP AND FILTER TO THE REQUIRED LINES AND GRADES SHOWN ON THE PLANS. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY APPROXIMATING THAT OF THE SURROUNDING UNDISTURBED MATERIAL OR OVERFILL DEPRESSIONS WITH RIPRAP. REMOVE BRUSH, TREES, STUMPS, AND OTHER OBJECTIONABLE MATERIAL. CUT THE SUBGRADE SUFFICIENTLY DEEP THAT THE FINISHED GRADE OF THE RIPRAP WILL BE AT THE ELEVATION OF THE SURROUNDING AREA. CHANNELS SHOULD BE EXCAVATED SUFFICIENTLY TO ALLOW PLACEMENT OF THE RIPRAP IN A MANNER SUCH THAT THE FINISHED INSIDE DIMENSIONS AND GRADE OF THE RIPRAP MEET DESIGN SPECIFICATIONS.
SYNTHETIC FILTER FABRIC–PLACE THE CLOTH FILTER DIRECTLY ON THE PREPARED FOUNDATION. OVERLAP THE EDGES BY AT LEAST 12 INCHES, AND SPACE ANCHOR PINS EVERY 3 FT ALONG THE OVERLAP. BURY THE UPSTREAM END OF THE CLOTH A MINIMUM OF 12 INCHES BELOW GROUND AND WHERE NECESSARY, BURY THE LOWER END OF THE CLOTH OR OVER LAP WITH THE NEXT SECTION AS REQUIRED. SEE FIGURE 6.14A PAGE 6.14.6. TAKE CARE NOT TO DAMAGE THE CLOTH WHEN PLACING RIPRAP. IF DAMAGE OCCURS REMOVE THE RIPRAP, AND REPAIR THE SHEET BY ADDING ANOTHER LAYER OF FILTER MATERIAL WITH A MINIMUM OVERLAP OF 12 INCHES AROUND THE DAMAGED AREA. IF EXTENSIVE DAMAGE IS SUSPECTED, REMOVE AND REPLACE THE ENTIRE SHEET.
WHERE LARGE STONES ARE USED OR MACHINE PLACEMENT IS DIFFICULT, A 4-INCH LAYER OF FINE GRAVEL OR SAND MAY BE NEEDED TO PROTECT THE FILTER CLOTH.
STONE PLACEMENT–PLACEMENT OF RIPRAP SHOULD FOLLOW IMMEDIATELY AFTER PLACEMENT OF THE FILTER. PLACE RIPRAP SO THAT IT FORMS A DENSE, WELL-GRADED MASS OF STONE WITH A MINIMUM OF VOIDS. THE DESIRED DISTRIBUTION OF STONES THROUGHOUT THE MASS MAY BE OBTAINED BY SELECTIVE LOADING AT THE QUARRY, AND CONTROLLED DUMPING DURING FINAL PLACEMENT. PLACE RIPRAP TO ITS FULL THICKNESS IN ONE OPERATION. DO NOT PLACE RIPRAP BY DUMPING THROUGH CHUTES OR OTHER METHODS THAT CAUSE SEGREGATION OF STONE SIZES. TAKE CARE NOT TO DISLODGE THE UNDERLYING BASE OR FILTER WHEN PLACING THE STONES.
THE TOE OF THE RIPRAP SLOPE SHOULD BE KEYED TO A STABLE FOUNDATION AT ITS BASE AS SHOWN IN FIGURE 6.15B. THE TOE SHOULD BE EXCAVATED TO A DEPTH ABOUT 1.5 TIMES THE DESIGN THICKNESS OF THE RIPRAP, AND SHOULD EXTEND HORIZONTALLY FROM THE SLOPE.
THE FINISHED SLOPE SHOULD BE FREE OF POCKETS OF SMALL STONE OR CLUSTERS OF LARGE HAND PLACING MAY BE NECESSARY TO ACHIEVE THE PROPER DISTRIBUTION OF STONE SIZES TO PRODUCE A RELATIVELY SMOOTH, UNIFORM SURFACE. THE FINISHED GRADE OF THE RIPRAP SHOULD BLEND WITH THE SURROUNDING AREA. NO OVERFALL OR PROTRUSION OF RIPRAP SHOULD BE APPARENT.

MAINTENANCE:
IN GENERAL, ONCE A RIPRAP INSTALLATION HAS BEEN PROPERLY DESIGNED AND INSTALLED IT REQUIRES VERY LITTLE MAINTENANCE. RIPRAP SHOULD BE INSPECTED PERIODICALLY FOR SCOUR OR DISLODGED STONES. CONTROL OF WEED AND BRUSH GROWTH MAY BE NEEDED IN SOME LOCATIONS.



NOTES:
1) THE TARP USED TO PROTECT THE WEIR SHALL BE THE WIDTH SPECIFIED. THE LENGTH OF THE TARP SHALL BE ACCORDING TO AVAILABLE SUPPLY. IF MULTIPLE TARPS ARE TO BE USED, THEN TARPS SHALL BE OVERLAPPED AT LEAST 12". THE UPSTREAM 12" TARP SHALL OVERLAP THE DOWNSTREAM TARP. THE TARP SHALL BE 50 MIL. HEAVY DUTY SILVER TARPAULINS OR EQUIVALENT FOR U.V. RESISTANCE.
2) PROVIDE A MINIMUM OF THREE POROUS BAFFLES TO EVENLY DISTRIBUTE FLOW ACROSS THE BASIN, REDUCING TURBULENCE.
3) BAFFLE MATERIAL MUST BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR A SILT FENCE.
4) DURING THE CONSTRUCTION PHASE OF THE PROJECT, PERMANENT STORMWATER RISER SHALL ONLY DEWATER FROM THE TOP OF PIPE.
5) POND SHALL NOT BE CONVERTED FOR STORMWATER USE UNTIL APPROVED BY ENVIRONMENTAL ENGINEER.

MAINTENANCE NOTES:
1) INSPECT THE BASIN AND RISER ON A REGULAR BASIS AND AFTER EVERY SIGNIFICANT RAINFALL EVENT (1 INCH OR GREATER).
2) BASIN SHOULD BE CLEANED OUT WHEN CAPACITY REACHES AN ELEVATION REPRESENTING THAT THE BASIN IS HALF-FULL.
3) MOST OF THE SEDIMENT WILL ACCUMULATE IN THE FIRST BAY; SO THIS SHOULD BE READILY AVAILABLE FOR MAINTENANCE.

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/15

STANDARD SKIMMER ATTACHED TO PERMANENT RISER

Bowman
Bowman North Carolina Ltd.
4006 BARRETT DR
Suite 104
RALEIGH, NC 27609
Phone: (919) 553-6570
bowman.com
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24824 MATTHEW E. LAWYER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	Revised by:	DATE REVISED:	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW
3	MCB	1/22/123	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	3/04/24	TOWN OF ZEBULON REVIEW

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STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
EROSION CONTROL DETAILS

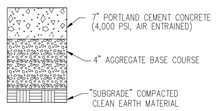
DRWG. NO. C6.1

Cad File Name:V:\220163 - Crosland Southeast - 7-Eleven - Kenly\220163-01-002 (EN

CONCRETE PAVEMENT INSTALLATION

HIGH STRENGTH PAVEMENT DETAIL

HEAVY LOAD TRAFFIC AREAS



PAVING EXECUTION NOTES:

1. LOCATE AND INSTALL CONSTRUCTION, ISOLATION, AND EXPANSION JOINTS AS INDICATED OR REQUIRED.
2. PLACE CONCRETE IN A CONTINUOUS OPERATION WITHIN PLANNED JOINTS OR SECTIONS. DO NOT ADD WATER TO ADJUST SLUMP.
3. FLOAT SURFACES TO TRUE PLANES WITHIN A TOLERANCE OF 1/4INCH IN 10 FEET.
4. TOOL EDGES AND JOINTS TO A RADIUS OF 1/4INCH FOR SIDEWALKS.
5. ALLOW CONCRETE PAVING TO CURE FOR A MINIMUM OF 28 DAYS AND DRY BEFORE STARTING PAVEMENT MARKING.
6. APPLY TRAFFIC PAINT WITH MECHANICAL EQUIPMENT TO A MINIMUM WET FILM THICKNESSOF 15 MILS.
7. PROTECT CONCRETE PAVING FROM DAMAGE. EXCLUDE TRAFFIC FROM PAVING FOR AT LEAST 14 DAYS.

CONCRETE PAVING GENERAL NOTES:

1. SEE FUEL PROTOTYPE FOR ADDITIONAL REQUIREMENTS FOR TANK SLABS.
2. SEE FUEL PROTOTYPE FOR ADDITIONAL REQUIREMENTS FOR DISPENSER ISLAND SLABS.

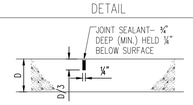
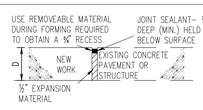
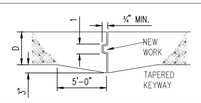
REVISED LOCATION PER CR ADMIN 2022-3000

3. A GEOTEXTILE FABRIC OR GEOGRID IS ONLY NEEDED WHEN THE GEOTECHNICAL REPORT AND/OR A GEOTECH EXPERT REQUIRES IT FOR THE SPECIFIC SITE'S SOIL CONDITIONS.
4. UNDISTURBED SOIL OR COMPACTED BACK FILL NOT LESS THAN 95% OF MODIFIED PROCTOR DENSITY (AASHTO-T-180)

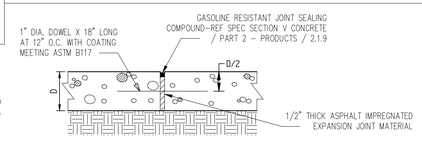
* CONTRACTOR MUST REFER TO THE GEOTECH REPORT FOR PAVEMENT AND FOUNDATION DESIGN AND CONSTRUCTION RECOMMENDATIONS

** COMPACTION IS NOT REQUIRED OVER THE TANK PIT(S)

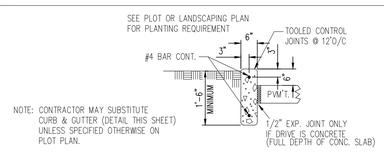
CONCRETE PAVEMENT JOINT DETAILS

TYPE OF JOINT	USE DESCRIPTION	DETAIL
A. CONTROL JOINT 1. SAWN 2. PREMOLD STRIP 3. HAND FORMED AND SAWN AT CRITICAL JOINTS	USE SPECIFICATION ACI 360R-06 TO PLACE CONTROL JOINTS SO AS TO UNIFORMLY DIVIDE SLABS INTO NOMINAL 12' x 12' (NORMAL STRENGTH) OR 16' x 16' (HIGH STRENGTH) SECTIONS. (SEAL CONTROL JOINTS ONLY IF SPECIFIED ON DRAWINGS OR BY OWNER'S REPRESENTATIVE.)	
B. EXPANSION JOINT (ISOLATION JOINT)	PLACE AGAINST CONCRETE TANK SLAB, ABUTTING ROADWAY PAVEMENTS AND STRUCTURES (BUILDINGS, CANOPY COLUMNS, CATCH BASINS, ETC.)	
C. CONSTRUCTION JOINT	CONSTRUCTION JOINTS MUST BE APPROVED BY OWNER'S REPRESENTATIVE. PLACE WHEN CONTINUOUS POUR OPERATIONS ARE SUSPENDED FOR MORE THAN 30 MINUTES.	

OR



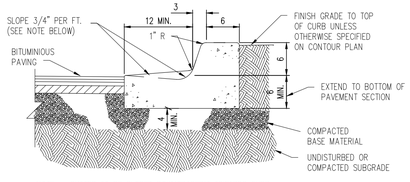
CONCRETE CURBS



NOTE: CONTRACTOR MAY SUBSTITUTE CURB & GUTTER (DETAIL THIS SHEET) UNLESS SPECIFIED OTHERWISE ON PLOT PLAN.

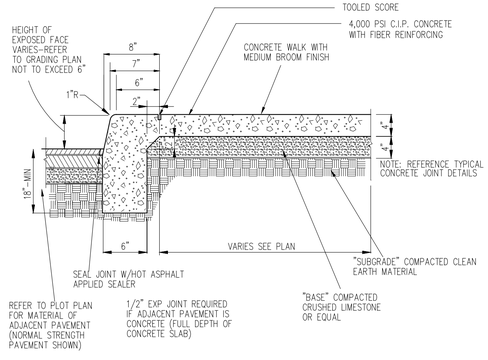
CAST-IN-PLACE CONCRETE CURB

PREFERRED

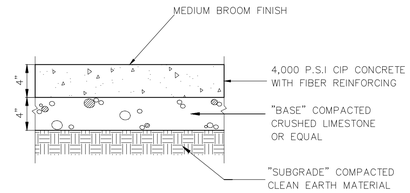


NOTE: GUTTER TO BE SLOPED DOWNGRADIENT TOWARDS CURB WHEN SITE GRADE IS TOWARDS CURB. GUTTER TO BE SLOPED DOWN GRADIENT AWAY FROM CURB WHEN SITE GRADE IS AWAY FROM CURB. MAY BE MACHINE FORMED.

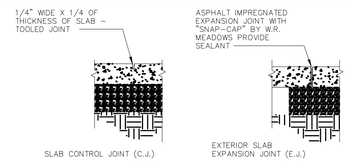
STRAIGHT CONCRETE CURB & GUTTER



NOTE:
1. TYPICALLY THERE IS 0" CURBING AROUND THE BUILDING
2. EXCEPTION: CA REQUIRES SIDEWALK CURBING AROUND THE BUILDING



CONCRETE SIDEWALK PAVEMENT

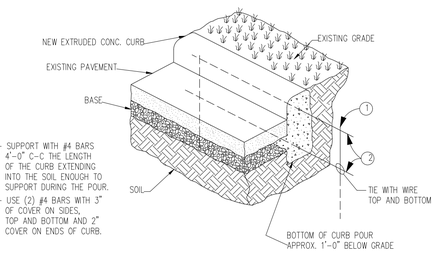


FOR 5' OR 8' WALKS, INSTALL A CONTROL JOINT EVERY 5'. IN 10' WALKS, INSTALL A CONTROL JOINT EVERY 5' AND ONE IN THE CENTER (5' FROM THE BACK OF THE BUILDING FOR EXAMPLE)

DETAILS ONLY APPLY TO BUILDING SIDEWALK. THEY DO NOT APPLY TO INTERIOR SLAB OR SITE CONCRETE.

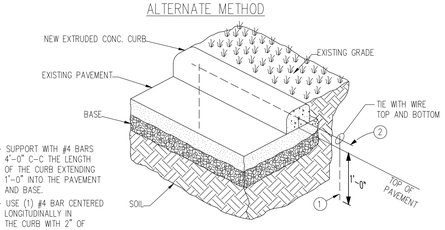
SIDEWALK JOINTS

PREFERRED METHOD



1. SUPPORT WITH #4 BARS 4'-0" C-C THE LENGTH OF THE CURB EXTENDING INTO THE SOIL ENOUGH TO SUPPORT DURING THE POUR.
2. USE (2) #4 BARS WITH 3" OF COVER ON SIDES, TOP AND BOTTOM AND 2" COVER ON ENDS OF CURB.

ALTERNATE METHOD



1. SUPPORT WITH #4 BARS 4'-0" C-C THE LENGTH OF THE CURB EXTENDING 1'-0" INTO THE PAVEMENT AND BASE.
2. USE (1) #4 BAR CENTERED LONGITUDINALLY IN THE CURB WITH 2" OF COVER ON ENDS OF CURB.

COLD WEATHER CURB INSTALLATION

FOR USE WHEN COLD WEATHER CONDITIONS CAUSE ASPHALT PAVEMENT TO BE PLACED BEFORE THE CONCRETE CURB.

ON-SITE ASPHALT PAVEMENT INSTALLATION

ASPHALT SEALING

1. SURFACE CLEANING:
   THE SURFACE TO BE SEALED SHALL BE FREE FROM DIRT AND OTHER FOREIGN MATTER. ANY ACCUMULATIONS OF OIL OR GREASE SHALL BE CLEANED OFF THE PAVEMENT WITH DETERGENT SOLUTION, THE RESIDUE OF WHICH SHALL BE THOUROUGHLY WASHED AWAY WITH CLEAN WATER BEFORE SEALANT IS APPLIED.
2. SEALING:
   THE SEAL COATING MATERIAL SHALL BE COMPRISED OF A RUBBERIZED COAL-TAR PITCH EMULSION AND SHALL MEET OR EXCEED FEDERAL SPECIFICATION R-P-355e. SUPPLIED IN CONCENTRATED FORM, IT SHALL BE DILUTED A MINIMUM OF 15% AND A MAXIMUM OF 25% WITH FRESH, CLEAN WATER. THE SEALANT MATERIAL SHALL CONTAIN 5-6 LBS. PER GALLON OF FINE, CLEAN, DRY SILICA SAND MEETING THE FOLLOWING GRADATION:

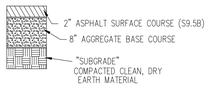
SIEVE SIZE	% PASSING
#16	100
#30	80-100
#50	10-60
#100	0-5

THE SEALANT SHALL BE APPLIED TO THE PAVEMENT IN TWO COATS AT THE RATE OF 0.08 TO 0.12 GALLONS PER SQUARE YARD. A LATEX ADDITIVE MAY ALSO BE ADDED TO THE SEALANT TO ALLOW FOR QUICKER DRYING TIME IN THOSE AREAS SPECIFIED BY OWNER'S REPRESENTATIVE.

LIGHT DUTY PAVEMENT

PARKING AREAS , AND OTHER LIMITED SERVICE TRAFFIC AREAS

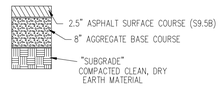
GRANULAR BASE (PREFERRED)



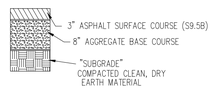
ASPHALT PAVEMENT GENERAL NOTES:

1. ALL WORK SHALL BE IN CONFORMANCE WITH OWNER'S SPECIFICATIONS FOR ASPHALTIC CONCRETE PAVING.
2. A GEOTEXTILE FABRIC OR GEOGRID IS ONLY NEEDED WHEN THE GEOTECHNICAL REPORT AND/OR A GEOTECH EXPERT REQUIRES IT FOR THE SPECIFIC SITE'S SOIL CONDITIONS.
3. FOR SUBSURFACE DRAINAGE OR STABLITY ISSUES DURING CONSTRUCTION (UNDER DIRECTION BY GEOTECH EXPERT)*:
   A. SUBSURFACE DRAINAGE ISSUE - REFER TO GUIDELINES FOR DEWATERING ISSUES TO DERIVE ACCEPTATBLE OPTIONS.
   B. SUBSURFACE STABLITY ISSUE - INSTALL GEOGRID PER GEOTECH EXPERT RECOMMENDATION.

MEDIUM DUTY PAVEMENT



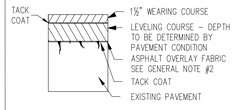
HEAVY DUTY PAVEMENT



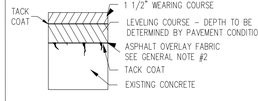
* CONTRACTOR MUST REFER TO THE GEOTECH REPORT FOR PAVEMENT AND FOUNDATION DESIGN AND CONSTRUCTION RECOMMENDATIONS

ASPHALT OVERLAY DETAIL

ASPHALT SUBBASE



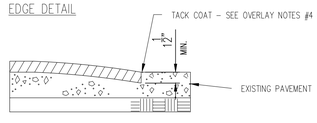
CONCRETE SUBBASE



OVERLAY DETAIL NOTES:

1. THE OVERLAY SHALL BE PLACED IN ACCORDANCE WITH OWNER'S SPECIFICATIONS.
2. ALL FAILED AREAS SHALL BE REPAIRED WITH PROPER PATCHES BEFORE OVERLAY IS PLACED.
3. IF THE SURFACE IS DISTORTED, THE CONTRACTOR SHALL CONSTRUCT LEVELING COURSES TO RESTORE PROPER LINE AND CROSS SECTION.
4. THE PAVEMENT SHALL BE THOUROUGHLY CLEANED AND A TACK COAT OF ASPHALT SHALL BE APPLIED BEFORE THE OVERLAY IS PLACED.
5. ALL VERTICAL SURFACES COMING IN CONTACT WITH THE OVERLAY SHALL BE SPRAYED OR PAINTED WITH A UNIFORM COATING OF EMULSIFIED ASPHALT IMMEDIATELY PRIOR TO PAVEMENT CONSTRUCTION.
6. CONTRACTOR IS RESPONSIBLE FOR ENSURING PROPER SURFACE DRAINAGE. PONDING OR PUDDLING OF WATER ON THE FINAL SURFACE WILL BE UNACCEPTABLE.
7. REPLACE IN KIND ANY EXISTING TRAFFIC LOOPS AND/OR RELATED SENSOR EQUIPMENT THAT IS REMOVED OR DAMAGED DUE TO PAVEMENT MILLING ACTIVITY

EDGE DETAIL



WHERE OVERLAY IS NOT SPECIFIED FOR ENTIRE EXISTING SURFACE, THE INTERFACE BETWEEN THE NEW OVERLAY AND THE OLD PAVEMENT SURFACE SHALL BE PER THE ABOVE DETAIL. FEATHERING OF THE ASPHALT TO MEET THE EXISTING PAVEMENT WILL NOT BE ACCEPTABLE.

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NORTH CAROLINA PROFESSIONAL SEAL 24826 ENGINEER MATTHEW E. LOWVER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW
3	MCB	12/21/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/19/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
CONSTRUCTION DETAILS

DRWG. NO. C6.2

AREA YARD SIGN DETAILS

R7-1

TYPICAL NO PARKING SIGN DETAIL
N.T.S.

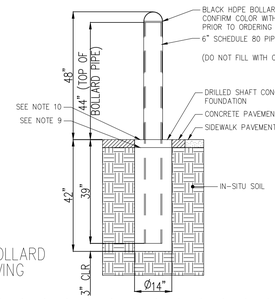
STORE FRONT GUARDS

REVISED DETAIL PER CR 2022-3004

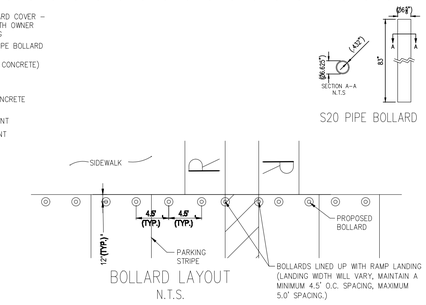
GENERAL NOTES:

1. MAXIMUM BOLLARD SPACING IS 5' ON CENTER
2. CONCRETE TO BE 4,000 PSI MIN. UNCONFINED COMPRESSIVE STRENGTH.
3. REINFORCING STEEL CONFORMS TO ASTM A615 GRADE 60.
4. BOLLARD PIPE IS ASTM A53, TYPE E, GRADE B OR A500 GRADE B/C.
5. PROVIDE HIGH-DENSITY POLYETHYLENE (HDPE) BOLLARD COVER. COVER TO BE IDEALSHIELD (OR APPROVED EQUAL) 1/8" THICK, BLACK (6C), 6" PIPE FIT, DOME TOP, 48" TALL.
6. DO NOT FILL BOLLARD PIPE WITH CONCRETE. TEMPORARILY SEAL BOTTOM AS NECESSARY TO PREVENT CONCRETE INTRUSION WHILE POURING.
7. USE SONOTUBE IN SANDY OR OTHER SOILS THAT MIGHT CAVE IN.
8. DIMENSIONS IN PARENTHESIS ARE NOMINAL.
9. COLD JOINT ACCEPTABLE. THIS LINE FOR NEW INSTALLATIONS IN MONOLITHIC POUR CONCRETE PAVEMENT.
10. SLOPE TOP OF CONCRETE AWAY FROM BOLLARD 1/4" FROM PIPE TO EDGE OF DRILLED SHAFT OR CAP.
11. INCREASE DEPTH OF CAISSON AND BOLLARD PIPE TO MEET LOCAL JURISDICTION MIN. FROST DEPTH REQUIREMENT.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY NO UTILITY CONFLICTS EXIST WHERE BOLLARDS ARE TO BE INSTALLED, PRIOR TO INSTALLATION.

DESIGN SPECIFICATIONS: ASTM F3016-19 CONDITION DESIGNATION S20

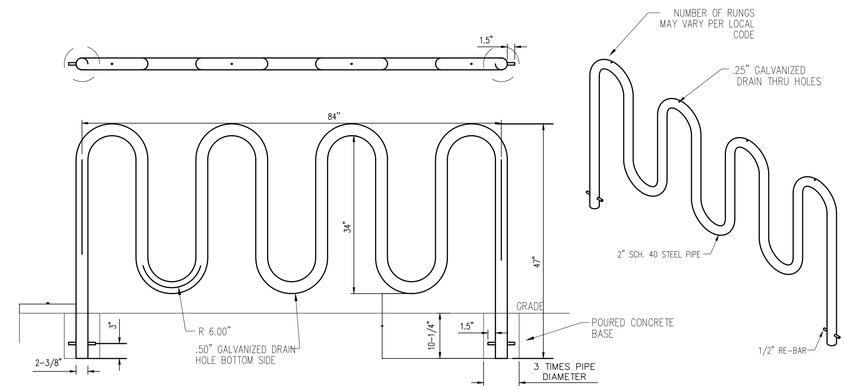


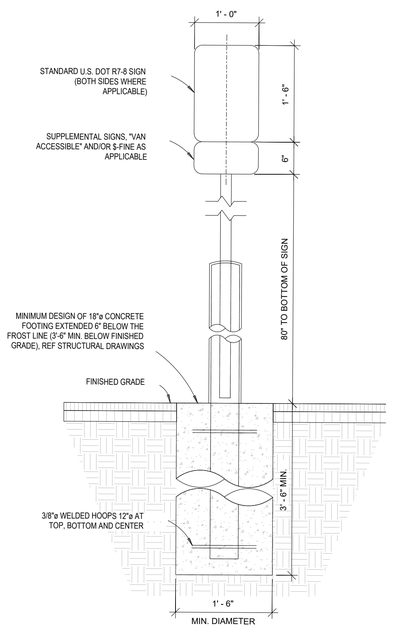
DEEP MOUNT S20 BOLLARD IN CONCRETE PAVING
N.T.S.



BOLLARD LAYOUT
N.T.S.

TYPICAL BIKE RACK DETAIL





ALL POST MOUNTED ACCESSIBILITY SIGNS SHALL BE MOUNTED WITH IDEAL SHIELD BOLLARD SIGN SYSTEM. BOLLARD AND POST SLEEVE SHALL BE GRAY COLOR. INSTALLATION PER MANUFACTURER INSTRUCTIONS

Post Mounted Accesibility Sign
N.T.S.

CONCRETE & ASPHALT PAVEMENT MAINTENANCE

CONCRETE PAVING MAINTENANCE NOTES:

1. CONTRACTOR SHALL REMOVE CONCRETE FROM FAILED AREA BY SAWCUTTING TO FULL DEPTH THE ORIGINAL SLAB AND REMOVING THE EXISTING CONCRETE. THE PATCH SHALL BE A MINIMUM OF 3' WIDE AND RECTANGULAR IN SHAPE. IT SHALL EXTEND TO THE NEXT JOINT IF WITHIN 3'.
2. ANY JOINTS WHICH ARE REMOVED SHALL BE REPLACED IN THE SAME LOCATION AS THE OLD JOINTS - SEE JOINT DETAILS.
3. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL DEBRIS PER LOCAL, STATE, AND FEDERAL REGULATIONS.
4. SEE NORMAL STRENGTH PAVEMENT, HIGH STRENGTH PAVEMENT DETAILS FOR FULL DEPTH PATCH REQUIRMENTS.

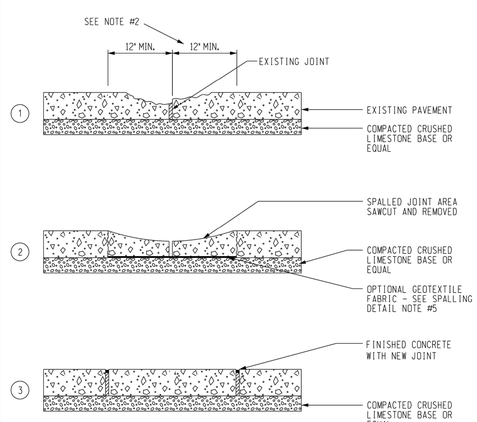
ASPHALT PAVEMENT MAINTENANCE NOTES:

1. CONTRACTOR SHALL REMOVE ASPHALT FROM FAILED AREA BY SAWCUTTING A RECTANGULAR SHAPE AT LEAST 3' BEYOND THE DAMAGED AREA. TWO OF THE EDGES MUST BE AT RIGHT ANGLES TO THE DIRECTION OF TRAFFIC.
2. SUBGRADE MUST BE REMOVED TO SOLID GROUND AND REPLACED IN ACCORDANCE WITH THE FULL DEPTH PATCH DETAIL AND OWNER'S SPECIFICATIONS.
3. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL DEBRIS PER LOCAL, STATE, AND FEDERAL REGULATIONS.
4. TACK COAT REQUIRED IF INSTALLING SEPERATE PLACEMENTS. SEE SPEEDWAY SPECIFICATIONS FOR TIMING AND TEMPERATURE GUIDELINES.

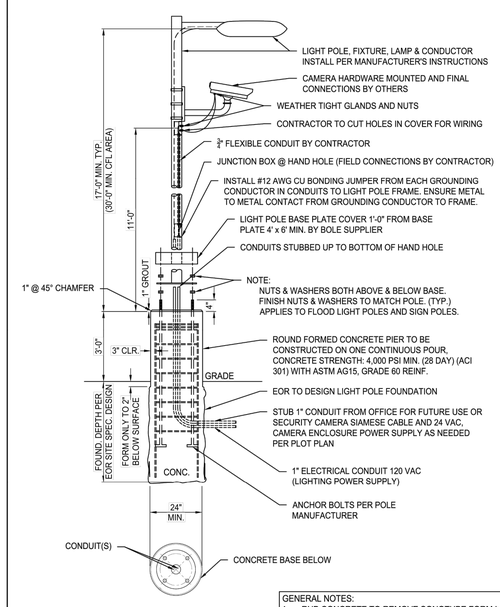
SPALLING DETAIL

SPALLING DETAIL NOTES:

1. SPALLING ALONG JOINTS SHALL BE TREATED WITH REPAIR SIMILAR TO THAT OF A FULL DEPTH PATCH.
2. SPALLED CONCRETE SHALL BE REMOVED IN AN AREA NO LESS THAN ONE FOOT FROM THE JOINT BUT LARGE ENOUGH TO REMOVE ALL UNSOUND CONCRETE AND REMOVED TO A DEPTH GREAT ENOUGH TO REACH SUITABLE SUBGRADE.
3. THE CONCRETE SHALL BE REPLACED PER THE FULL DEPTH PATCH DETAIL AND LOCAL ADJENCY HAVING JURISDICTION.
4. THE JOINT SHALL BE REPLACED PER THE JOINT DETAIL TO COINCIDE WITH THE LOCATION OF THE OLD JOINT. THE JOINT SHALL EXTEND THE FULL DEPTH OF THE NEW PATCH.
5. GEOTEXTILE FABRIC (NEEDS TO BE DETERMINED BY OWNER'S REPRESENTATIVE) 8 OZ/SQ YD NEEDLE PUNCHED NON WOVEN, NEEDLE PUNCHED FABRIC



AREA LIGHT POLE FOUNDATION DETAIL



PLAN @ BASE PLATE

GENERAL NOTES:

1. RUB CONCRETE TO REMOVE SONOTUBE FORM LINES AND FILL ALL HOLES FOR SMOOTH FINISH. WEATHERSEAL ALL EXPOSED CONCRETE.
2. VERIFY ANCHOR ROD LAYOUT AND EMBEDMENT REQUIREMENTS WITH POLE SUPPLIER.
3. COORDINATE LOCATIONS WITH CIVIL.
4. LIGHT POLE FOUNDATIONS LOCATED IN CFL TRAFFIC AREAS OR PARKING AREAS ARE RECOMMENDED TO EXTEND 5'-0" ABOVE GRADE AND BE A MIN. Ø3'-0".

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NORTH CAROLINA PROFESSIONAL SEAL 24494 ENGINEER MATTHEW E. LOWER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

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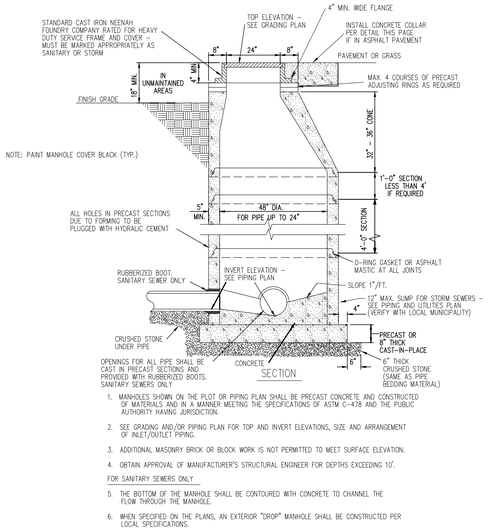
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
CONSTRUCTION DETAILS

DRWG. NO. C6.3

DRAINAGE & UTILITY DETAILS & SPECIFICATIONS



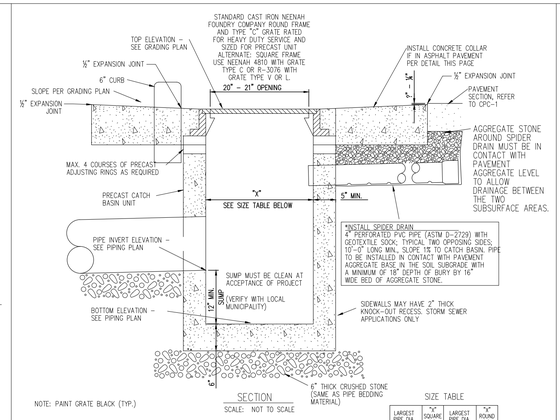
1. MANHOLES SHOWN ON THE PLOT OR PIPING PLAN SHALL BE PRECAST CONCRETE AND CONSTRUCTED OF MATERIALS AND IN A MANNER MEETING THE SPECIFICATIONS OF ASTM C-478 AND THE PUBLIC AUTHORITY HAVING JURISDICTION.
2. SEE GRADING AND/OR PIPING PLAN FOR TOP AND INVERT ELEVATIONS, SIZE AND ARRANGEMENT OF INLET/OUTLET PIPING.
3. ADDITIONAL MASONRY BRICK OR BLOCK WORK IS NOT PERMITTED TO MEET SURFACE ELEVATION.
4. OBTAIN APPROVAL OF MANUFACTURER'S STRUCTURAL ENGINEER FOR DEPTHS EXCEEDING 10'.

FOR SANITARY SEWERS ONLY

5. THE BOTTOM OF THE MANHOLE SHALL BE CONTOURED WITH CONCRETE TO CHANNEL THE FLOW THROUGH THE MANHOLE.
6. WHEN SPECIFIED ON THE PLANS, AN EXTERIOR "DROP" MANHOLE SHALL BE CONSTRUCTED PER LOCAL SPECIFICATIONS.

(A) STANDARD MANHOLE

SCALE: NOT TO SCALE



NOTE: PAINT GRATE BLACK (TYP.)

- THE PRECAST CATCH BASIN UNIT SHALL CONFORM TO THE APPLICABLE STANDARD STATE D.O.T. SPECIFICATIONS AND ASTM C913. THE UNIT SHALL BE PROPERLY REINFORCED TO PREVENT DAMAGE DURING TRANSPORT AND INSTALLATION.
- SEE GRADING AND/OR PIPING PLAN FOR TOP, INVERT, AND BOTTOM ELEVATIONS, SIZE, AND ARRANGEMENT OF INLET/OUTLET PIPING.
- MORTAR ALL INLET, OUTLET PIPE OPENINGS WITH HYDRAULIC CEMENT GROUT.
- ADDITIONAL MASONRY BRICK OR BLOCK WORK IS NOT PERMITTED TO MEET SURFACE ELEVATION.

SIZE TABLE

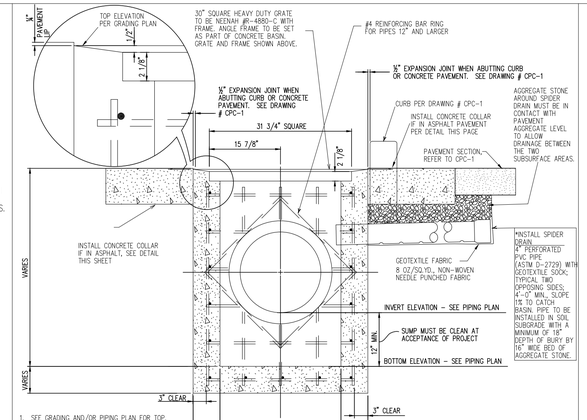
LARGEST PIPE DIA.	"X" SQUARE C.B.	LARGEST PIPE DIA.	"X" ROUND C.B.
21"	24"	15"	30"
33"	36"	24"	42"
42"	48"	30"	48"
54"	60"	36"	60"
60"	72"	48"	72"

NOTE: TRAFFIC RATED REINFORCED PRE-CAST CONCRETE TOP TO BE USED WITH LARGER CATCH BASINS.

VERIFY STRUCTURE SIZE IS ADEQUATE FOR MULTIPLE PIPES AND PIPE ANGLES.

(B) STANDARD DUTY CATCH BASIN

TO BE USED IN NORMAL STRENGTH PAVEMENT AREAS ONLY



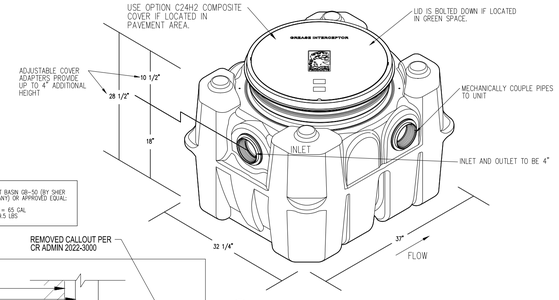
1. SEE GRADING AND/OR PIPING PLAN FOR TOP, INVERT, AND BOTTOM ELEVATIONS, SIZE, AND ARRANGEMENT OF INLET/OUTLET PIPING.
2. MORTAR ALL INLET, OUTLET PIPE OPENINGS WITH HYDRAULIC CEMENT GROUT.
3. REINFORCEMENT: PLACE #4 REBARS AT 8" ~ CENTER TO CENTER BOTH WAYS IN WALLS AND FLOOR. INCLUDE #4 REBAR RING AROUND ALL OPENINGS 12" AND LARGER.
4. ADDITIONAL MASONRY BRICK OR BLOCK WORK IS NOT PERMITTED TO MEET SURFACE ELEVATION.

NOTE: PREFAB UNIT, MEETING STRENGTH EQUIVALENCE, MAY BE SUBSTITUTED IF APPROVED BY OWNER'S REP.

NOTE: PAINT GRATE BLACK (TYP.)

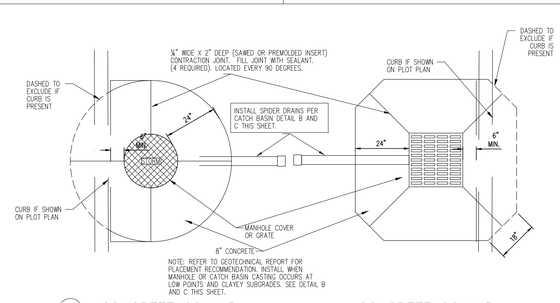
(C) HEAVY DUTY CATCH BASIN

FOR OUTLETS UP TO 18" R.C.P. TO BE USED IN HIGH STRENGTH PAVEMENT AREAS



(E) EXTERIOR GREASE INTERCEPTOR

SCALE: NOT TO SCALE

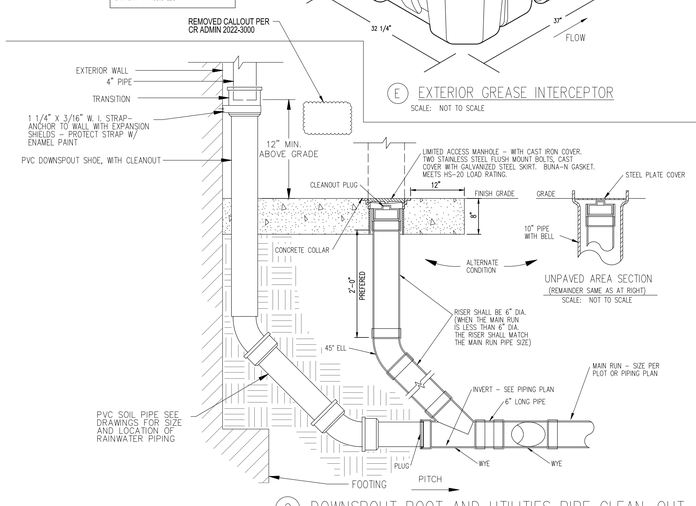


(F) CONCRETE COLLAR – ROUND GRATE & FRAME

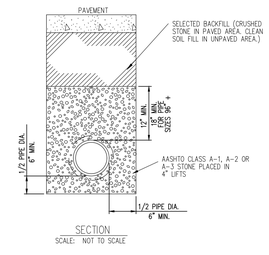
SCALE: NOT TO SCALE

CONCRETE COLLAR – SQUARE GRATE & FRAME

SCALE: NOT TO SCALE



(G) DOWNSPOUT BOOT AND UTILITIES PIPE CLEAN-OUT



(H) PIPE BEDDING

PIPE SPECIFICATIONS

TYPE OF PIPE	"n" VALUES	SIZES PERMITTED	SEVICE AND USE	PIPE SPECIFICATION	INSTALLATION SPECIFICATION	JOINT SPECIFICATION	PREMIUM JOINTS
POLY-VINYL CHLORIDE (PVC)	0.01	6"	SANITARY SEWER	ASTM D-3034 SDR 35	ASTM D-2321	ASTM D-3212	ASTM F-477
		8" – 12"	STORM DRAINAGE	STANDARD SPECIFICATION FOR TYPE PSM PVC SEWER PIPE AND FITTINGS	STANDARD PRACTICE FOR INSTALLATION OF FLEXIBLE THERMOPLASTIC SEWER PIPE PIPE BEDDING PER DETAIL	STANDARD SPECIFICATION FOR JOINTS FOR DRAIN AND SEWER PLASTIC PIPES USING FLEXIBLE ELASTOMERIC SEALS	ELASTOMERIC SEALS FOR JOINING PLASTIC PIPE (OIL RESISTANT) HIGH NITRILE (NBR), EPICHLOROHYDRIN (ECO), NEOPRENE (CR), POLYSULFIDE (T), OR FLUORO ELASTOMER (FPM)
REINFORCED CONCRETE (RCP)	0.013	12" DIA. AND LARGER	STORM DRAINAGE	ASTM C-76, ASTM C1479 CLASS 3, WALL B-TONGUE AND GROOVE STANDARD SPECIFICATION FOR REINFORCED CONCRETE CULVERT, STORM DRAIN, AND SEWER PIPE	PIPE BEDDING PER DETAIL WHEN OUTLETTING TO SURFACE GRADE FLARED END SECTION MUST BE USED	BITUMINOUS MASTIC	ASTM C-443 STANDARD SPECIFICATION FOR JOINTS FOR CRCULAR CONCRETE SEWER AND CULVERT PIPE, USING RUBBER GASKETS (OIL RESISTANT)
SMOOTH LINED CORRUGATED HDPE N=12 BY ADVANCED DRAINAGE SYSTEMS (800) 733-9554 SURE-LOK BY HANCOR (800) 537-9520	0.012 0.012	8" AND LARGER 12" AND LARGER	STORM DRAINAGE STORM DRAINAGE	AASHTO M294-S AASHTO M294-S	ASTM D-2321 PIPE BEDDING PER DETAIL ASTM D-2321 PIPE BEDDING PER DETAIL	STANDARD COUPLERS (PRO LINK) USE GASKET IN FINE SOILS BELL & SPIGOT WITH GASKET (SURE-LOK)	PVC DOUBLE BELL COUPLER WITH GASKET (PRO LINK 10.8) AVAILABLE THROUGH 24" BELL & SPIGOT WITH POLYISOPRENE GASKET (SURE-LOK 10.8) AVAILABLE THROUGH 30"
DUCTILE IRON (DI)	0.012	4" – 12"	SPECIAL	ASTM A-746 CLASS 50 STANDARD SPECIFICATION FOR DUCTILE IRON GRAVITY SEWER PIPE	PIPE BEDDING PER DETAIL	RUBBER GASKET COMPRESSION TYPE JOINT	GASKET TO BE OIL RESISTANT NITRILE-BUTADIENE (NBR)
POLYETHYLENE (PE)	0.010	4" – 6"	UNDERDRAINS AND SEPTIC DISPOSAL FIELDS ONLY.	ASTM F-405 STANDARD SPECIFICATION FOR CORRUGATED POLYETHYLENE TUBING AND FITTINGS	SEE UNDERDRAIN DETAIL	STANDARD COUPLINGS	N/A
CORRUGATED METAL PIPE (CMP)	0.022	12" DIA. AND LARGER	STORM DRAINAGE	ASTM A-760 STANDARD SPECIFICATION FOR CORRUGATED METAL PIPE, METALLIC-COATED FOR SEWERS AND DRAINS	ASTM A-807 STANDARD SPECIFICATION FOR INSTALLING CORRUGATED METAL STRUCTURAL PLATE PIPE FOR SEWERS	STANDARD COUPLINGS	N/A
HIGH PERFORMANCE (HP) PIPING	0.012	12" – 60"	STORM DRAINAGE	AASHTO M330 ASTM F2881	ASTM D2321	WATER TIGHT ASTM D-3212	EXTENDED REINFORCED INTEGRAL BELL AND GASKETED SPIGOT

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NORTH CAROLINA PROFESSIONAL SEAL 24483 ENGINEER MATTHEW E. LAWYER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY:	DATE REVISED:	REVISIONS DESCRIPTION	REVISED BY:	DATE REVISED:	REVISIONS DESCRIPTION
1	BRM	11/02/23	TOWN OF ZEBULON REVIEW			
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW			
3	MCB	12/21/23	WAKE COUNTY REVIEW			
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW			
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW			

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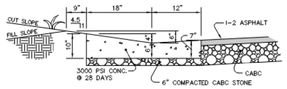
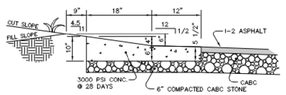
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
CONSTRUCTION DETAILS

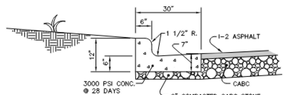
DRWG. NO. C6.4



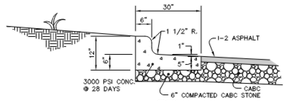
30" VALLEY - STANDARD



30" VALLEY - SPILL



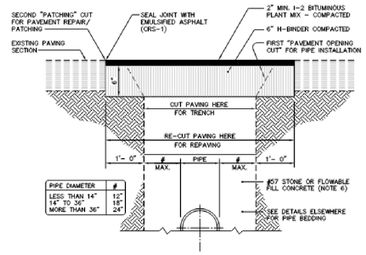
STANDARD



SPILL

NOTES:
1. SCORE CURB / VALLEY GUTTER AT 15' O.C.
2. PROVIDE 1/2" EXPANSION JOINTS AT 90' O.C.
3. FOR TRANSITION OF CURB TO CURB OPENING INLET, SEE STANDARD DETAIL 33.

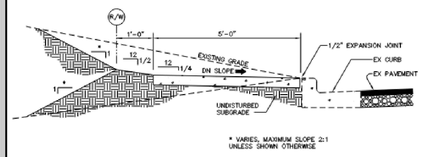
TOWN OF ZEBULON
STD. CURB & GUTTER & VALLEY GUTTER DETAIL
USE WITH STANDARD SPECIFICATIONS ONLY
SCALE: NOT TO SCALE | DETAIL # 3 | DATE: JULY 2010 | SHEET # 1 OF 1



SECTIONAL VIEW

NOTES:
1. PAVEMENT REPAIRS SHALL HAVE 6" COMPACTED H-BINDER AND 2" TOPPING OF SF9.5B.
2. TRENCH IS TO BE BACK FILLED IN 6" LIFTS AND COMPACTED TO 98% STANDARD DENSITY AS DETERMINED BY AASHTO TEST METHOD T-99 OR ASTM D-698 BEFORE PAVEMENT REPAIRS ARE MADE.
3. COMPACTION TEST MAY BE REQUIRED AT REQUEST OF INSPECTOR.
4. ALL EXISTING PAVED STREETS AND SECONDARY ROADS WHICH ARE OPEN CUT TO INSTALL SEWER OR WATER PIPE, MUST BE REPAIRED ACCORDING TO THIS DETAIL.
5. CABC BACKFILL IS NOT ALLOWED IN ANY PART OF TRENCH WITHIN PAVEMENT.
6. FIBER OPTIC & GAS: #57 STONE OR FLOWABLE FILL CONCRETE (MINIMUM 50 PSI) BUT MIN. 6" COMPACTED CLASS II OR III (DEFINITION IN SECTION 02210 - PARAGRAPH 3B OF SPECS) FILL OVER TOP OF FIBER OPTIC CABLE OR GAS PIPE.

TOWN OF ZEBULON
FULL DEPTH ASPHALT REPAIR DETAIL FOR UTILITY CUTS
USE WITH STANDARD SPECIFICATIONS ONLY
SCALE: NOT TO SCALE | DETAIL # 6 | DATE: JULY 2010 | SHEET # 1 OF 1

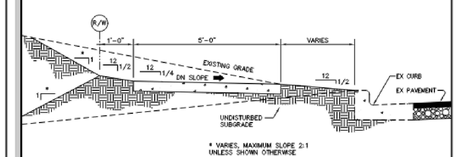


* VARIES, MAXIMUM SLOPE 2:1 UNLESS SHOWN OTHERWISE

SECTIONAL VIEW

1. PROVIDE 3/4" DEEP TOOLED SCORE AT 5'-0" O.C.
2. EXPANSION JOINTS TO BE PLACED 30'-0" O.C. LONGITUDINALLY, ADJACENT TO CURBS, AND WHEN BUTTING EXISTING STRUCTURES, CONCRETE, OR BUILDINGS.
3. CONCRETE TO BE 3000 P.S.I. AT 28 DAYS, AIR-ENTRAINED.
4. SUBGRADE SHOULD NOT CONTAIN ORGANIC MATTER OR PLASTIC CLAYS. WHEN FOUND, REFER TO SPECS OR CONTACT ENGINEER FOR DIRECTIONS.
5. AREAS OF FILL ARE TO BE COMPACTED TO 95% STANDARD PROCTOR USING NCDOT CLASS III BORROW OR BETTER. REMOVE TOPSOIL BEFORE PLACING BORROW.
6. SIDEWALK TRANSVERSE SLOPE MAY INCREASE TO 1/2 IN 12 WITH TOWN'S ENGINEER APPROVAL.

TOWN OF ZEBULON
TYP SIDEWALK in CUT or FILL SECTIONS
USE WITH STANDARD SPECIFICATIONS ONLY
SCALE: NOT TO SCALE | DETAIL # 12 | DATE: JULY 2010 | SHEET # 1 OF 1

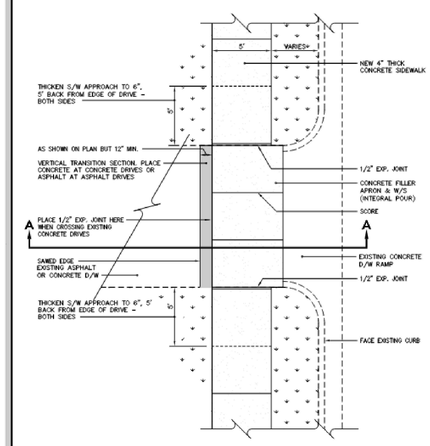


* VARIES, MAXIMUM SLOPE 2:1 UNLESS SHOWN OTHERWISE

SECTIONAL VIEW

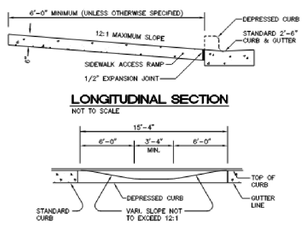
1. PROVIDE 3/4" DEEP TOOLED SCORE AT 5'-0" O.C.
2. EXPANSION JOINTS TO BE PLACED 30'-0" O.C. LONGITUDINALLY, ADJACENT TO CURBS, AND WHEN BUTTING EXISTING STRUCTURES, CONCRETE, OR BUILDINGS.
3. CONCRETE TO BE 3000 P.S.I. AT 28 DAYS, AIR-ENTRAINED.
4. SUBGRADE SHOULD NOT CONTAIN ORGANIC MATTER OR PLASTIC CLAYS. WHEN FOUND, REFER TO SPECS OR CONTACT ENGINEER FOR DIRECTIONS.
5. AREAS OF FILL ARE TO BE COMPACTED TO 95% STANDARD PROCTOR USING NCDOT CLASS III BORROW OR BETTER. REMOVE TOPSOIL BEFORE PLACING BORROW.
6. SIDEWALK TRANSVERSE SLOPE MAY INCREASE TO 1/2 IN 12 WITH TOWN'S ENGINEER APPROVAL.

TOWN OF ZEBULON
TYP SIDEWALK in CUT or FILL SECTIONS
USE WITH STANDARD SPECIFICATIONS ONLY
SCALE: NOT TO SCALE | DETAIL # 13 | DATE: JULY 2010 | SHEET # 1 OF 1



PLAN VIEW

TOWN OF ZEBULON
SIDEWALK DETAIL X-ING EX. DRIVEWAYS
USE WITH STANDARD SPECIFICATIONS ONLY
SCALE: NOT TO SCALE | DETAIL # 14 | DATE: JULY 2010 | SHEET # 1 OF 1

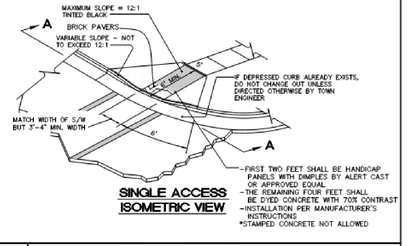


LONGITUDINAL SECTION

NOT TO SCALE

SECTION A-A
ELEVATION OF SINGLE ACCESS RAMP

NOT TO SCALE

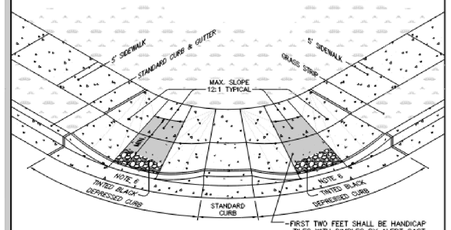


SINGLE ACCESS ISOMETRIC VIEW

TOWN OF ZEBULON
SINGLE HANDICAP RAMP DETAIL
USE WITH STANDARD SPECIFICATIONS ONLY
SCALE: NOT TO SCALE | DETAIL # 20 | DATE: JULY 2010 | SHEET # 1 OF 1

NOTES:

1. WHEELCHAIR RAMPS SHALL BE PROVIDED AT LOCATIONS AS SHOWN ON THESE PLANS OR AS DIRECTED BY THE ENGINEER. WHEELCHAIR RAMPS SHALL BE LOCATED AS INDICATED IN THESE DETAILS; HOWEVER, THE LOCATION MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT. AT THESE LOCATIONS, NOT LESS THAN 2 FEET OF FULL HEIGHT CURB SHALL BE PLACED BETWEEN ADJACENT RAMPS.
2. NO SLOPE ON THE WHEELCHAIR RAMP SHALL EXCEED 1"/12" (12:1) IN RELATIONSHIP TO THE GRADE OF THE STREET.
3. IN NO CASE SHALL THE WIDTH OF THE WHEELCHAIR RAMP BE LESS THAN 40" (3'-4") HOWEVER, WIDTH MAY EXCEED 40".
4. USE AIR ENTRAINED 3000 PSI CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE.
5. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STANDARD DRAWINGS.
6. CURB DEPRESSION MUST GO IN WHETHER OR NOT SIDEWALK IS PLACED.

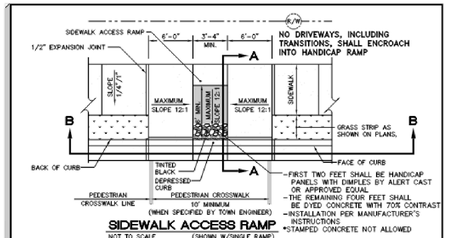


-FIRST TWO FEET SHALL BE HANDICAP TILES WITH DIMPLES BY ALERT CAST OR APPROVED EQUAL
-THE REMAINING FOUR FEET SHALL BE DYED CONCRETE WITH 70% CONTRAST
-INSTALLATION PER MANUFACTURER'S INSTRUCTIONS
*STAMPED CONCRETE NOT ALLOWED

STANDARD ADA WHEELCHAIR SIDEWALK ACCESS AT CURB RETURNS

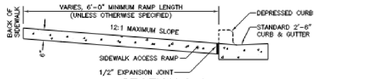
PERSPECTIVE

TOWN OF ZEBULON
DOUBLE HANDICAP RAMP DETAIL
USE WITH STANDARD SPECIFICATIONS ONLY
SCALE: NOT TO SCALE | DETAIL # 21 | DATE: JULY 2010 | SHEET # 1 OF 2



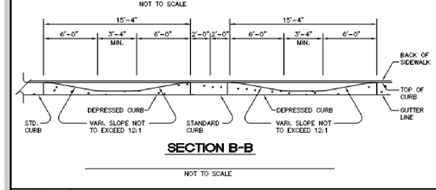
SIDEWALK ACCESS RAMP

NOT TO SCALE (SHOWN W/SINGLE RAMP)



SECTION A-A
PUBLIC STREET TIE-IN

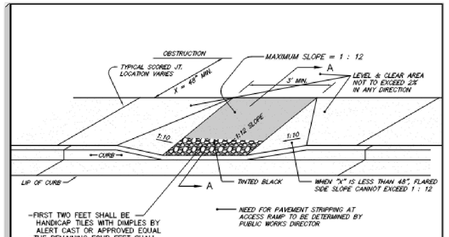
NOT TO SCALE



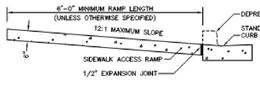
SECTION B-B

NOT TO SCALE

TOWN OF ZEBULON
DOUBLE HANDICAP RAMP DETAIL
USE WITH STANDARD SPECIFICATIONS ONLY
SCALE: NOT TO SCALE | DETAIL # 21 | DATE: JULY 2010 | SHEET # 2 OF 2



PERSPECTIVE

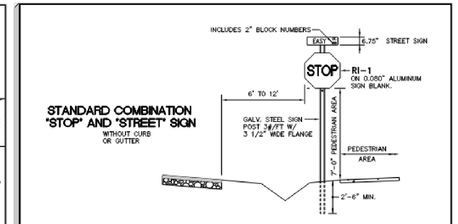


SECTION A-A

IN-WALK HANDICAP RAMP

* THIS DETAIL APPLICABLE FOR PARALLEL PARKING IN MUNICIPAL APPLICATIONS ONLY

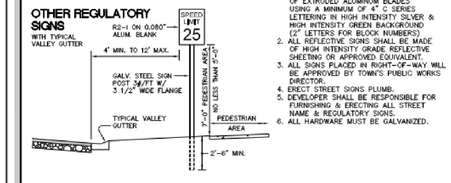
TOWN OF ZEBULON
HANDICAP PARKING STALL DETAIL *
USE WITH STANDARD SPECIFICATIONS ONLY
SCALE: NOT TO SCALE | DETAIL # 22 | DATE: JULY 2010 | SHEET # 1 OF 1



STANDARD COMBINATION "STOP" AND "STREET" SIGN

WITHOUT CURB OR GUTTER

ELEVATIONAL VIEW



OTHER REGULATORY SIGNS

WITH TYPICAL VALLEY GUTTER

ELEVATIONAL VIEW

NOTES:
1. STREET NAME SIGNS SHALL BE A MINIMUM OF EXTRUDED ALUMINUM BLADES USING A MINIMUM OF 4" C-SERIES LETTERING IN HIGH INTENSITY SILVER & HIGH INTENSITY GREEN BACKGROUND (2" LETTERS FOR BLOCK NUMBERS).
2. ALL REFLECTIVE SIGNS SHALL BE MADE OF HIGH INTENSITY GRADE REFLECTIVE SHEETING OR APPROVED EQUIVALENT.
3. ALL SIGNS PLACED IN RIGHT-OF-WAY WILL BE APPROVED BY TOWN'S PUBLIC WORKS DIRECTOR.
4. ERECT STREET SIGNS PLUMB.
5. DEVELOPER SHALL BE RESPONSIBLE FOR FURNISHING & ERECTING ALL STREET NAME & REGULATORY SIGNS.
6. ALL HARDWARE MUST BE GALVANIZED.

TOWN OF ZEBULON
STANDARD SIGN INSTALLATION DETAIL
USE WITH STANDARD SPECIFICATIONS ONLY
SCALE: NOT TO SCALE | DETAIL # 30 | DATE: JULY 2010 | SHEET # 1 OF 1

Bowman
Bowman North Carolina Ltd.
4006 BARRETT DR
Suite 104
RALEIGH, NC 27609
Phone: (919) 553-6570
bowman.com

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NORTH CAROLINA PROFESSIONAL SEAL 24424 ENGINEER MATTHEW E. LOWER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION
1	BRM	10/22/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW
3	MCB	12/27/23	WAKE COUNTY REVIEW
4	BRM/MCB	01/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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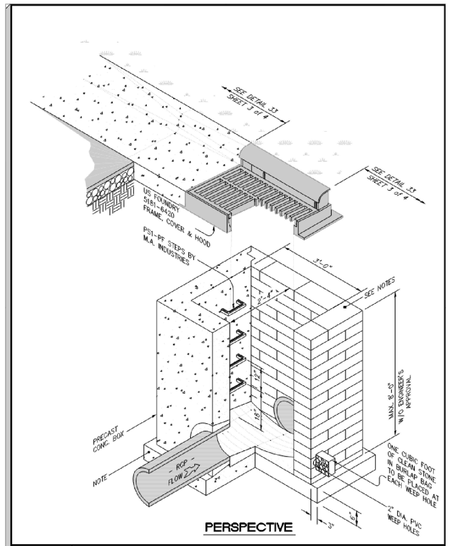
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
OFFSITE CONSTRUCTION DETAILS

DRWG. NO.
C6.5



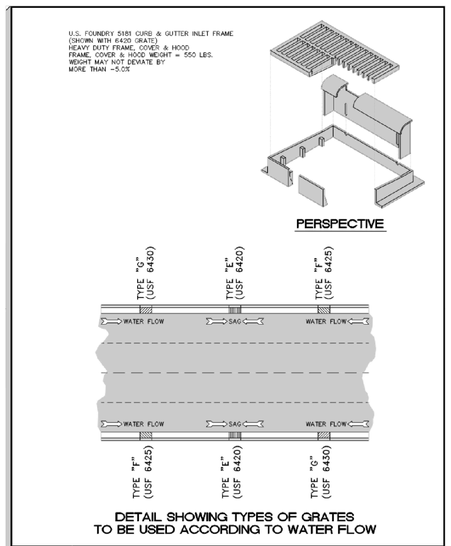
PERSPECTIVE

TOWN OF ZEBULON

STD. C&G INLET W/HOOD DETAIL

USE WITH STANDARD SPECIFICATIONS ONLY

SCALE: NOT TO SCALE | DETAIL # 33 | DATE: JULY 2010 | SHEET # 1 OF 4



PERSPECTIVE

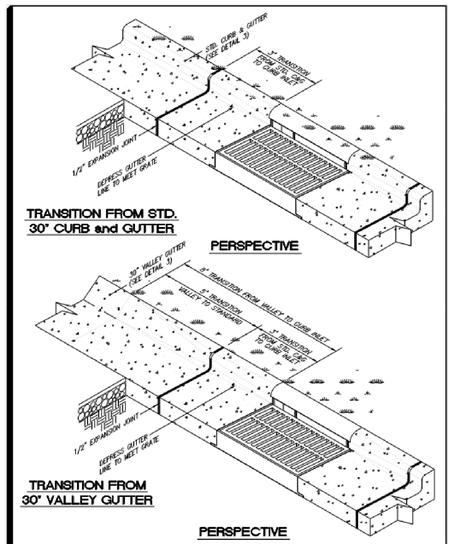
DETAIL SHOWING TYPES OF GRATES TO BE USED ACCORDING TO WATER FLOW

TOWN OF ZEBULON

STD. C&G INLET W/HOOD DETAIL

USE WITH STANDARD SPECIFICATIONS ONLY

SCALE: NOT TO SCALE | DETAIL # 33 | DATE: JULY 2010 | SHEET # 2 OF 4

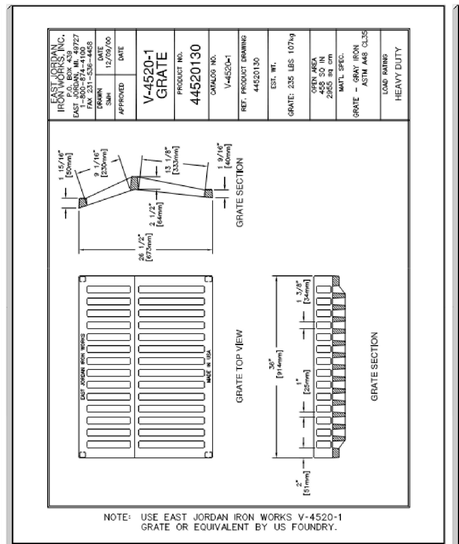


TOWN OF ZEBULON

STD. TRANSITION FROM INLET TO STD. C&G / VALLEY GUTTER

USE WITH STANDARD SPECIFICATIONS ONLY

SCALE: NOT TO SCALE | DETAIL # 33 | DATE: JULY 2010 | SHEET # 3 OF 4



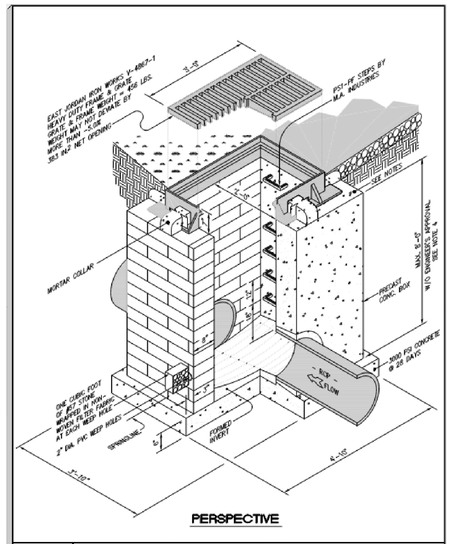
NOTE: USE EAST JORDAN IRON WORKS V-4520-1 GRATE OR EQUIVALENT BY US FOUNDRY.

TOWN OF ZEBULON

DETAIL FOR STORM DRAIN WITH DRIVEWAY CONFLICT

USE WITH STANDARD SPECIFICATIONS ONLY

SCALE: NOT TO SCALE | DETAIL # 33 | DATE: JULY 2010 | SHEET # 4 OF 4



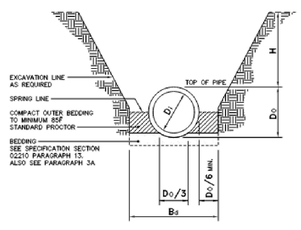
PERSPECTIVE

TOWN OF ZEBULON

2x3 DROP INLET

USE WITH STANDARD SPECIFICATIONS ONLY

SCALE: NOT TO SCALE | DETAIL # 34 | DATE: JULY 2010 | SHEET # 1 OF 1



SECTIONAL VIEW

D_i = INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
B_d = TRENCH WIDTH
H = BACKFILL COVER ABOVE TOP OF PIPE

PIPE D_i	MAX. B_d	MAX. BURY H CLASS III (0.01 CRACK)	MAX. BURY H CLASS IV (0.01 CRACK)
15"	4'	9.5'	14.5'
18"	4'	9.5'	15.0'
24"	4'	12.0'	23.5'
30"	5.5'	10.0'	17.0'
36"	6'	10.5'	18.0'
42"	6.5'	13.0'	19.0'
48"	7'	13.5'	20.0'
54"	8'	13.0'	18.5'
60"	9'	11.0'	18.0'
72"	10'	13.0'	19.0'

THIS TABLE ASSUMES TYPE 4 INSTALLATION & NO STONE BEDDING

NOTES:
1. FOR OTHER BURY DEPTHS THAN SHOWN (H), NORTH CAROLINA PE TO PROVIDE CALCS ON PIPE BURY THAT EXCEED THOSE GIVEN IN THIS CHART FOR THE CONDITIONS IN WHICH IT IS PROPOSED TO BE USED.
2. THIS TABLE OF BURY DEPTHS (H) APPLIES EQUALLY TO A CLASS C STONE BEDDING, TYPE 4 LAYING CONDITIONS.
3. MINIMUM COVER NOT SHOWN BUT NO LESS THAN 12" W/O ENGINEERS APPROVAL UP TO 48" PIPE.

TOWN OF ZEBULON

STD. TRENCH INSTALLATION FOR CONCRETE PIPE (FOR CONTRACTOR'S USE)

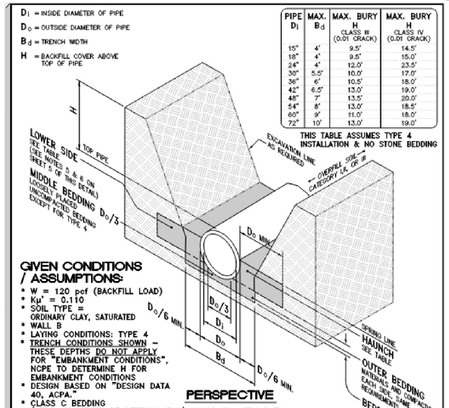
USE WITH STANDARD SPECIFICATIONS ONLY

SCALE: NOT TO SCALE | DETAIL # 36 | DATE: JULY 2010 | SHEET # 1 OF 5

D_i = INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
B_d = TRENCH WIDTH
H = BACKFILL COVER ABOVE TOP OF PIPE

PIPE D_i	MAX. B_d	MAX. BURY H CLASS III (0.01 CRACK)	MAX. BURY H CLASS IV (0.01 CRACK)
15"	4'	9.5'	14.5'
18"	4'	9.5'	15.0'
24"	4'	12.0'	23.5'
30"	5.5'	10.0'	17.0'
36"	6'	10.5'	18.0'
42"	6.5'	13.0'	19.0'
48"	7'	13.5'	20.0'
54"	8'	13.0'	18.5'
60"	9'	11.0'	18.0'
72"	10'	13.0'	19.0'

THIS TABLE ASSUMES TYPE 4 INSTALLATION & NO STONE BEDDING



PERSPECTIVE

GIVEN CONDITIONS / ASSUMPTIONS:
- W = 120 pcf (BACKFILL LOAD)
- Ku' = 0.110
- SOIL TYPE = ORDINARY CLAY, SATURATED
- WALL B
- LAYING CONDITIONS: TYPE 4
- TRENCH CONDITIONS SHOWN THESE DEPTHS DO NOT APPLY FOR "EMBANKMENT CONDITIONS", NOPE TO DETERMINE H FOR EMBANKMENT CONDITIONS
- DESIGN BASED ON "DESIGN DATA 40, ACPA."
- CLASS C BEDDING (1350 pif PER FI OF INTERNAL DIA.) CLASS III, ASTM C-76 (2000 pif PER FI OF INTERNAL DIA.) CLASS IV, ASTM C-76

NOTES:
1. GREATER DEPTHS ARE ACHIEVABLE BY EITHER CONTROLLING BACKFILL TYPE, NARROWING TRENCH WIDTH BUT SUPPLY SUFFICIENT ROOM FOR COMPACTION, IMPROVING BEDDING OR LOADING TO ULTIMATE LOAD (Du). FOR OTHER BURY DEPTHS THAN SHOWN (H), NORTH CAROLINA PE TO PROVIDE CALCS ON PIPE BURY THAT EXCEED THOSE GIVEN IN THIS CHART FOR THE CONDITIONS IN WHICH IT IS PROPOSED TO BE USED.
2. THIS TABLE OF BURY DEPTHS (H) APPLIES EQUALLY TO A CLASS C STONE BEDDING, TYPE 4. LAYING CONDITIONS
3. MINIMUM COVER NOT SHOWN
4. MAXIMUM BURY TABLE FOR "TRENCH CONDITIONS" PER THE DETAIL SHOWN THIS SHEET

TOWN OF ZEBULON

STD. TRENCH INSTALLATION FOR CONCRETE PIPE (FOR ENGINEER'S USE)

USE WITH STANDARD SPECIFICATIONS ONLY

SCALE: NOT TO SCALE | DETAIL # 36 | DATE: JULY 2010 | SHEET # 2 OF 5

Table 1 Equivalent USCS and AASHTO Soil CLassification for SIDD Soil Designations

SIDD Soil	Representative Soil Types: USCS.	Representative Soil Types: AASHTO	Percent Compaction: Standard Proctor	Percent Compaction: Modified Proctor
Gravelly Sand (Category I)	SW, SP, GW, GP	A1,A3	100 95 90 85 80	95 90 85 80 75
Sandy Silt (Category II)	GM, SM, ML Also GC, SC with less than 20% passing #200 sieve	A2,A4	100 95 90 85 80	95 90 85 80 75
Silty Clay (Category III)	CL, MH SCL, SC	A5,A6	100 95 90 85 80	90 85 80 75 70
	CH		100 95 90 85	90 85 80 40

TOWN OF ZEBULON

STD. TRENCH INSTALLATION (TRENCH CONDITION SHOWN)

USE WITH STANDARD SPECIFICATIONS ONLY

SCALE: NOT TO SCALE | DETAIL # 36 | DATE: JULY 2010 | SHEET # 3 OF 5

Table 2 Standard EMBANKMENT Installation Soils and Minimum Compaction Requirements

Installation Type [4]	Bedding Thickness	Haunch and Outer Bedding	Lower Side
Type 1	D_o/24 minimum, not less than 75 mm (3"). If rock foundation,use D_o/12 minimum, not less than 150 mm (6").	98% Category I	90% Category I, 95% Category II, or 100% Category III
Type 2	D_o/24 minimum, not less than 75 mm (3"). If rock foundation, use D_o/12 minimum,not less than 150 mm (6").	90% Category I or 95% Category II	85% Category I, 90% Category II, or 95% Category III
Type 3	D_o/24 minimum, not less than 75 mm (3"). If rock foundation, use D_o/12 minimum, not less than 150 mm (6").	85% Category I, 90% Category II, or 95% Category III	85% Category I, 90% Category II, or 95% Category III
Type 4	D_o/24 minimum, not less than 75 mm (3"). If rock foundation, use D_o/12 minimum, not less than 150 mm (6").	No compaction required, except if Category III, use 85% Category III	No compaction required, except if Category III, use 85% Category III

Notes:
1. Compaction and soils symbols – i.e. "98% Category I" refers to Category 1 soil material with a minimum standard Proctor compaction of 98%. See Table 1 for equivalent modified Proctor values.
2. Soil in the outer bedding, haunch, and lower side zones, except within D0/3 from the pipe springline, shall be compacted to at least the same compaction as the majority of the soil in the overfill zone.
3. Subtrenches
3.1 A subtrench is defined as a trench with its top below finished grade by more than 0.1 H or, for roadways, its top is at an elevation lower than 0.3 m (1') below the bottom of the pavement base material.
3.2 The minimum width of a subtrench shall be 1.33 D_o or wider if required for adequate space to attain the specified compaction in the haunch and bedding zones.
3.3 For subtrenches with wall of natural soil, any portion of the lower side zone in the subtrench wall shall be at least as firm as an equivalent soil placed to the compaction requirements specified for the lower side zone and as firm as the majority of soil in the overfill zone, or shall be removed and replaced with soil compacted to the specified level.
4. Type 1 installation = relatively high quality material & high compaction effort. Type 4 installation = little or no control over material and compaction.

TOWN OF ZEBULON

STD. TRENCH INSTALLATION (TRENCH CONDITION SHOWN)

USE WITH STANDARD SPECIFICATIONS ONLY

SCALE: NOT TO SCALE | DETAIL # 36 | DATE: JULY 2010 | SHEET # 4 OF 5

Table 3 Standard TRENCH Installations Soils and Minimum Compaction Requirements

Installation [2] Type	Bedding Thickness	Haunch Outer Bedding	Lower Side
Type 1	D_o/24 minimum, not less than 75 mm (3"). If rock foundation, use D_o/12 minimum, not less than 150 mm (6").	98% Category I	90% Category I, 95% Category II, or 100% Category III
Type 2	D_o/24 minimum, not less than 75 mm (3"). If rock foundation, use D_o/12 minimum, not less than 150 mm (6").	90% Category I or 95% Category II	85% Category I, 90% Category II, or 95% Category III
Type 3	D_o/24 minimum, not less than 75 mm (3"). If rock foundation, use D_o/12 minimum, not less than 150 mm (6").	85% Category I, 90% Category II, or 95% Category III	85% Category I, 90% Category II, or 95% Category III
Type 4	D_o/24 minimum, not less than 75 mm (3"). If rock foundation, use D_o/12 minimum, not less than 150 mm (6").	No compaction required, except if Category III, use 85% Category III	No compaction required, except if Category III, use 85% Category III

Notes:
1. Compaction and soils symbols – i.e. "98% Category I" refers to Category 1 soil materials with minimum standard Proctor compaction of 98%. See Table 1 for equivalent modified Proctor values.
2. The trench top elevation shall be no lower than 0.1 H below finished grade or, for roadways, its top shall be no lower than an elevation of 0.3 m (1') below the bottom of the pavement base material.
3. Soil in bedding and haunch zones shall be compacted to at least the same compaction as specified for the majority of soil in the backfill zone.
4. The trench width shall be wider than shown if required for adequate space to attain the specified compaction in the haunch and bedding zone.
5. For trench walls that are within 10 degrees of vertical, the compaction or firmness of the soil in the trench walls and lower side zone need not be considered.
6. For trench walls with greater than 10 degrees slopes that consist of embankment, the lower side shall be compacted to at least the same compaction as specified for the soil in the backfill zone.
7. Type 1 installation = relatively high quality material & high compaction effort. Type 4 installation = little or no control over material and compaction.

TOWN OF ZEBULON

STD. TRENCH INSTALLATION (TRENCH CONDITION SHOWN)

USE WITH STANDARD SPECIFICATIONS ONLY

SCALE: NOT TO SCALE | DETAIL # 36 | DATE: JULY 2010 | SHEET # 5 OF 5

Bowman
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4006 BARRETT DR
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bowman.com

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NORTH CAROLINA PROFESSIONAL SEAL 24429 ENGINEER MATTHEW E. LAWYER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY:	DATE:	REVISIONS DESCRIPTION	REVISED BY:	DATE:	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW			
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW			
3	MCB	12/21/23	WAKE COUNTY REVIEW			
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW			
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW			

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STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

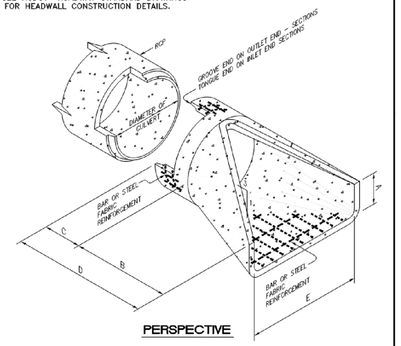
SHEET TITLE
OFFSITE CONSTRUCTION DETAILS

DRWG. NO. C6.6

Cad File Name:V:\220163 – Crosland Southeast – 7-Eleven – Kenly\220163-01-002 (ENG) – Crosland-7-Eleven – Zebulon, NC\Engineering\Engineering Plans\Construction Drawings\220163-01-002-SIT.dwg

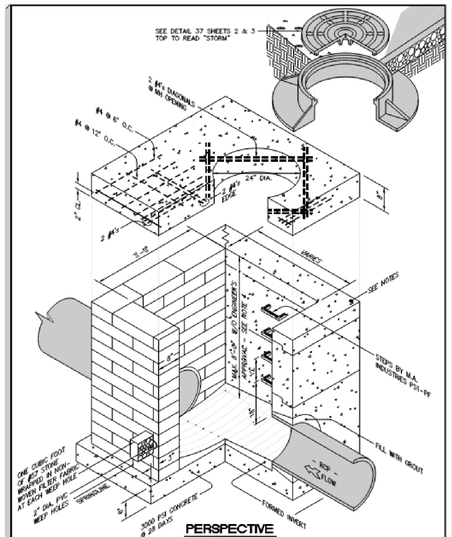
END SECTION DIMENSIONS					
DIA.	A	B	C	D	E
15"	7"	2'-3 1/4"	3'-11 1/2"	6'-2 3/4"	2'-6"
18"	9"	2'-3"	3'-11 3/4"	6'-2 3/4"	3'-0"
24"	9"	3'-7"	3'-1"	6'-8"	3'-11 3/4"
30"	1'-0"	4'-6 1/2"	1'-10 1/2"	6'-5"	5'-0"
36"	1'-4"	5'-0"	3'-1 1/2"	8'-1 1/2"	5'-11"
42"	1'-10 1/4"	5'-1 3/8"	3'-1"	8'-2 3/8"	6'-5 1/4"

NOTES:
1. DESIGN OF END-SECTION SHALL CONFORM TO STANDARD REINFORCED SECTIONAL CONCRETE CULVERT PIPE.
2. ANY TWIN BARREL SYSTEM GREATER THAN 42" RCP REQUIRES A HEADWALL.
3. ANY SYSTEM OF MORE THAN 2 PIPES REQUIRES A HEADWALL.
4. SEE NCDOT "ROADWAY STANDARD DRAWINGS" FOR HEADWALL CONSTRUCTION DETAILS.



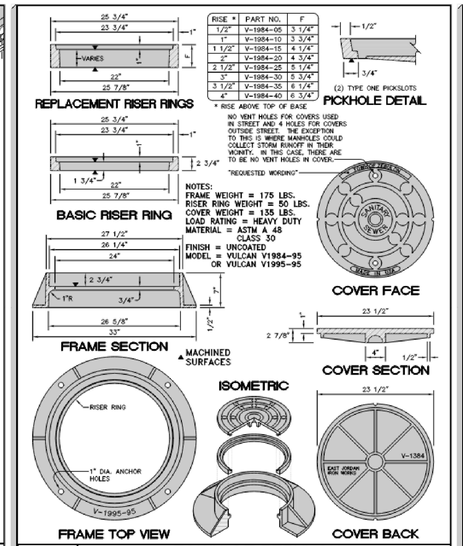
PERSPECTIVE

TOWN OF ZEBULON
STD. FLARED END SECTIONS DESIGN AID DETAIL
SCALE: NOT TO SCALE | DETAIL # 35 | DATE: JULY 2010 | SHEET # 1 OF 1
USE WITH STANDARD SPECIFICATIONS ONLY



PERSPECTIVE

TOWN OF ZEBULON
STD. M.H. J.B. VARIABLE LENGTH
SCALE: NOT TO SCALE | DETAIL # 37 | DATE: JULY 2010 | SHEET # 1 OF 3
USE WITH STANDARD SPECIFICATIONS ONLY



RISE *	PART NO.	F
1/2"	V-1984-05	3 1/4"
1"	V-1984-10	3 3/4"
1 1/2"	V-1984-15	4 1/4"
2"	V-1984-20	4 3/4"
2 1/2"	V-1984-25	5 1/4"
3"	V-1984-30	5 3/4"
3 1/2"	V-1984-35	6 1/4"
4"	V-1984-40	6 3/4"

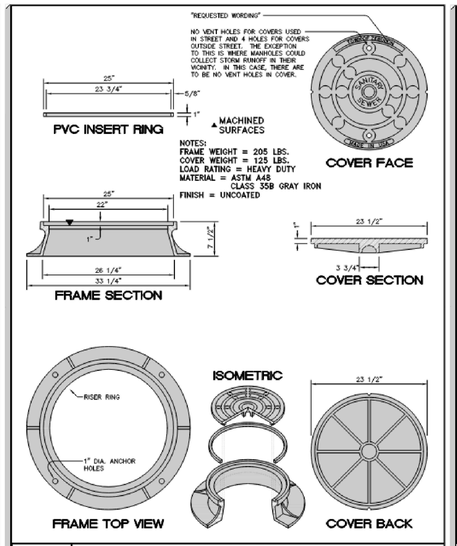
* RISE ABOVE TOP OF BASE

NO VENT HOLES FOR COVERS USED IN STREET AND 4 HOLES FOR COVERS OUTSIDE STREET. THE EXCEPTION TO THIS IS WHERE MANHOLES COULD COLLECT STORM RUNOFF IN THEIR VICINITY. IN THIS CASE, THERE ARE TO BE NO VENT HOLES IN COVER.

"REQUESTED WORDING"

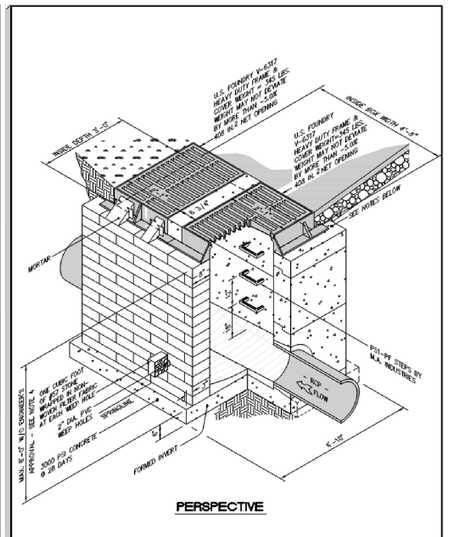
NOTES:
FRAME WEIGHT = 175 LBS.
RISER RING WEIGHT = 50 LBS.
COVER WEIGHT = 135 LBS.
LOAD RATING = HEAVY DUTY
MATERIAL = ASTM A 48 CLASS 30
FINISH = UNCOATED
MODEL = VULCAN V1984-95 OR VULCAN V1995-95

TOWN OF ZEBULON
STANDARD MANHOLE COVER & RING ADJUSTABLE - EAST JORDAN IRON WORKS V-1984
SCALE: NOT TO SCALE | DETAIL # 37 | DATE: JULY 2010 | SHEET # 2 OF 3
USE WITH STANDARD SPECIFICATIONS ONLY



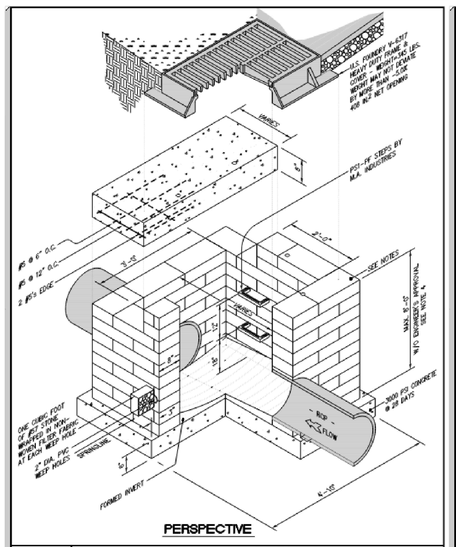
NOTES:
FRAME WEIGHT = 205 LBS.
COVER WEIGHT = 125 LBS.
LOAD RATING = HEAVY DUTY
MATERIAL = ASTM A48 CLASS 35B GRAY IRON
FINISH = UNCOATED

TOWN OF ZEBULON
STANDARD MANHOLE & RING US FOUNDRY 700 KL
SCALE: NOT TO SCALE | DETAIL # 37 | DATE: JULY 2010 | SHEET # 3 OF 3
USE WITH STANDARD SPECIFICATIONS ONLY



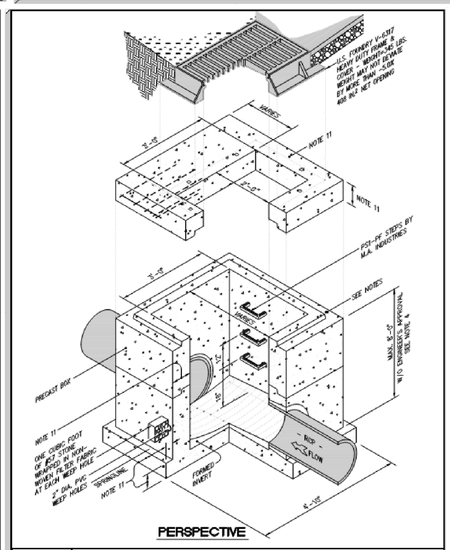
PERSPECTIVE

TOWN OF ZEBULON
STD. MULTIPLE 2' x 3' CATCH BASIN DETAIL
SCALE: NOT TO SCALE | DETAIL # 38 | DATE: JULY 2010 | SHEET # 1 OF 1
USE WITH STANDARD SPECIFICATIONS ONLY



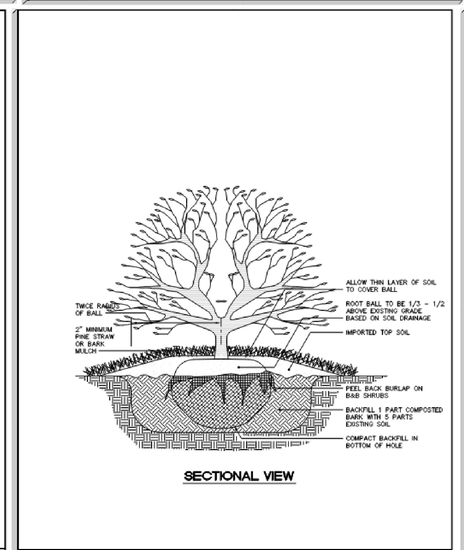
PERSPECTIVE

TOWN OF ZEBULON
STD. 3' x VARIABLE LENGTH BOX WITH 2' x 3' C.B.
SCALE: NOT TO SCALE | DETAIL # 39 | DATE: JULY 2010 | SHEET # 1 OF 2
USE WITH STANDARD SPECIFICATIONS ONLY



PERSPECTIVE

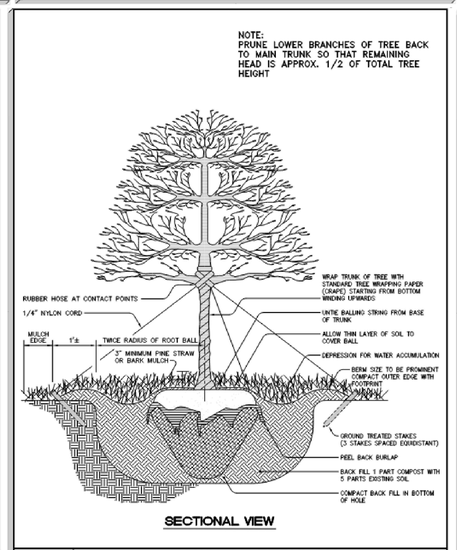
TOWN OF ZEBULON
STD. 3' x VARIABLE LENGTH PRECAST BOX WITH 2' x 3' C.B.
SCALE: NOT TO SCALE | DETAIL # 39 | DATE: JULY 2010 | SHEET # 2 OF 2
USE WITH STANDARD SPECIFICATIONS ONLY



SECTIONAL VIEW

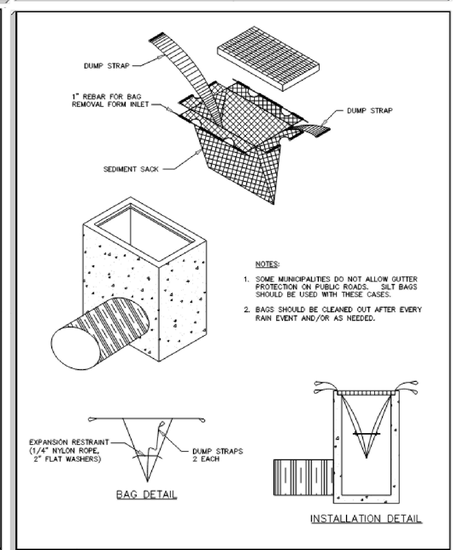
TOWN OF ZEBULON
TYPICAL SHRUB PLANTING DETAIL
SCALE: NOT TO SCALE | DETAIL # 43 | DATE: JULY 2010 | SHEET # 1 OF 1
USE WITH STANDARD SPECIFICATIONS ONLY

NOTE:
PRUNE LOWER BRANCHES OF TREE BACK TO MAIN TRUNK SO THAT REMAINING HEAD IS APPROX. 1/2 OF TOTAL TREE HEIGHT



SECTIONAL VIEW

TOWN OF ZEBULON
TYPICAL TREE STAKING and PLANTING DETAIL
SCALE: NOT TO SCALE | DETAIL # 44 | DATE: JULY 2010 | SHEET # 1 OF 1
USE WITH STANDARD SPECIFICATIONS ONLY



NOTES:
1. SOME MUNICIPALITIES DO NOT ALLOW GUTTER PROTECTION ON PUBLIC ROADS. SILT BAGS SHOULD BE USED WITH THESE CASES.
2. BAGS SHOULD BE CLEANED OUT AFTER EVERY RAIN EVENT AND/OR AS NEEDED.

TOWN OF ZEBULON
CATCH BASIN - SEDIMENT CONTROL DEVICES
SCALE: NOT TO SCALE | DETAIL # 50 | DATE: JULY 2010 | SHEET # 1 OF 1
USE WITH STANDARD SPECIFICATIONS ONLY

Bowman
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Phone: (919) 553-6570
bowman.com

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NORTH CAROLINA PROFESSIONAL SEAL 24424 ENGINEER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY:	DATE REVISED:	REVISIONS DESCRIPTION	REVISED BY:	DATE REVISED:	REVISIONS DESCRIPTION
1	BRM	1/5/23	TOWN OF ZEBULON REVIEW			
2	BRM/MCB	1/25/23	TOWN OF ZEBULON REVIEW			
3	MCB	1/27/23	WAKE COUNTY REVIEW			
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW			
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW			

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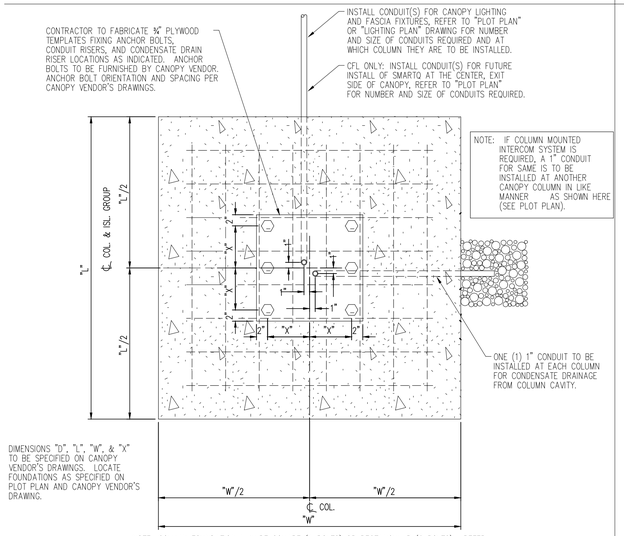
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM/DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
OFFSITE CONSTRUCTION DETAILS

DRWG. NO. C6.7

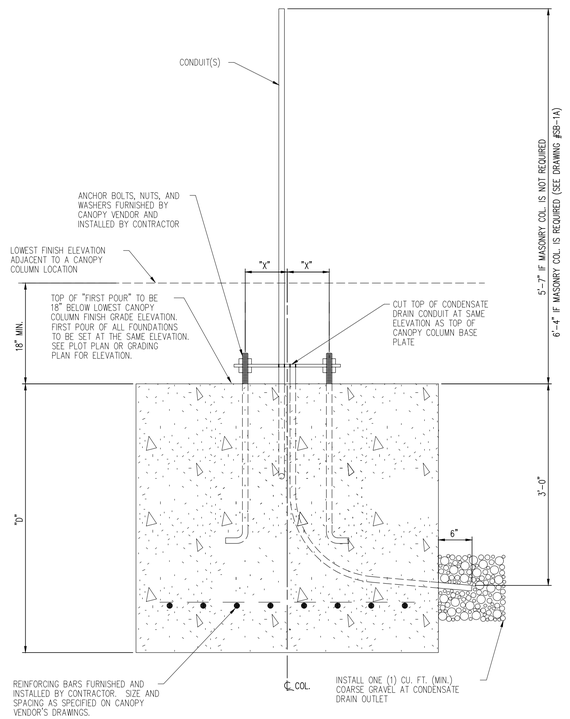
Cad File Name:V:\220163 - Crosland Southeast - 7-Eleven - Kenly\220163-01-002 (ENG) - Crosland-7-Eleven - Zebulon, NC\Engineering\Engineering Plans\Construction Drawings\220163-01-002-SIT.dwg

FIRST POUR



NOTE: COLUMN FOUNDATION MAY BE SQUARE (4 BOLTS) OR RECTANGULAR (6 BOLTS). REFER TO VENDOR'S DRAWINGS TO VERIFY ORIENTATION OF RECTANGULAR BASES RELATIVE TO ISLAND GROUP CENTERLINE.

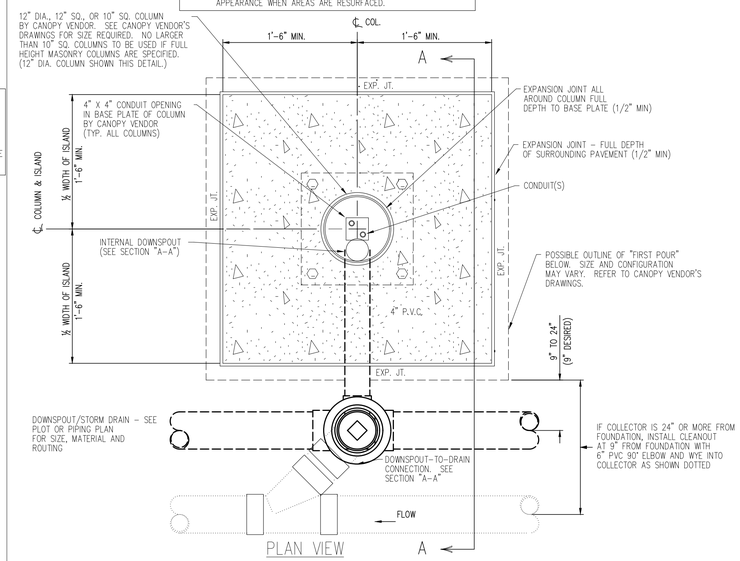
PLAN VIEW



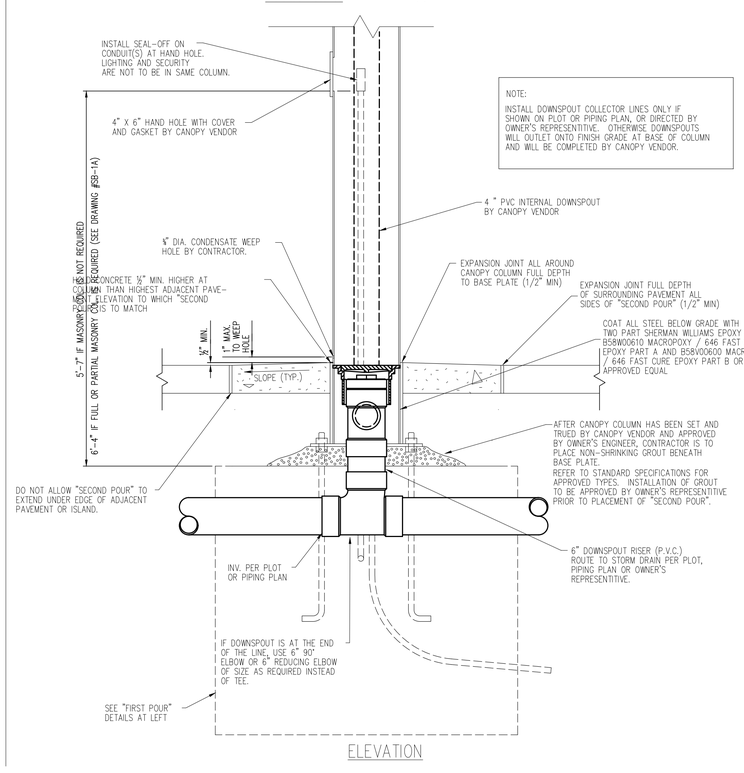
ELEVATION

SECOND POUR

NOTE: IF COLUMNS ARE INSTALLED AT LOCATIONS WHERE ADJACENT PAVING IS TO REMAIN, THE AREAS REMOVED FOR EXCAVATION AND TRENCHING ARE TO BE SAW CUT TO PROVIDE A NEAT, FINISHED APPEARANCE WHEN AREAS ARE RESURFACED.



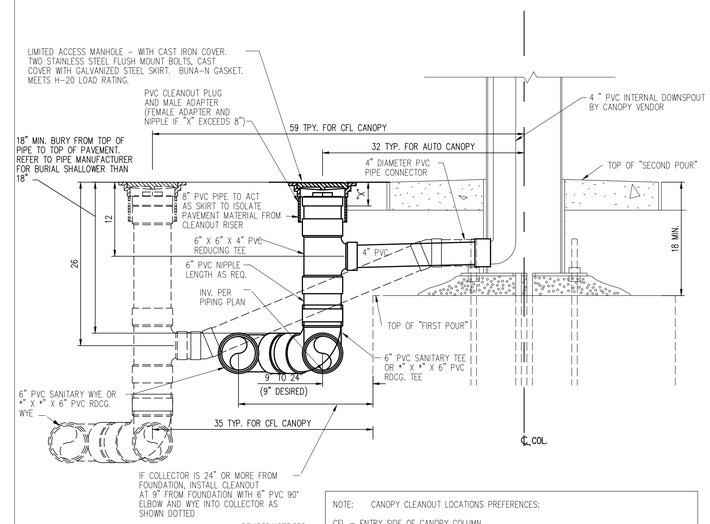
PLAN VIEW



NOTE:
INSTALL DOWNSPOUT COLLECTOR LINES ONLY IF SHOWN ON PLOT OR PIPING PLAN, OR DIRECTED BY OWNER'S REPRESENTITIVE. OTHERWISE DOWNSPOUTS WILL OUTLET ONTO FINISH GRADE AT BASE OF COLUMN AND WILL BE COMPLETED BY CANOPY VENDOR.

ELEVATION

CANOPY DRAIN DETAILS



NOTE: CANOPY CLEANOUT LOCATIONS PREFERENCES:

CFL – ENTRY SIDE OF CANOPY COLUMN
AUTO(STARTING GATE) – AWAY FROM PRODUCT PIPING OPPOSITE THE BUILDING SIDE COLUMNS
AUTO STACKED – REFER TO DESIGNER GUIDELINES

* – SEE PIPING PLAN TO VERIFY SIZE OF DOWNSPOUT COLLECTOR PIPE.
* – SEE FUEL PROTOTYPE FOR ISLAND SLAB DETAILS.

REVISED NOTE PER CR ADMIN 2022-3000

REVISED LOCATION PER CR ADMIN 2022-3000

SECTION "A-A"
INTERNAL DOWNSPOUT

Bowman
Bowman North Carolina Ltd.
4006 BARRETT DR
Suite 104
RALEIGH, NC 27609
Phone: (919) 553-6570
bowman.com

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NORTH CAROLINA PROFESSIONAL SEAL 24424 ENGINEER MATTHEW E. LAWYER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY:	DATE REVISED:	REVISIONS DESCRIPTION
1	BRM	1/5/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	1/25/23	TOWN OF ZEBULON REVIEW
3	MCB	1/27/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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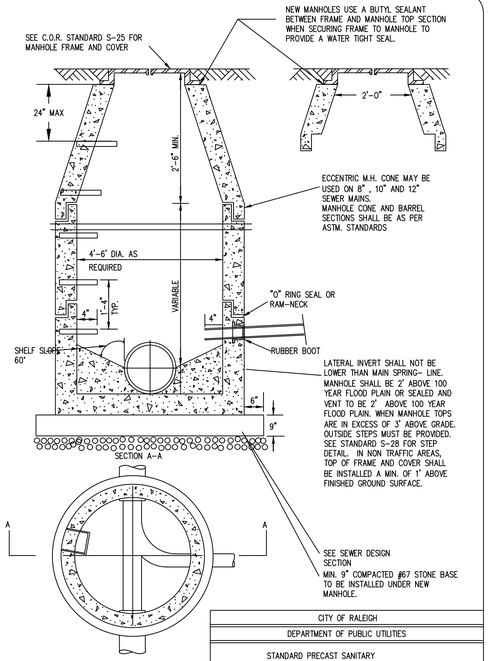
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

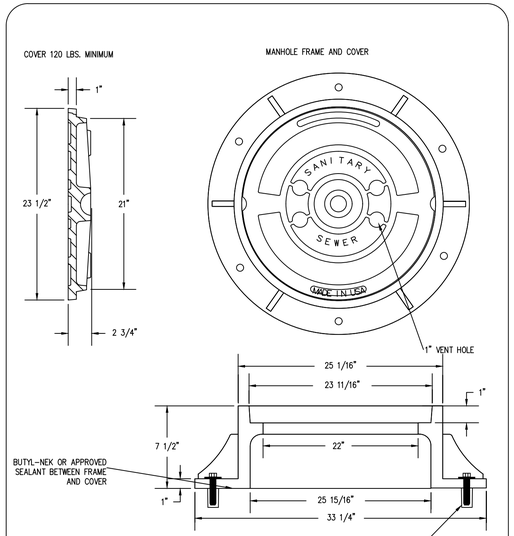
SHEET TITLE
GRADING & DRAINAGE DETAILS

DRWG. NO. C6.8



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD PRECAST SANITARY SEWER MANHOLE

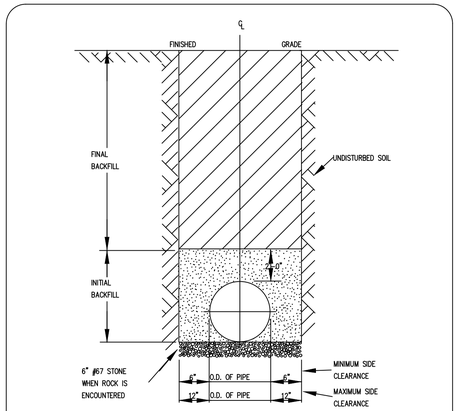
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20	Y.C.A.	12-31-92	ABB	2-21-05
	RRH	3-30-00	D.H.L.	6-16-08



NOTES:
1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2) FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.
3) COVER SHALL WEIGH A MIN. OF 120 LBS.
4) ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE COVER

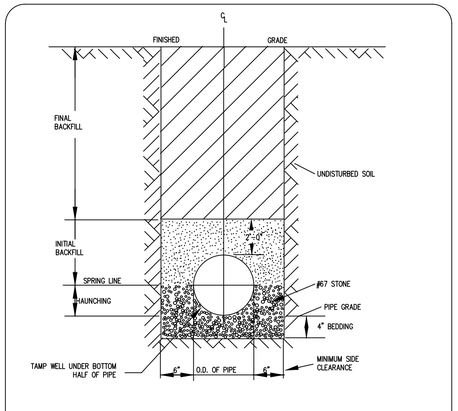
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25	3-1-87	3-1-87	A.B.B.	2-9-05
	RRH	3-30-00	D.H.L.	6-18-08



NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
5. ACHIEVE 80% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
6. IF IN EASEMENT 4" TOPSOIL, AND 12" CLEAN SELECT FILL MAY BE REQUIRED.
7. NO BOULDERS 8" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-4	D.W.C.	9-3-99		
	RRH	3-30-00		

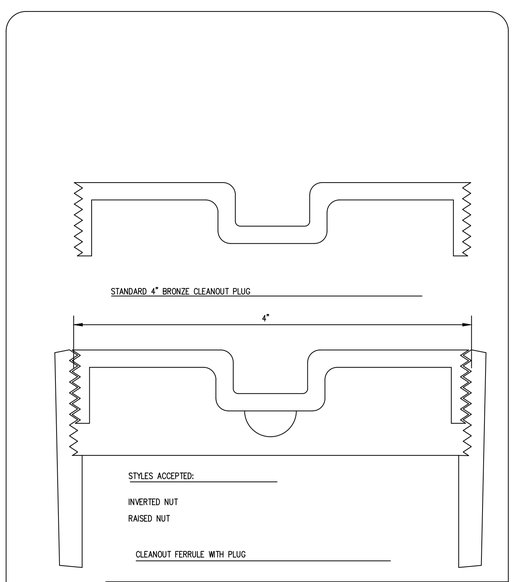


TYPICAL TRENCH BOTTOM DIMENSIONS FOR SDR 35 PVC GRAVITY PIPE

NOTES:
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.

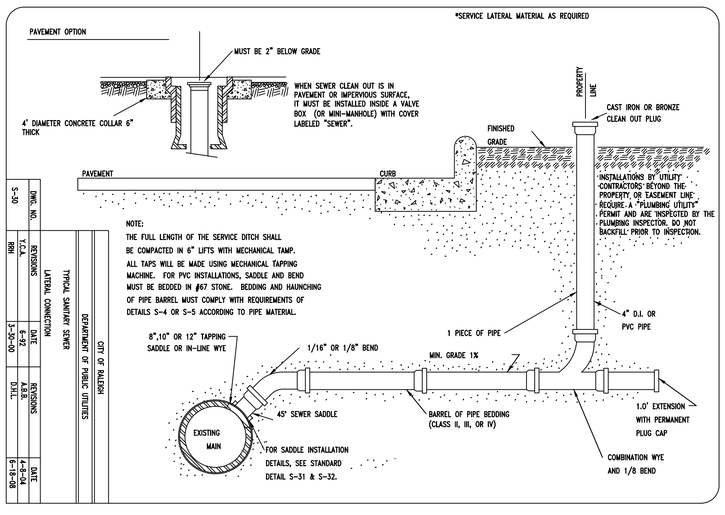
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-5	TO NOTES	3-1-87	D.W.C.	9-3-99
		7-2-82	RRH	3-30-00



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
4" CLEANOUT PLUG

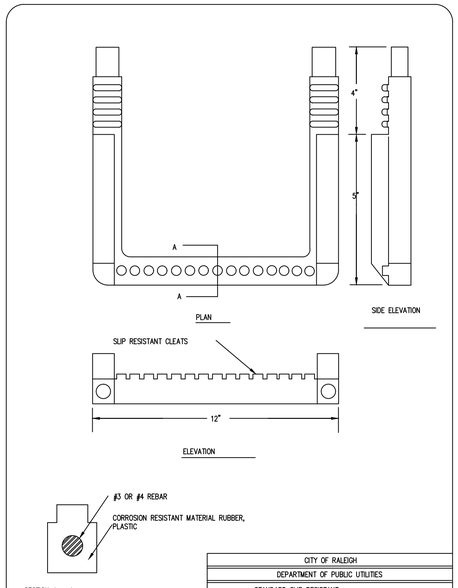
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-34		3-1-87	RRH	3-30-00
	D.W.C.	3-27-98		



DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-30	Y.C.A.	12-31-92	A.B.B.	4-8-04
	RRH	3-30-00	D.H.L.	6-18-08

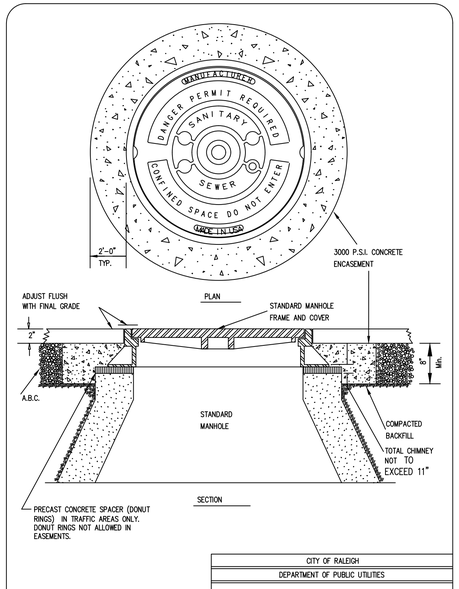
TYPICAL SANITARY SEWER LATERAL CONNECTION

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD SLIP RESISTANT MANHOLE STEP DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-28	RRH	3-30-00		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-29	Y.C.A.	12-31-91	ABB	9-20-04
	RRH	3-30-00	DHL	11-29-07

PUBLIC Water Distribution/Extension System

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

City of Raleigh Public Utilities Department Permit # W-4087

Authorization to Construct See digital signature

PUBLIC Sewer Collection/Extension System

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

City of Raleigh Public Utilities Department Permit # S-5404

Authorization to Construct See digital signature

ATTENTION CONTRACTORS

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NORTH CAROLINA PROFESSIONAL SEAL 24484 ENGINEER MATTHEW E. LOWER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY:	DATE REVISED:	REVISIONS DESCRIPTION:
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	2/5/23	TOWN OF ZEBULON REVIEW
3	MCB	2/27/23	WAKE COUNTY REVIEW
4	BRM/MCB	11/8/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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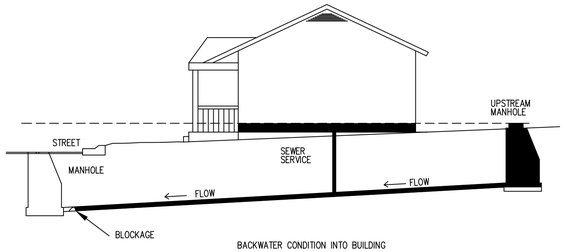
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

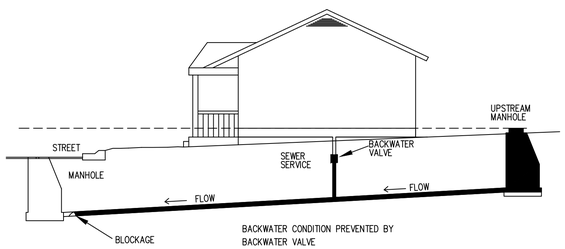
SHEET TITLE
SEWER DETAILS

DRWG. NO.
C6.9

BUILDING WITH NEXT UPSTREAM MANHOLE HIGHER THAN THE LOWEST DRAIN AND BLOCKAGE IN SEWER MAIN



BACKWATER CONDITION INTO BUILDING WITHOUT BACKWATER VALVE

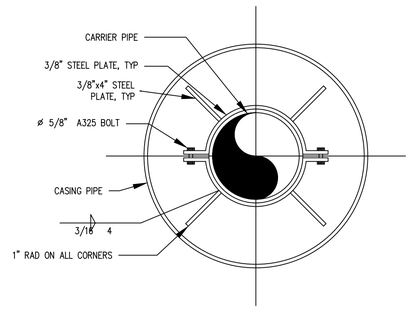


BACKWATER CONDITION PREVENTED BY BACKWATER VALVE

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES

TYPICAL SEWER SERVICE REQUIRING BACKWATER VALVE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-42	RRH	3-31-00		



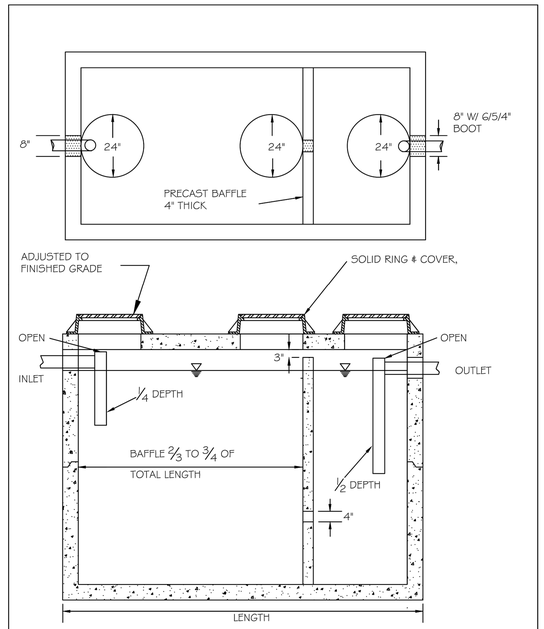
NOTE:

1) USE A MINIMUM OF TWO SPIDERS PER PIPE JOINT ONE FOURTH OF THE PIPE JOINT LENGTH IN FROM BOTH THE BELL AND SPIGOT ENDS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES

PIPE ALIGNMENT GUIDE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-39	RRH	3-31-00		
	A.B.B.	4-16-04		



NOTES:
1. REINFORCEMENT: H-20 BRIDGE LOADING (TRAFFIC RATED)
2. CONCRETE: 4000 PSI @28 DAYS
3. EARTHCOVER: 0' TO 5' MAX.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES

1000 GALLON GREASE INTERCEPTOR

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-40	RRH	3/9/00	D.H.L.	6/18/08
	ABB	3/19/04		

PUBLIC
Water Distribution/Extension System

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

City of Raleigh Public Utilities Department Permit # WI-4087

Authorization to Construct See digital signature

PUBLIC
Sewer Collection/Extension System

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

City of Raleigh Public Utilities Department Permit # S-5604

Authorization to Construct See digital signature

ATTENTION CONTRACTORS

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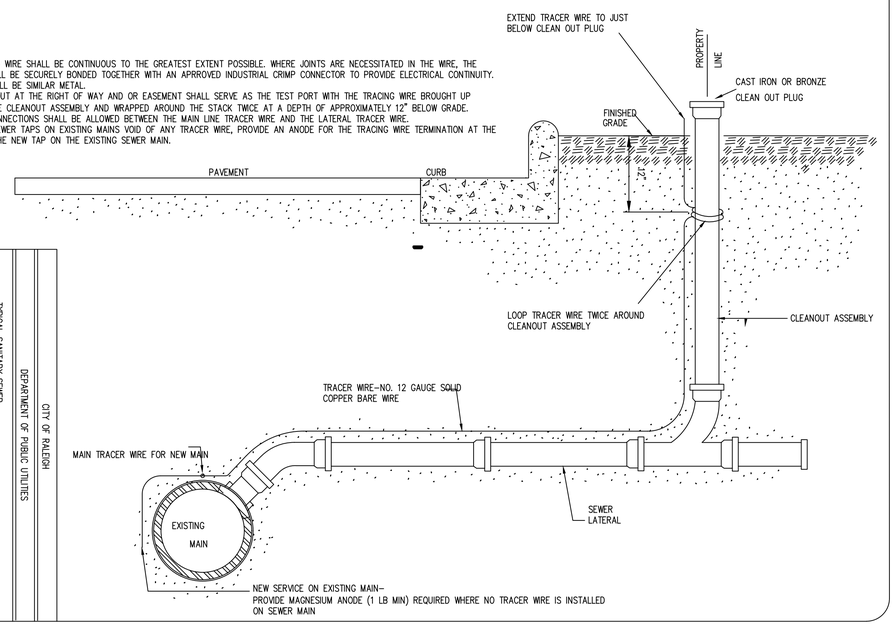
NOTES:

1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. WHERE JOINTS ARE NECESSITATED IN THE WIRE, THE JOINTS SHALL BE SECURELY BONDED TOGETHER WITH AN APRROVED INDUSTRIAL CRIMP CONNECTOR TO PROVIDE ELECTRICAL CONTINUITY. CRIMPS SHALL BE SIMILAR METAL.
2. THE CLEANOUT AT THE RIGHT OF WAY AND OR EASEMENT SHALL SERVE AS THE TEST PORT WITH THE TRACING WIRE BROUGHT UP OUTSIDE THE CLEANOUT ASSEMBLY AND WRAPPED AROUND THE STACK TWICE AT A DEPTH OF APPROXIMATELY 12" BELOW GRADE.
3. SPLICED CONNECTIONS SHALL BE ALLOWED BETWEEN THE MAIN LINE TRACER WIRE AND THE LATERAL TRACER WIRE.
4. FOR NEW SEWER TAPS ON EXISTING MAINS VOID OF ANY TRACER WIRE, PROVIDE AN ANODE FOR THE TRACING WIRE TERMINATION AT THE POINT OF THE NEW TAP ON THE EXISTING SEWER MAIN.



DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-30A				

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TYPICAL SANITARY SEWER
LATERAL TRACER WIRE

REVISIONS	DATE	REVISIONS	DATE
WKD	9-14		

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24424 MATTHEW E. LOWER 3/4/24

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION
1	BRM	1/0/23	TO/IN OF ZEBULON REVIEW			
2	BRM/MCB	1/25/23	TO/IN OF ZEBULON REVIEW			
3	MCB	1/27/23	WAKE COUNTY REVIEW			
4	BRM/MCB	1/18/24	TO/IN OF ZEBULON REVIEW			
5	BRM/MCB	03/04/24	TO/IN OF ZEBULON REVIEW			

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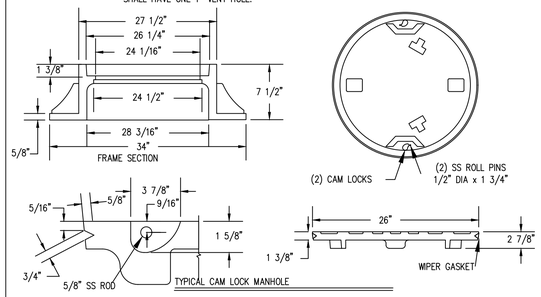
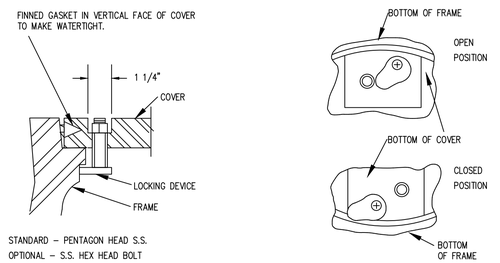
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
SEWER DETAILS

DRWG. NO. C6.10

NOTE: WHEN WATERTIGHT NOT SPECIFIED, TOP SHALL SHALL HAVE ONE 1" VENT HOLE.





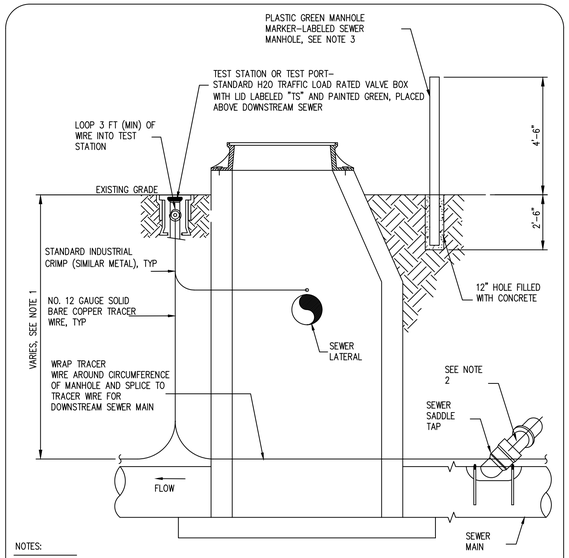
STANDARD – PENTAGON HEAD S.S.

OPTIONAL – S.S. HEX HEAD BOLT

TYPICAL LOCKING DEVICE

RING MUST BE ANCHORED IN ACCORDANCE WITH S-25

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
WATER-TIGHT MANHOLE FRAME WITH CAM LOCK COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-27	RRH	3-30-00		
	DHL	6-18-08		

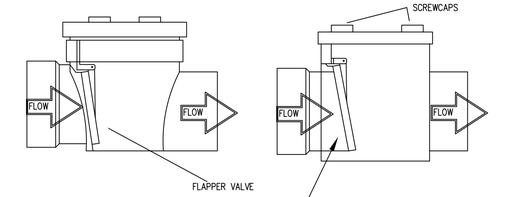


NOTES:

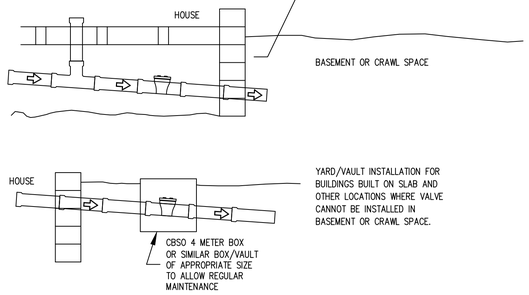
1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE LAID FLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 8 FT, THE TRACING WIRE SHALL BE INSTALLED AT A DEPTH OF 7-8 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORK. NO BREAKS OF CUTS IN THE TRACER WIRE SHALL BE PERMITTED.
2. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO TO BE PLACED BETWEEN THE SADDLE AND MAIN.
3. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNER'S REPRESENTATIVE.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20A	WKD	09-14		

TYPICAL SANITARY SEWER SERVICE BACKWATER VALVE STYLES:



TYPICAL BACKWATER VALVE INSTALLATIONS:



NOTES:

1. INSTALLATIONS OF GREATER THAN 4' IN DEPTH MAY REQUIRE MANHOLE.
2. VALVES MUST BE INSTALLED IN A LOCATION AT WHICH THEY CAN BE CLEANED AND SERVICED REGULARLY.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TYPICAL SANITARY SEWER SERVICE BACK-WATER VALVE INSTALLATION				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-38	RRH	3-31-00		

PUBLIC
Water Distribution/Extension System

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City of Raleigh
Public Utilities Department Permit # W-4087

Authorization to Construct See digital signature

PUBLIC
Sewer Collection/Extension System

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City of Raleigh
Public Utilities Department Permit # S-5404

Authorization to Construct See digital signature

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24424 MATTHEW E. LOWER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW
3	MCB	12/21/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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STORE OR BLDG NO.: N/A

VERSION OR PROJECT ID: N/A

DESIGN TEAM

DGNR. BRM & MCB

PM./DP. ML

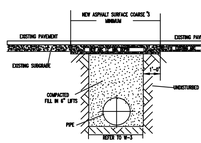
RVWR. ML

ISSUE DATE: 03/04/2024

ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
SEWER DETAILS

DRWG. NO. C6.11

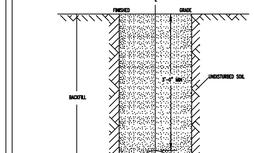


NOTES:

1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
3. THE FINAL 1" OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
4. THE ENTIRE THICKNESS/ VERTICAL EDGE OF CUT SHALL BE TACKED.
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
7. REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING, W-3, FOR ADDITIONAL DETAILS.
8. NO HAND PATCHING ALLOWED.
9. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD ASPHALT PAVEMENT PATCH DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-2	BRM	2-21-07	BRM	4-25-08
	B.M.C.	11-1-08	J.F.S.	10-29-10

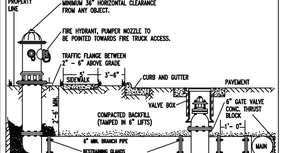


NOTES:

1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-3	B.M.C.	2-21-08	BRM	2-25-10
	BRM	3-31-08	J.F.S.	10-29-10



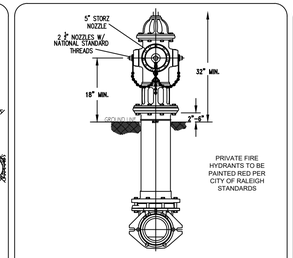
NOTES:

1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M & H, WATERGUS, CLOW, EAST JORDAN IRON WORKS, OR US TYPE.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150–96.
3. 6" GATE VALVE SHALL BE AWWA C500–86 OPEN LEFT.
4. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
5. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20FT, THEN THE HYDRANT BRANCH SHALL BE RESTRAINED FOR THE ENTIRE LENGTH WITH A MECHANICAL JOINT RETSTRAINING SYSTEM.
6. FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW.

ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THE WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD FIRE HYDRANT INSTALLATION DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4	BRM	4-10-08	BRM	3/11/09
	BRL	3/14/09		

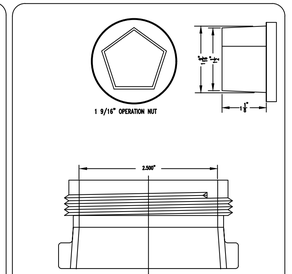


NOTES:

1. ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLESVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.
2. ALL PRIVATE FIRE HYDRANTS SHALL BE RED.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
HYDRANT OPERATING NUT AND 2 1/2" OUTLET THREADS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-5	BRM	9-26-08		
	KAT	9-15-17		

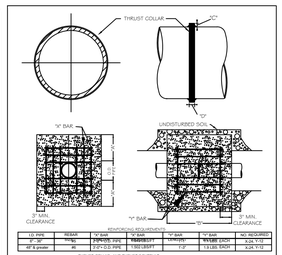


NOTES:

1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
2. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
5. BACKFILL TAMPED IN 6" LIFTS PER CITY OF RALEIGH STANDARDS.
6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN DATA FOR WATER MAINS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-6	BRM	9-26-08	BRM	3-31-08
	AAB	9-26-08	J.F.S.	11-1-10



DESIGN DATA REQUIREMENTS				
I.D. (INCH)	REBAR	"A" BAR	"D" BAR	"D" BAR
4" & 6"	#4	2'0"+(D) FOR 1 FOOT THICKNESS	1'-0"	1'-0"
8" & greater	#5	2'0"+(D) FOR 1 FOOT THICKNESS	1'-0"	1'-0"

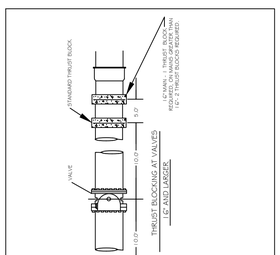
THRUST COLLAR AND TIERED SCHEDULE				
ALL PIPE	"A"	"B"	"C"	"D"
4" – 12"	1'-0"	1'-0"	3"	3/8"
16" – 24"	1'-0"	1'-0"	3"	3/8"
30" – 36"	1'-0"	1'-0"	4"	3/8"
42" & greater	1'-0"	1'-0"	4"	7/8"

NOTES:

1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
2. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
5. BACKFILL TAMPED IN 6" LIFTS PER CITY OF RALEIGH STANDARDS.
6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

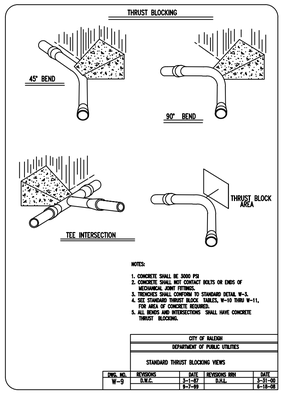
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN DATA FOR WATER MAINS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-7	BRM	2-1-08	J.F.S.	10-1-10
	BRM	2-18-08		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD THRUST BLOCK INSTALLATION FOR 16" AND LARGER VALVES AND DEAD END MAINS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-8	B.M.C.	11-12-10	B.M.C.	3-7-09
		2-22	KBG	3-31-00

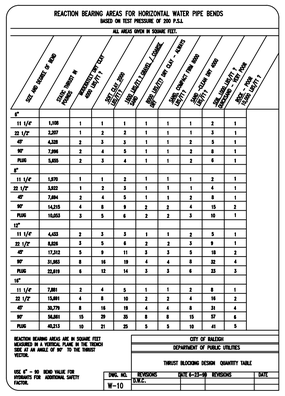


NOTES:

1. CONCRETE SHALL BE 3000 PSI
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
4. SEE STANDARD CONCRETE BLOCK TABLES, W-10 THRU W-11, FOR THRUST BLOCK CONCRETE REQUIREMENTS.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD THRUST BLOCKING VIEWS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-9	B.M.C.	2-21-07	BRM	2-21-08
	B.M.C.	1-7-10	B.M.C.	2-15-08

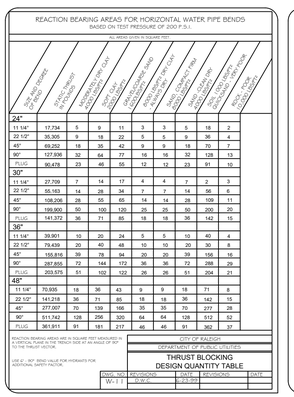


REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE OF AN ANGLE OF 90° TO THE THRUST VECTOR.

USE 4" – 90 BEND VALUE FOR FITTINGS FOR ADDITIONAL SAFETY FACTOR.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN QUANTITY TABLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-10	B.M.C.	6-23-08	REVISIONS	DATE

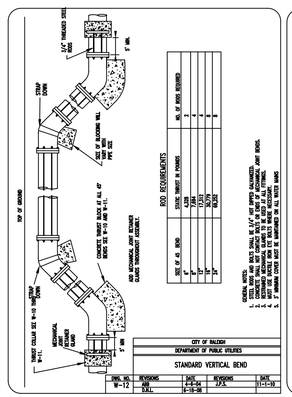


REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE OF AN ANGLE OF 90° TO THE THRUST VECTOR.

USE 4" – 90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN QUANTITY TABLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-11	B.M.C.	6-23-08	REVISIONS	DATE



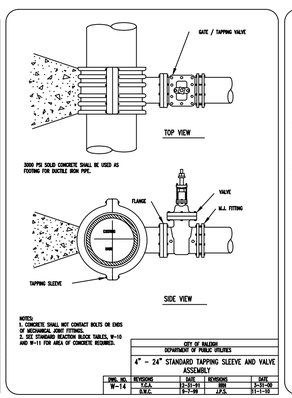
ROD REQUIREMENTS

SIZE OF AL. BOND	STAINLESS STEEL	NO. OF RODS REQUIRED
4"	7/8 (.875)	2
6"	7/8 (.875)	3
8"	7/8 (.875)	4
10"	7/8 (.875)	5
12"	7/8 (.875)	6
14"	7/8 (.875)	7
16"	7/8 (.875)	8
18"	7/8 (.875)	9
24"	7/8 (.875)	12

GENERAL NOTES:
CONCRETE BLOCKS SHALL BE 3000 PSI, 6 1/4" OR BRICK DIMENSIONS. CONCRETE, AND ALL SURFACES IN CONTACT WITH THE FITTINGS, SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS. MUST BE ACCURATE AS THE BOLTS WILL BE ALL THE SAME LENGTH.
ALL BOLTS, NUTS AND RODS SHALL BE 304 STAINLESS STEEL.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD VERTICAL BEND

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-12	BRM	2-4-04	J.F.S.	11-1-10
	B.M.C.	1-8-08		

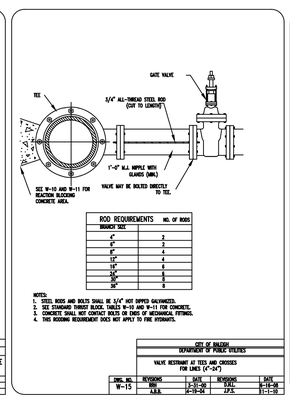


NOTES:

1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. SEE STANDARD REACTION BLOCK TABLES, W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
4" – 24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-14	T.F.A.	1-31-01	BRM	1-31-10
	B.M.C.	1-7-08	J.F.S.	11-1-10



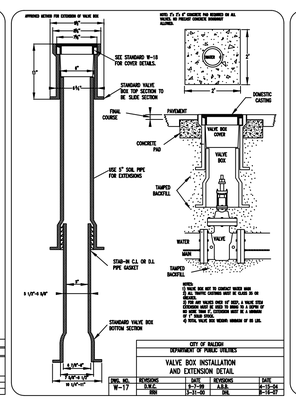
ROD REQUIREMENTS	NO. OF RODS
4"	2
6"	2
8"	3
10"	4
12"	5
14"	6
16"	7
18"	8
24"	12

NOTES:

1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
2. SEE STANDARD REACTION BLOCK TABLES W-10 AND W-11 FOR CONCRETE.
3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
4. THIS BLOCKING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

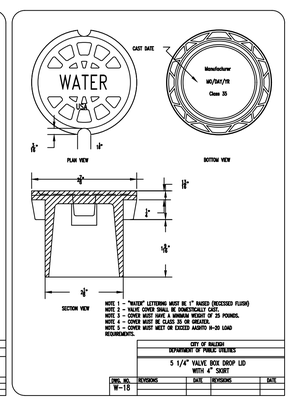
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
VALVE RESTRAINT AT TEES AND CROSSES FOR LINES (4"–24")

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-15	BRM	2-21-08	B.M.C.	2-18-08
	A.A.B.	2-19-04	J.F.S.	11-1-10



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
VALVE BOX INSTALLATION AND EXTENSION DETAIL

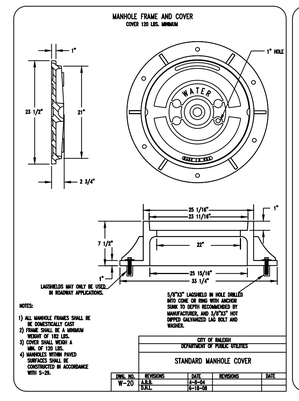
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-17	B.M.C.	2-21-08	A.A.B.	2-13-04
	BRM	2-21-08	DHL	2-23-07



NOTE 1 – "WATER" LETTERING MUST BE 1" RAISED (RECESSED FLUSH)
NOTE 2 – VALVE COVER SHALL BE NONAUTOMATIC CAST.
NOTE 3 – COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
NOTE 4 – COVER MUST BE CLASS 35 OR GREATER.
NOTE 5 – COVER MUST HAVE OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
5 1/4" VALVE BOX DROP LID WITH 4" SKIRT

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-18	BRM	2-21-08	DHL	2-23-07

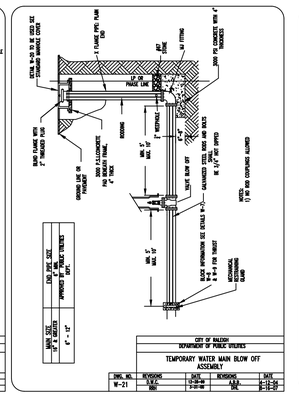


NOTES:

1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST
2) FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS.
3) COVER SHALL WEIGH A MIN. OF 120 LBS.
4) MANHOLES WITHIN PAVED SURFACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH S-28.

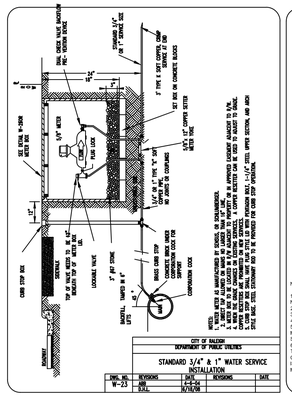
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE COVER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-20	A.A.B.	4-8-04		
	B.M.C.	11-1-08		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TEMPORARY WATER MAIN BLOW OFF ASSEMBLY

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-21	BRM	2-21-08	A.A.B.	2-13-04
		2-21-08		


SEE DETAIL W-20 FOR MANHOLE COVER
FRAME AND COVER
2" TYPE K SOFT COPPER CONN. TO MAIN
2" TYPE K SOFT COPPER SERVICE LINE
SEE W-20
SEE W-20
SEE W-20

SCM element:	Potential problems:	How to remediate the problem:
The entire wetland	Trash/debris is present.	Remove the trash/debris.
The perimeter of wetland	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application.
Inlet device	The inlet pipe is clogged (if applicable).	Unclog the pipe. Dispose of the sediment in a location where it will not cause impacts to streams or the SCM.
	The inlet pipe is cracked or otherwise damaged (if applicable).	Repair or replace the pipe.
	Erosion is occurring in the swale (if applicable).	Regrade the swale if necessary and provide erosion control devices such as reinforced turf matting or riprap to avoid future problems with erosion.
Forebay	Sediment has accumulated in the forebay to a depth of less than 15" or that inhibits the forebay from functioning well.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the SCM.
	Erosion has occurred.	Provide additional erosion protection such as reinforced turf matting or riprap if needed to prevent future erosion problems.
	Weeds are present.	Remove the weeds, preferably by hand. If a pesticide is used, wipe it on the plants rather than spraying.
Deep pool, shallow water and shallow land areas	Algal growth covers over 30% of the deep pool and shallow water areas.	Consult a professional to remove and control the algal growth.
	Cattails, phragmites or other invasive plants cover 30% of the deep pool and shallow water areas.	Remove the invasive plants by hand or by wiping them with pesticide (do not spray)– consult a professional.
	The temporary inundation zone remains flooded more than 5 days after a storm event.	Unclog the outlet device immediately.
	Plants are dead, diseased or dying.	Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace plants. Provide a one-time fertilizer application to establish the ground cover if necessary.
	Sediment has accumulated and reduced the depth to 75% of the original design depth of the deep pools.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the SCM.
Embankment	A tree has started to grow on the embankment.	If tree is <6" in diameter, remove the tree. If the tree is >6" in diameter, consult a dam safety specialist to remove the tree.
	An annual inspection by an appropriate professional shows that the embankment needs repair.	Make all needed repairs.
	Evidence of muskrat or beaver activity is present.	Consult a professional to remove muskrats or beavers and repair any holes or erosion.
Micropool	Sediment has accumulated and reduced the depth to 75% of the original design depth.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the SCM.
Outlet Structure	Clogging has occurred.	Clean out the outlet device. Dispose of the sediment off-site.
	The outlet device is damaged.	Repair or replace the outlet device.
Receiving water	Erosion or other signs of damage have occurred at the outlet.	Repair the damage and improve the flow dissipation structure.
	Discharges from the wetland are causing erosion or sedimentation in the receiving water.	Contact the local NCDQ Regional Office.

SEEDBED PREPARATION:

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL THREE INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO SIX INCHES DEEP.
3. REMOVE ALL LOOSE ROCK, ROOTS AND OTHER OBSTRUCTIONS, LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE SEEDING MIXTURE).
5. CONTINUE TILLAGE UNTIL A WELL–PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED FOUR TO SIX INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RE–SEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE MORE THAN 60% DAMAGED, RE–ESTABLISH FOLLOWING THE ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
9. CONSULT S&EC ENVIRONMENTAL ENGINEERS ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

LANDSCAPING NOTES:

ALL LANDSCAPING SHALL BE IN COMPLIANCE WITH THE NCDEQ BMP REQUIREMENTS.

LANDSCAPE CONTRACTOR SHALL PROVIDE A TWO–YEAR WARRANTY FOR BMP PLANTING SURVIVAL/REPLACEMENT.

AT THE END OF THE FIRST YEAR AND AT THE END OF THE TWO–YEAR WARRANTY PERIOD, ALL PLANTS THAT DO NOT SURVIVE MUST BE REPLACED.

ESTABLISHMENT PROCEDURES, SUCH AS CONTROL OF INVASIVE WEEDS, ANIMAL AND VANDAL DAMAGE, MULCHING, RE–STAKING, WATERING, AND MESH OR TUBE PROTECTION REPLACEMENT, SHALL BE IMPLEMENTED TO THE EXTEND NEEDED TO ENSURE PLANT SURVIVAL. STAKING MUST BE REMOVED AFTER ESTABLISHMENT (APPROXIMATELY 12 MONTHS), TO PREVENT GIRDLING (STRANGLING) OF ALL WOODY PLANTS.

SOD TO BE BERMUDA OR CENTIPEDE GRASS. REFER TO LANDSCAPE PLAN FOR LOCATION OF AREAS TO BE SODDED.

GRASS OR WILDFLOWER SEED MUST BE APPLIED AT THE RATES SPECIFIED BY THE SUPPLIERS. IF PLANT ESTABLISHMENT CANNOT BE ACHIEVED WITH SEEDING BY THE TIME OF SUBSTANTIAL COMPLETION OF THE STORMWATER FACILITY PORTION OF THE PROJECT, THEN THE CONTRACTOR SHALL PLANT THE AREA WITH WILDFLOWER SOD, PLUGS, CONTAINER PLANTS, OR OTHER MEANS TO COMPLETE THE SPECIFIED PLANTING AND PROTECT AGAINST EROSION BEFORE WATER IS ALLOWED TO ENTER THE STORMWATER BMP FACILITY.

ALL MATERIALS SHALL BE ACQUIRED FROM AN APPROVED NCDEQ PLANT VENDOR. PLANT MATERIAL SHOULD BE PURCHASED FROM A LOCAL SOURCE TO ENSURE SURVIVABILITY. LOCAL VENDORS FOR THIS SITE INCLUDE:

- CILL IDE NATIVE PLANT NURSERY 919–662–5566
- GROWING WILD NURSERY 910–259–6361
- NC FOREST SERVICE 919–731–7988
- PLANT DELIGHTS NURSERY 919–772–4794
- TARHEEL NATIVE TREES 919–553–5927

REFER TO PLANTINGS ON THIS SHEET FOR TYPE AND LOCATION OF SHALLOW WATER AND TEMPORARY INUNDATION ZONE PLANTINGS.

IMMEDIATELY AFTER THE STORMWATER WETLAND DETENTION POND IS ESTABLISHED, THE PLANTS ABOVE THE PERMANENT POOL ELEVATION AND PERIMETER OF THE BASIN SHOULD BE WATERED TWICE WEEKLY IF NEEDED UNTIL THE PLANTS BECOME ESTABLISHED (COMMONLY SIX WEEKS)

NO PORTION OF THE STORMWATER WETLAND DETENTION POND SHOULD BE FERTILIZED AFTER THE FIRST INITIAL FERTILIZATION THAT IS REQUIRED TO ESTABLISH THE PLANTS.

LANDSCAPING NOTES:

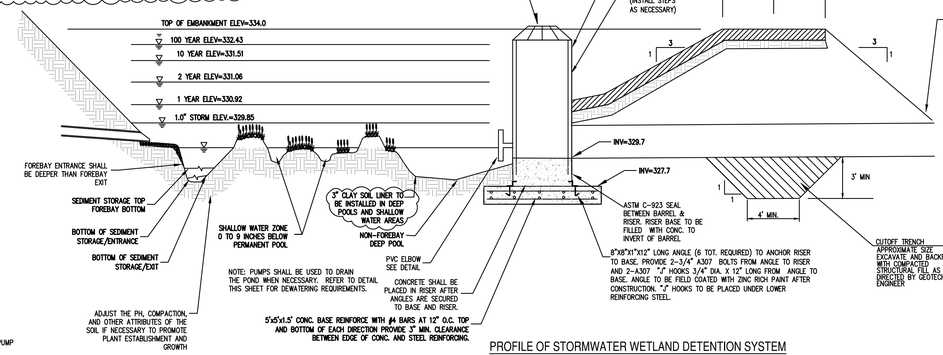
1. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES REGARDING LANDSCAPING.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH A HEALTHY STAND OF GRASS ON ALL SEEDED AREAS.
3. CONTRACTOR SHALL PROVIDE NATURAL TOPSOIL THAT IS FERTILE, FRIABLE, WITHOUT MIXTURE OF SUBSOIL MATERIALS, AND OBTAINED FROM A WELL DRAINED, AVAILABLE SITE. IT SHALL NOT CONTAIN SUBSTANCES WHICH MAY BE HARMFUL TO PLANT GROWTH. TOPSOIL SHALL BE SCREENED AND FREE FROM CLAY, LUMPS, STONES, ROOTS, PLANTS, OR SIMILAR SUBSTANCES 1" OR MORE IN DIAMETER, DEBRIS, OR OTHER OBJECTS WHICH MIGHT BE A HINDERANCE TO PLANTING OPERATIONS. TOPSOIL SHALL CONTAIN AT LEAST 4–6% ORGANIC MATTER BY WEIGHT AND HAVE A PH RANGE OF 5.5 TO 7.0.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE WATERING AND THE MAINTENANCE OF ALL LANDSCAPED AREAS UNTIL THE LATER OF; (a) THIRTY (30) DAYS FOLLOWING THE PLANTING OF THE GRASS AND SHRUBS, OR (b) THE DATE THAT STORE OPENS FOR BUSINESS TO THE PUBLIC. CONTRACTOR SHALL ALSO BE RESPONSIBILITY FOR THE SURVIVAL OF THE BMP PLANTING MATERIALS DURING THE TWO–YEAR WARRANTY PERIOD AND SHALL REPLACE ALL PLANTS THAT DO NOT SURVIVE AT THE END OF THE FIRST YEAR AND AT THE END OF THE SECOND YEAR OF THE WARRANTY PERIOD.
5. CONTRACTOR TO VERIFY QUANTITIES PRIOR TO COMMENCING WORK.
6. ANY DISTURBED AREAS NOT SCHEDULED FOR HARDSCAPE, PLANTINGS, OR MULCH SHALL BE SEEDED LAWN. REFER TO LANDSCAPE PLAN FOR LOCATION OF AREAS TO BE SODDED.
7. NO PLANT SUBSTITUTIONS ARE PERMITTED WITHOUT WRITTEN APPROVAL OF THE OWNERS REPRESENTATIVE.
8. FOR NEW PLANTING AREAS, REMOVE ALL PAVEMENT, GRAVEL SUB–BASE AND CONSTRUCTION DEBRIS; REMOVE COMPACTED SOIL AND ADD 18" NEW TOPSOIL, OR TILL AND AMEND THE TOP 18" OF EXISTING SOIL TO MEET TOPSOIL/PLANTING MIX STANDARDS FOR TREES.
9. ADJUST TREE PLANTING LOCATIONS TO AVOID UNDERGROUND UTILITIES. PLANT 15' FROM ALL UNDERGROUND UTILITIES (SEWER AND STORM DRAINAGE, GAS, WATER, PHONE, AND ELECTRICAL LINES.)

STORMWATER MANAGEMENT NOTES:

1. THE DEVELOPER OR HIS AGENT SHALL CONTACT THE **DESIGN ENGINEER** WHEN THE BEST MANAGEMENT PRACTICE(S) ARE CONSTRUCTED AND ABOUT TO BECOME OPERATIONAL SO A FINAL INSPECTION CAN BE PERFORMED TO DETERMINE COMPLIANCE WITH THE APPROVED PLAN CAN BE PERFORMED.
2. ANNUAL MAINTENANCE INSPECTION AND REPORT REQUIRED – THE OWNER OF A PERMITTED STRUCTURAL STORMWATER BMP/CONTROL SHALL ANNUALLY SUBMIT A MAINTENANCE AND INSPECTION REPORT FOR EACH BMP TO THE STORMWATER ADMINISTRATOR. ANNUAL INSPECTIONS SHALL BEGIN WITHIN ONE YEAR OF THE RECORDATION OF ANY DEED(S) SHOWING STORMWATER BMPs/CONTROL STRUCTURES.
3. UPON COMPLETION OF THE PROJECT, AND BEFORE A CERTIFICATE OF OCCUPANCY SHALL BE GRANTED, THE ENGINEER OF RECORD SHALL CERTIFY THAT THE COMPLETED PROJECT IS IN ACCORDANCE WITH THE APPROVED STORMWATER MANAGEMENT PLANS AND DESIGNS.
4. A FINAL INSPECTION OF THE SITE AND STORMWATER MANAGEMENT BMP/CONTROLS TO BE SCHEDULED WITH AND COMPLETED BY THE **PROJECT ENGINEER.**
5. **NCDEQ** AND THEIR ASSIGNS HAVE RIGHT TO ACCESS THE STORMWATER CONTROL(s) FOR INSPECTIONS OR MAINTENANCE AS NECESSARY.
6. THE ENGINEER'S CERTIFICATION OF COMPLETION WILL BE REQUIRED PRIOR TO THE FINAL PLAT OR CERTIFICATE OF OCCUPANCY. THE STORMWATER CONTROL IS TO BE INSPECTED TO ENSURE IT IS FUNCTIONING AS DESIGNED AND HAS FULL DESIGN VOLUME PRIOR TO ISSUANCE OF THE FINAL CERTIFICATE OF OCCUPANCY.
7. THE PROPERTY OWNER IS RESPONSIBLE FOR MAINTAINING THE STORMWATER CONTROL(s) ACCORDING TO THE APPROVED MAINTENANCE PLAN AND DIRECTION OF **NCDEQ.**

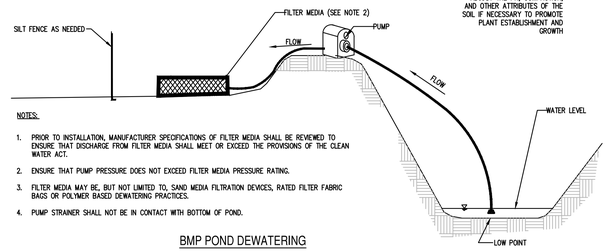
LINER NOTE:

3" CLAY SOIL LINER TO BE INSTALLED IN DEEP POOLS AND SHALLOW WATER AREAS



PROFILE OF STORMWATER WETLAND DETENTION SYSTEM

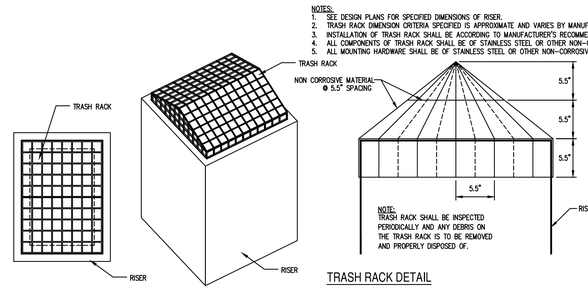
SCALE: N.T.S.



NOTES:

1. PRIOR TO INSTALLATION, MANUFACTURER SPECIFICATIONS OF FILTER MEDIA SHALL BE REVIEWED TO ENSURE THAT DISCHARGE FROM FILTER MEDIA SHALL MEET OR EXCEED THE PROVISIONS OF THE CLEAN WATER ACT.
2. ENSURE THAT PUMP PRESSURE DOES NOT EXCEED FILTER MEDIA PRESSURE RATING.
3. FILTER MEDIA MAY BE, BUT NOT LIMITED TO, SAND MEDIA FILTRATION DEVICES, RATED FILTER FABRIC BAGS OR POLYMER BASED DEWATERING PRACTICES.
4. PUMP STRAINER SHALL NOT BE IN CONTACT WITH BOTTOM OF POND.

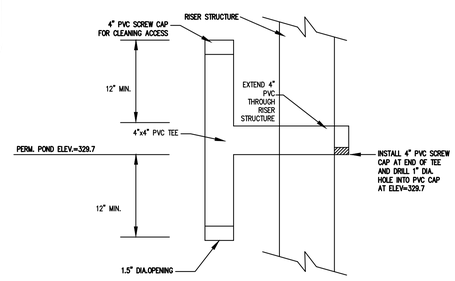
BMP POND DEWATERING



NOTES:

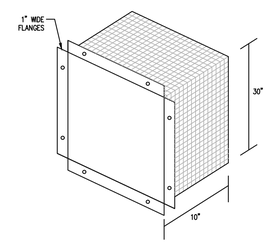
1. SEE DESIGN PLANS FOR SPECIFIED DIMENSIONS OF RISER.
2. TRASH RACK DIMENSION CRITERIA SPECIFIED IS APPROXIMATE AND VARIES BY MANUFACTURER.
3. INSTALLATION OF TRASH RACK SHALL BE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
4. ALL COMPONENTS OF TRASH RACK SHALL BE OF STAINLESS STEEL OR OTHER NON–CORROSIVE MATERIAL.
5. ALL MOUNTING HARDWARE SHALL BE OF STAINLESS STEEL OR OTHER NON–CORROSIVE MATERIAL.

TRASH RACK DETAIL

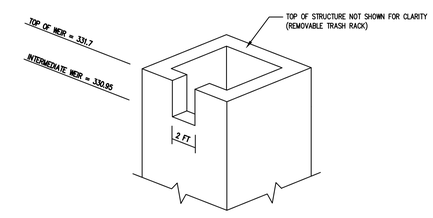


PVC DRAIN OUTLET

SCALE: N.T.S.



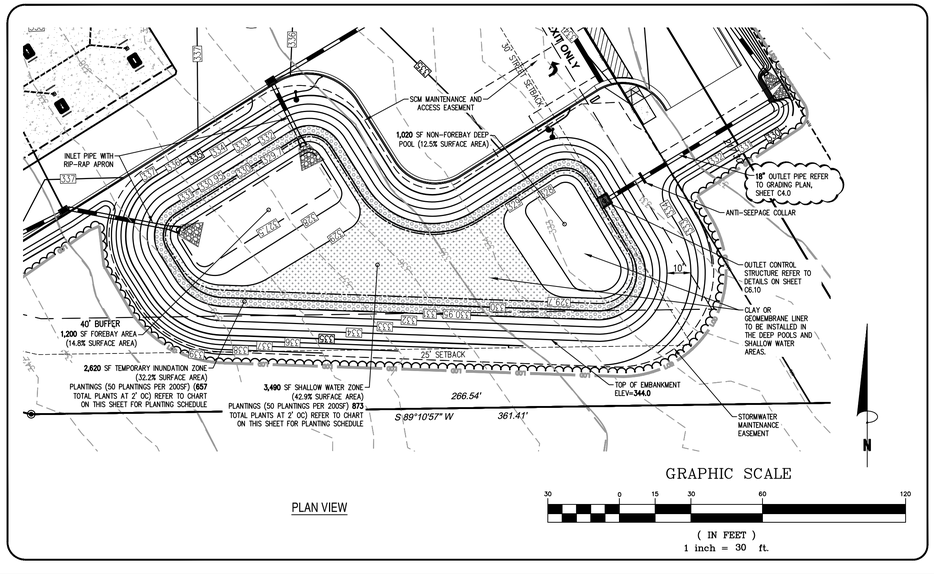
CONTRACTOR SHALL FABRICATE THE TRASH TRAP FROM ½" MESH, GALVANIZED WIRE. ATTACHED TO CONCRETE STRUCTURE TO BE MADE USING 8–#5 STAINLESS STEEL CONCRETE SCREWS AND WASHERS.



OUTLET CONTROL STRUCTURE - INCREMENTAL WEIR

SCALE: N.T.S.

STAGE/STORAGE TABLE					
STAGE (FT)	ELEVATION (FT)	CONTOUR AREA (SF)	INCREMENTAL STORAGE (CF)	TOTAL STORAGE (CF)
0.0	329.7	8,130	0	0
0.3	330.0	8,980	2,566	2,566
1.25	330.95	10,770	9,381	11,948 (WQV)
1.3	331.0	10,840	540	12,488
2.3	332.0	12,400	11,620	24,108
3.3	333.0	14,010	13,205	37,313
4.3	334.0	15,680	14,845	52,158



PLAN VIEW

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

TYPICAL SHALLOW WATER PLANTING SCHEDULE								
SCIENTIFIC NAME	COMMON NAME	PLANTING ZONE	QUANTITY	HEIGHT	IDEAL DEPTH	NURSERY CONTAINER TYPE	SPACING	PLANTING SEASON
Juncus effusus	Common Rush	SHALLOW WATER	291	9" FOLIAGE HEIGHT	0–2"	4" TEA POT	2' O.C.	SPRING/SUMMER
Liloeopsis carolinensis	Carolina Grasswort	SHALLOW WATER	291	9" FOLIAGE HEIGHT	0–9"	4" TEA POT	2' O.C.	SPRING/SUMMER
Schoenoplectus tabernaemontani	Softstem Bulrush	SHALLOW WATER	291	9" FOLIAGE HEIGHT	0–6"	4" TEA POT	2' O.C.	SPRING/SUMMER

TYPICAL TEMPORARY INUNDATION ZONE PLANTING SCHEDULE								
SCIENTIFIC NAME	COMMON NAME	PLANTING ZONE	QUANTITY	HEIGHT	NURSERY CONTAINER TYPE	SPACING	PLANTING SEASON
Eutrochium dubium	Coastal Joy Pye Weed	SHALLOW LAND	219	9" FOLIAGE HEIGHT	4" TEA POT	2' O.C.	SPRING/SUMMER
Eupatorium erfoliatum	Boneset	SHALLOW LAND	219	9" FOLIAGE HEIGHT	4" TEA POT	2' O.C.	SPRING/SUMMER
Rhynchospora colorata	Starrush Whitetop	SHALLOW LAND	219	9" FOLIAGE HEIGHT	4" TEA POT	2' O.C.	SPRING/SUMMER

PLANTINGS

STORMWATER MANAGEMENT DESIGN STORMWATER WETLAND:

RIVER BASIN: **NEUSE**
RECEIVING STREAM: **MOCCASIN CREEK**
STREAM INDEX: **27–86–2–4**
STREAM CLASS: **C;NSW**
HUC: **03020203**
PROJECT COORDINATES: **35.836261N, –78.321664W**

POND DESIGN SUMMARY

DRAINAGE AREA TO POND:	3.16 ACRES
SITE IMPERVIOUS AREA TO POND:	1.77 ACRES
OFF–SITE DESIGN IMPERVIOUS AREA TO POND:	0.14 ACRES
TOTAL DESIGN IMPERVIOUS AREA TO POND:	1.91 ACRES

	PRE–DEVELOPED TO POND	POST–DEVELOPED TO POND	POST DEVELOPED THROUGH POND	POST DEVELOPED BYPASS	POST DEVELOPED COMBINED
DRAINAGE AREA:	3.41 AC	3.16 AC		0.13 AC	
CURVE NUMBER:	57	83		73	
TIME OF CONCENTRATION:	24 MIN	5 MIN		10 MIN	
1.0" STORM EVENT:		0.245 CFS	0.018 CFS		
1–YEAR STORM EVENT:	0.224 CFS	7.077 CFS	0.062 CFS	0.136 CFS	0.198 CFS
2–YEAR STORM EVENT:	0.743 CFS	9.702 CFS	0.263 CFS	0.212 CFS	0.475 CFS
10–EAR STORM EVENT:	3.321 CFS	17.25 CFS	2.245 CFS	0.449 CFS	2.697 CFS
100–YEAR STORM EVENT:	9.617 CFS	30.29 CFS	10.72 CFS	0.902 CFS	11.62 CFS

1 STORMWATER MANAGEMENT SYSTEM DETAILS
NOT TO SCALE

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24424 MATTHEW E. LAWYER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY:	DATE REVISED:	REVISIONS DESCRIPTION	REVISED BY:	DATE REVISED:	REVISIONS DESCRIPTION
1	BRM	10/22/23	TOWN OF ZEBULON REVIEW			
2	BRM/MCB	2/26/23	TOWN OF ZEBULON REVIEW			
3	MCB	2/27/23	WAKE COUNTY REVIEW			
4	BRM/MCB	11/9/24	TOWN OF ZEBULON REVIEW			
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW			

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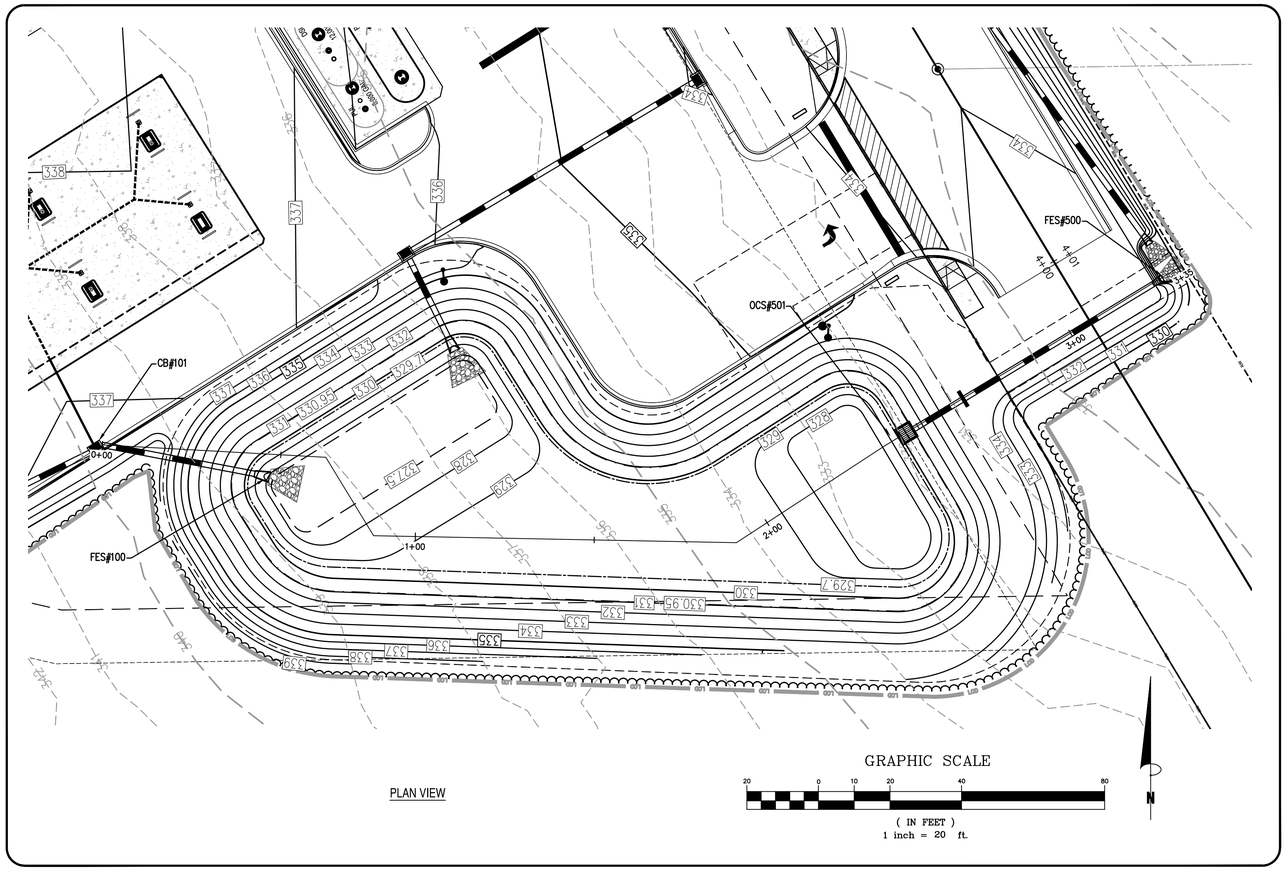
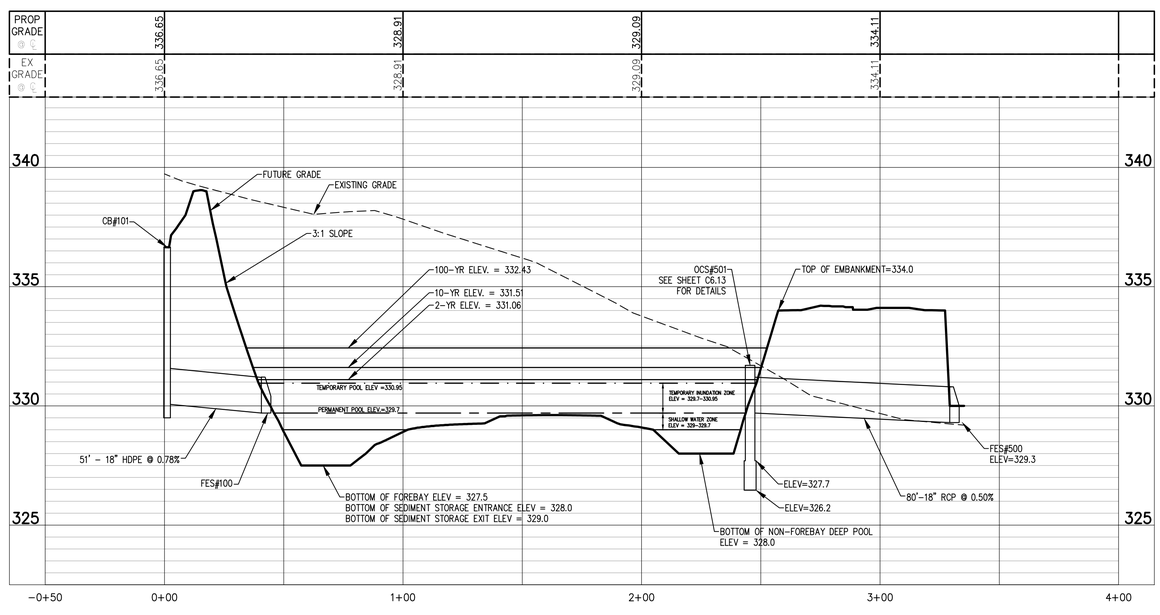
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM/DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
STORMWATER MANAGEMENT DETAILS

DRWG. NO.
C6.13





POND PROFILE VIEW
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'

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WAKE COUNTY

MARK	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION
1	BRM	1/0/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	1/25/23	TOWN OF ZEBULON REVIEW
3	MCB	1/27/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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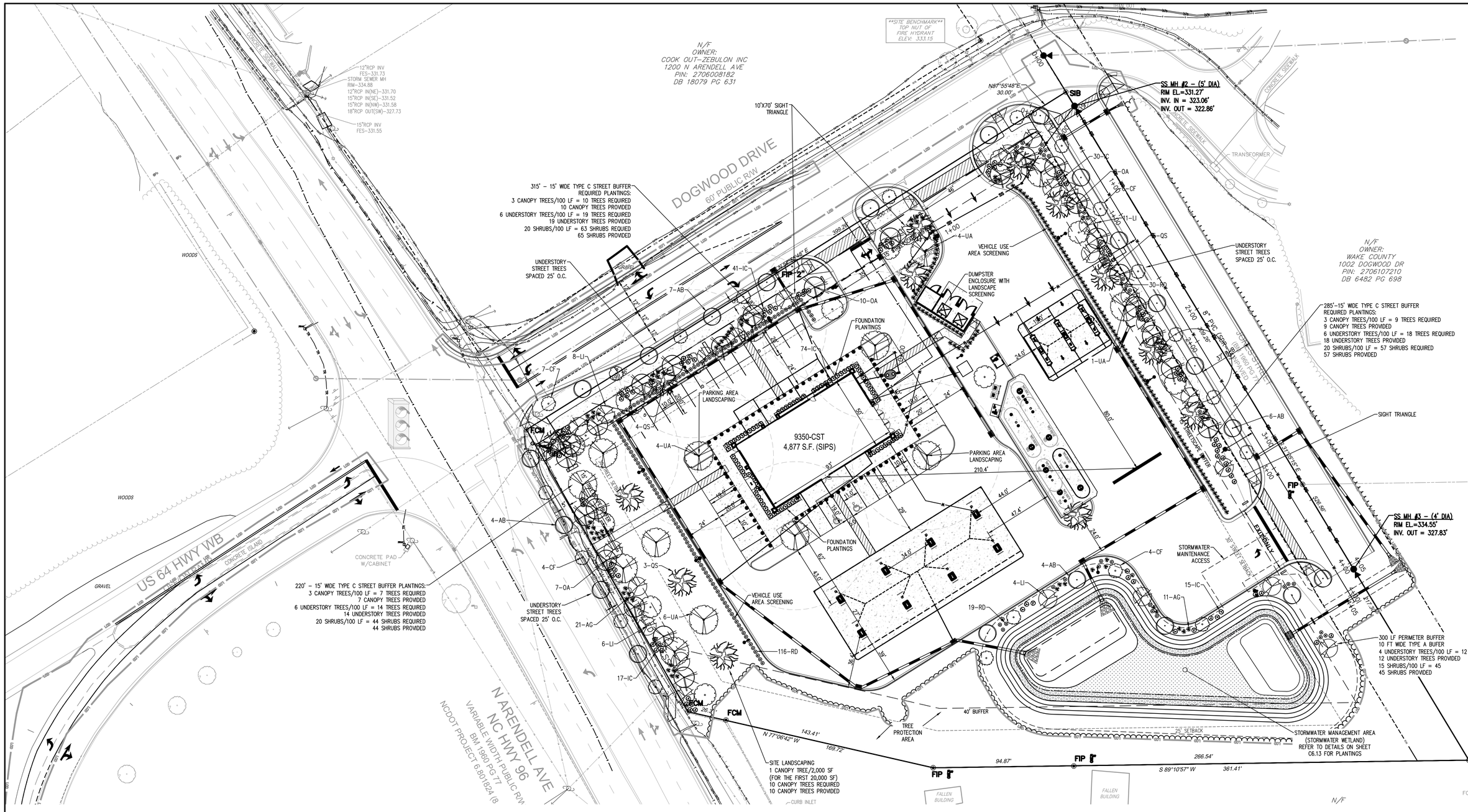
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
STORMWATER WETLAND PROFILE

DRWG. NO.
C6.14

Cad File Name:V:\220163 - Crosland Southeast - 7-Eleven - Kenly\220163-01-002 (ENG) - Crosland-7-Eleven - Zebulon, NC\Engineering\Engineering Plans\Construction Drawings\220163-01-002-SWD.dwg



MASTER PLANT LIST											
TYPE	SYM/KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SYMBOL	CALIPER	HEIGHT	SPREAD	ROOT	SPACING	OTHER
LARGE TREES	QS	13	Quercus phellos	Willow Oak		2.5"	8' MIN		B&BB	AS SHOWN	
	UA	15	Liriodendron tulipfera	Tulip Poplar		2.5"	8' MIN		B&B	AS SHOWN	
	PC	12	Pistacia chinensis	Chinese Pistachio		2.5"	8' MIN		B&B	AS SHOWN	
UNDERSTORY TREES	OA	25	OXYDENDRUM ARBOREUM	Sourwood		1.5"	4' MIN		B&B	AS SHOWN	
	AB	21	Acer buergeranum	Trident Maple		1.5"	4' MIN		B&B	AS SHOWN	
	LI	29	Amelanchier arborea	Downy Serviceberry		-	4' MIN		B&B	AS SHOWN	
	CF	21	Camus florida	Flowering Dogwood		1.5"	4' MIN		B&B	AS SHOWN	
SHRUBS	RD	165	Chamaecyparis pisifera 'Golden Mop'	Gold Mop Cypress		-	18" MIN		3 GAL	AS SHOWN	
	AG	189	Abelia grandiflora	Glossy Abelia		-	18" MIN		3 GAL	AS SHOWN	
	IC	177	Ilex cornuta 'Dwarf Burford'	Dwarf Burford Holly		-	18" MIN		3 GAL	AS SHOWN	

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N.C. ONE-CALL CENTER
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811
Know what's below.
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N

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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WAKE COUNTY

MARK	REVISED BY	DATE	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW
3	MCB	12/21/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
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RVWR. ML
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ADDRESS
1106 N ARENDELL AVE
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SHEET TITLE
LANDSCAPE PLAN

DRWG. NO.
C7.0

Cad File Name:V:\220163 - Crosland Southeast - 7-Eleven - Kenly\220163-01-002 (ENG) - Crosland-7-Eleven - Zebulon, NC\Engineering\Engineering Plans\Construction Drawings\220163-01-002-LSP.dwg

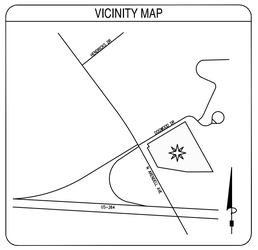
LANDSCAPE NOTES:

HYDROMULCH ALL DISTURBED AREAS OUTSIDE OF PROPERTY LIMITS (UNLESS SHOWN AS SOD).

THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL WORK SHOWN ON THESE PLANS FOR 90 DAYS BEYOND FINAL ACCEPTANCE OF ALL LANDSCAPE WORK BY THE OWNER. LANDSCAPE MAINTENANCE SHALL INCLUDE WEEKLY SITE VISITS FOR THE FOLLOWING ACTIONS (AS APPROPRIATE): PROPER PRUNING, RESTAKING OF TREES, RESETTING OF PLANTS THAT HAVE SETTLED, MOWING AND AERATION OF LAWNS, WEEDING, RESEEDING AREAS WHICH HAVE NOT GERMINATED WELL, TREATING FOR INSECTS AND DISEASES,REPLACEMENT OF MULCH, REMOVAL OF LITTER, REPAIRS TO THE IRRIGATION SYSTEM DUE TO FAULTY PARTS AND/OR WORKMANSHIP, AND THE APPROPRIATE WATERING OF ALL PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN PROPER WORKING ORDER, WITH SCHEDULING ADJUSTMENTS BY SEASON TO MAXIMIZE WATER CONSERVATION.

SHOULD SEEDED AND/OR SODDED AREAS NOT BE COVERED BY AN AUTOMATIC IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHAL BE RESPONSIBLE FOR WATERING THESE AREAS AND OBTAINING A FULL STAND OF GRASS AT NO ADDITIONAL COST TO THE OWNER.

VICINITY MAP



EROSION CONTROL NOTES:
AN EROSION AND SEDIMENTATION CONTROL PERMIT SHALL BE REQUIRED BY WAKE COUNTY PRIOR TO START OF CONSTRUCTION.

SURVEY NOTE:
ALL EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION TAKEN FROM A LAND SURVEY PREPARED BY: KCI ASSOCIATES OF NC

STREAM/WETLAND NOTE:
THERE ARE NO EXISTING STREAM/AND OR WETLAND FEATURES ON THE PROPOSED PARCEL. THERE ARE NO PROPOSED IMPACTS TO AN EXISTING STREAM AND/OR WETLAND FEATURES

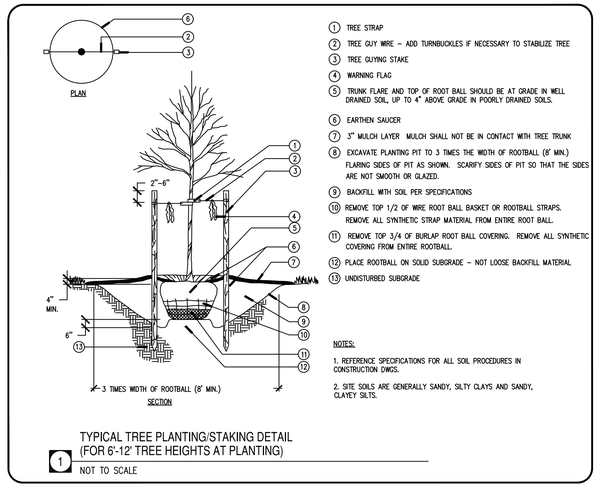
FLOOD ZONE NOTE:
THE PROPERTY IS LOCATED IN FLOOD ZONE X AS SHOWN ON FEMA FLOOD PANED 3720270600K & 3720270500K, BOTH DATED JULY 19, 2022. MAPS SUBJECT TO CHANGE BY FEMA

IRRIGATION NOTE:

IRRIGATION SYSTEM TO BE A DESIGN–BUILD SYSTEM PROVIDED BY THE CONTRACTOR. IRRIGATION HEADS TO BE A MINIMUM OF 3' FROM EDGE OF CURB LINE. ALL LANDSCAPE BEDS TO HAVE CUT EDGE OR COMMERCIAL EDGING MATERIAL INSTALLED FULLY SEPARATING THE MULCH BED FROM ADJACENT LAWN AREA. ANY TREES OVER 2" CALIPER MUST BE STAKED AND TIED.

LANDSCAPING NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING ALL REQUIRED LANDSCAPING FOR THE ENTIRE SITE, TO INCLUDE BUT NOT LIMITED TO: SODDED/SEEDED AREAS, SHRUB BEDS, PARKING LOT ISLANDS, ROADSIDE SIGN BASE(S) AND MONUMENT PLANTERS.
2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES REGARDING LANDSCAPING.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH A HEALTHY STAND OF GRASS ON ALL SEEDED AREAS.
4. IN THE EVENT THAT PLANTING BEDS AND MULCH ARE REQUIRED, THE CONTRACTOR SHALL INSTALL BLACK FABRIC WEED BLOCK LANDSCAPE MESH UNDER THE MULCH TO PREVENT WEED GROWTH.
5. CONTRACTOR SHALL PROVIDE NATURAL TOPSOIL THAT IS FERTILE, FRIABLE, WITHOUT MIXTURE OF SUBSOIL MATERIALS, AND OBTAINED FROM A WELL DRAINED, AVAILABLE SITE. IT SHALL NOT CONTAIN SUBSTANCES WHICH MAY BE HARMFUL TO PLANT GROWTH. TOPSOIL SHALL BE SCREENED AND FREE FROM CLAY, LUMPS, STONES, ROOTS, PLANTS, OR SIMILAR SUBSTANCES 1" OR MORE IN DIAMETER, DEBRIS, OR OTHER OBJECTS WHICH MIGHT BE A HINDERANCE TO PLANTING OPERATIONS. TOPSOIL SHALL CONTAIN AT LEAST 4–6% ORGANIC MATTER BY WEIGHT AND HAVE A PH RANGE OF 5.5 TO 7.0.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR THE WATERING AND THE MAINTENANCE OF ALL LANDSCAPED AREAS UNTIL THE LATER OF; (a) THIRTY (30) DAYS FOLLOWING THE PLANTING OF THE GRASS AND SHRUBS, OR (b) THE DATE THAT BUILDINGS OPEN FOR BUSINESS TO THE PUBLIC.
7. GENERAL CONTRACTOR IS TO CLEAN ENTIRE SITE OF ALL CONSTRUCTION DEBRIS AND RAKE ALL GRASS AREAS.
8. PROVIDE LANDSCAPE PLANS TO OWNER AND AS REQUIRED BY LOCAL JURISDICTION TO THE BLDG. DEPT. FOR REVIEW AND APPROVAL PRIOR TO START OF WORK.
9. ALL LANDSCAPING, TRESS, SHRUBS, ETC. SHALL NOT INTERFERE WITH THE VISIBILITY OF PROJECT SIGNAGE
10. CONTRACTOR TO VERIFY QUANTITIES PRIOR TO COMMENCING WORK.
11. OPEN AREAS WITHIN PLANTING BEDS SHALL BE MULCHED.



1 TYPICAL TREE PLANTING/STAKING DETAIL (FOR 6'-12' TREE HEIGHTS AT PLANTING)

NOT TO SCALE

GENERAL LANDSCAPE NOTES:

1. ANY DISTURBED AREAS NOT SCHEDULED FOR HARDSCAPE, PLANTINGS, OR MULCH SHALL BE SEEDED LAWN.
2. NO PLANT SUBSTITUTIONS ARE PERMITTED WITHOUT WRITTEN APPROVAL OF THE OWNERS REPRESENTATIVE.
3. ALL PLANT AND BED LINE LOCATIONS SHALL BE STAKED IN THE FIELD AND APPROVED BY THE THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
4. ALL PLANTINGS SHALL BE INSTALLED WITH THE SPECIFIED LAYER OF MULCH. REFERENCE DETAILS AND SPECIFICATIONS FOR DEPTH AND TYPE OF MULCH. ALL TREES AND SHRUBS SHALL BE PLANTED IN MULCH BEDS AND SHALL BE SEPARATED FROM TURF GRASS AREAS.
5. GRASS COVERAGE TO EXTEND FROM PROPERTY LINES TO BACK OF CITY SIDEWALKS AND/OR CURBS.
6. MINIMUM TREE SIZE AT PLANTING IS 2" CALIPER (FOR SINGLE STEM TREES). ALL MULTI–STEM PLANTS MUST BE TREE FORM, MAXIMUM 3 TO 5 TRUNKS, AND MINIMUM 8 FEET TALL.
7. ALL STRAPPING AND TOP 2/3 OF WIRE BASKET MUST BE CUT AWAY AND REMOVED FROM ROOT BALL PRIOR TO BACKFILLING PLANTING PIT. REMOVE TOP 1/3 OF THE BURLAP FROM ROOT BALL.
8. FOR NEW PLANTING AREAS, REMOVE ALL PAVEMENT, GRAVEL SUB–BASE AND CONSTRUCTION DEBRIS; REMOVE COMPACTED SOIL AND ADD 18" NEW TOPSOIL, OR TILL AND AMEND THE TOP 18" OF EXISTING SOIL TO MEET TOPSOIL/PLANTING MIX STANDARDS FOR TREES.
9. LARGE MATURING TREES MAY NOT BE PLANTED WHERE THERE ARE OVERHEAD DISTRIBUTION OR TRANSMISSION LINES. IF TREES CONFLICT WITH POWER LINES OR SIGNS, CALL URBAN FORESTER TO RESOLVE BEFORE PLANTING.
10. ADJUST TREE PLANTING LOCATIONS TO AVOID UNDERGROUND UTILITIES. PLANT 15' FROM ALL UNDERGROUND UTILITIES (SEWER AND STORM DRAINAGE, GAS, WATER, PHONE, AND ELECTRICAL LINES.)
11. ATTENTION LANDSCAPER: NOTIFY OWNER OF ANY SIGN, POWER LINE, OR OTHER CONFLICTS BEFORE PLANTING NEW TREES.

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Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION	REVISED BY	DATE REVISED	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW			
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW			
3	MCB	1/22/123	WAKE COUNTY REVIEW			
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW			
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW			

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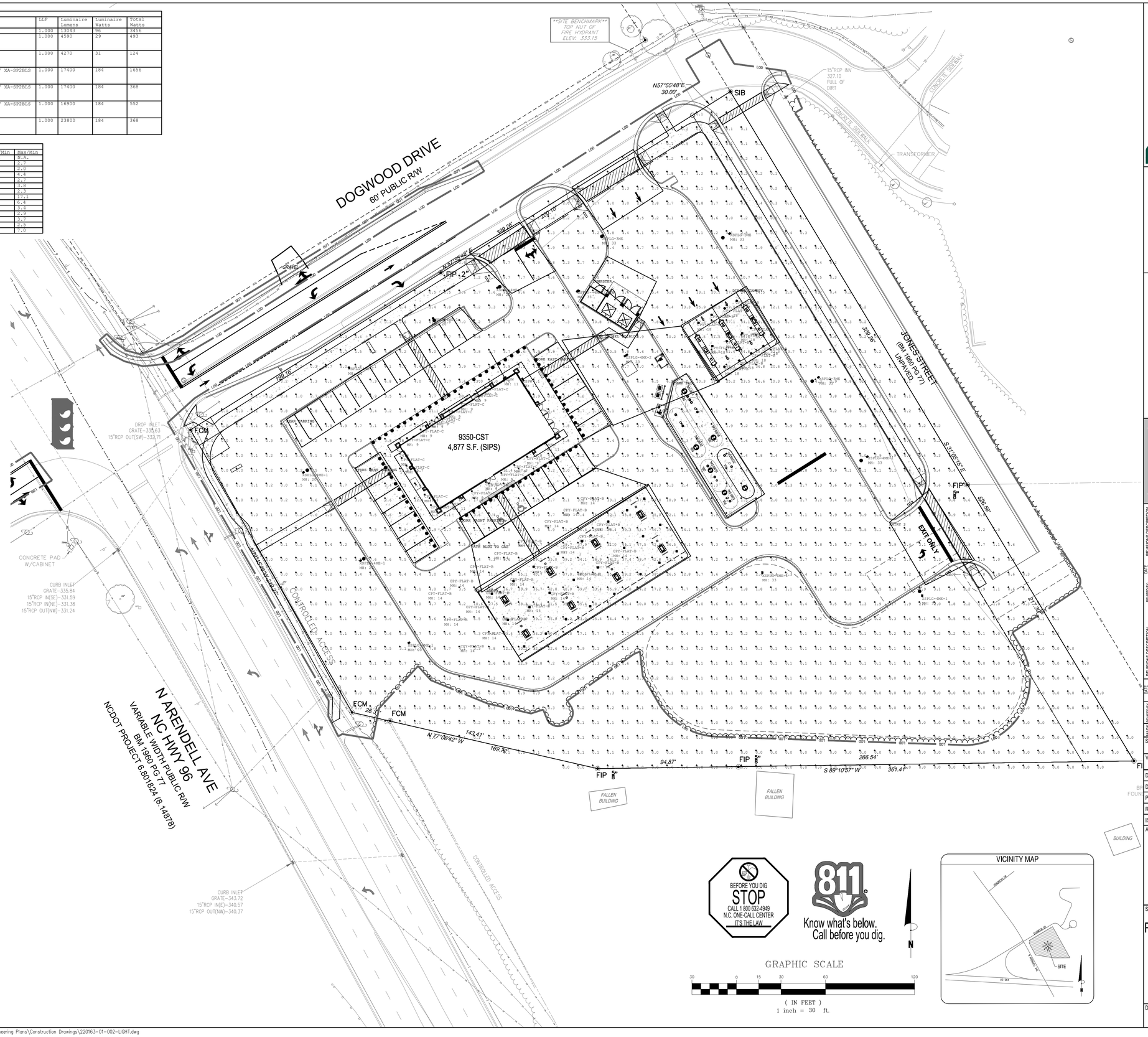
STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024
ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
LANDSCAPING NOTES

DRWG. NO. C7.1

Luminaire Schedule									
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
	36	CPY-FLAT-B	SINGLE	CPY250-B-DM-F-B-UL-WH-57K-NZ	1.000	13043	26	1456
	17	CPY-FLAT-C	SINGLE	CPY250-C-4L-57K7-F-UL-DM-BK-NZ	1.000	4590	29	493
	4	XSPW	SINGLE	XSPW-B-WM-3ME-4L-57K-UL-BK	1.000	4270	31	124
	9	XSPLG-4ME-1	SINGLE	XSPLG-D-HT-4ME-24L-57K7-UL-BK-N w/ XA-SP2BLS	1.000	17400	184	1656
	1	XSPLG--4ME-2-BLS	2 @ 90 DEGREES	XSPLG-D-HT-4ME-24L-57K7-UL-BK-N w/ XA-SP2BLS	1.000	17400	184	368
	3	XSPLG-3ME	SINGLE	XSPLG-D-HT-3ME-24L-57K7-UL-BK-N w/ XA-SP2BLS	1.000	16900	184	552
	1	XSPLG-4ME-2	Back-Back	XSPLG-D-HT-4ME-24L-57K7-UL-BK-N	1.000	23800	184	368

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
SITE TOP	Illuminance	FC	5.1	66.8	0.0	N.A.	N.A.
DIESEL CANOPY	Illuminance	FC	47.2	66.8	24.5	1.9	2.7
DUMPSTER	Illuminance	FC	5.4	7.4	3.8	1.4	2.0
ENTRY 1	Illuminance	FC	5.7	9.7	2.2	2.6	4.4
ENTRY 2	Illuminance	FC	2.4	3.8	1.4	1.7	2.7
ENTRY 3	Illuminance	FC	2.0	3.0	0.8	2.5	3.8
GAS CANOPY	Illuminance	FC	35.6	47.5	20.4	1.8	2.3
PATH BLDG TO GAS	Illuminance	FC	9.6	29.1	1.7	5.7	17.1
PATH DEISEL TO BLDG	Illuminance	FC	8.7	26.1	4.1	2.1	6.4
REAR PARKING	Illuminance	FC	5.8	8.8	2.6	2.2	3.4
STORE EAST PARKING	Illuminance	FC	3.9	5.8	2.0	2.0	2.9
STORE FRONT PARKING	Illuminance	FC	2.3	3.6	1.5	1.5	3.7
STORE WEST PARKING	Illuminance	FC	3.0	5.0	2.0	1.5	2.5
TANK PAD	Illuminance	FC	2.0	7.0	1.0	2.0	7.0



Bowman
Bowman North Carolina Ltd.
4006 BARRETT DR
Suite 104
RALEIGH, NC 27609
Phone: (919) 553-6570
bowman.com

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24424 MATTHEW E. LOWVER

Crosland Southeast
7-Eleven Store #42378
Zebulon, NC
WAKE COUNTY

MARK	REVISED BY:	DATE REVISED:	REVISIONS DESCRIPTION
1	BRM	10/2/23	TOWN OF ZEBULON REVIEW
2	BRM/MCB	12/5/23	TOWN OF ZEBULON REVIEW
3	MCB	12/21/23	WAKE COUNTY REVIEW
4	BRM/MCB	1/18/24	TOWN OF ZEBULON REVIEW
5	BRM/MCB	03/04/24	TOWN OF ZEBULON REVIEW

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STORE OR BLDG NO.: N/A
VERSION OR PROJECT ID: N/A

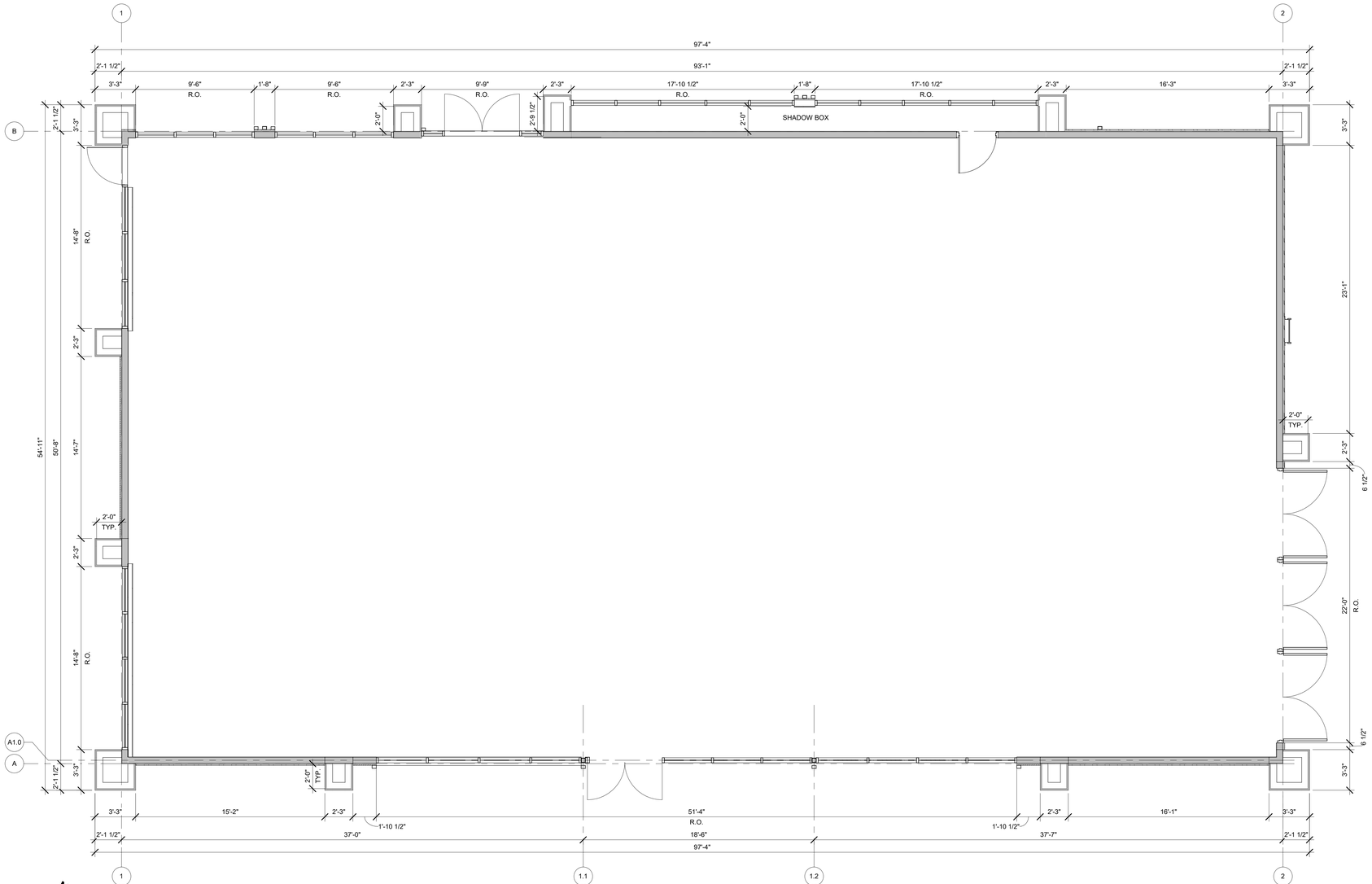
DESIGN TEAM
DGNR. BRM & MCB
PM./DP. ML
RVWR. ML
ISSUE DATE: 03/04/2024

ADDRESS
1106 N ARENDELL AVE
ZEBULON, NC 27597

SHEET TITLE
PHOTOMETRIC PLAN

DRWG. NO. C8.0

Cad File Name:V:\220163 - Crosland Southeast - 7-Eleven - Kenly\220163-01-002 (ENG) - Crosland-7-Eleven - Zebulon, NC\Engineering\Engineering Plans\Construction Drawings\220163-01-002-LIGHT.dwg



1 R0.00 **SHELL PLAN**
1/4" = 1'-0"

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702 SE 5TH ST. SUITE 30
BENTONVILLE, AR 72712
TEL: 479.579.9959

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CHARLOTTE, NC, 28202

TENANT

PROTO:9350-CST-2022-01

1106 N. ARENDELL AVENUE
ZEBULON, NC 27597

NOT FOR CONSTRUCTION

04/28/2023
Architect Name - RYAN M. FAUST
Architect Number - 14521

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REVISIONS

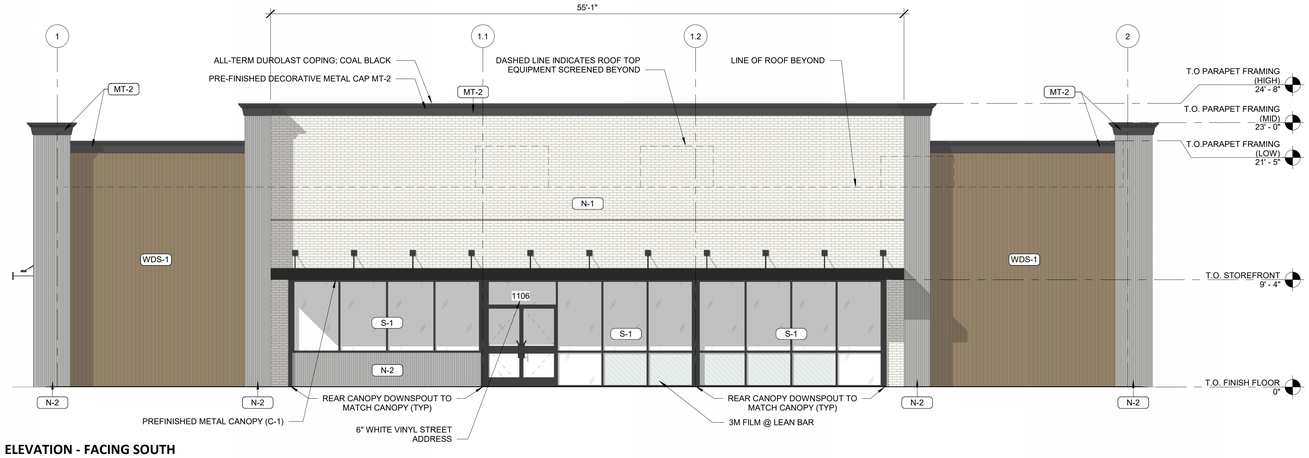
NO.	DATE	DESCRIPTION

Drawing Size: 30 x 42	*Project #:* 22121
Drawn By: JMA	*Checked By:* ADF

Title:
SHELL PLAN

Sheet Number:
R0.00

Date: 04/28/2023 *Store #:* 1055397



UDO SECTION 5.3.1.F.7: COMMERCIAL BUILDING FENESTRATION
REQUIRED:
SECONDARY BUILDING WALL
TOTAL AREA = (15'-1" X 97'-4") = 1,492 SQFT
TRANSPARENCY SQFT = (1,492SQFT X 30%) = 448SQFT
PROVIDED:
(9'-4"x34'-6")+(6'-4"x16'-5") = 427SQFT

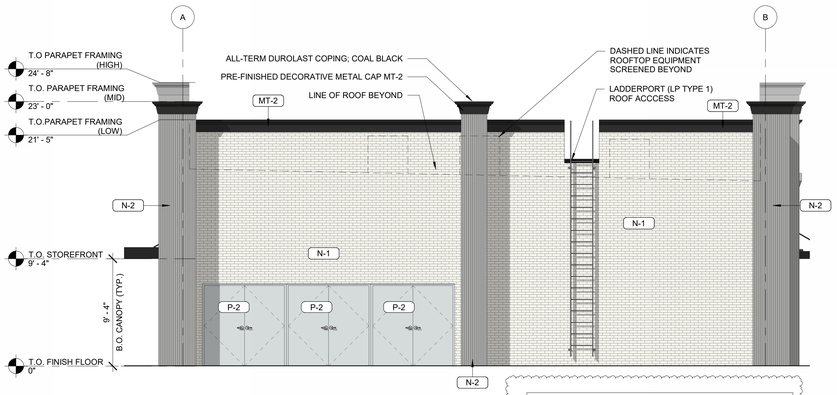
4 R1.00 ELEVATION - FACING SOUTH
3/16" = 1'-0"

EXTERIOR MATERIALS SCHEDULE

(NOT ALL MATERIALS IN SCHEDULE ARE USED)

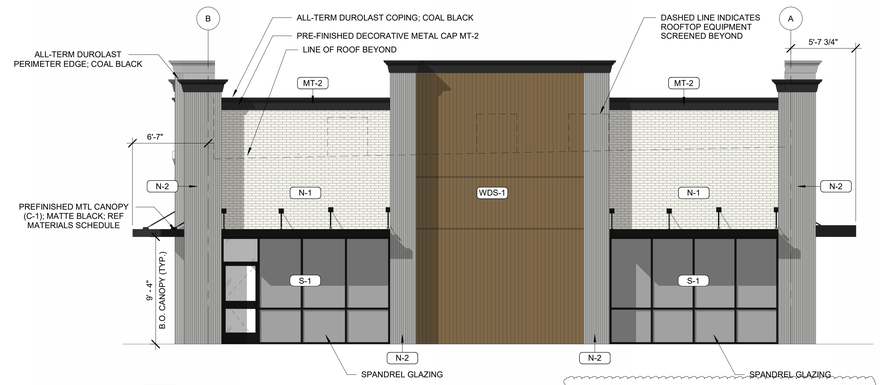
NO.	MATERIAL	MANUFACTURER	COLOR
MR-1	MEMBRANE ROOFING	DUROLAST	WHITE
N-1	FIBER CEMENT PANEL	NICHIHA	VINTAGE BRICK, PAINTED SHERWIN WILLIAMS SW7005 "PURE WHITE"
N-2	FIBER CEMENT PANEL	NICHIHA	RIBBED, COLOR TO MATCH SHERWIN WILLIAMS SW7659 "GRIS"
CP-1	EDGE METAL PARAPET CAP	DUROLAST - ALL TERM EDGE	COAL BLACK
P-2	EXTERIOR HM DOORS, FRAMES, TRASH ENCLOSURE GATE, GRAVEL GUARDS, AND LIGHT POLES	SHERWIN WILLIAMS	SHERWIN WILLIAMS SW6232 "MISTY"
MT-2	PREFINISHED METAL PARAPET DETAIL		COLOR TO MATCH SHERWIN WILLIAMS SW6258 "TRICORN BLACK"
P-6	EXTERIOR BOLLARDS	SHERWIN WILLIAMS	SHERWIN WILLIAMS SW6258 "TRICORN BLACK"
S-1	ALUMINUM STOREFRONT GLAZING	KAWNEER	451T VG - #29 BLACK FINISH
C-1	PREFINISHED ALUMINUM CANOPY	MAPES LUMISHADE CANOPY	MATTE BLACK BAKED ENAMEL W/ REAR GUTTER CONNECTIONS
WDS-1	WOOD LOOK SIDING	NICHIHA	VINTAGE WOOD - CEDAR - VERTICAL

NICHIHA VINTAGE WOOD CEDAR (WDS-1) | NICHIHA VINTAGE BRICK PAINTED SHERWIN WILLIAMS SW7005 "PURE WHITE" (N-1) | NICHIHA RIBBED COLOR MATCH SHERWIN WILLIAMS SW7659 "GRIS" (N-2) | KAWNEER #29 BLACK (S-1)



ELEVATION DOES NOT MEET THE 30% MINIMUM TRANSPARENCY REQUIREMENT. APPLICANT NOTES VIEW OF THIS WALL FROM THE ADJACENT SECONDARY STREET WILL BE SCREENED BY MULTIPLE DIFFERENT DESIGN ASPECTS REQUIRED BY THE UDO AND OTHER FEATURES INCLUDING: REQUIRED DUMPSTER ENCLOSURE AND LANDSCAPE SCREENING; STREET TREES; CANOPY AND UNDERSTORY TREES AND SHRUBS WITHIN THE REQUIRED STREET BUFFER; AND PROPOSED FUELING AREA AND ASSOCIATED STRUCTURES.

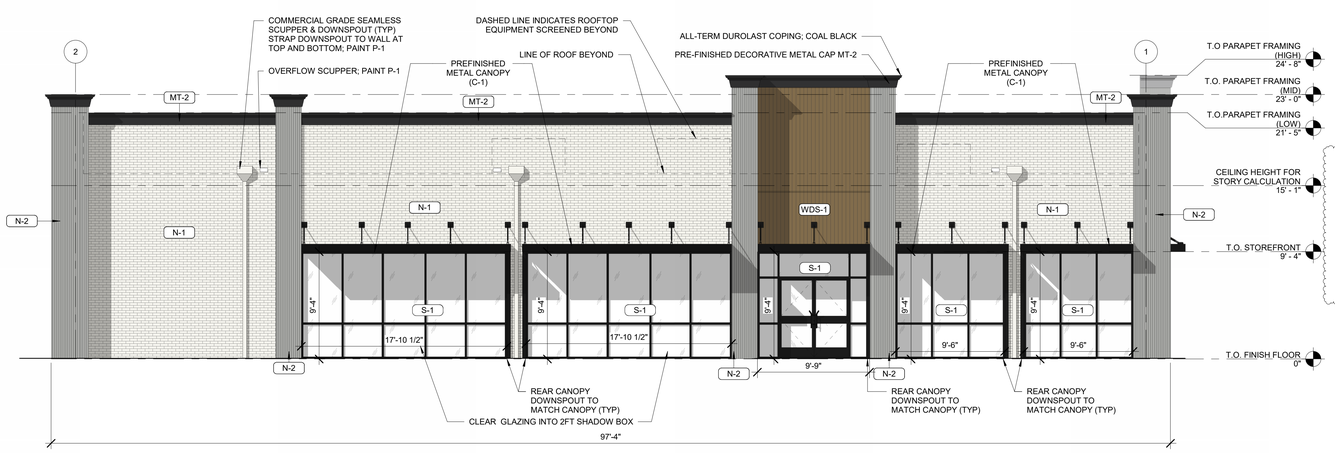
2 R1.00 ELEVATION - FACING EAST
3/16" = 1'-0"



UDO SECTION 5.3.1.F.7: COMMERCIAL BUILDING FENESTRATION
REQUIRED:
SECONDARY BUILDING WALL
TOTAL AREA = (15'-1" X 54'-11") = 829 SQFT
TRANSPARENCY SQFT = (829SQFT X 30%) = 249SQFT
PROVIDED:
(9'-4"x14'-8")+(9'-4"x14'-8") = 274SQFT

ELEVATION MEETS THE REQUIRED MINIMUM PERCENTAGE OF 30% GLAZING HOWEVER, THE GLAZING IS SPANDREL DUE TO INTERIOR LAYOUT, BACK OF HOUSE AND RESTROOM USES. DESIGN CHANGES TO INCLUDE CANOPIES ON THIS FACADE WERE ADDED BASED ON DISCUSSION WITH CITY STAFF TO AID WITH THE ELEVATIONS SCALE AND INTEREST.

3 R1.00 ELEVATION - FACING WEST
3/16" = 1'-0"



UDO SECTION 5.3.1.F.7: COMMERCIAL BUILDING FENESTRATION
REQUIRED:
PRIMARY BUILDING WALL
TOTAL AREA = (15'-1" X 97'-4") = 1,492 SQFT
TRANSPARENCY SQFT = (1,492SQFT X 40%) = 597SQFT
PROVIDED:
(9'-4"x9'-6")+(9'-4"x9'-6")+(9'-4"x9'-9")+(9'-4"x17'-10 1/2")+(9'-4"x17'-10 1/2") = 602SQFT

ELEVATION MEETS MINIMUM 40% TRANSPARENCY REQUIREMENT FOR A PRIMARY BUILDING WALL

1 R1.00 ELEVATION - FACING NORTH
3/16" = 1'-0"

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TENANT

PROTO:9350-CST-2022-01

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04/28/2023

Architect Name - RYAN M. FAUST
Architect Number - 14521

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REVISIONS

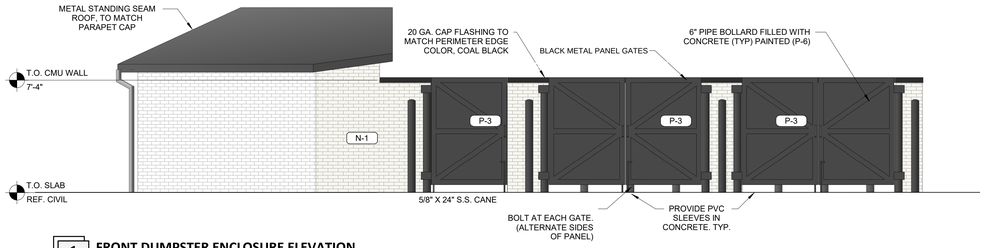
NO.	DATE	DESCRIPTION
1	06/07/2023	Revision 2

Drawing Size: 30 x 42	Project #: 22121
Drawn By: JMA	Checked By: ADF

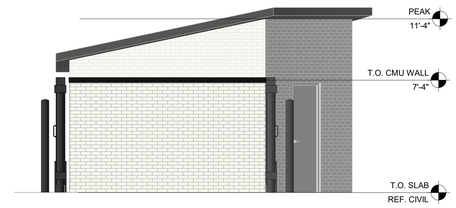
Title: REVIEW BOARD ELEVATIONS

Sheet Number: R1.00

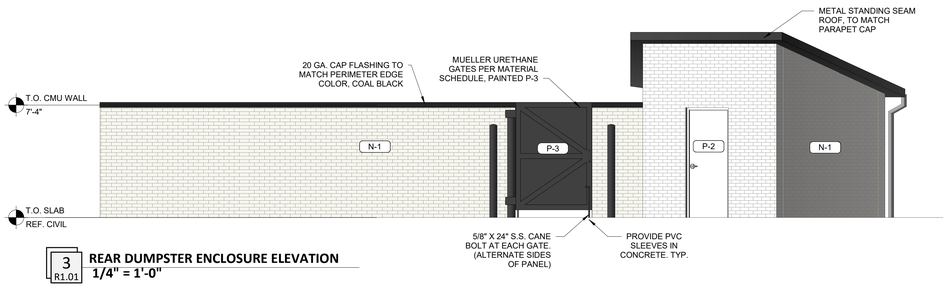
Date: 04/28/2023 Store #: 1055397



1 R1.01 **FRONT DUMPSTER ENCLOSURE ELEVATION**
1/4" = 1'-0"



2 R1.01 **SIDE DUMPSTER ENCLOSURE ELEVATION**
1/4" = 1'-0"



3 R1.01 **REAR DUMPSTER ENCLOSURE ELEVATION**
1/4" = 1'-0"

EXTERIOR MATERIALS SCHEDULE

(NOT ALL MATERIALS IN SCHEDULE ARE USED)

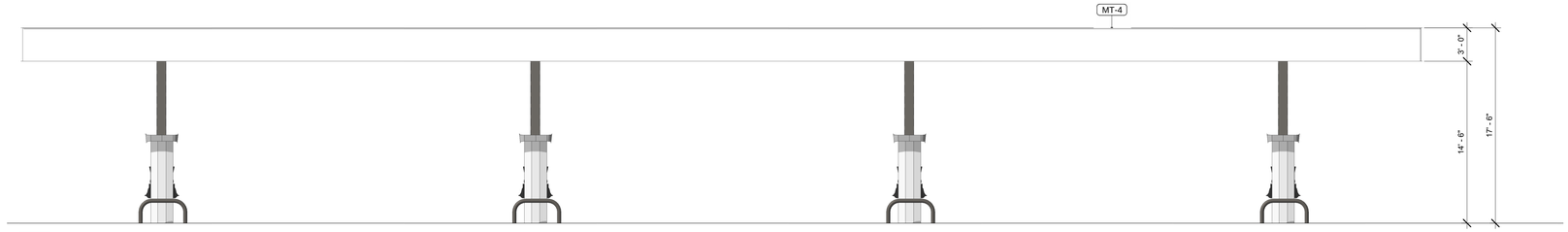
NO.	MATERIAL	MANUFACTURER	COLOR
MR-1	MEMBRANE ROOFING	DUROLAST	WHITE
N-1	FIBER CEMENT PANEL	NICHIHA	VINTAGE BRICK, PAINTED SHERWIN WILLIAMS SW7005 "PURE WHITE"
N-2	FIBER CEMENT PANEL	NICHIHA	RIBBED, COLOR TO MATCH SHERWIN WILLIAMS SW7659 "GRIS"
CP-1	EDGE METAL PARAPET CAP	DUROLAST - ALL TERM EDGE	COAL BLACK
P-2	EXTERIOR HM DOORS, FRAMES, TRASH ENCLOSURE GATE, GRAVEL GUARDS, AND LIGHT POLES	SHERWIN WILLIAMS	SHERWIN WILLIAMS SW6232 "MISTY"
MT-2	PREFINISHED METAL PARAPET DETAIL		COLOR TO MATCH SHERWIN WILLIAMS SW6258 "TRICORN BLACK"
P-6	EXTERIOR BOLLARDS	SHERWIN WILLIAMS	SHERWIN WILLIAMS SW6258 "TRICORN BLACK"
S-1	ALUMINUM STOREFRONT GLAZING	KAWNEER	451T VG - #29 BLACK FINISH
C-1	PREFINISHED ALUMINUM CANOPY	MAPES LUMISHADE CANOPY	MATTE BLACK BAKED ENAMEL W/ REAR GUTTER CONNECTIONS
WDS-1	WOOD LOOK SIDING	NICHIHA	VINTAGE WOOD - CEDAR - VERTICAL
MT-4	FUEL CANOPY FASCIA	REYNOBOND	EASTMAN WHITE - PY-25

NICHIHA
VINTAGE WOOD
CEDAR
(WDS-1)

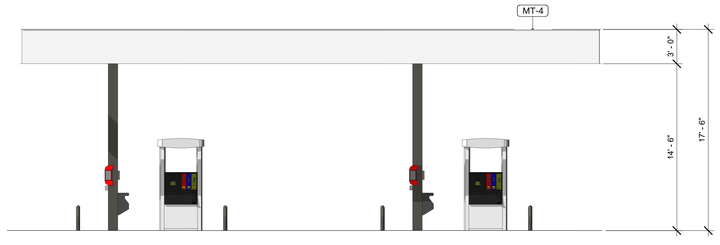
NICHIHA
VINTAGE BRICK
PAINTED SHERWIN
WILLIAMS
SW7005
"PURE WHITE"
(N-1)

NICHIHA
RIBBED
COLOR MATCH
SHERWIN WILLIAMS
SW7659
"GRIS"
(N-2)

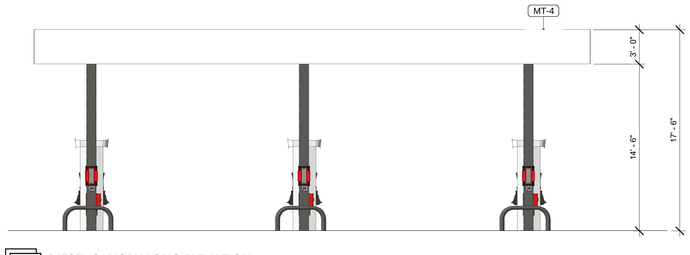
KAWNEER #29
BLACK
(S-1)



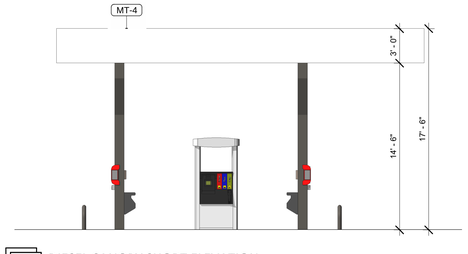
4 R1.01 **FUEL CANOPY LONG ELEVATION - 8 DISPENSERS TOTAL**
3/16" = 1'-0"



5 R1.01 **FUEL CANOPY SHORT ELEVATION**
3/16" = 1'-0"



6 R1.01 **DIESEL CANOPY LONG ELEVATION**
3/16" = 1'-0"



7 R1.01 **DIESEL CANOPY SHORT ELEVATION**
3/16" = 1'-0"

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REVISIONS

NO.	DATE	DESCRIPTION

Drawing Size: 30 x 42	*Project #:* 22121
Drawn By: JMA	*Checked By:* ADF

Title:
REVIEW BOARD ELEVATIONS

Sheet Number:
R1.01

Date: 04/28/2023 *Store #:* 1055397

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