

- ### Demolition Notes:
- CONTRACTOR SHALL CONTACT NORTH CAROLINA ONE-CALL CENTER (NC 811) BY DIALING 811 OR 1-800-632-4949 AT LEAST 72 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY OR DIGGING AND HAVE ALL UNDERGROUND UTILITIES LOCATED PRIOR TO EXCAVATING OR TRENCHING.
  - THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL LOCAL AND STATE PERMITS REQUIRED FOR DEMOLITION WORK.
  - THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND/OR ENGINEER FOR ANY AND ALL INJURIES AND/OR DAMAGES TO PERSONNEL, EQUIPMENT AND/OR EXISTING FACILITIES IN THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS AND SPECIFICATIONS.
  - EXISTING CONDITIONS AS DEPICTED ON THESE PLANS ARE GENERAL AND ILLUSTRATIVE IN NATURE. THEY DO NOT INCLUDE MECHANICAL, ELECTRICAL AND MISCELLANEOUS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXAMINE THE SITE AND IDENTIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING ON THE DEMOLITION WORK. FOR THIS PROJECT, IF CONDITIONS ENCOUNTERED DURING EXAMINATION ARE SIGNIFICANTLY DIFFERENT THAN THOSE SHOWN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
  - ALL DEMOLITION WASTE AND DEBRIS SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF IN A STATE APPROVED WASTE SITE AND IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.
  - THE BURNING OF CLEARED MATERIAL AND DEBRIS SHALL NOT BE ALLOWED UNLESS CONTRACTOR GETS WRITTEN AUTHORIZATION FROM THE LOCAL AUTHORITIES.
  - ASBESTOS OR HAZARDOUS MATERIALS, IF FOUND ON SITE, SHALL BE REMOVED BY A LICENSED HAZARDOUS MATERIALS CONTRACTOR. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATELY IF HAZARDOUS MATERIALS ARE ENCOUNTERED.
  - CONTRACTOR SHALL PROTECT ALL CORNER PINS, MONUMENTS, PROPERTY CORNERS, AND BENCHMARKS DURING DEMOLITION ACTIVITIES. IF DISTURBED, CONTRACTOR SHALL HAVE DISTURBED ITEMS RESET BY A LICENSED SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.
  - CONTRACTOR SHALL ADHERE TO ALL LOCAL, STATE, FEDERAL, AND OSHA REGULATIONS WHEN OPERATING DEMOLITION EQUIPMENT AROUND UTILITIES.
  - CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL MEASURES IN ACCORDANCE WITH THE NCDOT STANDARDS, AND AS REQUIRED BY LOCAL AGENCIES WHEN WORKING IN AND/OR ALONG STREETS, ROADS, HIGHWAYS, ETC. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN APPROVAL AND COORDINATE WITH THE LOCAL AND/OR STATE AGENCIES REGARDING THE NEEDED, EXTENT, AND LIMITATIONS ASSOCIATED WITH INSTALLING AND MAINTAINING TRAFFIC CONTROL MEASURES.
  - CONTRACTOR SHALL PROTECT AT ALL TIMES ADJACENT STRUCTURES AND ITEMS FROM DAMAGE DUE TO DEMOLITION OR CONSTRUCTION ACTIVITIES.
  - CONTRACTOR SHALL REMOVE EXISTING VEGETATION AND IMPROVEMENTS WITHIN LIMITS OF DISTURBANCE UNLESS NOTED OTHERWISE.
  - TREES OUTSIDE OF CONSTRUCTION LIMITS OR TREES NOT INDICATED TO BE REMOVED SHALL BE PROTECTED.

- ### Erosion Control Provisions:
- NO PERSON MAY INITIATE A LAND DISTURBING ACTIVITY BEFORE NOTIFYING WAKE COUNTY WATERSHED MANAGEMENT OF THE DATE THAT THE LAND DISTURBING ACTIVITY WILL BEGIN.
  - LAND DISTURBING ACTIVITY BEYOND THAT REQUIRED TO INSTALL APPROPRIATE EROSION CONTROL MEASURES SHALL BE INSPECTED AND APPROVED BY THE ENGINEER.
  - SCHEDULING OF A PRE-CONSTRUCTION CONFERENCE WITH THE WAKE COUNTY WATERSHED MANAGER, JEEVAN NEUPANE, PE (919-819-8907) PRIOR TO INITIATING LAND DISTURBING ACTIVITIES IS REQUIRED. FOR INSPECTION CALL 919-819-8907. 48 HOUR NOTICE IS REQUIRED.
  - INSTALL TREE PROTECTION FENCING AROUND ALL AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE AS SHOWN ON PLANS.
  - PROVIDE 20' X 50' X 6" STONE CONSTRUCTION ENTRANCES AS SHOWN ON PLAN.
  - SEED OR OTHERWISE PROVIDE GROUND COVER DEVICES OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION FOR ALL EXPOSED SLOPES WITHIN 7 DAYS OF COMPLETION OF ANY PHASE OF GRADING ON PERIMETER AREAS AND SLOPES STEEPER THAN 3:1. ALL OTHER AREAS SHALL BE STABILIZED WITHIN 14 DAYS.
  - CONTRACTOR SHALL INSPECT AND MAINTAIN AS NEEDED ALL EROSION CONTROL DEVICES ON A WEEKLY BASIS AND AFTER EACH MAJOR STORM EVENT. FAILURE TO KEEP ALL EROSION CONTROL DEVICES IN PROPER WORKING ORDER MAY RESULT IN A STOP WORK ORDER OR CIVIL PENALTIES UP TO \$5000.00 PER DAY OF VIOLATION.
  - THE ENGINEER RESERVES THE RIGHT TO REQUIRE ADDITIONAL EROSION CONTROL MEASURES SHOULD THE PLAN OR ITS IMPLEMENTATION PROVE TO BE INADEQUATE.
  - ACCEPTANCE AND APPROVAL OF THIS PLAN IS CONDITIONED UPON YOUR COMPLIANCE WITH FEDERAL AND STATE WATER QUALITY LAWS, REGULATION AND RULES. IN ADDITION LOCAL CITY AND COUNTY ORDINANCES OR RULES MAY ALSO APPLY TO THIS LAND DISTURBING ACTIVITY. APPROVAL BY THE COUNTY DOES NOT SUPERSEDE ANY OTHER PERMIT OR APPROVAL.
  - PLEASE BE ADVISED OF THE RULES TO PROTECT AND MAINTAIN EXISTING BUFFERS ALONG WATERCOURSES IN THE NEUSE AND TAR RIVER BASINS. THESE RULES ARE ENFORCED BY THE DIVISION OF WATER RESOURCES (DWR). DIRECT ANY QUESTIONS ABOUT THE APPLICABILITY OF THESE RULES TO YOUR PROJECT TO THE REGIONAL WATER QUALITY SUPERVISOR, RALEIGH REGIONAL OFFICE AT (919) 791-4200.

- ### Construction Sequence:
- EROSION AND SEDIMENT CONTROL (E&S) PERMIT AND A CERTIFICATE OF COVERAGE (COC) MUST BE OBTAINED BEFORE ANY LAND DISTURBING ACTIVITIES OCCUR.
  - CALL WAKE COUNTY WATERSHED MANAGER JEEVAN NEUPANE AT (919) 819-8907 A MINIMUM OF 48 HOURS IN ADVANCE TO SCHEDULE A PRE-CONSTRUCTION MEETING AND FOR NOTIFICATION OF PROJECT START UP.
  - ANY DEWATERING ON THE SITE SHALL BE DONE THROUGH A SILT BAG THAT IS CONSTANTLY MONITORED.
  - INSTALL GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS 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.
  - CALL WATERSHED MANAGER, JEEVAN NEUPANE FOR AN ON-SITE INSPECTION TO OBTAIN A CERTIFICATE OF COMPLIANCE.
  - BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE. INSTALL TEMPORARY SKIMMER SEDIMENT BASINS, ALONG WITH TEMPORARY DIVERSION DITCHES THAT SHALL BE INSTALLED TO ENSURE AS MUCH FLOW AS POSSIBLE IS DIRECTED TO THE BASINS.
  - AS ROUGH GRADING CONTINUES, DEVICES SHALL BE MAINTAINED AND CLEANED OF SEDIMENT. SKIMMER SEDIMENT BASINS TO BE ABANDONED SHALL BE REMOVED AS FOLLOWS: DEWATER THROUGH SILT BAG, CLEAN SEDIMENT, REMOVE BAFFLES, BACKFILL BASIN AND STABILIZE IMMEDIATELY. DEWATERING OPERATIONS THROUGH SILT BAGS SHALL BE MONITORED CONTINUOUSLY.
  - STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, DITCH LININGS, ETC. SEED AND MULCH DENuded AREAS PER GROUND STABILIZATION TIME FRAME.
  - WHEN ROUGH GRADING IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL WATERSHED MANAGER JEEVAN NEUPANE FOR INSPECTION.
  - IF SITE IS APPROVED, MAINTAIN TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OR STABILIZED ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
  - WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR FINAL SITE INSPECTION BY THE WATERSHED MANAGER, JEEVAN NEUPANE. OBTAIN CERTIFICATE OF COMPLETION.

**- Final Drawing -  
Issued for Permit  
Review Purposes Only**

REVISIONS:

#	DATE	ISSUED FOR PERMIT REVIEW	DESCRIPTION
1	11-MAY-23	ISSUED FOR PERMIT REVIEW	

**EROSION CONTROL PLAN - PH. 1**

**WALLBROOK ROADWAY DRIVE IMPROVEMENTS**  
VIRGINIA WATER DRIVE EXTENSION (SERVING LOTS 9-11)

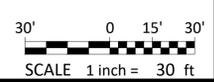
Town of Roanoke Project No. CID 23-  
US 401 Business / S. Main Street & Virginia Water Drive  
Wake Forest Township, Town of Roanoke, Wake County, North Carolina

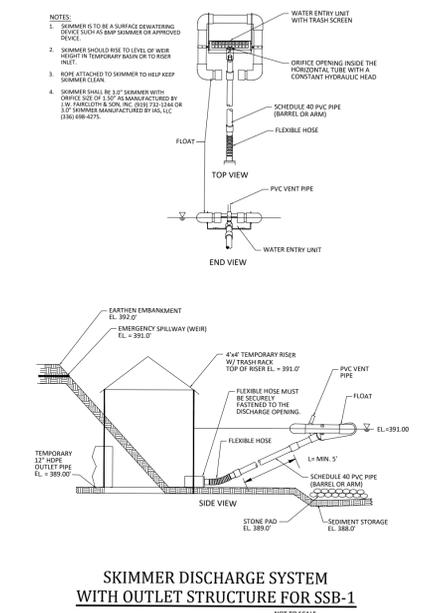
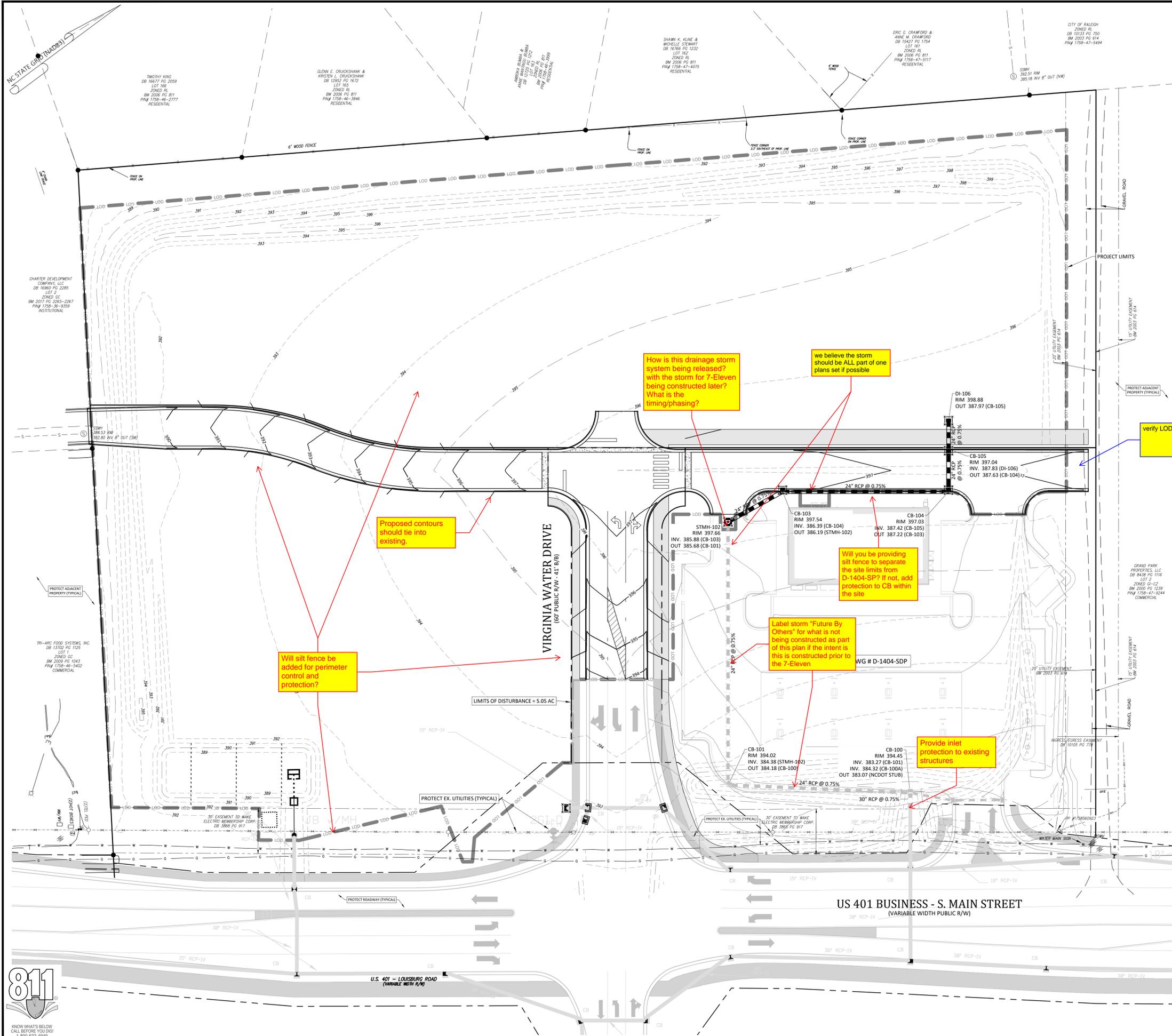
NC License: PA 129  
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Project Manager: BCF  
Drawn By: DLT/TN  
Checked By: TN  
Project Number: 22049  
Drawing Number: D-1404-CID

**C1.0**

Date: May 2023





SKIMMER DISCHARGE SYSTEM WITH OUTLET STRUCTURE FOR SSB-1

How is this drainage storm system being released? with the storm for 7-Eleven being constructed later? What is the timing/phasing?

we believe the storm should be ALL part of one plans set if possible

Proposed contours should tie into existing.

Will silt fence be added for perimeter control and protection?

Will you be providing silt fence to separate the site limits from D-1404-SP? If not, add protection to CB within the site

Label storm "Future By Others" for what is not being constructed as part of this plan if the intent is this is constructed prior to the 7-Eleven

Provide inlet protection to existing structures

verify LOD

**- Final Drawing -**  
Issued for Permit  
Review Purposes Only

REVISIONS:

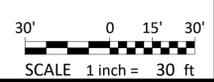


**EROSION CONTROL PLAN - PH. 2**  
**WALLBROOK ROADWAY IMPROVEMENTS**  
**VIRGINIA WATER DRIVE EXTENSION (SERVING LOTS 9-11)**  
Town of Roanoke Project No. CID 23-  
US 401 Business / S. Main Street & Virginia Water Drive  
Wake Forest Township, Town of Roanoke, Wake County, North Carolina

NC License: PA 1399  
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Project Manager: BCF  
Drawn By: DLC/TN  
Checked By: TN  
Project Number: 22049  
Drawing Number: D-1404-CID

**C1.1**  
Date: May 2023



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

**SECTION E: GROUND STABILIZATION**

Required Ground Stabilization Timeframes		
Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed -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
(d) Slopes 3:1 to 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
(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:

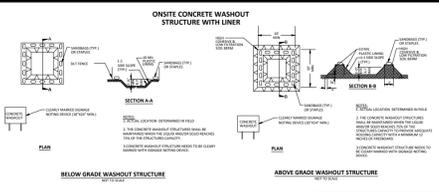
Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"><li>Temporary grass seed covered with straw or other mulches and tackifiers</li><li>Hydroseeding</li><li> Rolled erosion control products with or without temporary grass seed</li><li> Appropriately applied straw or other mulch</li><li> plastic sheeting</li></ul>	<ul style="list-style-type: none"><li>Permanent grass seed covered with straw or other mulches and tackifiers</li><li>Geotextile fabrics such as permanent soil reinforcement matting</li><li>Hydroseeding</li><li>Shrubs or other permanent plantings covered with mulch</li><li>Uniform and evenly distributed ground cover sufficient to restrain erosion</li><li>Structural methods such as concrete, asphalt, or retaining walls</li><li> Rolled erosion control products with grass seed</li></ul>

**POLYACRYLAMIDES (PAMS) AND FLOCCULANTS**

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

**EQUIPMENT AND VEHICLE MAINTENANCE**

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



**CONCRETE WASHOUTS**

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle, settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

**LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE**

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

**PAINT AND OTHER LIQUID WASTE**

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

**PORTABLE TOILETS**

- 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.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- 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**

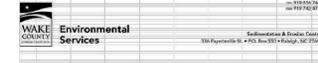
- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- 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.

**HERBICIDES, PESTICIDES AND RODENTICIDES**

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- 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.
- 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.
- Do not stockpile these materials onsite.

**HAZARDOUS AND TOXIC WASTE**

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



Effective September 1, 2008  
Soil stockpiles shall be located on the approved plan and shall adhere to the following requirements:

**Design Criteria**

- 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).
- Stockpile footprints shall be setback a minimum of 25' from adjacent property lines.
- A note shall be provided on the approved plan that stockpile height shall not exceed 35 feet.
- Stockpile slopes shall be 2:1 or flatter.
- Approved BMPs shall be shown on a plan to control any potential sediment loss from a stockpile.
- Stockpiling materials adjacent to a ditch, drainage-way, watercourse, wetland, stream buffer, or other body of water shall be avoided unless an alternative location is demonstrated to be unavoidable.
- Any concentrated flow likely to affect the stockpile shall be diverted to an approved BMP.
- 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 off-site 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).

**Maintenance Requirements to be Noted on the Plan**

- Soiling 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.
- 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.
- The approved plan shall provide for the use of graded seeding and mulching on a continual basis while the stockpile is in use.
- Establish and maintain a vegetative buffer at the toe of the slope (where practical).

**Seeding Specifications**

NPDES Stormwater Discharge Permit for Construction Activities (NCG01 - 4/1/19)  
NCDQR/Division of Energy, Mineral and Land Resources

Site Area Description	Approved Seeding Specifications	Weather Windows
Perimeter Dikes, Swales, Ditches, and Perimeter Slopes	1. Chisel compacted areas and spread topsoil three inches deep over adverse soil conditions, if available. 2. Rize 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 cutpack after seeding. 7. Mulch immediately after seeding and anchor mulch.	None
High Quality Water (HQW) Zones	1. Chisel compacted areas and spread topsoil three inches deep over adverse soil conditions, if available. 2. Rize 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 cutpack after seeding. 7. Mulch immediately after seeding and anchor mulch.	None
Slopes steeper than 3:1	1. Chisel compacted areas and spread topsoil three inches deep over adverse soil conditions, if available. 2. Rize 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 cutpack after seeding. 7. Mulch immediately after seeding and anchor mulch.	None
Slopes 3:1 to 4:1	1. Chisel compacted areas and spread topsoil three inches deep over adverse soil conditions, if available. 2. Rize 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 cutpack after seeding. 7. Mulch immediately after seeding and anchor mulch.	None
Areas with slopes flatter than 4:1	1. Chisel compacted areas and spread topsoil three inches deep over adverse soil conditions, if available. 2. Rize 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 cutpack after seeding. 7. Mulch immediately after seeding and anchor mulch.	None

**Seedbed Preparation:**

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

- Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stands should be more than 80% damaged, re-establish following the original lime, fertilizer and seeding rates.
- 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**

Date	Type	Planting Rate
<b>For Shoulders, Side Ditches, Slopes (Max 3:1):</b>		
Aug 15	Tall Fescue	300 lbs/acre
Nov 1	Tall Fescue & Abruzzi Rye	300 lbs/acre
Mar 1	Tall Fescue	300 lbs/acre
Apr 15	Tall Fescue	300 lbs/acre
Apr 15	Hulled Common	25 lbs/acre
Jun 30	Bermudagrass	25 lbs/acre
Jul 1	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)

**For Shoulders, Side Ditches, Slopes (3:1 to 2:1):**

Date	Type	Planting Rate
Mar 1	Sericea Lespedeza (scarified)	50 lbs/acre (Sericea Lespedeza);
Jun 1	and use the following combinations:	
Mar 1	Add Tall Fescue	120 lbs/acre
Mar 1	or Add Weeping Love grass	10 lbs/acre
Mar 1	or Add Hulled Common	25 lbs/acre
Jun 30	Bermudagrass	25 lbs/acre
Jun 1	Tall Fescue AND Browntop Millet or Sorghum-Sudan Hybrids***	120 lbs/acre (Tall Fescue); 35 lbs/acre (Browntop Millet); 30 lbs/acre (Sorghum-Sudan Hybrids)
Sept 1	Sericea Lespedeza (unhulled) – unscarified AND Tall Fescue	70 lbs/acre (Sericea Lespedeza); 120 lbs/acre (Tall Fescue)
Nov 1	AND Abruzzi Rye	25 lbs/acre

Consult Wake County Soil & Water Conservation District or NC State Cooperative Extension for additional information concerning other alternatives for vegetation of denuded areas. The above vegetation rates are those that do well under local conditions; other seeding rate combinations are possible.

\*\*\* TEMPORARY: Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow more than 12' in height before mowing; otherwise, fescue may be shaded out.

**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-daily rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be reported as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&S 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 (SOOs)	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 (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 under 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&S 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&S Plan Documentation**  
The approved E&S plan as well as any approved deviation shall be kept on the site. The approved E&S plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&S plan shall be documented in the manner described:

Item to Document	Documentation Requirements
(a) Each E&S Measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&S Plan.	Initial and date each E&S Measure on a copy of the approved E&S Plan or complete, date and sign an inspection report that lists each E&S Measure shown on the approved E&S Plan. This documentation is required upon the initial installation of the E&S Measures or if the E&S Measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&S 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&S Plan.	Initial and date a copy of the approved E&S 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&S Measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&S Measures.	Initial and date a copy of the approved E&S Plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

**2. Additional Documentation**

In addition to the E&S Plan documents above, the following items shall be kept on the site and available for agency 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:

- This general permit as well as the certificate of coverage, after it is received.
- Records of inspections made during the previous 30 days. 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.
- All data used to complete the Notice of Intent and other 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:
- Visible sediment deposition in a stream or wetland.
  - 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).
  - 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.
  - Anticipated bypasses and unanticipated bypasses.
  - 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 Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	- <b>Within 24 hours</b> , an oral or electronic notification. - <b>Within 7 calendar days</b> , 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	- <b>Within 24 hours</b> , 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)]	- <b>A report at least ten days before the date of the bypass, if possible.</b> The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	- <b>Within 24 hours</b> , an oral or electronic notification. - <b>Within 7 calendar days</b> , 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(i)(7)]	- <b>Within 24 hours</b> , an oral or electronic notification. - <b>Within 7 calendar days</b> , 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 recurrence of the noncompliance. [40 CFR 122.41(i)(6)]. - Division staff may waive the requirement for a written report on a case-by-case basis.

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

**-Final Drawing - Issued for Permit Review Purposes Only**

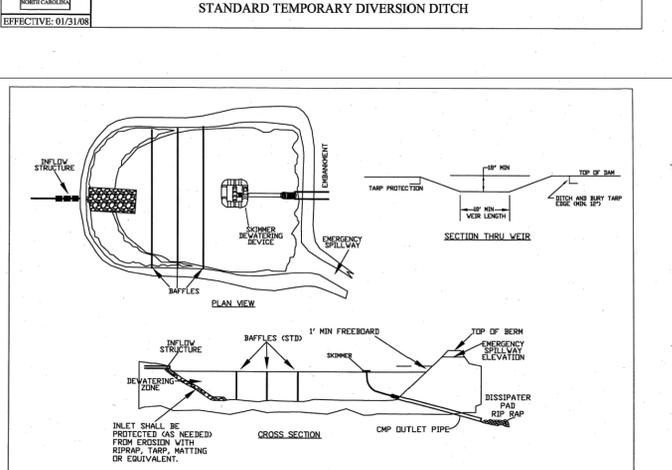
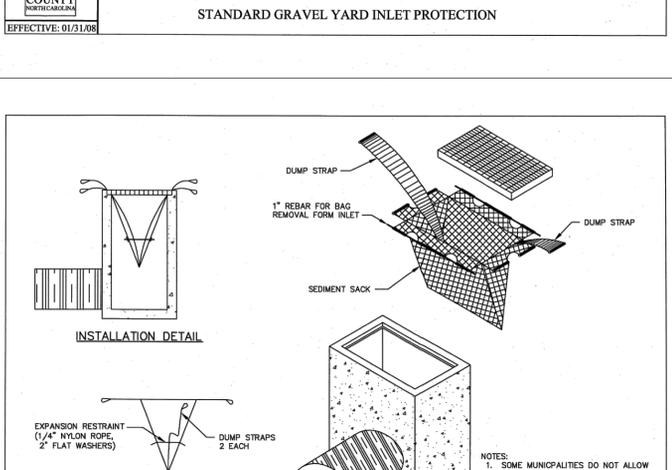
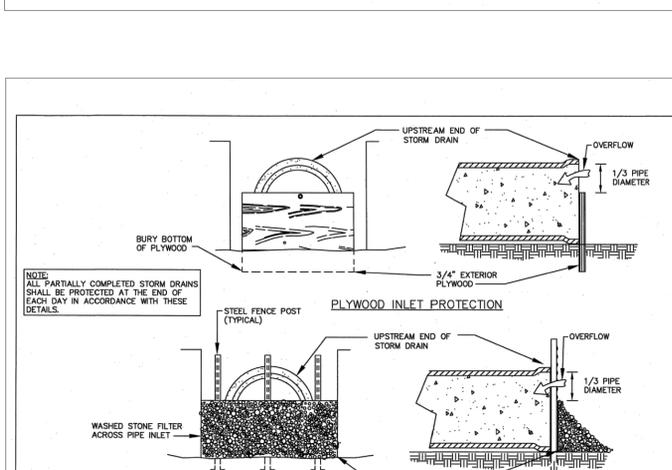
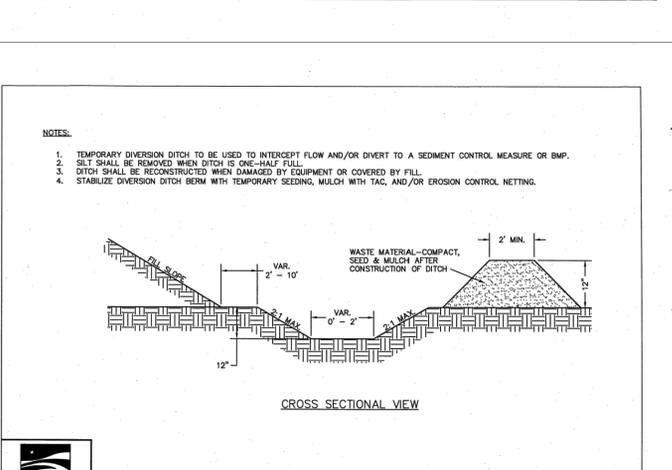
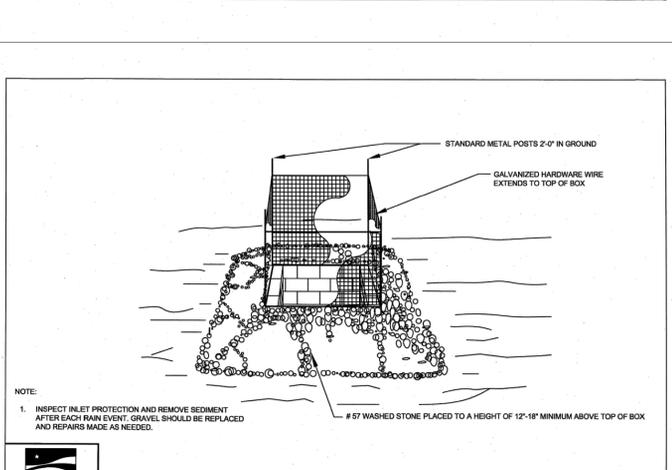
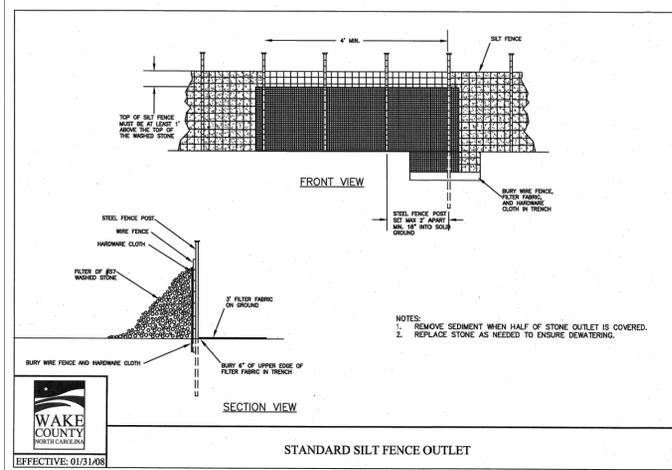
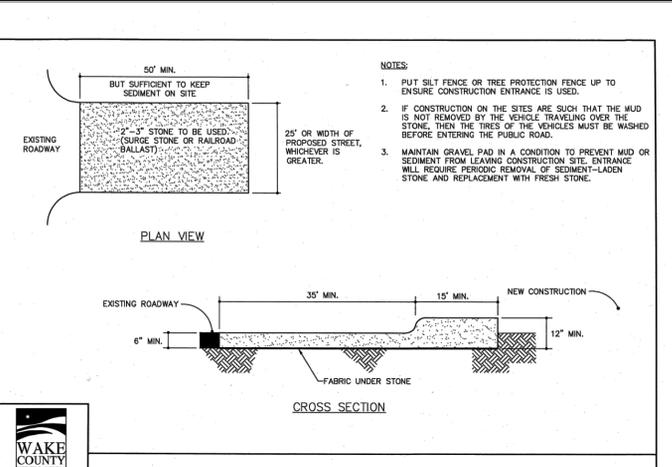
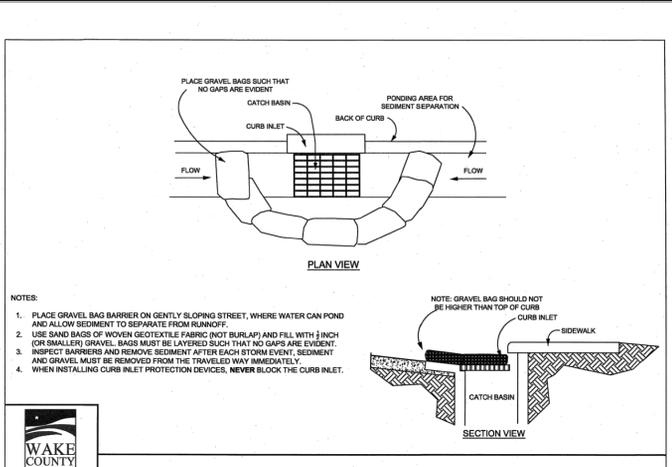
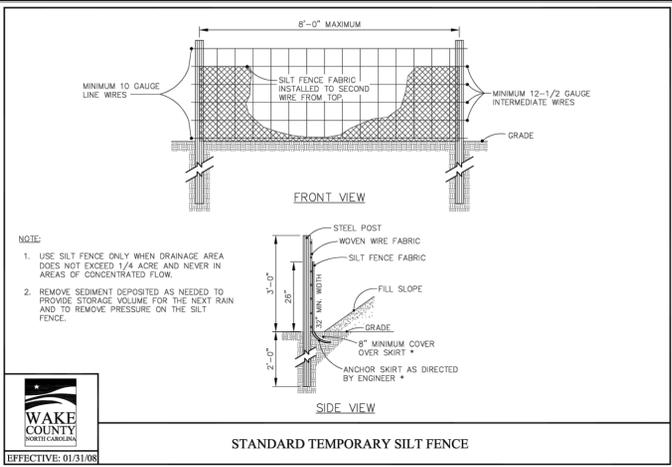


**EROSION CONTROL NOTES**  
**WALLBROOK ROADWAY IMPROVEMENTS**  
**VIRGINIA WATER DRIVE EXTENSION (SERVING LOTS 9-11)**  
Town of Rolesville Project No. CID 23-  
US 401 Business / S. Main Street & Virginia Water Drive  
Wake Forest Township, Town of Rolesville, Wake County, North Carolina

NC License: PA 1298  
**ARK CONSULTING GROUP PLLC**  
ENGINEERS & PLANNERS  
2755-B Chimes Blvd  
Raleigh, NC 27617  
(757) 558-0888  
www.arkconsultinggroup.com

Project Manager: BCF  
Drawn By: DLT/TN  
Checked By: TN  
Project Number: 22049  
Drawing Number: D-1404-CID

**C1.2**  
Date: May 2023



Temporary Sediment Traps, Skimmer Sediment Basins, and Temporary Sediment Basins

Device	Type	Weir Flow		Depth to Weir (ft)	Depth Below Side Slope (ft)	Top Length (ft)	Top Width (ft)	Skimmer Orifice Size (in)	Skimmer Orifice (in)	
		Weir Width (ft)	Depth (ft)							
SSB-1	Skimmer Sediment Basin	30	0.3	1.5	2.0	3.0	129	49	3.00	1.50

Vegetated Swale Design

Project: Wallbrook  
 Location: Rolesville, Wake County, NC

Device ID	Device Type	Add'l Flow (cfs)	Disturbed Area (AC)	Tc (min)	Intensity (in/hr)*	C	Qreq (cfs)	Up Invert (ft)	Down Invert (ft)	Length (ft)	Base Slope (ft)	Left Slope (x:1)	Right Slope (x:1)	Flow Depth (ft)	Manning's n	Slope (ft/ft)	Wetted Area (sf)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Velocity (ft/s)	Qa (cfs)	Qa>Qreq?	τ (lbs/ft <sup>2</sup> )	Liner Type	Allowable Shear Stress, τ (lbs/ft <sup>2</sup> )
TDD-3	Temporary Diversion	0	3.50	5	7.18	0.5	12.57	395	389	915	1	3	3	2.77	0.020	0.00656	25.80	9.17	2.81	0.49	12.57	Yes	1.133788189	N. Am. Green; Straw; 1 nets	1.55

\*NOAA Atlas 14, NEUSE 2 NE Station, 10-yr 5-min duration intensity

Confirm DA

- Final Drawing -  
 Issued for Permit  
 Review Purposes Only

1.1 MAY 23 11:58 AM '23  
 DATE  
 #

REVISIONS:  
 CROSLAND SOUTHEAST

EROSION CONTROL DETAILS  
**WALLBROOK ROADWAY IMPROVEMENTS**  
 VIRGINIA WATER DRIVE EXTENSION (SERVING LOTS 9-11)  
 Town of Rolesville Project No. CID 23-  
 US 401 Business / S. Main Street & Virginia Water Drive  
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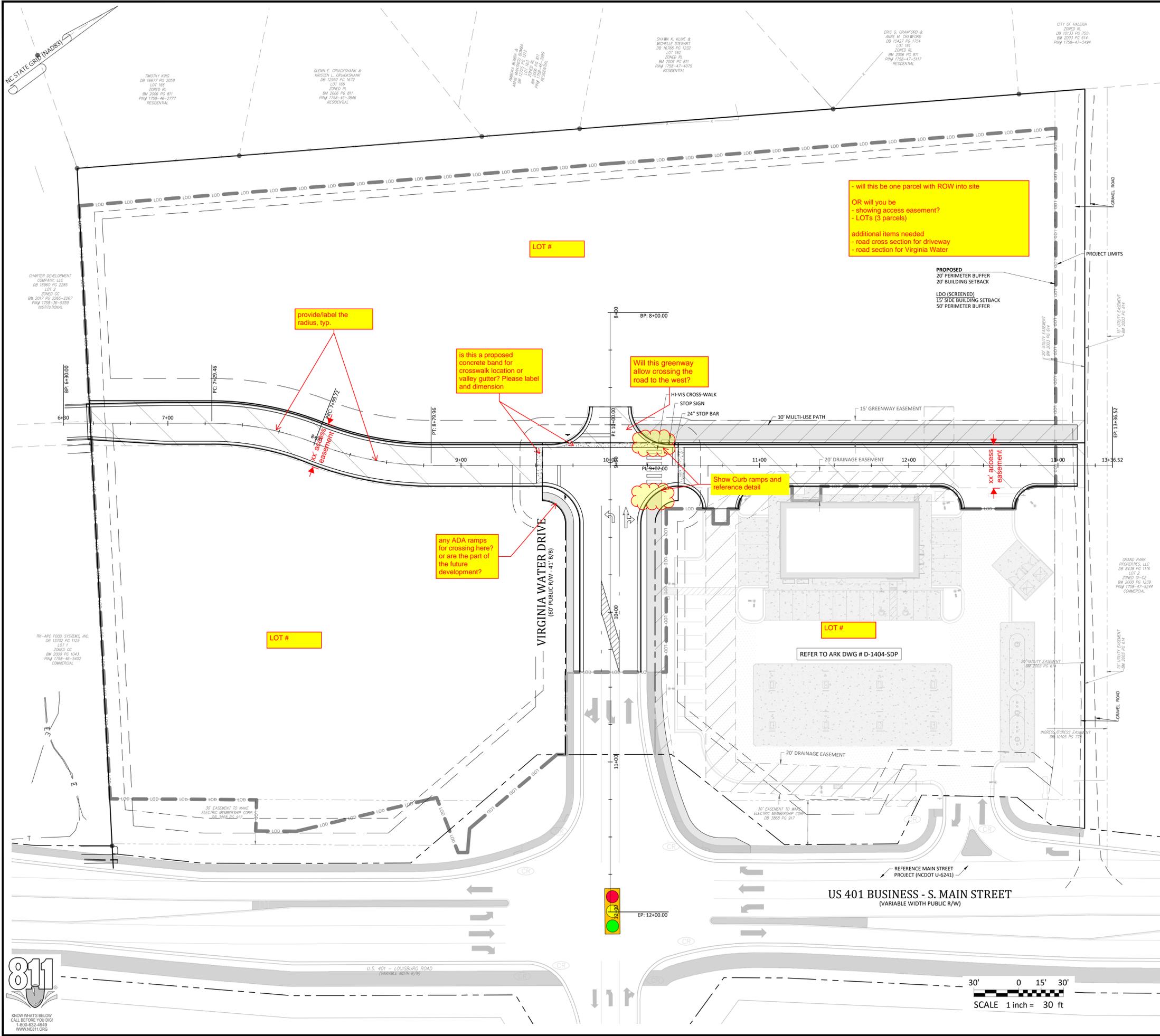
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 www.arkconsultinggroup.com

01/2023

Project Manager: BCF  
 Drawn By: DLC/TN  
 Checked By: TN  
 Project Number: 22049  
 Drawing Number: D-1404-CID

**C1.3**

Date: May 2023



**General Notes:**

- THE FOLLOWING DOCUMENTS ARE INCORPORATED BY REFERENCE AS PART OF THIS SITE PLAN:
  - ALTA/NSPS LAND TITLE SURVEY, PREPARED BY JOHNSON, MIRMIRAN & THOMPSON FOR WALLBROOK LANDCO, LLC, DATED REVISED MARCH 28, 2020
  - "REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION - 7 ELEVEN AT WALLBROOK" PREPARED BY NVS ENGINEERS AND CONSULTANTS, INC., DATED JULY 11, 2022
  - "REVISED WALLBROOK DEVELOPMENT TRAFFIC IMPACT ANALYSIS" PREPARED BY STANTEC CONSULTING SERVICES, INC., DATED AUGUST 11, 2020
- ALL ACCESSIBLE PARKING SPACES SHALL BE CONSTRUCTED TO MEET, AT A MINIMUM, THE MORE STRINGENT OF THE REQUIREMENTS OF THE "AMERICANS WITH DISABILITIES ACT" (ADA) CODE OR THE REQUIREMENTS OF THE JURISDICTION WHERE THIS PROJECT IS TO BE CONSTRUCTED.
- THE SUBJECT PROPERTY IS LOCATED IN FLOOD ZONE X, AREA OF MINIMAL FLOODING, AS SHOWN ON NATIONAL FLOOD INSURANCE RATE MAP (FIRM), WAKE COUNTY, NORTH CAROLINA, PANEL 1758, MAP NO. 3720175800, EFFECTIVE DATE: MAY 2, 2006.
- PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED THE COMMENTS TO ALL PLANS AND OTHER DOCUMENTS REVIEWED AND APPROVED BY THE PERMITTING AUTHORITIES. CONTRACTOR SHALL HAVE COPIES OF ALL PERMITS AND APPROVALS ON SITE AT ALL TIMES.
- THE OWNER / CONTRACTOR SHALL BE FAMILIAR WITH AND RESPONSIBLE FOR THE PROCUREMENT OF ANY AND ALL CERTIFICATIONS REQUIRED FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND ALL APPLICABLE REQUIREMENTS AND STANDARDS OF ALL GOVERNMENTAL ENTITIES HAVING JURISDICTION OVER THIS PROJECT.
- THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SET FORTH HEREIN ARE PART OF THE REQUIRED CONSTRUCTION DOCUMENTS, AND, IN CASE OF CONFLICT, SHALL TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF ANY SUCH DISCREPANCY BETWEEN THE GEOTECHNICAL REPORTS AND PLANS AND SPECIFICATIONS PRIOR TO PROCEEDING WITH ANY FURTHER WORK.
- THESE PLANS ARE BASED ON INFORMATION PROVIDED TO ARK CONSULTING GROUP, PLLC BY THE OWNER AND OTHERS PRIOR TO THE TIME OF PLAN PREPARATION. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND NOTIFY ARK CONSULTING GROUP, PLLC IF ACTUAL SITE CONDITIONS DIFFER FROM THOSE SHOWN ON THE PLAN, OR IF THE PROPOSED WORK CONFLICTS WITH ANY OTHER ON-SITE FEATURES.
- ALL DIMENSIONS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS AND GRADES SHOWN INCORRECTLY ON THESE PLANS PRIOR TO THE GIVING OF SUCH NOTIFICATION AND THE ENGINEER'S WRITTEN AUTHORIZATION OF SUCH ADDITIONAL WORK.
- CONTRACTOR SHALL REFER TO THE ARCHITECTURAL / BUILDING PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY / EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY LOCATIONS.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE THE BUILDING LAYOUT BY CAREFUL REVIEW OF THE SITE PLAN AND LATEST ARCHITECTURAL PLANS (INCLUDING, BUT NOT LIMITED TO, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND FIRE SUPPRESSION PLAN, WHERE APPLICABLE). CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER, ARCHITECT AND SITE ENGINEER OF ANY DISCREPANCIES.
- THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE DONE TO ANY NEW OR EXISTING CONSTRUCTION OR PROPERTY DURING THE COURSE OF CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB & GUTTER. CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL REPLACE ALL SIGNAL INTERCONNECTION CABLE, WIRING CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION. THE REPAIR OF ANY SUCH NEW OR EXISTING CONSTRUCTION OR PROPERTY SHALL RESTORE SUCH CONNECTION OR PROPERTY TO A CONDITION EQUIVALENT TO OR BETTER THAN THE EXISTING CONDITIONS, AND IN CONFORMANCE WITH APPLICABLE CODES. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND NOTIFY THE OWNER'S REPRESENTATIVE PRIOR TO THE START OF CONSTRUCTION.
- THE ENGINEER IS NOT RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, NOR IS THE ENGINEER RESPONSIBLE FOR ANY CONFLICTS OR SCOPE REVISIONS WHICH RESULT FROM THE SAME. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE MEANS AND METHODS FOR COMPLETION OF THE WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

**Impervious Area Calculations**

SITE LIMITED TO 85% IMPERVIOUS AREA AS ACCOUNTED FOR IN THE WALLBROOK STORMWATER MASTER PLAN

PROPOSED TRANSPORTATION IMPERVIOUS AREA:	9583 SF
PROPOSED TOTAL IMPERVIOUS AREA:	9583 SF
TOTAL SITE AREA:	13939 SF
ALLOWABLE IMPERVIOUS AREA (85%):	11848 SF
PROPOSED IMPERVIOUS PERCENTAGE:	68.75 %

**- Final Drawing -**  
Issued for Permit  
Review Purposes Only

**REVISIONS:**

#	DATE	DESCRIPTION
1	11-MAY-23	ISSUED FOR PERMIT REVIEW

**CROSLAND SOUTHEAST**

**LAYOUT & SIGNAGE-STRIPING PLAN**

**WALLBROOK ROADWAY IMPROVEMENTS**  
VIRGINIA WATER DRIVE EXTENSION (SERVING LOTS 9-11)  
Town of Rolesville Project No. CID 23-  
US 401 Business / S. Main Street & Virginia Water Drive  
Wake Forest Township, Town of Rolesville, Wake County, North Carolina

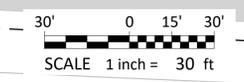
N.C. License: P1-129  
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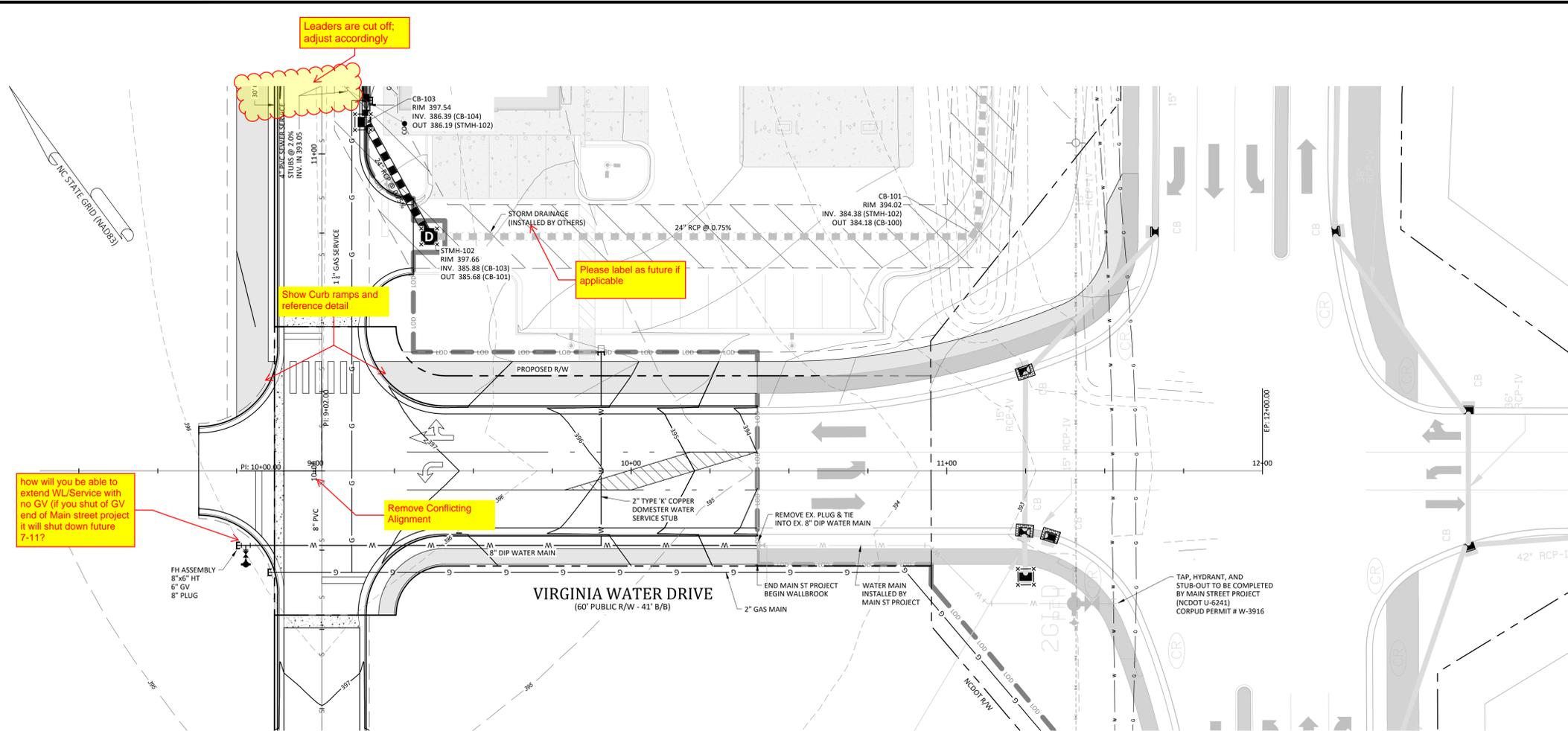
5/11/2023

Project Manager: BCF  
Drawn By: DLC/TN  
Checked By: TN  
Project Number: 22049  
Drawing Number: D-1404-CID

C2.0

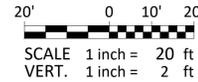
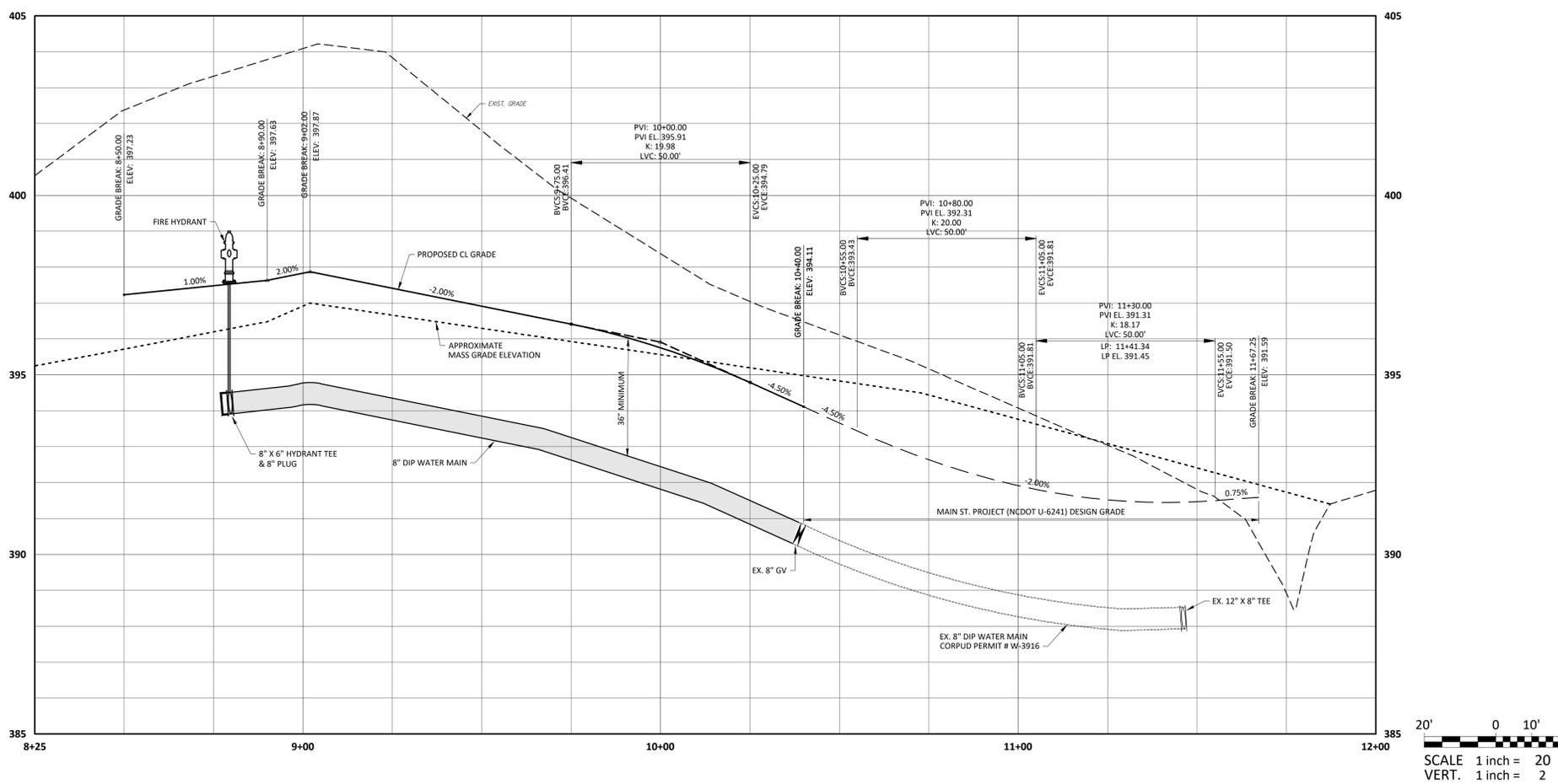
Date: May 2023





- ### Grading Notes:
- SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT REFERENCED IN THIS PLAN SET.
  - SITE CONTRACTOR TO GRADE ALL AREAS WITHIN THE LIMITS OF DISTURBANCE FROM BUILDING TO PROPERTY LINES AND TO EDGE OF PAVEMENT ON STREET SIDES, INCLUDING ROW.
  - TREES OUTSIDE OF CONSTRUCTION LIMITS OR TREES NOT INDICATED TO BE REMOVED SHALL BE PROTECTED.
  - TOP SOIL SHALL BE STRIPPED FROM ALL CUT AND FILL AREAS, STOCKPILED AND REDISTRIBUTED OVER GRADED AREAS. PROVIDE EROSION AND SEDIMENTATION CONTROLS AROUND STOCKPILES DURING CONSTRUCTION.
  - TILL TOP SOIL TO A DEPTH OF 4" MINIMUM AND REMOVE ALL ROCKS LARGER THAN 1" MEASURED IN LARGEST DIRECTION.
  - GRADE ALL AREAS TO MAINTAIN POSITIVE SLOPE AWAY FROM BUILDING.
  - ALL GRADED AREAS TO RECEIVE SEED OR SOIL, TOP SOIL, STRAW AND WATER UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
  - INSTALL TEMPORARY TURF REINFORCEMENT MATTING ON ALL SLOPES STEEPER THAN 3:1. MATTING SHALL BE CONTECH LANDLOK C2 OR EQUAL.
  - REFER TO CIVIL DETAILS FOR PAVEMENT IN PARKING AND DRIVE AREAS.
  - ALL SIDEWALKS SHALL BE CONSTRUCTED OF 3,500 PSI CONCRETE AND SHALL HAVE TOOLED CONTROL JOINTS PER THE JOINT SPACING REFERENCED ON THE PLAN.
  - MATERIALS SELECTED FOR USE AS STRUCTURAL FILL SHALL BE FREE OF VEGETABLE MATTER, WASTE CONSTRUCTION DEBRIS, AND OTHER DELETERIOUS MATERIALS. THE MATERIAL SHALL NOT CONTAIN ROCKS HAVING A DIAMETER OVER 3 INCHES.
  - SOILS REPRESENTED BY THEIR USCS GROUP SYMBOLS WILL TYPICALLY BE SUITABLE FOR USE AS STRUCTURAL FILL (ML), (CL), (SM), AND (SC).
  - THE FOLLOWING SOILS ARE CONSIDERED SUITABLE IN AREAS WHERE A MINIMUM THICKNESS OF 3' OF LOW PERMEABILITY SOILS CAN BE USED AS COVER: (SW), (SP), (SP-SM), AND (SP-SC).
  - THE FOLLOWING SOILS ARE CONSIDERED SUITABLE IN AREAS WHERE A MINIMUM THICKNESS OF 3' OF NON-EXPANSIVE SOILS CAN BE USED AS COVER: (MH) AND (CH).
  - THE FOLLOWING SOIL TYPES ARE CONSIDERED UNSUITABLE: (OL), (OH), AND (PI).
  - ALL STRUCTURAL FILL SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698). ADDITIONALLY, THE IN-PLACE MAXIMUM DRY DENSITY OF STRUCTURAL FILL SHOULD BE NO LESS THAN 90 PCF.
  - THE UPPER 12" OF BUILDING FLOOR SLAB SUBGRADES SHALL BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698).
  - FILL PLACEMENT IN PAVEMENT AREAS SHALL BE PERFORMED IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS.
  - SUITABLE FILL MATERIAL SHALL BE PLACED IN 8" LIFTS AND COMPACTED BY MECHANICAL MEANS. PROOFROLLING WITH RUBBER TIRE, HEAVILY LOADED VEHICLES MAY BE DESIRABLE AT INTERVALS OF APPROXIMATELY 2 VERTICAL FEET TO BIND THE LIFTS TOGETHER AND TO SEAL THE SURFACE OF EACH COMPACTED AREA.
  - ALL BUILDING, SIDEWALK, AND PAVEMENT SUB-GRADE COMPACTIONS SHALL BE INTERMEDIATELY TESTED THROUGHOUT FILL PLACEMENT OPERATIONS AND APPROVED BY THE GEOTECHNICAL ENGINEER. ALL SUB-GRADES SHALL BE THOROUGHLY PROOF-ROLLED TO IDENTIFY SMALL LOCALIZED AREAS OF UNSUITABLE SOILS. ALL UNSUITABLE SOILS SHALL BE UNDERCUT, REPLACED WITH STRUCTURAL FILL, AND COMPACTED AS DESCRIBED ABOVE.
  - WHERE REQUIRED BY HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
  - MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATER MAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 24" 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 & 5-49).
  - ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
  - ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY CORPUD PRIOR TO CONSTRUCTION.
  - 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 CORPUD.
  - 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCE MAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
  - IT IS THE DEVELOPERS RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY CORPUD. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
  - INSTALL PVC WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2' X 2' WATERLINE EASEMENT IMMEDIATELY ADJACENT.
  - INSTALL PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.
  - 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.
  - ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWR, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS PRIOR TO CONSTRUCTION.
  - NC DOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
  - GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE CORPUD FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT TIM BEASLEY AT (919) 996-2334 OR TIMOTHY.BEASLEY@RALEIGHNC.GOV FOR MORE INFORMATION.
  - 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 NC. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY 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 MANUFACTURERS RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT JOANIE HARTLEY AT (919) 996-5923 OR JOANIE.HARTLEY@RALEIGHNC.GOV FOR MORE INFORMATION.

- ### CORPUD Standard Utility Notes:
- ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK)
  - UTILITY SEPARATION REQUIREMENTS:
    - A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPROUNDED RESERVOIR OR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATER 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.
    - 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 IN 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.
    - WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATER MAIN, DIP MATERIALS OR STEEL ENCASMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
    - 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
    - MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATER MAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 24" 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 & 5-49).
    - ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
  - ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY CORPUD PRIOR TO CONSTRUCTION.
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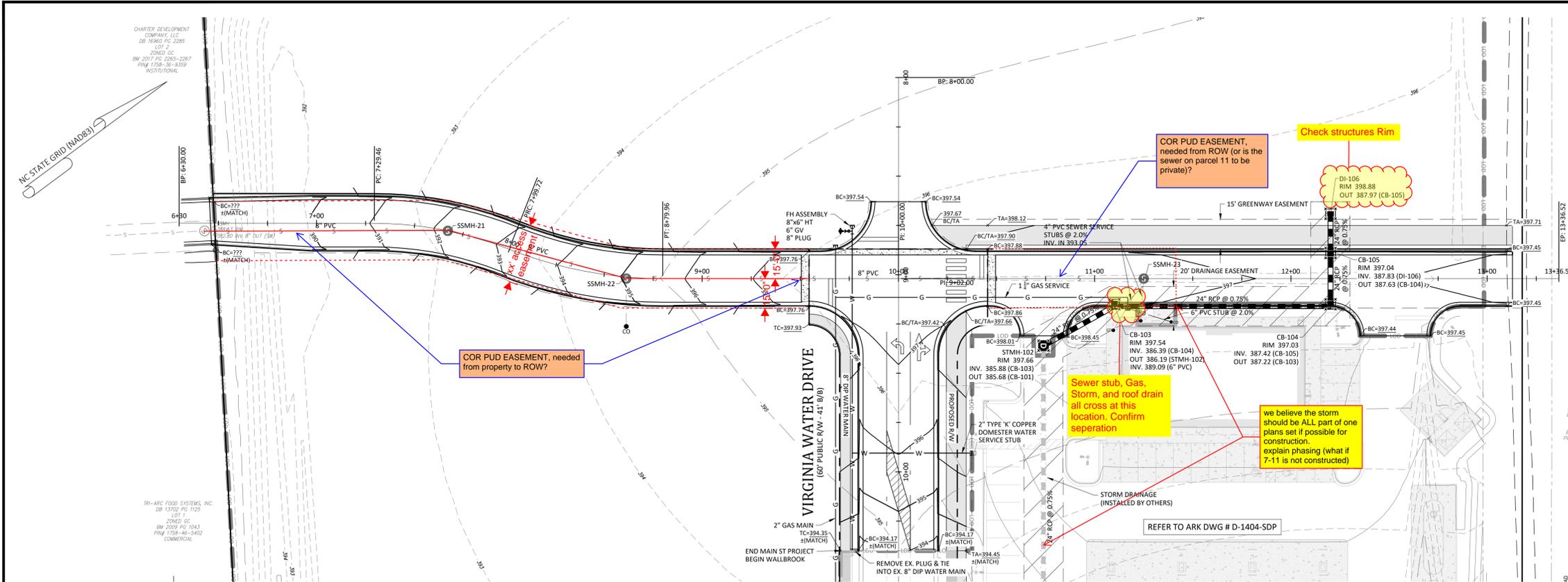


**VIRGINIA WATER DRIVE EXT - PLAN-PROFILE**  
**WALLBROOK ROADWAY IMPROVEMENTS**  
**VIRGINIA WATER DRIVE EXTENSION (SERVING LOTS 9-11)**  
Town of Rolesville Project No. CID 23-  
US 401 Business / S. Main Street & Virginia Water Drive  
Wake Forest Township, Town of Rolesville, Wake County, North Carolina



Project Manager: BCF  
Drawn By: DLT/TN  
Checked By: TN  
Project Number: 22049  
Drawing Number: D-1404-CID

**C3.0**  
Date: May 2023



- Storm drainage package and DA maps for drainage design, (not able to complete Engineering review with out)

COR PUD EASEMENT, needed from ROW (or is the sewer on parcel 11 to be private)?

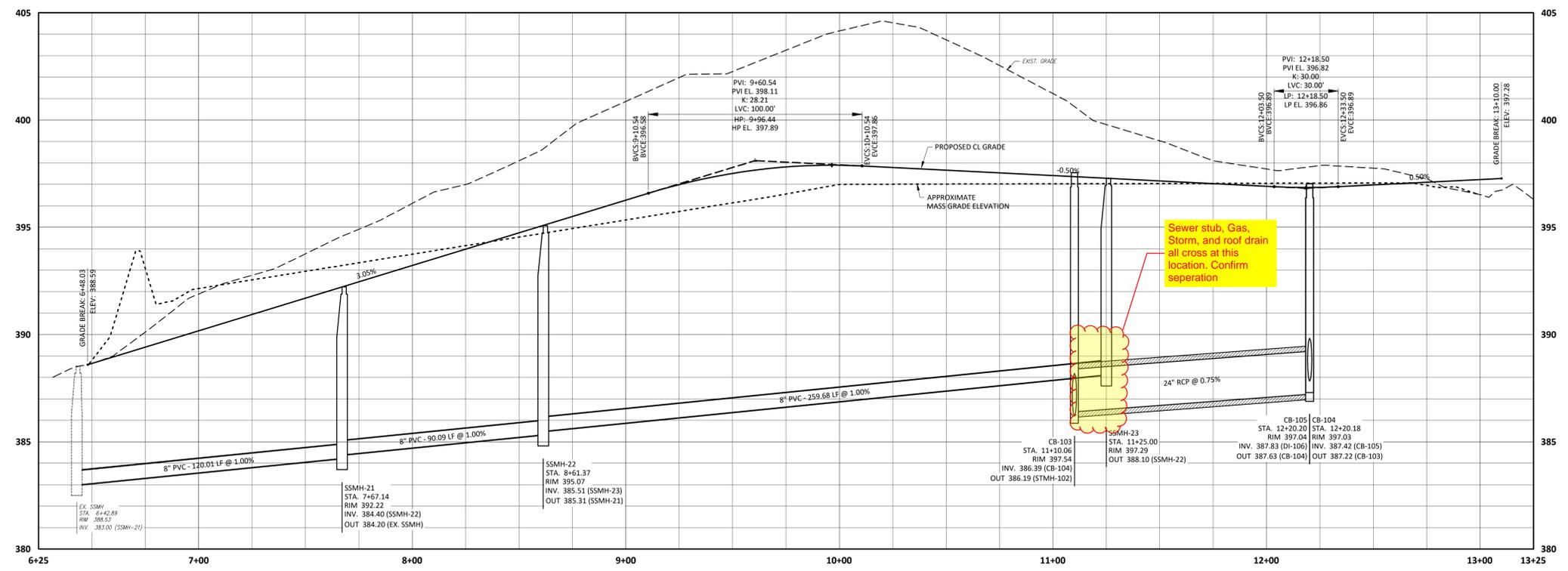
Check structures Rim

COR PUD EASEMENT, needed from property to ROW?

Sewer stub, Gas, Storm, and roof drain all cross at this location. Confirm seperation

we believe the storm should be ALL part of one plans set if possible for construction. explain phasing (what if 7-11 is not constructed)

REFER TO ARK DWG # D-1404-SDP

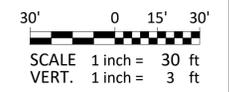


Sewer stub, Gas, Storm, and roof drain all cross at this location. Confirm seperation

**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.

**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 # \_\_\_\_\_  
 Authorization to Construct \_\_\_\_\_  
 Date \_\_\_\_\_

**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 # \_\_\_\_\_  
 Authorization to Construct \_\_\_\_\_  
 Date \_\_\_\_\_



**ACCESS DRIVE - PLAN-PROFILE**

**WALLBROOK ROADWAY IMPROVEMENTS**  
 VIRGINIA WATER DRIVE EXTENSION (SERVING LOTS 9-11)  
 Town of Rolesville Project No. CID 23-  
 US 401 Business / S. Main Street & Virginia Water Drive  
 Wake Forest Township, Town of Rolesville, Wake County, North Carolina

- Final Drawing -  
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REVISIONS:  
 # DATE DESCRIPTION

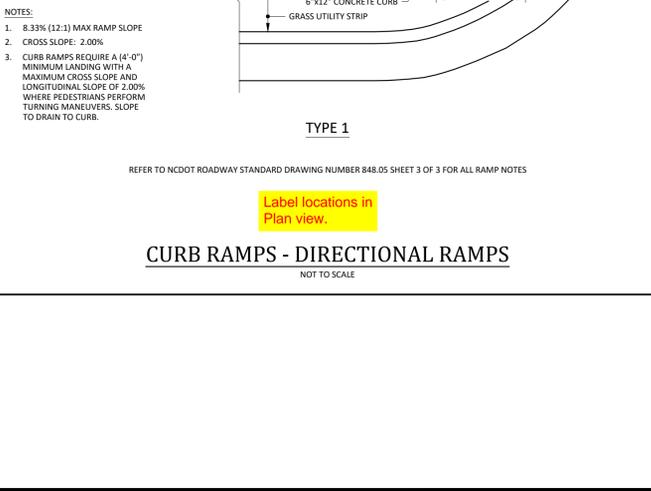
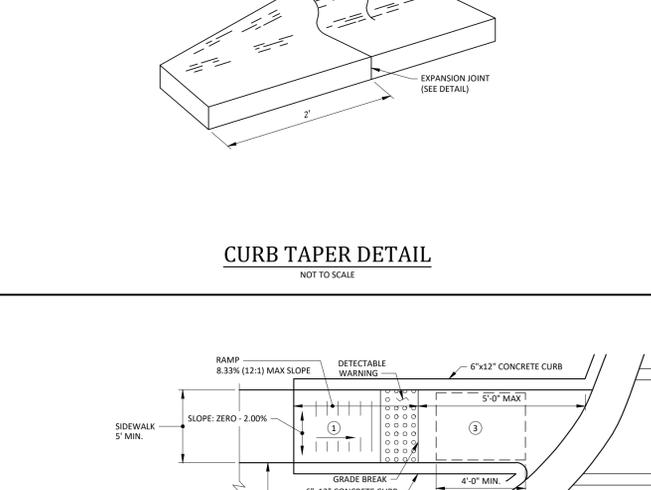
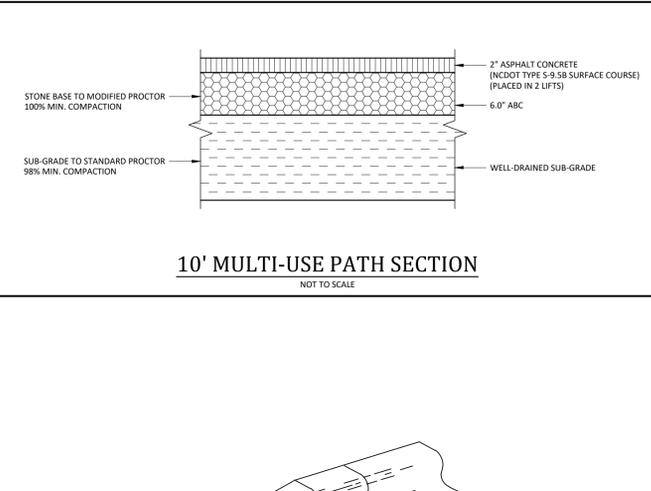
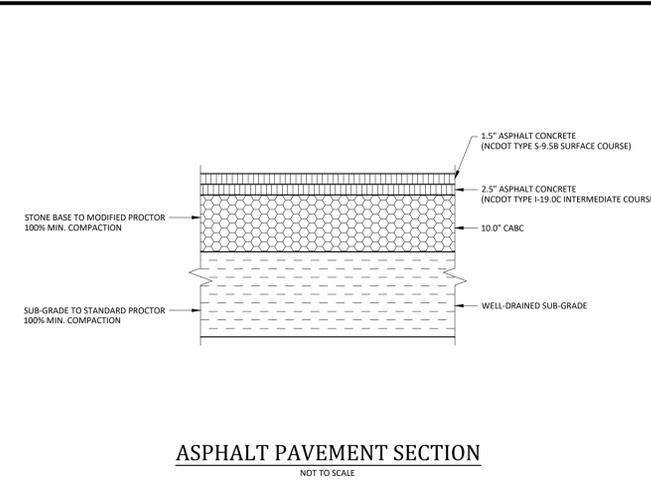
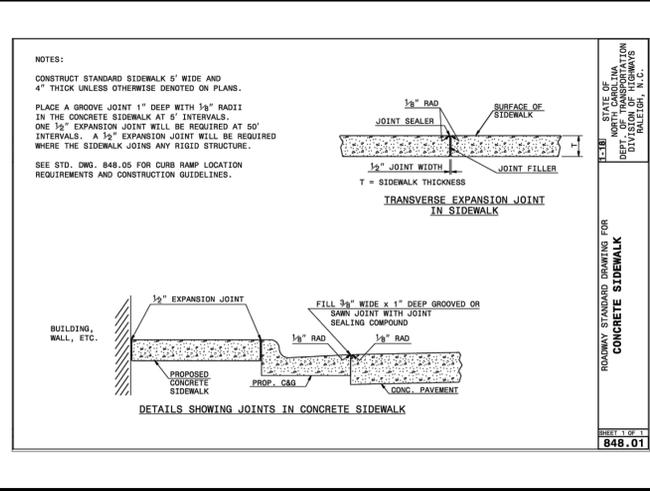
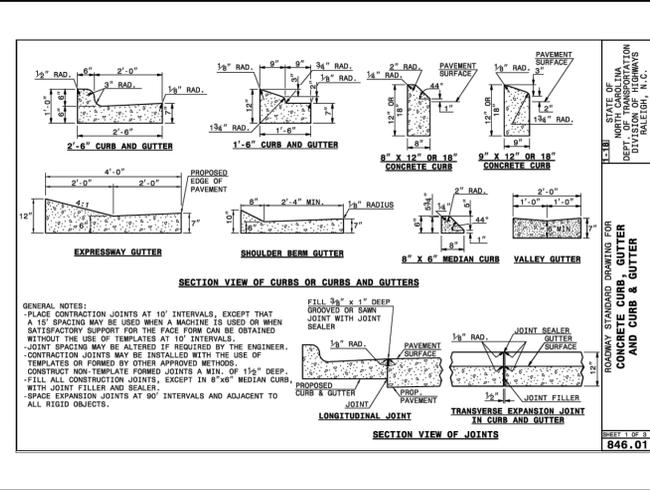
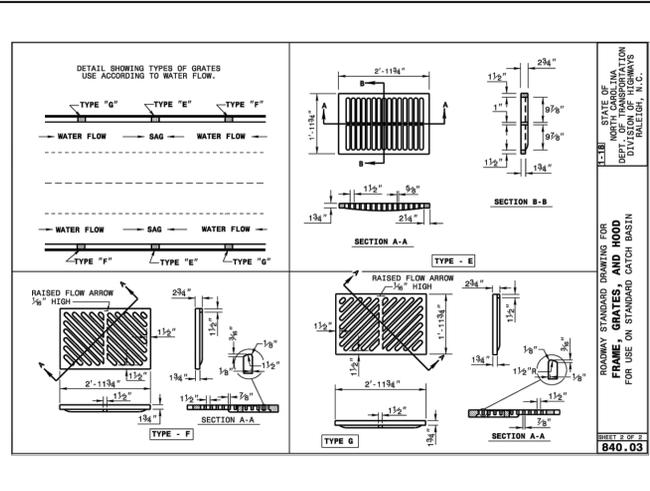
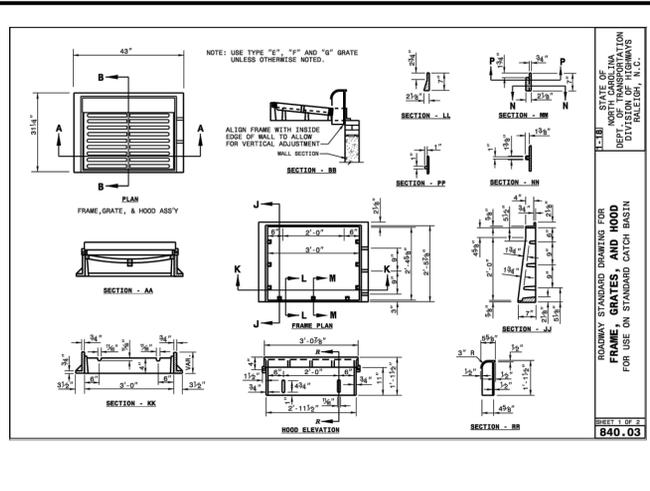
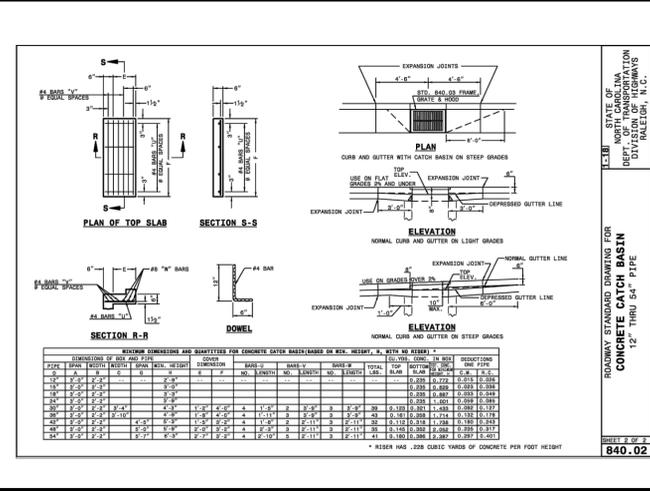
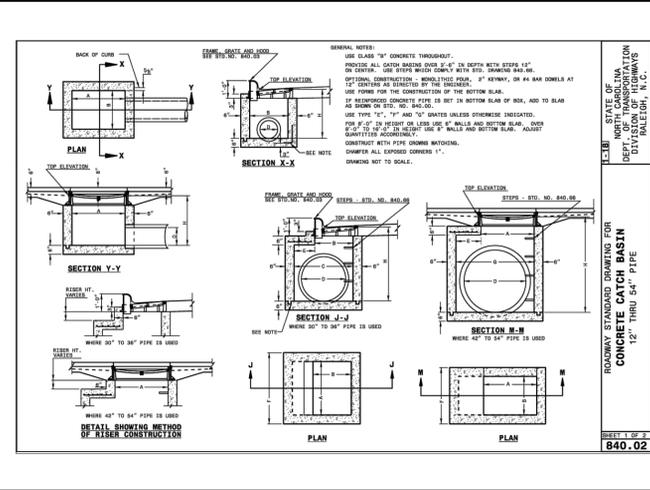
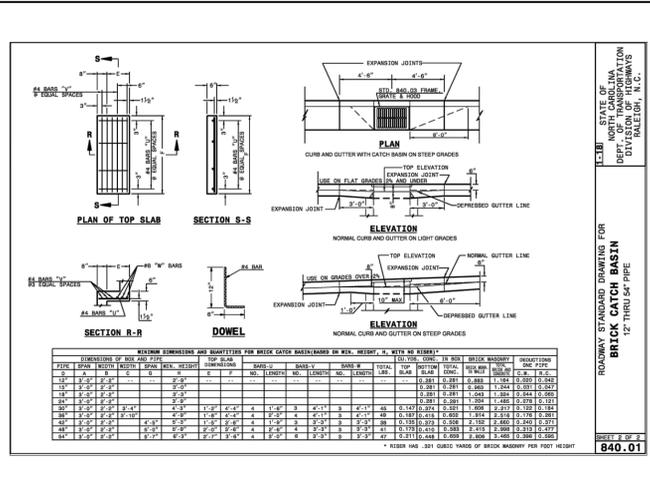
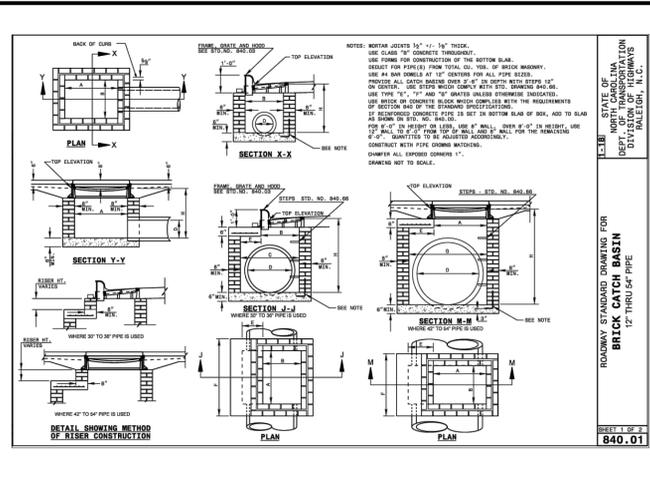
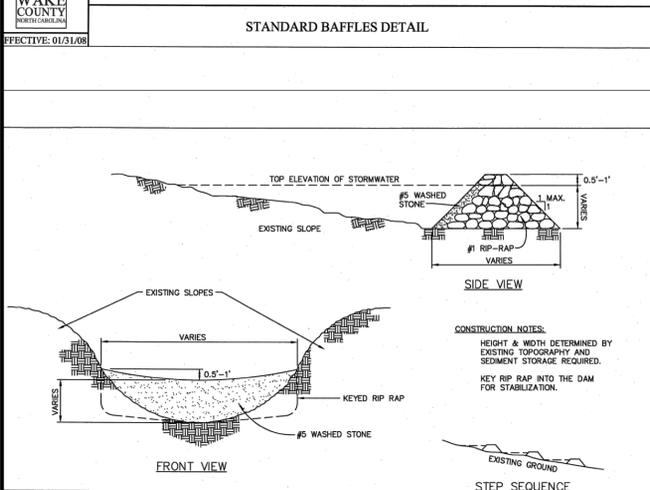
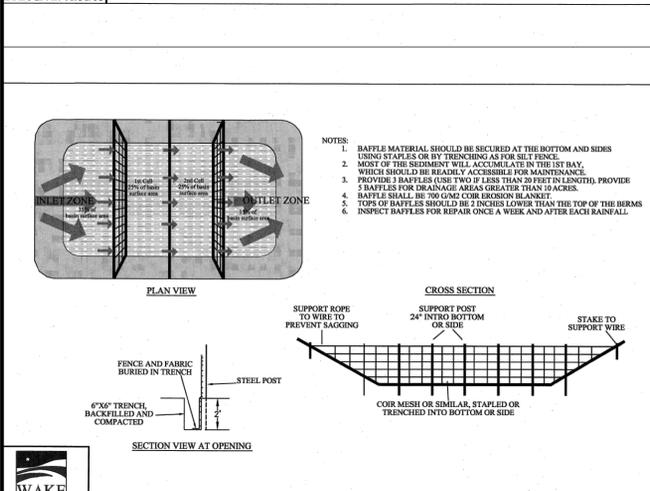
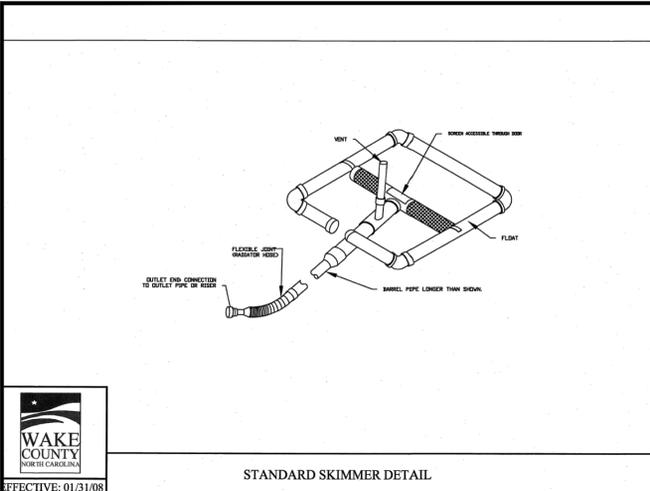
1 11 MAY 23 ISSUED FOR PERMIT REVIEW

**CROSLAND SOUTHEAST**

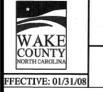
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 Drawn By: DLT/TN  
 Checked By: TN  
 Project Number: 22049  
 Drawing Number: D-1404-CID

**C3.1**  
 Date: May 2023





EFFECTIVE: 01/31/08



EFFECTIVE: 01/31/08



EFFECTIVE: 01/31/08

**- Final Drawing -**  
Issued for Permit  
Review Purposes Only

REVISIONS:

#	DATE	DESCRIPTION
1	11-MAY-23	ISSUED FOR PERMIT REVIEW



**WALLBROOK ROADWAY IMPROVEMENTS**  
VIRGINIA WATER DRIVE EXTENSION (SERVING LOTS 9-11)

Town of Rolesville Project No. CID 23-  
US 401 Business / S. Main Street & Virginia Water Drive  
Wake Forest Township, Town of Rolesville, Wake County, North Carolina

NC License: P-1129

**ARK CONSULTING GROUP PLLC**  
ENGINEERS & PLANNERS

2755-B Charles Blvd  
CUC NC 27558  
(252) 558-8888  
www.arkconsultinggroup.com

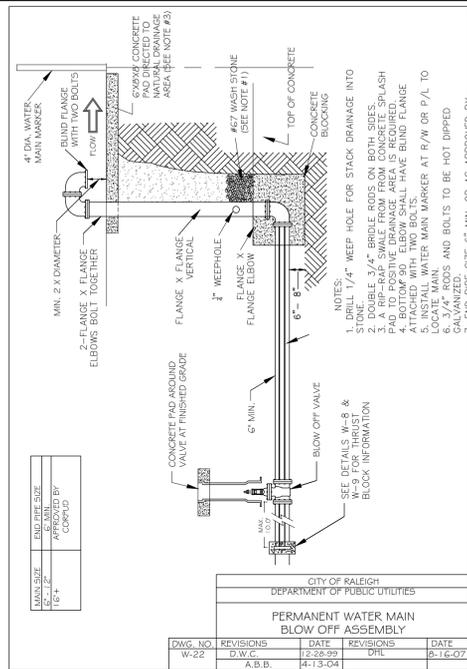
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01/2023

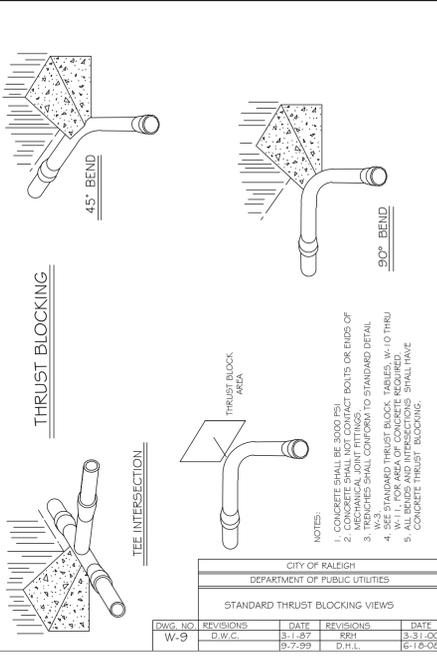
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**C4.0**

Date: May 2023



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W-22	D.W.C.	12-22-99	DHL	6-16-07
	A.B.B.	4-13-04		

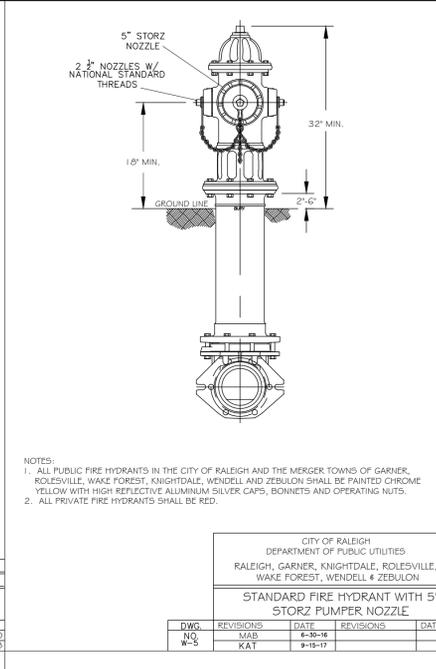


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	D.H.L.	9-7-99	D.H.L.	6-18-08

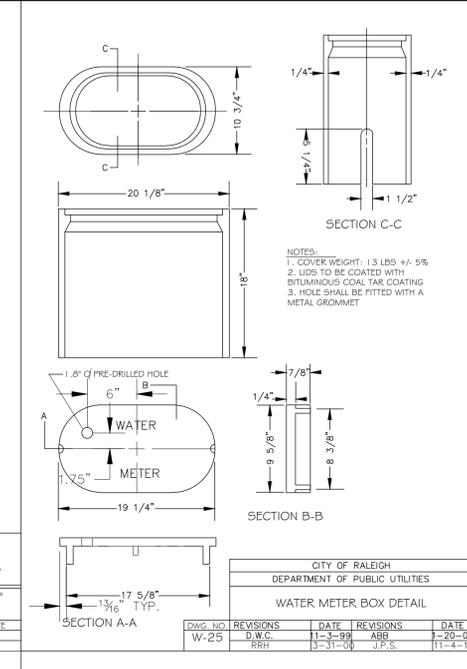
REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS  
BASED ON TEST PRESSURE OF 200 P.S.I.

SIZE AND DEGREE OF BEND	STATE THRUST IN POUNDS	DEPTH IN FEET	NO. OF RODS REQUIRED	NO. OF RODS REQUIRED
6"			2	2
11 1/4"	1,108	1	1	1
22 1/2"	2,207	1	2	2
45°	4,328	2	3	3
90°	7,996	2	4	4
PLUG	5,655	2	3	3
8"			2	2
11 1/4"	1,970	1	1	1
22 1/2"	3,922	1	2	2
45°	7,694	2	3	3
90°	14,215	4	5	5
PLUG	10,053	3	4	4
12"			3	3
11 1/4"	4,433	2	3	3
22 1/2"	8,826	3	5	5
45°	17,312	5	9	9
90°	31,983	8	16	16
PLUG	22,619	6	12	12
16"			4	4
11 1/4"	7,881	2	4	4
22 1/2"	15,691	4	8	8
45°	30,779	8	16	16
90°	56,861	15	29	29
PLUG	40,213	10	21	21

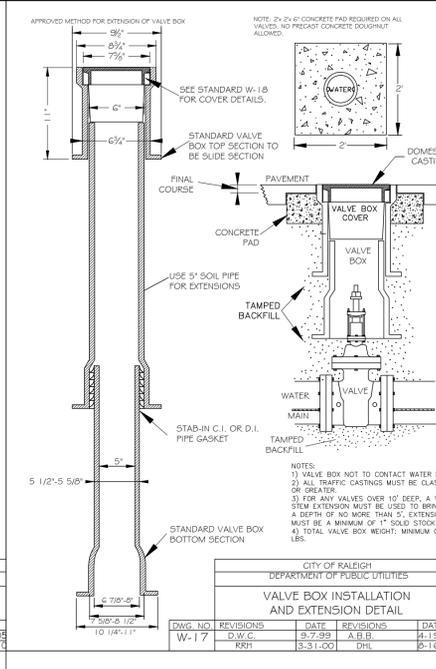
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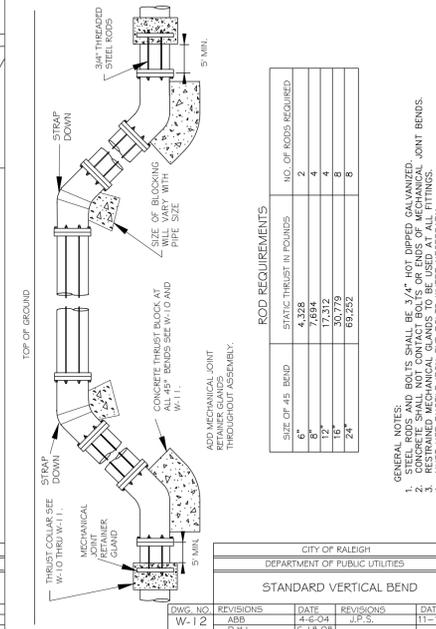
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	K.A.T.	9-18-17		



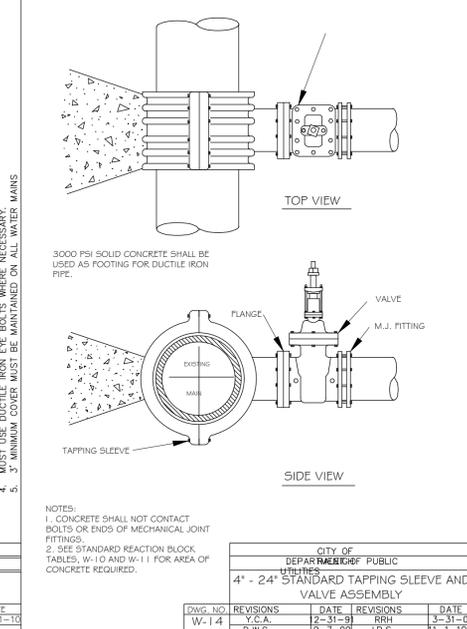
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	RRH	3-31-00	J.P.S.	11-4-10



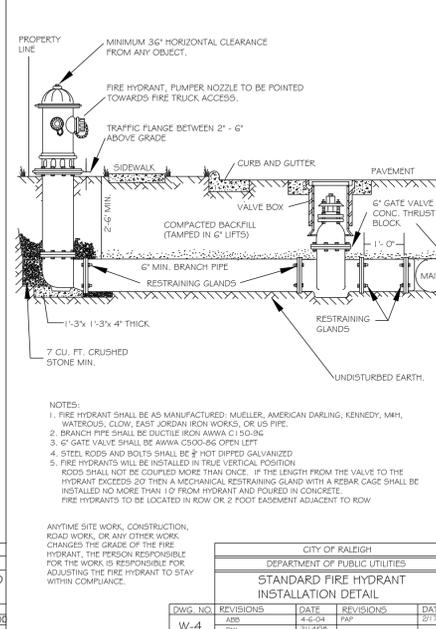
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	RRH	3-31-00	DHL	6-18-07



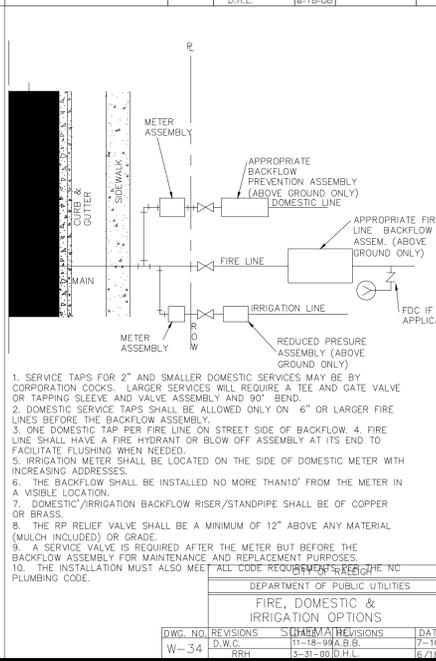
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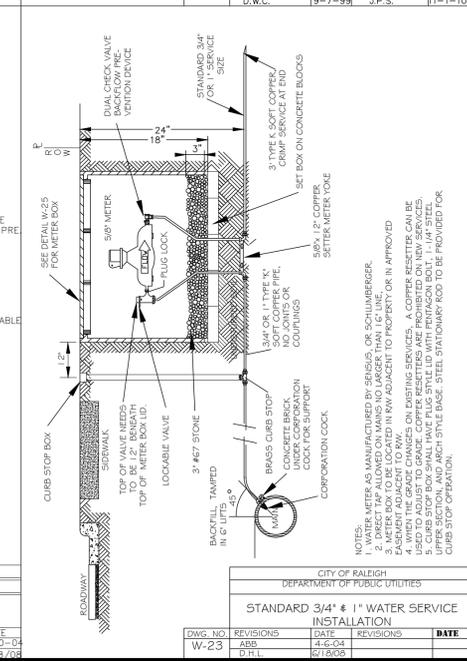
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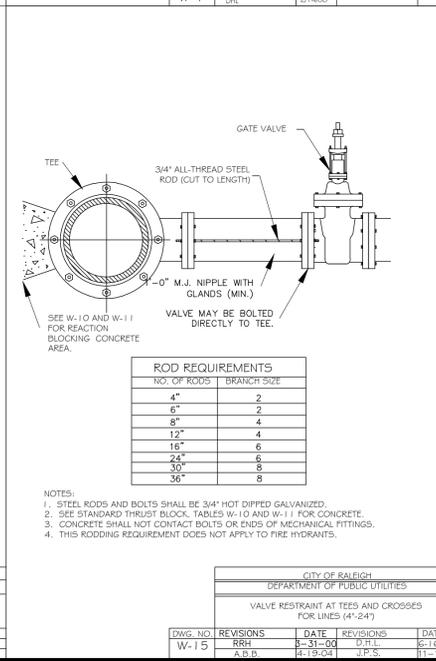
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	DHL	2/1/08		



DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-34	D.W.C.	11-18-99	A.B.B.	7-10-04
	RRH	1-31-00	D.H.L.	6-18-08



DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-23	ABB	4-6-04		
	D.H.L.	6/1/05		



DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-15	RRH	8-31-00	D.H.L.	6-18-08
	A.B.B.	4-13-04	J.P.S.	11-1-10

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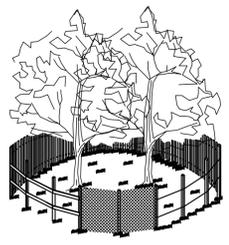
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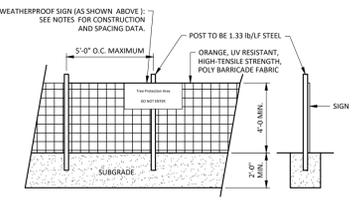
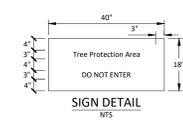
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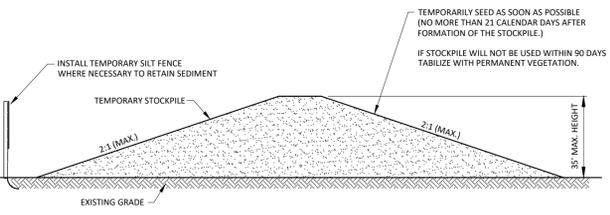
Date: May 2023



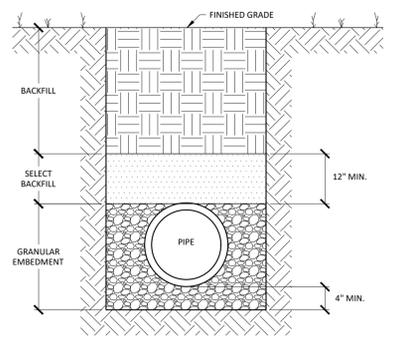
- NOTES:
1. SIGNS ARE TO BE PLACED NO GREATER THAN 200' ON CENTER, PLACE SIGN AT EACH END OF LINEAR TREE PROTECTION AREA AND 200' ON CENTER THEREAFTER.
  2. FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
  3. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
  4. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
  5. LETTERS ARE TO BE 3" HIGH MINIMUM, CLEAR, LEGIBLE, AND SPACED AS DETAILED.
  6. INSTALL TREE PROTECTION FENCE & SIGNAGE PRIOR TO CALLING FOR THE INITIAL ON-SITE INSPECTION BY AN ACCIDENT INSPECTOR. MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT. ADDITIONAL SIGNS MAY BE REQUIRED BY NOTICES BASED ON ACTUAL FIELD CONDITIONS.



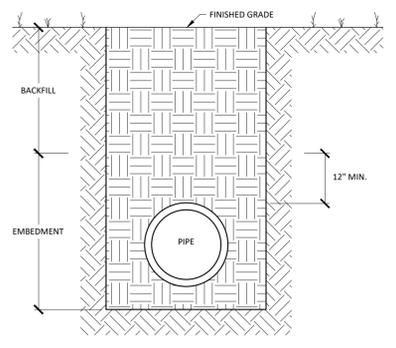
**TREE PROTECTION FENCE**  
NOT TO SCALE



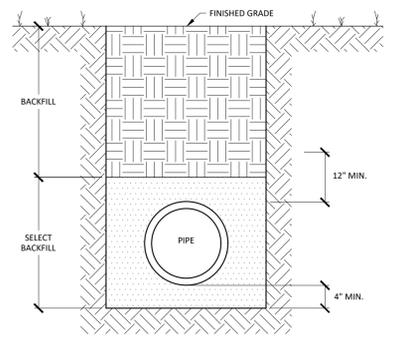
**TEMPORARY STOCKPILE**  
NOT TO SCALE



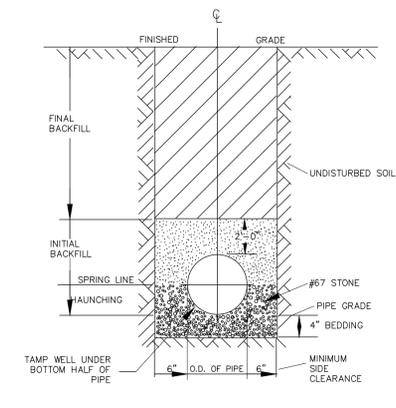
**TRENCH SECTION DETAIL FOR THE INSTALLATION OF PVC GRAVITY STORM DRAIN & SANITARY SEWER PIPING**  
NOT TO SCALE



**TRENCH SECTION FOR THE INSTALLATION OF REINFORCED CONCRETE PIPE**  
NOT TO SCALE



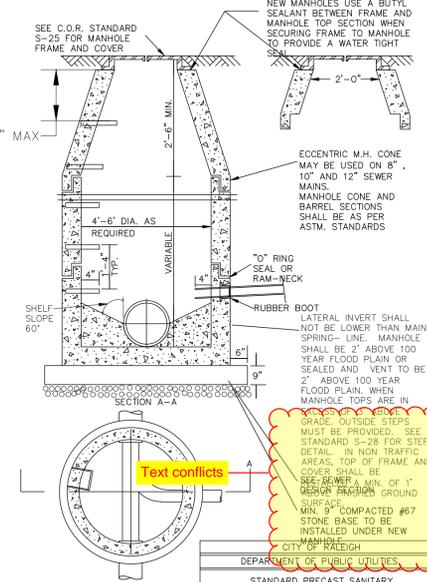
**TRENCH SECTION DETAIL FOR THE INSTALLATION OF PVC PRESSURE PIPE**  
NOT TO SCALE



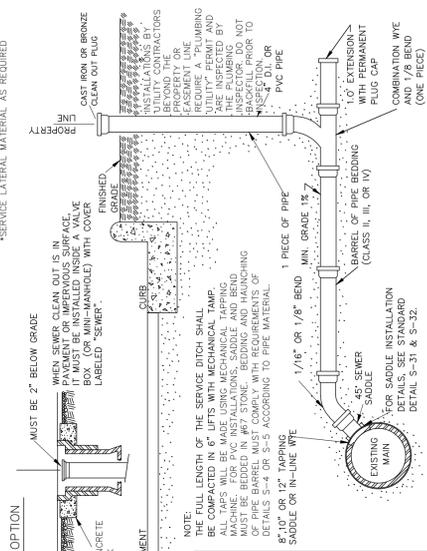
**TYPICAL TRENCH BOTTOM DIMENSIONS FOR SDR 35 PVC GRAVITY PIPE**

- 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.

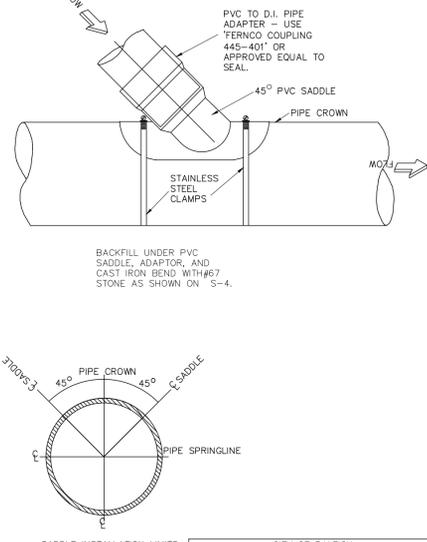
CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	DATE
S-5	TO NOTES	3-1-87	D.W.C.	9-3-99	
		7-2-82	RRH	3-30-00	



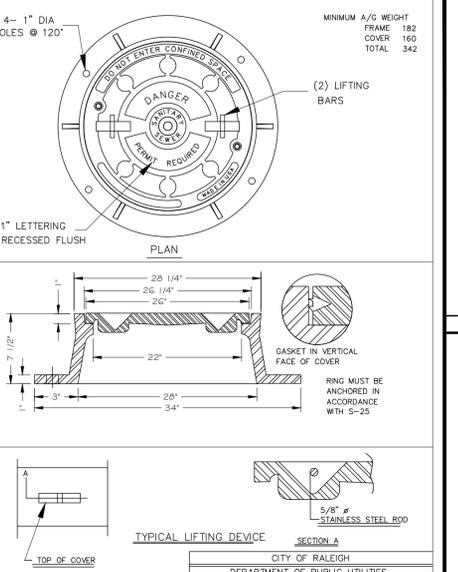
CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD PRECAST SANITARY SEWER MANHOLE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	DATE
S-20		12-31-92	ABB	2-21-95	
		3-30-99	D.H.L.	6-18-08	



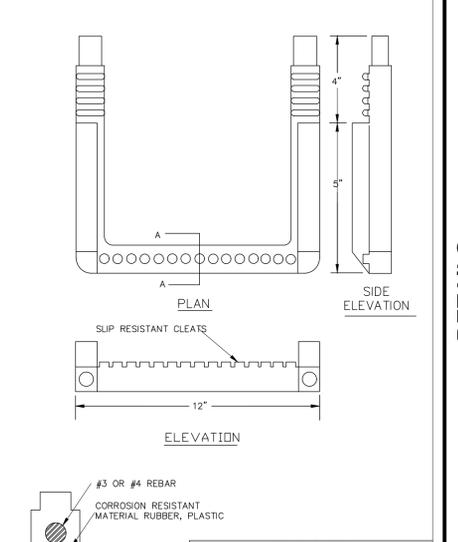
CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
TYPICAL SANITARY SEWER LATERAL CONNECTION					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	DATE
S-30	Y.C.A.	6-9-92	A.B.B.	4-8-05	
	RRH	3-30-00	D.H.L.	6-18-08	



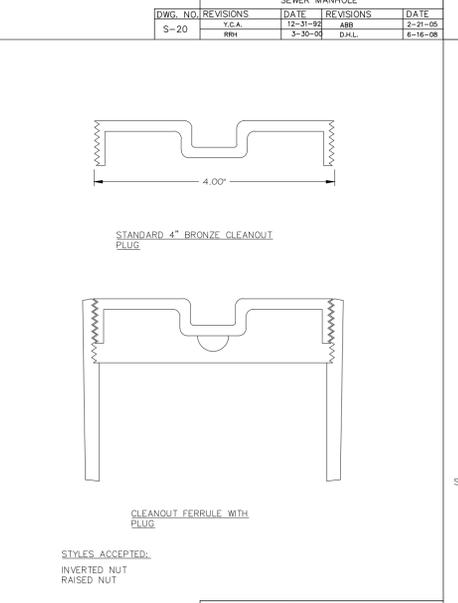
CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
LATERAL SADDLE INSTALLATION DETAIL FOR PVC PIPE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	DATE
S-31	RRH	3-1-87			
		3-30-00			



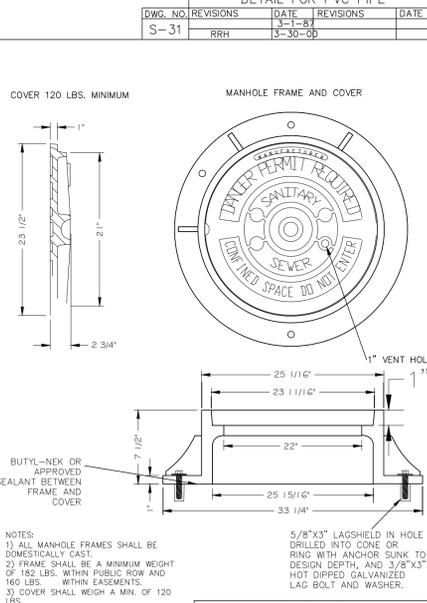
CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD SLIP RESISTANT MANHOLE STEP DETAIL					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	DATE
S-28	RRH	3-30-00			



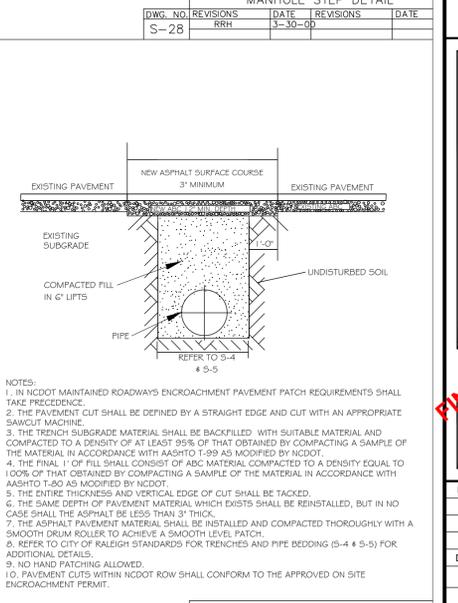
CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD ASPHALT PAVEMENT PATCH DETAIL					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	DATE
S-3	D.W.C.	1-1-99	A.B.B.	4-19-04	
	RRH	3-30-00	J.F.S.	1-26-10	



CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
4" CLEANOUT PLUG					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	DATE
S-34	D.W.C.	3-1-87	RRH	3-30-00	



CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD MANHOLE COVER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	DATE
S-25	3-1-87	3-1-87	A.B.B.	2-9-95	
	RRH	3-30-00	D.H.L.	6-18-08	



CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD ASPHALT PAVEMENT PATCH DETAIL					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	DATE
S-3	D.W.C.	1-1-99	A.B.B.	4-19-04	
	RRH	3-30-00	J.F.S.	1-26-10	

**- Final Drawing -**  
Issued for Permit  
Review Purposes Only

**CROSLAND SOUTHEAST**

**WALLBROOK ROADWAY IMPROVEMENTS**  
VIRGINIA WATER DRIVE EXTENSION (SERVING LOTS 9-11)  
Town of Rolesville Project No. CID 23-  
US 401 Business / S. Main Street & Virginia Water Drive  
Wake Forest Township, Town of Rolesville, Wake County, North Carolina

**ARK CONSULTING GROUP PLLC**  
ENGINEERS & PLANNERS  
2755-B Chatham Blvd  
Raleigh, NC 27608  
(919) 876-8888  
www.arkconsultinggroup.com

**C4.2**  
Date: May 2023

**GENERAL NOTES:**

1. THIS ALTA/NSPS LAND TITLE SURVEY WAS PREPARED FOR THE BENEFIT OF WALLBROOK LANDCO, LLC, ITS SUCCESSORS AND/OR ASSIGNS AS THEIR INTERESTS MAY APPEAR, AND INVESTORS TITLE INSURANCE COMPANY.
2. THE PROPERTY AS SHOWN HEREON IS BASED ON A FIELD-RUN BOUNDARY SURVEY WITH A RAW CLOSURE OF 1:35,900.
3. THE IMPROVEMENTS SHOWN HEREON ARE BASED ON A FIELD-RUN PLANIMETRIC SURVEY PERFORMED BY JOHNSON, MIRMIRAN & THOMPSON FROM MARCH 16 THROUGH MARCH 19, 2020 AND REFLECTS SITE CONDITIONS AS OF THAT DATE.
4. ELEVATIONS ARE BASED ON NAVD88 DATUM.
5. THE SURVEY IS REFERENCED TO THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM (NCSPCS), NORTH AMERICAN DATUM, 1983, 2001 ADJUSTMENT, NAD83(2001).
6. THE USE OF THE WORD CERTIFY OR CERTIFICATION CONSTITUTES AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THOSE FACTS OR FINDINGS WHICH ARE THE SUBJECT OF THE UNDERSIGNED PROFESSIONAL'S KNOWLEDGE, INFORMATION AND BELIEF, AND IN ACCORDANCE WITH THE COMMONLY ACCEPTED PROCEDURE CONSISTENT WITH THE APPLICABLE STANDARDS OF PRACTICE AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE EITHER EXPRESSED OR IMPLIED.
7. THE SUBJECT PROPERTY IS LOCATED IN FLOOD ZONE X, AREA OF MINIMAL FLOODING, AS SHOWN ON NATIONAL FLOOD INSURANCE RATE MAP (FIRM), WAKE COUNTY, NORTH CAROLINA, PANEL 1758, MAP NO. 3720175800J, EFFECTIVE DATE: MAY 2, 2006.
8. AT THE TIME OF THE SURVEY, THERE WERE NO PARKING SPACES.
9. AT THE TIME OF THE SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF THE SITE BEING USED AS A SOLID WASTE DUMP, SUMP OR LANDFILL.
10. AT THE TIME OF THE SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF A CEMETERY.
11. AT THE TIME OF THE SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF BUILDING CONSTRUCTION OR BUILDING ADDITIONS.
12. CURRENT ZONING: I-SUD (INDUSTRIAL SPECIAL USE DISTRICT)

**SETBACK REQUIREMENTS:**

FRONT: 30'  
SIDE: 15'  
CORNER: 25'  
REAR: 35'

(ZONING INFORMATION BASED ON INFORMATION AS SUPPLIED BY CURRENT COUNTY ZONING DEPARTMENT, NO ZONING REPORT OR LETTER WAS PROVIDED TO SURVEYOR AT TIME OF SURVEY.)

**RECORD LEGAL DESCRIPTION**

PER INVESTORS TITLE INSURANCE COMPANY, TITLE COMMITMENT NO. 202000244CA2, WITH AN EFFECTIVE DATE OF MARCH 6, 2020 AT 5:00 P.M.:

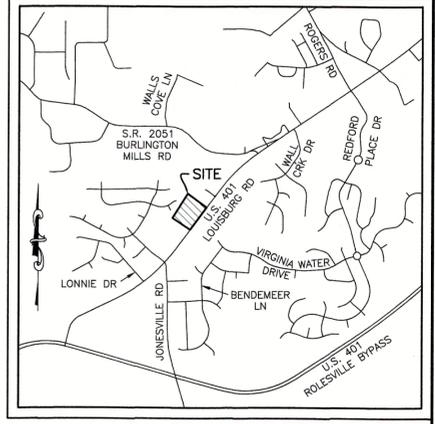
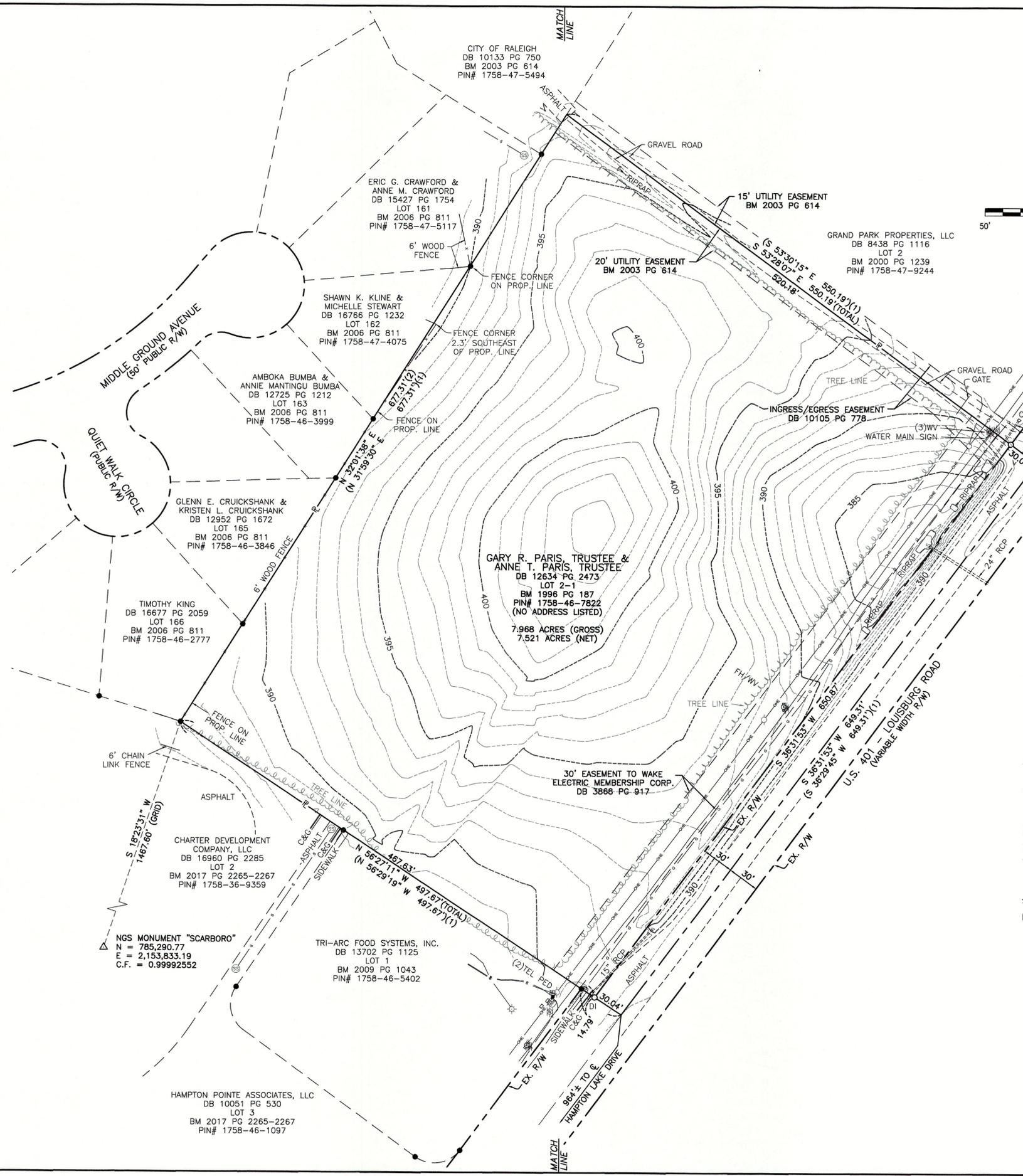
IN THE STATE OF NC, COUNTY OF WAKE,

BEING ALL OF LOT 2-1 OF THAT PLAT ENTITLED "PRELIMINARY SUBDIVISION PLAT AND RECOMBINATION SURVEY FOR TOMMY TWITY," A COPY OF WHICH IS RECORDED IN BOOK OF MAPS 1996, PAGE 187, WAKE COUNTY REGISTRY.

**SCHEDULE B, PART II EXCEPTIONS:**

PER INVESTORS TITLE INSURANCE COMPANY, TITLE COMMITMENT NO. 202000244CA2, WITH AN EFFECTIVE DATE OF MARCH 6, 2020 AT 5:00 P.M.:

1. (ITEM 3) EASEMENT(S) AND/OR RIGHT(S) OF WAY TO CITY OF RALEIGH RECORDED IN BOOK 10105 AT PAGE 778. [PLOTTED HEREON]
2. (ITEM 4) EASEMENT(S) AND/OR RIGHT(S) OF WAY TO WAKE ELECTRIC MEMBERSHIP CORPORATION RECORDED IN BOOK 3868 AT PAGE 917. [PLOTTED HEREON]
3. (ITEM 5) TITLE TO THAT PORTION OF THE LAND WITHIN THE RIGHT-OF-WAY OF U.S. HIGHWAY 401 (LOUISBURG ROAD). [PLOTTED HEREON]
4. (ITEM 6) MATTERS SHOWN ON RECORDED BOOK OF MAPS 1996 AT PAGE 187 SHOWS THE FOLLOWING LOCATED ON THE LAND:
  - (a) OVERHEAD LINE [PLOTTED HEREON]
  - (b) POWER POLE [PLOTTED HEREON]
  - (c) RIGHT OF WAY FOR U.S. HIGHWAY 401 (LOUISBURG ROAD) [PLOTTED HEREON]



- LEGEND**
- (1) = RECORD DATA PER BM 1996 PG 187
  - (2) = RECORD DATA PER BM 2006 PG 811
  - = FOUND IRON PIPE
  - = SET IRON PIN
  - △ = NGS MONUMENT
  - R = PROPERTY LINE
  - R/W = RIGHT OF WAY
- CB = CATCH BASIN
  - C&G = CURB AND GUTTER
  - C = CENTERLINE
  - DI = DROP INLET
  - FH = FIRE HYDRANT
  - LP = LIGHT POLE
  - PP = POWER POLE
  - RCP = REINFORCED CONCRETE PIPE
  - = SIGN
  - = SANITARY SEWER MANHOLE
  - = TELEPHONE PEDESTAL
  - WM = WATER METER
  - WV = WATER VALVE
- = ELECTRIC LINE
  - = GAS LINE
  - = OVERHEAD ELECTRIC LINE
  - = SANITARY SEWER LINE
  - = TELEPHONE LINE
  - = WATER LINE

**SURVEYOR'S CERTIFICATION:**

TO WALLBROOK LANDCO, LLC, ITS SUCCESSORS AND/OR ASSIGNS AS THEIR INTERESTS MAY APPEAR, AND INVESTORS TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 6A, 7A, 7B1, 8, 9, 11, 13, 16 AND 17 OF TABLE "A" THEREOF. THE FIELDWORK WAS COMPLETED ON MARCH 19, 2020.

*William T. Robbins, II*  
WILLIAM T. ROBBINS, II  
P.L.S. #L-4192  
DATE: 3/28/2020

**JMT JOHNSON, MIRMIRAN & THOMPSON**  
Engineering A Brighter Future®  
9201 Arboretum Parkway Suite 310 Richmond, Virginia 23236  
PHONE: (804)-323-9900 FAX: (804)-323-0596  
EMAIL: jmtva@jmt-engineering.com

REVISION #	DATE	REASON FOR REVISION



**ALTA/NSPS LAND TITLE SURVEY**  
PREPARED FOR  
WALLBROOK LANDCO, LLC  
WAKE FOREST TOWNSHIP  
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

DRAWN BY: JSZ	PROJECT#:
CHECKED BY: WTR	CONTRACT#:
DATE: 03/28/2020	SCALE: 1"=50'

JMT#: 20-00915-001  
SHEET 1 OF 1