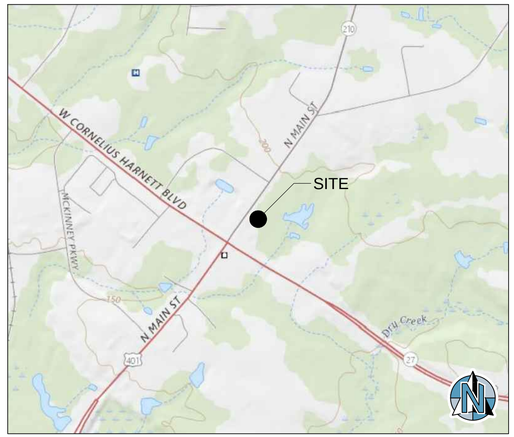
SITE DEVELOPMENT PLANS FOR:

(ADDRESS NOT ASSIGNED) NORTH MAIN ST
LILLINGTON, HARNETT COUNTY, NC
NEILLS CREEK TOWNSHIP, PARCEL #: 0650-97-6978.000
ZONED: GB

SHEET INDEX



VICINITY MAP
NOT TO SCALE

SITE DISTURBED AREA = 1.66 AC.

THESE PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE TOWN OF LILLINGTON.

PLANNING	DATE
PUBLIC WORKS	DATE
DRAINAGE & EROSION CONTROL	DATE
UTILITIES	DATE

TOWN OF LILLINGTON NOTES:

1. ALL PUBLIC FACILITIES, INCLUDING UTILITIES, SIDEWALKS, AND HANDICAP RAMPS ARE TO BE CONSTRUCTED ON ALL STREETS AS SPECIFIED BY TOWN OR NCDOT STANDARDS. THESE FACILITIES HAVE BEEN APPROVED BY THE TOWN OF LILLINGTON AND SHALL BE SO INSTALLED UNLESS A CHANGE IS APPROVED BY THE TOWN OF LILLINGTON.
2. OWNER HEREBY CERTIFIES AND AGREES TO TAKE SUCH ACTION AS MAY BE REQUIRED BY THE TOWN OF LILLINGTON TO CORRECT ANY ERRORS, OMISSIONS OR NON-COMPLIANCE WITH TOWN STANDARDS AND/OR CONDITIONS DESCRIBED IN THIS CONSTRUCTION PLAN, INCLUDING RE-SUBMISSION OR RE-EXECUTION OF THIS CONSTRUCTION PLAN WITH THE APPROPRIATE CORRECTIONS AND/OR REVISIONS.

PROJECT DIRECTORY

OWNER
JOVIAN HOLDINGS, LLC
103 TT LANIER STREET
BUIES CREEK, NC 27506

CONTACT: JOAN LANIER

DEVELOPER
CSC PROPERTIES, LLC
5795 ULMERTON RD
CLEARWATER, FL 33760
(727) 446-3444
CONTACT: JAKE SEATON

CIVIL ENGINEER
FORESITE GROUP, LLC
2101 MAGNOLIA AVE
BIRMINGHAM, AL 35205
(770) 368-1399
CONTACT: BRETT BASQUIN

ARCHITECT
OLIVERI ARCHITECTS
32707 US HWY 19
PALM HARBOR, FL 34684
(727) 781-7525
CONTACT: DAVID GREENE

SURVEYOR
STANCIL & ASSOCIATES PROFESSIONAL LAND SURVEYOR
98 EAST DEPOT ST, P.O. BOX 730
ANGIER, NC 27501
(919) 639-2133
CONTACT: PATRICK NEWTOWN

GEOTECHNICAL ENGINEER
TERRACON CONSULTANTS, INC
2401 BRENTWOOD RD, SUITE 107
RALEIGH, NC 27604
(919) 873-2211
CONTACT: SARAH RUSSEK, E.I.T.

LOCAL ISSUING AUTHORITY
PLANNING AND INSPECTIONS
102 EAST FRONT ST
LILLINGTON, NC 27546
(910) 893-0311
CONTACT: JOSHUA PERRY

DEPARTMENT OF TRANSPORTATION
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
600 SOUTHERN AVE
FAYETTEVILLE, NC 28302
(910) 364-0601
CONTACT: EARL LOCKLEAR

UTILITY PROVIDERS

WATER SERVICE PROVIDER
HARNETT COUNTY WATER
312 W DUNCAN ST
LILLINGTON, NC 27546
(910) 814-3275
CONTACT: SHANE CUMMINGS

SANITARY SEWER SERVICE PROVIDER
TOWN OF LILINGTON
102 E FRONT ST
LILLINGTON, NC 27546
(910) 893-2654
CONTACT: ASHLEY WIMBERLY

ELECTRICAL SERVICE PROVIDER
DUKE ENERGY
411 FAYETTEVILLE ST
RALEIGH, NC 27601
(910) 308-3269
CONTACT: CHRIS ADDISON

GAS SERVICE PROVIDER
PIEDMONT NATURAL GAS
250 FIVE POINTS RD
DUDLEY, NC 28333
(919) 920-0257
CONTACT: MARCUS THOMPSON

TELEPHONE SERVICE PROVIDER
CENTURY LINK
902 E CUMBERLAND ST, #606
DUNN, NC 28334
(800) 526-3557
CONTACT: SERGIO HERNANDEZ

ANTICIPATED ACTIVITY SCHEDULE
BEGIN CONSTRUCTION: 03/01/2020
END CONSTRUCTION: 09/01/2020

	ACTIVITY	1.0 MTH	2.0 MTH	3.0 MTH	4.0 MTH	5.0 MTH	6.0 MTH
1	INSTALL SEDIMENT CONTROLS	■					
2	DEMOLITION	■	■				
3	CLEARING, GRUBBING, & GRADING	■	■	■			
4	GRASS TEMP.	■	■	■	■		
5	BUILDING CONSTRUCTION		■	■	■	■	
6	MAINTAIN EROSION CONTROL	■	■	■	■	■	■
7	PAVING			■	■		
8	FINAL LANDSCAPING						■
9	DISPOSITION OF TEMP. SEDIMENT CONTROLS						■

PREPARED BY:

FORESITE group
Foresite Group, LLC
2101 Magnolia Ave. South
Suite 100
Birmingham, AL 35205
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24 HR CONTACT:
BRETT BASQUIN
(770) 368-1399

ISSUED:
JANUARY 10, 2020
930.023

ENGINEER:

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CONTACT: JAKE SEATON

PROJECT:
NORTH MAIN ST
LILLINGTON, NC
NEILLS CREEK TOWNSHIP
PARCEL #:0650-97-6978.000.

SEAL:
DRAFT

REVISIONS	DATE

PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	AS SHOWN
TITLE:	COVER
SHEET NUMBER:	G-1
COMMENTS:	NOT RELEASED FOR CONSTRUCTION
JOB/FILE NUMBER:	930.023

GENERAL NOTES

A. DESIGN DATA PROVIDED IN ELECTRONIC FORMAT IS FOR INFORMATION PURPOSES ONLY AND SHOULD BE USED AT YOUR OWN RISK, AND IS PROVIDED WITHOUT REPRESENTATIONS AND WARRANTIES. ANY CONFLICT BETWEEN THE INFORMATION REFLECTED ON THE LATEST REVISION OF THE SEALED PLAN SHEETS AND THAT PROVIDED VIA ELECTRONIC FORMAT SHALL BE RESOLVED IN FAVOR OF THE SEALED PLAN SHEETS.
B. UTILITIES: THERE MAY BE ADDITIONAL EXISTING UTILITIES NOT SHOWN ON THESE PLANS. EXISTING UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY AND THE ENGINEER ASSUMES NO RESPONSIBILITY FOR LOCATIONS SHOWN. FIELD VERIFY THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF CONSTRUCTION. NOTIFY THE OWNER AND ENGINEER IF DISCREPANCIES ARE FOUND THAT WILL AFFECT THE CONSTRUCTION PROJECT. PROTECT ALL EXISTING UTILITIES.
C. TEMPORARY PROVISIONS: SEQUENCE THE WORK AND PROVIDE TEMPORARY MEASURES AS NEEDED TO MAINTAIN ACCESS TO THE SITE THROUGH ALL ENTRANCES AT ALL TIMES DURING CONSTRUCTION. TEMPORARY PROVISIONS MAY INCLUDE, BUT ARE NOT LIMITED TO: BARRICADES, FLASHING LIGHTS, FLAGMAN, TEMPORARY PAVEMENT, AND DIRECTIONAL SIGNAGE.
D. EQUIPMENT STORAGE: DO NOT PARK EQUIPMENT OR STORE MATERIALS IN STATE, COUNTY, OR CITY RIGHT-OF-WAY.
E. NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS IN THE FIELD AND THE SURVEY SHOWN ON THE PLANS BEFORE PROCEEDING WITH ANY NEW CONSTRUCTION.
F. OBTAIN ALL REQUIRED CONSTRUCTION RELATED PERMITS, INCLUDING DEMOLITION PERMIT, BEFORE STARTING WORK. RETAIN COPIES OF ALL PERMITS AT THE PROJECT SITE AT ALL TIMES.
G. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE APPROVAL OF ANY LAND DISTURBING ACTIVITIES WITHIN WETLAND AREAS. CONTACT THE APPROPRIATE REGULATORY AGENCY FOR APPROVAL OF ANY WETLAND AREA DISTURBANCE.
H. SIGNS (LOCATION, NUMBER, AND SIZE) ARE NOT APPROVED UNDER THE GENERAL DEVELOPMENT PERMIT. A SEPARATE PERMIT IS REQUIRED FOR ONSITE SIGNAGE.
I. NO CERTIFICATE OF OCCUPANCY WILL BE ISSUED UNTIL ALL SITE IMPROVEMENTS HAVE BEEN COMPLETED ON THE SITE.
J. COMPLY WITH ALL APPLICABLE STATE, FEDERAL, AND LOCAL BUILDING AND UTILITY INSTALLATION CODES. ALL MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS UNLESS DEPARTMENT OF TRANSPORTATION STANDARDS OR LOCAL MUNICIPAL STANDARDS ARE MORE STRINGENT.
K. DO NOT DEVIATE FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER OF RECORD.
L. WORK WITHIN D.O.T. RIGHT-OF-WAY:
   1. ALL PAVEMENT MARKINGS WITHIN D.O.T. RIGHT-OF-WAY SHALL BE THERMOPLASTIC AND IN ACCORDANCE WITH D.O.T. SPECIFICATIONS.
   2. RE-ESTABLISH ALL RIGHT-OF-WAY AREA, WHICH IS DAMAGED OR DISTURBED, TO ORIGINAL CONDITION OR BETTER.
   3. ALL WORK IN D.O.T. RIGHT-OF-WAY SHALL COMPLY WITH D.O.T. SPECIFICATIONS.
M. ARRANGE HIGH INTENSITY LIGHTING TO CONCEAL THE SOURCE OF LIGHT FROM PUBLIC VIEW AND PREVENT INTERFERENCE WITH TRAFFIC.
N. ENSURE CORRECT HORIZONTAL AND VERTICAL ALIGNMENT OF ALL TIES BETWEEN PROPOSED AND EXISTING PAVEMENTS, CURB AND GUTTER, SIDEWALKS, WALLS, AND UTILITIES BEFORE BEGINNING WORK. NOTIFY ENGINEER IF DISCREPANCIES EXIST.
O. CONTRACTOR SHALL DEFER TO LOCAL SPECIFICATIONS AND REQUIREMENTS IF THEY DIFFER FROM THOSE PRESENTED ON THIS SHEET. ENGINEER TO BE NOTIFIED OF MATERIAL USED IF CHANGES ARE MADE.

TRAFFIC CONTROL

A. IF DRAWINGS DO NOT INDICATE SITE SPECIFIC TRAFFIC CONTROL MEASURES, CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A TEMPORARY TRAFFIC CONTROL PLAN IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.
B. ALL TEMPORARY TRAFFIC CONTROL SIGNAGE AND MARKINGS SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND MAINTAINED DURING CONSTRUCTION IN ACCORDANCE WITH THE MUTCD, LATEST EDITION.
C. CONTACT PROPERTY OWNERS TO BE AFFECTED BY CONSTRUCTION AND COORDINATE TEMPORARY DRIVEWAY CLOSURES AND SEQUENCING. MAINTAIN ACCESS FOR ALL PROPERTY OWNERS DURING CONSTRUCTION.
D. CONTROL DUST AS NECESSARY TO PREVENT INTERFERENCE WITH TRAFFIC.
E. INSPECT TRAFFIC CONTROL DEVICES ON A DAILY BASIS TO ENSURE PLACEMENT OF BARRICADES AND FUNCTION OF LIGHTS IS MAINTAINED THROUGHOUT CONSTRUCTION.
F. COORDINATE ALL LANE CLOSURES WITH THE LOCAL JURISDICTION HAVING AUTHORITY.

STRUCTURE & SITE DEMOLITION

A. VERIFY THAT UTILITIES HAVE BEEN DISCONNECTED AND CAPPED BEFORE STARTING DEMOLITION OPERATIONS.
B. VERIFY THAT HAZARDOUS MATERIALS HAVE BEEN REMEDIATED BEFORE PROCEEDING WITH BUILDING DEMOLITION OPERATIONS.
C. ENVIRONMENTAL & GEOTECHNICAL: REVIEW ALL PROJECT ENVIRONMENTAL AND GEOTECHNICAL REPORTS AN BECOME FAMILIAR WITH ALL ISSUES BEFORE DEMOLITION.
D. EXISTING UTILITIES: LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP OFF INDICATED UTILITIES SERVING BUILDINGS AND STRUCTURES TO BE DEMOLISHED.
   1. ARRANGE TO SHUT OFF INDICATED UTILITIES WITH UTILITY COMPANIES.
   2. IF REMOVAL, RELOCATION, OR ABANDONMENT OF UTILITY SERVICES WILL AFFECT ADJACENT OCCUPIED BUILDINGS, THEN PROVIDE TEMPORARY UTILITIES THAT BYPASS BUILDINGS AND STRUCTURES TO BE DEMOLISHED AND THAT MAINTAIN CONTINUITY OF SERVICE TO OTHER BUILDINGS AND STRUCTURES.
   3. DO NOT COMMENCE DEMOLITION OPERATIONS UNTIL TEMPORARY EROSION AND SEDIMENT CONTROL AND PLANT-PROTECTION MEASURES ARE IN PLACE.
   4. OBTAIN THE DEMOLITION PERMIT FROM THE LOCAL AUTHORITY PRIOR TO STARTING DEMOLITION ACTIVITIES.
   5. EXISTING FACILITIES: PROTECT ADJACENT WALKWAYS, LOADING DOCKS, BUILDING ENTRIES, AND OTHER BUILDING FACILITIES DURING DEMOLITION OPERATIONS. MAINTAIN EXITS FROM EXISTING BUILDINGS. PROMPTLY REPAIR ANY FACILITIES DAMAGED BY CONSTRUCTION OPERATIONS TO OWNER'S SATISFACTION AT NO ADDITIONAL COST TO THE OWNER.
   6. EXISTING UTILITIES: MAINTAIN UTILITY SERVICES TO REMAIN AND PROTECT FROM DAMAGE DURING DEMOLITION OPERATIONS.
   7. TEMPORARY PROTECTION: ERECT TEMPORARY PROTECTION, SUCH AS WALKS, FENCES, RAILINGS, CANOPIES, AND COVERED PASSAGEWAYS, WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION AND AS INDICATED.
   8. REMOVE TEMPORARY BARRIERS AND PROTECTIONS WHERE HAZARDS NO LONGER EXIST. WHERE OPEN EXCAVATIONS OR OTHER HAZARDOUS CONDITIONS REMAIN, LEAVE TEMPORARY BARRIERS AND PROTECTIONS IN PLACE.
   9. REMOVE DEMOLITION WASTE MATERIALS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN EPA-APPROVED LANDFILL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION
   10. DO NOT BURN DEMOLISHED MATERIALS UNLESS SPECIAL WRITTEN PERMISSION IS OBTAINED FROM OWNER AND ENGINEER.
   11. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY BUILDING DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE BUILDING DEMOLITION OPERATIONS BEGAN

SITE CLEARING

1.) PROJECT CONDITIONS
A. TRAFFIC: MINIMIZE INTERFERENCE WITH ADJOINING ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES DURING SITE-CLEARING OPERATIONS.
B. ENVIRONMENTAL & GEOTECHNICAL: REVIEW ALL PROJECT ENVIRONMENTAL AND GEOTECHNICAL REPORTS AND BECOME FAMILIAR WITH ALL ISSUES BEFORE SITE CLEARING.
C. UTILITY LOCATOR SERVICE: NOTIFY UTILITY LOCATOR SERVICE FOR AREA WHERE PROJECT IS LOCATED BEFORE SITE CLEARING.
D. DO NOT COMMENCE SITE CLEARING OPERATIONS UNTIL TEMPORARY EROSION- AND SEDIMENTATION-CONTROL AND PLANT-PROTECTION MEASURES ARE IN PLACE.
2.) TEMPORARY EROSION AND SEDIMENTATION CONTROL
A. PROVIDE TEMPORARY EROSION- AND SEDIMENTATION-CONTROL MEASURES TO PREVENT SOIL EROSION AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES AND WALKWAYS, ACCORDING TO EROSION- AND SEDIMENTATION-CONTROL DRAWINGS AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
B. VERIFY THAT FLOWS OF WATER REDIRECTED FROM CONSTRUCTION AREAS OR GENERATED BY CONSTRUCTION ACTIVITY DO NOT ENTER OR CROSS PROTECTION ZONES.
C. INSPECT, MAINTAIN, AND REPAIR EROSION- AND SEDIMENTATION-CONTROL MEASURES DURING CONSTRUCTION UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED.
D. REMOVE EROSION AND SEDIMENTATION CONTROLS WHEN SITE IS STABILIZED AND RESTORE AND STABILIZE AREAS DISTURBED DURING REMOVAL.
3.) TREE AND PLANT PROTECTION
A. REPAIR OR REPLACE TREES, SHRUBS, AND OTHER VEGETATION INDICATED TO REMAIN OR BE RELOCATED THAT ARE DAMAGED BY CONSTRUCTION OPERATIONS, IN A MANNER APPROVED BY ENGINEER.
4.) EXISTING UTILITIES
A. LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP UTILITIES INDICATED TO BE REMOVED OR ABANDONED IN PLACE. ARRANGE WITH UTILITY COMPANIES TO SHUT OFF INDICATED UTILITIES.
B. INTERRUPTING EXISTING UTILITIES: DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY UTILITY SERVICES ACCORDING TO REQUIREMENTS INDICATED:
   1. NOTIFY UTILITY OWNER NOT LESS THAN TWO DAYS IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS.
   2. DO NOT PROCEED WITH UTILITY INTERRUPTIONS WITHOUT UTILITY OWNER'S WRITTEN PERMISSION.
C. POTHOLE EXISTING WATER LINES, UNDERGROUND ELECTRICAL LINES, GAS LINES, UNDERGROUND TELEPHONE LINES, FIBER OPTIC, AND ANY OTHER EXISTING UTILITY LINES WITHIN THE PROJECT LIMITS DURING SITE CLEARING AND DEMOLITION ACTIVITIES. SURVEY THE EXISTING UTILITY ELEVATIONS AND PROVIDE THE SURVEYED FIELD LOCATIONS AND DEPTHS TO THE ENGINEER FOR REVIEW. THESE EXISTING UTILITIES MAY REQUIRE RELOCATION.
5.) CLEARING AND GRUBBING
A. REMOVE OBSTRUCTIONS, CONCRETE, ASPHALT, TREES, SHRUBS, AND OTHER VEGETATION TO PERMIT INSTALLATION OF NEW CONSTRUCTION.
   1. DO NOT REMOVE TREES, SHRUBS, AND OTHER VEGETATION INDICATED TO REMAIN OR TO BE RELOCATED.
   2. GRIND DOWN STUMPS AND REMOVE ROOTS, OBSTRUCTIONS, AND DEBRIS TO A DEPTH OF 12 INCHES BELOW EXPOSED SUBGRADE.
   3. USE ONLY HAND METHODS FOR GRUBBING WITHIN PROTECTION ZONES.
   4. THE SUBGRADE TO REMAIN SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY FOLLOWING CLEARING AND GRUBBING ACTIVITIES.
6.) TOPSOIL STRIPPING
A. REMOVE SOD AND GRASS BEFORE STRIPPING TOPSOIL.
B. STRIP TOPSOIL IN A MANNER TO PREVENT INTERMINGLING WITH UNDERLYING SUBSOIL OR OTHER WASTE MATERIALS.
C. STOCKPILE TOPSOIL AWAY FROM EDGE OF EXCAVATIONS WITHOUT INTERMIXING WITH SUBSOIL. GRADE AND SHAPE STOCKPILES TO DRAIN SURFACE WATER. COVER TO PREVENT WINDBLOWN DUST AND EROSION BY WATER.
D. DISPOSE OF SURPLUS TOPSOIL. SURPLUS TOPSOIL IS THAT WHICH EXCEEDS QUANTITY INDICATED TO BE STOCKPILED OR REUSED.

SITE WATER DISTRIBUTION

1.) GENERAL
A. REGULATORY REQUIREMENTS:
   1. COMPLY WITH REQUIREMENTS OF UTILITY COMPANY SUPPLYING WATER. INCLUDE TAPPING OF WATER MAINS AND BACKFLOW PREVENTION.
   2. COMPLY WITH STANDARDS OF AUTHORITIES HAVING JURISDICTION FOR POTABLE-WATER-SERVICE PIPING, INCLUDING MATERIALS, INSTALLATION, TESTING, AND DISINFECTION.
B. PIPING MATERIALS SHALL BEAR LABEL, STAMP, OR OTHER MARKINGS OF SPECIFIED TESTING AGENCY.
C. INTERRUPTION OF EXISTING WATER-DISTRIBUTION SERVICE: NOTIFY OWNER AT LEAST 2 DAYS PRIOR TO INTERRUPTION OF EXISTING WATER SERVICES.
D. COORDINATE WITH UTILITY COMPANY FOR REQUIRED INSPECTIONS AND FOR CONNECTION OF WATER MAIN AND SERVICES BEFORE STARTING CONSTRUCTION.
2.) COPPER TUBE AND FITTINGS
A. SOFT COPPER TUBE: ASTM B 88, TYPE K , WATER TUBE, ANNEALED TEMPER.
B. COPPER, PRESSURE-SEAL FITTINGS:
   1. NPS 2 AND SMALLER: WROUGHT-COPPER FITTING WITH EPDM O-RING SEAL IN EACH END.
   2. NPS 2-1/2 TO NPS 4 : BRONZE FITTING WITH STAINLESS-STEEL GRIP RING AND EPDM O-RING SEAL IN EACH END.
C. BRONZE FLANGES: ASME B16.24, CLASS 150, WITH SOLDER-JOINT END. FURNISH CLASS 300 FLANGES IF REQUIRED TO MATCH PIPING.
D. COPPER UNIONS: MSS SP-123, CAST-COPPER-ALLOY, HEXAGONAL-STOCK BODY WITH BALL-AND-SOCKET, METAL-TO-METAL SEATING SURFACES, AND SOLDER-JOINT OR THREADED ENDS.
3.) DUCTILE-IRON PIPE AND FITTINGS
A. MECHANICAL-JOINT, DUCTILE-IRON PIPE: AWWA C151, WITH MECHANICAL-JOINT BELL AND PLAIN SPIGOT END UNLESS GROOVED OR FLANGED ENDS ARE INDICATED.
   1. MECHANICAL-JOINT, DUCTILE-IRON FITTINGS: AWWA C110, DUCTILE- OR GRAY-IRON STANDARD PATTERN OR AWWA C153, DUCTILE-IRON COMPACT PATTERN.
   2. GLANDS, GASKETS, AND BOLTS: AWWA C111, DUCTILE- OR GRAY-IRON GLANDS, RUBBER GASKETS, AND STEEL BOLTS.
B. PUSH-ON-JOINT, DUCTILE-IRON PIPE: AWWA C151, WITH PUSH-ON-JOINT BELL AND PLAIN SPIGOT END UNLESS GROOVED OR FLANGED ENDS ARE INDICATED.
C. FLANGES: ASME 16.1, CLASS 125, CAST IRON.
4.) PVC PIPE AND FITTINGS
A. PVC, SCHEDULE 40 PIPE: ASTM D 1785, PVC, SCHEDULE 40 SOCKET FITTINGS: ASTM D 2466.
B. PVC, AWWA PIPE: AWWA C900, CLASS 200, WITH BELL END WITH GASKET, AND WITH SPIGOT END.
C. MECHANICAL-JOINT, DUCTILE-IRON FITTINGS: AWWA C110, DUCTILE- OR GRAY-IRON STANDARD PATTERN OR AWWA C153, DUCTILE-IRON COMPACT PATTERN.
5.) GATE VALVES
A. AWWA, CAST-IRON GATE VALVES: NONRISING-STEM, RESILIENT-SEATED GATE VALVES: GRAY- OR DUCTILE-IRON BODY AND BONNET; WITH BRONZE OR GRAY- OR DUCTILE-IRON GATE, RESILIENT SEATS, BRONZE STEM, AND STEM NUT.
   1. STANDARD: AWWA C509.
   2. MINIMUM PRESSURE RATING: 250 PSIG .
   3. END CONNECTIONS: MECHANICAL JOINT.
   4. INTERIOR COATING: COMPLYING WITH AWWA C550.
6.) GATE VALVE ACCESSORIES AND SPECIALTIES
A. TAPPING-SLEEVE ASSEMBLIES: SLEEVE AND VALVE COMPATIBLE WITH DRILLING MACHINE.
   1. STANDARD: MSS SP-60.
   2. TAPPING SLEEVE: CAST- OR DUCTILE-IRON OR STAINLESS-STEEL, TWO-PIECE BOLTED SLEEVE WITH FLANGED OUTLET FOR NEW BRANCH CONNECTION. INCLUDE SLEEVE MATCHING SIZE AND TYPE OF PIPE MATERIAL BEING TAPPED AND WITH RECESSED FLANGE FOR BRANCH VALVE.
   3. VALVE: AWWA, CAST-IRON, NONRISING-STEM, RESILIENT-SEATED GATE VALVE WITH ONE RAISED FACE FLANGE MATING TAPPING-SLEEVE FLANGE.
B. VALVE BOXES: COMPLY WITH AWWA M44 FOR CAST-IRON VALVE BOXES. INCLUDE TOP SECTION, ADJUSTABLE EXTENSION OF LENGTH REQUIRED FOR DEPTH OF BURIAL OF VALVE, PLUG WITH LETTERING "WATER," AND BOTTOM SECTION WITH BASE THAT FITS OVER VALVE AND WITH A BARREL APPROXIMATELY 5 INCHES IN DIAMETER.
7.) BACKFLOW PREVENTERS
A. DOUBLE-CHECK, DETECTOR-ASSEMBLY BACKFLOW PREVENTERS:
   1. STANDARDS: ASSE 1048 AND UL LISTED OR FMG APPROVED.
   2. OPERATION: CONTINUOUS-PRESSURE APPLICATIONS.
   3. PRESSURE LOSS: 5 PSIG MAXIMUM, THROUGH MIDDLE 1/3 OF FLOW RANGE.
   4. BODY: CAST IRON WITH INTERIOR LINING COMPLYING WITH AWWA C550 OR THAT IS FDA APPROVED.
   5. END CONNECTIONS: FLANGED.
   6. CONFIGURATION: DESIGNED FOR HORIZONTAL, STRAIGHT THROUGH FLOW.
8.) WATER METER BOXES
A. DESCRIPTION: CAST-IRON BODY AND COVER FOR DISC-TYPE WATER METER, WITH LETTERING "WATER METER" IN COVER; AND WITH SLOTTED, OPEN-BOTTOM BASE SECTION OF LENGTH TO FIT OVER METER.
9.) CONCRETE VAULTS
A. DESCRIPTION: PRECAST, REINFORCED-CONCRETE VAULT, DESIGNED FOR A-16 LOAD DESIGNATION ACCORDING TO ASTM C 857 AND MADE ACCORDING TO ASTM C 858.
   1. LADDER: ASTM A 36/A 36M, STEEL OR POLYETHYLENE-ENCASED STEEL STEPS.
   2. MANHOLE: ASTM A 48/A 48M CLASS NO. 35A MINIMUM TENSILE STRENGTH, GRAY-IRON TRAFFIC FRAME AND COVER.
      a. DIMENSION: 24-INCH MINIMUM DIAMETER, UNLESS OTHERWISE INDICATED.
   3. DRAIN: ASME A112.6.3, CAST-IRON FLOOR DRAIN WITH OUTLET OF SIZE INDICATED. INCLUDE BODY ANCHOR FLANGE, LIGHT-DUTY CAST-IRON GRATE, BOTTOM OUTLET, AND INTEGRAL OR FIELD-INSTALLED BRONZE BALL OR CLAPPER-TYPE BACKWATER VALVE.
10.) FIRE HYDRANTS
A. DRY-BARREL FIRE HYDRANTS: FREESTANDING, WITH ONE NPS 4-1/2 AND TWO NPS 2-1/2 OUTLETS, 5-1/4-INCH MAIN VALVE, DRAIN VALVE, AND NPS 6 MECHANICAL-JOINT INLET. INCLUDE INTERIOR COATING ACCORDING TO AWWA C550. HYDRANT SHALL HAVE CAST-IRON BODY; COMPRESSION-TYPE VALVE OPENING AGAINST PRESSURE AND CLOSING WITH PRESSURE.
   1. STANDARD: AWWA C502.
   2. PRESSURE RATING: 250 PSIG .
11.) FIRE DEPARTMENT CONNECTIONS
A. FIRE DEPARTMENT CONNECTIONS: FREESTANDING, WITH CAST-BRONZE BODY, THREAD INLETS ACCORDING TO NFPA 1963 AND MATCHING LOCAL FIRE DEPARTMENT HOSE THREADS, AND THREADED BOTTOM OUTLET. INCLUDE LUGGED CAPS, GASKETS, AND CHAINS; LUGGED SWIVEL CONNECTION AND DROP CLAPPER FOR EACH HOSE-CONNECTION INLET; 18-INCH- HIGH BRASS SLEEVE; AND ROUND ESCUTCHEON PLATE.
12.) VALVE APPLICATIONS
A. DRAWINGS INDICATE VALVE TYPES TO BE USED. WHERE SPECIFIC VALVE TYPES ARE NOT INDICATED, THE FOLLOWING REQUIREMENTS APPLY:
   1. UNDERGROUND VALVES, NPS 3 AND LARGER: AWWA, CAST-IRON, NONRISING-STEM, RESILIENT-SEATED GATE VALVES WITH VALVE BOX.
   2. USE THE FOLLOWING FOR VALVES IN VAULTS AND ABOVEGROUND:
      a. GATE VALVES, NPS 2 AND SMALLER: BRONZE, NONRISING STEM.
      b. GATE VALVES, NPS 3 AND LARGER: AWWA, CAST IRON, OS&Y RISING STEM, RESILIENT SEATED.
      c. CHECK VALVES: AWWA C508, SWING TYPE.
13.) FIELD QUALITY CONTROL
A. PIPING TESTS: CONDUCT PIPING TESTS BEFORE JOINTS ARE COVERED AND AFTER CONCRETE THRUST BLOCKS HAVE HARDENED SUFFICIENTLY. FILL PIPELINE 24 HOURS BEFORE TESTING AND APPLY TEST PRESSURE TO STABILIZE SYSTEM. USE ONLY POTABLE WATER.
B. HYDROSTATIC TESTS: TEST AT NOT LESS THAN ONE-AND-ONE-HALF TIMES WORKING PRESSURE FOR TWO HOURS. INCREASE PRESSURE IN 50-PSIG INCREMENTS AND INSPECT EACH JOINT BETWEEN INCREMENTS. HOLD AT TEST PRESSURE FOR 1 HOUR; DECREASE TO 0 PSIG . SLOWLY INCREASE AGAIN TO TEST PRESSURE AND HOLD FOR 1 MORE HOUR. MAXIMUM ALLOWABLE LEAKAGE IS 2 QUARTS PER HOUR PER 100 JOINTS. REMAKE LEAKING JOINTS WITH NEW MATERIALS AND REPEAT TEST UNTIL LEAKAGE IS WITHIN ALLOWED LIMITS.
C. DISINFECTION: CLEAN AND DISINFECT POTABLE WATER MAINS AS DIRECTED BY THE LOCAL AUTHORITY, OR, IF METHOD IS NOT PRESCRIBED BY THE LOCAL AUTHORITY, USE PROCEDURE DESCRIBED IN AWWA C651.
D. PREPARE REPORTS OF TESTING ACTIVITIES AND SUBMIT TO THE ENGINEER FOR APPROVAL.
14.) IDENTIFICATION
A. INSTALL CONTINUOUS UNDERGROUND DETECTABLE WARNING TAPE DURING BACKFILLING OF TRENCH FOR UNDERGROUND WATER-DISTRIBUTION PIPING. LOCATE BELOW FINISHED GRADE, DIRECTLY OVER PIPING.

SITE SANITARY SEWERS

1.) PROJECT CONDITIONS
A. INTERRUPTION OF EXISTING SANITARY SEWERAGE SERVICE: COORDINATE AS REQUIRED WITH THE LOCAL SANITARY SEWER AUTHORITY BEFORE STARTING CONSTRUCTION.
B. UTILITY LOCATOR SERVICE: NOTIFY UTILITY LOCATOR SERVICE FOR AREA WHERE PROJECT IS LOCATED BEFORE BEGINNING SANITARY SEWER INSTALLATION OPERATIONS. FIELD VERIFY ALL EXISTING UTILITIES SHOWN ON THE DRAWINGS BY POT-HOLING THE LINES. SURVEY EXISTING UTILITIES AND PROVIDE HORIZONTAL AND VERTICAL LOCATION INFORMATION TO THE ENGINEER TO DETERMINE OF ANY UTILITIES WILL CONFLICT WITH THE PROPOSED DESIGN.
2.) DUCTILE-IRON, GRAVITY SEWER PIPE AND FITTINGS
A. PIPE: ASTM A 746, FOR PUSH-ON JOINTS.
B. COMPACT FITTINGS: AWWA C153, DUCTILE IRON, FOR PUSH-ON JOINTS.
C. GASKETS: AWWA C111, RUBBER.
3.) PVC PIPE AND FITTINGS
PVC SANITARY SEWER LINES SHALL BE ASTM D 3034, RATED SDR 35 WITH INTEGRALLY MOLDED BELL ENDS, ASTM D 3034, TABLE 2, WITH FACTORY SUPPLIED ELASTOMERIC GASKETS AND LUBRICANT. DIP SANITARY SEWER LINES SHALL BE ASTM A746, CLASS 50 WITH AWWA C111, RUBBER GASKET JOINT DEVICES.
4.) CLEANOUTS
A. CAST-IRON CLEANOUTS:
   1. DESCRIPTION: ASME A112.36.2M, ROUND, GRAY-IRON HOUSING WITH CLAMPING DEVICE AND ROUND, SECURED, SCORIATED, GRAY-IRON COVER. INCLUDE GRAY-IRON FERRULE WITH INSIDE CALK OR SPIGOT CONNECTION AND COUNTERSUNK, TAPERED-THREAD, BRASS CLOSURE PLUG.
   2. TOP-LOADING CLASSIFICATION: TRAFFIC RATED, HEAVY DUTY, IN ALL PAVED AREAS AND AREAS SUBJECT TO VEHICULAR TRAFFIC.
   3. SEWER PIPE FITTING AND RISER TO CLEANOUT: ASTM A 74, SERVICE CLASS, CAST-IRON SOIL PIPE AND FITTINGS.
B. PVC CLEANOUTS: PVC BODY WITH PVC THREADED PLUG. INCLUDE PVC SEWER PIPE FITTING AND RISER TO CLEANOUT OF SAME MATERIAL AS SEWER PIPING. USE IN LIGHT DUTY APPLICATIONS WHERE THERE IS PEDESTRIAN TRAFFIC ONLY OR IN LANDSCAPED AREAS.
5.) MANHOLES
A. STANDARD PRECAST CONCRETE MANHOLES:
   1. DESCRIPTION: ASTM C 478 , PRECAST, REINFORCED CONCRETE, OF DEPTH INDICATED, WITH PROVISION FOR SEALANT JOINTS.
   2. DIAMETER: 48 INCHES MINIMUM UNLESS OTHERWISE INDICATED.
   3. BALLAST: INCREASE THICKNESS OF PRECAST CONCRETE SECTIONS OR ADD CONCRETE TO BASE SECTION, AS REQUIRED TO PREVENT FLOTATION.
   4. BASE SECTION: 6-INCH MINIMUM THICKNESS FOR FLOOR SLAB AND 4-INCH MINIMUM THICKNESS FOR WALLS AND BASE RISER SECTION; WITH SEPARATE BASE SLAB OR BASE SECTION WITH INTEGRAL FLOOR.
   5. RISER SECTIONS: 4-INCH MINIMUM THICKNESS, OF LENGTH TO PROVIDE DEPTH INDICATED.
   6. TOP SECTION: ECCENTRIC-CONE TYPE UNLESS CONCENTRIC-CONE OR FLAT-SLAB-TOP TYPE IS INDICATED; WITH TOP OF CONE OF SIZE THAT MATCHES GRADE RINGS.
   7. JOINT SEALANT: ASTM C 990 , BITUMEN OR BUTYL RUBBER.
   8. RESILIENT PIPE CONNECTORS: ASTM C 923 , CAST OR FITTED INTO MANHOLE WALLS, FOR EACH PIPE CONNECTION.
   9. STEPS: INDIVIDUAL FRP STEPS OR FRP LADDER; WIDE ENOUGH TO ALLOW WORKER TO PLACE BOTH FEET ON ONE STEP AND DESIGNED TO PREVENT LATERAL SLIPPAGE OFF STEP. CAST OR ANCHOR STEPS INTO SIDEWALLS AT 12- TO 16-INCH INTERVALS. OMIT STEPS IF TOTAL DEPTH FROM FLOOR OF MANHOLE TO FINISHED GRADE IS LESS THAN 48 INCHES.
   10. ADJUSTING RINGS: INTERLOCKING HDPE RINGS, WITH LEVEL OR SLOPED EDGE IN THICKNESS AND DIAMETER MATCHING MANHOLE FRAME AND COVER, AND WITH HEIGHT AS REQUIRED TO ADJUST MANHOLE FRAME AND COVER TO INDICATED ELEVATION AND SLOPE. INCLUDE EXPANDABLE ELASTOMERIC RING MANUFACTURER.
   11. GRADE RINGS: REINFORCED-CONCRETE RINGS, 6- TO 9-INCH TOTAL THICKNESS, WITH DIAMETER MATCHING MANHOLE FRAME AND COVER, AND WITH HEIGHT AS REQUIRED TO ADJUST MANHOLE FRAME AND COVER TO INDICATED ELEVATION AND SLOPE.
B. MANHOLE FRAMES AND COVERS:
   1. DESCRIPTION: FERROUS; 24-INCH ID BY 7- TO 9-INCH RISER, WITH 4-INCH- MINIMUM-WIDTH FLANGE AND 26-INCH- DIAMETER COVER. INCLUDE INDENTED TOP DESIGN WITH LETTERING CAST INTO COVER, USING WORDING EQUIVALENT TO "SANITARY SEWER."
   2. MATERIAL: ASTM A 536, GRADE 60-40-18 DUCTILE IRON UNLESS OTHERWISE INDICATED.
6.) IDENTIFICATION
A. ARRANGE FOR INSTALLATION OF GREEN WARNING TAPES DIRECTLY OVER PIPING AND AT OUTSIDE EDGES OF UNDERGROUND MANHOLES.
   1. USE WARNING TAPE OR DETECTABLE WARNING TAPE OVER FERROUS PIPING.
   2. USE DETECTABLE WARNING TAPE OVER NONFERROUS PIPING AND OVER EDGES OF UNDERGROUND MANHOLES.
7.) FIELD QUALITY CONTROL
A. INSPECT INTERIOR OF PIPING TO DETERMINE WHETHER LINE DISPLACEMENT OR OTHER DAMAGE HAS OCCURRED. INSPECT AFTER APPROXIMATELY 24 INCHES OF BACKFILL IS IN PLACE, AND AGAIN AT COMPLETION OF PROJECT.
   1. DEFECTS REQUIRING CORRECTION INCLUDE THE FOLLOWING:
      a. ALIGNMENT: LESS THAN FULL DIAMETER OF INSIDE OF PIPE IS VISIBLE BETWEEN STRUCTURES.
      b. DEFLECTION: FLEXIBLE PIPING WITH DEFLECTION THAT PREVENTS PASSAGE OF BALL OR CYLINDER OF SIZE NOT LESS THAN 92.5 PERCENT OF PIPING DIAMETER.
      c. DAMAGE: CRUSHED, BROKEN, CRACKED, OR OTHERWISE DAMAGED PIPING.
      d. INFILTRATION: WATER LEAKAGE INTO PIPING.
      e. EXFILTRATION: WATER LEAKAGE FROM OR AROUND PIPING.
   2. REPLACE DEFECTIVE PIPING USING NEW MATERIALS, AND REPEAT INSPECTIONS UNTIL DEFECTS ARE WITHIN ALLOWANCES SPECIFIED.
   3. REINSPECT AND REPEAT PROCEDURE UNTIL RESULTS ARE SATISFACTORY.
B. TEST NEW PIPING SYSTEMS, AND PARTS OF EXISTING SYSTEMS THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED, FOR LEAKS AND DEFECTS.
   1. DO NOT ENCLOSE, COVER, OR PUT INTO SERVICE BEFORE INSPECTION AND APPROVAL.
   2. TEST COMPLETED PIPING SYSTEMS ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
   3. SCHEDULE TESTS AND INSPECTIONS BY AUTHORITIES HAVING JURISDICTION WITH AT LEAST 24 HOURS ADVANCE NOTICE.
   4. SUBMIT A SEPARATE REPORT FOR EACH TEST TO THE ENGINEER FOR APPROVAL.
   5. AIR TESTS: TEST SANITARY SEWERAGE ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION, UNI-B-6, AND THE FOLLOWING:
      a. TEST PLASTIC GRAVITY SEWER PIPING ACCORDING TO ASTM F 1417.
   6. MANHOLES: PERFORM HYDRAULIC TEST ACCORDING TO ASTM C 969
C. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.
D. REPLACE LEAKING PIPING USING NEW MATERIALS, AND REPEAT TESTING UNTIL LEAKAGE IS WITHIN ALLOWANCES SPECIFIED.

SITE STORM UTILITY DRAINAGE PIPING

1.) PIPE AND FITTINGS- GENERAL
A. ALL STORMWATER PIPE, INLETS, HEADWALLS, AND RELATED APPURTENANCES SHAL

EARTH MOVING

1.) PROJECT CONDITIONS

A. UTILITY LOCATOR SERVICE: NOTIFY UTILITY LOCATOR SERVICE FOR AREA WHERE PROJECT IS LOCATED BEFORE BEGINNING EARTH MOVING OPERATIONS.
B. DO NOT COMMENCE EARTH MOVING OPERATIONS UNTIL TEMPORARY EROSION- AND SEDIMENTATION-CONTROL MEASURES, ARE IN PLACE.
C. DO NOT COMMENCE EARTH MOVING OPERATIONS UNTIL PLANT-PROTECTION MEASURES ARE IN PLACE.
D. DO NOT COMMENCE EARTH MOVING OPERATIONS WITHOUT REVIEWING AND MAKING PROVISIONS FOR ALL GEOTECHNICAL RECOMMENDATIONS MADE IN THE PROJECT GEOTECHNICAL REPORT. COMPLY WITH RECOMMENDATIONS IN THE GEOTECHNICAL REPORT REGARDING GENERAL SITE PREPARATION, BUILDING PAD PREPARATION, PAVEMENT SECTIONS, FILL, AND EXCAVATION.
E. RETAIN A COPY OF THE PROJECT GEOTECHNICAL REPORT AT THE WORK SITE AT ALL TIMES. ANY DISCREPANCIES BETWEEN THESE SPECIFICATIONS AND THE PROJECT GEOTECHNICAL REPORT SHALL BE RESOLVED IN FAVOR OF THE PROJECT GEOTECHNICAL REPORT.
F. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT, AND OTHER HAZARDS CREATED BY EARTH MOVING OPERATIONS.
G. PROTECT AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS DURING EARTH MOVING OPERATIONS.
H. CONTRACTOR SHALL DEFER TO LOCAL SPECIFICATIONS AND REQUIREMENTS IF THEY DIFFER FROM THOSE REPRESENTED ON THIS SHEET. ENGINEER TO BE NOTIFIED OF MATERIAL USED IF CHANGES ARE MADE.

2.) DEWATERING

O. PREVENT SURFACE WATER AND GROUND WATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES, AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA.
P. PROTECT SUBGRADES FROM SOFTENING, UNDERMINING, WASHOUT, AND DAMAGE BY RAIN OR WATER ACCUMULATION.
Q. DESIGN AND PROVIDE DEWATERING SYSTEM USING ACCEPTED AND PROFESSIONAL METHODS CONSISTENT WITH CURRENT INDUSTRY PRACTICE. PROVIDE DEWATERING SYSTEM OF SUFFICIENT SIZE AND CAPACITY TO CONTROL GROUNDWATER IN A MANNER THAT PRESERVES STRENGTH OF FOUNDATION SOILS, DOES NOT CAUSE INSTABILITY OR RAVELING OF EXCAVATION SLOPES, AND DOES NOT RESULT IN DAMAGE TO EXISTING STRUCTURES. LOWER WATER LEVEL IN ADVANCE OF EXCAVATION BY UTILIZING WELLS, WELLPOINTS, OR SIMILAR POSITIVE CONTROL METHODS. MAINTAIN THE GROUNDWATER LEVEL TO A MINIMUM OF TWO (2) FEET BELOW EXCAVATIONS. PROVIDE PIEZOMETERS AS DIRECTED BY THE ENGINEER TO DOCUMENT THAT THE GROUNDWATER LEVEL IS BEING MAINTAINED.
R. BY ACCEPTABLE MEANS, CONTRACTOR SHALL CONTROL ALL WATER REGARDLESS OF SOURCE AND IS RESPONSIBLE FOR PROPER DISPOSAL OF THE WATER. NO ADDITIONAL PAYMENT WILL BE MADE FOR ANY SUPPLEMENTAL MEASURES TO CONTROL SEEPAGE, GROUNDWATER, OR ARTESIAN HEAD.
S. OPEN PUMPING WITH SUMPS AND DITCHES SHALL BE ALLOWED, PROVIDED IT DOES NOT RESULT IN BOILS, LOSS OF FINES, SOFTENING OF THE GROUND, OR INSTABILITY OF SLOPES. SUMPS SHALL BE LOCATED OUTSIDE OF LOAD BEARING AREAS SO THE BEARING SURFACES WILL NOT BE DISTURBED. WATER CONTAINING SILT IN SUSPENSION SHALL NOT BE PUMPED INTO SEWER LINES OR ADJACENT WATER BODIES. DURING NORMAL PUMPING AND UPON DEVELOPMENT OF WELL(S), LEVELS OF FINE SAND OR SILT IN THE DISCHARGE OF WATER SHALL NOT EXCEED FIVE (5) PPM.
T. CONTINUOUSLY MAINTAIN EXCAVATIONS IN A DRY CONDITION WITH POSITIVE DEWATERING METHODS DURING PREPARATION OF SUBGRADE, INSTALLATION OF PIPE, AND CONSTRUCTION OF STRUCTURES UNTIL THE CRITICAL PERIOD OF CONSTRUCTION AND/OR BACKFILL IS COMPLETED TO PREVENT DAMAGE OF SUBGRADE SUPPORT, PIPING, STRUCTURE, SIDE SLOPES, OR ADJACENT FACILITIES FOR FLOTATION OR OTHER HYDROSTATIC PRESSURE IMBALANCE.
U. WHEN CONSTRUCTION IS COMPLETE, PROPERLY REMOVE ALL DEWATERING EQUIPMENT FROM THE SITE, INCLUDING WELLS AND RELATED TEMPORARY ELECTRICAL SERVICE.

3.) SUBGRADE

A. NOTIFY PROJECT GEOTECHNICAL ENGINEER WHEN EXCAVATIONS HAVE REACHED REQUIRED SUBGRADE.
B. IF PROJECT GEOTECHNICAL ENGINEER DETERMINES THAT UNSATISFACTORY SOIL IS PRESENT, CONTINUE EXCAVATION AND REPLACE WITH COMPACTED BACKFILL OR FILL MATERIAL AS DIRECTED.
C. PROOF-ROLL SUBGRADE BELOW THE BUILDING SLABS AND PAVEMENTS WITH A PNEUMATIC-TIRED AND LOADED 10-WHEEL, TANDEM-AXLE DUMP TRUCK WEIGHING NOT LESS THAN 15 TONS TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. DO NOT PROOF-ROLL WET OR SATURATED SUBGRADES. EXCAVATE SOFT SPOTS, UNSATISFACTORY SOILS, AND AREAS OF EXCESSIVE PUMPING OR RUTTING, AS DETERMINED BY PROJECT GEOTECHNICAL ENGINEER, AND REPLACE WITH COMPACTED BACKFILL OR FILL AS DIRECTED.
D. IN HEAVY DUTY PAVEMENT AREAS, THE GRAVEL AGGREGATE BASE SHALL BE EXTENDED UNDER THE CURB AND GUTTER SECTION TO PROVIDE ADDITIONAL STABILITY FOR TRUCK TRAVEL.

4.) UTILITY TRENCH BEDDING AND BACKFILL

A. PLACE AND COMPACT BEDDING COURSE ON TRENCH BOTTOMS AND WHERE INDICATED. SHAPE BEDDING COURSE TO PROVIDE CONTINUOUS SUPPORT FOR BELLS, JOINTS, AND BARRELS OF PIPES AND FOR JOINTS, FITTINGS, AND BODIES OF CONDUITS.
B. USE CLASS B BEDDING UNDER ALL PVC PIPING.
C. CAREFULLY COMPACT INITIAL BACKFILL UNDER PIPE HAUNCHES AND COMPACT EVENLY UP ON BOTH SIDES AND ALONG THE FULL LENGTH OF PIPING OR CONDUIT TO AVOID DAMAGE OR DISPLACEMENT OF PIPING OR CONDUIT.
D. BACKFILL ALL UTILITIES UNDER ROADWAYS AND TRAFFIC AREAS WITH CRUSHED STONE.

5.) COMPACTION OF SOIL BACKFILLS AND FILLS

A. PLACE BACKFILL AND FILL SOIL MATERIALS IN LAYERS NOT MORE THAN 8 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS.
B. PLACE BACKFILL AND FILL SOIL MATERIALS EVENLY ON ALL SIDES OF STRUCTURES TO REQUIRED ELEVATIONS, AND UNIFORMLY ALONG THE FULL LENGTH OF EACH STRUCTURE. COMPACT SOIL MATERIALS AS INDICATED ON DRAWINGS OR AS INDICATED IN THE PROJECT GEOTECHNICAL REPORT.
C. PROVIDE CONSTRUCTION PHASE MONITORING AND TESTING AS RECOMMENDED IN THE PROJECT GEOTECHNICAL REPORT. PROVIDE TEST REPORTS TO THE ENGINEER FOR REVIEW AND APPROVAL.

6.) GRADING

A. GENERAL: UNIFORMLY GRADE AREAS TO A SMOOTH SURFACE, FREE OF IRREGULAR SURFACE CHANGES. COMPLY WITH COMPACTION REQUIREMENTS AND GRADE TO CROSS SECTIONS, LINES, AND ELEVATIONS INDICATED.
   1. PROVIDE A SMOOTH TRANSITION BETWEEN ADJACENT EXISTING GRADES AND NEW GRADES.
   2. CUT OUT SOFT SPOTS, FILL LOW SPOTS, AND TRIM HIGH SPOTS TO COMPLY WITH REQUIRED SURFACE TOLERANCES.
B. LANDSCAPE ISLANDS: FILL ALL CURBED ISLANDS TO TOP OF CURB WITH TOPSOIL AND APPLY SEED AND MULCH UNLESS DRAWINGS INDICATE OTHERWISE.
C. SLOPES: DO NOT CREATE CUT OR FILL SLOPES STEEPER THAN 2H:1V WITHOUT OBTAINING SPECIAL WRITTEN PERMISSION FROM THE ENGINEER OF RECORD AND PROJECT GEOTECHNICAL ENGINEER.

7.) PROTECTION

A. PROTECTING GRADED AREAS: PROTECT NEWLY GRADED AREAS FROM TRAFFIC, FREEZING, AND EROSION. KEEP FREE OF TRASH AND DEBRIS. SEE EROSION AND SEDIMENT CONTROL PLAN AND NOTES FOR FURTHER INFORMATION.

ASPHALT PAVING

1.) FIELD CONDITIONS

A. ENVIRONMENTAL LIMITATIONS: DO NOT APPLY ASPHALT MATERIALS IF SUBGRADE IS WET OR EXCESSIVELY DAMP, IF RAIN IS IMMINENT OR EXPECTED BEFORE TIME REQUIRED FOR ADEQUATE CURE, OR IF THE FOLLOWING CONDITIONS ARE NOT MET:
   1. PRIME COAT: MINIMUM SURFACE TEMPERATURE OF 60 DEG F .
   2. TACK COAT: MINIMUM SURFACE TEMPERATURE OF 60 DEG F .
   3. SLURRY COAT: COMPLY WITH WEATHER LIMITATIONS IN ASTM D 3910.
   4. ASPHALT BASE COURSE: MINIMUM SURFACE TEMPERATURE OF 40 DEG F AND RISING AT TIME OF PLACEMENT.
   5. ASPHALT SURFACE COURSE: MINIMUM SURFACE TEMPERATURE OF 60 DEG F AT TIME OF PLACEMENT.

2.) ASPHALT MATERIALS

A. REFER TO PROJECT GEOTECHNICAL REPORT AND PROJECT DRAWINGS FOR REQUIRED ASPHALT MATERIAL DESIGN.
B. AGGREGATES SHALL MEET THE REQUIREMENTS OF THE LOCAL DEPARTMENT OF TRANSPORTATION.
C. RECLAIMED ASPHALT PAVEMENT (RAP) SHALL NOT BE USED IN THE MIX DESIGN.

3.) PATCHING

A. ASPHALT PAVEMENT: SAW CUT PERIMETER OF PATCH AND EXCAVATE EXISTING PAVEMENT SECTION TO SOUND BASE. EXCAVATE RECTANGULAR OR TRAPEZOIDAL PATCHES, EXTENDING 12 INCHES INTO PERIMETER OF ADJACENT SOUND PAVEMENT, UNLESS OTHERWISE INDICATED. CUT EXCAVATION FACES VERTICALLY. REMOVE EXCAVATED MATERIAL. RECOMPACT EXISTING UNBOUND-AGGREGATE BASE COURSE TO FORM NEW SUBGRADE.
B. TACK COAT: BEFORE PLACING PATCH MATERIAL, APPLY TACK COAT UNIFORMLY TO VERTICAL ASPHALT SURFACES ABUTTING THE PATCH. APPLY AT A RATE OF 0.05 TO 0.15 GAL./SQ. YD.
   1. ALLOW TACK COAT TO CURE UNDISTURBED BEFORE APPLYING HOT-MIX ASPHALT PAVING.
   2. AVOID SMEARING OR STAINING ADJOINING SURFACES, APPURTENANCES, AND SURROUNDINGS. REMOVE SPILLAGES AND CLEAN AFFECTED SURFACES.
C. PLACING PATCH MATERIAL: FILL EXCAVATED PAVEMENT AREAS WITH HOT-MIX ASPHALT BASE MIX FOR FULL THICKNESS OF PATCH AND, WHILE STILL HOT, COMPACT FLUSH WITH ADJACENT SURFACE.

4.) SURFACE PREPARATION

A. GENERAL: IMMEDIATELY BEFORE PLACING ASPHALT MATERIALS, REMOVE LOOSE AND DELETERIOUS MATERIAL FROM SUBSTRATE SURFACES. ENSURE THAT PREPARED SUBGRADE IS READY TO RECEIVE PAVING. SAWCUT EXISTING PAVEMENT TO THE JOINED TO PROVIDE VERTICAL FACES BETWEEN NEW AND EXISTING SURFACES.
B. EMULSIFIED ASPHALT PRIME COAT: APPLY UNIFORMLY OVER SURFACE OF COMPACTED UNBOUND-AGGREGATE BASE COURSE AT A RATE OF 0.10 TO 0.30 GAL./SQ. YD. PER INCH DEPTH . APPLY ENOUGH MATERIAL TO PENETRATE AND SEAL, BUT NOT FLOOD, SURFACE. ALLOW PRIME COAT TO CURE.
   1. IF PRIME COAT IS NOT ENTIRELY ABSORBED WITHIN 24 HOURS AFTER APPLICATION, SPREAD SAND OVER SURFACE TO BLOT EXCESS ASPHALT. USE ENOUGH SAND TO PREVENT PICKUP UNDER TRAFFIC. REMOVE LOOSE SAND BY SWEEPING BEFORE PAVEMENT IS PLACED AND AFTER EXCESS HAS HAVE EVAPORATED.
   2. PROTECT PRIMED SUBSTRATE FROM DAMAGE UNTIL READY TO RECEIVE PAVING.
C. TACK COAT: APPLY UNIFORMLY TO SURFACES OF EXISTING PAVEMENT AT A RATE OF 0.02 TO 0.08 GAL./SQ. YD.
   1. ALLOW TACK COAT TO CURE UNDISTURBED BEFORE APPLYING HOT-MIX ASPHALT PAVING.
   2. AVOID SMEARING OR STAINING ADJOINING SURFACES, APPURTENANCES, AND SURROUNDINGS. REMOVE SPILLAGES AND CLEAN AFFECTED SURFACES.

5.) PLACING HOT-MIX ASPHALT

A. MACHINE PLACE HOT-MIX ASPHALT ON PREPARED SURFACE, SPREAD UNIFORMLY, AND STRIKE OFF. PLACE ASPHALT MIX BY HAND IN AREAS INACCESSIBLE TO EQUIPMENT IN A MANNER THAT PREVENTS SEGREGATION OF MIX. PLACE EACH COURSE TO REQUIRED GRADE, CROSS SECTION, AND THICKNESS WHEN COMPACTED.
   1. PLACE HOT-MIX ASPHALT BASE COURSE IN NUMBER OF LIFTS AND THICKNESSES INDICATED.
   2. PLACE HOT-MIX ASPHALT SURFACE COURSE IN SINGLE LIFT.
   3. SPREAD MIX AT A MINIMUM TEMPERATURE OF 250 DEG F .
   4. BEGIN APPLYING MIX ALONG CENTERLINE OF CROWN FOR CROWNED SECTIONS AND ON HIGH SIDE OF ONE-WAY SLOPES UNLESS OTHERWISE INDICATED.
   5. REGULATE PAVER MACHINE SPEED TO OBTAIN SMOOTH, CONTINUOUS SURFACE FREE OF PULLS AND TEARS IN ASPHALT-PAVING MAT.
B. PLACE PAVING IN CONSECUTIVE STRIPS NOT LESS THAN 10 FEET WIDE UNLESS INFILL EDGE STRIPS OF A LESSER WIDTH ARE REQUIRED.

6.) JOINTS

A. CONSTRUCT JOINTS TO ENSURE A CONTINUOUS BOND BETWEEN ADJOINING PAVING SECTIONS. CONSTRUCT JOINTS FREE OF DEPRESSIONS, WITH SAME TEXTURE AND SMOOTHNESS AS OTHER SECTIONS OF HOT-MIX ASPHALT COURSE.
B. CONSTRUCT SMOOTH TRANSITIONS BETWEEN NEW AND EXISTING PAVING SECTIONS.

7.) COMPACTION

A. GENERAL: BEGIN COMPACTION AS SOON AS PLACED HOT-MIX PAVING WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT. COMPACT HOT-MIX PAVING WITH HOT, HAND TAMPERS OR WITH VIBRATORY-PLATE COMPACTORS IN AREAS INACCESSIBLE TO ROLLERS. COMPLETE COMPACTION BEFORE MIX TEMPERATURE COOLS TO 185 DEG F.
   1. INITIAL LIFT: AVERAGE OF 92% OF MAXIMUM THEORETICAL DENSITY.
   2. TOP SURFACE LIFT: AVERAGE OF 93% OF MAXIMUM THEORETICAL DENSITY.
   3. TOLERANCE: +2.0%, -1.0% OF ANY INDIVIDUAL TEST.
B. FINISH ROLLING: FINISH ROLL PAVED SURFACES TO REMOVE ROLLER MARKS WHILE HOT-MIX ASPHALT IS STILL WARM.
C. ERECT BARRICADES TO PROTECT PAVING FROM TRAFFIC FOR AT LEAST 24 HOURS AFTER PLACEMENT FOR THE BINDER COURSE, AND AT LEAST 72 HOURS AFTER PLACEMENT FOR THE FINAL WEARING SURFACE.
D. IF THE AMBIENT AIR TEMPERATURE IS IN EXCESS OF 90 DEGREES FAHRENHEIT DURING THE 72 HOUR PROTECTION PERIOD, THE PAVEMENT SURFACE SHALL BE FLOODED WITH WATER TO RAPIDLY COOL THE PAVEMENT AT LEAST ONCE PER DAY.

8.) FIELD QUALITY CONTROL

A. TESTING AGENCY: ENGAGE A QUALIFIED TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS.
B. CONDUCT TESTS AND REPORTS SPECIFIED IN THE PROJECT GEOTECHNICAL REPORT.
C. TESTING AGENCY MUST INSPECT AND APPROVE THE SUBGRADE, EACH FILL LAYER, AND THE SUBBASE AND BASE COURSE.
D. PROMPTLY SEND TEST REPORTS TO THE ENGINEER FOR REVIEW AND APPROVAL.
E. REMOVE AND REPLACE OR INSTALL ADDITIONAL HOT-MIX ASPHALT WHERE TEST RESULTS OR MEASUREMENTS INDICATE THAT IT DOES NOT COMPLY WITH SPECIFIED REQUIREMENTS.

CONCRETE PAVING

1.) PROJECT CONDITIONS

A. TRAFFIC CONTROL: MAINTAIN ACCESS FOR VEHICULAR AND PEDESTRIAN TRAFFIC AS REQUIRED FOR OTHER CONSTRUCTION ACTIVITIES.

2.) STEEL REINFORCEMENT

A. PLAIN-STEEL WELDED WIRE REINFORCEMENT: ASTM A 185/A 185M, FABRICATED FROM AS-DRAWN STEEL WIRE INTO FLAT SHEETS.
B. REINFORCING BARS: ASTM A 615/A 615M, GRADE 60 ; DEFORMED.
C. DOWEL BARS: ASTM A 615/A 615M, GRADE 60 PLAIN-STEEL BARS. CUT BARS TRUE TO LENGTH WITH ENDS SQUARE AND FREE OF BURRS.
D. BAR SUPPORTS: BOLSTERS, CHAIRS, SPACERS, AND OTHER DEVICES FOR SPACING, SUPPORTING, AND FASTENING REINFORCING BARS, WELDED WIRE REINFORCEMENT, AND DOWELS IN PLACE. MANUFACTURE BAR SUPPORTS ACCORDING TO CRSI'S "MANUAL OF STANDARD PRACTICE" FROM STEEL WIRE, PLASTIC, OR PRECAST CONCRETE OF GREATER COMPRESSIVE STRENGTH THAN CONCRETE SPECIFIED, AND AS FOLLOWS:

3.) CONCRETE MATERIALS

A. CEMENTITIOUS MATERIAL: USE CEMENTITIOUS MATERIALS, OF SAME TYPE, BRAND, AND SOURCE THROUGHOUT PROJECT.
B. NORMAL-WEIGHT AGGREGATES: ASTM C 33,, UNIFORMLY GRADED. PROVIDE AGGREGATES FROM A SINGLE SOURCE.
   1. MAXIMUM COARSE-AGGREGATE SIZE: 1 INCH NOMINAL.
   2. FINE AGGREGATE: FREE OF MATERIALS WITH DELETERIOUS REACTIVITY TO ALKALI IN CEMENT.

4.) RELATED MATERIALS

A. JOINT FILLERS: ASTM D 1751, ASPHALT-SATURATED CELLULOSIC FIBER IN PREFORMED STRIPS.

5.) WHEEL STOPS

A. WHEEL STOPS: PRECAST, AIR-ENTRAINED CONCRETE, 2500-PSI MINIMUM COMPRESSIVE STRENGTH. PROVIDE CHAMFERED CORNERS AND DRAINAGE SLOTS ON UNDERSIDE AND HOLES FOR ANCHORING TO SUBSTRATE.

6.) SIDEWALKS

A. SIDEWALKS: SLOPE SIDEWALKS AWAY FROM BUILDING WITH A 1.5% CROSS-SLOPE UNLESS DRAWINGS INDICATE OTHERWISE.

7.) PREPARATION

A. REMOVE LOOSE MATERIAL FROM COMPACTED SUBBASE SURFACE IMMEDIATELY BEFORE PLACING CONCRETE.

8.) STEEL REINFORCEMENT

A. GENERAL: COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE" FOR FABRICATING, PLACING, AND SUPPORTING REINFORCEMENT.
B. CLEAN REINFORCEMENT OF LOOSE RUST AND MILL SCALE, EARTH, ICE, OR OTHER BOND-REDUCING MATERIALS.
C. ARRANGE, SPACE, AND SECURELY TIE BARS AND BAR SUPPORTS TO HOLD REINFORCEMENT IN POSITION DURING CONCRETE PLACEMENT. MAINTAIN MINIMUM COVER TO REINFORCEMENT.
D. INSTALL WELDED WIRE REINFORCEMENT IN LENGTHS AS LONG AS PRACTICABLE. LAP ADJOINING PIECES AT LEAST ONE FULL MESH, AND LACE SPLICES WITH WIRE. OFFSET LAPS OF ADJOINING WIDTHS TO PREVENT CONTINUOUS LAPS IN EITHER DIRECTION.
E. ZINC-COATED REINFORCEMENT: USE GALVANIZED-STEEL WIRE TIES TO FASTEN ZINC-COATED REINFORCEMENT. REPAIR CUT AND DAMAGED ZINC COATINGS WITH ZINC REPAIR MATERIAL.

9.) JOINTS

A. GENERAL: FORM CONSTRUCTION, ISOLATION, AND CONTRACTION JOINTS AND TOOL EDGES TRUE TO LINE, WITH FACES PERPENDICULAR TO SURFACE PLANE OF CONCRETE. CONSTRUCT TRANSVERSE JOINTS AT RIGHT ANGLES TO CENTERLINE UNLESS OTHERWISE INDICATED.
   1. WHEN JOINING EXISTING PAVING, PLACE TRANSVERSE JOINTS TO ALIGN WITH PREVIOUSLY PLACED JOINTS UNLESS OTHERWISE INDICATED.
   2. ENSURE FORMWORK PROVIDES CORRECT HORIZONTAL AND VERTICAL ALIGNMENT BETWEEN NEW AND EXISTING PAVEMENTS, SIDEWALKS, CURB AND GUTTER, ETC.
B. CONSTRUCTION JOINTS: SET CONSTRUCTION JOINTS AT SIDE AND END TERMINATIONS OF PAVING AND AT LOCATIONS WHERE PAVING OPERATIONS ARE STOPPED FOR MORE THAN ONE-HALF HOUR UNLESS PAVING SCHEDULE DICTATES AT DIFFERENT LOCATIONS.
   1. CONTINUE STEEL REINFORCEMENT ACROSS CONSTRUCTION JOINTS UNLESS OTHERWISE INDICATED. DO NOT CONTINUE REINFORCEMENT THROUGH SIDES OF PAVING STRIPS UNLESS SIDE OF ONE-WAY SLOPES UNLESS OTHERWISE INDICATED.
   2. PROVIDE TIE BARS AT SIDES OF PAVING STRIPS WHERE INDICATED.
   3. KEYED JOINTS: PROVIDE PREFORMED KEYWAY-SECTION FORMS OR BULKHEAD FORMS WITH KEYS UNLESS OTHERWISE INDICATED. EMBED KEYS AT LEAST 1-1/2 INCHES INTO CONCRETE.
   4. DOWELED JOINTS: INSTALL DOWEL BARS AND SUPPORT ASSEMBLIES AT JOINTS WHERE INDICATED. LUBRICATE OR COAT WITH ASPHALT ONE-HALF OF DOWEL LENGTH TO PREVENT CONCRETE BONDING TO ONE SIDE OF JOINT.
C. ISOLATION JOINTS: FORM ISOLATION JOINTS OF PREFORMED JOINT-FILLER STRIPS ABUTTING CONCRETE CURBS, CATCH BASINS, MANHOLES, INLETS, STRUCTURES, OTHER FIXED OBJECTS, AND WHERE INDICATED.
   1. LOCATE EXPANSION JOINTS AT INTERVALS OF 30 FEET UNLESS OTHERWISE INDICATED.
   2. EXTEND JOINT FILLERS FULL WIDTH AND DEPTH OF JOINT.
   3. TERMINATE JOINT FILLER NOT LESS THAN 1/2 INCH OR MORE THAN 1 INCH BELOW FINISHED SURFACE IF JOINT SEALANT IS INDICATED.
   4. PLACE TOP OF JOINT FILLER FLUSH WITH FINISHED CONCRETE SURFACE IF JOINT SEALANT IS NOT INDICATED.
   5. FURNISH JOINT FILLERS IN ONE-PIECE LENGTHS. WHERE MORE THAN ONE LENGTH IS REQUIRED, LACE OR CLIP JOINT-FILLER SECTIONS TOGETHER.
   6. DURING CONCRETE PLACEMENT, PROTECT TOP EDGE OF JOINT FILLER WITH METAL, PLASTIC, OR OTHER TEMPORARY PREFORMED CAP. REMOVE PROTECTIVE CAP AFTER CONCRETE HAS BEEN PLACED ON BOTH SIDES OF JOINT.
D. CONTRACTION JOINTS: FORM WEAKENED-PLANE CONTRACTION JOINTS, SECTIONING CONCRETE INTO AREAS AS INDICATED. CONSTRUCT CONTRACTION JOINTS FOR A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE CONCRETE THICKNESS, AS FOLLOWS:
   1. GROOVED JOINTS: FORM CONTRACTION JOINTS AFTER INITIAL FLOATING BY GROOVING AND FINISHING EACH EDGE OF JOINT WITH GROOVING TOOL TO A 1/4-INCH RADIUS. REPEAT GROOVING OF CONTRACTION JOINTS AFTER APPLYING SURFACE FINISHES. ELIMINATE GROOVING-TOOL MARKS ON CONCRETE SURFACES.
   2. SAWED JOINTS: FORM CONTRACTION JOINTS WITH POWER SAWS EQUIPPED WITH SHATTERPROOF ABRASIVE OR DIAMOND-RIMMED BLADES. CUT 1/8-INCH- WIDE JOINTS INTO CONCRETE WHEN CUTTING ACTION WILL NOT TEAR, ABRADE, OR OTHERWISE DAMAGE SURFACE AND BEFORE DEVELOPING RANDOM CONTRACTION CRACKS.
   3. DOWELED CONTRACTION JOINTS: INSTALL DOWEL BARS AND SUPPORT ASSEMBLIES AT JOINTS WHERE INDICATED. LUBRICATE OR COAT WITH ASPHALT ONE-HALF OF DOWEL LENGTH TO PREVENT CONCRETE BONDING TO ONE SIDE OF JOINT.
E. EDGING: AFTER INITIAL FLOATING, TOOL EDGES OF PAVING, GUTTERS, CURBS, AND JOINTS IN CONCRETE WITH AN EDGING TOOL TO A 1/4-INCH RADIUS. REPEAT TOOLING OF EDGES AFTER APPLYING SURFACE FINISHES. ELIMINATE EDGING-TOOL MARKS ON CONCRETE SURFACES.

10.) FIELD QUALITY CONTROL

A. TESTING AGENCY: ENGAGE A QUALIFIED TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS.
B. PROMPTLY SEND TEST REPORTS TO THE ENGINEER FOR REVIEW AND APPROVAL.
C. TESTING SERVICES: TESTING OF COMPOSITE SAMPLES OF FRESH CONCRETE OBTAINED ACCORDING TO ASTM C 172 SHALL BE PERFORMED BY THE GENERAL CONTRACTOR'S TESTING AGENCY ACCORDING TO THE FOLLOWING REQUIREMENTS:
   1. TESTING FREQUENCY: OBTAIN AT LEAST ONE COMPOSITE SAMPLE FOR EACH 100 CU. YD. OR FRACTION THEREOF OF EACH CONCRETE MIXTURE PLACED EACH DAY. WHEN FREQUENCY OF TESTING WILL PROVIDE FEWER THAN FIVE COMPRESSIVE-STRENGTH TESTS FOR EACH CONCRETE MIXTURE, TESTING SHALL BE CONDUCTED FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE ARE USED.
   2. SLUMP: ASTM C 143/C 143M; ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE. PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE.
   3. AIR CONTENT: ASTM C 231, PRESSURE METHOD; ONE TEST FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE.
   4. CONCRETE TEMPERATURE: ASTM C 1064/C 1064M; ONE TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEG F AND BELOW AND WHEN IT IS 80 DEG F AND ABOVE, AND ONE TEST FOR EACH COMPOSITE SAMPLE.
   5. COMPRESSION TEST SPECIMENS: ASTM C 31/C 31M; CAST AND LABORATORY CURE ONE SET OF THREE STANDARD CYLINDER SPECIMENS FOR EACH COMPOSITE SAMPLE.
   6. COMPRESSIVE-STRENGTH TESTS: ASTM C 39/C 39M; TEST ONE SPECIMEN AT SEVEN DAYS AND TWO SPECIMENS AT 28 DAYS. A COMPRESSIVE-STRENGTH TEST SHALL BE THE AVERAGE COMPRESSIVE STRENGTH FROM TWO SPECIMENS OBTAINED FROM SAME COMPOSITE SAMPLE AND TESTED AT 28 DAYS.
D. STRENGTH OF EACH CONCRETE MIXTURE WILL BE SATISFACTORY IF AVERAGE OF ANY THREE CONSECUTIVE COMPRESSIVE-STRENGTH TESTS EQUALS OR EXCEEDS SPECIFIED COMPRESSIVE STRENGTH AND NO COMPRESSIVE-STRENGTH TEST VALUE FALLS BELOW SPECIFIED COMPRESSIVE STRENGTH BY MORE THAN 500 PSI .
E. TEST RESULTS SHALL BE REPORTED IN WRITING TO ENGINEER, CONCRETE MANUFACTURER, AND CONTRACTOR WITHIN 48 HOURS OF TESTING. REPORTS OF COMPRESSIVE-STRENGTH TESTS SHALL CONTAIN PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF CONCRETE PLACEMENT, NAME OF CONCRETE TESTING AND INSPECTING AGENCY, LOCATION OF CONCRETE BATCH IN WORK, DESIGN COMPRESSIVE STRENGTH AT 28 DAYS, CONCRETE MIXTURE PROPORTIONS AND MATERIALS, COMPRESSIVE BREAKING STRENGTH, AND TYPE OF BREAK FOR BOTH 7- AND 28-DAY TESTS.
F. ADDITIONAL TESTS: TESTING AND INSPECTING AGENCY SHALL MAKE ADDITIONAL TESTS OF CONCRETE WHEN TEST RESULTS INDICATE THAT SLUMP, AIR ENTRAINMENT, COMPRESSIVE STRENGTHS, OR OTHER REQUIREMENTS HAVE NOT BEEN MET, AS DIRECTED BY ENGINEER.
G. CONCRETE PAVING WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.
H. ADDITIONAL TESTING AND INSPECTING, AT CONTRACTOR'S EXPENSE, WILL BE PERFORMED TO DETERMINE COMPLIANCE OF REPLACED OR ADDITIONAL WORK WITH SPECIFIED REQUIREMENTS. PREPARE TEST AND INSPECTION REPORTS.

11.) REPAIRS AND PROTECTION

A. REMOVE AND REPLACE CONCRETE PAVING THAT IS BROKEN, DAMAGED, OR DEFECTIVE OR THAT DOES NOT COMPLY WITH REQUIREMENTS IN THIS SECTION. REMOVE WORK TO COMPLETE SECTIONS FROM JOINT TO JOINT UNLESS OTHERWISE APPROVED BY ENGINEER.
B. DRILL TEST CORES, WHERE DIRECTED BY ENGINEER, WHEN NECESSARY TO DETERMINE MAGNITUDE OF CRACKS OR DEFECTIVE AREAS. FILL DRILLED CORE HOLES IN SATISFACTORY PAVING AREAS WITH PORTLAND CEMENT CONCRETE BONDED TO PAVING WITH EPOXY ADHESIVE.
C. PROTECT CONCRETE PAVING FROM DAMAGE. EXCLUDE TRAFFIC FROM PAVING FOR AT LEAST 14 DAYS AFTER PLACEMENT. WHEN CONSTRUCTION TRAFFIC IS PERMITTED, MAINTAIN PAVING AS CLEAN AS POSSIBLE BY REMOVING SURFACE STAINS AND SPILLAGE OF MATERIALS AS THEY OCCUR.
D. MAINTAIN CONCRETE PAVING FREE OF STAINS, DISCOLORATION, DIRT, AND OTHER FOREIGN MATERIAL. SWEEP PAVING NOT MORE THAN TWO DAYS BEFORE DATE SCHEDULED FOR SUBSTANTIAL COMPLETION INSPECTIONS.

PAVEMENT MARKINGS

1.) QUALITY ASSURANCE

A. REGULATORY REQUIREMENTS: COMPLY WITH MATERIALS, WORKMANSHIP, AND OTHER APPLICABLE REQUIREMENTS OF STATE DOT OR LOCAL MUNICIPALITY FOR PAVEMENT-MARKING WORK.

2.) FIELD CONDITIONS

A. ENVIRONMENTAL LIMITATIONS: PROCEED WITH PAVEMENT MARKING ONLY ON CLEAN, DRY SURFACES AND AT A MINIMUM AMBIENT OR SURFACE TEMPERATURE OF 40 DEG F FOR ALKYD MATERIALS, 55 DEG F FOR WATER-BASED MATERIALS, AND NOT EXCEEDING 95 DEG F.

3.) PAVEMENT-MARKING PAINT

A. PAVEMENT-MARKING PAINT: ALKYD-RESIN TYPE, LEAD AND CHROMATE FREE, READY MIXED, COMPLYING WITH AASHTO M 248; COLORS COMPLYING WITH FS TT-P-1952. COLOR: AS INDICATED.
B. ALL PAVEMENT MARKING WITHIN D.O.T. RIGHT-OF-WAY SHALL BE THERMOPLASTIC AND IN ACCORDANCE WITH D.O.T. SPECIFICATIONS.

4.) PAVEMENT MARKING

A. APPLY TEMPORARY PAVEMENT MARKING BEFORE TRAFFIC IS ALLOWED ON ANY NEWLY PAVED AREA OR AS SITE CONDITIONS DICTATE. ALLOW FINAL WEARING SURFACE TO AGE FOR A MINIMUM OF 30 DAYS BEFORE APPLYING FINAL PERMANENT PAVEMENT MARKING.

5.) PROTECTING A

GENERAL NOTES:

1) THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE DEMOLITION PERMIT FROM CITY OF LILLINGTON, NC PRIOR TO DEMOLITION OF THE SITE.

2) ALL INITIAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY WORK INCLUDING DEMOLITION.

3) ALL CONSTRUCTION RELATED PERMITS DURING THE CONSTRUCTION PHASE OF THIS PROJECT ARE THE RESPONSIBILITY OF THE CONTRACTOR.

4) REMOVE SHRUBS AND TREES AS NOTED. GRUB OUT ROOTS AND STUMPS AND LEGALLY DISPOSE OF DEBRIS.

5) CONTRACTOR SHALL BE FAMILIAR WITH AND FOLLOW ALL RECOMMENDATIONS GIVEN IN THE GEOTECHNICAL ENGINEERING REPORT BY TERRACON CONSULTANTS, INC DATED 10/31/2019 DURING DEMOLITION AND SITE CONSTRUCTION.

DEMOLITION NOTES:

1) ALL NEW WORK SHOWN IN THESE SHEETS SHALL COMPLY WITH APPLICABLE STATE, FEDERAL, AND LOCAL BUILDING AND UTILITY INSTALLATION CODES.

2) ALL MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES EXCEPT IN CASES WHERE, WITHIN CITY OF LILLINGTON, NC JURISDICTION, THE CITY/COUNTY STANDARD SPECIFICATIONS ARE MORE STRINGENT.

3) THERE MAY BE ADDITIONAL UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR LOCATIONS SHOWN, AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE LOCATIONS OF ALL UTILITIES WITHIN THE LIMITS OF CONSTRUCTION AND TO NOTIFY THE OWNER IN CASE OF DISCREPANCIES THAT AFFECT THE CONSTRUCTION PROJECT.

4) THE CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION OF AND LIAISON WITH UTILITY COMPANIES IN THE PROCESS OF LOCATION AND RELOCATION OF AND TIE-IN TO PUBLIC UTILITIES.

5) CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE THAT MAY OCCUR TO ANY ADJACENT STRUCTURES OR PROPERTY, OR ANY EXISTING STRUCTURES WITHIN LIMITS OF CONSTRUCTION THAT ARE DESIGNATED ON THE PLANS TO REMAIN, AND SHALL REPAIR OR REPLACE SUCH DAMAGED PROPERTY TO THE PROPERTY OWNER'S SATISFACTION AT NO COST TO THE OWNER.

6) THE CONTRACTOR SHALL NOT DEVIATE FROM THESE PLANS AND SPECIFICATIONS WITHOUT THE PRIOR WRITTEN CONSENT OF THE ENGINEER.

7) CONTRACTOR IS RESPONSIBLE FOR CONTACTING CITY OF LILLINGTON, NC AND ALL EXISTING UTILITY PROVIDERS BEFORE REMOVING ANY/ALL UTILITIES FROM THEIR EXISTING LOCATION ON THE SITE. THE CONTRACTOR SHALL PERFORM ALL UTILITY DEMOLITION OR RELOCATION ACTIVITIES IN ACCORDANCE WITH THE EXISTING UTILITIES SPECIFICATIONS, MATERIALS, AND REQUIREMENTS.

8) THE CONTRACTOR SHALL SEQUENCE THE WORK AND PROVIDE TEMPORARY MEASURES AS NECESSARY TO MAINTAIN ACCESS TO THE SITE THROUGH ALL ENTRANCES AT ALL TIMES DURING CONSTRUCTION. TEMPORARY PROVISIONS MAY INCLUDE, BUT ARE NOT LIMITED TO: BARRICADES, FLASHING LIGHTS, FLAGMAN, TEMPORARY PAVEMENT, AND DIRECTIONAL SIGNAGE AS NECESSARY TO ACCOMPLISH THE WORK.

9) CONTRACTOR SHALL CONSIDER COORDINATION ASPECTS OF CRANES AND CONSTRUCTION EQUIPMENT OPERATIONS DURING DEMOLITION ACTIVITY.

10) CONTRACTOR EQUIPMENT SHALL NOT BE PARKED IN COUNTY, CITY OR STATE RIGHT-OF-WAY, AND MUST BE STORED WITHIN SITE.

11) COORDINATE WITH CITY OF LILLINGTON, NC AS REQUIRED DURING ALL DEMOLITION AND NEW CONSTRUCTION ACTIVITIES.

12) APPROVAL OF THESE PLANS DOES NOT CONSTITUTE APPROVAL BY CITY OF LILLINGTON, NC OF ANY LAND DISTURBING ACTIVITIES WITHIN WETLAND AREAS. IT IS THE RESPONSIBILITY OF THE PROPERTY OWNER TO CONTACT THE APPROPRIATE REGULATORY AGENCY FOR APPROVAL OF ANY WETLAND AREA DISTURBANCE.

13) ALL BUFFERS AND SAVE AREAS SHALL BE CLEARLY IDENTIFIED BY FLAGGING AND/OR FENCING PRIOR TO COMMENCEMENT OF ANY LAND DISTURBANCE.

14) THE CONTRACTOR SHALL DISPOSE OF ANY HAZARDOUS MATERIALS IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL LAWS.

15) ALL ITEMS DESIGNATED FOR REMOVAL SHALL BE LEGALLY DISPOSED OF, OFF SITE.

16) CONTRACTOR TO CONTACT UTILITIES PROTECTION CENTER PRIOR TO ANY EXCAVATION.

17) CONTRACTOR TO POT HOLE EXISTING WATER LINE, UNDERGROUND ELECTRICAL LINES, GAS LINE, UNDERGROUND TELEPHONE, FIBER OPTIC, AND ANY OTHER UTILITY LINES WITHIN THE RIGHT OF WAY DURING DEMOLITION ACTIVITIES AND COORDINATE FIELD LOCATIONS AND DEPTHS OF THESE UTILITIES WITH ENGINEER FOR PROPOSED UTILITY CROSSINGS AND PROPOSED PAVEMENT OVER EXISTING LINES. THESE LINES MAY REQUIRE RELOCATION.

EROSION CONTROL NOTES

(SEE ALSO EROSION CONTROL PLAN)

1) EROSION CONTROL DEVICES ARE TO BE INSTALLED PRIOR TO ANY CLEARING OR EARTHWORK OPERATIONS AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ALL DISTURBED AREAS.

2) THE CONTRACTOR SHALL PROVIDE DUST CONTROL AND SHALL PROTECT ADJACENT PAVEMENTS FROM SOIL ACCUMULATION DURING CONSTRUCTION.

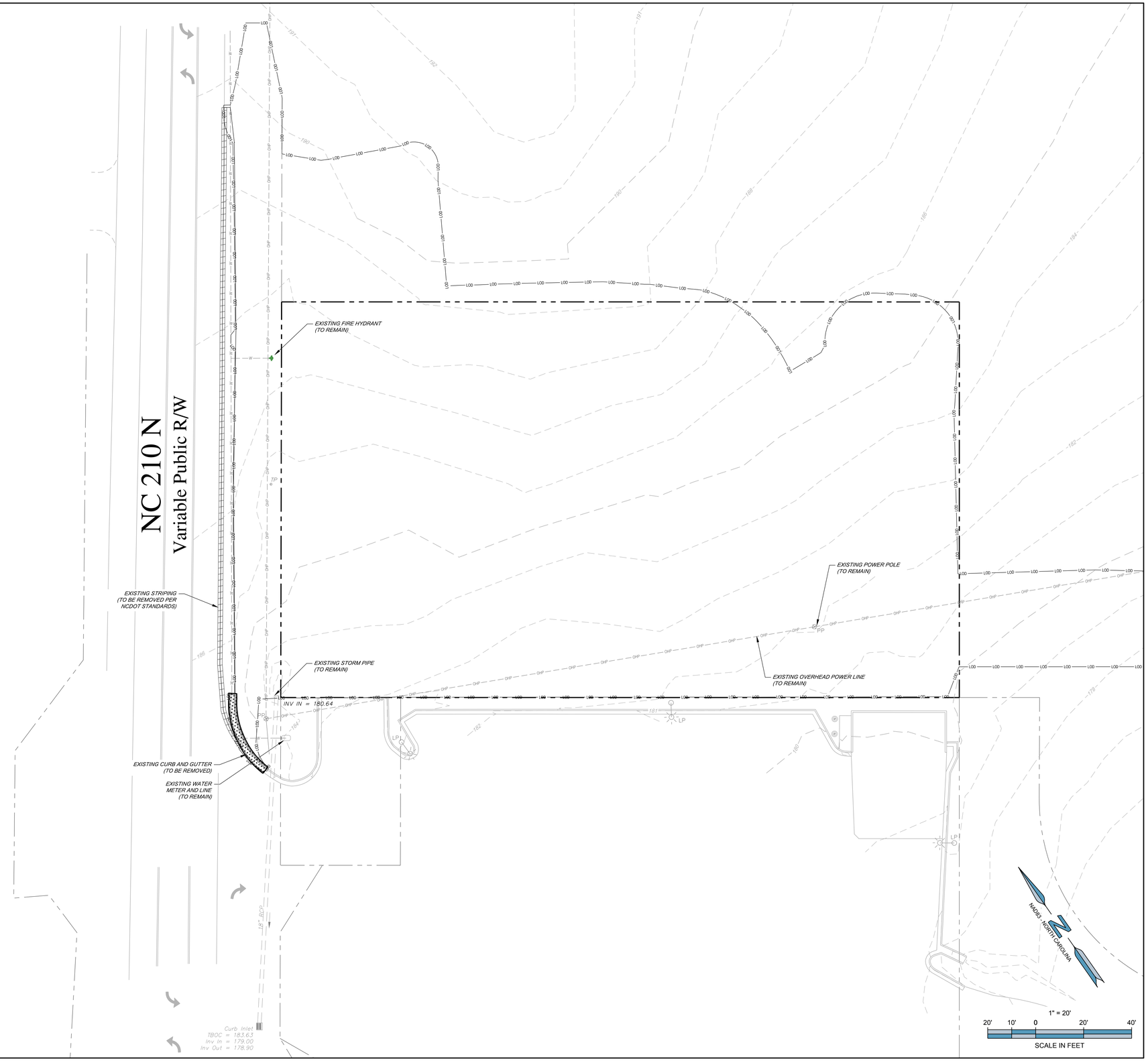
3) ADDITIONAL EROSION CONTROL DEVICES MAY BE REQUIRED BY THE ENGINEER OR OTHER INSPECTORS AS DETERMINED BY FIELD CONDITIONS.

LEGEND

	UTILITIES, FENCE, STRIPING, AND/OR WALL TO BE REMOVED AND/OR RELOCATED. SEE NOTE FOR DETAIL.
	BUILDING/CONCRETE TO BE REMOVED (NOT USED)
	ASPHALT, GRAVEL, AND/OR CURB & GUTTER TO BE REMOVED
	TREES AND BRUSH TO BE REMOVED (NOT USED)
	DEMOLISH STRUCTURES WITHIN THIS AREA PRIOR TO ALL OTHER DEMOLITION
	EXISTING FENCE
	PROPERTY LINE
LOD LOD LOD	LIMITS OF DISTURBANCE
	TREE PROTECTION FENCE (NOT USED)
	EXISTING TREE TO BE REMOVED (NOT USED)

EXISTING SITE DATA

TOTAL SITE AREA =	1.07 AC.
EXISTING PERVIOUS AREA =	1.07 AC.
EXISTING IMPERVIOUS AREA =	0.00 AC.



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PARCEL #:0650-97-6978.000,

SEAL:
DRAFT

REVISIONS	DATE

PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	1" = 20'
TITLE:	

DEMOLITION PLAN

SHEET NUMBER:
C-0

COMMENTS:
NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER:
930.023

GENERAL NOTES:

1) ALL PROPOSED DIMENSIONS USED TO SHOW THE GEOMETRIC LAYOUT OF THE PROPOSED PARKING LOT ARE SHOWN AT THE FACE OF CURB. ALL PROPOSED DIMENSIONS USED TO SHOW THE GEOMETRIC LAYOUT OF THE PROPOSED BUILDING LOCATION ARE GIVEN AT THE OUTSIDE FACE OF THE BUILDING CORNERS. ALL CURB RADII ARE GIVEN AT THE FACE OF CURB.

2) CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS IN THE FIELD AND THE SURVEY SHOWN ON THE PLANS BEFORE PROCEEDING WITH ANY NEW CONSTRUCTION.

3) CONTRACTOR IS RESPONSIBLE FOR CORRECT HORIZONTAL AND VERTICAL ALIGNMENT OF ALL TIES BETWEEN PROPOSED AND EXISTING PAVEMENTS, CURB AND GUTTER, SIDEWALKS, WALLS, AND UTILITIES.

SITE NOTES:

1) TRACT IS ZONED: GB (GENERAL BUSINESS), HOD (HIGHWAY OVERLAY DISTRICT)

2) SEE ARCHITECTURAL PLANS FOR BUILDING FLOOR PLAN DIMENSIONS, DOOR LOCATIONS, SITE LIGHTING PLAN, AND OTHER ARCHITECTURAL DETAILS.

3) NO CERTIFICATE OF OCCUPANCY WILL BE ISSUED UNTIL ALL SITE IMPROVEMENTS HAVE BEEN COMPLETED ON THE SITE.

4) HIGH INTENSITY LIGHTING FACILITIES SHALL BE SO ARRANGED THAT THE SOURCE OF ANY LIGHT IS CONCEALED FROM THE PUBLIC VIEW AND DOES NOT INTERFERE WITH TRAFFIC. (SEE PHOTOMETRICS PLAN IN ARCH. PLANS).

5) ALL BUFFERS, TREE SAVE AREAS, AND UNDISTURBED AREAS SHALL BE CLEARLY IDENTIFIED BY FLAGGING AND/OR FENCING PRIOR TO COMMENCEMENT OF ANY LAND DISTURBANCE.

6) NO OUTSIDE STORAGE IS PROPOSED. THIS INCLUDES SUPPLIES, VEHICLE, EQUIPMENT, PRODUCTS, ETC.

7) SIGNS (LOCATION, NUMBER, AND SIZE) ARE NOT APPROVED UNDER THIS DEVELOPMENT PERMIT. A SEPARATE PERMIT IS REQUIRED FOR ON-SITE SIGNAGE.

8) ALL PAVEMENT MARKING WITHIN CITY OF LILLINGTON, NC RIGHT-OF-WAY SHALL BE THERMOPLASTIC AND ACCORDING TO NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

9) ALL CONSTRUCTION RELATED PERMITS DURING THE CONSTRUCTION PHASE OF THIS PROJECT ARE THE RESPONSIBILITY OF THE OWNER, HOWEVER A CONTRACTOR/DEVELOPER CAN DO PERMITTING WITH AGENT AUTHORIZATION.

10) ALL EROSION, SEDIMENT CONTROL AND TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO ANY GRADING.

11) MAXIMUM CUT OR FILL SLOPE=2H:1V

12) 24 HOUR CONTACT: BRETT BASQUIN, (770) 368-1399

13) CONTRACTOR SHALL COORDINATE WITH THE CITY/COUNTY JURISDICTION, WATER AND SEWER JURISDICTION, AND DEPARTMENT OF TRANSPORTATION INSPECTORS REGARDING ALL CERTIFICATE OF OCCUPANCY REQUIREMENTS AND COORDINATE WITH THE ENGINEER APPROXIMATELY 8 WEEKS PRIOR TO ANTICIPATED CERTIFICATE OF OCCUPANCY DATE REGARDING ANY ITEMS REQUIRING APPROVAL OR CERTIFICATIONS BY THE ENGINEER.

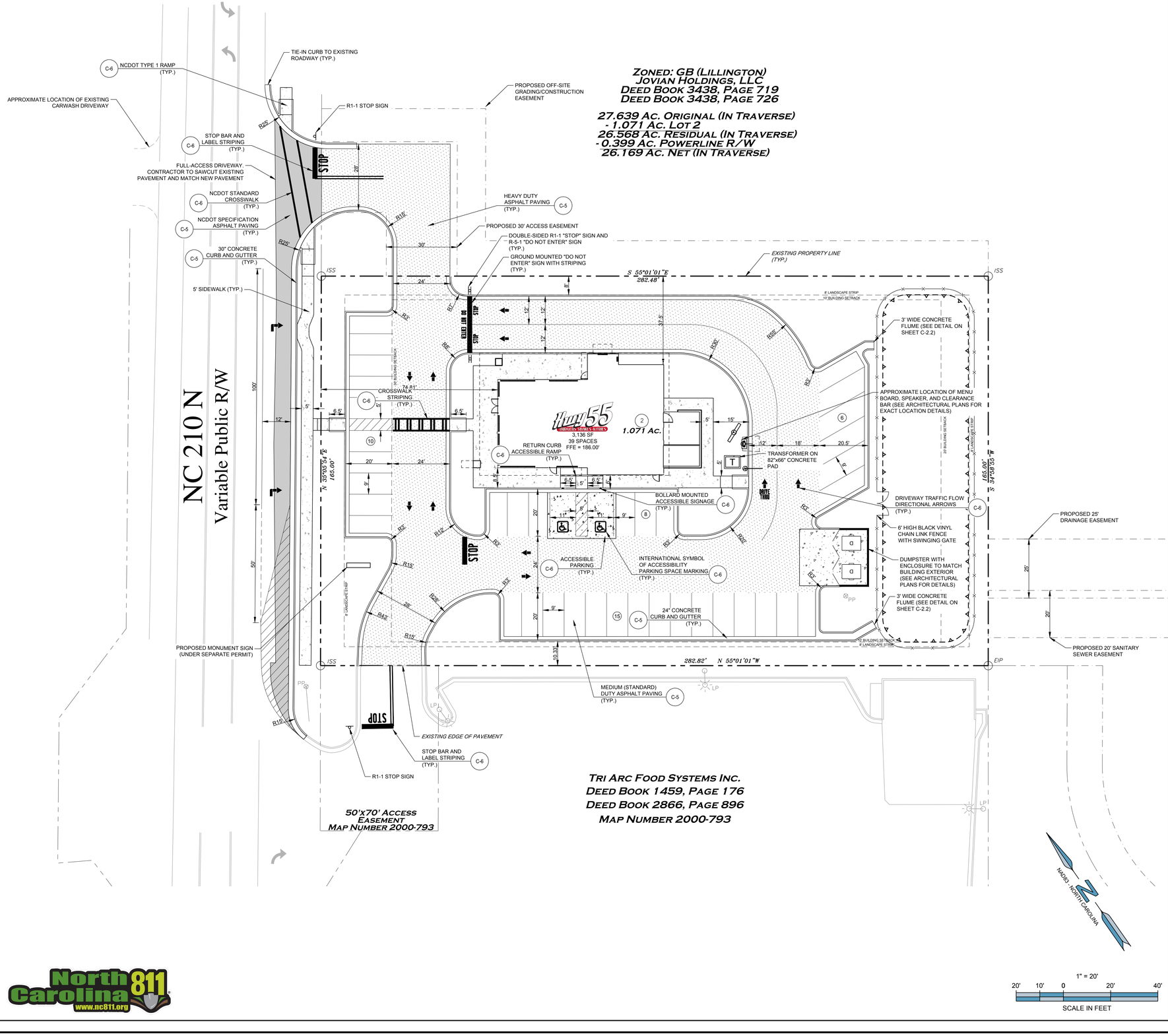
14) IN HEAVY DUTY PAVEMENT AREAS G.A.B. SHALL EXTEND UNDER THE GUTTER TO PROVIDE ADDITIONAL STABILITY FOR TRUCK TRAVEL.

LEGEND

- STANDARD DUTY ASPHALT PAVING
- HEAVY DUTY ASPHALT PAVING
- DOT SPECIFICATION ASPHALT PAVING
- CONCRETE SIDEWALK PAVING
- HEAVY DUTY CONCRETE PAVING
- PROPERTY LINE
- (#) PARKING COUNT
- TRAFFIC SIGN
- PAINTED TRAFFIC ARROWS

SITE DATA

ZONING:		GB (GENERAL BUSINESS)
OVERLAY DISTRICT:		HIGHWAY OVERLAY DISTRICT
FUTURE LAND USE DESIGNATION:		COMMERCIAL NODES / BOULEVARD COMMERCIAL
PARCEL IDENTIFICATION NUMBER:		0650-97-6978.000
TOTAL SITE AREA:		1.07 AC.
DISTURBED AREA: (INCLUDING OFF-SITE DRAINAGE IMPROVEMENTS AND ACCESS):		1.70 AC.
IMPERVIOUS SURFACE AREA MAXIMUM (%)		70%
IMPERVIOUS SURFACE AREA PROPOSED (%):		0.585 AC. (58.5%)
PERVIOUS SURFACE AREA PROPOSED (%):		0.415 AC. (41.5%)
LANDSCAPE STRIP -	FRONT 1:	10 FT
	SIDE:	8 FT
	REAR:	8 FT
BUILDING SETBACK -	FRONT 1:	30 FT
	SIDE:	10 FT
	REAR:	20 FT
BUILDING FLOOR AREA:	TOTAL GROUND:	3,136 S.F.
PROPOSED BUILDING HEIGHT:		25 FT (1 STORY)
BUILDING HEIGHT (MAX. ALLOWABLE):		4 STORIES
PARKING RATIO REQUIRED -	RESTAURANT:	1 SPACE / 400 S.F.
PARKING REQUIRED:		8 SPACES
PARKING PROVIDED:		39 SPACES
ACCESSIBLE PARKING REQUIRED:		2 SPACES
ACCESSIBLE PARKING PROVIDED:		2 SPACES



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NEILLS CREEK TOWNSHIP
PARCEL #:0650-97-6978.000,

SEAL:
DRAFT

REVISIONS	DATE

PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	1" = 20'
TITLE:	

SITE & PAVING PLAN

SHEET NUMBER:
C-1

COMMENTS:
NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER:
930.023

GENERAL NOTES:

1) ALL SPOT ELEVATIONS SHOWN ARE AT THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

2) ALL PROPOSED SIDEWALKS SHALL BE BUILT WITH A 1.5% CROSS-SLOPE AWAY FROM THE BUILDING.

3) ALL HEAD WALL SECTIONS SHALL BE CONSTRUCTED TO BE FLUSH WITH THE EXISTING DITCH BANK AND PROPOSED EMBANKMENT SLOPES.

SITE NOTES:

1) THE CONTRACTOR SHALL CLEAN OUT ACCUMULATED SILT IN STORM WATER CONVEYANCE CHANNELS AND PIPES AT END OF CONSTRUCTION WHEN DISTURBED AREAS HAVE BEEN STABILIZED.

2) COORDINATE WITH CITY OF LILLINGTON, NC INSPECTIONS DURING CONSTRUCTION.

3) NO CERTIFICATE OF OCCUPANCY WILL BE ISSUED UNTIL ALL SITE IMPROVEMENTS HAVE BEEN COMPLETED.

4) CONSTRUCT EROSION CONTROL BARRIERS PER CITY OF LILLINGTON, NC INSPECTOR AND MAINTAIN UNTIL PERMANENT VEGETATION IS ESTABLISHED.

5) THE CONTRACTOR SHALL RE-ESTABLISH ALL RIGHT OF WAY AREA WHICH IS DAMAGED OR DISTURBED TO ORIGINAL CONDITIONS OR BETTER DURING AUTHORIZED WORK. ALL WORK IN NCDOT RIGHT OF WAY SHALL COMPLY WITH NCDOT SPECIFICATIONS.

6) ALL CURBED LANDSCAPE ISLANDS SHALL BE FILLED TO TOP OF CURB WITH TOPSOIL AND SEEDED.

7) MAXIMUM CUT OR FILL SLOPES IS 2H:1V

8) TREE PROTECTION FENCE SHALL BE INSTALLED PRIOR TO ANY CLEARING OR GRADING ACTIVITIES.

9) ALL PLASTIC STORM PIPE SHOWN ON THIS PLAN SHALL BE WRAPPED WITH LOCATION WIRE AND TAPE.

10) ALL CMP STORM PIPE SHALL BE TYPE 2 ALUMINIZED. ALL HDPE SHALL BE AASHTO TYPE "S" AND SHALL BE INSTALLED IN ACCORDANCE TO ASTM D2321 OR AASHTO SECTION 30 STANDARD PRACTICES AND AS RECOMMENDED BY THE MANUFACTURER. ALL RCP STORM PIPE SHALL BE CLASS III.

11) IN ALL AREAS OF FILL OR OTHERWISE DISTURBANCE OF EXISTING CONDITIONS, UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL FULLY AND COMPLETELY REMOVE AND LEGALLY DISPOSE OFF-SITE, ALL PLANT MATERIALS INCLUDING BUT NOT LIMITED TO ROOT SYSTEMS, CONCRETE, REINFORCED CONCRETE, ASPHALT DEBRIS, UNDERBRUSH, TOPSOIL, AND OTHER DELETERIOUS MATERIAL. THE SUBGRADE TO REMAIN SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY FOLLOWING FULL REMOVAL OF THESE MATERIALS.

12) REFER TO SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION REPORTS AS PROVIDED BY OWNER FOR RECOMMENDATIONS ASSOCIATED WITH: GENERAL SITE PREPARATION, BUILDING PAD PREPARATION, SUBGRADE PREP, AREAS TO RECEIVE FILL, AREAS TO BE OVEREXCAVATED, PAVEMENT SECTIONS, FILL, SLOPES AND EXCAVATION. THE CONTRACTOR SHALL HAVE THIS REPORT ON THE JOB SITE FOR REFERENCE AT ALL TIMES. THE CONTRACTOR SHALL PROVIDE EARTHWORK OPERATIONS AND CONSTRUCTION PHASE MONITORING TO ENSURE THAT ALL COMPACTION IS COMPLETED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. THE CONTRACTOR SHALL PROVIDE TESTING REPORTS TO THE OWNER REGARDING COMPACTION TESTING PER THE TESTING PROTOCOL IN THE GEOTECHNICAL REPORT.

13) IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN QUALIFIED PROFESSIONAL ADVICE WHEN QUESTIONS ARISE CONCERNING DESIGN AND EFFECTIVENESS OF EROSION CONTROL DEVICES. **24 HR. CONTACT: BRETT BASQUIN (770) 368-1399**

14) NO PORTION OF THIS PROPERTY LIES WITHIN A SPECIAL FLOOD HAZARD AREA PER PANEL 3720064000J DATED 10/03/2006

15) DETENTION FACILITIES AND EROSION CONTROL MEASURES ARE TO BE ACCOMPLISHED PRIOR TO ANY OTHER CONSTRUCTION ON THE SITE AND MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.

16) EXTREME CAUTION SHALL BE USED WHEN WORKING WITHIN THE VICINITY OF THE EXISTING OVERHEAD POWER LINES. CONTRACTORS SHALL NOTIFY/COORDINATE WITH DUKE ENERGY PRIOR TO CONSTRUCTION.

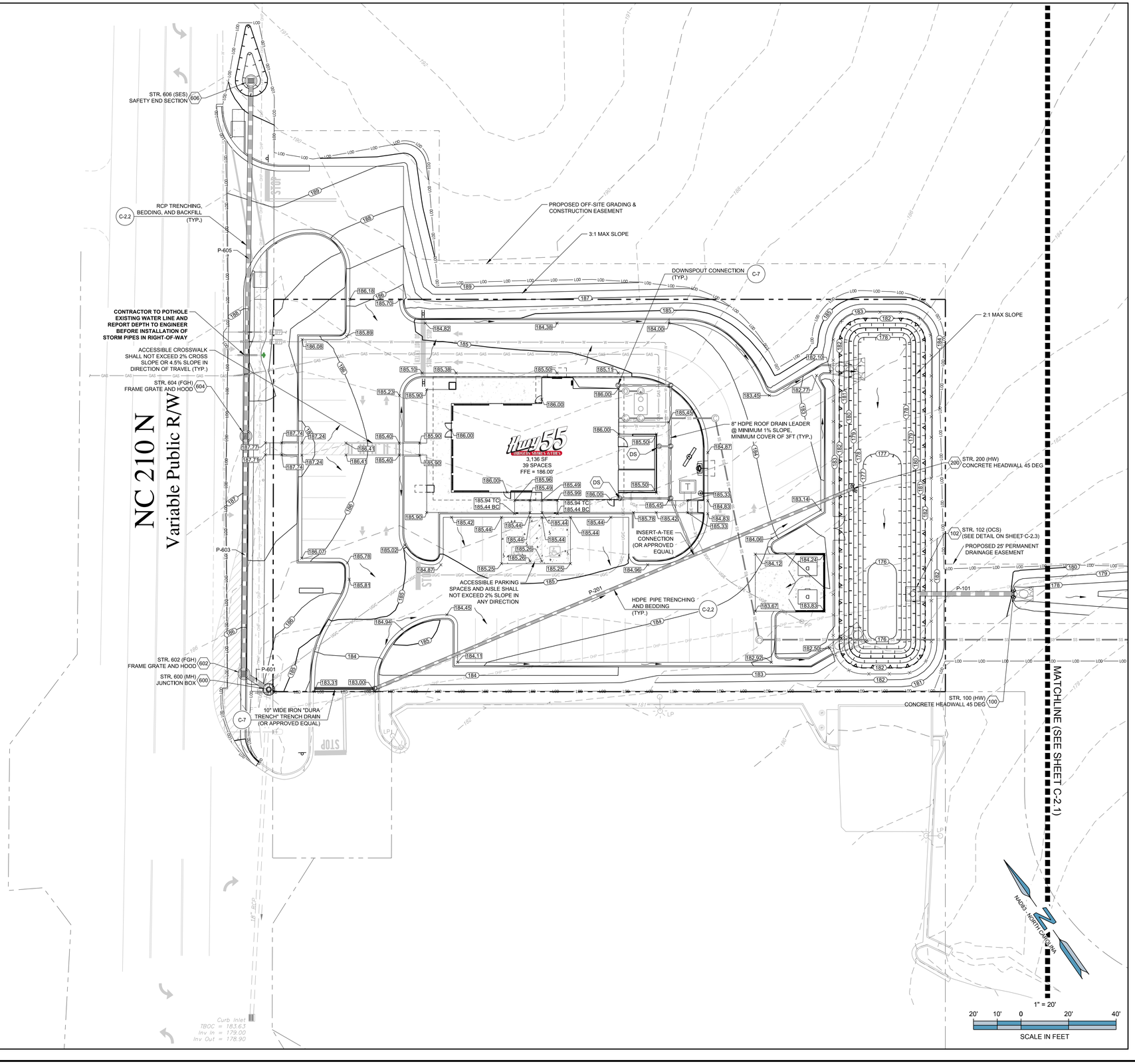
17) STORM WATER MANAGEMENT SHALL BE IN ACCORDANCE WITH COUNTY, STATE, AND OTHER APPROPRIATE ORDINANCES AND REGULATIONS IN EFFECT AT TIME OF CONSTRUCTION PLAN APPROVAL.

18) CONTRACTOR SHALL INSTALL DOWNSTREAM STORM DISCHARGE PIPE PRIOR TO INSTALLATION OF ON-SITE STORM PIPING AND/OR STORM WATER DETENTION FACILITY.

19) CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES SHOWN ON THE PLANS BY POT HOLING THE LINES. THE CONTRACTOR SHALL HAVE THE LINES SURVEYED, INCLUDING HORIZONTAL AND VERTICAL LOCATION, AND THE SURVEYED POINTS SENT TO THE PROJECT ENGINEER TO DETERMINE IF ANY UTILITY CONFLICTS WILL AFFECT THE CURRENT STORM DRAINAGE DESIGN.

LEGEND

- XXXX — EXISTING CONTOURS
- XXXX — PROPOSED CONTOURS
- EXISTING STORM PIPE
- PROPOSED STORM PIPE
- XXXX.XX — EXISTING SPOT ELEVATION
- XXXX.XX — PROPOSED SPOT ELEVATION



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DEVELOPER:

CSC PROPERTIES

CSC PROPERTIES, LLC.
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CLEARWATER, FL 33760

CONTACT: JAKE SEATON

PROJECT:

Hwy 55 BURGERS SHAKES & FRIES

NORTH MAIN ST
LILLINGTON, NC
NEILLS CREEK TOWNSHIP
PARCEL #:0650-97-6978.000,

SEAL:

DRAFT

REVISIONS	DATE

PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	1" = 20'
TITLE:	

GRADING & DRAINAGE PLAN

SHEET NUMBER: C-2

COMMENTS: NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER: 930.023

GENERAL NOTES:

1) PIPE LENGTHS REFLECT THE PIPE'S LINEAR LENGTH AND ARE SHOWN FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.

2) EXISTING UTILITY DEPTHS ARE APPROXIMATED BASED ON 4 FT COVER FROM THE EXISTING GROUND SURFACE. PROPOSED UTILITY DEPTHS ARE BASED ON 4 FT OF COVER FROM THE PROPOSED GROUND SURFACE. CONTRACTOR SHALL FIELD VERIFY ALL UTILITY DEPTHS AT CROSSING AND CONTACT ENGINEER IMMEDIATELY IF CONFLICTS ARE ENCOUNTERED.

3) CONTRACTOR TO FIELD VERIFY EXISTING ELEVATIONS OF UTILITIES TO AVOID CONFLICTS. CONTACT ENGINEER IMMEDIATELY IF FIELD ELEVATIONS DIFFER FROM THE DESIGN DRAWINGS.

4) MAINTAIN MINIMUM 2' OF COVER OVER METAL AND PLASTIC PIPES DURING CONSTRUCTION ACTIVITIES.

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING STORM PIPE
- PROPOSED STORM PIPE
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION

MATCHLINE (SEE SHEET C-2)

GRASSED DRAINAGE CHANNEL
2' BOTTOM WIDTH
4:1 SIDE SLOPES
10-YEAR STORM FLOW DEPTH: 0.29'
10-YEAR STORM VELOCITY: 2.41 CFS

PROPOSED 25' PERMANENT DRAINAGE EASEMENT

APPROXIMATE CENTERLINE OF EXISTING DRAINAGE DITCH

20' Drainage Easement, DB 1163, Page 627

NADB3 - NORTH CAROLINA

1" = 20'
20 10 0 20 40
SCALE IN FEET

North Carolina 811 www.nc811.org

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PROJECT:
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NEILLS CREEK TOWNSHIP
PARCEL #:0650-97-6978.000,

SEAL:
DRAFT

REVISIONS	DATE

PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	1" = 20'
TITLE:	

STORM DRAINAGE DETAILS

SHEET NUMBER:
C-2.1

COMMENTS: NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER: 930.023

GENERAL NOTES:

1) PIPE LENGTHS REFLECT THE PIPE'S LINEAR LENGTH AND ARE SHOWN FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.

2) EXISTING UTILITY DEPTHS ARE APPROXIMATED BASED ON 4 FT COVER FROM THE EXISTING GROUND SURFACE. PROPOSED UTILITY DEPTHS ARE BASED ON 4 FT OF COVER FROM THE PROPOSED GROUND SURFACE. CONTRACTOR SHALL FIELD VERIFY ALL UTILITY DEPTHS AT CROSSING AND CONTACT ENGINEER IMMEDIATELY IF CONFLICTS ARE ENCOUNTERED.

3) CONTRACTOR TO FIELD VERIFY EXISTING ELEVATIONS OF UTILITIES TO AVOID CONFLICTS. CONTACT ENGINEER IMMEDIATELY IF FIELD ELEVATIONS DIFFER FROM THE DESIGN DRAWINGS.

4) MAINTAIN MINIMUM 2' OF COVER OVER METAL AND PLASTIC PIPES DURING CONSTRUCTION ACTIVITIES.

1" = 5'

5 2.5 0 5 10

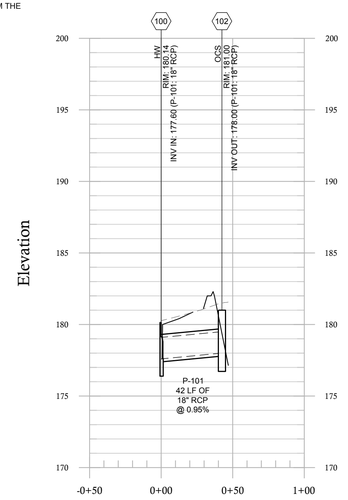
VERTICAL: SCALE IN FEET

1" = 50'

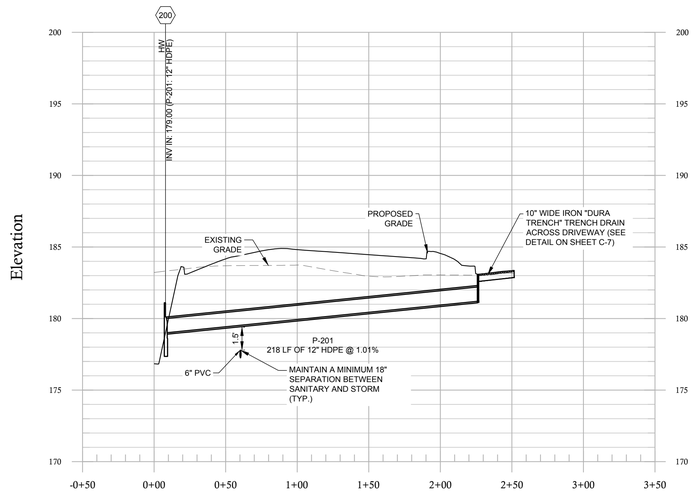
50 25 0 50 100

HORIZONTAL: SCALE IN FEET

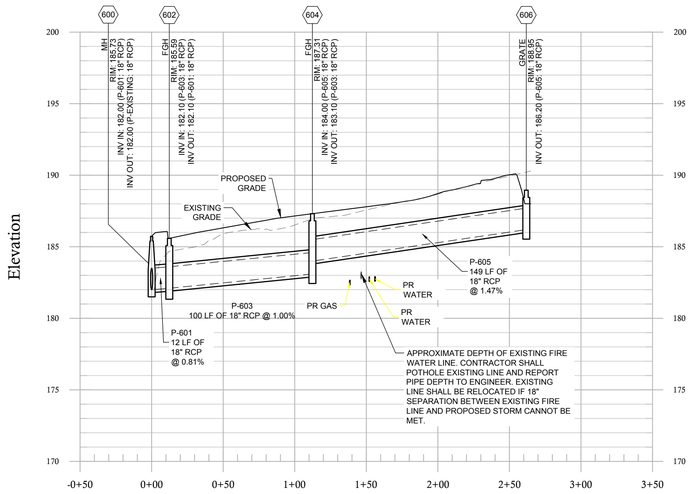
STORM 100 LINE
1" = 50' H, 1"=5' V

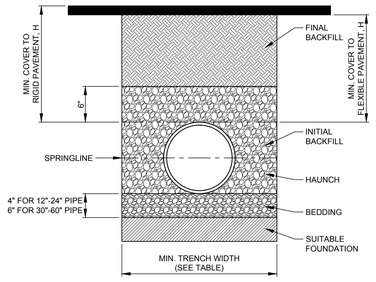


STORM 200 LINE
1" = 50' H, 1"=5' V



STORM 600 LINE
1" = 50' H, 1"=5' V





NOTES:
1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

MINIMUM RECOMMENDED COVER BASED ON VECHICLE LOADING CONDITIONS

	SURFACE LIVE LOADING CONDITION	
PIPE DIAM.	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48"	12"	48"
54" - 60"	24"	60"

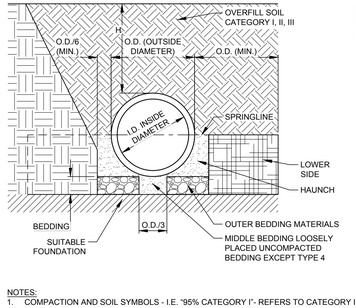
* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

MINIMUM RECOMMENDED COVER BASED ON RAILWAY LOADING CONDITIONS

PIPE DIAM.	COOPER E-80**
UP TO 24"	24"
30"-36"	36"
42"-60"	48"

** COVER IS MEASURED FROM TOP OF PIPE TO BOTTOM OF RAILWAY TIE.
*** E-80 COVER REQUIREMENTS, ARE ONLY APPLICABLE TO ASTM F 2306 PIPE.

C-2.2 HDPE BEDDING, TRENCHING, AND BACKFILL
NOT TO SCALE



NOTES:
1. COMPACTION AND SOIL SYMBOLS - I.E. "95% CATEGORY I"- REFERS TO CATEGORY I SOIL MATERIAL WITH MINIMUM STANDARD PROCTOR COMPACTION OF 95%. SEE TABLE FOR EQUIVALENT MODIFIED PROCTOR VALUES.
2. SOIL IN THE OUTER BEDDING, HAUNCH, AND LOWER SIDE ZONES, EXCEPT UNDER THE MIDDLE 1/3 OF THE PIPE, SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS THE MAJORITY OF SOIL IN THE OVERFILL ZONE.
3. FOR TRENCHES, 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 1 FOOT BELOW THE BOTTOM OF THE PAVEMENT BASE MATERIAL.
4. FOR TRENCHES, WIDTH SHALL BE WIDER THAN SHOWN IF REQUIRED FOR ADEQUATE SPACE TO ATTAIN THE SPECIFIED COMPACTION IN THE HAUNCH AND BEDDING ZONES.
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 DEGREE 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. SUBTRENCHES
   7.1. 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 1FT. BELOW THE BOTTOM OF THE PAVEMENT BASE MATERIAL.
   7.2. THE MINIMUM WIDTH OF A SUBTRENCH SHALL BE 1.33 OUTSIDE Ø OR WIDER IF REQUIRED FOR ADEQUATE SPACE TO ATTAIN THE SPECIFIED COMPACTION IN THE HAUNCH AND BEDDING ZONES.
   7.3. FOR SUBTRENCHES WITH WALLS 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.

THE SELECTION OF STANDARD INSTALLATION:
SELECTION SHOULD BE BASED ON AN EVALUATION OF THE QUALITY OF CONSTRUCTION AND INSPECTION ANTICIPATED. A TYPE 1 STANDARD INSTALLATION REQUIRES THE HIGHEST CONSTRUCTION QUALITY AND DEGREE OF INSPECTION. REQUIRED CONSTRUCTION QUALITY IS REDUCED FOR A TYPE 2 STANDARD INSTALLATION, AND REDUCED FURTHER FOR A TYPE 3 STANDARD INSTALLATION. A TYPE 4 STANDARD INSTALLATION REQUIRES VIRTUALLY NO CONSTRUCTION OR QUALITY INSPECTION. CONSEQUENTLY, A TYPE 4 STANDARD INSTALLATION WILL REQUIRE A HIGHER STRENGTH PIPE, AND A TYPE 1 STANDARD INSTALLATION WILL REQUIRE A LOWER STRENGTH PIPE FOR THE SAME DEPTH OF INSTALLATION.

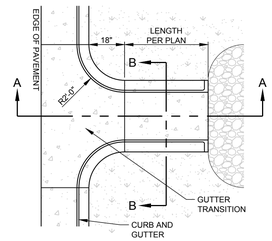
STANDARD INSTALLATIONS SOIL AND MINIMUM COMPACTION REQUIREMENTS

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH AND OUTER BEDDING	LOWER SIDE
TYPE 1	O.D./24 MIN., NOT LESS THAN 75 MM (3"). IF ROCK FOUNDATION, O.D./12 MIN., NOT LESS THAN 150 MM (6").	95% CATEGORY I	90% CATEGORY I, 95% CATEGORY II, OR 100% CATEGORY III
TYPE 2	O.D./24 MIN., NOT LESS THAN 75 MM (3"). IF ROCK FOUNDATION, O.D./12 MIN., 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	O.D./24 MIN., NOT LESS THAN 75 MM (3"). IF ROCK FOUNDATION, O.D./12 MIN., 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	NO BEDDING REQUIRED, EXCEPT IF ROCK FOUNDATION, USE O.D./12 MIN., NOT LESS THAN 150 MM (6").	NO COMPACTION REQUIRED, EXCEPT IF CATEGORY III, THEN USE 85%	NO COMPACTION REQUIRED, EXCEPT IF CATEGORY III, THEN USE 85%

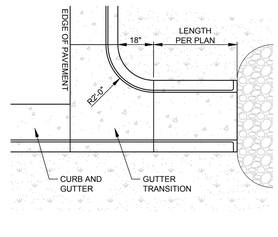
EQUIVALENT USCS AND AASHTO SOIL CLASSIFICATIONS FOR SIDD SOIL DESIGNATIONS

	REPRESENTATIVE SOIL TYPES		PERCENT COMPACTION	
SIDD SOIL	USCS,	STANDARD AASHTO	STANDARD PROCTOR	MODIFIED PROCTOR
GRAVELLY SAND (CATEGORY I)	SW, SP, GW, GP	A1, A3	100 95 90 85 80 61	95 90 85 80 75 59
SANDY SILT (CATEGORY II)	GM, SM, ML, ALSO GC, SC WITH LESS THAN 20% PASSING #200 SIEVE	A2, A4	100 95 90 85 80 49	95 90 85 80 75 46
SILTY CLAY (CATEGORY III)	CL, MH, GC, SC	A5, A6	100 95 90 85 80 45	90 85 80 75 70 40

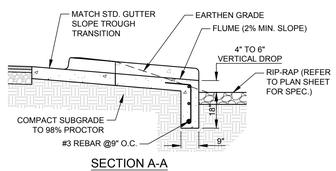
C-2.2 RCP BEDDING, TRENCHING, AND BACKFILL
NOT TO SCALE



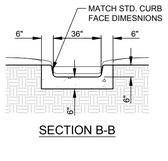
PLAN VIEW: LONGITUDINAL FLUME



PLAN VIEW: CORNER FLUME



SECTION A-A



SECTION B-B

C-2.2 CONCRETE CURB FLUME
NOT TO SCALE

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DEVELOPER:
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CONTACT: JAKE SEATON

PROJECT:
Hwy 55 BURGERS SHAKES & FRIES
NORTH MAIN ST
LILLINGTON, NC
NEILLS CREEK TOWNSHIP
PARCEL #:0650-97-6978.000,

SEAL:
DRAFT

REVISIONS	DATE

PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	AS SHOWN
TITLE:	

STORM DRAINAGE PROFILES

SHEET NUMBER:
C-2.2

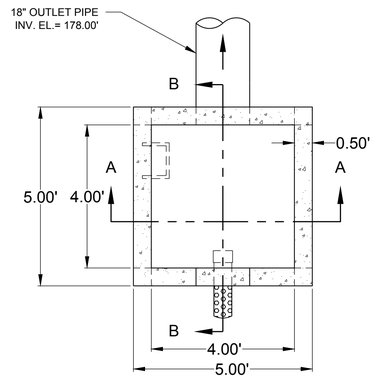
COMMENTS:
NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER:
930.023

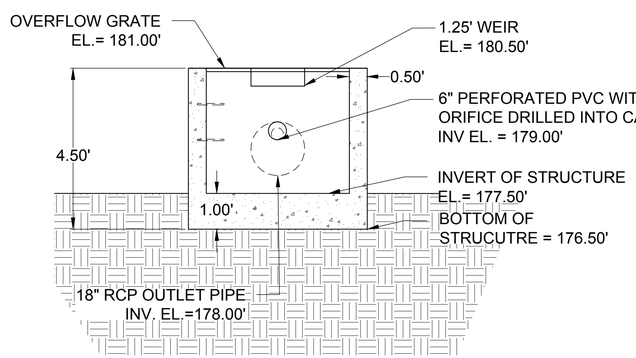
OCS TOP DETAIL

TOP SHALL BE #4 REBAR @ 6" O.C. EACH WAY, FASTENED TO STRUCTURE AND HINGED TO PROVIDE ACCESS

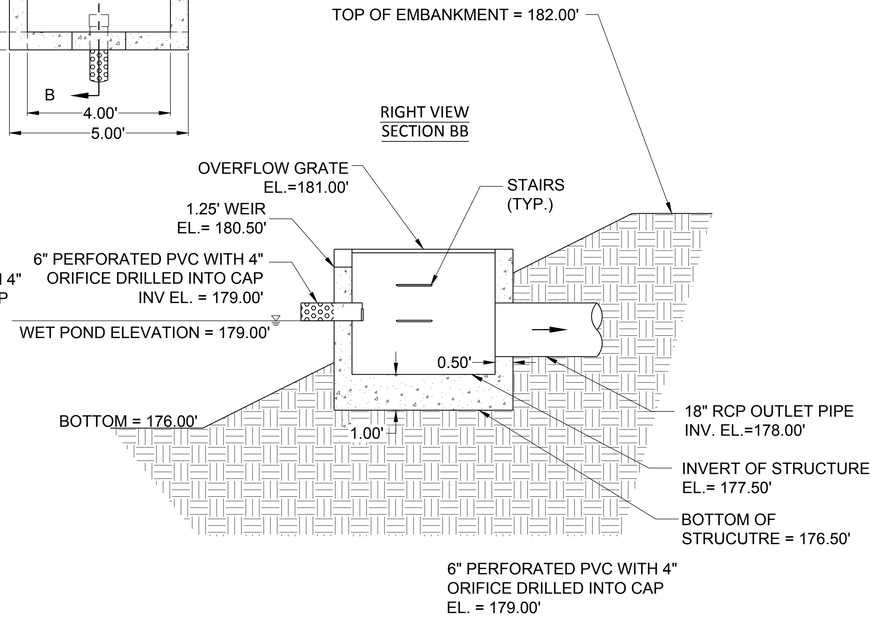
TOP VIEW



FRONT VIEW
SECTION AA



RIGHT VIEW
SECTION BB



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PROJECT:
NORTH MAIN ST
LILLINGTON, NC
NEILLS CREEK TOWNSHIP
PARCEL #:0650-97-6978.000,

SEAL:

DRAFT

REVISIONS	DATE

PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	AS SHOWN

TITLE: OCS DETAIL

SHEET NUMBER: C-2.3

COMMENTS: NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER: 930.023

UTILITY NOTES:

1) DUKE ENERGY WILL PROVIDE UNDERGROUND ELECTRICAL SERVICE FROM THE EXISTING SERVICE POLE TO THE TRANSFORMER PAD. CONTRACTOR MUST PROVIDE TWO 6" PVC (SCH 80) CONDUITS AND A PULL STRING FROM THE EXISTING ELECTRICAL SERVICE POLE TO THE PROPOSED TRANSFORMER LOCATION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR INSTALLING THREE 4" PVC CONDUITS AND SECONDARY WIRING FROM THE TRANSFORMER PAD TO THE PROPOSED BUILDING. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE POWER SERVICE INSTALLATION AND SHALL COORDINATE WITH THE POWER COMPANY FOR FINAL UNDERGROUND CONDUIT LOCATIONS.

2) PIEDMONT NATURAL GAS WILL PERFORM THE GAS SERVICE CONNECTION, INSTALL THE CONDUIT, AND SET THE METER FOR THE BUILDING. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE SERVICE FROM THE METER INTO THE PROPOSED BUILDING. CONTRACTOR MUST COORDINATE WITH PIEDMONT NATURAL GAS.

3) CONTRACTOR MUST PROVIDE AND INSTALL TWO 4" PVC CONDUIT WITH PULL STRING, FROM THE EXISTING TELEPHONE SERVICE POLE TO THE TELEPHONE BOARD IN THE BUILDING. THE CONTRACTOR MUST ALSO PROVIDE A #6 GROUND WIRE AT THE TELEPHONE BOARD FOR THE TELEPHONE COMPANY TO INSTALL A PHONE LINE.

4) HARNETT COUNTY WATER WILL FURNISH THE DOMESTIC WATER METER AND ALL EQUIPMENT NEEDED TO TAP THE EXISTING WATER LINE. THE CONTRACTOR MUST PROVIDE AND INSTALL THE METER BOX, DOUBLE CHECK BACKFLOW PREVENTER AND ENCLOSURE, AND THE WATER SERVICE LINE FROM THE WATER METER TO THE BUILDING.

5) HARNETT COUNTY WATER WILL FURNISH THE IRRIGATION METER AND ALL EQUIPMENT NEEDED TO TAP THE EXISTING WATER LINE. THE CONTRACTOR MUST PROVIDE AND INSTALL THE METER BOX, DOUBLE CHECK BACKFLOW PREVENTER AND ENCLOSURE, AND THE IRRIGATION LINES TO THE AREAS SPECIFIED ON THIS SHEET AND ON SHEET I-1.

6) COORDINATE AS REQUIRED WITH CITY OF LILLINGTON, NC INSPECTIONS DURING CONSTRUCTION FOR REQUIRED INSPECTIONS.

7) THIS SITE INDICATES POTABLE WATER SERVICE AND SANITARY SEWER LATERALS. THIS WORK TO BE INSTALLED BY A LICENSED PLUMBER IF STATE LAW REQUIRES. ALL WORK MUST BE INSPECTED BY CITY OF LILLINGTON, NC CODES AND INSPECTION DEPARTMENT.

8) ALL ON-SITE PVC PIPE SHALL HAVE CLASS B BEDDING.

9) ALL CONDUIT, PIPE, AND CHASE PIPE SHALL BE WRAPPED WITH THE APPROPRIATE LOCATION WIRE AND TAPE.

10) NO PRESSURE REDUCING VALVES ARE TO BE INSTALLED ON FIRE LINES. ALL FIRE LINES ARE TO BE INSPECTED BY CITY OF LILLINGTON, NC FIRE SERVICE PRIOR TO COVERING.

11) NOTIFY WATER AND SEWER INSPECTOR PRIOR TO START OF CONSTRUCTION.

12) THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF AS-BUILT DRAWINGS INCLUDING ALL RIM ELEVATIONS, INVERT ELEVATIONS, PIPE SIZES, AND PIPE MATERIAL FOR ALL PUBLIC MAINS TO THE ENGINEER AS SOON AS INSTALLATION IS COMPLETE.

13) OWNER SHALL BE RESPONSIBLE FOR ANY REPAIR OR REPLACEMENT OF ANY IMPROVEMENTS WITHIN THE SANITARY SEWER, WATER, DRAINAGE EASEMENT(S) DUE TO MAINTENANCE OF SEWER, WATER, STORM DRAIN OF CITY OF LILLINGTON, NC.

14) CONTRACTOR SHALL INSTALL THE DOWNSTREAM SANITARY SEWER CONNECTION PRIOR TO THE INSTALLATION OF THE ON-SITE SERVICE LATERALS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES SHOWN ON THE PLANS BY POT HOLING THE LINES. THE CONTRACTOR SHALL HAVE THE LINES SURVEYED, INCLUDING HORIZONTAL AND VERTICAL LOCATION, AND THE SURVEYED POINTS SENT TO THE PROJECT ENGINEER TO DETERMINE IF ANY UTILITY CONFLICTS WILL AFFECT THE CURRENT SANITARY SEWER DESIGN.

15) PVC WATER LINES LESS THAN 3" SHALL BE ASTM D 2241, SDR 21 WITH INTEGRALLY MOLDED BELL ENDS, ASTM D 2672. PVC WATER LINES 3" AND LARGER SHALL BE AWWA C900, RATED DR 18 (CLASS 150) WITH INTEGRALLY MOLDED BELL ENDS, ASTM D3139. DIP WATER LINES SHALL BE AWWA C151, THICKNESS CLASS 50.

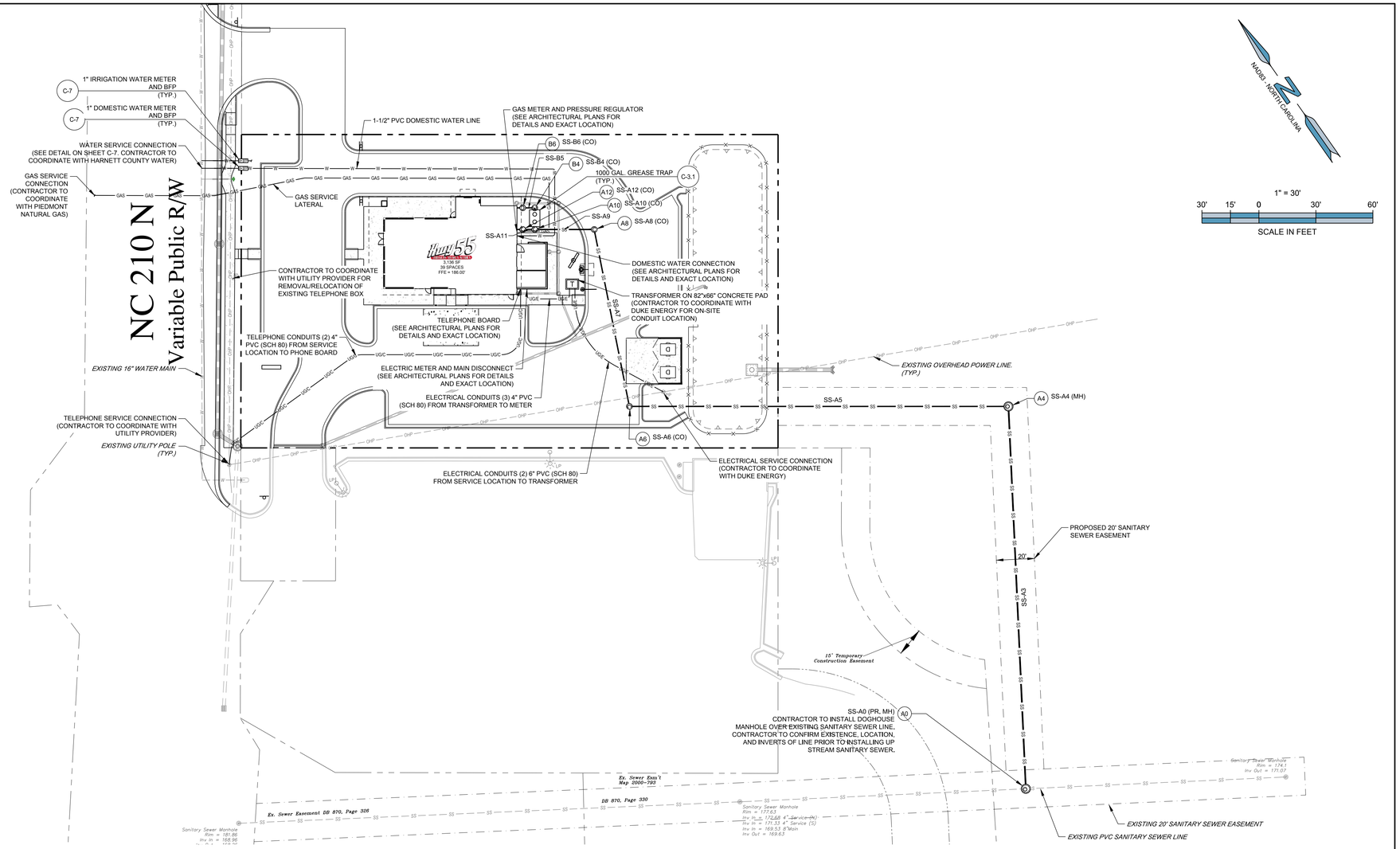
16) PVC SANITARY SEWER LINES SHALL BE ASTM D 3034, RATED SDR 35 WITH INTEGRALLY MOLDED BELL ENDS, ASTM D 3034, TABLE 2, WITH FACTORY SUPPLIED ELASTOMERIC GASKETS AND LUBRICANT. DIP SANITARY SEWER LINES SHALL BE ASTM A746, CLASS 50 WITH AWWA C111, RUBBER GASKET JOINT DEVICES.

17) DEMOLISHED UTILITIES NOT DEPICTED ON THIS SHEET. REFER TO THE DEMOLITION PLAN.

LEGEND

	EXISTING FENCE LINE
	PROPERTY LINE
CATV CATV	EXISTING CABLE TELEVISION LINE
FOC FOC FOC	EXISTING FIBER OPTIC LINE
OHP OHP OHP	EXISTING OVERHEAD POWER LINE
UGE UGE	EXISTING UNDERGROUND POWER LINE
UGT UGT	EXISTING UNDERGROUND TELEPHONE LINE
GAS GAS GAS	EXISTING GAS LINE
SS SS SS	EXISTING SANITARY SEWER LINE
W W W	EXISTING WATER LINE
	EXISTING STORM LINE
CATV CATV	PROPOSED CABLE TELEVISION LINE
UGE UGE	PROPOSED UNDERGROUND POWER LINE
UGT UGT	PROPOSED UNDERGROUND TELEPHONE LINE
GAS GAS GAS	PROPOSED GAS LINE
SS SS SS	PROPOSED SANITARY SEWER LINE
W W W	PROPOSED WATER LINE
	PROPOSED STORM LINE

CONTRACTOR TO CONTACT UTILITIES PROTECTION CENTER PRIOR TO ANY EXCAVATION



2019 HARNETT REGIONAL WATER (HRW) REQUIRED UTILITY NOTES:

(REVISION 7 - NOVEMBER 2019)

WATER

A. THE FIRE MARSHAL'S OFFICE SHALL APPROVE ALL HYDRANT TYPES AND LOCATIONS IN NEW SUBDIVISIONS. HOWEVER, HARNETT REGIONAL WATER (HRW) PREFERS THE CONTRACTORS TO INSTALL ONE OF THE FOLLOWING FIRE HYDRANTS:
   1. MUELLER - SUPER CENTURION 250 A-423 MODEL WITH A 5¼" MAIN VALVE OPENING THREE WAY (TWO HOSE NOZZLES AND ONE PUMPER NOZZLE).
   2. AMERICAN DARLING - MARK B-84-B MODEL WITH A 5¼" MAIN VALVE OPENING THREE WAY (TWO HOSE NOZZLES AND ONE PUMPER NOZZLE).
   3. WATEROUS - PACER B-67-250 MODEL WITH A 5¼" MAIN VALVE OPENING THREE WAY (TWO HOSE NOZZLES AND ONE PUMPER NOZZLE) OR APPROVED EQUAL FOR STANDARDIZATION.

B. FIRE HYDRANTS ARE INSTALLED AT CERTAIN ELEVATIONS. ANY GRADE CHANGE IN THE VICINITY OF ANY FIRE HYDRANT WHICH IMPEDES ITS OPERATION SHALL BECOME THE RESPONSIBILITY OF THE UTILITY CONTRACTOR FOR CORRECTION. CORRECTIONS WILL BE MONITORED BY THE HRW UTILITY CONSTRUCTION INSPECTOR AND THE HARNETT COUNTY FIRE MARSHAL.

C. THE PROFESSIONAL ENGINEER (PE) SHALL OBTAIN AND PROVIDE THE NCDEQ "AUTHORIZATION TO CONSTRUCT" PERMIT TO THE UTILITY CONTRACTOR BEFORE THE CONSTRUCTION OF THE WATER LINE SHALL BEGIN. THE UTILITY CONTRACTOR MUST POST A COPY OF THE NCDEQ "AUTHORIZATION TO CONSTRUCT" PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY - DIVISION OF ENVIRONMENTAL HEALTH, PUBLIC WATER SUPPLY (NCDEQ-DEH, PWS) ON SITE PRIOR TO THE START OF CONSTRUCTION. THE PERMIT MUST BE MAINTAINED ON SITE THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS OF THE PROPOSED WATER LINES THAT WILL SERVE THIS PROJECT.

D. THE UTILITY CONTRACTOR SHALL NOTIFY HARNETT REGIONAL WATER (HRW) AND THE PROFESSIONAL ENGINEER (PE) AT LEAST TWO DAYS PRIOR TO CONSTRUCTION COMMENCING. THE UTILITY CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH MR. ALAN MOSS, HRW UTILITY CONSTRUCTION INSPECTOR AT LEAST TWO (2) DAYS BEFORE CONSTRUCTION WILL BEGIN AND THE UTILITY CONTRACTOR MUST COORDINATE WITH HRW FOR REGULAR INSPECTION VISITATIONS AND ACCEPTANCE OF THE WATER SYSTEM(S). CONSTRUCTION WORK SHALL BE PERFORMED ONLY DURING THE NORMAL WORKING HOURS OF HRW WHICH IS 8:00 AM - 5:00 PM MONDAY THROUGH FRIDAY. HOLIDAY AND WEEKEND WORK IS NOT PERMITTED BY HRW.

E. THE PROFESSIONAL ENGINEER (PE) SHALL PROVIDE HRW AND THE UTILITY CONTRACTOR WITH A SET OF NCDEQ APPROVED PLANS MARKED "RELEASED FOR CONSTRUCTION" AT LEAST TWO DAYS PRIOR TO CONSTRUCTION COMMENCING. THE REGISTERED LAND SURVEYOR (RLS) SHOULD STAKE OUT ALL LOT CORNERS AND THE GRADE STAKES FOR THE PROPOSED FINISH GRADE FOR EACH STREET BEFORE THE UTILITY CONTRACTOR BEGINS CONSTRUCTION OF THE WATER LINE(S). THE GRADE STAKES SHOULD BE SET WITH A CONSISTENT OFFSET FROM THE STREET CENTERLINE SO AS NOT TO INTERFERE WITH THE STREET GRADING AND UTILITY CONSTRUCTION.

F. THE UTILITY CONTRACTOR SHALL PROVIDE THE HRW UTILITY CONSTRUCTION INSPECTOR WITH MATERIAL SUBMITTALS AND SHOP DRAWINGS FOR ALL PROJECT MATERIALS PRIOR TO THE CONSTRUCTION OF ANY WATER LINE EXTENSION(S), AND ASSOCIATED WATER SERVICES IN HARNETT COUNTY. THE MATERIALS TO BE USED ON THE PROJECT MUST MEET THE ESTABLISHED SPECIFICATIONS OF HRW AND BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION. ALL SUBSTANDARD MATERIALS OR MATERIALS NOT APPROVED FOR USE IN HARNETT COUNTY FOUND ON THE PROJECT SITE MUST BE REMOVED IMMEDIATELY WHEN NOTIFIED BY THE HRW UTILITY CONSTRUCTION INSPECTOR.

G. THE WATER MAIN(S), FIRE HYDRANTS, SERVICE LINES, METER SETTERS AND ALL ASSOCIATED APPURTENANCES SHALL BE CONSTRUCTED IN STRICT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE HARNETT REGIONAL WATER (HRW). THE UTILITY CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE THE NEWLY INSTALLED WATER MAIN(S), WATER SERVICE LINES AND ALL ASSOCIATED METER SETTERS AND METER BOXES FOR OTHER UTILITY COMPANIES AND THEIR CONTRACTORS UNTIL THE NEW WATER MAIN(S) HAVE BEEN APPROVED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF ENVIRONMENTAL HEALTH, PUBLIC WATER SUPPLY SECTION (NCDEQ, DEH, PWS) AND ACCEPTED BY HRW.

H. PRIOR TO ACCEPTANCE, ALL SERVICES WILL BE INSPECTED TO INSURE THAT THEY ARE INSTALLED AT THE PROPER DEPTH. ALL METER BOXES MUST BE FLUSH WITH THE GROUND LEVEL AT FINISH GRADE AND THE METER SETTERS MUST BE A MINIMUM OF 8" BELOW THE METER BOX LID. METER SETTERS SHALL BE CENTERED IN THE METER BOX AND SUPPORTED BY BRICK, BLOCK OR STONE.

I. THE UTILITY CONTRACTOR SHALL PROVIDE THE PROFESSIONAL ENGINEER (PE) AND HRW UTILITY CONSTRUCTION INSPECTOR WITH A SET OF RED LINE DRAWINGS IDENTIFYING THE COMPLETE WATER SYSTEM INSTALLED FOR EACH PROJECT. THE RED LINE DRAWINGS SHOULD IDENTIFY THE MATERIALS, PIPE SIZES AND APPROXIMATE DEPTHS OF THE WATER LINES AS WELL AS THE GATE VALVES, FIRE HYDRANTS, METER SETTERS, BLOW OFF ASSEMBLIES AND ALL ASSOCIATED APPURTENANCES FOR ALL WATER LINE(S) CONSTRUCTED IN HARNETT COUNTY. THE RED LINE DRAWINGS SHOULD CLEARLY IDENTIFY ANY DEVIATIONS FROM THE NCDEQ APPROVED PLANS. ALL CHANGE ORDERS MUST BE APPROVED BY HRW AND THE PROFESSIONAL ENGINEER (PE) IN WRITING AND PROPERLY DOCUMENTED IN THE RED LINE FIELD DRAWINGS.

J. POTABLE WATER MAINS CROSSING OTHER UTILITIES AND NON-POTABLE WATER LINES (SANITARY SEWER, STORM SEWER, RCP, ETC.) SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF TWENTY-FOUR (24") INCHES BETWEEN THE POTABLE WATER MAIN AND ALL OTHER UTILITIES. NCDOT REQUIRES THE NEW WATER MAINS TO BE INSTALLED UNDER THE STORM WATER LINES. THE POTABLE WATER SHALL BE INSTALLED WITH TWENTY-FOUR (24") INCHES OF VERTICAL SEPARATION AND WITH DUCTILE IRON PIPE WHEN DESIGNED TO BE PLACED UNDER A NON-POTABLE WATER LINE SUCH AS SANITARY SEWER OR STORM SEWER LINES. IF THESE SEPARATIONS CANNOT BE MAINTAINED THEN THE WATER MAIN SHALL BE INSTALLED WITH DUCTILE IRON PIPE. BOTH THE POTABLE WATER MAIN AND THE NON-POTABLE WATER LINE MUST BE CAST IRON OR DUCTILE IRON PIPE (DIP) IF THE STATE MINIMUM SEPARATIONS CANNOT BE MAINTAINED. THE DUCTILE IRON PIPE MUST BEGIN WITH A MECHANICAL JOINTS ARE AT LEAST (10') FEET FROM THE POINT WHERE THE POTABLE WATER MAIN CROSSES THE NON-POTABLE WATER LINE.

K. POTABLE WATER MAINS INSTALLED PARALLEL TO NON-POTABLE WATER LINES (SANITARY SEWER, STORM SEWER, RCP, ETC.) SHALL BE LAID TO PROVIDE A MINIMUM HORIZONTAL DISTANCE OF TEN (10') FEET BETWEEN THE POTABLE WATER MAIN AND SANITARY SEWER MAINS, SEWER LATERALS AND SERVICES. THE HORIZONTAL SEPARATION BETWEEN THE POTABLE WATER MAIN AND ANY OTHER UTILITY OR STORM SEWER SHALL NOT BE LESS THAN FIVE (5') FEET. THE POTABLE WATER MAIN MUST BE DUCTILE IRON PIPE IF THIS HORIZONTAL SEPARATION OF TEN (10') FEET CANNOT BE MAINTAINED. THE DUCTILE IRON PIPE SHALL EXTEND AT LEAST TEN (10') FEET BEYOND THE POINT WHERE THE MINIMUM REQUIRED HORIZONTAL SEPARATION OF TEN (10') FEET CAN BE RE-ESTABLISHED.

L. METER SETTERS SHALL BE INSTALLED IN PAIRS ON EVERY OTHER LOT LINE WHERE POSSIBLE TO LEAVE ADEQUATE SPACE FOR OTHER UTILITIES TO BE INSTALLED AT A LATER TIME. THE METER SETTERS SHALL BE INSTALLED AT LEAST ONE (1') FOOT INSIDE THE RIGHT-OF-WAY AND AT LEAST THREE (3') TO FIVE (5') FEET FROM THE PROPERTY LINE BETWEEN THE LOTS.

M. HRW REQUIRES THAT METER BOXES FOR ¾" SERVICES SHALL BE 12" WIDE X 17" LONG ABS PLASTIC BOXES AT LEAST 18" IN HEIGHT WITH CAST IRON LIDS/COVERS. METER BOXES FOR 1" SERVICES SHALL BE 17" WIDE X 21" LONG ABS PLASTIC BOXES AT LEAST 18" IN HEIGHT WITH PLASTIC LIDS AND CAST IRON FLIP COVERS IN THE CENTER OF THE LIDS. METER BOXES FOR 2" SERVICES SHALL BE 20" WIDE X 32" LONG ABS PLASTIC BOXES AT LEAST 20" IN HEIGHT WITH PLASTIC LIDS AND CAST IRON FLIP COVERS IN THE CENTER OF THE LIDS.

N. MASTER METERS MUST BE INSTALLED IN CONCRETE VAULTS SIZED FOR THE METER ASSEMBLY AND ASSOCIATED APPURTENANCES SO AS TO PROVIDE AT LEAST EIGHTEEN (18") INCHES OF CLEARANCE BETWEEN THE BOTTOM OF THE CONCRETE VAULT AND THE BOTTOM OF THE METER SETTER. THE MASTER METER MUST BE PROVIDED TEST PORTS IF THE METER IS NOT EQUIPPED WITH TEST PORTS FROM THE MANUFACTURER IN ACCORDANCE WITH THE HRW ESTABLISHED STANDARD SPECIFICATIONS AND DETAILS. DUCTILE IRON PIPE MUST BE USED FOR THE MASTER METER VAULT PIPING AND VALVE VAULT PIPING. THE UTILITY CONTRACTOR MUST PROVIDE SHOP DRAWINGS FOR THE METER VAULTS TO HRW PRIOR TO ORDERING THE CONCRETE VAULTS.

O. THE UTILITY CONTRACTOR WILL INSTALL POLYETHYLENE SDR-9 WATER SERVICE LINES THAT CROSS UNDER THE PAVEMENT INSIDE A SCHEDULE 40 PVC CONDUIT TO ALLOW FOR REMOVAL AND REPLACEMENT IN THE FUTURE. TWO (2) INDEPENDENT ¾" WATER SERVICE LINES MAY BE INSTALLED INSIDE ONE (1) - TWO (2") INCH SCHEDULE 40 PVC CONDUIT OR TWO (2) INDEPENDENT 1" WATER SERVICE LINES MAY BE INSTALLED INSIDE ONE (1) - THREE (3") INCH SCHEDULE 40 PVC CONDUIT, BUT EACH WATER SERVICE SHALL BE TAPPED DIRECTLY TO THE WATER MAIN. SPLIT SERVICES ARE NOT ALLOWED BY HRW.

P. THE WATER MAIN(S), FIRE HYDRANTS, GATE VALVES, SERVICE LINES, METER SETTERS AND ASSOCIATED APPURTENANCES MUST BE RATED FOR 200 PSI AND HYDROSTATICALLY PRESSURE TESTED TO 200 PSI. THE HYDROSTATIC PRESSURE TEST(S) MUST BE WITNESSED BY THE HRW UTILITY CONSTRUCTION INSPECTOR. THE UTILITY CONTRACTOR MUST NOTIFY HRW WHEN THEY ARE READY TO BEGIN FILLING IN LINES AND COORDINATE WITH HARNETT REGIONAL WATER TO WITNESS PRESSURE TESTING.

Q. THE UTILITY CONTRACTOR SHALL CONDUCT A PNEUMATIC PRESSURE TEST USING COMPRESSED AIR OR OTHER INERT GAS ON THE STAINLESS STEEL TAPPING SLEEVE(S) PRIOR TO MAKING THE TAP ON THE EXISTING WATER MAIN. THIS PRESSURE TEST MUST BE WITNESSED BY THE HRW UTILITY CONSTRUCTION INSPECTOR. THE UTILITY CONTRACTOR SHALL USE ROMAC BRAND STAINLESS STEEL TAPPING SLEEVE(S) OR APPROVED EQUAL FOR ALL TAPPING SLEEVES. THE DUCTILE IRON PIPE EXTENSIONS MUST BEGIN WITH A RESILIENT WEDGE TYPE GATE VALVE SIZED EQUAL TO THE DIAMETER OF THE NEW WATER LINE EXTENSION IN ORDER TO PROVIDE A MEANS OF ISOLATION BETWEEN HARNETT REGIONAL WATER'S EXISTING WATER MAINS AND THE NEW WATER LINE EXTENSIONS UNDER CONSTRUCTION.

R. ALL WATER MAINS WILL BE CONSTRUCTED WITH SDR-21 PVC PIPE OR CLASS 50 DUCTILE IRON PIPE RATED FOR AT LEAST 200 PSI OR GREATER. ALL PIPES MUST BE PROTECTED DURING LOADING, TRANSPORT, UNLOADING, STAGING, AND INSTALLATION. PVC PIPE MUST BE PROTECTED FROM EXTENDED EXPOSURE TO SUNLIGHT PRIOR TO INSTALLATION.

S. ALL WATER MAINS WILL BE FLUSHED AND DISINFECTED IN STRICT ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE HARNETT REGIONAL WATER. ALL WATER SAMPLES COLLECTED FOR BACTERIA TESTING WILL BE COLLECTED BY THE HRW UTILITY CONSTRUCTION INSPECTOR AND TESTED IN THE HRW LABORATORY.

T. ALL FITTINGS LARGER THAN TWO (2") INCHES DIAMETER SHALL BE DUCTILE IRON. HRW REQUIRES THAT MECHANICAL JOINTS BE ASSEMBLED WITH GRIP RINGS AS "MEGALUG" FITTINGS ARE NOT APPROVED BY HARNETT REGIONAL WATER FOR PIPE SIZES SMALLER THAN TWELVE INCHES (12") DIAMETER. PVC PIPE USED FOR WATER MAINS SHALL BE CONNECTED BY SLIP JOINT OR MECHANICAL JOINT WITH GRIP RINGS. GLUED PIPE JOINTS ARE NOT ALLOWED ON PVC PIPE USED FOR WATER MAINS IN HARNETT COUNTY.

U. HRW REQUIRES THAT THE UTILITY CONTRACTOR INSTALL TRACER WIRE IN THE TRENCH WITH ALL WATER LINES. THE TRACER WIRE SHALL BE 12 GA. INSULATED, SOLID COPPER CONDUCTOR AND IT SHALL BE TERMINATED AT THE TOP OF THE VALVE BOXES OR MANHOLES. NO SPLICED WIRE CONNECTIONS SHALL BE MADE UNDERGROUND ON TRACER WIRE INSTALLED IN HARNETT COUNTY. THE TRACER WIRE MAY BE SECURED WITH DUCT TAPE TO THE TOP OF THE PIPE BEFORE BACKFILLING.

V. THE UTILITY CONTRACTOR WILL PROVIDE PROFESSIONAL ENGINEER (PE) AND THE HRW UTILITY CONSTRUCTION INSPECTOR WITH A SET OF RED LINE FIELD DRAWINGS TO IDENTIFY THE INSTALLED LOCATIONS OF THE WATER LINE(S) AND ALL ASSOCIATED SERVICES. ALL CHANGE ORDERS MUST BE PRE-APPROVED BY HRW AND THE PROFESSIONAL ENGINEER (PE) IN WRITING AND PROPERLY DOCUMENTED IN THE RED LINE FIELD DRAWINGS.

W. THE UTILITY CONTRACTOR SHALL SPOT DIG TO EXPOSE EACH UTILITY PIPE OR LINE WHICH MAY CONFLICT WITH CONSTRUCTION OF PROPOSED WATER LINE EXTENSIONS WELL IN ADVANCE TO VERIFY LOCATIONS OF THE EXISTING UTILITIES. THE UTILITY CONTRACTOR SHALL PROVIDE BOTH HORIZONTAL AND VERTICAL CLEARANCES TO THE PROFESSIONAL ENGINEER (PE) TO ALLOW THE PE TO ADJUST THE WATER LINE DESIGN IN ORDER TO AVOID CONFLICTS WITH EXISTING UNDERGROUND UTILITIES. THE UTILITY CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER AND BE RESPONSIBLE FOR TEMPORARY RELOCATION AND/OR SECURING EXISTING UTILITY POLES, PIPES, WIRES, CABLES, SIGNS AND/OR UTILITIES INCLUDING SERVICES IN ACCORDANCE WITH THE UTILITY OWNER REQUIREMENTS DURING WATER LINE INSTALLATION, GRADING AND STREET CONSTRUCTION.

X. PRIOR TO THE COMMENCEMENT OF ANY WORK WITHIN ESTABLISHED UTILITY EASEMENTS OR NCDOT RIGHT-OF-WAYS THE UTILITY CONTRACTOR IS REQUIRED TO HAVE A SIGNED NCDOT ENCROACHMENT AGREEMENT POSTED ON SITE AND NOTIFY ALL CONCERNED UTILITY COMPANIES IN ACCORDANCE WITH G.S. 87-102. THE UTILITY CONTRACTOR MUST CALL THE NC ONE CALL CENTER AT 811 OR (800) 632-4949 TO VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION. EXISTING UTILITIES SHOWN IN THESE PLANS ARE TAKEN FROM INFORMATION SUPPLIED BY VARIOUS UTILITY COMPANIES AND HAVE NOT BEEN PHYSICALLY LOCATED OR VERIFIED BY THE P.E. (I.E. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC, NATURAL, GAS, ETC.). THE UTILITY CONTRACTOR WILL BE RESPONSIBLE TO REPAIR ANY AND ALL DAMAGES TO THE SATISFACTION OF THE RELATED UTILITY COMPANY.

Y. THE UTILITY CONTRACTOR SHALL PROVIDE HRW WITH AT LEAST ONE (1) FIRE HYDRANT WRENCH AND ONE (1) BREAK-AWAY FLANGE KIT FOR EVERY SUBDIVISION WITH FIRE HYDRANTS DEVELOPED IN HARNETT COUNTY. THESE ITEMS MUST BE PROVIDED TO HRW BEFORE THE FINAL INSPECTION WILL BE SCHEDULED BY THE HRW UTILITY CONSTRUCTION INSPECTOR. IN ADDITION, THE UTILITY CONTRACTOR SHALL INSTALL A 4" X 4" CONCRETE VALVE MARKER AT THE EDGE OF THE RIGHT-OF-WAY TO IDENTIFY THE LOCATION OF EACH GATE VALVE INSTALLED IN THE NEW WATER SYSTEM WITH THE EXCEPTION OF THE FIRE HYDRANT ISOLATION VALVES. THE CONTRACTOR SHALL MEASURE THE DISTANCE FROM THE CENTER OF THE CONCRETE MARKER TO THE CENTER OF THE VALVE BOX. THIS DISTANCE (IN LINEAR FEET) SHALL BE STAMPED ON THE BRASS PLATE LOCATED ON THE TOP OF THE CONCRETE VALVE MARKER. IN LIEU OF INSTALLING THE CONCRETE VALVE MARKERS, THE UTILITY CONTRACTOR MAY PROVIDE AT LEAST TWO MEASUREMENTS FROM TWO INDEPENDENT PERMANENT ABOVE GROUND STRUCTURES TO THE PROFESSIONAL ENGINEER (PE) IN THE RED LINE DRAWINGS TO IDENTIFY THE VALVE LOCATIONS. THE PROFESSIONAL ENGINEER (PE) MUST INCLUDE THESE MEASUREMENTS IN THE AS-BUILT RECORD DRAWINGS SUBMITTED TO HRW.

Z. THE UTILITY CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL REPAIRS DUE TO LEAKAGE DAMAGE FROM POOR WORKMANSHIP DURING THE ONE (1) YEAR WARRANTY PERIOD ONCE THE WATER SYSTEM IMPROVEMENTS HAVE BEEN ACCEPTED BY HARNETT REGIONAL WATER. HARNETT REGIONAL WATER WILL PROVIDE MAINTENANCE AND REPAIRS WHEN REQUESTED AND BILL THE DEVELOPER AND/OR UTILITY CONTRACTOR IF NECESSARY DUE TO LACK OF RESPONSE WITHIN 48 HOURS OF NOTIFICATION OF WARRANTY WORK. THE UTILITY CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL REPAIRS DUE TO DAMAGES RESULTING FROM FAILURE TO LOCATE THE NEW WATER LINES AND ASSOCIATED APPURTENANCES FOR OTHER UTILITIES AND THEIR CONTRACTORS UNTIL THE WATER LINES HAVE BEEN APPROVED BY NCDEQ AND ACCEPTED BY HRW. THE FINAL INSPECTION OF WATER SYSTEM IMPROVEMENTS CANNOT BE SCHEDULED WITH HRW UNTIL THE STREETS HAVE BEEN PAVED; THE RIGHTS-OF-WAY AND UTILITY EASEMENTS HAVE BEEN SEEDED AND STABILIZED WITH AN ADEQUATE STAND OF GRASS IN PLACE TO PREVENT EROSION ISSUES ON SITE.

AA. THE ENGINEER OF RECORD IS RESPONSIBLE TO INSURE THAT CONSTRUCTION IS, AT ALL TIMES, IN COMPLIANCE WITH ACCEPTED SANITARY ENGINEERING PRACTICES AND APPROVED PLANS AND SPECIFICATIONS. NO FIELD CHANGES TO THE APPROVED PLANS ARE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY HRW. A COPY OF EACH ENGINEER'S FIELD REPORT IS TO BE SUBMITTED TO HRW AS EACH SUCH INSPECTION IS MADE ON SYSTEM IMPROVEMENTS OR TESTING IS PERFORMED BY THE CONTRACTOR. WATER AND SEWER INFRASTRUCTURE MUST PASS ALL TESTS REQUIRED BY HRW SPECIFICATIONS AND THOSE OF ALL APPLICABLE REGULATORY AGENCIES. THESE TESTS INCLUDE, BUT ARE NOT LIMITED TO: AIR TEST, VACUUM TEST, MANDREL TEST, VISUAL TEST, PRESSURE TEST, BACTERIOLOGICAL TEST, ETC. A HRW INSPECTOR MUST BE PRESENT DURING TESTING AND ALL TEST RESULTS SHALL BE SUBMITTED TO HRW. ALL TESTS MUST BE SATISFIED BEFORE THE FINAL INSPECTION WILL BE SCHEDULED WITH THE HRW INSPECTOR. THE ENGINEER OF RECORD MUST REQUEST IN WRITING TO SCHEDULE THE FINAL INSPECTION ONCE ALL CONSTRUCTION IS COMPLETE. THE DEVELOPER'S ENGINEER OF RECORD AND THE HRW UTILITY CONSTRUCTION INSPECTOR SHALL PREPARE A WRITTEN PUNCH LIST OF ANY DEFECTS OR DEFICIENCIES NOTED DURING THE FINAL INSPECTION, SHOULD ANY EXIST. UPON COMPLETION OF THE PUNCH LIST, THE DEVELOPER'S ENGINEER OF RECORD WILL SCHEDULE ANOTHER INSPECTION. IN THE EVENT THE NUMBER OF INSPECTIONS PERFORMED BY THE HRW EXCEEDS TWO, ADDITIONAL FEES MAY BE ACCESSED TO THE DEVELOPER.

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f

GENERAL NOTES:

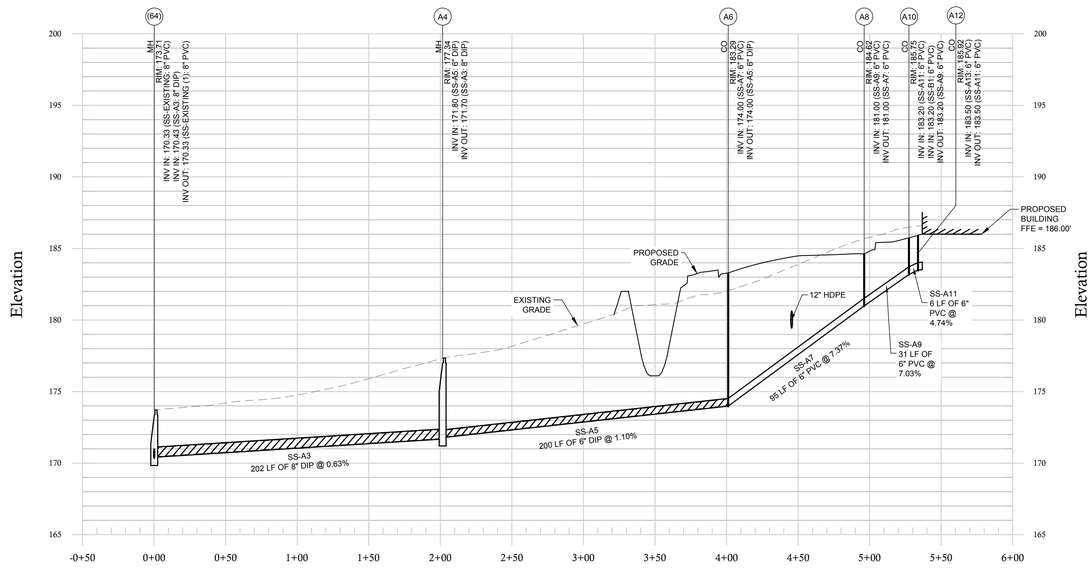
1) PIPE LENGTHS REFLECT THE PIPES LINEAR LENGTH AND ARE SHOWN FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.

2) EXISTING UTILITY DEPTHS ARE APPROXIMATED BASED ON 4 FT COVER FROM THE EXISTING GROUND SURFACE. PROPOSED UTILITY DEPTHS ARE BASED ON 4 FT OF COVER FROM THE PROPOSED GROUND SURFACE. CONTRACTOR SHALL FIELD VERIFY ALL UTILITY DEPTHS AT CROSSING AND CONTACT ENGINEER IMMEDIATELY IF CONFLICTS ARE ENCOUNTERED.

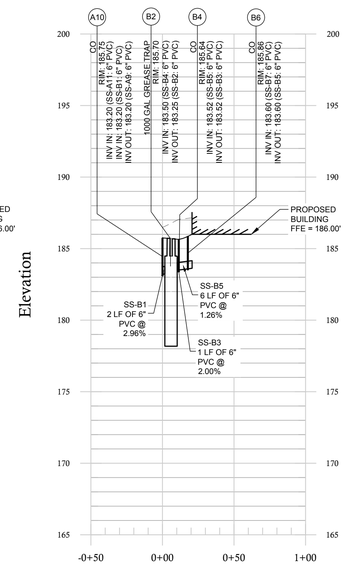
3) CONTRACTOR TO FIELD VERIFY EXISTING ELEVATIONS OF UTILITIES IN RIGHT OF WAY TO AVOID CONFLICTS. CONTACT ENGINEER IMMEDIATELY IF FIELD ELEVATIONS DIFFER FROM THE DESIGN DRAWINGS.

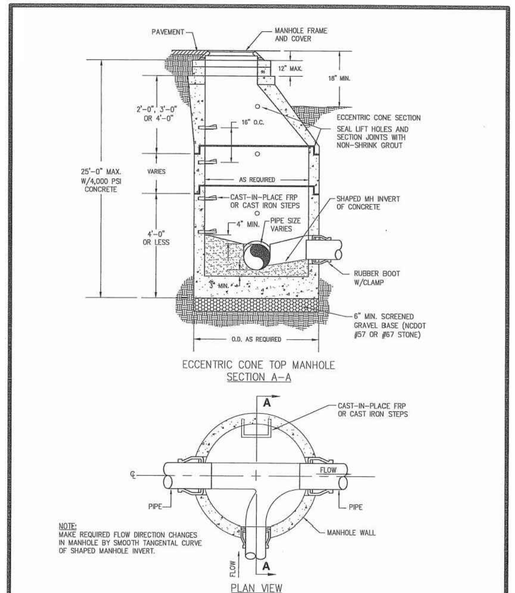
4) MAINTAIN MINIMUM 2' OF COVER OVER METAL AND PLASTIC PIPES DURING CONSTRUCTION ACTIVITIES.

SANITARY LINE A
1" = 50' H, 1"=5' V



SANITARY LINE B
1" = 50' H, 1"=5' V

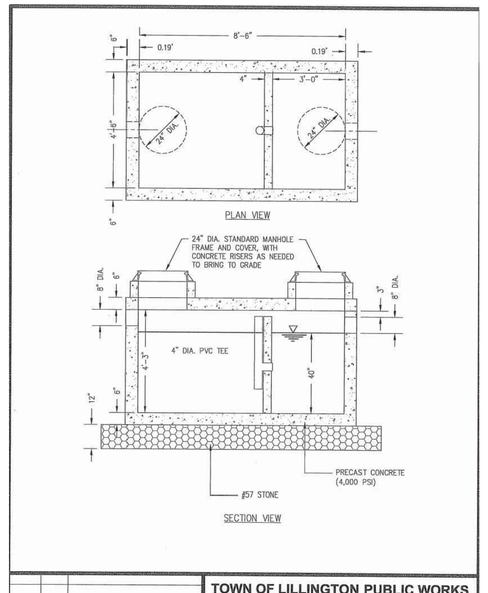




DATE	BY	DESCRIPTION
REVISIONS		

TOWN OF LILLINGTON PUBLIC WORKS

PRECAST MANHOLE DETAIL	SCALE	DRAWING #
	N.T.S.	S-6



DATE	BY	DESCRIPTION
REVISIONS		

TOWN OF LILLINGTON PUBLIC WORKS

1,000 GALLON GREASE TRAP DETAIL	SCALE	DRAWING #
	N.T.S.	S-15

1" = 5'
5 2.5 0 5 10
VERTICAL: SCALE IN FEET

1" = 50'
50 25 0 50 100
HORIZONTAL: SCALE IN FEET

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DEVELOPER:
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CSC PROPERTIES, LLC.
5795 ULMERTON RD.
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PROJECT:
Hwy 55 BURGERS SHAKES & FRIES
NORTH MAIN ST
LILLINGTON, NC
NEILLS CREEK TOWNSHIP
PARCEL #:0650-97-6978.000,

SEAL:
DRAFT

REVISIONS	DATE

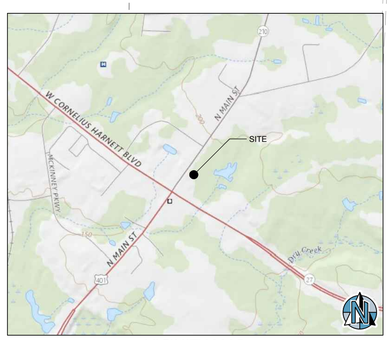
PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	AS SHOWN
TITLE:	

SANITARY SEWER PROFILES

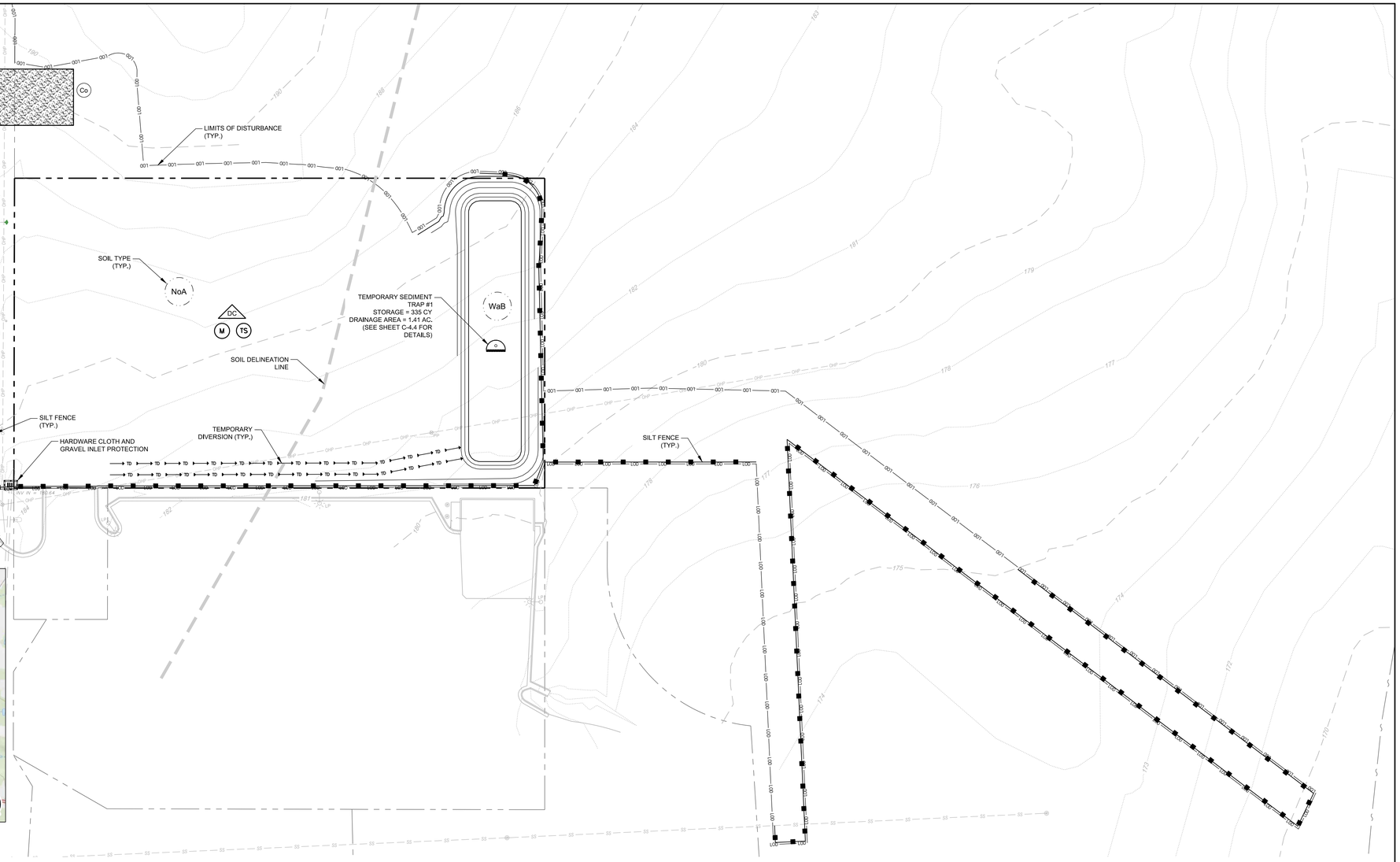
SHEET NUMBER:
C-3.1

COMMENTS:
NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER:
930.023



VICINITY MAP
NOT TO SCALE



GENERAL EROSION CONTROL NOTES:

1.) IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN QUALIFIED PROFESSIONAL ADVICE WHEN QUESTIONS ARISE CONCERNING DESIGN AND EFFECTIVENESS OF EROSION CONTROL DEVICES.

2.) THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES SHALL TAKE PLACE PRIOR TO OR CONCURRENT WITH ALL LAND DISTURBING ACTIVITIES THROUGHOUT THE ENTIRE PROJECT

3.) ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

4.) EROSION AND SEDIMENT CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

5.) THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, ALL LAND DISTURBING ACTIVITIES THROUGHOUT THE ENTIRE PROJECT.

6.) WHEN SILT FENCES BECOME 1/3 FULL OF SEDIMENT, THE SEDIMENT MUST BE REMOVED.

7.) MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES, WHETHER TEMPORARY OR PERMANENT, SHALL BE AT ALL TIMES THE RESPONSIBILITY OF THE PROPERTY OWNER.

8.) ALL FILL SLOPES SHALL HAVE SILT FENCE PLACED AT THE SLOPE'S TOE.

9.) EROSION CONTROL DEVICES THAT ARE INSTALLED AS DIRECTED BY THE LAND DEVELOPMENT INSPECTOR BUT NOT SHOWN ON THE APPROVED PLAN AND WHICH ALSO SUBSEQUENTLY FAIL, ARE THE RESPONSIBILITY OF THE CONTRACTOR.

10.) ALL TEMPORARY AND PERMANENT SEEDING MUST BE PERFORMED AT THE APPROPRIATE SEASON. ADDITIONAL PLANTINGS WILL BE NECESSARY IF A SUFFICIENT STAND OF GRASS FAILS TO GROW.

11.) TOPSOIL SHALL BE STOCKPILED AND USED TO DRESS FINAL GRADES.

12.) THE CONTRACTOR WILL CLEAN OUT ACCUMULATED SILT IN THE STORM DRAINAGE PIPES AT END OF CONSTRUCTION WHEN DISTURBED AREAS HAVE BEEN STABILIZED.

13.) MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN SEVEN DAYS OF DISTURBANCE.

14.) GRASSING REQUIRED AT A MINIMUM OF EVERY (SEVEN) DAYS OR AS DIRECTED BY A QUALIFIED PERSONNEL

15.) EXPOSED SLOPES ARE TO HAVE INSTALLED GROUNDCOVER WITHIN 21 CALENDAR DAYS FOLLOWING THE COMPLETION OF EACH PHASE OF GRADING.

16.) PERMANENT GROUNDCOVER IS TO BE INSTALLED ON ALL DISTURBED AREAS WITHIN 15 WORKING DAYS FOLLOWING COMPLETION OF THE CONSTRUCTION OR DEVELOPMENT.

17.) ANY OFF SITE BARROW AND WASTE REQUIRED FOR THIS PROJECT MUST COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE DIVISION OF SOLID WASTE MANAGEMENT. TRASH/DEBRIS FROM DEMOLITION ACTIVITIES MUST BE DISPOSED OF AT A FACILITY REGULATED BY THE DIVISION OF SOLID WASTE MANAGEMENT. [15A NCAC 4B.0110]

EROSION AND SEDIMENT CONTROL LEGEND

CODE	PRACTICE	DETAIL	MAP SYMBOL
Cd	CHECKDAMS		
Co	CONSTRUCTION EXIT		Co
TD	TEMPORARY DIVERSION		TD
	SEDIMENT BARRIER		
	EXCAVATED DROP INLET PROTECTION		
Sd2-P	INLET SEDIMENT TRAP		
	TEMPORARY SEDIMENT TRAP		
RR	STORM DRAIN OUTLET PROTECTION		RR
M	DISTURBED AREA STABILIZATION WITH MULCHING		M
TS	DISTURBED AREA STABILIZATION WITH TEMPORARY SEEDING		TS
GC	DISTURBED AREA STABILIZATION WITH PERMANENT VEGETATION		GC

EROSION AND SEDIMENT CONTROL LEGEND

CODE	PRACTICE	DETAIL	MAP SYMBOL
S	SODDING		S
DC	DUST CONTROL ON DISTURBED AREAS		DC
SOCK	COMPOST SOCK		SOCK
	LIMITS OF DISTURBANCE	N/A	LOD
	SOIL DELINEATION LINE	N/A	

SITE NARRATIVE:

CSC PROPERTIES IS PROPOSING A NEW HIGHWAY 55, BURGERS, SHAKES AND FRIES QUICK SERVICE FACILITY AND ASSOCIATED PARKING LOT AND UTILITES ON PARCEL 0650-97-6978.000 OF NORTH CAROLINA HIGHWAY 210 NORTH OFF WEST CORNEILUS HARNETT BLVD IN LILLINGTON, HARNETT COUNTY NORTH CAROLINA. THE SITE CURRENTLY CONSISTS OF AN UNDEVELOPED, GRASSED LOT. STORM WATER DETENTION IS PROVIDED BY A POND. THE LIMITS OF CONSTRUCTION SHALL BE SHOWN ON PLANS. TOTAL DISTURBED AREA IS ESTIMATED TO BE 1.66 ACRES. UPON COMPLETION ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED WITH ASPHALT, CONCRETE AND GRASS AS PER THE SEEDING SPECIFICATIONS.

SITE DISTURBED AREA = 1.66 AC.

SOIL TYPE

NoA	NORFOLK LOAMY SAND, 0 TO 2 PERCENT SLOPES
WaB	WAGRAM LOAMY SAND, 0 TO 6 PERCENT SLOPES

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DIVERSION
- PROPOSED STORM PIPE
- LIMITS OF DISTURBANCE

ANTICIPATED ACTIVITY SCHEDULE

BEGIN CONSTRUCTION: 03/01/2020
END CONSTRUCTION: 09/01/2020

	ACTIVITY	1.0 MTH	2.0 MTH	3.0 MTH	4.0 MTH	5.0 MTH	6.0 MTH
1	INSTALL SEDIMENT CONTROLS	■					
2	DEMOLITION	■					
3	CLEARING, GRUBBING, & GRADING	■	■	■			
4	GRASS TEMP.	■	■	■	■		
5	BUILDING CONSTRUCTION		■	■	■	■	
6	MAINTAIN EROSION CONTROL	■	■	■	■	■	■
7	PAVING			■	■		
8	FINAL LANDSCAPING						■
9	DISPOSITION OF TEMP. SEDIMENT CONTROLS						■

NAD83 - NORTH CAROLINA

1" = 30'

30' 15' 0 30' 60'

SCALE IN FEET

ENGINEER:
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DEVELOPER:
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CONTACT: JAKE SEATON

Hwy 55 BURGERS SHAKES & FRIES

PROJECT:
NORTH MAIN ST
LILLINGTON, NC
NEILLS CREEK TOWNSHIP
PARCEL #:0650-97-6978.000,

SEAL:

DRAFT

REVISIONS	DATE

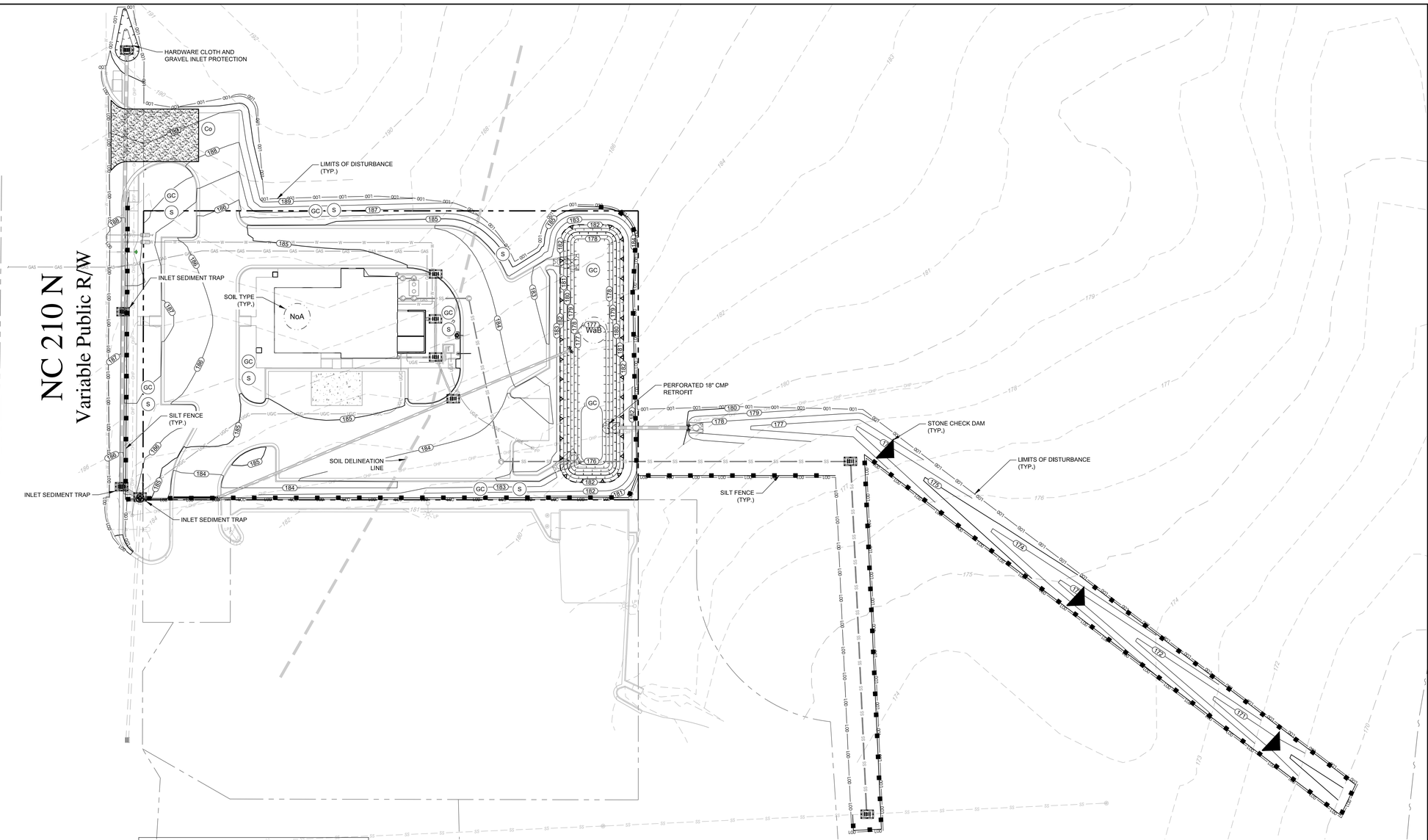
PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	1" = 30'
TITLE:	

EROSION AND SEDIMENTATION CONTROL PLAN - PHASE 1

SHEET NUMBER: C-4

COMMENTS: NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER: 930.023



NOTES:

1.) SEE NOTES, ANTICIPATED ACTIVITY SCHEDULE, AND VICINITY MAP ON SHEET C-4.

SITE DISTURBED AREA = 1.66 AC.

LEGEND

XXXX	EXISTING CONTOURS
XXXX	PROPOSED CONTOURS
	DIVERSION
	PROPOSED STORM PIPE
LOD LOD LOD	LIMITS OF DISTURBANCE

SOIL TYPE

NoA	NORFOLK LOAMY SAND, 0 TO 2 PERCENT SLOPES
WaB	WAGRAM LOAMY SAND, 0 TO 6 PERCENT SLOPES

EROSION AND SEDIMENT CONTROL LEGEND

CODE	PRACTICE	DETAIL	MAP SYMBOL
Cd	CHECKDAMS		
Co	CONSTRUCTION EXIT		Co
TD	TEMPORARY DIVERSION		TD
	SEDIMENT BARRIER		
	EXCAVATED DROP INLET PROTECTION		
Sd2-P	INLET SEDIMENT TRAP		
	TEMPORARY SEDIMENT TRAP		
RR	STORM DRAIN OUTLET PROTECTION		RR
M	DISTURBED AREA STABILIZATION WITH MULCHING		M
TS	DISTURBED AREA STABILIZATION WITH TEMPORARY SEEDING		TS
GC	DISTURBED AREA STABILIZATION WITH PERMANENT VEGETATION		GC

EROSION AND SEDIMENT CONTROL LEGEND

CODE	PRACTICE	DETAIL	MAP SYMBOL
S	SODDING		S
DC	DUST CONTROL ON DISTURBED AREAS		DC
SOCK	COMPOST SOCK		SOCK
	LIMITS OF DISTURBANCE	N/A	LOD
	SOIL DELINEATION LINE	N/A	

NADR83 NORTH CAROLINA

1" = 30'
30' 15' 0 30' 60'
SCALE IN FEET

ENGINEER:
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SEAL:
DRAFT

REVISIONS	DATE

PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	1" = 30'
TITLE:	

EROSION AND SEDIMENTATION CONTROL PLAN - PHASE 2

SHEET NUMBER:
C-4.1

COMMENTS:
NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER:
930.023

6.62

SEDIMENT FENCE

Construction Specifications

MATERIALS

1. Use a synthetic filter fabric of at least 95% by weight of polyolefins or polyester, which is certified by the manufacturer or supplier as conforming to the requirements in ASTM D 6461, which is shown in part in Table 6.62b.

Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months o' expected usable construction life at a temperature range of 0 to 120° F.

2. Ensure that posts for sediment fences are 1.33 lb/linear ft steel with a minimum length of 5 feet. Make sure that steel posts have projections to facilitate fastening the fabric.

3. For reinforcement of standard strength filter fibric, use wire fence with a minimum 14 gauge and a maximum mesh spacing of 6 inches.

Table 6.62b Specifications For Sediment Fence Fabric

Temporary Silt Fence Material Property Requirements

	Test Material	Units	Supported[1] Silt Fence	Un-Supported Silt Fence	Type of Value
Grab Strength	ASTM D 4632	N (lbs)			
Machine Direction			400	550	MARV
			(90)	(90)	
X-Machine Direction			400	450	MARV
			(90)	(90)	
Permittivity[2]	ASTM D 4491	sec-1	0.05	1.05	MARV
Apparent Opening Size[2]	ASTM D 4751	mm	0.60	0.50	Max. ARV[3]
		(US Sieve #)	(30)	(30)	
Ultraviolet Stability	ASTM D 4355	% Retained Strength	70% after 500h of exposure	70% after 500h of exposure	Typical

[1] Silt Fence support shall consist of 14 gage steel wire with a mesh spacing of 150 mm (6 inches), or prefabricated polymer mesh of equivalent strength.
[2] These default values are based on empirical evidence with a variety of sediment. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests in accordance with Test Method D 5141 should be performed by the agency to confirm suitability of these requirements.
[3] As measured in accordance with Test Method D 4632.

CONSTRUCTION

1. Construct the sediment barrier o' standard strength or extra strength synthetic filter fabrics.

2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground surface. (Higher fences may impound volumes of water sufficient to cause failure of the structure.)

3. Construct the filter fabric from a continuous ro1 cut to the length of the barrier to avoid joints. When joints are necessary, securely facen the filter cloth only at a support post with 4 feet minimum overlap to the next post.

4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have minimum 50 pound tensile strength.

5. When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Support posts should be driven securely into the ground a minimum of 24 inches.

6. Extra strength filter fibric with 6 foot post spacing does not require wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have minimum 50 pound tensile strength.

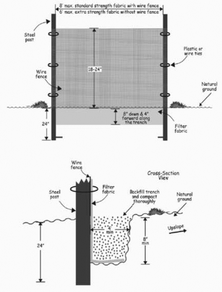
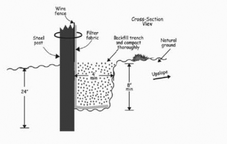
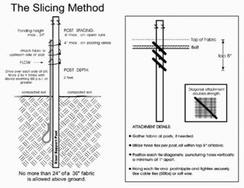


Figure 6.62a Installation detail of a sediment fence.



The Slicing Method



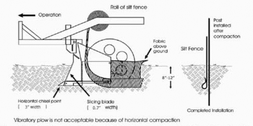


Figure 6.62c Schematics for using the slicing method to install a sediment fence. Adapted from *Silt Fence that Works*

7. Excavate a trench approximately 4 inches wide and 8 inches deep along the proposed line of posts and upslope from the barrier (Figure 6.62a).

8. Place 12 inches of the fabric along the bottom and side of the trench.

9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.

10. Do not attach filter fabric to existing trees.

SEDIMENT FENCE INSTALLATION USING THE SLICING METHOD

Instead of excavating a trench, placing fabric and then backfilling trench, sediment fence may be installed using specially designed equipment that inserts the fabric into a cut sliced in the ground with a disc (figure 6.62b).

Installation Specifications

1. The base of both end posts should be at least one foot higher than the middle of the fence. Check with a level if necessary.

2. Install posts 4 feet apart in critical areas and 6 feet apart on standard applications.

3. Install posts 2 feet deep on the downstream side of the silt fence, and as close as possible to the fabric, enabling posts to support the fabric from upstream water pressure.

4. Install posts with the nipples facing away from the silt fabric.

5. Attach the fabric to each post with three ties, all spaced within the top 8 inches of the fabric. Attach each tie diagonally 45 degrees through the fabric, with each puncture at least 1 inch vertically apart. Also, each tie should be positioned to hang on a post nipple when tightened to prevent sagging.

6. Wrap approximately 6 inches of fabric around the end posts and secure with 3 ties.

7. No more than 24 inches of a 36 inch fabric is allowed above ground level.

8. The installation should be checked and corrected for any deviations before compaction.

9. Compaction is vitally important for effective results. Compact the soil immediately next to the silt fence fabric with the front wheel of the tractor, skid steer, or roller exerting at leaz 60 pounds per square inch. Compact the upstream side first, and then each side twice for a total of 4 trips.

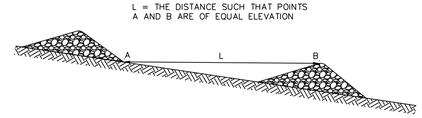
Maintenance

Inspect sediment fences at least once a week and after each rainfall. Make any required repairs immediately.

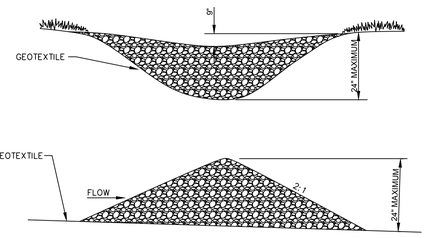
Should the fabric of a sediment fesce collapse, tear, decompose or become ineffective, replace it promptly.

Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence. Take care to avoid undermining the fence during clearout.

Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been



SPACING BETWEEN CHECK DAMS



Maintenance

Inspect check dams and channels at least weekly and after each significant (1/2 inch or greater) rainfall event and repair immediately. Clean out sediment, straw, limbs, or other debris that could clog the channel when needed.

Anticipate submergence and deposition above the check dam and erosion from high flows around the edges of the dam. Correct all damage immediately. If significant erosion occurs between dams, additional measures can be taken such as, installing a protective riprap liner in that portion of the channel (Practice 6.31, *Riprap-line and Paved Channels*).

Remove sediment accumulated behind the dams as needed to prevent damage to channel vegetation, allow the channel to drain through the stone check dam, and prevent large flows from carrying sediment over the dam. Add stones to dams as needed to maintain design height and cross section.

STONE CHECK DAM

NOT TO SCALE

TABLE 1.
SPRAY–ON ADHESIVE APPLICATION REQUIREMENTS

ADHESIVE	WATER DILUTION	NOZZLE TYPE	APPLICATION (GAL/ACRE)
ANIONIC ASPHALT EMULSION	7:1*	COURSE SPRAY	1,200
LATEX EMULSION	12.5:1*	FINE SPRAY	235
RESIN–IN–WATER EMULSION	4:1*	FINE SPRAY	300

* USE MANUFACTURER'S RECOMMENDATIONS WHEN AVAILABLE

1.) APPLY ACCORDING TO APPROVED PLAN, IF SHOWN.

2.) MULCH DISTURBED AREAS AND TACKIFY WITH RESINS SUCH AS ASPHALT, CURASOL, OR TERRATACK ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

3.) STABILIZE DISTURBED AREAS WITH TEMPORARY OR PERMANENT VEGETATION.

4.) IRRIGATE DISTURBED AREAS UNTIL SURFACE IS WET.

5.) COVER SURFACES WITH CRUSHED STONE OR GRAVEL.

6.) APPLY CALCIUM CHLORIDE AT A RATE TO KEEP SURFACES MOIST.

7.) APPLY SPRAY–ON ADHESIVES TO MINERAL SOILS (NOT MUCK SOILS) AS DESCRIBED IN TABLE 1.

Maintenance

Maintain dust control measures through dry weather periods until all disturbed areas have been stabilized.

DC

DUST CONTROL ON DISTURBED AREAS

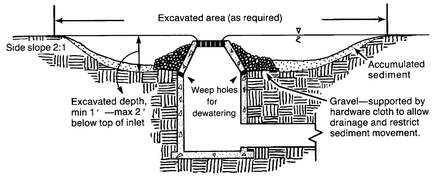
6.50

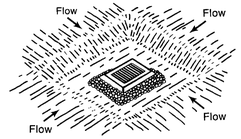
EXCAVATED DROP INLET PROTECTION (Temporary)

Definition An excavated area in the approach to a storm drain drop inlet or curb inlet.

Purpose To trap sediment at the approach to the storm drainage systems. This practice allows use of permanent stormwater conveyance at an early stage of site development.

Conditions Where Practice Applies Where storm drain drop inlets are to be made operational before permanent stabilization of the disturbed drainage area. This method of inlet protection is applicable where relatively heavy flows are expected, and overflow capability is needed (Figure 6.50a). Frequent maintenance is required and temporary flooding in the excavated area will occur. This practice can be used in combination with other temporary inlet protection devices such as Practice 6.51, *Hardware Cloth, and Gravel Inlet Protection* and Practice 6.52, *Block and Gravel Inlet Protection*.





Design Criteria Limit the drainage area to 1 acre. Keep the minimum depth at 1 foot and the maximum depth of 2 feet as measured from the crest of the inlet structure.

Maintain side slopes around the excavation no steeper than 2:1

Keep the minimum volume of excavated area around the drop inlet at approximately 1800 ft³/acre disturbed.

Shape the basin to fit site conditions, with the longest dimension oriented toward the longest inflow area to provide maximum trap efficiency.

Install provisions for draining the temporary pool to improve trapping efficiency for small storms and to avoid problems from standing water after heavy rains.

Construction Specifications

1. Clear the area of all debris that might hinder excavation and disposal of spoil.

2. Grade the approach to the inlet uniformly.

3. Protect weep holes by gravel.

4. When the contributing drainage area has been permanently stabilized, seal weep holes, fill the basin with stable soil to final grading elevations, compact it properly, and stabilize.

Maintenance Inspect, clean, and properly maintain the excavated basin after every storm until the contributing drainage area has been permanently stabilized. To provide satisfactory basin efficiency, remove sediment when the volume of the basin has been reduced by one-half. Spread all excavated material evenly over the surrounding land area or stockpile and stabilize it appropriately.

References *Inlet Protection*
6.51, Hardware, Cloth, and Gravel Inlet Protection
6.52, Block and Gravel Inlet Protection (Temporary)

EXCAVATED DROP INLET PROTECTION

NOT TO SCALE

6.51

HARDWARE CLOTH & GRAVEL INLET PROTECTION

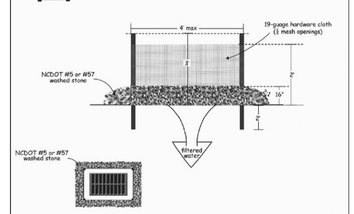


Figure 6.51a Hardware cloth and gravel inlet protection

Construction Specifications

1. Uniformly grade a shallow depression approaching the inlet.

2. Drive 5-foot steel posts 2 feet into the ground surrounding the inlet. Space posts evenly around the perimeter of the inlet, a maximum of 4 feet apart.

3. Surround the posts with wire mesh hardware cloth. Secure the wire mesh to the steel posts at the top, middle, and bottom. Placing a 2-foot flap of the wire mesh under the gravel for anchoring is recommended.

4. Place clean gravel (NC DOT #5 or #57 stone) on a 2:1 slope with a height of 16 inches around the wire, and smooth to an even grade.

5. Once the contributing drainage area has been stabilized, remove accumulated sediment, and establish final grading elevations.

6. Compact the area properly and stabilized it with groundcover.

Maintenance Inspect inlets at least weekly and after each significant (½ inch or greater) rainfall event. Clear the mesh wire of any debris or other objects to provide adequate flow for subsequent rains. Take care not to damage or undercut the wire mesh durine sediment removal. Reriace stone as needed.

6.06

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT

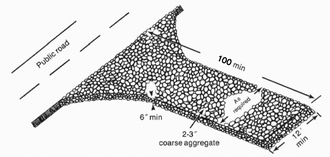


Figure 6.06a Gravel entrance/exit keeps sediment from leaving the construction site (modified from Va SWCC).

Construction Specifications

1. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.

2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.

3. Provide drainage to carry water to a sediment trap or other suitable outlet.

4. Use geotextile fabrics because they improve stability of the foundation in locations subject to seepage or high water table.

Maintenance Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic topdressing with 2-inch stone. After each rainfall, inspect any structure used to trap sediment and clean it out as necessary. Immediately remove all objectionable materials srilled, washed, or tracked onto public roadways.

6.20

TEMPORARY DIVERSIONS

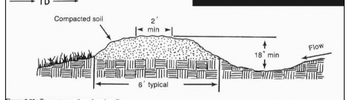


Figure 6.20a Temporary earthen diversion dike

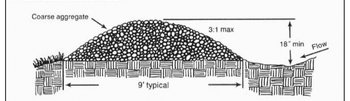


Figure 6.20b Temporary gravel diversion dike for vehicle crossing (modified from Va SWCC).

Construction Specifications

1. Remove and properly dispose of all trees, brush, stumps, and other objectionable material.

2. Ensure that the minimum constructed cross section meets all design requirements.

3. Ensure that the top of the dike is not lower at any point than the design elevation plus the specified settlement.

4. Provide sufficient room around diversions to permit machine regrading and cleanout.

5. Vegetate the ridge immediately after construction, unless it will remain in place less than 30 working days.

Maintenance Inspect temporary diversions once a week and after every rainfall. Immediately remove sediment from the flow area and repair the diversion ridge. Carefully check outlets and make timely repairs as needed. When the area protected is permanently stabilized, remove the ridge and the channel to blend with the natural ground level and appropriately stabilize it.

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REVISIONS	DATE

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DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	AS SHOWN
TITLE:	

EROSION AND SEDIMENTATION CONTROL DETAILS

SHEET NUMBER:
C-4.2

COMMENTS:
NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER:
930.023

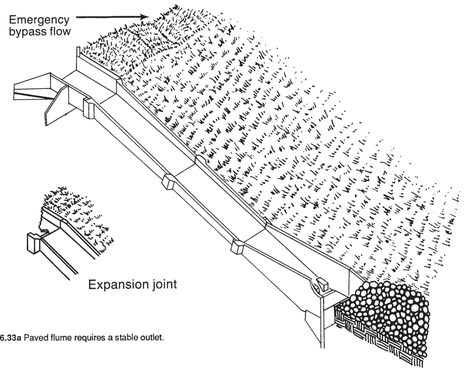


Figure 6.33a Paved flume requires a stable outlet.

Concrete—Keep concrete in the flume channel at least 5 inches thick and reinforce it with 3/8-inch steel bars. Ensure that the concrete used for flumes is a dense, durable product and sufficiently plastic for thorough consolidation but stiff enough to stay in place on steep slopes. As a minimum, use a mix certified as 3,000 lb/inch^2.

Cross section—Ensure that flumes have a minimum depth of 1 foot with 1.5:1 side slopes. Base bottom widths on maximum flow capacity.

Alignment—Keep chute channels straight because they often carry supercritical flow velocities.

Drainage filters—Use a drainage filter to prevent piping and reduce uplift pressure wherever seepage or high water table may occur (*Appendix 8.05*).

Inlet section—Ensure that the inlet to the chute has the following minimum dimensions: side walls 2 feet high, length 6 feet, width equal to the flume channel bottom, and side slope same as flume channel side slopes.

Outlet section—Protect outlets for paved flumes from erosion. Use an energy dissipator to reduce high chute velocities to nonerosive rates. In addition, place riprap at the end of the dissipator to spread the flow evenly over the receiving area. Other measures, such as an impact basin, plunge pool, or rock riprap outlet structure, may also be needed (Practice 6.41, *Outlet Stabilization Structure*).

6.33.2

Table 6.33a
Flume Dimensions

Drainage[1] Area (acres)	Min. Bottom Width (ft)	Min. Inlet Depth (ft)	Min. Channel Depth (ft)	Max. Channel Slope (Ft)	Max. Side Slope (ft)
5	4	2	1.3	1.5:1	1.5:1
10	8	2	1.3	1.5:1	1.5:1

[1]Due to complexity of inlet and outlet design, drainage areas have been limited to 10 acres per flume.

SMALL FLUMES
Where drainage areas are 10 acres or less, the design dimensions for concrete flumes may be selected from Table 6.33a.

Construction Specifications

1. Construct the subgrade to the elevations shown on the plans. Remove all unsuitable material and replace them with stable materials. Compact the subgrade thoroughly and shape it to a smooth, uniform surface. Keep the subgrade moist at the time concrete is poured. On fill slopes, ensure that the soil adjacent to the chute for at least 3 feet is well-compacted.

2. Place concrete for the flume to the thickness shown on the plans and finish it in a workman-like manner.

3. Form, reinforce, and pour together cutoff walls, anchor lugs, and channel linings.

4. Take adequate precautions to protect freshly poured concrete from extreme temperatures to ensure proper curing.

5. Provide transverse (contraction) joints to control cracking at approximately 20-feet intervals. Joints may be formed by using a 1/8-inch thick removable template or by sawing to a depth of at least 1 inch.

6. In very long flumes, install expansion joints at intervals not to exceed 50 feet.

7. Place filters and foundation drains, when required, in the manner specified, and protect them from contamination when pouring the concrete flume.

8. Properly stabilize all disturbed areas immediately after construction.

Maintenance

Inspect flumes after each rainfall until all areas adjoining the flume are permanently stabilized. Repair all damage noted in inspections immediately. After the slopes are stabilized, flumes need only periodic inspection, and inspection after major storm events.

Specifications

Choosing appropriate types of sod—The type of sod selected should be composed of plants adapted to both the site and the intended purpose. In North Carolina these are limited to Kentucky bluegrass, tall fescue, bluegrass-tall fescue blends, fine-turf (hybrid) Bermudagrass, St. Augustinegrass, centipedegrass, and zoysiagrass. Species selection is primarily determined by region, availability, and intended use (Table 6.12a). Availability varies across the state and from year to year. New varieties are continually being developed and tested. A complete and current listing of sod recommendations can be obtained from suppliers or the State Agricultural Extension office. Sod composed of a mixture of varieties may be preferred becuase of its broader range of adaptability.

Table 6.12a
Types of sod Available in North Carolina

	Varieties	Region of Adaptation
Cool Season Grasses:		
Kentucky blugrass blend[1]		Mountains
Tall fescue blend	Adventure, Brookston, Falcon, Finelawn, Galway, Houndog, Jaguar, Olympic, Rebel	Mountains and Piedmont
Tall fescue/Kentucky bluegrass		Mountains and Piedmont
Warm Season Grasses:		
Hybrid Bermudagrass	Vamont, Tifway, Tifway II & Tifgreen	Piedmont and Coastal Plain
Zoysiagrass	Emerald, Meyer	Piedmont and Coastal Plain
Centipedegrass	No improved varieties	Piedmont and Coastal Plain
St. Augustinegrass	Raleigh	Piedmont and Coastal Plain

[1]A large number of varieties exist—consult suppliers and your local Agricultural Extension office for recommendations.

Quality of sod—Use only high-quality sod of known genetic origin, free of noxious weeds, disease, and insect problems. It should appear healthy and vigorous, and conform to the following specifications:

- Sod should be machine cut at a uniform depth of 1/2 - 2 inches (excluding shoot growth and thatch).
- Sod should not have been cut in excessively wet or dry weather.
- Sections of sod should be a standard size as determined by the supplier, uniform, and untorn.
- Sections of sod should be strong enough to support their own weight, and retain their size and shape when lifted by one end.
- Harvest, delivery, and installation of sod should take place within a period of 36 hours.

Soil preparation—Test soil to determine the exact requirements for lime and fertilizer. Soil tests may be conducted by the State soil testing lab or a reputable commercial laboratory. Information on free soil testing is available from the Agronomic Division of the North Carolina Department of Agriculture or the Agricultural Extension Service. Where sodding must be planned without soil tests the following soil amendments may be sufficient:

- **Pulverized agricultural limestone** at a rate of 2 tons/acre (100 lb/1,000 ft^2)
- **Fertilizer** at a rate of 1,000 lb/acre (25 lb/1,000 ft^2) of 10-10-10 in fall or 5-10-10 in spring.

Equivalent nutrients may be applied with other fertilizer formulations. These amendments should be spread evenly over the area, and incorporated into the top 4-8 inches of soil by disking, harrowing, or other effective means. If topsoil is applied, follow specifications given in Practice 6.04, *Topsoiling*.

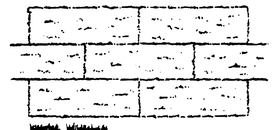
Prior to laying sod, clear the soil surface of trash, debris, roots, branches, stones, and clods larger than 2 inches in diameter. Fill or level low spots in order to avoid standing water. Rake or harrow the site to achieve a smooth and level final grade.

Complete soil preparation by rolling or cultipacking to firm the soil. Avoid using heavy equipment on the area, particularly when the soil is wet, as this may cause excessive compaction, and make it difficult for the sod to take root.

Sod installation—A step-by-step procedure for installing sod is illustrated in Figure 6.12a and described below.

1. Moistening the sod after it is unrolled helps maintain its viability. Store it in the shade during installation.

2. Rake the soil surface to break the crust just before laying sod. During the summer, lightly irrigate the soil, immediately before laying the sod to cool the soil, reduce root burning, and dieback.



Lay sod in a staggered pattern with strips butted tightly against each other. A sharpened mason's trowel can be used to tuck down the ends and trim pieces.

Butting—angled ends caused by the automatic sod cutting must be matched correctly.

S SODDING
NOT TO SCALE

Figure 6.12a Proper installation of grass sod (modified from Va SWCC).

3. Do not sod on gravel, frozen soils, or soils that have been treated recently with sterilants or herbicides.

4. Lay the first row of sod in a straight line with subsequent rows placed paralled to and butting tightly against each other. Stagger strips in a brick-like pattern. Be sure that the sod is not streached or overlapped and that all joints are butted tightly to prevent voids. Use a knife or sharp spade to trim and fit irregularly shaped areas.

5. Install strips of sod with their longest dimension perpendicular to the slope. On slopes 3:1 or greater, or wherever erosion may be a problem, secure sod with pegs or staples.

6. As sodding of clearly defined areas is completed, roll sod to provide firm contact between roots and soil.

7. After rolling, irrigate until the soil is wet 4 inches below the sod.

8. Keep sodded areas moist to a depth of 4 inches until the grass takes root. This can be determined by gently tugging on the sod—resistance indicates that rooting has occurred.

9. Mowing should not be attempted until the sod is firmly rooted, usually 2-3 weeks.

Sodded waterways—Sod provides a resilient channel lining, providing immediate protection from concentrated runoff and eliminating the need for installing mats or mulch. The following points apply to the use of sod in waterways:

1. Prepare the soil as described in Practice 6.30, *Grass-lined Channels*. The sod type must be able to withstand the velocity of flow specified in the channel design (*Appendix 8.05*).

2. Lay sod strips perpendicular to the direction of flow, with the lateral joints staggered in a brick-like pattern. Edges should butt tightly together (Figure 6.12b).

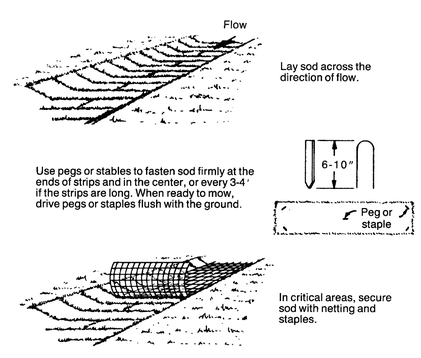


Figure 6.12b Installation of sod in waterways (modified from Va SWCC).

Table 6.12b
Characteristics of the Principal Lawn Grasses Grown as Sod in North Carolina

Species or Mixture	Adaptation					Maintenance		
	Shade	Heat	Cold	Drought	Wear	Annual Fertilizer (lb N/1000 ft^2)	Mowing Height (in.)	Mowing Frequency
Kentucky bluegrass	good	fair	good	good	good	2.5-4	2	med.
Kentucky bluegrass/ Tall fescue	good	good	good	good	good	2.5-3	3	high
Tall fescue	good	good	good	good	good	2.5-3.5	3	high
Hybrid Bermudagrass	poor	good	poor	excel.	excel.	5-6	1	high
Centipedegrass	fair	good	poor	good	poor	0.5	1	low
St. Augustinegrass	good	good	poor	good	poor	2.5	2-3	med.
Zoysiagrass	fair	good	fair	excel.	good	1.5	1	high

Adapted from *Carolina Lawns*, NCAES Bulletin no. AG-69.

3. After rolling or tamping to create a firm contact, peg or staple individual sod strips to resist washout during establishment. Jute or other netting material may be pegged over the sod for extra protection on critical areas.

Maintenance

After the first week, water as necessary to maintain adequate moisture in the root zone and prevent dormancy of the sod.

Do not remove more than one-third of the shoot in any mowing. Grass height should be maintained between 2 and 3 inches unless otherwise specified.

After the first growing season, established sod requires fertilization, and may also require lime. Follow soil test recommendations when possible, or use the rates in Table 6.12b.

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DATE:	01/10/2020
SCALE:	AS SHOWN
TITLE:	EROSION AND SEDIMENTATION CONTROL DETAILS
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6.60

TEMPORARY SEDIMENT TRAP

Definition

A small, temporary ponding basin formed by an embankment or excavation to capture sediment.

Purpose

To detain sediment-laden runoff and trap the sediment to protect receiving streams, lakes, drainage systems, and protect adjacent property.

Conditions Where Practice Applies

Specific criteria for installation of a temporary sediment trap are as follows:

- At the outlets of diversions, channels, slope drains, or other runoff conveyances that discharge sediment-laden water.
- Below areas that are draining 5 acres or less.
- Where access can be maintained for sediment removal and proper disposal.
- In the approach to a stormwater inlet located below a disturbed area as part of an inlet protection system.
- Structure life limited to 2 years.

A temporary sediment trap should not be located in an intermittent or perennial stream.

Planning Considerations

Select locations for sediment traps during site evaluation. Note natural drainage divides and select trap sites so that runoff from potential sediment-producing areas can easily be diverted into the traps. Ensure the drainage areas for each trap does not exceed 5 acres. Install temporary sediment traps before land disturbing takes place within the drainage area.

Make traps readily accessible for periodic sediment removal and other necessary maintenance. Plan locations for sediment disposal as part of trap site selection. Clearly designate all disposal areas on the plans.

In preparing plans for sediment traps, it is important to consider provisions to protect the embankment from failure from storm runoff that exceeds the design capacity. Locate bypass outlets so that flow will not damage the embankment. Direct emergency bypasses to undisturbed natural, stable areas. If a bypass is not possible and failure would have severe consequences, consider alternative sites.

Sediment trapping is achieved primarily by settling within a pool formed by an embankment. The sediment pool may also be formed by excavation, or by a combination of excavation and embankment. Sediment-trapping efficiency is a function of surface area and inflow rate (Practice 6.61, *Sediment Basin*). Therefore, maximize the surface area in the design. Because porous baffles improve flow distribution across the basin, high length to width ratios are not necessary to reduce short-circuiting and to optimize efficiency.

Because well planned sediment traps are key measures to preventing off-site sedimentation, they should be installed in the first stages of project development.

Design Criteria

Summary:	Temporary Sediment Trap
Primary Spillway:	Stone Spillway
Maximum Drainage Area:	5 acres
Minimum Volume:	3600 cubic feet per acre of disturbed area
Minimum Surface Area:	435 square feet per cfs of Q_{10} peak inflow
Minimum L/W Ratio:	2:1
Minimum Depth:	3.5 feet, 1.5 feet excavated below grade
Maximum Height:	Weir elevation 3.5 feet above grade
Dewatering Mechanism:	Stone Spillway
Minimum Dewatering Time:	N/A
Baffles Required:	3

Storage capacity—Provide a minimum volume of 3600 ft³/acre of disturbed area draining into the basin. Required storage volume may also be determined by modeling the soil loss with the Revised Universal Soil Loss Equation or other acceptable methods. Measure volume to the crest elevation of the stone spillway outlet.

Trap cleanout—Remove sediment from the trap, and restore the capacity to original trap dimensions when sediment has accumulated to one-half the design depth.

Trap efficiency—The following design elements must be provided for adequate trapping efficiency:

- Provide a surface area of 0.01 acres (435 square feet) per cfs based on the 10-year storm;
- Convey runoff into the basin through stable diversions or temporary slope drains;
- Locate sediment inflow to the basin away from the dam to prevent short circuits from inlets to the outlet;
- Provide porous baffles (Practice 6.65, *Porous Baffles*);
- Excavate 1.5 feet of the depth of the basin below grade, and provide minimum storage depth of 2 feet above grade.

Embankment—Ensure that embankments for temporary sediment traps do not exceed 5 feet in height. Measure from the center line of the original ground surface to the top of the embankment. Keep the crest of the spillway outlet a minimum of 1.5 feet below the settled top of the embankment. Freeboard may be added to the embankment height to allow flow through a designated bypass location. Construct embankments with a minimum top width of 5 feet and side slopes of 2:1 or flatter. Machine compact embankments.

Excavation—Where sediment pools are formed or enlarged by excavation, keep side slopes at 2:1 or flatter for safety.

Outlet section—Construct the sediment trap outlet using a stone section of the embankment located at the low point in the basin. The stone section serves two purposes: (1) the top section serves as a non-erosive spillway outlet for flood flows; and (2) the bottom section provides a means of dewatering the basin between runoff events.

Stone size—Construct the outlet using well-graded stones with a d_{50} size of 9 inches (Class B erosion control stone is recommended,) and a maximum stone size of 14 inches. The entire upstream face of the rock structure should be covered with fine gravel (NCDOT #57 or #5 wash stone) a minimum of 1 foot thick to reduce the drainage rate.

Side slopes—Keep the side slopes of the spillway section at 2:1 or flatter. To protect the embankment, keep the sides of the spillway at least 21 inches thick.

Depth—The basin should be excavated 1.5 feet below grade.

Stone spillway height—The sediment storage depth should be a minimum of 2 feet and a maximum of 3.5 feet above grade.

Protection from piping—Place filter cloth on the foundation below the riprap to prevent piping. An alternative would be to excavate a keyway trench across the riprap foundation and up the sides to the height of the dam.

Weir length and depth—Keep the spillway weir at least 4 feet long and sized to pass the peak discharge of the 10-year storm (Figure 6.60a). A maximum flow depth of six inches, a minimum freeboard of 1 foot, and maximum side slopes of 2:1 are recommended. Weir length may be selected from Table 6.60a shown for most site locations in North Carolina.

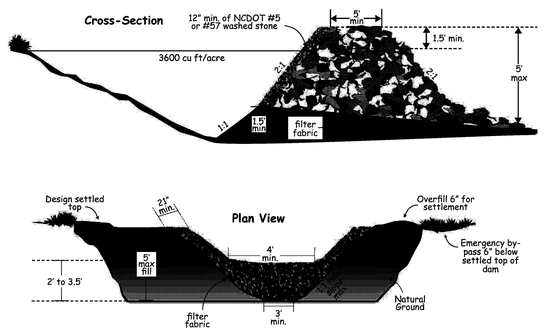

Figure 6.60a Plan view and cross-section view of a temporary sediment trap.

Table 6.60a Design of Spillways

Drainage Area (acres)	Weir Length[1] (ft)
1	4.0
2	6.0
3	8.0
4	10.0
5	12.0

[1] Dimensions shown are minimum.

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.

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. Construct the outlet section in the embankment. Protect the connection between the riprap and the soil from piping by using filter fabric or a keyway cutoff trench between the riprap structure and soil.
   - Place the filter fabric between the riprap and the soil. Extend the fabric across the spillway foundation and sides to the top of the dam; or
   - Excavate a keyway trench along the center line of the spillway foundation extending up the sides to the height of the dam. The trench should be at least 2 feet deep and 2 feet wide with 1:1 side slopes.

4. Clear the pond area below the elevation of the crest of the spillway to facilitate sediment cleanout.

5. All cut and fill slopes should be 2:1 or flatter.

6. Ensure that the stone (drainage) section of the embankment has a minimum bottom width of 3 feet and maximum side slopes of 1:1 that extend to the bottom of the spillway section.

7. Construct the minimum finished stone spillway bottom width, as shown on the plans, with 2:1 side slopes extending to the top of the over filled embankment. Keep the thickness of the sides of the spillway outlet structure at a minimum of 21 inches. **The weir must be level and constructed to grade to assure design capacity.**

8. Material used in the stone section should be a well-graded mixture of stone with a d_{50} size of 9 inches (class B erosion control stone is recommended) and a maximum stone size of 14 inches. The stone may be machine placed and the smaller stones worked into the voids of the larger stones. The stone should be hard, angular, and highly weather-resistant.

9. Discharge inlet water into the basin in a manner to prevent erosion. Use temporary slope drains or diversions with outlet protection to divert sediment-laden water to the upper end of the pool area to improve basin trap efficiency (*References: Runoff Control Measures and Outlet Protection*).

10. Ensure that the stone spillway outlet section extends downstream past the toe of the embankment until stable conditions are reached and outlet velocity is acceptable for the receiving stream. Keep the edges of the stone outlet section flush with the surrounding ground, and shape the center to confine the outflow stream (*References: Outlet Protection*).

11. Direct emergency bypass to natural, stable areas. Locate bypass outlets so that flow will not damage the embankment.

12. Stabilize the embankment and all disturbed areas above the sediment pool and downstream from the trap immediately after construction (*References: Surface Stabilization*).

13. Show the distance from the top of the spillway to the sediment cleanout level (1/2 the design depth) on the plans and mark it in the field.

14. Install porous baffles as specified in Practice 6.65, *Porous Baffles*.

Maintenance

Inspect temporary sediment traps at least weekly and after each significant (½ inch or greater) rainfall event and repair immediately. Remove sediment, and restore the trap to its original dimensions when the sediment has accumulated to one-half the design depth of the trap. Place the sediment that is removed in the designated disposal area, and replace the part of the gravel facing that is impaired by sediment.

Check the structure for damage from erosion or piping. Periodically check the depth of the spillway to ensure it is a minimum of 1.5 feet below the low point of the embankment. Immediately fill any settlement of the embankment to slightly above design grade. **Any riprap displaced from the spillway must be replaced immediately.**

After all sediment-producing areas have been permanently stabilized, remove the structure and all unstable sediment. Smooth the area to blend with the adjoining areas, and stabilize properly (*References: Surface Stabilization*).

References

Outlet Protection
6.41, Outlet Stabilization Structure

Runoff Control Measures
6.20, Temporary Diversions
6.21, Permanent Diversions
6.22, Diversion Dike (Perimeter Protection)
6.23, Right-of-way Diversion (Water Bars)

Surface Stabilization
6.10, Temporary Seeding
6.11, Permanent Seeding
6.15, Riprap

Sediment Traps and Barriers
6.61, Sediment Basins
6.64, Skimmer Basins
6.65, Porous Baffles

North Carolina Department of Transportation
Standard Specifications for Roads and Structures

Table 6.10b Temporary Seeding Recommendations for Summer

Seeding mixture

Species	Rate (lb/acre)
German millet	40

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

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

Soil amendments
Follow recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

Mulch
Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

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

Table 6.10c Temporary Seeding Recommendations for Fall

Seeding mixture

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

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

Soil amendments
Follow soil tests or apply 2,000 lb/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer.

Mulch
Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

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

Specifications

Complete grading before preparing seedbeds, and install all necessary erosion control practices such as, dikes, waterways, and basins. Minimize steep slopes because they make seedbed preparation difficult and increase the erosion hazard. If soils become compacted during grading, loosen them to a depth of 6-8 inches using a ripper, harrow, or chisel plow.

SEEDBED PREPARATION
Good seedbed preparation is essential to successful plant establishment. A good seedbed is well-pulverized, loose, and uniform. Where hydroseeding methods are used, the surface may be left with a more irregular surface of large clods and stones.

Liming—Apply lime according to soil test recommendations. If the pH (acidity) of the soil is not known, an application of ground agricultural limestone at the rate of 1 to 1 1/2 tons/acre on coarse-textured soils and 2-3 tons/acre on fine-textured soils is usually sufficient. Apply limestone uniformly and incorporate into the top 4-6 inches of soil. Soils with a pH of 6 or higher need not be limed.

Fertilizer—Base application rates on soil tests. When these are not possible, apply a 10-10-10 grade fertilizer at 700-1,000 lb/acre. Both fertilizer and lime should be incorporated into the top 4-6 inches of soil. If a hydraulic seeder is used, do not mix seed and fertilizer more than 30 minutes before application.

Surface roughening—If recent tillage operations have resulted in a loose surface, additional roughening may not be required, except to break up large clods. If rainfall causes the surface to become sealed or crusted, loosen it just prior to seeding by disking, raking, harrowing, or other suitable methods. Groove or furrow slopes steeper than 3:1 on the contour before seeding (Practice 6.03, *Surface Roughening*).

PLANT SELECTION
Select an appropriate species or species mixture from Table 6.10a for seeding in late winter and early spring, Table 6.10b for summer, and Table 6.10c for fall.

In the Mountains, December and January seedings have poor chances of success. When it is necessary to plant at these times, use recommendations for fall and a securely tacked mulch.

SEEDING
Evenly apply seed using a cyclone seeder (broadcast), drill, cultipacker seeder, or hydroseeder. Use seeding rates given in Tables 6.10a-6.10c. Broadcast seeding and hydroseeding are appropriate for steep slopes where equipment cannot be driven. Hand broadcasting is not recommended because of the difficulty in achieving a uniform distribution.

Small grains should be planted no more than 1 inch deep, and grasses and legumes no more than 1/2 inch. Broadcast seed must be covered by raking or chain dragging, and then lightly firmed with a roller or cultipacker. Hydroseeded mixtures should include a wood fiber (cellulose) mulch.

MULCHING
The use of an appropriate mulch will help ensure establishment under normal conditions, and is essential to seeding success under harsh site conditions (Practice 6.14, *Mulching*). Harsh site conditions include:

- seeding in fall for winter cover (wood fiber mulches are not considered adequate for this use),
- slopes steeper than 3:1,
- excessively hot or dry weather,
- adverse soils (shallow, rocky, or high in clay or sand), and
- areas receiving concentrated flow.

If the area to be mulched is subject to concentrated waterflow, as in channels, anchor mulch with netting (Practice 6.14, *Mulching*).

Maintenance

Reseed and mulch areas where seedling emergence is poor, or where erosion occurs, as soon as possible. Do not mow. Protect from traffic as much as possible.

TEMPORARY SEDIMENT TRAP
NOT TO SCALE

TS TEMPORARY SEEDING
NOT TO SCALE

ENGINEER:
FORESITE group
Foresite Group, LLC
2101 Magnolia Ave. South
Suite 100
Birmingham, AL 35205
w | www.fg-inc.net
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DEVELOPER:
CSC PROPERTIES
CSC PROPERTIES, LLC.
5795 ULMERTON RD.
CLEARWATER, FL 33760
CONTACT: JAKE SEATON

PROJECT:
Hwy 55 BURGERS SHAKES & FRIES
NORTH MAIN ST
LILLINGTON, NC
NEILLS CREEK TOWNSHIP
PARCEL #:0650-97-6978.000,

SEAL:
DRAFT

REVISIONS | DATE

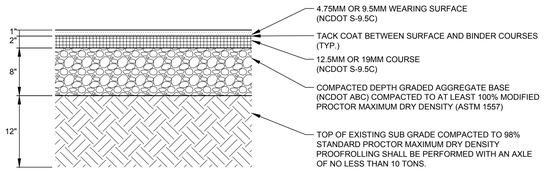
PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	AS SHOWN
TITLE:	

EROSION AND SEDIMENTATION CONTROL DETAILS

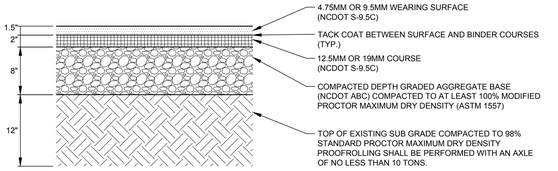
SHEET NUMBER:
C-4.4

COMMENTS:
NOT RELEASED FOR CONSTRUCTION

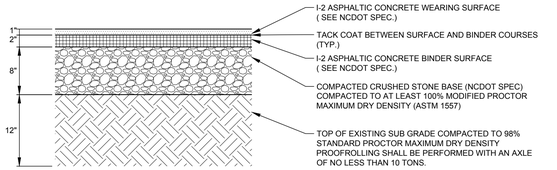
JOB/FILE NUMBER:
930.023



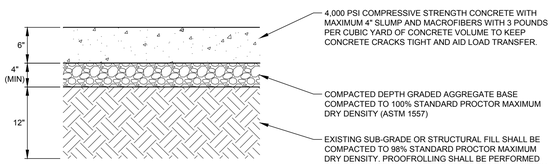
C-5 MEDIUM (STANDARD) DUTY ASPHALT PAVING
NOT TO SCALE

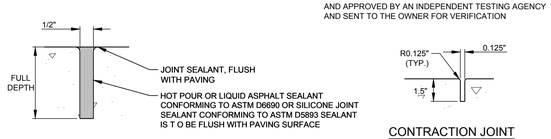


C-5 HEAVY DUTY ASPHALT PAVING
NOT TO SCALE



C-5 NCDOT SPECIFICATION ASPHALT PAVING
NOT TO SCALE



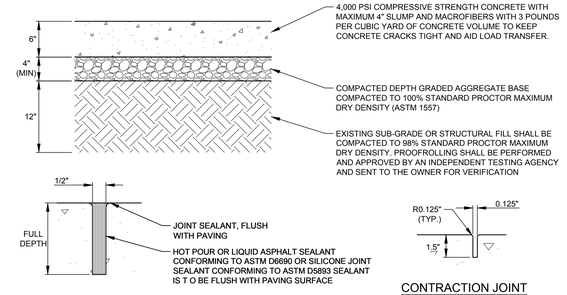


ISOLATION JOINT

CONTRACTION JOINT

NOTE:
1. DETAIL REFLECTS HEAVY DUTY CONCRETE PAVING RECOMMENDATION BY PROJECT GEOTECHNICAL ENGINEER.
2. A TACK COAT SHALL BE APPLIED BETWEEN THE H/D SECTION AND THE ON-SITE ASPHALT SECTION.
3. **UNLESS OTHERWISE NOTED ON PLANS, CONTRACTION JOINTS TO BE 10'-0" O.C. MAX AND ISOLATION JOINTS TO SEPARATE PAVEMENT FROM CURB, CHANGE OF DIRECTION, OTHER WALK, UTILITY APPURTENANCE, COLD JOINTS OR FACE OF STRUCTURE.** THE JOINTS SHALL EXTEND TO A DEPTH 1/4 OF THE SLAB THICKNESS. IF SAW CUTTING THE JOINTS IS TO BE EMPLOYED, THE JOINTS SHOULD BE CUT WHILE THE CONCRETE IS STILL "GREEN" AND AS SOON AFTER PLACEMENT AS THE EQUIPMENT CAN BE MOVED ONTO THE PAVEMENT WITHOUT DISTURBING THE CONCRETE FINISH.

C-5 MEDIUM (STANDARD) DUTY CONCRETE PAVING
NOT TO SCALE



ISOLATION JOINT

CONTRACTION JOINT

NOTE:
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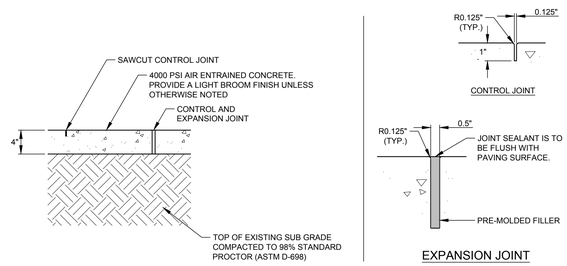
2. A TACK COAT SHALL BE APPLIED BETWEEN THE H/D SECTION AND THE ON-SITE ASPHALT SECTION.
3. **UNLESS OTHERWISE NOTED ON PLANS, CONTRACTION JOINTS TO BE 10'-0" O.C. MAX AND ISOLATION JOINTS TO SEPARATE PAVEMENT FROM CURB, CHANGE OF DIRECTION, OTHER WALK, UTILITY APPURTENANCE, COLD JOINTS OR FACE OF STRUCTURE.** THE JOINTS SHALL EXTEND TO A DEPTH 1/4 OF THE SLAB THICKNESS. IF SAW CUTTING THE JOINTS IS TO BE EMPLOYED, THE JOINTS SHOULD BE CUT WHILE THE CONCRETE IS STILL "GREEN" AND AS SOON AFTER PLACEMENT AS THE EQUIPMENT CAN BE MOVED ONTO THE PAVEMENT WITHOUT DISTURBING THE CONCRETE FINISH.

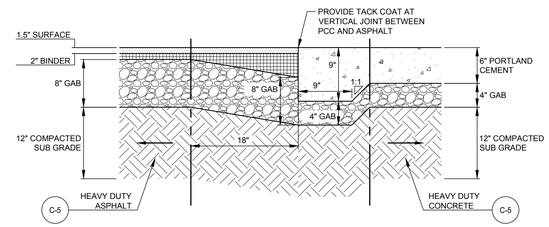
C-5 HEAVY DUTY CONCRETE PAVING
NOT TO SCALE



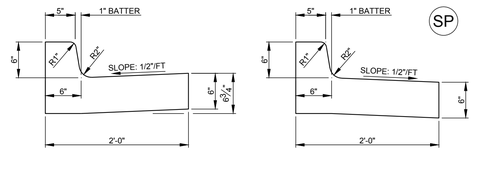
EXPANSION JOINT

NOTE:
1. UNLESS OTHERWISE INDICATED, PREFORMED EXPANSION JOINTS TO BE 40'-0" O.C. MAX. OR AT BACK OF CURB, CHANGE OF DIRECTION, OTHER WALK UTILITY APPURTENANCE, OR FACE OF STRUCTURE.
2. UNLESS OTHERWISE INDICATED, CONTROL JOINTS AT 5'-0' O.C.
3. ALL SIDEWALKS SHALL HAVE A MAXIMUM CROSS SLOPE OF 1.5% (1:67).

C-5 CONCRETE SIDEWALK
NOT TO SCALE

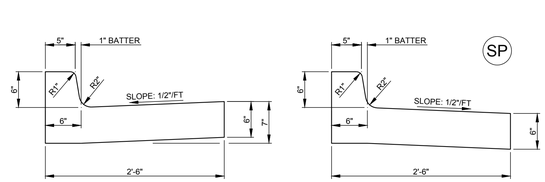


C-5 HEAVY DUTY ASPHALT / CONCRETE TRANSITION
NOT TO SCALE



NOTE:
1. 1/2" PRE FORMED EXPANSION JOINTS REQUIRED AT ALL STRUCTURES AND RADIUS POINTS.
2. MAXIMUM DISTANCE BETWEEN EXPANSION JOINTS = 40.0'
3. MAXIMUM DISTANCE DUMMY JOINTS = 10.0'
4. CONCRETE STRENGTH = 3000 P.S.I., SLOPE = 2" MAX. FINISH SHALL BE SMOOTHED AND EVENED WITH WOODEN FLOAT.

C-5 24" CONCRETE CURB AND GUTTER
NOT TO SCALE



NOTE:
1. 1/2" PRE FORMED EXPANSION JOINTS REQUIRED AT ALL STRUCTURES AND RADIUS POINTS.
2. MAXIMUM DISTANCE BETWEEN EXPANSION JOINTS = 40.0'
3. MAXIMUM DISTANCE DUMMY JOINTS = 10.0'
4. CONCRETE STRENGTH = 3000 P.S.I., SLOPE = 2" MAX. FINISH SHALL BE SMOOTHED AND EVENED WITH WOODEN FLOAT.

C-5 30" CONCRETE CURB AND GUTTER
NOT TO SCALE

ENGINEER:
FORESITE group
Foresite Group, LLC
2101 Magnolia Ave. South
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DEVELOPER:
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SEAL:
DRAFT

REVISIONS	DATE

PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	AS SHOWN
TITLE:	

PAVING DETAILS

SHEET NUMBER:
C-5

COMMENTS:
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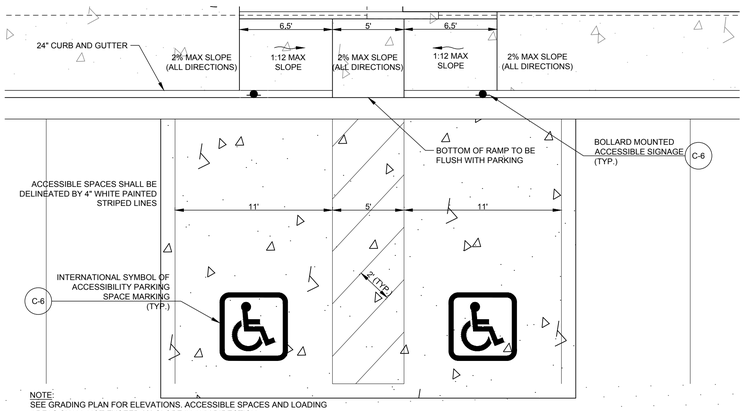
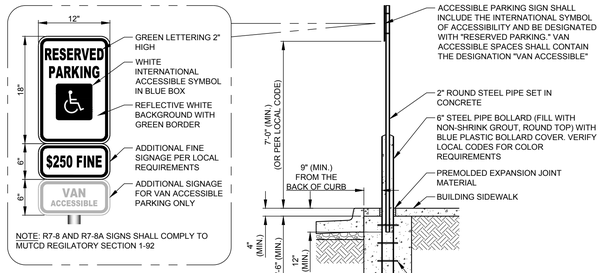
JOB/FILE NUMBER:
930.023



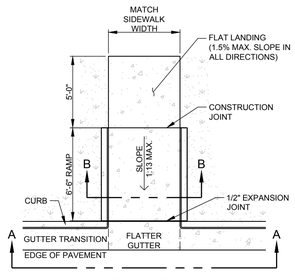
NOTE:
SEE GRADING PLAN FOR ELEVATIONS. ACCESSIBLE SPACES AND LOADING AREAS SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION

C-6 ACCESSIBLE PARKING
NOT TO SCALE

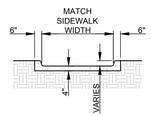


NOTE: R7-8 AND R7-8A SIGNS SHALL COMPLY TO MUTCD REGULATORY SECTION 1-92

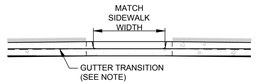
C-6 BOLLARD ACCESSIBLE SIGNAGE
NOT TO SCALE



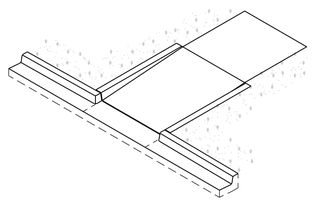
PLAN VIEW



SECTION B-B

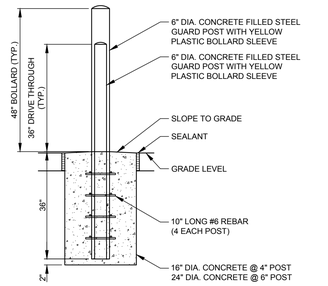


SECTION A-A

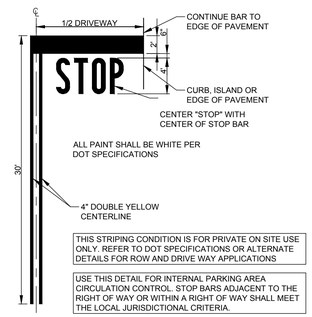


NOTE:
IN AREAS WHERE THE GUTTER HAS A SLOPE EXCEEDING 4.5% END NORMAL GUTTER SLOPE AT A DISTANCE OF 6 TO 10 FEET FROM THE RAMP AND BEGIN TRANSITION TO A FLATTER GUTTER (4.5% SLOPE MAX.) NORMAL GUTTER SLOPE SHALL BE RESUMED AT A SIMILAR DISTANCE BEYOND THE RAMP

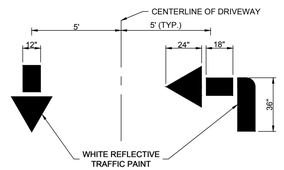
C-6 RETURN CURB ACCESSIBLE RAMP
NOT TO SCALE



C-6 BOLLARD
NOT TO SCALE

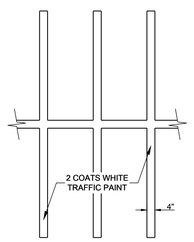


C-6 STOP BAR AND LABEL STRIPING
NOT TO SCALE



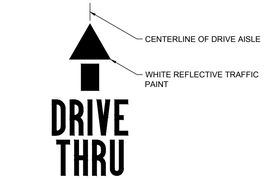
CONTACT THE CONSTRUCTION PROJECT MANAGER FOR MORE INFORMATION

C-6 DRIVEWAY TRAFFIC FLOW DIRECTIONAL ARROW
NOT TO SCALE



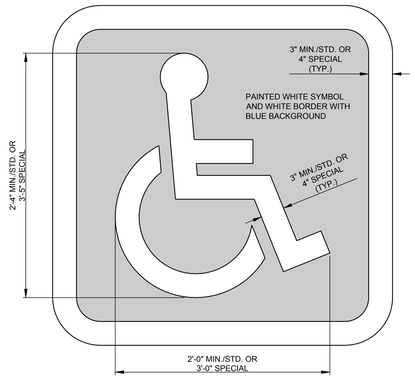
NOTE: SEE SITE DEVELOPMENT PLAN FOR PARKING DIMENSIONS & LAYOUT

C-6 PAVEMENT STRIPING
NOT TO SCALE

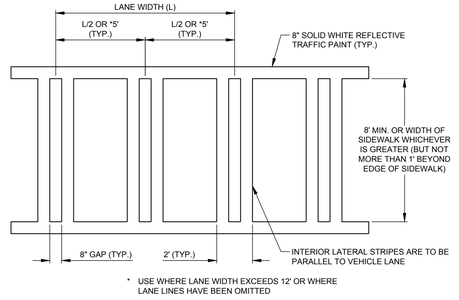


CONTACT THE CONSTRUCTION PROJECT MANAGER FOR MORE INFORMATION

C-6 DRIVE THROUGH MARKING
NOT TO SCALE



C-6 INTERNATIONAL SYMBOL OF ACCESSIBILITY PARKING SPACE MARKING
NOT TO SCALE



* USE WHERE LANE WIDTH EXCEEDS 12' OR WHERE LANE LINES HAVE BEEN OMITTED

C-6 CROSSWALK STRIPING
NOT TO SCALE

ENGINEER:
FORESITE group
Foresite Group, LLC
2101 Magnolia Ave. South
Suite 100
Birmingham, AL 35205
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o | 770.368.1399
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DEVELOPER:
CSC PROPERTIES
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5795 ULMERTON RD.
CLEARWATER, FL 33760
CONTACT: JAKE SEATON

PROJECT:
Hwy 55 BURGERS SHAKES & FRIES
NORTH MAIN ST
LILLINGTON, NC
NEILLS CREEK TOWNSHIP
PARCEL #:0650-97-6978.000,

SEAL:
DRAFT

REVISIONS	DATE

PROJECT MANAGER:	CJP
DRAWING BY:	JFG
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	AS SHOWN
TITLE:	

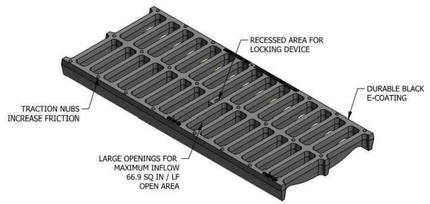
CONSTRUCTION DETAILS

SHEET NUMBER:
C-6

COMMENTS:
NOT RELEASED FOR CONSTRUCTION

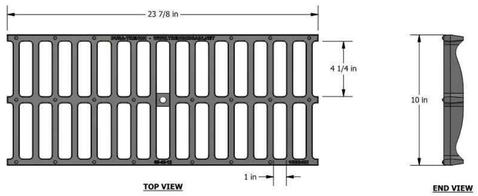
JOB/FILE NUMBER:
930.023

10B24DI — 10" SLOTTED IRON GRATE — R2



ISOMETRIC VIEW

SIDE VIEW



TOP VIEW

END VIEW

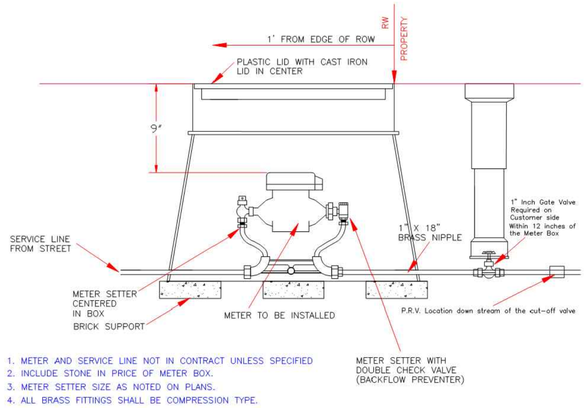
MATERIAL	DUCTILE IRON 65-45-12
COATING	BLACK E-COATING
LOCKING	BOLT AND TOGGLE
LOAD RATING	DIN CLASS E
ADA / HEEL GUARD	NO

STANDARD TOLERANCES
0 = +/-0.25
0.0 = +/-0.25
0.00 = +/-0.13

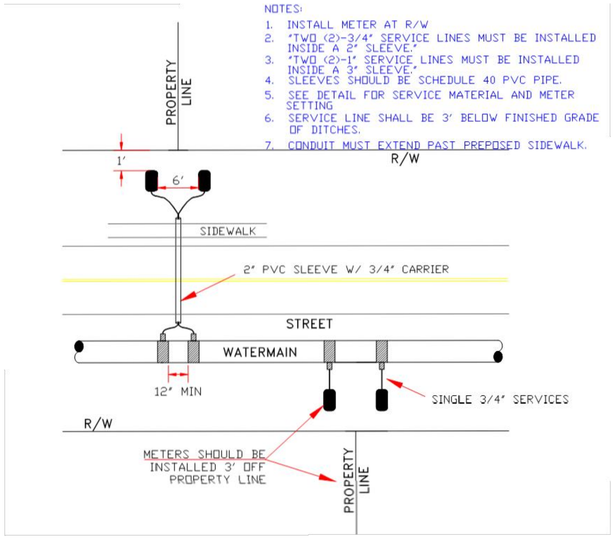
Dura Trench manufactured by Eric'ness

574c Industrial Way N.
Dallas, GA 30132
PH. 770-505-6575
www.trenchdrain.net

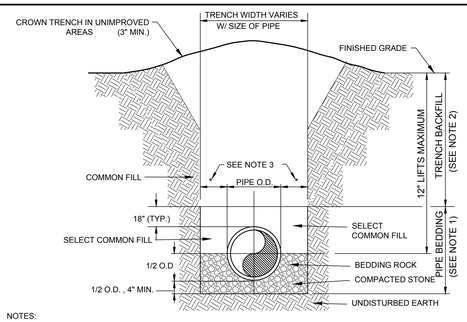
C-7 DURA TRENCH DRAIN (OR APPROVED EQUAL)
NOT TO SCALE



C-7 1" DOMESTIC WATER METER
NOT TO SCALE
* CONTACTOR SHALL SUBMIT BACKFLOW DETAIL TO LOCAL AUTHORITIES FOR APPROVAL BEFORE STARTING CONSTRUCTION.



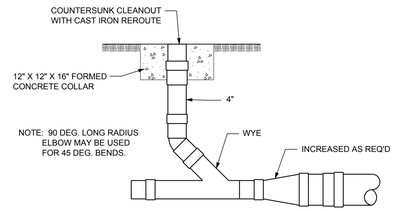
C-7 WATER SERVICE CONNECTION
NOT TO SCALE



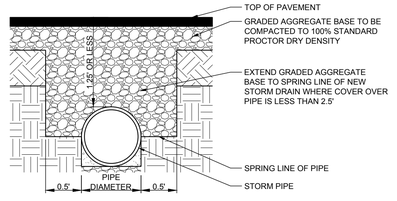
NOTES:

1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. (*): 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX (12" MIN.)FOR PIPE DIAMETER 24" AND LARGER.
4. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
5. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
6. REFER TO THE SECTION OF THE ALDOT STANDARDS FOR SHEETING AND BRACING IN EXCAVATIONS.
7. DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL GOVERN DEPTH OF BEDDING ROCK BELOW THE PIPE. A CERTIFIED GEOTECHNICAL ENGINEER SHALL DETERMINE IN THE FIELD REQUIRED REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION.

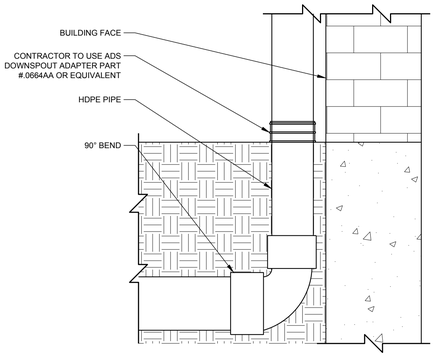
C-7 CLASS B BEDDING AND TRENCHING
NOT TO SCALE



C-7 CLEANOUT
NOT TO SCALE



C-7 MINIMUM COVER FOR STORM DRAIN PIPES
NOT TO SCALE



C-7 DOWNSPOUT CONNECTION
NOT TO SCALE

North Carolina 811 www.nc811.org

ENGINEER:
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UTILITY DETAILS

SHEET NUMBER:
C-7

COMMENTS:
NOT RELEASED FOR CONSTRUCTION

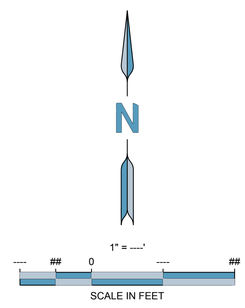
JOB/FILE NUMBER:
930.023

GENERAL LANDSCAPE NOTES:

1. WARRANTY: ALL PLANTS SHALL BE WARRANTED TO REMAIN ALIVE, HEALTHY, AND IN THRIVING CONDITION FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE
2. PLANTS SHALL BE SPECIMEN QUALITY. PLANTS SHALL BE SOUND, HEALTHY AND VIGOROUS, WELL BRANCHED, AND DENSELY FOLIATED WHEN IN LEAF.
3. HEIGHT AND SPREAD DIMENSIONS SPECIFIED REFER TO THE MAIN BODY OF THE PLANT AND NOT FROM BRANCH TIP TO TIP. IF A RANGE OF SIZE IS GIVEN, NO PLANT SHALL BE AS LARGE AS THE MAXIMUM SIZE SPECIFIED.
4. SHADE TREES SHALL BE STRAIGHT UNLESS OTHERWISE SPECIFIED
5. PLANTS SHALL BE SUBJECT TO REVIEW BY LANDSCAPE ARCHITECT. LANDSCAPE ARCHITECT SHALL BE THE SOLE JUDGE OF THE QUALITY AND ACCEPTABILITY OF MATERIALS AND PLACEMENT.
6. PLACE PLANTS UPRIGHT AND TURNED SO THAT THE MOST ATTRACTIVE SIDE IS VIEWED.
7. BE FAMILIAR WITH UNDERGROUND UTILITIES BEFORE DIGGING. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL DAMAGE OF UTILITY LINES.
8. PROVIDE SHOVEL-CUT TRENCH AT SHRUB BEDS IN LAWN AREAS UNLESS OTHERWISE NOTED.
9. PROVIDE 3" THICKNESS MULCH AT ALL PLANTS AND PLANTING BEDS. MULCH MUST BE 3" THICK AT TIME OF FINAL WALK-THROUGH. MULCH SHALL BE PINE STRAW UNLESS OTHERWISE NOTED. MULCH SAMPLE IS TO BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION. MULCH IS TO BE REPLACED AT CONTRACTOR'S OWN EXPENSE IF LAID PRIOR TO APPROVAL.
10. MAINTENANCE WORK SHALL BE PERFORMED UNTIL DATE OF FINAL ACCEPTANCE BY OWNER'S REPRESENTATIVE.
11. CONTRACTOR'S PRICES SHALL INCLUDE ALL LABOR AND MATERIAL NECESSARY TO COMPLETE THE WORK, I.E. MULCH, PLANTING, SOIL MIX, WOOD AND WIRE STAKING MATERIAL, ETC.
12. QUANTITIES NECESSARY TO COMPLETE THE WORK ON THE DRAWING SHALL BE FURNISHED. QUANTITY ESTIMATES HAVE BEEN MADE CAREFULLY, BUT THE OWNER'S REPRESENTATIVE ASSUMES NO LIABILITY FOR OMISSION OR ERRORS. HIS ESTIMATES ARE ONLY AN AID FOR CLARIFICATION OF UNITS AND A CHECK FOR THE CONTRACTOR TO COMPARE WITH HIS OWN ESTIMATES. DIFFERENCES SHALL BE BROUGHT TO THE ATTENTION OF OWNER'S REPRESENTATIVE. NO EXTRA COMPENSATION SHALL BE ALLOWED FOR EXTRA QUANTITIES NECESSARY TO COMPLETE THE WORK.
13. WHERE LANDSCAPING AREAS ADJOIN GRASSED RIGHTS-OF-WAY, SUCH AREAS SHALL BE CONSIDERED PART OF THE LANDSCAPED AREA FOR PURPOSES OF MAINTENANCE. AS OF COMPLETION OF SITE IMPROVEMENTS, THE PROPERTY OWNER SHALL HAVE AN IMPLIED EASEMENT OF THE RIGHT-OF-WAY EXTENDING FROM THE SITE TO THE ROAD PAVEMENT IN ORDER TO COMPLETE THE REQUIRED MAINTENANCE.
14. A MAINTENANCE INSPECTION OF TREES WILL BE PERFORMED AFTER TWO FULL GROWING SEASONS FROM THE DATE OF THE FINAL CONSTRUCTION INSPECTION. PROJECT OWNERS AT THE TIME OF THE MAINTENANCE INSPECTION ARE RESPONSIBLE FOR ORDINANCE COMPLIANCE.
15. CONTRACTOR TO DESIGN-BUILD IRRIGATION SYSTEM.

CRITICAL NOTE:

LANDSCAPE PLAN INDICATES DIAGRAMMATIC LOCATIONS ONLY. PLANTS ARE TO BE BROUGHT TO THE SITE AND SET IN GENERAL LOCATION, (NOT INSTALLED), AS INDICATED ON THE LANDSCAPE PLAN(S). LANDSCAPE ARCHITECT TO APPROVE PLANT LAYOUT PRIOR TO ACTUAL INSTALLATION. **IF PLANTS ARE INSTALLED PRIOR TO LANDSCAPE ARCHITECT'S REVIEW, ALL PLANTS WILL HAVE TO BE REPLANTED AT NO ADDITIONAL COSTS TO THE OWNER.** CONTRACTOR TO COORDINATE SCHEDULE FOR REVIEW WITH LANDSCAPE ARCHITECT (48 HOUR NOTICE MINIMUM). **NO PORTION OF THE CONTRACTOR'S PAY APPLICATION WILL BE APPROVED FOR LANDSCAPING UNTIL THE LANDSCAPE ARCHITECT HAS SIGNED OFF ON THE PLANT INSTALLATION.**



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CONTACT: JAKE SEATON

PROJECT:
Hwy 55 BURGERS SHAKES & FRIES
NORTH MAIN ST
LILLINGTON, NC
NEILLS CREEK TOWNSHIP

SEAL:
DRAFT

REVISIONS	DATE

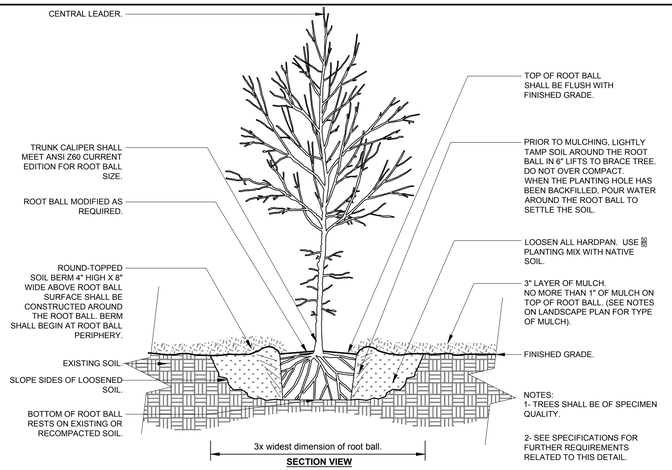
PROJECT MA	DP
DRAWING BY:	
JURISDICTION:	LILLINGTON, NC
DATE:	01/10/2020
SCALE:	1" = ----'
TITLE:	

LANDSCAPE PLAN

SHEET NUMBER:
L-1

COMMENTS:
NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER:
930.023



4 TREE PLANTING

1/2" = 1'-0"

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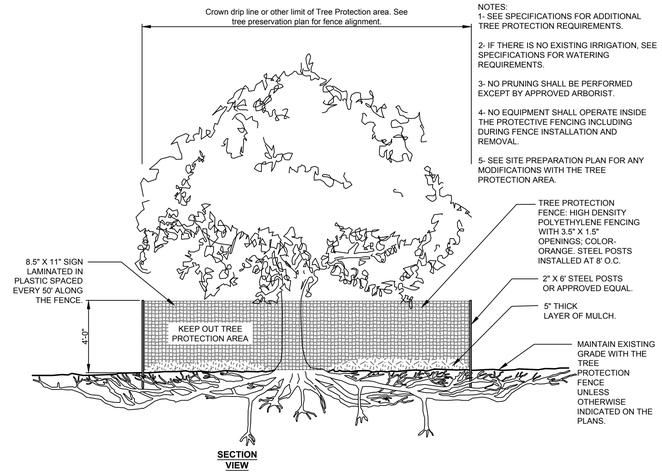
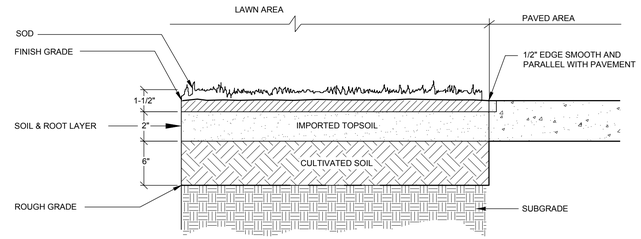


5 TREE PROTECTION

1/4" = 1'-0"

FX-PL-FX-TRMT-02



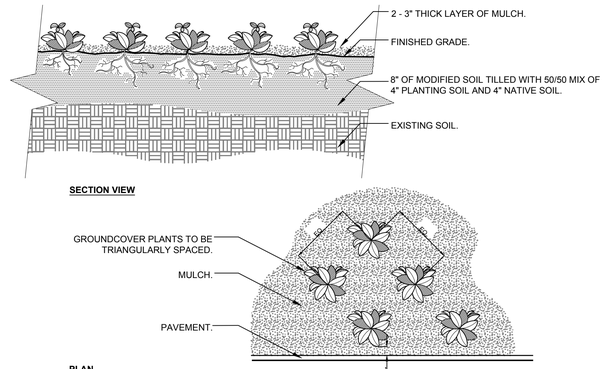
SODDING PROCEDURE:
1. PREPARE FINISH GRADE (AS PER SPECIFICATIONS)
2. APPLY LIME & FERTILIZER & ROTO-TIL (AS PER SOIL TEST)
3. LAY SOD & WATER THOROUGHLY

NOTE: INSTALL SOD SO THAT TOP OF SOIL AND ROOT LAYER IS LEVEL WITH TOP OF PAVEMENT.

1 SOD INSTALLATION

NOT TO SCALE

0002-01



NOTES:
1- SEE PLANTING LEGEND FOR GROUNDCOVER SPECIES, SIZE, AND SPACING DIMENSION.
2- SMALL ROOTS (¼" OR LESS) THAT GROW AROUND, UP, OR DOWN THE ROOT BALL PERIPHERY ARE CONSIDERED A NORMAL CONDITION IN CONTAINER PRODUCTION AND ARE ACCEPTABLE HOWEVER THEY SHOULD BE REMOVED AT THE TIME OF PLANTING. ROOTS ON THE PERIPERHY CAN BE REMOVED AT THE TIME OF PLANTING. (SEE FOR ROOT BALL SHAVING CONTAINER DETAIL).
3- SETTLE SOIL AROUND ROOT BALL OF EACH GROUNDCOVER PRIOR TO MULCHING.

2 GROUNDCOVER

3/4" = 1'-0"

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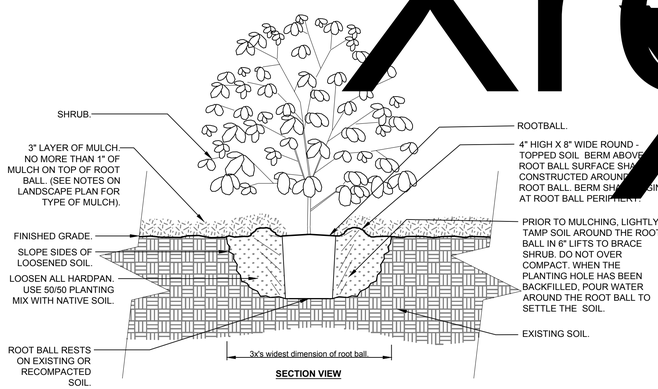

NOTES:
1- SHRUBS SHALL BE OF SPECIMEN QUALITY.

2- SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

3 SHRUB PLANTING

3/4" = 1'-0"

0001-01

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SEAL:

DRAFT

REVISIONS: DATE

PROJECT MA... ...R
DRAWING BY:
JURISDICTION: LILLINGTON, NC
DATE: 01/10/2020
SCALE: AS SHOWN
TITLE:

LANDSCAPE DETAILS

SHEET NUMBER:
L-2

COMMENTS:
NOT RELEASED FOR CONSTRUCTION

JOB/FILE NUMBER: 930.023

M:\930.023 HWY 55 BURGER - N MAIN STREET - LILLINGTON, NC\DWGS - 1 LANDSCAPE PLANS\DWG
Plotted on: 1/10/2020 11:53:51 AM By:CONNOR PATON Sheet Scale: 1" = 1'