

BEAUFORT COUNTY NORTH BOYD CONVENIENCE SITE

LOCATION MAP



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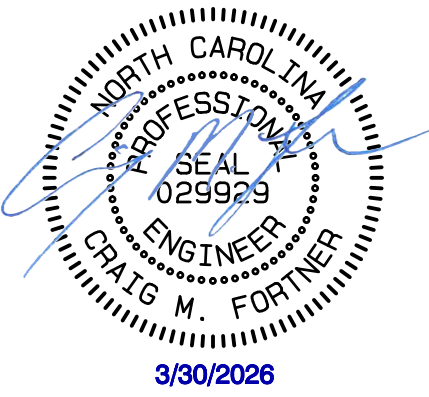
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BEAUFORT COUNTY

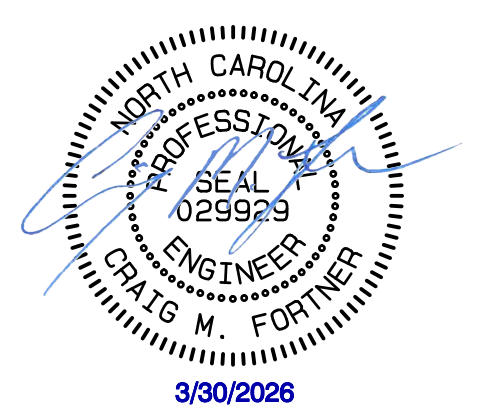
NORTH BOYD
CONVENIENCE SITE

COVER SHEET

SHEET
S-0

MARCH 2026

- CONSTRUCTION SEQUENCE:
1. OBTAIN LAND DISTURBANCE PERMIT.
 2. INSTALL NO.001 CONSTRUCTION ENTRANCE AND PERIMETER FENCING.
 3. INSTALL SEDIMENT FENCE FOR STOCKPILE.
 4. EXCAVATE SEDIMENT BASIN 1 AND INSTALL OS-1 AND EMERGENCY SPILLWAY, ATTACH SKIMMER.
 5. EXCAVATE DIVERSIONS AND INSTALL TEMPORARY PIPE CULVERT.
 6. PERMANENTLY SEED DIVERSIONS, BERM, AND EMERGENCY SPILLWAY.
 7. PROCEED TO PHASE II.



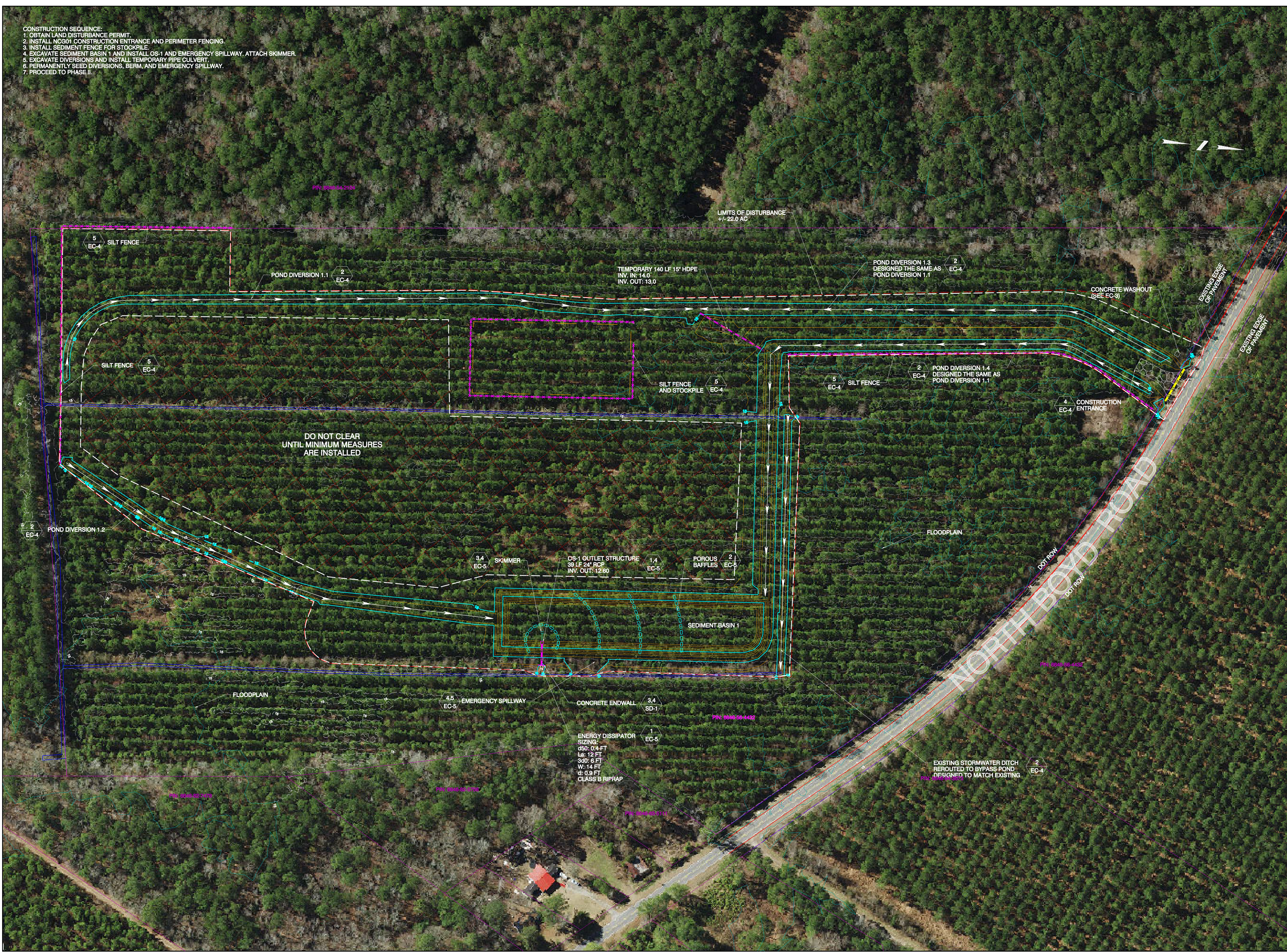
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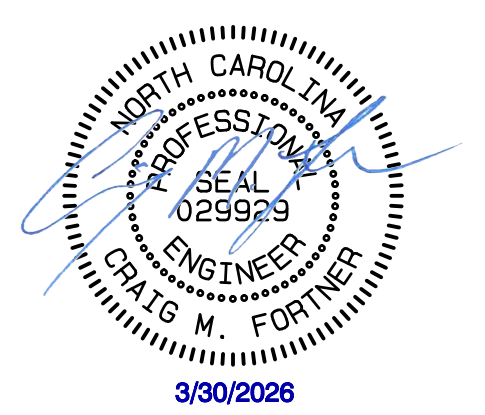
EROSION AND SEDIMENT
 CONTROL PLAN PHASE I

GRAPHIC SCALE 1" = 75'
 0 75 150
SHEET EC-1

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- CONSTRUCTION SEQUENCE:
 COMPLETE PHASE I PRIOR TO PHASE II.
 1. CLEAR AND GRUB REMAINING EXTENTS.
 2. PAVE AND GRADE THE SITE TO FINAL ELEVATIONS. EXCAVATE SEDIMENT BASIN 1 TO MATCH WET POND 1 GRADING.
 3. ONCE WET POND 1 IS EXCAVATED TO DEPTH THAT ALLOWS FOR THE PROPOSED PIPES TO DISCHARGE INTO WET POND 1, REMOVE TEMPORARY HDPE CULVERT, INSTALL PERMANENT CULVERTS AND INLET BOXES.
 4. INSTALL INLET PROTECTION.
 5. APPLY ROLLED EROSION CONTROL PRODUCT TO AREAS INDICATED AFTER PROPOSED GRADE IS MET.
 6. APPLY TEMPORARY AND PERMANENT SEEDING TO DISTURBED AREAS IN ACCORDANCE WITH NCG01 MATERIALS HANDLING ON SHEET EC-3.
 7. ONCE FINAL ELEVATIONS ARE ACHIEVED AND SITE IS STABILIZED, REMOVE SEDIMENT FROM SEDIMENT BASIN.
 8. CONTACT DEMLR FOR FINAL INSPECTION AND APPROVAL TO CLOSE ESC PERMIT.
 9. UPON APPROVAL, REMOVE SILT FENCE AND CONVERT THE SEDIMENT BASIN TO POST-CONSTRUCTION PONDS BY REMOVING BAFFLES AND SKIMMER.



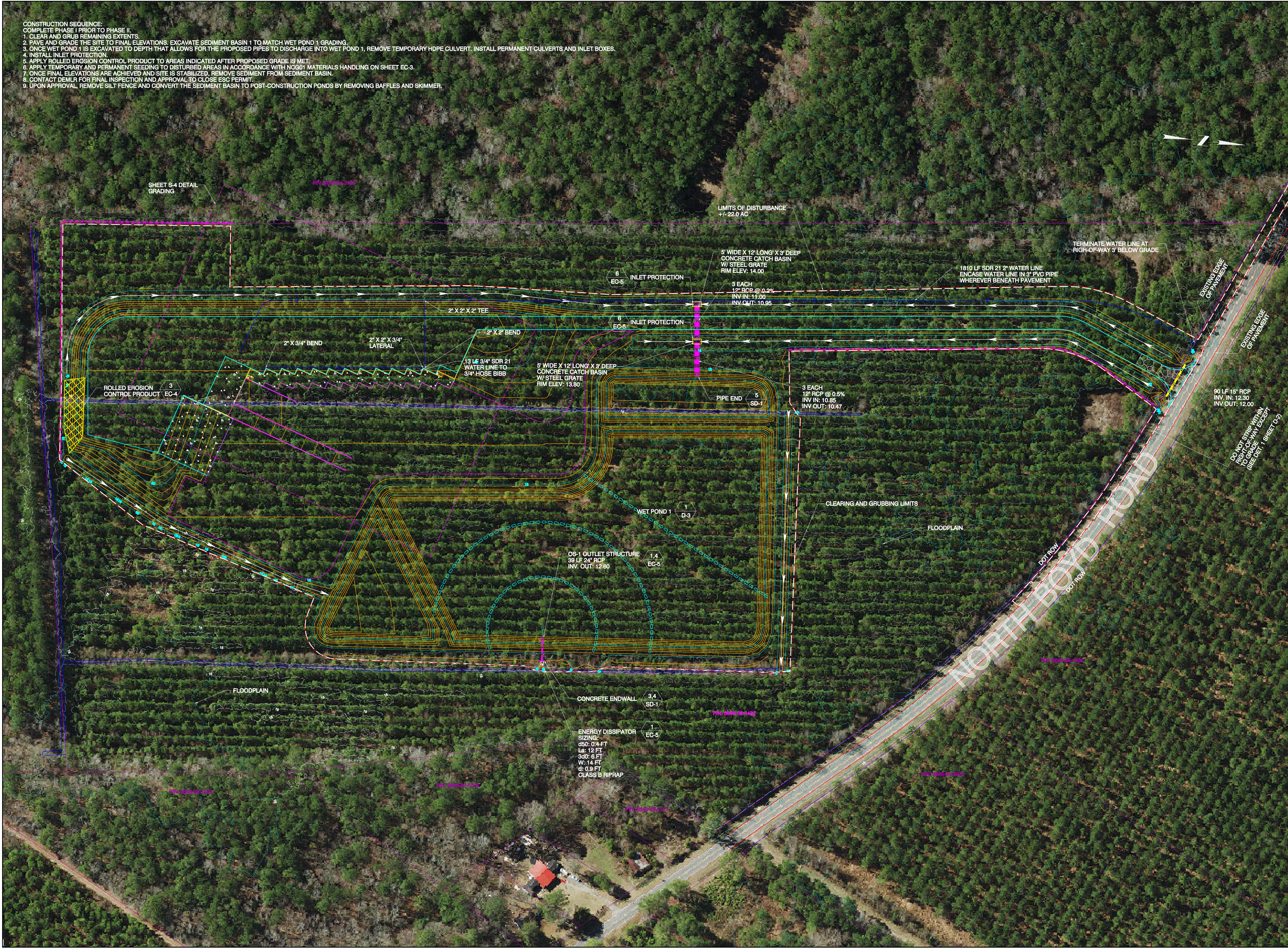
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EROSION AND SEDIMENT
 CONTROL PLAN PHASE II

GRAPHIC SCALE 1" = 75'
 0 75 150
SHEET EC-2

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SHEET S-4 DETAIL GRADING

PIN: 6646-82-2124

LIMITS OF DISTURBANCE
 +/- 22.0 AC

5' WIDE X 12' LONG' X 3' DEEP
 CONCRETE CATCH BASIN
 W/ STEEL GRATE
 RIM ELEV. 14.00

1810 LF SDR 21 2" WATER LINE
 ENCASE WATER LINE IN 3" PVC PIPE
 WHEREVER BENEATH PAVEMENT

TERMINATE WATER LINE AT
 RIGHT-OF-WAY 3' BELOW GRADE

EXISTING EDGE
 OF PAVEMENT

EXISTING EDGE
 OF PAVEMENT

90 LF 15" RCP
 INV. IN: 12.00
 INV. OUT: 12.00

DO NOT STRIP WITHIN
 RIGHT-OF-WAY EXCEPT
 (SEE DET. 1, SHEET D-2)

3 EACH
 12" RCP @ 0.5%
 INV. IN: 10.85
 INV. OUT: 10.47

PIPE END
 5
 SD-1

5' WIDE X 12' LONG' X 3' DEEP
 CONCRETE CATCH BASIN
 W/ STEEL GRATE
 RIM ELEV. 13.80

13 LF 3/4" SDR 21
 WATER LINE TO
 3/4" HOSE BIBB

2" X 2" X 3/4" LATERAL

2" X 3/4" BEND

ROLLED EROSION
 CONTROL PRODUCT
 EC-4

WET POND 1
 1
 D-3

OS-1 OUTLET STRUCTURE
 39 LF 24" RCP
 INV. OUT: 12.60

CONCRETE ENDWALL
 3,4
 SD-1

ENERGY DISSIPATOR
 SIZING:
 L: 12 FT
 W: 14 FT
 Q: 0.9 FT
 CLASS B RIPRAP

PIN: 6646-82-4432

PIN: 6646-82-3878

PIN: 6646-82-2978

PIN: 6646-82-2735

PIN: 6646-82-5121

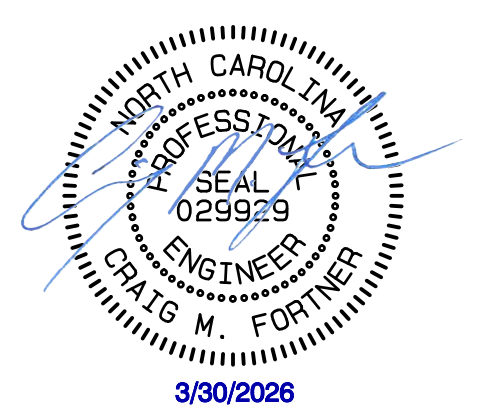
FLOODPLAIN

FLOODPLAIN

CLEARING AND GRUBBING LIMITS

DOT ROW

DOT ROW



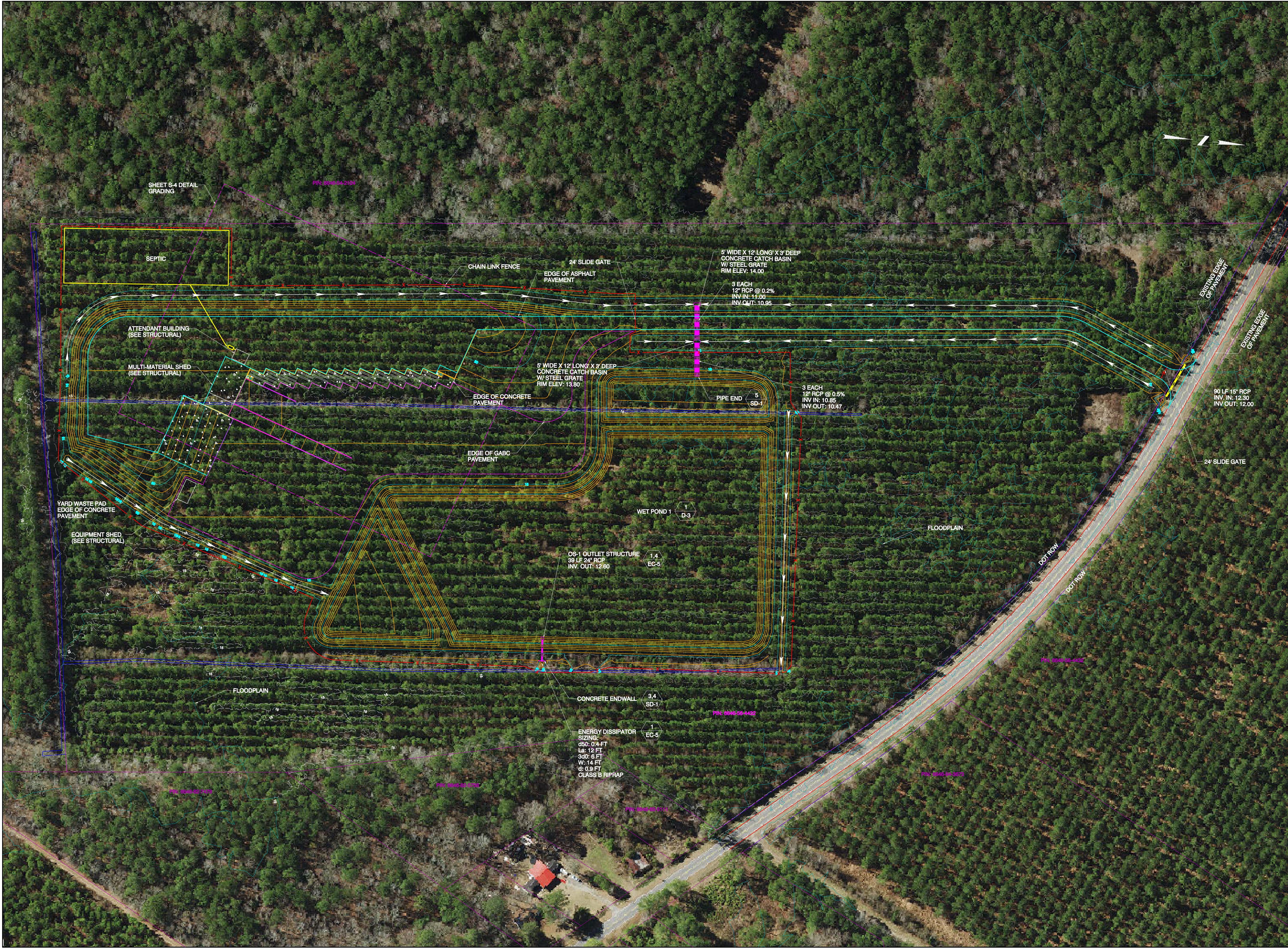
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OVERALL GRADING PLAN

GRAPHIC SCALE 1" = 75'
 0 75 150
SHEET S-3

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SHEET S-4 DETAIL GRADING

PIN: 6646-82-2124

SEPTIC

ATTENDANT BUILDING
(SEE STRUCTURAL)

MULTI-MATERIAL SHED
(SEE STRUCTURAL)

YARD WASTE PAD
EDGE OF CONCRETE PAVEMENT

EQUIPMENT SHED
(SEE STRUCTURAL)

FLOODPLAIN

WET POND 1
D-3

OS-1 OUTLET STRUCTURE
39 LF 24" RCP
INV. OUT: 12.60
1.4
EC-5

CONCRETE ENDWALL
3.4
SD-1

ENERGY DISSIPATOR
SIZING:
650: 0.4 FT
L8: 12 FT
3d0: 6 FT
W: 14 FT
d: 0.9 FT
CLASS B RIPRAP
1
EC-5

5' WIDE X 12' LONG X 3' DEEP
CONCRETE CATCH BASIN
W/ STEEL GRATE
RIM ELEV: 14.00

3 EACH
12" RCP @ 0.2%
INV IN: 11.00
INV OUT: 10.95

CHAIN LINK FENCE

24' SLIDE GATE
EDGE OF ASPHALT PAVEMENT

5' WIDE X 12' LONG X 3' DEEP
CONCRETE CATCH BASIN
W/ STEEL GRATE
RIM ELEV: 13.80

EDGE OF CONCRETE PAVEMENT

EDGE OF GABC PAVEMENT

PIPE END 5
SD-1

3 EACH
12" RCP @ 0.5%
INV IN: 10.85
INV OUT: 10.47

EXISTING EDGE OF PAVEMENT

EXISTING EDGE OF PAVEMENT

90 LF 15" RCP
INV IN: 12.90
INV OUT: 12.00

24' SLIDE GATE

DOT ROW

DOT ROW

FLOODPLAIN

PIN: 6646-82-4632

PIN: 6646-82-3876

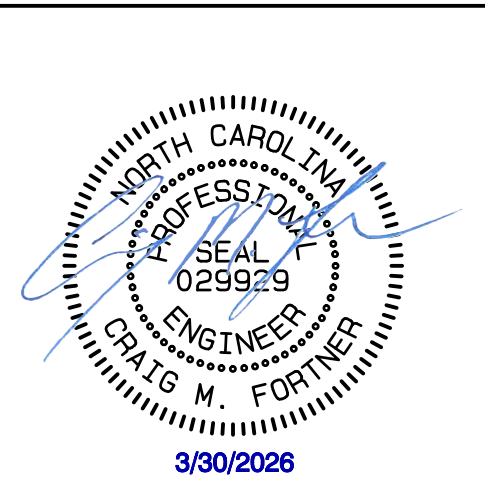
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PIN: 6646-82-5124

PIN: 6646-82-2778

PIN: 6646-82-2792

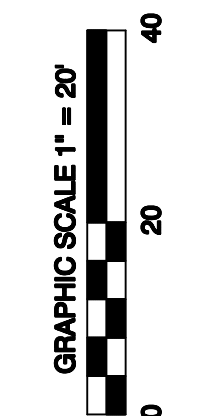
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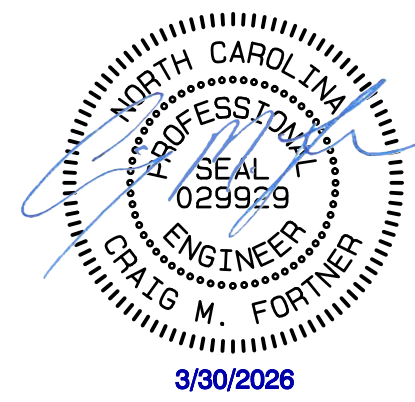
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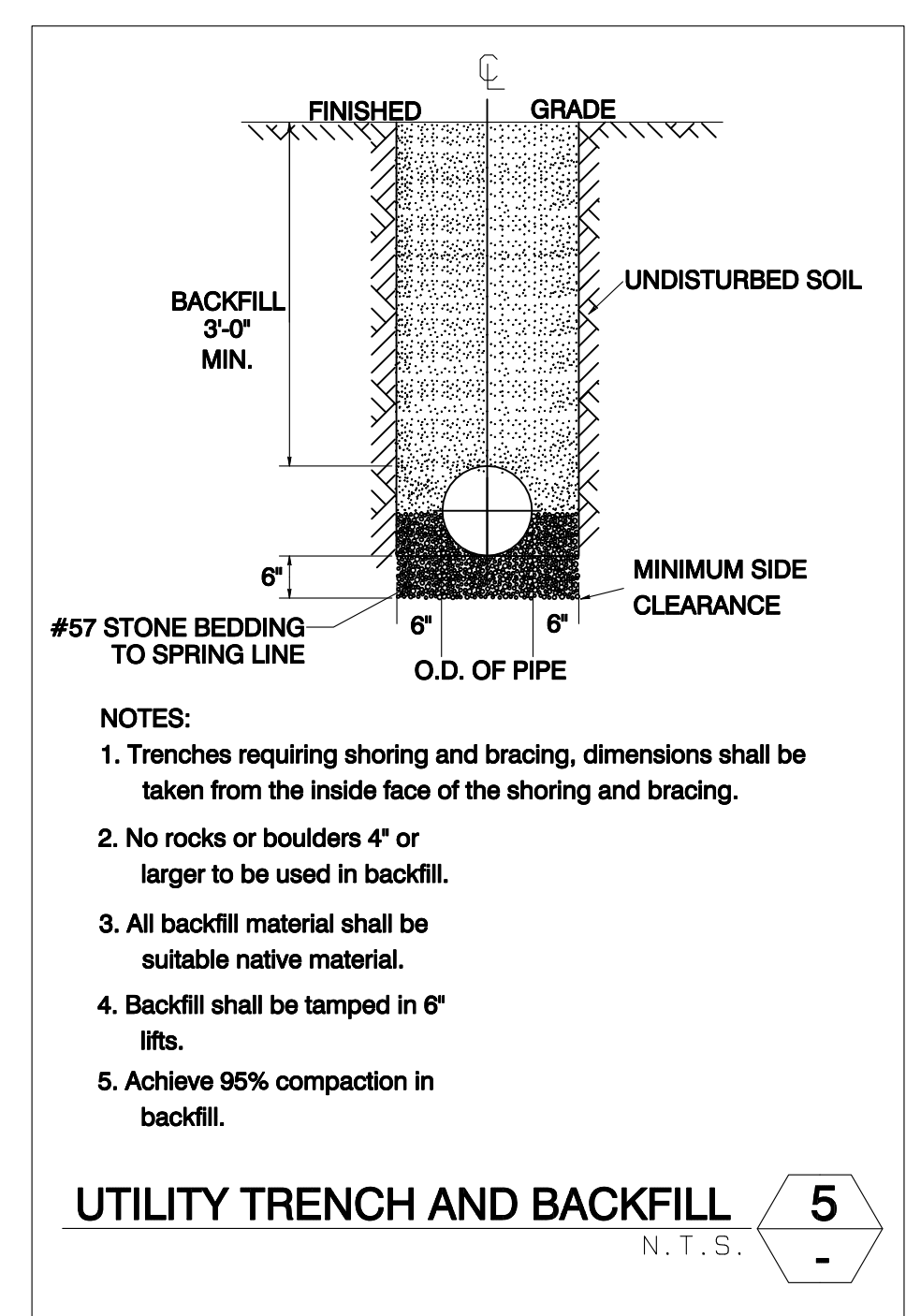
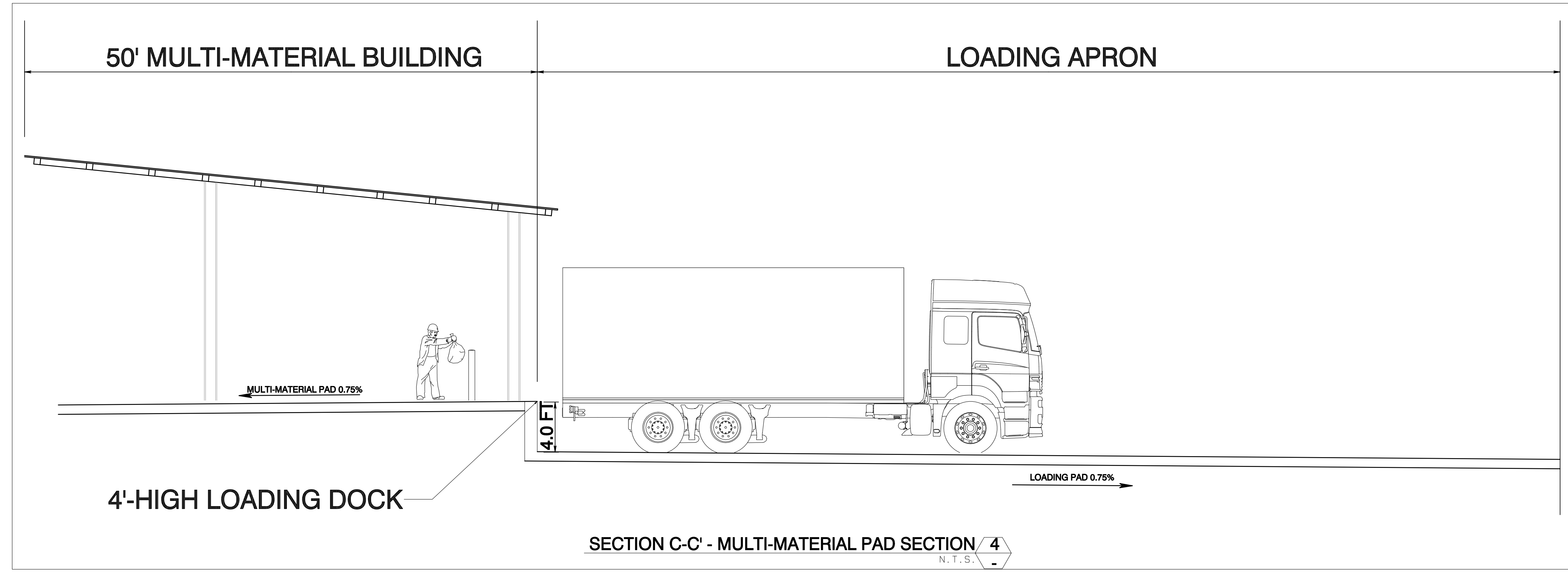
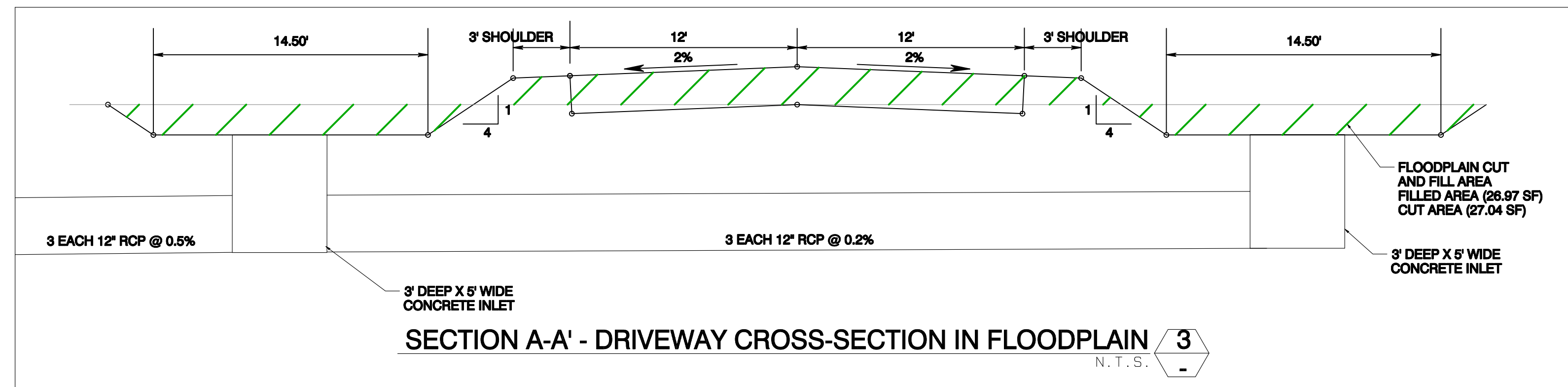
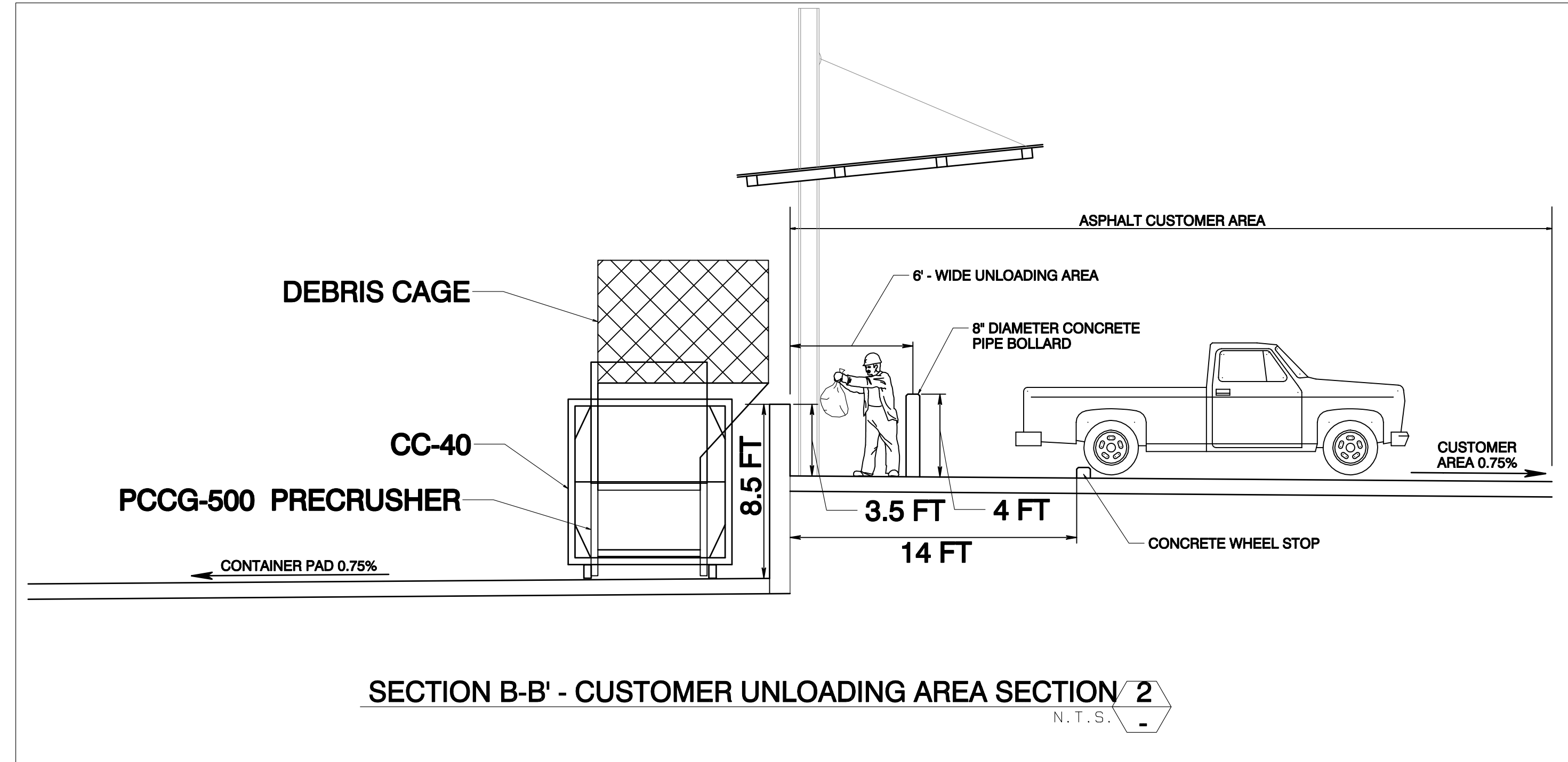
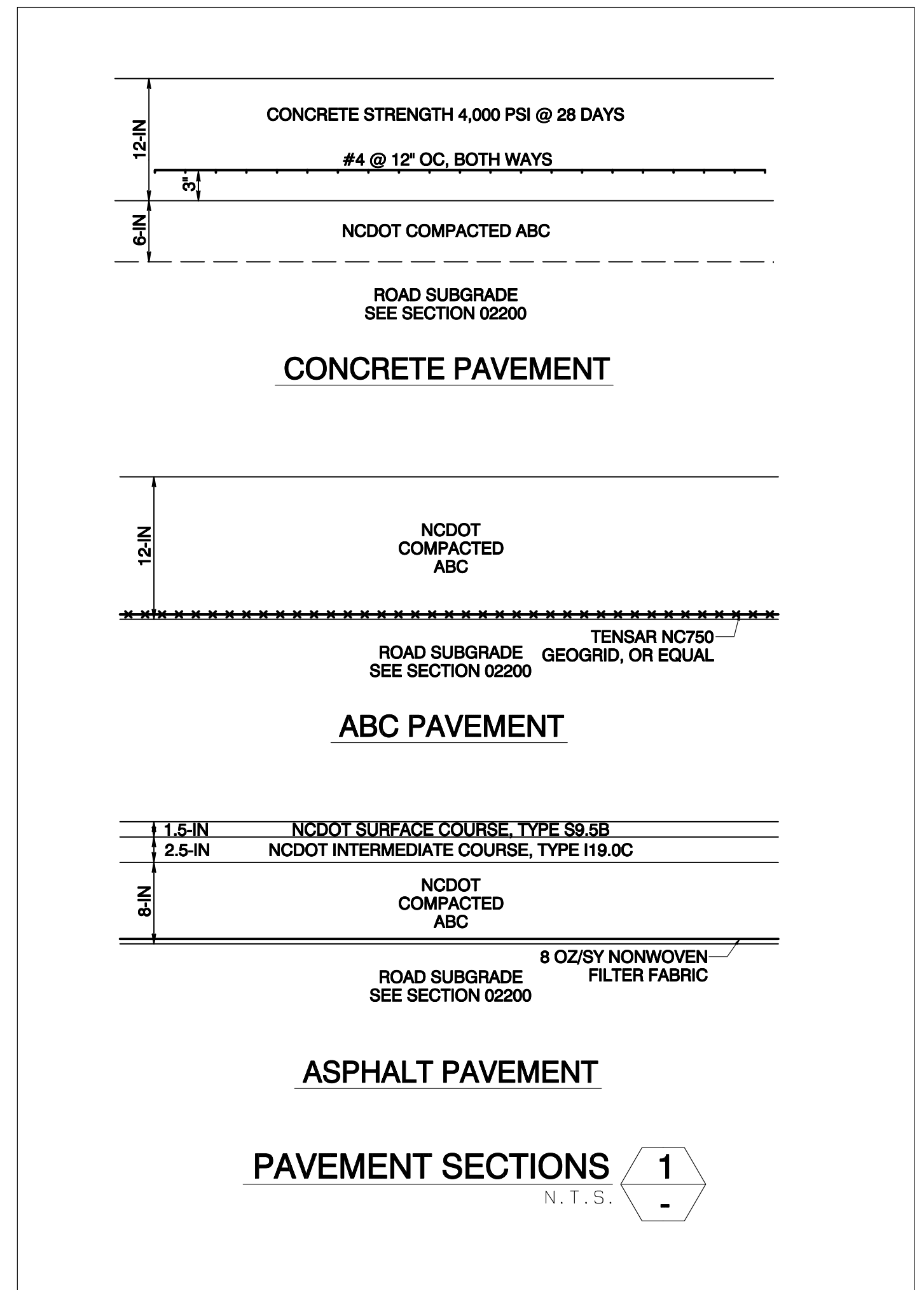
DETAIL GRADING



SHEET S-4



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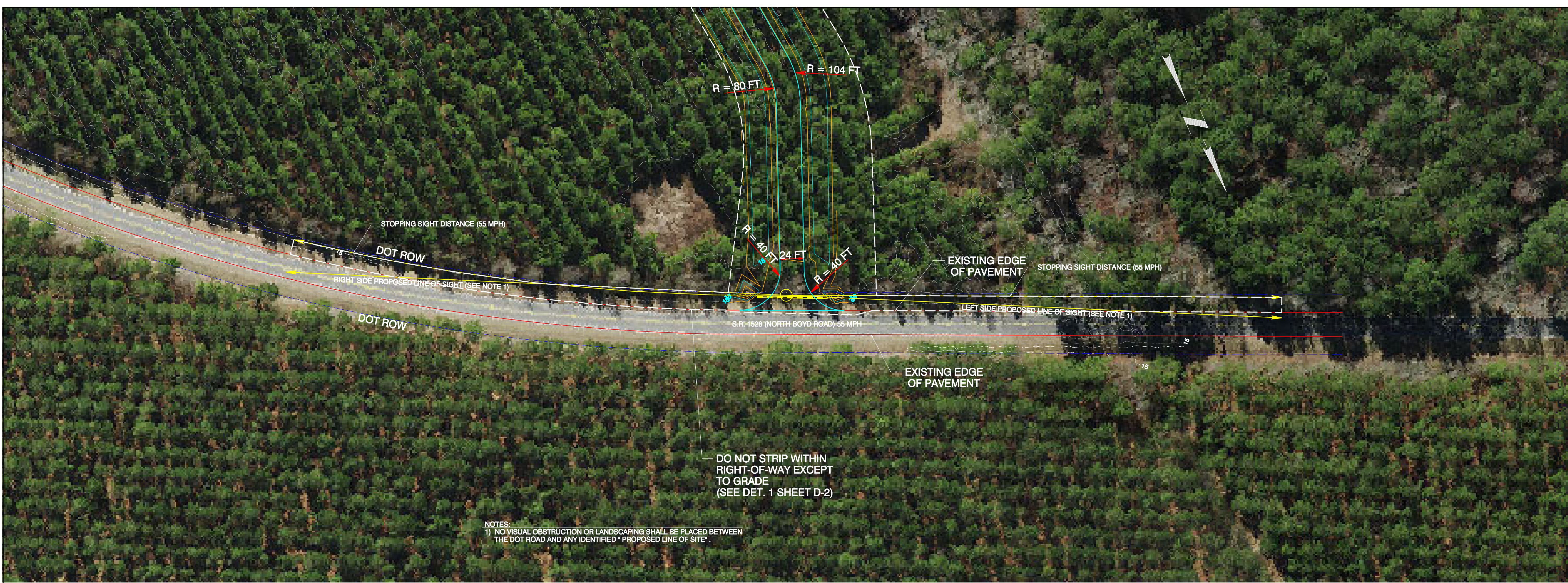
BEAUFORT COUNTY
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 CONVENIENCE SITE

DETAILS

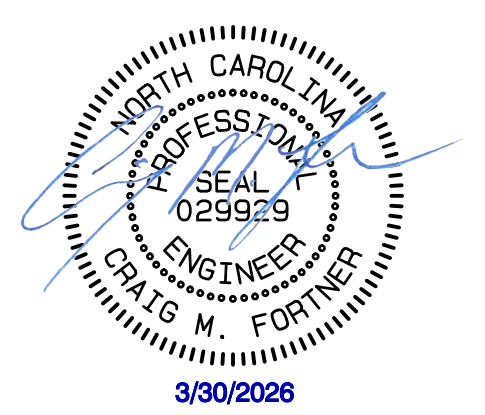
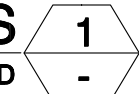
SHEET
 D-1

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SIGHT DISTANCE DETAILS
AS DEFINED

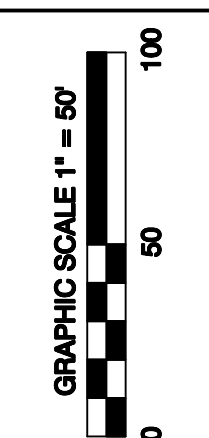


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**NORTH BOYD
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DETAILS



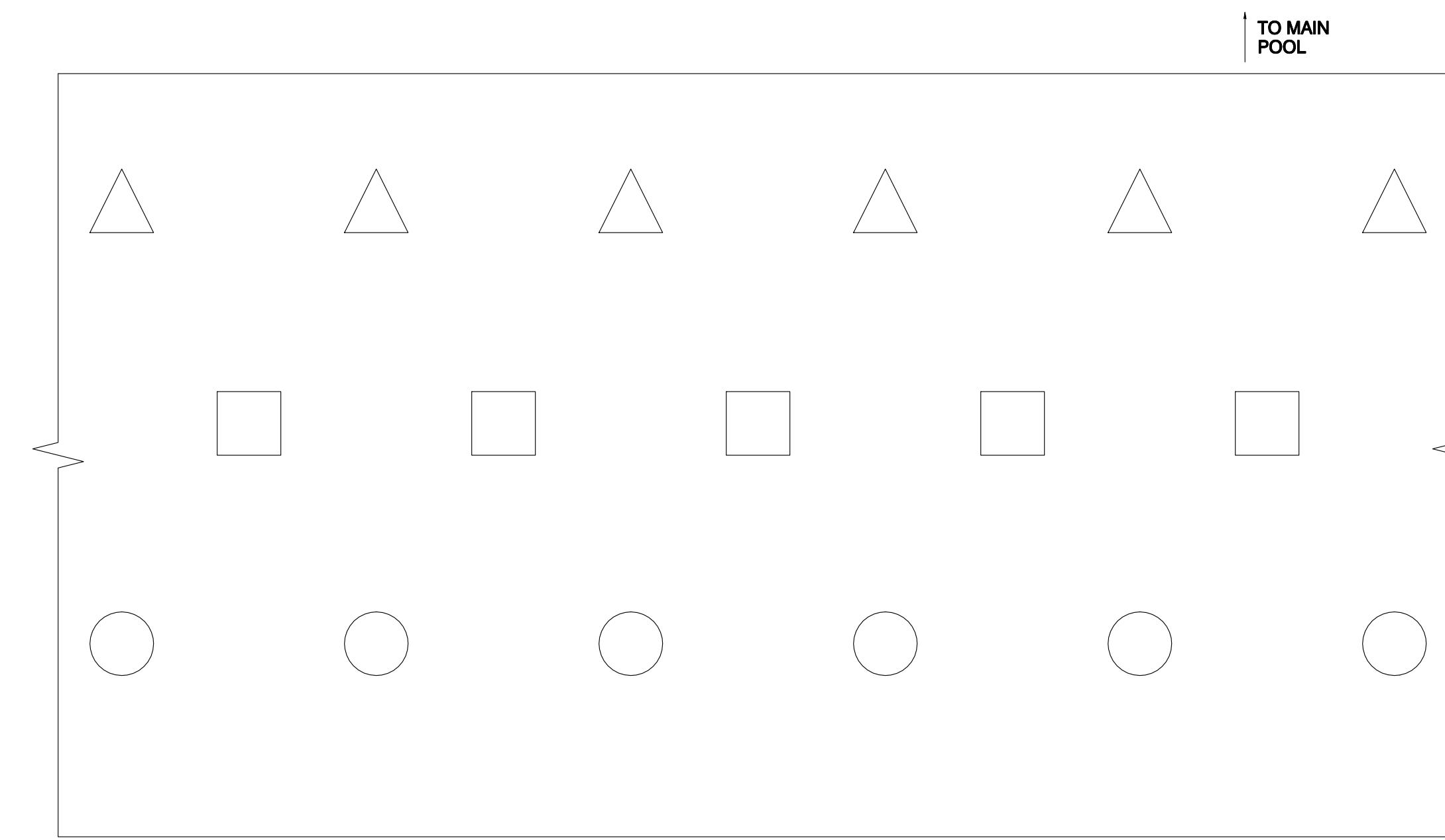
**SHEET
D-2**

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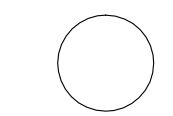
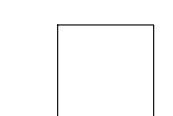
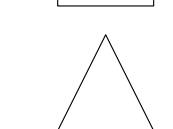
PLAN VIEW
1" = 50'

WET POND DETAIL SHEET 1
AS DEFINED -



6' WIDE MINIMUM VEGETATIVE SHELF

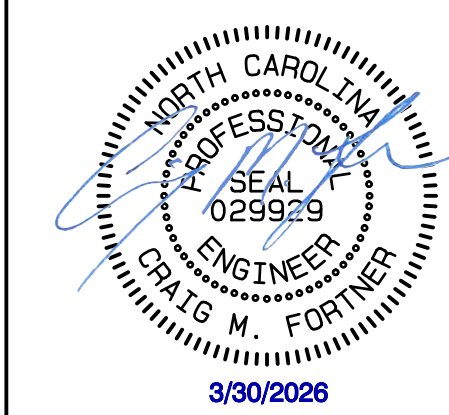
LEGEND

-  SWAMP MILKWEED (MINIMUM 2' SPACING ON CENTER)
-  WHITE TURTLEHEAD (MINIMUM 2' SPACING ON CENTER)
-  DWARF JOE PYE WEED (MINIMUM 2' SPACING ON CENTER)

NOTES:

- PLANT AT A MINIMUM DENSITY OF 50 PLANTS PER 200 SF (51.5 PLANTS PER 200 SF SHOWN).
- DO NOT USE WETLAND SEED MIX.
- SEED EMBANKMENT WITH BERMUDA OR CENTIPEDE.

PLANTING PLAN
1" = 1'

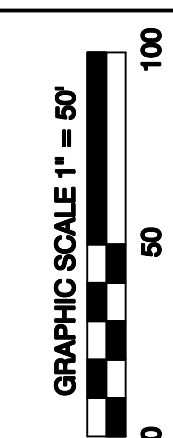


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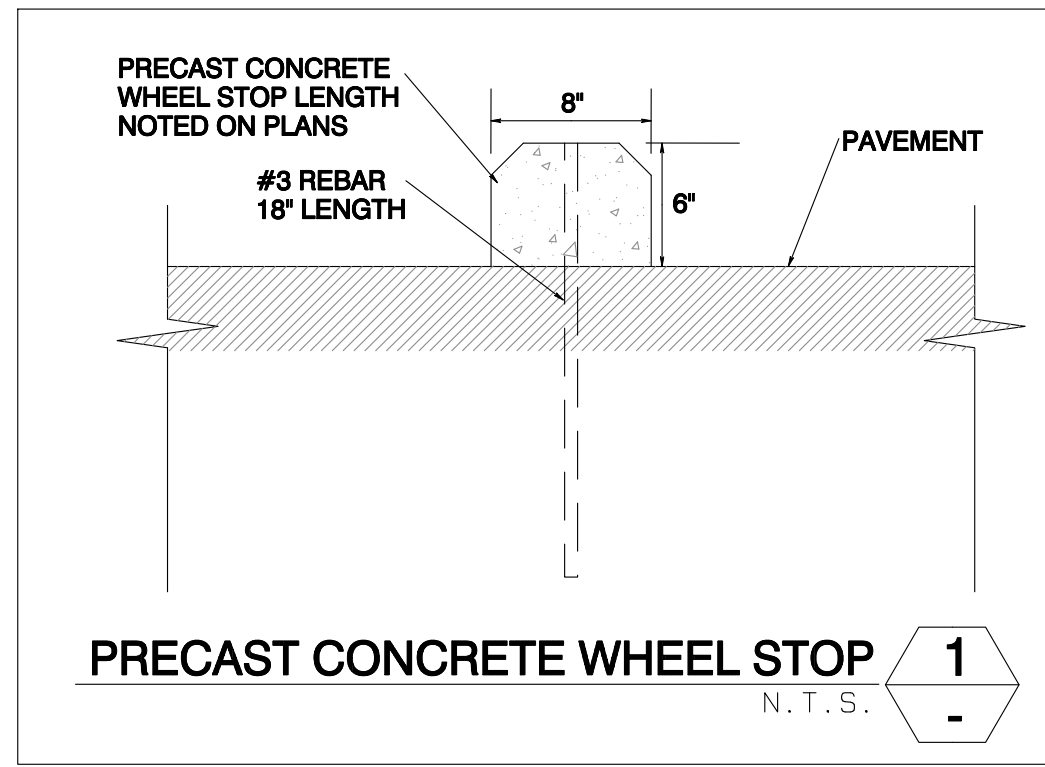
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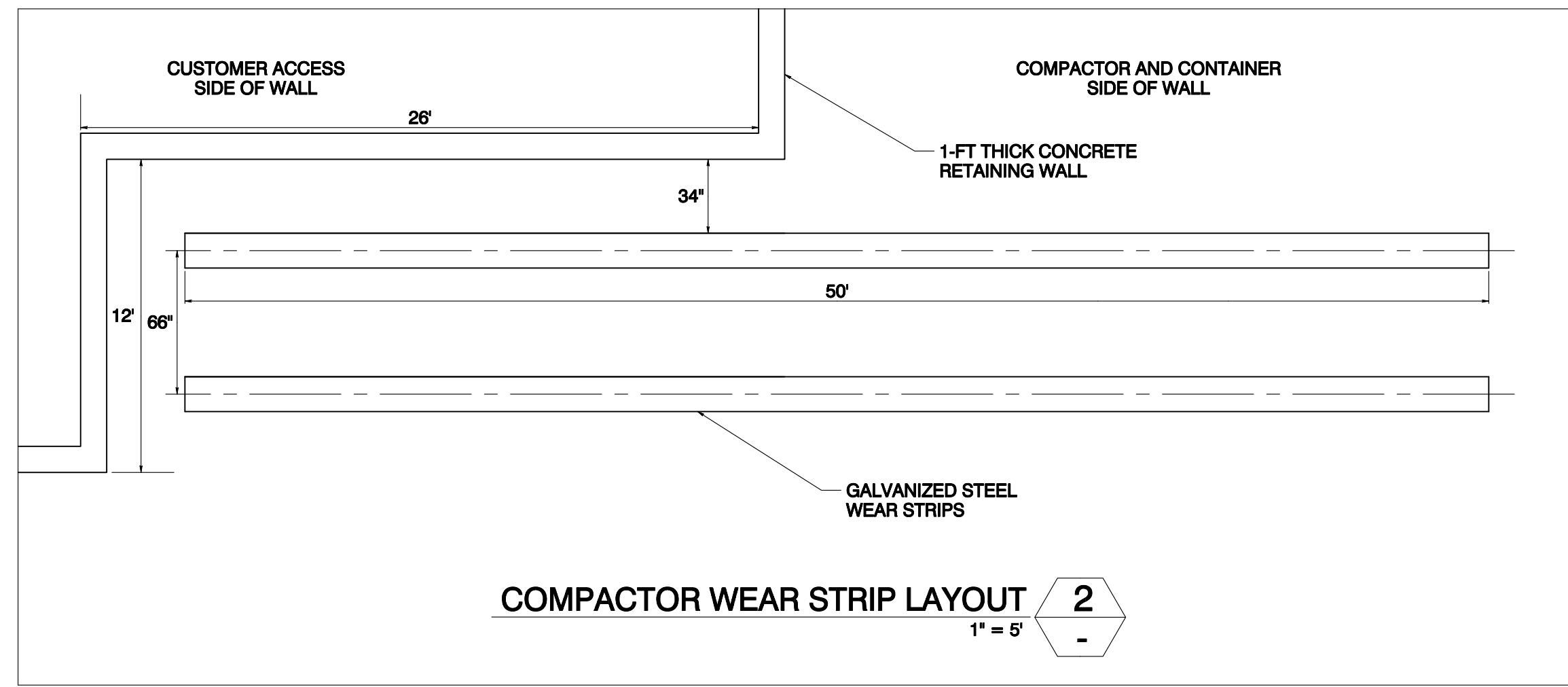
DETAILS



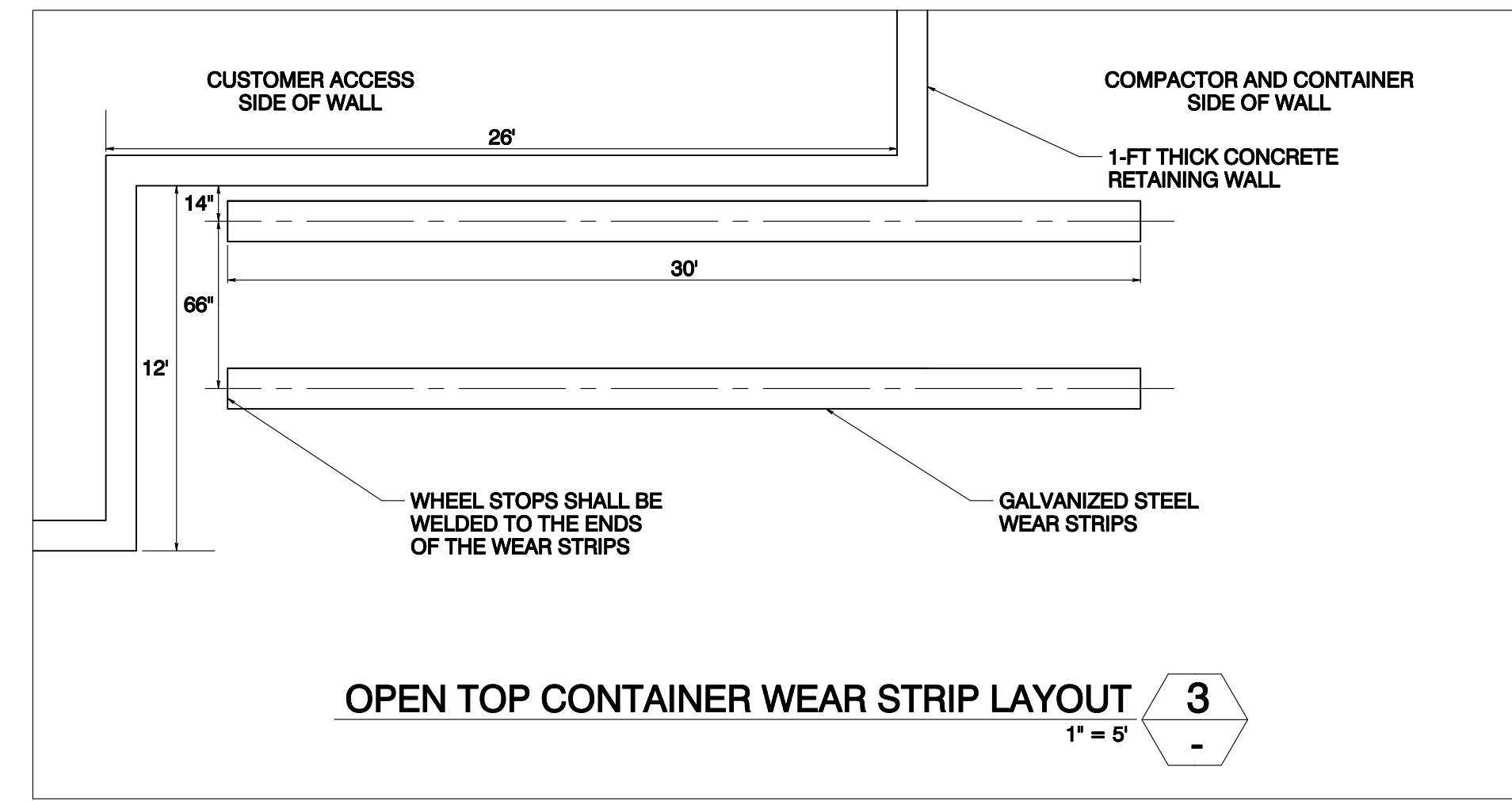
SHEET
D-3



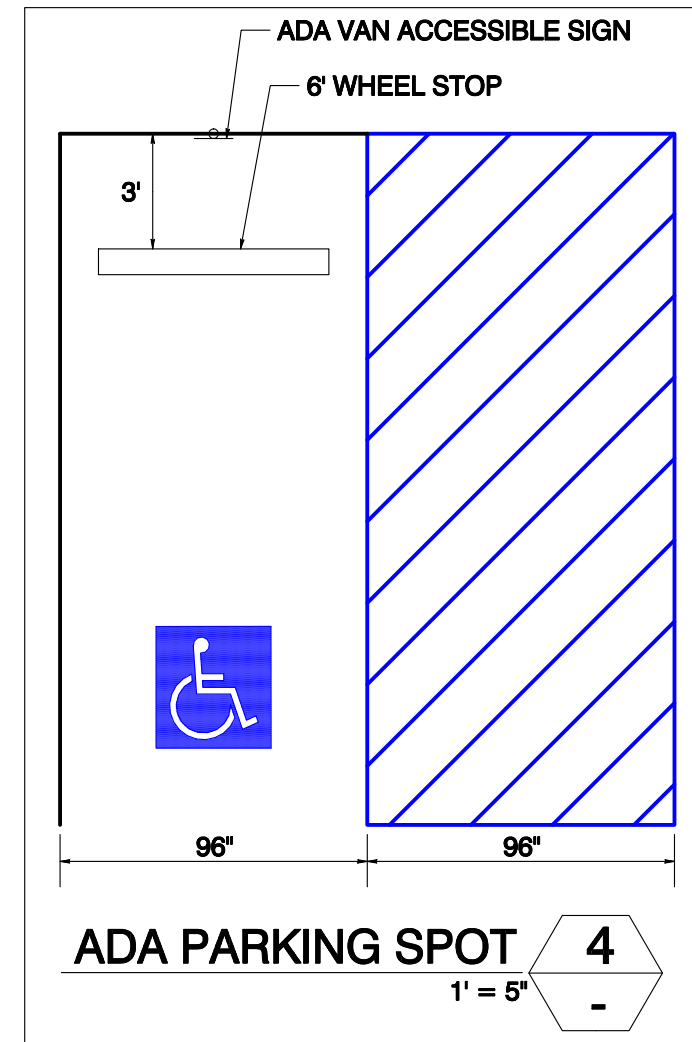
PRECAST CONCRETE WHEEL STOP
N. T. S. **1**



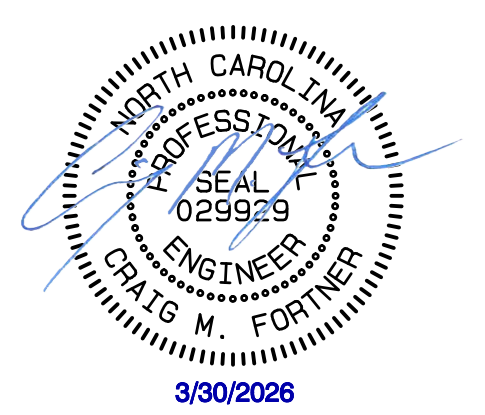
COMPACTOR WEAR STRIP LAYOUT
1" = 5' **2**



OPEN TOP CONTAINER WEAR STRIP LAYOUT
1" = 5' **3**



ADA PARKING SPOT
1" = 5' **4**



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DETAILS

**SHEET
D-4**

Date: _____

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

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

SECTION E: GROUND STABILIZATION

Table with 3 columns: Site Area Description, Stabilize within this many calendar days after ceasing land disturbance, and Timeframe variations. Rows include Perimeter dikes, High Quality Water (HQW) Zones, Slopes steeper than 3:1, Slopes 3:1 to 4:1, and Areas with slopes flatter than 4:1.

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity.

GROUND STABILIZATION SPECIFICATION

Table with 2 columns: Temporary Stabilization and Permanent Stabilization. Details methods like grass seed, hydroseeding, and erosion control products.

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

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

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

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

PAINT AND OTHER LIQUID WASTE

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

PORTABLE TOILETS

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

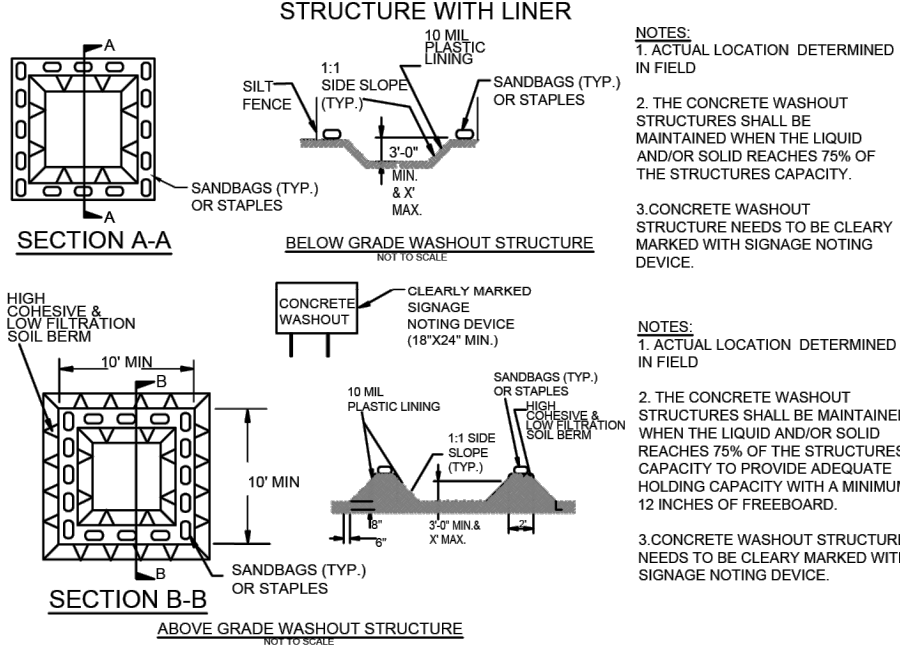
EARTHEN STOCKPILE MANAGEMENT

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

HAZARDOUS AND TOXIC WASTE

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

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



CONCRETE WASHOUTS

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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

Date: _____

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

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:
(a) The EASC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the EASC plan authority has approved these items.
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit.
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems.
(d) Vegetated, upland areas of the site or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in item (c) above.
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

Table with 3 columns: Inspect, Frequency (during normal business hours), and Inspection records must include: (1) Rain gauge maintained in good working order, (2) EASC Measures, (3) Stormwater discharge outfalls (SDOs), (4) Perimeter of Site, (5) Streams or wetlands onsite or offsite, (6) Ground Stabilization Measures.

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

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

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

Table with 2 columns: Item to Document and Document Requirements. Rows include EASC Plan Documentation, A phase of grading has been completed, Ground cover is located and installed, and maintenance and repair requirements.

2. Additional Documentation to be Kept on Site

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

- (a) This General Permit as well as the Certificate of Coverage, after it is received.
(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.
3. Documentation to be Retained for Three Years
All data used to complete the e-NCI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: OCCURRENCES THAT MUST BE REPORTED

Permittees shall report the following occurrences:
(a) Visible sediment deposition in a stream or wetland.
(b) Oil spills if:
- They are 25 gallons or more.
- They are less than 25 gallons but cannot be cleaned up within 24 hours.
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).
(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
(d) Anticipated bypasses and unanticipated bypasses.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

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

Reporting Timeframe (After Discovery) and Other Requirements

Table with 2 columns: Occurrence and Reporting Timeframe (After Discovery) and Other Requirements. Rows include Visible sediment, Oil spills, Anticipated bypasses, Unanticipated bypasses, and Noncompliance.

DATE: _____

CONSIDERATIONS FOR CONSTRUCTION SCHEDULING

Table with 2 columns: CONSTRUCTION ACTIVITY and SCHEDULE CONSIDERATION. Rows include CONSTRUCTION ACCESS, SEDIMENT TRAPS AND BARRIERS, RUNOFF CONTROL, RUNOFF CONVEYANCE SYSTEM, LANDING CLEARING AND GRADING, SURFACE STABILIZATION, BUILDING CONSTRUCTION, and LANDSCAPE AND FINAL STABILIZATION.

NOTE: The above are the main aspects of a typical construction sequence in general terms. A detailed Construction Sequence should be site specific based on your project and site needs. As a minimum, the construction sequence schedule should show the following:
- The erosion and sedimentation control practices to be installed,
- Principal development activities,
- What measures should be in place before other activities are begun, and
- Compatibility with the general construction schedule of the contract.

Many timely construction techniques can reduce the erosion potential of a site, such as (1) shaping earthen fills to prevent overflows and (2) constructing temporary diversions ahead of anticipated storms. These types of activities cannot be put on the construction sequence schedule, but should be used whenever possible.

DATE: _____

SPACING GUIDE FOR SLOPE BREAKS

Table with 3 columns: SLOPE, SPACING (FT), and SLOPE BREAKS. Rows include Steep Slopes (2:1, 3:1, 4:1) and Long Slopes (15-25%, 10-15%, 6-10%, <3%).

Use slope breaks, such as diversions, wattles, or benches, as appropriate, to reduce the length of cut-and-fill slope to limit sheet and rill erosion and prevent gullying.

MAINTENANCE:

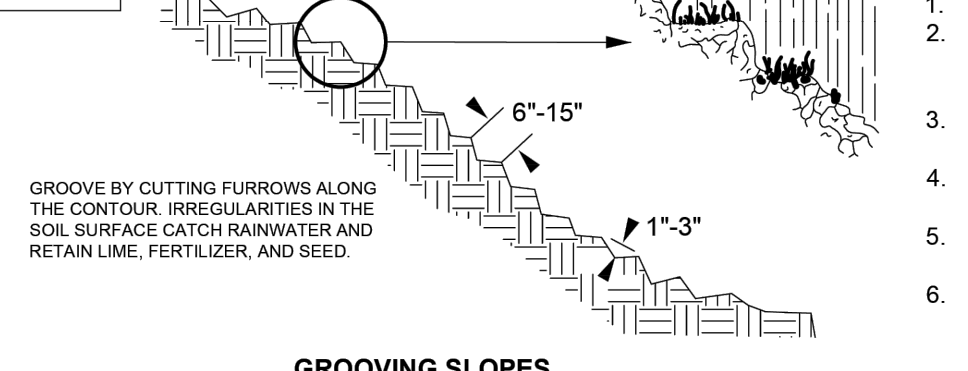
- 1. Periodically check all graded areas and the supporting erosion and sedimentation control practices, especially after heavy rainfalls.
2. Promptly remove all sediment from diversions and other water-disposal practices.
3. If washouts or breaks occur, repair immediately.
4. Prompt maintenance of small eroded areas before they become significant gullies is an essential part of an effective erosion and sedimentation control plan.

DATE: _____

NOTES:

- 1. Construct and maintain all erosion and sediment control practices and measures in accordance with the approved sedimentation control plan and construction schedule.
2. Remove good topsoil from areas to be graded and filled, and preserve it for use in finishing the grading of all critical areas. Scarify areas to be topsoiled to a minimum depth of 2 inches before placing topsoil.
3. Clear and grub areas to be filled by removing trees, vegetation, roots, or other objectionable material that would affect the planned stability of the fill.
4. Do not place fill on a frozen foundation, due to possible subsidence and slippage.
5. Keep diversions and other water conveyance measures free of sediment during all phases of development.
6. Handle seeps or springs encountered during construction in accordance with approved methods (subsurface drain).
7. Permanently stabilize all graded areas immediately after final grading is completed on each area in the grading plan. Apply temporary stabilization measures on all graded areas when work is to be interrupted or delayed for 30 days or longer.
8. Show topsoil, stockpiles, borrow areas, and spoil areas on the plans, and make sure they are adequately protected from erosion. Include final stabilization of these areas in the plan.

DATE: _____



CUT SLOPE ROUGHENING FOR AREAS NOT TO BE MOWED:

- 1. Stair-step grade or groove cut slopes with a gradient steeper than 3:1.
2. Use stair-step grading on any erodible material soft enough to be ripped with a bulldozer. Slopes consisting of soft rock with some subsoil are particularly suited to stair-stepping.
3. Make the vertical cut distance less than the horizontal distance, and slightly slope the horizontal position of the "steps" in toward the vertical wall.
4. Do not make individual vertical cuts more than 2 feet in soft materials or more than 3 feet in rocky materials.
5. Grooving uses machinery to create a series of ridges and depressions that run across the slope (on the contour).
6. Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.

FILL SLOPE ROUGHENING FOR AREAS NOT TO BE MOWED:

- 1. Place fill slopes with a gradient steeper than 3:1 in lifts not to exceed 9 inches, and make sure each lift is properly compacted. Ensure that the face of the slope consists of loose, uncompacted fill 4 to 6 inches deep. Use grooving, as described above, to roughen the face of the slopes, if necessary.
2. Do not blade or scrape the final slope face.

CUTS, FILLS, AND GRADED AREAS THAT WILL BE MOWED:

- 1. Make mowed slopes no steeper than 3:1.
2. Roughen these areas to shallow grooves by normal tilling, disking, harrowing, or use of a cultipacker-seeder. Make the final pass of any such tillage implement on the contour.
3. Make grooves, formed by such implements, close together (less than 10 inches) and not less than 1 inch deep.
4. Excessive roughness is undesirable where mowing is planned.

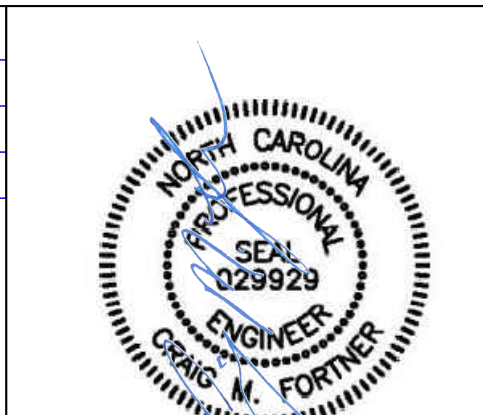
ROUGHENING WITH TRACKED MACHINERY:

- 1. Limit roughening with tracked machinery to avoid undue compaction of the soil surface. Tracking is generally not as effective as the other roughening methods described.
2. Operate tracked machinery up and down the slope to leave horizontal depressions in the soil. Do not back-blade during the final grading operation.

SEED AND MULCH ROUGHENED AREAS IMMEDIATELY TO OBTAIN OPTIMUM SEED GERMINATION AND GROWTH.

REVISION HISTORY

Table with 2 columns: Revision Number and Description. Includes revision 1 for initial issue and revision 2 for design manual updates.



03/30/2026

GARRETT & MOORE Engineering for the Power and Waste Industries 1029 West South Street Raleigh, NC 27603 www.Garrett-Moore.com

BEAUFORT COUNTY NORTH BOY CONVENIENCE SITE

EROSION CONTROL DETAILS

DATE: _____ PAGE: _____

Mulching Materials and Application Rates

Material	Rate Per Acre	Quality	Notes
Straw	1-2 tons	Dry, unchopped, unweathered, avoid weeds.	Should come from wheat or oats, spread by hand or machine, must be tacked down.
Wood Chips	5-6 tons	Air dry	Treat with 12 lbs nitrogen/ton. Apply with mulch blower, chip handle, or by hand. Not for use in fine turf.
Wood Fiber	0.5-1 tons	Also referred to as wood cellulose. May be hydroseeded. Do not use in hot, dry weather.	Apply with mulch blower, chip handle, or by hand. Do not use asphalt tack.
Bark	35 cubic yards	Air dry, shredded or chipped.	Apply with mulch blower, chip handle, or by hand. Do not use asphalt tack.
Corn Stalks	4-6 tons	Cut or shredded in 4-8 inch lengths.	Apply with mulch blower or by hand. Not for use in fine turf.
Sericea Lespedeza seed-bearing stems	1-3 tons	Green or dry; should contain mature seed.	
Nets and Mats*			
Julie net	Cover area	Heavy, uniform, woven of single jute yarn.	Withstands waterflow. Best when used with organic mulch.
Fiberglass net	Cover area	Withstands waterflow. Best when used with organic mulch.	
Exosior (wood fiber net)	Cover area	Withstands waterflow.	
Fiberglass roving	0.5-1 tons	Continuous fibers of drawn glass bunched together with a non-toxic agent.	Apply with a compressed air ejector. Tack with emulsified asphalt at a rate of 25-35 gal/1,000 sq. ft.
Chemical Stabilizers**			
Aquatan Acrospray Curazol AK Perfores SB Terra Task Crust 500 Genesys 743 M-145	Follow Manufacturer's specifications		Not beneficial to plant growth.

*Refer to Practice No. 6-30, Grass Lined Channels in the NC DEQ EABC Planning and Design Manual
**Use of trade names does not imply endorsement of product.

Effective Date: 9/1/2023
In accordance with the 2013 Design Manual Updates

DATE: _____ PAGE: _____

MULCHING

Subgrade Preparation:

- Prepare the subgrade for riprap and filter to the required lines and grades shown on the plans.
- Compact any fill required in the subgrade to a density approximating that of the surrounding undisturbed material or overfill depressions with riprap.
- Remove brush, trees, stumps, and other objectionable material.

Sand and Gravel Filter Blanket:

- Place the filter blanket immediately after the ground foundation is prepared.
- When using gravel, spread filter stone in a uniform layer to the specified depth.
- When more than one layer of filter material is used, spread the layers with minimal mixing.

Synthetic Filter Fabric:

- Place the cloth filter directly on the prepared foundation.
- Overlap the edges by at least 12 inches, and space anchor pins every 3 feet along the overlap.
- Bury the upstream end of the cloth a minimum of 12 inches below ground and bury the lower end of the cloth or over lap with the next section as required.
- If damage occurs while placing riprap, remove the riprap, and repair the sheet by adding another layer of filter material with a minimum overlap of 12 inches around the damaged area. If damage is extensive, remove and replace the entire sheet.
- If placing large stones or machine placing is difficult, a 4 inch layer of fine gravel or sand may be needed to protect the filter cloth.

Maintenance:

In general, once a riprap installation has been properly designed and installed it requires very little maintenance. Riprap should be inspected periodically for scour or dislodged stones. Control of weed and brush growth may be needed in some locations.

Weight (lb)	Mean Spherical Diameter (ft)	Length (ft)	Rectangular Shape Width/Height (ft)
50	0.8	1.4	0.5
100	1.1	1.8	0.6
150	1.3	2.0	0.7
300	1.6	2.6	0.9
500	1.9	3.0	1.0
1000	2.2	3.7	1.3
1500	2.6	4.7	1.5
2000	2.8	5.4	1.8
4000	3.6	6.0	2.0
6000	4.0	6.9	2.3
8000	4.5	7.6	2.5
20,000	6.1	10.0	3.3

Size of Riprap stones

Riprap Class	Erosion Control Class
Class 1	Class A
Class 2	Class B

Notes:

- Placement of riprap should follow immediately after placement of the filter.
- Place so that riprap forms a dense, well-graded mass of stone with a minimum of voids.
- Place to its full thickness in one operation.
- Do not place by dumping through chutes or other methods that cause segregation of stone sizes.
- Take care not to dislodge underlying base or filter when placing stone.
- The top of the riprap slope should be keyed to a stable foundation at its base.
- The toe should be excavated to a depth about 1.5 times the design thickness of the riprap and extend horizontally from the slope, as shown above.
- Hand placing may be necessary to achieve the proper distribution of stone sizes to produce a relatively smooth, uniform surface.

Effective Date: 9/1/2023
In accordance with the 2013 Design Manual Updates

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TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT

Construction:

- Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
- Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
- Provide drainage to carry water to a sediment trap or other suitable outlet.
- Use geotextile fabrics in order to improve stability of the foundation in locations subject to seepage or high water table.

Maintenance:

- Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater. Make any required repairs immediately.
- 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.
- Sediment on roadways is to be removed immediately by broom and shovel, either by manual or mechanical means, and not to be washed off where it has the potential to enter a stream, drainage way or storm drain system.

Effective Date: 9/1/2023
In accordance with the 2013 Design Manual Updates

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TEMPORARY SEEDING

TEMPORARY SEEDING RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

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

TEMPORARY SEEDING RECOMMENDATIONS FOR SUMMER

Species	Rate (lb/acre)
German millet	40

TEMPORARY SEEDING RECOMMENDATIONS FOR FALL

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

Seeding Dates:

Mountains—Above 2500 feet: Feb. 15 - May 15
Below 2500 feet: Feb. 1 - May 1

Piedmont—Jan. 1 - May 1
Coastal Plain—Dec. 1 - Apr. 15

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

SEED BED PREPARATION:

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 1-1½ 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 harrowing, or other suitable methods for fine grading. The finished grade shall be a smooth even soil surface with a loosen uniform fine texture. All ridges and depressions shall be removed and filled to provide the approved surface drainage. Planting is to be done immediately after finished grades are obtained and seedbed preparation is completed.

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GRASS-LINED CHANNELS

TRIANGULAR "V" CHANNEL CROSS SECTION

$$X\text{-Section Area (A)} = Zd^2$$

$$\text{Top Width (T)} = 2Zd$$

$$Z = \frac{T}{2d}$$

PARABOLIC CHANNEL CROSS SECTION

$$X\text{-Section Area (A)} = \frac{3}{8} Td$$

$$\text{Top Width (T)} = \frac{1.33A}{d}$$

TRAPEZOIDAL CHANNEL CROSS SECTION

$$X\text{-Section Area (A)} = bd + Zd^2$$

$$\text{Top Width (T)} = b + 2Zd$$

$$Z = \frac{T-b}{2d}$$

Notes:

- At a minimum, grass-lined channels should carry peak runoff from the 10-year storm without eroding. Increase the capacity according to the potential damage if flood hazard exists.
- If design velocity of the channel to be vegetated by seeding exceeds 2 feet per second, a temporary channel liner is required.
- Channel side slopes should be 3:1 or flatter to aid in the establishment of vegetation and for maintenance. V-shaped channels along roadways should have side slopes of 6:1 or flatter for safety.
- Remove all trees, brush, stumps, and other objectionable material from the foundation area, and dispose of properly. Excavate the channel, and shape it to neat lines and dimensions shown on the plans plus a 0.2 foot overcut around the channel perimeter to allow for bulking during seedbed preparations and sod buildup.
- Remove and properly dispose of all excess soil so that the surface water may enter the channel freely.
- The procedure used to establish grass in the channel will depend upon the severity of the conditions and selection of species. Protect the channel with mulch or a temporary liner sufficient to withstand anticipated velocities during the establishment period.

Maintenance:

- During the establishment period, check grass-lined channels after every rainfall.
- After grass is established, periodically check the channel. Check after heavy rainfall events and immediately make any necessary repairs.
- Check the channel outlet and all road crossings for bank stability and evidence of piping or scour holes.
- Remove all significant sediment accumulations to maintain the designed carrying capacity.
- Keep grass in a healthy, vigorous condition at all times.

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In accordance with the 2013 Design Manual Updates

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SEDIMENT FENCE

Notes:

- Construct the sediment barrier of standard strength or extra strength synthetic fiber fabrics.
- Ensure that the height of the sediment fence does not exceed 24 inches above the ground. (Higher fences may impound volumes of water sufficient to cause failure of the structure)
- Construct the filter fabric from a continuous roll out to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.
- 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 a minimum 50 pound tensile strength.
- When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Supports should be driven securely into the ground a minimum of 24 inches. Wire mesh should be a minimum 14-gauge with 6 inch mesh spacing.
- Extra strength filter fabric with 6 foot post spacing does not require a wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have a minimum of 50 pound tensile strength.
- Excavate the trench approximately 4 inches wide and 8 inches deep along the proposed line of the posts and upslope from the barrier.
- Place 12 inches of fabric along the bottom and side of the trench.
- Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.
- Do not attach filter fabric to existing trees.
- Do not place across ditches, streams, or any other areas of concentrated flow.

Maintenance:

- Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater. Make any required repairs immediately.
- Should the fabric of a sediment fence collapse, tear, decompose, or become ineffective, replace it promptly.
- Remove sediment deposits as necessary to provide adequate storage volume for the next rain and reduce pressure on the fence. Take care to avoid undermining the fence during cleanouts.
- Remove all fencing materials and unstable sediment deposits and bring area to grade and stabilize after the contributing drainage area has been properly stabilized.

Max. Slope Length and Slope for Which Sediment Fence is Applicable

Slope	Slope Length (ft)	Max. Area (ft ²)
<2%	100	10,000
2 to 5%	75	7,500
5 to 10%	50	5,000
10 to 20%	25	2,500
>20%	15	1,500

Effective Date: 9/1/2023
In accordance with the 2013 Design Manual Updates

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PERMANENT SEEDING

NON-INVASIVE PERMANENT SEEDING RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

Species	Rate
Centipede	5 lbs/acre
Indian Woodoats	1.5-2.5 lbs/acre*
Virginia Wild Rye	4-6 lbs/acre*

NON-INVASIVE PERMANENT SEEDING RECOMMENDATIONS FOR SUMMER

Species	Rate
Indian Woodoats	1.5-2.5 lbs/acre*
Virginia Wild Rye	4-6 lbs/acre*

SEEDING MIXTURE

Species	Rate
Hard Fescue	15 lbs/acre
Switchgrass	2.5-3.5 lbs/acre*
Indian Grass	5-7 lbs/acre*
Big Bluestem	5-7 lbs/acre*
Indian Woodoats	1.5-2.5 lbs/acre*
Virginia Wild Rye	4-6 lbs/acre*

Seeding Dates:

Coastal or Eastern Piedmont for Centipede: Sept. 1 - May 1
Coastal and Piedmont for Indian Woodoats and Virginia Wild Rye: Feb 15 - April 1
Mountains for Indian Woodoats and Virginia Wild Rye: March 1 - May 15

Maintenance: Significant maintenance may be required to obtain desired cover.

SEED BED PREPARATION:

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 1½ 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 harrowing, or other suitable methods for fine grading. The finished grade shall be a smooth even soil surface with a loosen uniform fine texture. All ridges and depressions shall be removed and filled to provide the approved surface drainage. Planting is to be done immediately after finished grades are obtained and seedbed preparation is completed.

Notes:

- Permanent seeding, sodding or other means of stabilization are required when all construction work is completed according to the NPDES timetables table.
- A North Carolina Department of Agriculture soils test (or equal) is highly recommended to be obtained for all areas to be seeded, sodded or planted.
- Soil blankets may be used to stabilize seedbed areas until permanent vegetation is established. Soil blankets may be used in lieu of nurse crops. Mat, tack or crimp mulch, as needed to stabilize seeded areas until root establishment. Mulch must cover at least 80% of the soil surface.
- Ground cover shall be maintained until permanent vegetation is established and stable against accelerated erosion.

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ROLLED EROSION CONTROL PRODUCTS

Notes:

- Lime, fertilizer and seed before installation. Planting of shrubs, trees, etc. should occur after installation.
- Slope surface shall be smooth before placement for proper soil contact.
- Design velocities exceeding 2 feet/second require temporary blankets, mats or similar liners to protect seed and soil until vegetation becomes established.
- Terminal anchor trenches are required at RECP ends and intermittent check slots must be constructed across channels at 25 foot intervals.
- Terminal anchor trenches should be a minimum of 12 inches in depth and 6 inches in width. Intermittent check slots should be 6 inches deep and 6 inches wide.
- For installation on a slope, place RECP 2-3 inches over the top of the slope and into an excavated and trench measuring approximately 12 inches deep by 6 inches wide. Pin the RECP at 1 foot intervals along the bottom of the trench, backfill and compact. Unroll the RECP down the slope maintaining direct contact between the soil and RECP. Secure using staples or pins in a 3 foot center-to-center pattern.
- 11 gauge, at least 1/2 inch by 1 inch staples or 12 inch minimum length wooden stakes are recommended for anchoring.
- Grass-lined channels with design velocities exceeding 6 feet/second should include turf reinforcement mats.
- Check slots to be constructed per manufacturer's specifications.
- Remove all significant sediment accumulations to maintain the designed carrying capacity.
- If there is a berm at the top of slope, anchor up-slope of the berm.
- Do not stretch blankets/mats tight, allow the rolls to conform to any irregularities.
- For slopes less than 3H:1V, rolls may be placed in horizontal strips.

Maintenance:

- Inspect Rolled Erosion Control Products at least weekly and after each rainfall of 1.0 inch or greater; repair immediately.
- Good contact with the ground must be maintained, and erosion must not occur beneath the RECP.
- Any areas of the RECP that are damaged or not in close contact with the ground shall be repaired and stapled.
- If erosion occurs due to poorly controlled drainage, the problem shall be fixed and the RECP as needed area protected.
- Monitor and repair the RECP an eroded area until ground cover is established.

Effective Date: 9/1/2023
In accordance with the 2013 Design Manual Updates

DATE: _____ PAGE: _____

EROSION CONTROL DETAILS

Notes:

- Hardway cloth and gravel should overlay the silt fence at least 12 inches.
- Stone outlets should be placed on low elevation areas of silt fence and based on field conditions.

Maintenance:

- Per NCG-01, inspect outlet at least once a week and after each 1 inch or greater rainfall event. Complete any required repairs immediately. Freshen stone when sediment accumulation exceeds 6 inches. Keep mesh free of debris to provide adequate flow.
- Remove sediment when half of stone outlet is covered.
- Replace stone as needed to facilitate de-watering.

Effective Date: 11/12/2020

REVISION HISTORY

NO.	DATE	DESCRIPTION

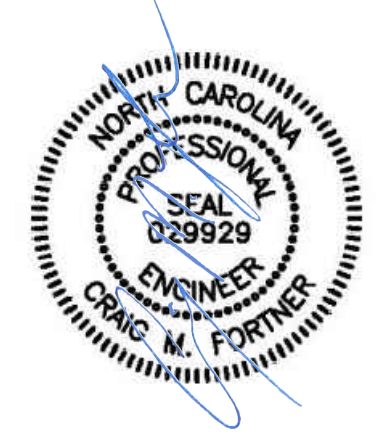
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EROSION CONTROL
DETAILS
SHEET
EC-4

Environmental Quality



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EROSION CONTROL DETAILS

SHEET EC-5

DATE: _____ PAGE: _____

PIPE OUTLET TO FLAT AREA NO WELL-DEFINED CHANNEL

PIPE OUTLET TO WELL-DEFINED CHANNEL

NOTES:

- Compact any fill required in the subgrade to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also be filled by increasing the riprap thickness.
- The riprap and gravel filter must conform to the specified grading limits shown on the plans.
- Filter cloth, when used, must meet design requirements, and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap and placing another piece over the damaged area. If the damage is extensive, replace the entire filter cloth.
- All connecting joints should overlap so the top layer is above the downstream layer a minimum of 1 foot.
- The minimum thickness of the riprap should be 1.5 times the maximum stone diameter but not less than 6".
- Riprap may be field stone or rough quarry stone. It should be hard, angular highly weather-resistant and well graded.
- Construct the apron on zero grade with no overfill at the end. Make the top of the riprap at the downstream end level with the receiving area or slightly below it.
- Ensure that the apron is properly aligned with the receiving stream and preferably straight throughout its length. If a curve is needed, place in the upper section of the apron.

MAINTENANCE:

- Inspect outlet structures at least weekly and after each rainfall of 1.0 inch or greater.
- Check outlets for erosion around or below riprap and for stones have been dislodged. Make repairs immediately to prevent further damage.

SEE SHEET EC-4, DETAIL 1 FOR RIPRAP INSTALLMENT, GRADATION, ETC.

Effective Date: 9/1/2023
 In accordance with the 2013 Design Manual Updates

DATE: _____ PAGE: _____

NOTES:

- Use matting made of 100% coconut fiber (coir) twine woven into high strength mat.
- Staples should be made of 0.125 inch diameter, new steel wire formed into a 'U' shape not less than 12 inches in length with a throat of 1 inch in width. The staples anchor the porous baffles into the sides and bottom of the basin.
- Grade the basin so that the bottom is level front to back and side to side.
- Install the coir fiber baffles immediately upon excavation of the basins.
- Install posts across the width of the sediment trap.
- Steel posts should be driven to a depth of 24 inches and spaced in a maximum of 4 feet apart. The top of the fabric should be a minimum of 6 inches higher than the invert of the spillway. Tops of the baffles should be a minimum of 2 inches lower than the top of the earthen embankment.
- Install 3 coir fiber baffles in basins at drainage outlets with a spacing of 1/4 the basin length. 2 coir fiber baffles can be installed in the basins less than 20 feet in length with a spacing of 1/3 the basin length.
- Attach a 9-gauge high tension wire strand to the steel posts at a height of 6 inches above the spillway elevation with plastic ties or wire fasteners to prevent sagging. If the temporary sediment basin will be converted to a permanent stormwater basin of a greater depth, the baffle height should be based on the pool depth during use as a temporary sediment basin.

MAINTENANCE:

- Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater and repair immediately.
- Maintain access to baffles. If the fabric collapses, tears, decomposes, or becomes ineffective, replace immediately.
- Remove sediment deposits when it reaches half full. Replace if baffle fabric is damaged during clean-out operations. Sediment depth should never exceed half the designed storage depth.

Effective Date: 9/1/2023
 In accordance with the 2013 Design Manual Updates

3 SKIMMER

Figure 6.64a Schematic of a skimmer, from Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

DATE: _____ PAGE: _____

NOTES:

- Install temporary sediment basins to the approved design. If the basin will eventually be converted to a permanent SCM device, the basin must function as a temporary sediment basin and meet the following parameters until completion of the project.
 - Maximum Drainage Area: 100 acres
 - Minimum Sediment Storage Volume: 1800 cubic feet per acre of disturbed area
 - Minimum Surface Area: 435 square feet per cfs of Q_{10} peak inflow
 - Minimum dwell time: 48 hours
- Clear, grub, and strip topsoil from areas under the embankment to remove trees, vegetation, roots, and other objectionable material. Delay clearing the pool area until the dam is complete. Stockpile all topsoil or soil containing organic matter for use on the outer shell of the embankment to facilitate vegetative establishment.
- Place temporary sediment control measures before the basin and stabilize as needed.
- Excavate a cut-off trench along the center line of the earth fill embankment. Cut trench to stable soil material, but in no case make it less than 2 feet deep with maximum side slope no steeper than 1:1. Compaction requirements are the same as those for the embankment.
- Extend the cut-off trench into both abutments to at least the elevation of the rear crest.
- Keep the trench dry during backfilling and compaction operations.
- Fill material should be clean mineral soil, free of roots, woody vegetation, rocks, and other objectionable material. Areas of approved fill should be shown on the plans.
- Soil on which fill is to be placed prior to placing. Ensure that fill material contains sufficient moisture so it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction.
- Place fill material in 6 to 8 inch continuous layers over the entire length of fill area and compact.
- Construct the embankment to an elevation 10% higher than the design height to allow for settling.
- Securely attach the riser to the barrel or barrel slab to make a watertight structural connection. All connections should be made using approved watertight assemblies.
- If riser structure is to be used, couple the skimmer arm directly into the embankment 1 foot from the bottom of the basin.
- The arm pipe connecting the skimmer to the riser shall have a minimum length of 6 feet.
- Place barrel and riser on a firm, smooth foundation of impervious soil.
- Do not use previous material such as sand, gravel, or crushed stone as backfill around the pipe or anti-float collars.
- Place fill material around the pipe spillway 4-6 inch layers, and compact 4' under and around the pipe to at least the same density as the adjacent embankment.
- Place a maximum depth of 2 feet of compacted backfill over the pipe spillway before connecting it with any construction equipment.
- Anchor riser in place by concrete or other satisfactory means to prevent flotation.
- In no case should the pipe conduit be installed by cutting a trench through the dam after the embankment is complete.
- Install the emergency spillway in undisturbed soil.
- Discharge water into the basin in a manner to prevent erosion.
- Construct basin so that the disturbed area is minimized, divert surface water from bare areas and complete the embankment before the area is cleared.
- Stabilize the emergency spillway embankment and all other disturbed areas above the crest of the principal spillway immediately after construction.
- Seed and place matting for erosion control on interior and exterior side slopes.
- Install Porous Baffles as specified on following sheets.

MAINTENANCE:

- Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater. Make any repairs immediately.
- Remove sediment and restore basin to its original dimensions when it accumulates to one-half the design depth.
- Place removed sediment in an area with sediment control measures to ensure no loss of sediment off-site.
- Check the embankment, spillways, and outlet for erosion damage, and inspect the embankment for piping and settlement.
- Remove all trash and other debris from the riser and pool area.

Effective Date: 9/1/2023
 In accordance with the 2013 Design Manual Updates

OUTLET STRUCTURES DETAILS

PROFILE

PLAN

OUTLET STRUCTURE DATA TABLE

STRUCTURE ID	OS-1
A: INVERT	6.00
B: DIAMETER	4.0"
C: INVERT	12.70
D: DIAMETER	24"
E: WEIR DIMENSION	24"
F: WEIR DIMENSION	24"
G: STRUCTURE WIDTH	48"
H: STRUCTURE DEPTH	48"
I: STRUCTURE WALL	6" MIN
J: RISER INVERT	14.00
K: INVERT	13.00
L: DIAMETER	3.0"
ANTI-FLOAT SIZE	5'X5'X1.5'
ANTI-FLOAT WEIGHT	5,625 LB
SKIMMER SIZE	3"

NOTES:

- SEE SHEET EC-6 FOR OUTLET STRUCTURE CONSTRUCTION
- ANTI-FLOTATION FOOTING ASSUMES A CONCRETE DENSITY OF 150 PCF

SEDIMENT BASIN SIZING

ID	SEDIMENT BASIN 1
REQUIRED SURFACE AREA AT POND BOTTOM [SQFT]	30,600
REQUIRED VOLUME AT RISER ELEV. [CUFT]	350,400
REQUIRED SURFACE AREA AT RISER ELEV. [SQFT]	57,500
REQUIRED VOLUME AT SPILLWAY ELEV. [CUFT]	410,600
REQUIRED SURFACE AREA AT SPILLWAY ELEV. [SQFT]	61,200
SPILLWAY LENGTH [FT]	40
SPILLWAY SIDE SLOPES	3:1
SPILLWAY INVERT	15.00
BERM WIDTH [FT]	10
BERM ELEV.	15.50
POND BOTTOM ELEV.	6.00
SEDIMENT CLEANOUT ELEV.*	12.00
REQUIRED SURFACE AREA AT CLEANOUT ELEV. [SQFT]	50,300

NOTES:

- * SEDIMENT CLEANOUT ELEVATION SHALL BE MARKED ON A STAKE IN ALL FOREBAYS AND ON OUTLET STRUCTURE

5 EMERGENCY SPILLWAY

N.T.S.

NOTES:

- SEE SEDIMENT BASIN SIZING TABLE (THIS SHEET) FOR SPILLWAY LENGTHS AND DEPTHS, SIDE SLOPES, BERM WIDTHS, ETC.
- SPILLWAY DEPTH IS THE DIFFERENCE BETWEEN THE SPILLWAY INVERT AND BERM ELEVATION.
- UPON FINISHING CONSTRUCTION OF THE SPILLWAY, PERMANENTLY SEED TO ESTABLISH SOIL TO PREVENT EROSION.
- IF, DURING CONSTRUCTION, EROSION OF THE SPILLWAY OCCURS, RE-ESTABLISH THE SPILLWAY AND BERM. THEN, RESEED. CONTACT THE ENGINEER IF PROBLEM PERSISTS.
- SEE SEDIMENT BASIN DETAIL (THIS SHEET) FOR SECTION VIEW

6 INLET PROTECTION

Construction:

- Uniformly grade a shallow depression approaching the inlet.
- Drive 5-foot steel posts 2 feet into the ground surrounding the inlet. Space posts evenly around the perimeter of the inlet, a maximum of 4 feet apart.
- Surround the posts with wire mesh hardware cloth. Secure the wire mesh to the steel posts at the top, middle, and bottom. Placing a 2-foot flap of the wire mesh under the gravel for anchoring is recommended.
- Place clean gravel (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.
- Once the contributing drainage area has been stabilized, remove accumulated sediment, and establish final grading elevations.
- Compact the area properly and stabilize with groundcover.

Maintenance:

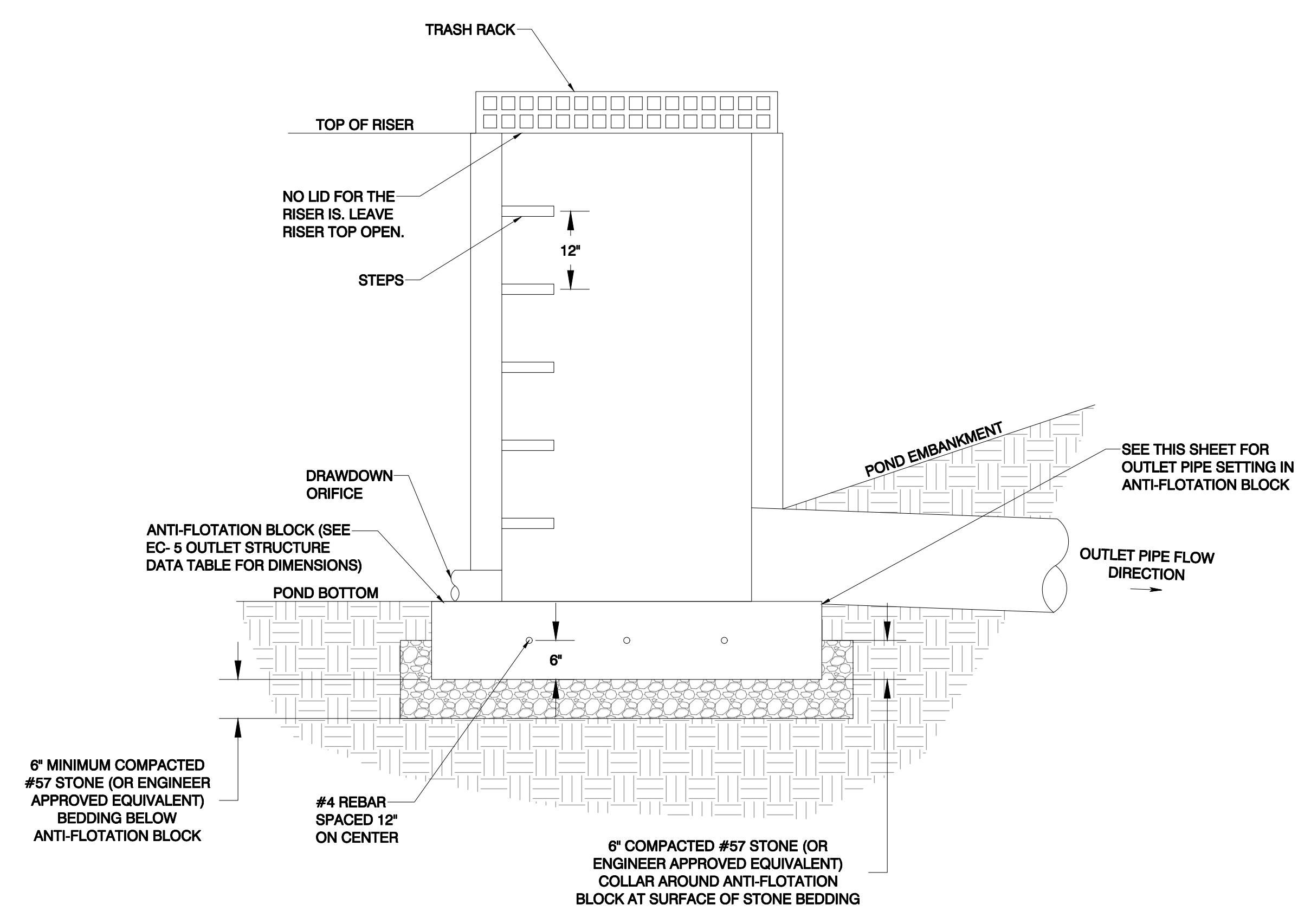
- Inspect sediment fences at least once a week and after each 1 inch or greater rainfall. Make any required repairs immediately.
- Clear the mesh wire of any debris or other objects to provide adequate flow for subsequent rains. Take care not to damage or undercut the mesh during sediment removal.
- Replace stone as needed.

REVISION HISTORY	

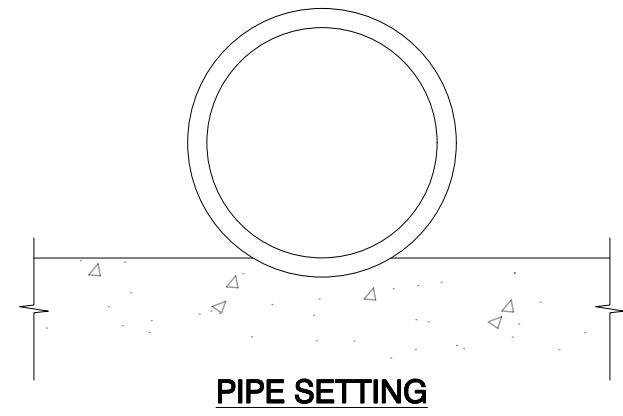


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SECTION VIEW



- NOTES:
- SEE SEDIMENT BASIN SIZING TABLE AND OUTLET STRUCTURE DATA TABLE (SHEET EC-5) FOR RISER SIZING, INVERTS, ETC.
 - TRASH RACK MUST BE APPROVED BY ENGINEER.
 - USE CLASS B CONCRETE THROUGHOUT.
 - PRECAST CONCRETE RISER SHOP DRAWING TO BE PROVIDED BY CONTRACTOR FOR ENGINEER APPROVAL, OR CONTRACTOR MAY INSTALL THE OUTLET STRUCTURE BY MONOLITHIC POUR.
 - SET OUTLET PIPE IN ANTI-FLOTATION SLAB AS SHOWN (THIS SHEET). ENSURE THE ANTI-FLOTATION BLOCK IS FLUSH WITH DESIGNED INVERT.
 - IF RISER IS GREATER THAN 3.5', PROVIDE STEPS 12" ON CENTER.

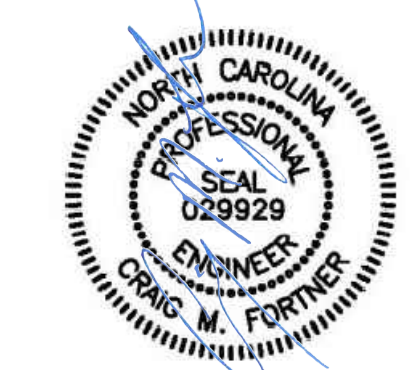
1 CONCRETE OUTLET STRUCTURE CONSTRUCTION DETAILS
 N.T.S.

BEAUFORT COUNTY

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 DETAILS

SHEET
 EC-6



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STANDARD DETAILS

SHEET
 SD-1

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

ROADWAY STANDARD DRAWING FOR DRAINAGE STRUCTURE STEPS

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 RALEIGH, N.C.

1

SHEET 1 OF 1
840.66

ROADWAY STANDARD DRAWING FOR METHOD OF PIPE INSTALLATION

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

2

SHEET 2 OF 2
300.01

GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.
 REFER TO HOBY PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

APPROVED SUITABLE LOCAL MATERIAL.
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DENSELY BREAKEN PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

SPRINGLINE OF PIPE
 SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.
 UNDISTURBED EARTH MATERIAL.
 SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

ROADWAY STANDARD DRAWING FOR CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS

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 RALEIGH, N.C.

3

SHEET 1 OF 3
838.01

PIPE DIA.	SINGLE PIPE				DOUBLE PIPE										
	15"	18"	24"	30"	36"	42"	48"	15"	18"	24"	30"	36"	42"	48"	
BARS	X	X	X	X	X	Y	Y	X	X	X	X	X	X	Y	Y
QTY.	2	2	3	3	4	4	5	2	2	3	3	4	4	5	5
M	QTY.	-	-	-	-	2	2	1	1	2	2	2	2	2	3
G	QTY.	2	2	3	3	4	4	5	2	2	3	3	4	4	5
TOTAL LBS.	9	9	14	14	19	55	65	12	12	19	19	23	23	27	92

COMMON DIMENSIONS		SINGLE PIPE		DOUBLE PIPE	
D	H	B	T	M	L
15"	3'-3"	1'-8"	2'-9"	2'-4"	5'-6"
18"	3'-7"	1'-10"	3'-2"	2'-5"	6'-4"
24"	4'-2"	2'-1"	4'-0"	3"	8'-0"
30"	5'-0"	2'-6"	4'-7"	4-1/4"	11-5/8"
36"	5'-8"	2'-8"	5'-0"	4-3/4"	11-1/2"
42"	6'-2"	3'-1"	6'-4"	5-1/4"	12'-8"
48"	6'-9"	3'-5"	7'-2"	5-3/4"	14'-4"

*SEE SHEET 3

GENERAL NOTES:
 CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".
 PLACE 2 #6 "Y" BARS IN THE TOP OF ALL ENDWALL FOR PIPE CULVERTS 42" AND OVER WITH A MINIMUM OF 3" COVER AND A LENGTH OF 6" LESS THAN ENDWALL LENGTH.
 CONSTRUCT BOTTOM SLAB WITH FORMS.
 DO NOT INTERPRET WALL THICKNESS (T) SHOWN FOR THE THICKNESS ACCEPTABLE, BUT IS USED IN COMPUTING ENDWALL QUANTITIES.
 WHEN THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT AT THE BOTTOM OF THE PIPE, PLACE BAR "X" DOWELS IN THE BASE AS SHOWN ON PLANS. SPACE BARS APPROXIMATELY ON 12" CENTERS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 WHEN THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT AT THE BOTTOM OF THE PIPE AND POUR THE BASE SEPARATELY LEAVE THE POUR ROUGH.
 USE CLASS "B" CONCRETE.

4

SHEET 3 OF 3
838.01

ROADWAY STANDARD DRAWING FOR DRIVEWAY PIPE CONSTRUCTION

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5

SHEET 1 OF 1
310.10

GENERAL NOTES:
 ALL DIMENSIONS GIVEN ARE FOR MINIMUM CONDITIONS. PROPER ENGINEERING JUDGEMENT MUST BE USED IN DETERMINING DRIVEWAY LOCATIONS, WIDTHS, AND PIPE LENGTHS.
 FACTORS SUCH AS VEHICLE TURNING RADIUS, TRAFFIC VOLUMES, DRIVEWAY SKEW, OFFSET DISTANCE OF PIPE FROM EDGE OF PAVEMENT, PIPE DEPTHS, AND DESIGN SPEED SHOULD BE CONSIDERED IN DETERMINING DRIVEWAY WIDTHS.
 NOTE:
 1. THESE AREAS ARE TO BE USED TO BLEND THE INTERSECTING SLOPES TO THE PROPOSED DITCH.



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SHEET
 SD-2

