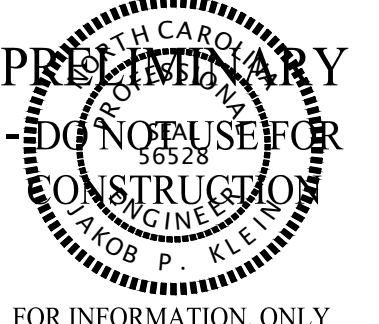
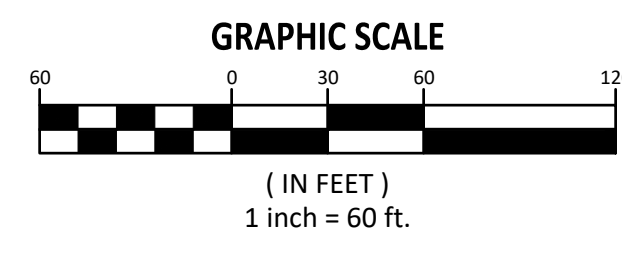
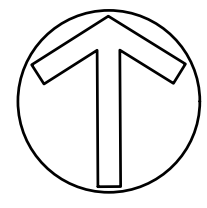


EROSION CONTROL LEGEND		REFERENCE DETAIL
SF	SILT FENCE	01 / CE502
	LIMITS OF DISTURBANCE	SEE PLANS
TF	TREE PROTECTION FENCE	02 / CE503
	SILT FENCE OUTLET	02 / CE502
	SEDIMENT SACK INLET PROTECTION	03 / CE502
	STANDARD PIPE INLET PROTECTION	08 / CE502
	GRAVEL INLET PROTECTION	04 / CE501
	RIPRAP DISSIPATOR	08 / CE501 & CE500
	DRAINAGE PIPE	09 / CE501
	WATTLE	SW-20.23 / CE503
	STAGING AND LAYDOWN AREA	CE500 NOTES
	CONSTRUCTION ENTRANCE	02 / CE501
	CONCRETE WASHOUT PIT	03 / CE503
	EROSION CONTROL BLANKET	CE504

SITE LEGEND	
---	100 YR FLOODLINE
- - - -	PROPERTY BOUNDARY/PHASE LINE
- - -	2' BUILDING RESTRICTION LINE
- - - - -	50' NEUSE RIVER BUFFER
- - - - -	PROPOSED SURFACE WATER LEVEL
- - - -	RIGHT-OF-WAY
- - - -	LIMITS OF DISTURBANCE
+++ +	WETLANDS



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KALAS FALLS
 PHASE 5
 CONSTRUCTION INFRASTRUCTURE DOCUMENTS
 CID-25-01
 TOWN OF ROLESVILLE,
 WAKE COUNTY, NC

JOB NUMBER: R180115
 CHECKED BY: JK
 DRAWN BY: GE, RC
 DATE: 03-03-2025

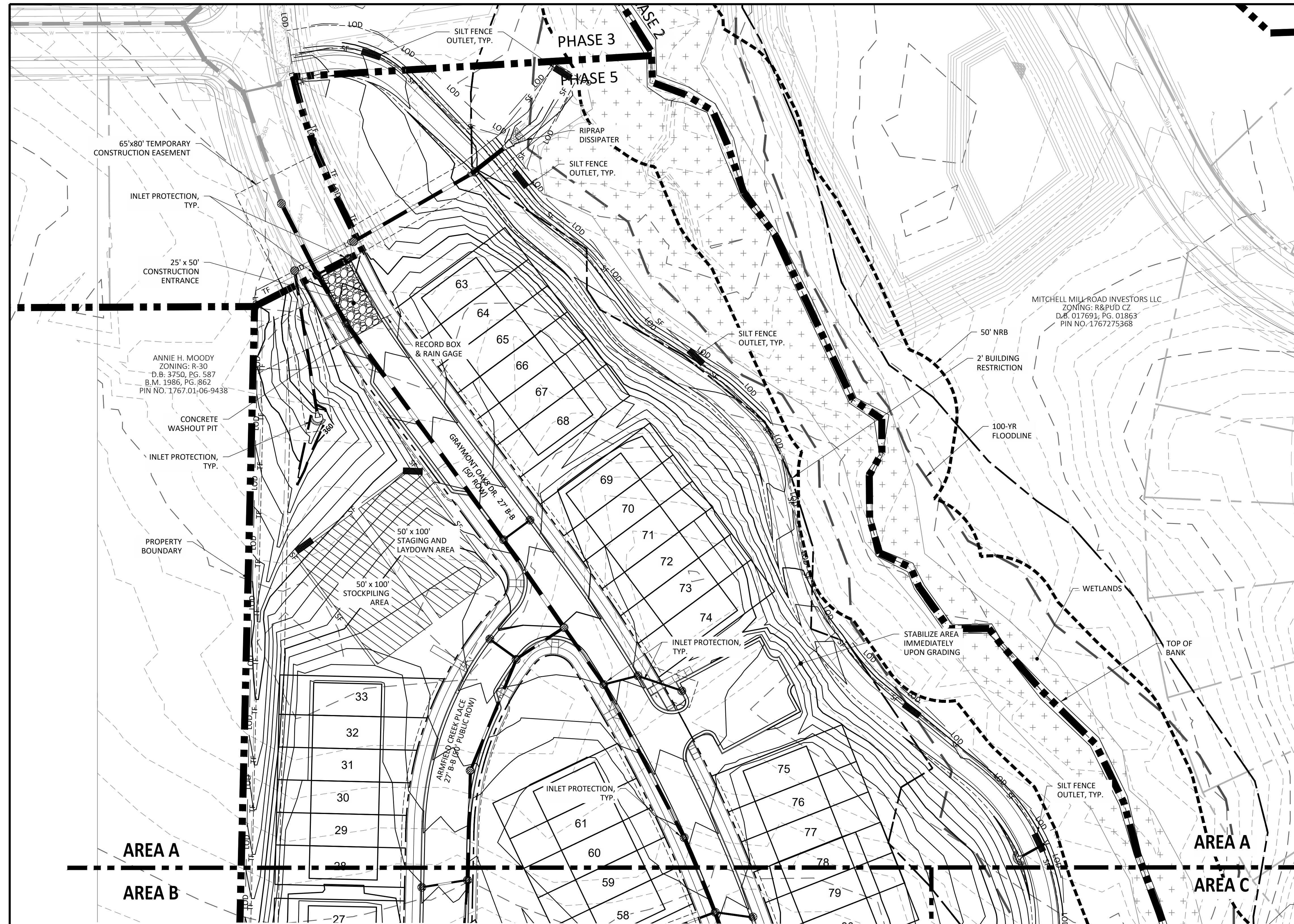
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ESC PHASE 2 OVERALL

SHEET NO.:
CE110



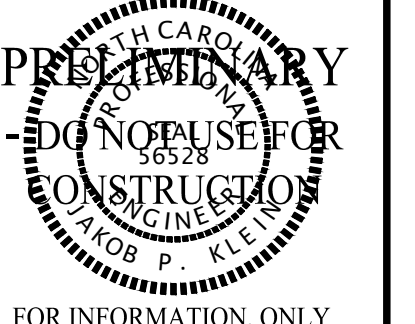
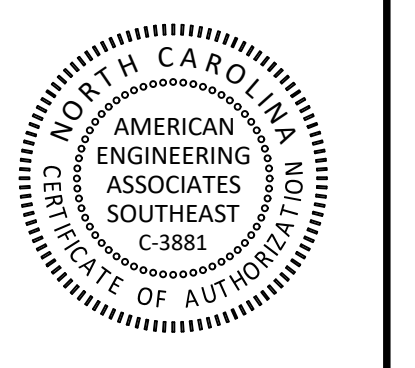
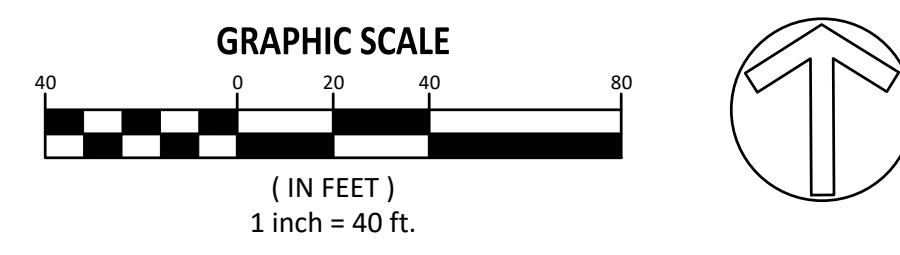
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2025-03-03



EROSION CONTROL LEGEND		REFERENCE DETAIL
— SF —	SILT FENCE	01 / CE502
—	LIMITS OF DISTURBANCE	SEE PLANS
— TF —	TREE PROTECTION FENCE	02 / CE503
—	SILT FENCE OUTLET	02 / CE502
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○	STANDARD PIPE INLET PROTECTION	08 / CE502
□	GRAVEL INLET PROTECTION	04 / CE501
□	RIPRAP DISSIPATER	08 / CE501 & CE500
—	DRAINAGE PIPE	09 / CE501
—	WATTLE	SW-20.23 / CE503
▨	STAGING AND LAYDOWN AREA	CE500 NOTES
▩	CONSTRUCTION ENTRANCE	02 / CE501
□	CONCRETE WASHOUT PIT	03 / CE503
■	EROSION CONTROL BLANKET	CE504

SITE LEGEND	
—	100 YR FLOODLINE
—	PROPERTY BOUNDARY/PHASE LINE
—	2' BUILDING RESTRICTION LINE
—	50' NEUSE RIVER BUFFER
—	PROPOSED SURFACE WATER LEVEL
—	RIGHT-OF-WAY
—	LIMITS OF DISTURBANCE
+	WETLANDS



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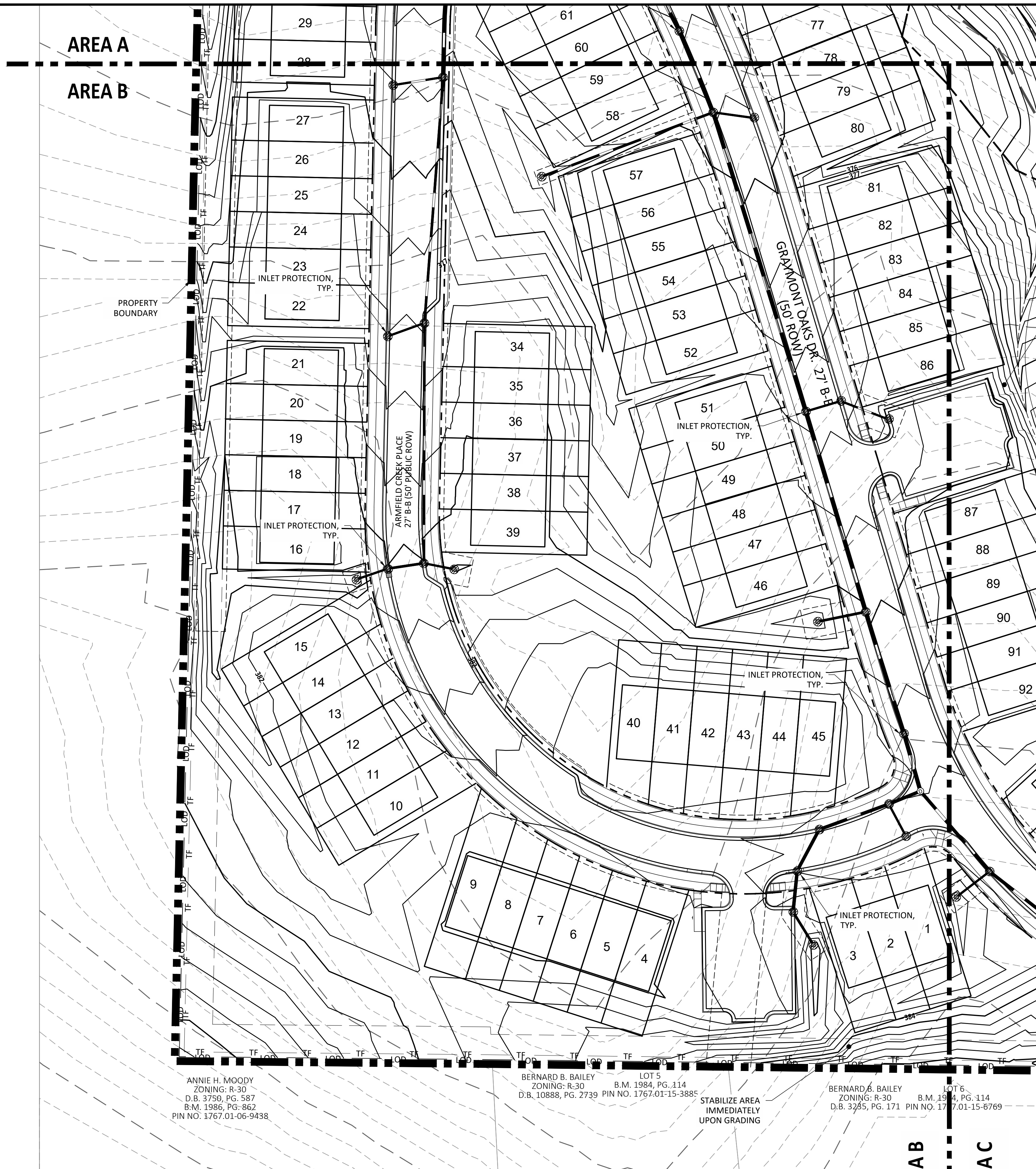
KALAS FALLS
 PHASE 5
 CONSTRUCTION INFRASTRUCTURE
 DOCUMENTS
 CID-25-01
 TOWN OF ROLESVILLE,
 WAKE COUNTY, NC

JOB NUMBER: R180115
 CHECKED BY: JK
 DRAWN BY: GE, RC
 DATE: 03-03-2025

SHEET TITLE:
**ESC PHASE 2
 AREA A**

SHEET NO.:
CE410





EROSION CONTROL LEGEND		REFERENCE DETAIL
SF	SILT FENCE	01 / CE502
	LIMITS OF DISTURBANCE	SEE PLANS
TF	TREE PROTECTION FENCE	02 / CE503
—	SILT FENCE OUTLET	02 / CE502
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~	WATTLE	SW-20.23 / CE503
▨	STAGING AND LAYDOWN AREA	CE500 NOTES
▩	CONSTRUCTION ENTRANCE	02 / CE501
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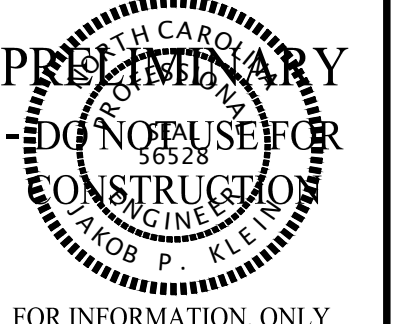
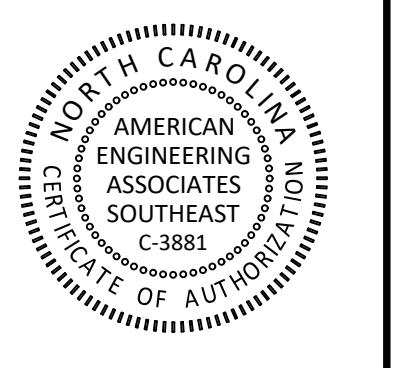
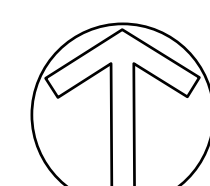
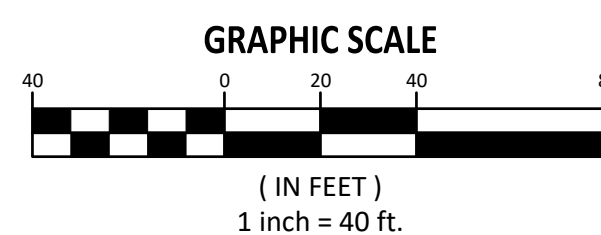
SITE LEGEND	
— — —	100 YR FLOODLINE
— — — —	PROPERTY BOUNDARY/PHASE LINE
— — — — —	2' BUILDING RESTRICTION LINE
— — — — —	50' NEUSE RIVER BUFFER
— — — — —	PROPOSED SURFACE WATER LEVEL
— — — — —	RIGHT-OF-WAY
— — — — —	LIMITS OF DISTURBANCE
+	WETLANDS

ANNIE H. MOODY
ZONING: R-30
D.B. 3750, PG. 587
B.M. 1986, PG. 862
PIN NO. 1767.01-06-9438

BERNARD B. BAILEY LOT 5
ZONING: R-30 B.M. 1984, PG. 114
D.B. 10888, PG. 2739 PIN NO. 1767.01-15-3885

BERNARD B. BAILEY LOT 6
ZONING: R-30 B.M. 1984, PG. 114
D.B. 3285, PG. 171 PIN NO. 1767.01-15-6769

STABILIZE AREA
IMMEDIATELY
UPON GRADING



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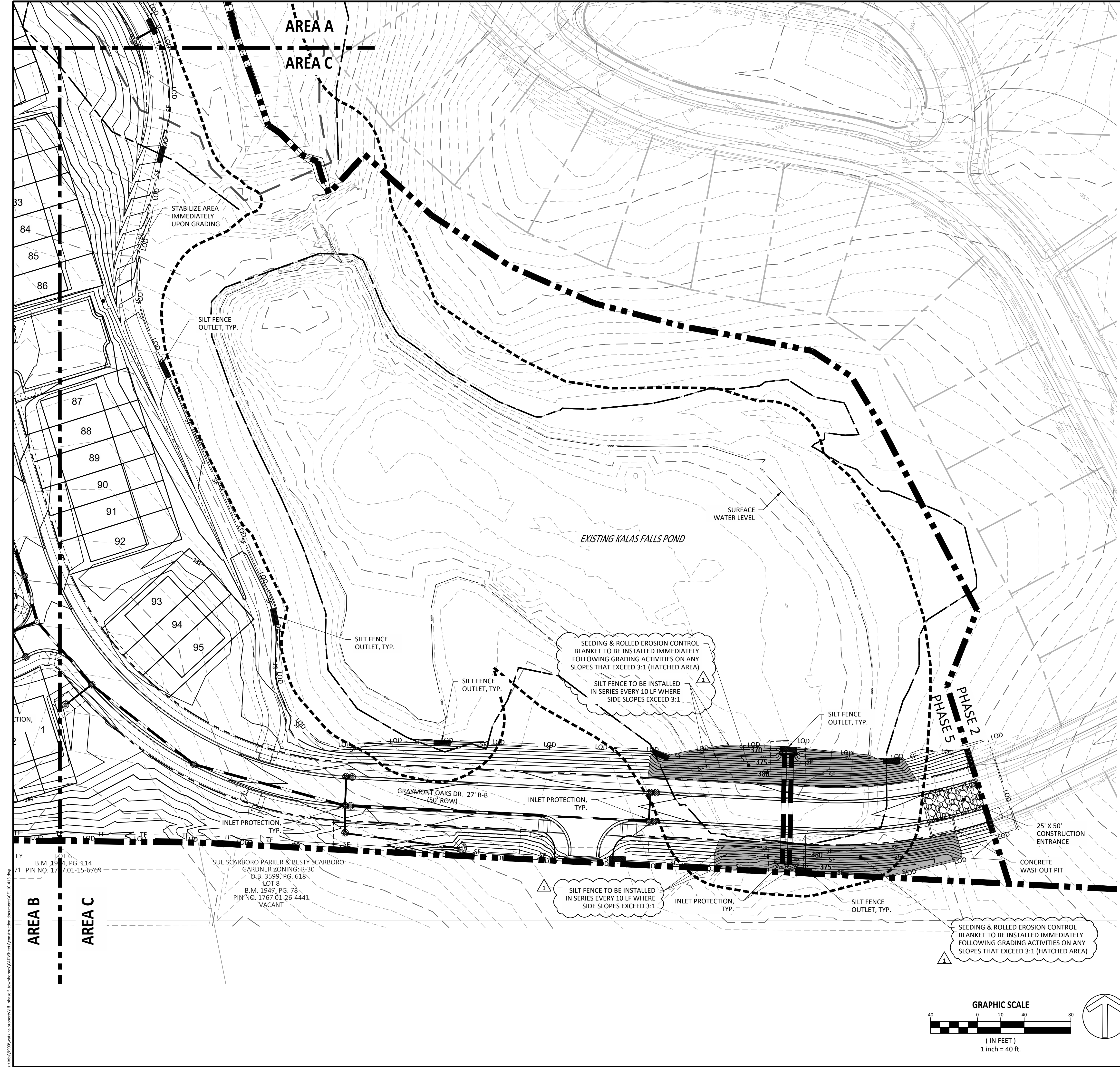
KALAS FALLS
PHASE 5
CONSTRUCTION INFRASTRUCTURE
DOCUMENTS
CID-25-01
TOWN OF ROLESVILLE,
WAKE COUNTY, NC

JOB NUMBER: R180115
CHECKED BY: JK
DRAWN BY: GE, RC
DATE: 03-03-2025

**ESC PHASE 2
AREA B**

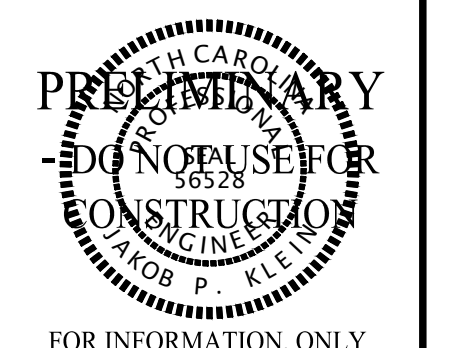
SHEET NO.:
CE411





EROSION CONTROL LEGEND		REFERENCE DETAIL
SF	SILT FENCE	01 / CE502
	LIMITS OF DISTURBANCE	SEE PLANS
TF	TREE PROTECTION FENCE	02 / CE503
	SILT FENCE OUTLET	02 / CE502
	SEDIMENT SACK INLET PROTECTION	03 / CE502
	STANDARD PIPE INLET PROTECTION	08 / CE502
	GRAVEL INLET PROTECTION	04 / CE501
	RIPRAP DISSIPATOR	08 / CE501 & CE500
	DRAINAGE PIPE	09 / CE501
	WATTLE	SW-20.23 / CE503
	STAGING AND LAYDOWN AREA	CE500 NOTES
	CONSTRUCTION ENTRANCE	02 / CE501
	CONCRETE WASHOUT PIT	03 / CE503
	EROSION CONTROL BLANKET	CE504

SITE LEGEND	
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---	PROPERTY BOUNDARY/PHASE LINE
---	2' BUILDING RESTRICTION LINE
---	50' NEUSE RIVER BUFFER
---	PROPOSED SURFACE WATER LEVEL
---	RIGHT-OF-WAY
---	LIMITS OF DISTURBANCE
---	WETLANDS



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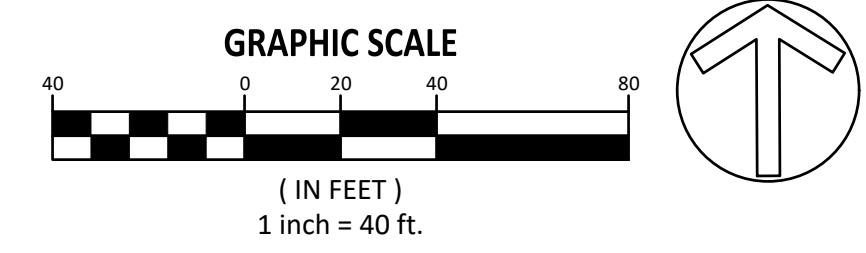
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KALAS FALLS PHASE 5 CONSTRUCTION INFRASTRUCTURE DOCUMENTS
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 TOWN OF ROLESVILLE, WAKE COUNTY, NC

JOB NUMBER: R180115
 CHECKED BY: JK
 DRAWN BY: GE, RC
 DATE: 03-03-2025

ESC PHASE 2 AREA C

SHEET NO.: **CE412**



LOT 6
 B.M. 1944, PG. 114
 PIN NO. 177.01-15-6769

SUE SCARBORO PARKER & BESTY SCARBORO
 GARDNER ZONING: R-30
 D.B. 3559, PG. 618
 LOT 3
 B.M. 1947, PG. 78
 PIN NO. 1767.01-26-4441
 VACANT

EROSION CONTROL LEGEND		REFERENCE DETAIL
— SF —	SILT FENCE	01 / CE502
— — — — —	LIMITS OF DISTURBANCE	SEE PLANS
— TF —	TREE PROTECTION FENCE	02 / CE503
— — — — —	SILT FENCE OUTLET	02 / CE502
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SITE LEGEND	
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— — — — —	LIMITS OF DISTURBANCE
+	WETLANDS

PHILLIP L. MOODY
ZONING: R-30
D.B. 3750, PG. 589
B.M. 1986, PG. 968
B.M. 1928, PG. 142
P.I.N. 1767.01-28-3460
REAL ESTATE ID: 0048422 AGRICULTURAL

NOTE: PLEASE SEE KALAS PHASE 3 CD PLAN SET FOR STORM DRAINAGE INFRASTRUCTURE WITHIN THAT PROJECT SCOPE. KALAS PHASE 5 UTILIZES SCM 3B LOCATED ON THE KALAS PHASE 3 PARCEL. A DETAILED CONSTRUCTION SEQUENCE FOR SEDIMENT CONTROL, SITE STABILIZATION, AND OUTLETTING TO SCM 3B CAN BE FOUND ON SHEET CE500 WITHIN THIS PLAN SET. THE KALAS PHASE 5 PROJECT WILL REPORT FINAL IMPERVIOUS DATA TO WAKE COUNTY TO ENSURE THE PROJECT TOTALS REMAIN AT/OR BELOW THE DESIGN FOR SCM 3B.

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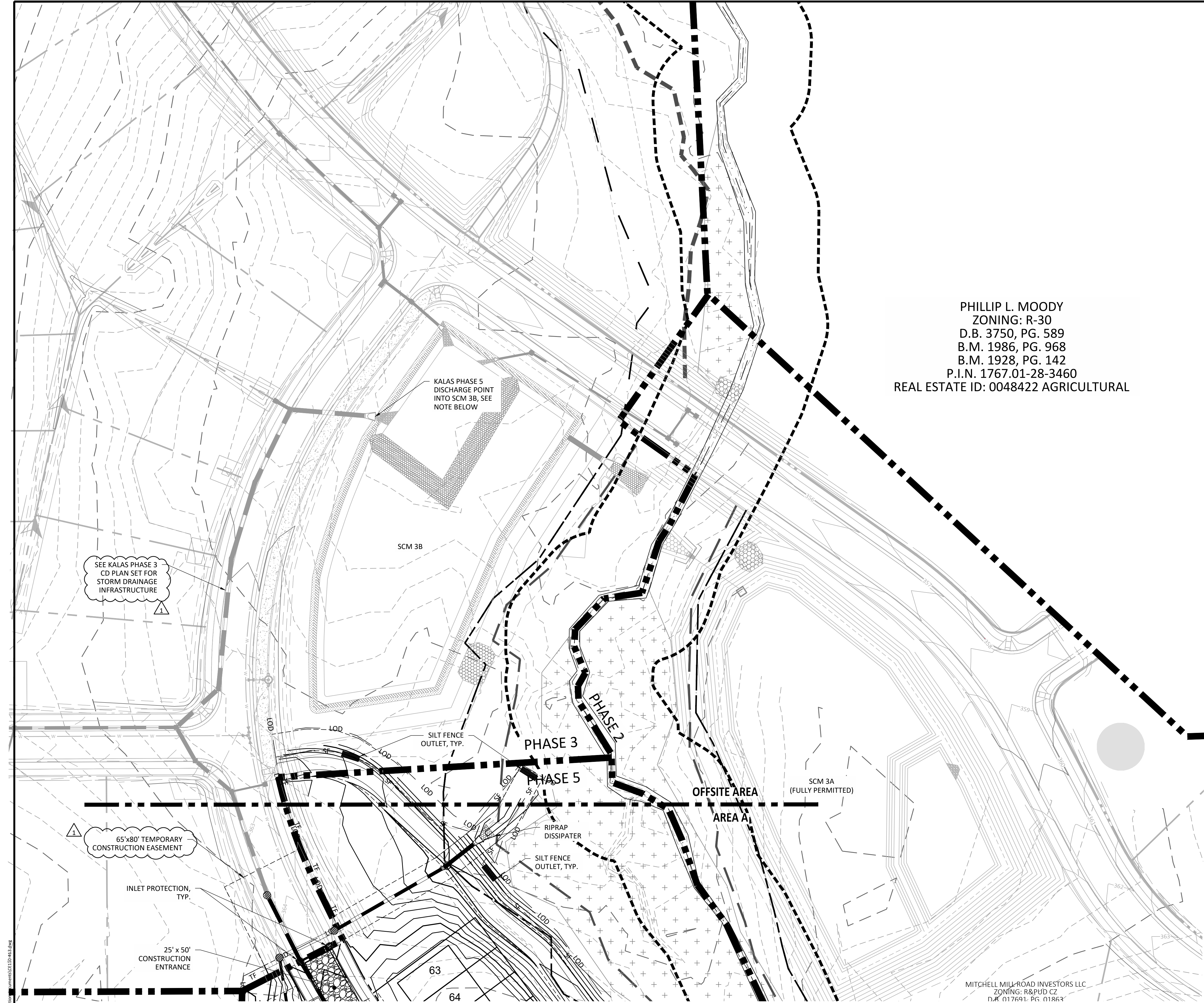
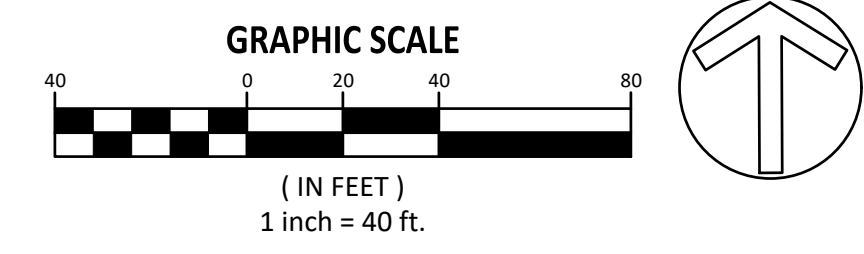
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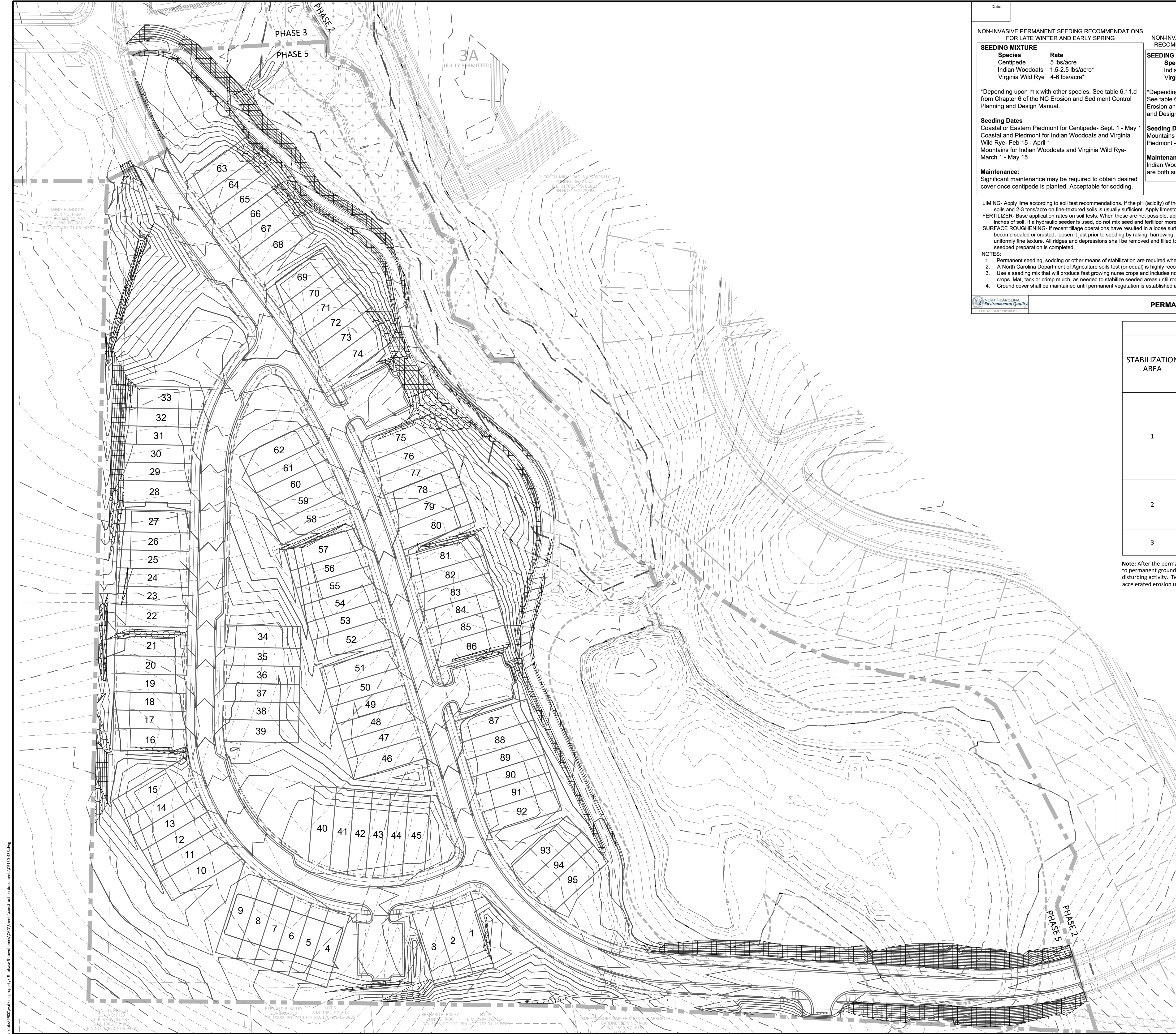
KALAS FALLS
PHASE 5
CONSTRUCTION INFRASTRUCTURE
DOCUMENTS
CID-25-01
TOWN OF ROLESVILLE,
WAKE COUNTY, NC

JOB NUMBER: R180115
CHECKED BY: JK
DRAWN BY: GE, RC
DATE: 03-03-2025

SHEET TITLE:
**ESC PHASE 2
OFFSITE AREA**

SHEET NO.:
CE413





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

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

*Depending upon mix with other species. See table 6.11.d from Chapter 6 of the NC Erosion and Sediment Control Planning and Design Manual.

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 once centipede is planted. Acceptable for sodding.

NON-INVASIVE PERMANENT SEEDING RECOMMENDATIONS FOR SUMMER

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

*Depending upon mix with other species. See table 6.11.d from Chapter 6 of the NC Erosion and Sediment Control Planning and Design Manual.

Seeding Dates
Mountains - July 15- Aug 15
Piedmont - Aug 15 - Oct 15

Maintenance:
Indian Woodoats and Virginia Wild Rye are both sun and shade tolerant.

NON-INVASIVE PERMANENT SEEDING RECOMMENDATIONS FOR FALL

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*

*Depending upon mix with other species. See table 6.11.d from Chapter 6 of the NC Erosion and Sediment Control Planning and Design Manual.

Seeding Dates
Mountains - Hard Fescue- Aug 1 - June 1
Mountains- Switchgrass, Indian Grass, Big Bluestem- Dec 1 - April 15
Piedmont and Coastal- Switchgrass, Indian Grass, Big Bluestem- Dec 1 - April 1
Coastal- Indian Woodoats and Virginia Wild Rye- Sept 1 - Nov 1

Maintenance:
Hard Fescue is not recommended for slopes > 5%. Prefers shade.

SEED BED PREPARATION:
LIMING- Apply lime according to soil test recommendations. If the pH (acidity) of the soil is unknown, an application of ground agricultural limestone at the rate of 1 to 1.5 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 raking, harrowing, or other suitable methods for fine grading. The finished grade shall be a smooth even soil surface with a looser 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:
1. Permanent seeding, sodding or other means of stabilization are required when all construction work is completed according to the NPDES timeframe's table.
2. A North Carolina Department of Agriculture soils test (or equal) is highly recommended to be obtained for all areas to be seeded, sprigged, sodded or planted.
3. Use a seeding mix that will produce fast growing nurse crops and includes non-invasive species that will eventually provide a permanent groundcover. Soil blankets may be used in lieu of nurse crops. Mat, sack or crimp mulch, as needed to stabilize seeded areas until root establishment. Mulch must be applied uniformly over the soil with a cover density of at least 80%.
4. Ground cover shall be maintained until permanent vegetation is established and stable against accelerated erosion.

PERMANENT SEEDING RECOMMENDATIONS

REQUIRED GROUND STABILIZATION TIMEFRAMES			
STABILIZATION AREA	SITE AREA DESCRIPTION	STABILIZE WITHIN THIS MANY CALENDAR DAYS AFTER CEASING LAND DISTURBANCE	TIMEFRAME VARIATIONS
1	(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
	(b) High Quality Water (HQW) Zones	7	None
	(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
2	(d) Slopes 3:1 to 4:1	14	- 7 days for slopes greater than 50' in length and with slopes steeper than 4:1 - 7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones
	(e) Areas with slopes flatter than 4:1	14	- 7 days for perimeter dikes, swales, ditches, perimeter slopes with HQW Zones

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

NPDES STABILIZATION LEGEND

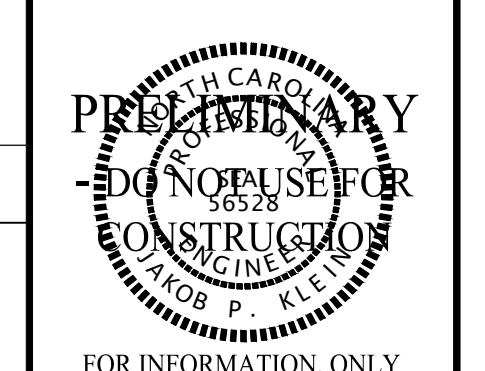
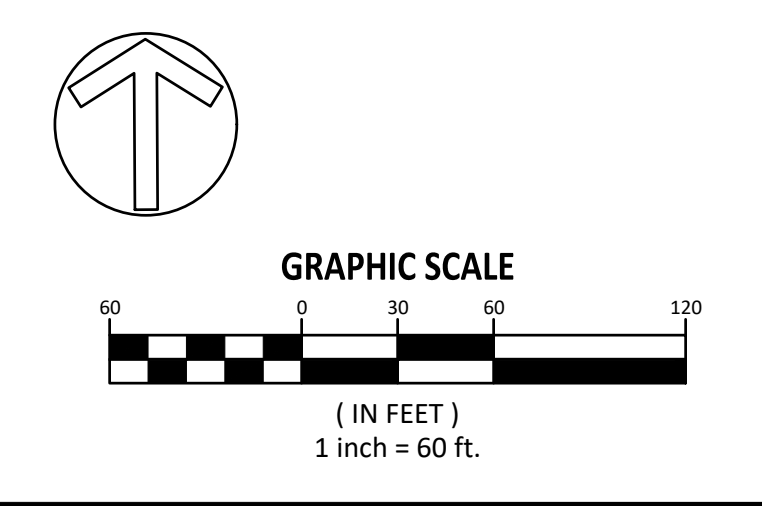
	NPDES STABILIZATION AREA 1
	NPDES STABILIZATION AREA 2
	NPDES STABILIZATION AREA 3

- NPDES DOCUMENTATION NOTES**
- THIS PAGE IS SUBMITTED TO COMPLY WITH THE NPDES GENERAL STORMWATER PERMIT NCG010000.
 - THIS PAGE CAN BE APPROVED BY THE CITY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000 ONLY.
 - THIS PAGE OF THE APPROVED PLANS IS ENFORCEABLE EXCLUSIVELY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000.
 - THE CITY IS NOT AUTHORIZED TO ENFORCE THIS PAGE OF THE PLANS AND IT IS NOT A PART OF THE APPROVED PLANS FOR PURPOSES OF ENFORCEMENT ACTION UNDER THE CITY CODE.

- SEEDING NOTES**
- REFERENCE PERMANENT SEEDING RECOMMENDATIONS FOR SEEDBED PREPARATION.
 - ROLESVILLE IS LOCATED IN PIEDMONT REGION OF NORTH CAROLINA.

TEMPORARY SEEDING SCHEDULE

DATE	TYPE	RATE (lb/acre)
FEB 15 - APRIL 1	VIRGINIA WILD RYE	4-6 LBS/ACRE
AUG 15 - OCT 15	INDIAN WOODOATS	1.5-2.5 LBS/ACRE
DEC 1 - APRIL 1	SWITCHGRASS	2.5-3.5 LBS/ACRE



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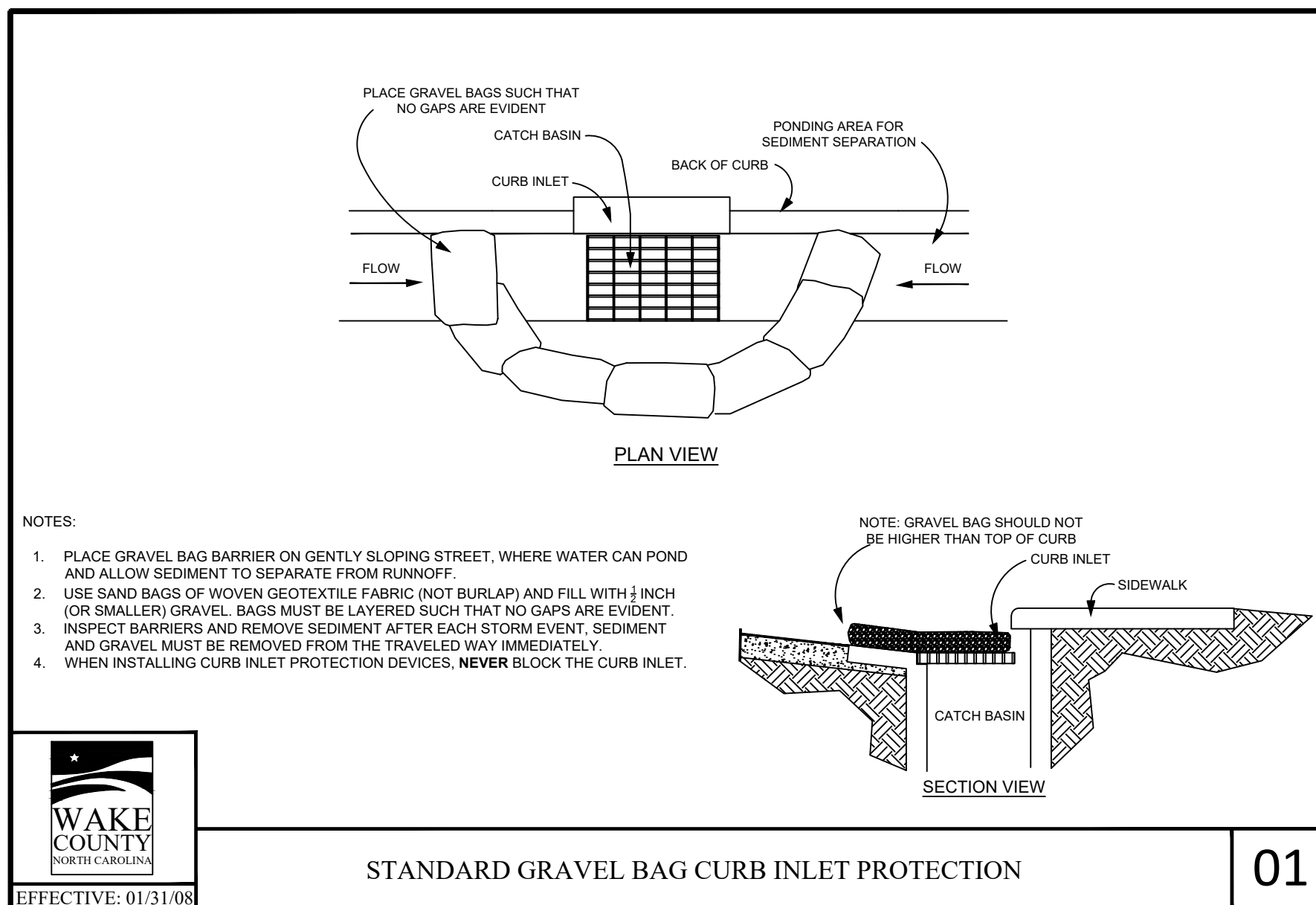
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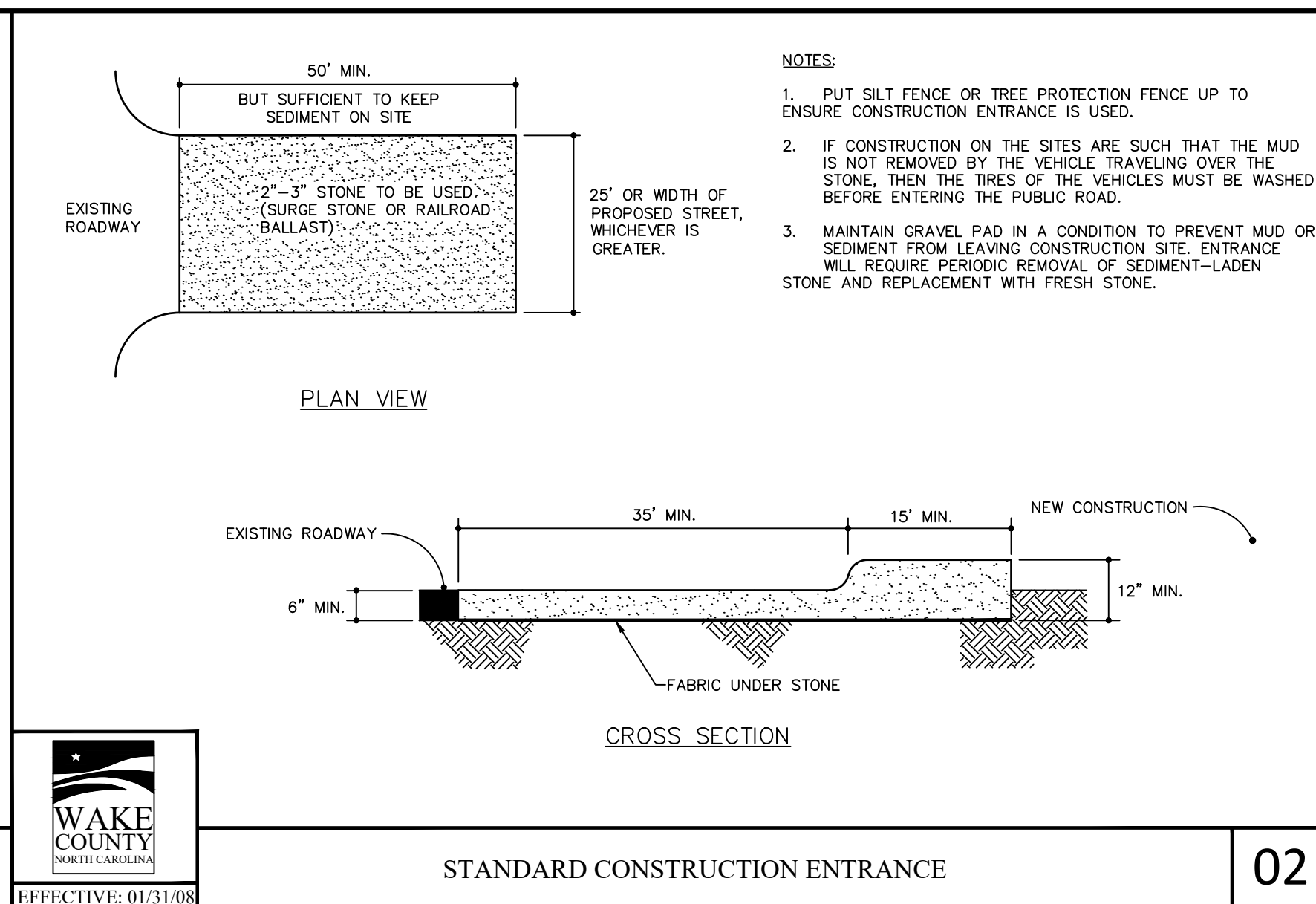
NPDES PLAN

JOB NUMBER: R180115
CHECKED BY: JK
DRAWN BY: GE, RC
DATE: 03-03-2025
SHEET TITLE:
CE130
SHEET NO.:



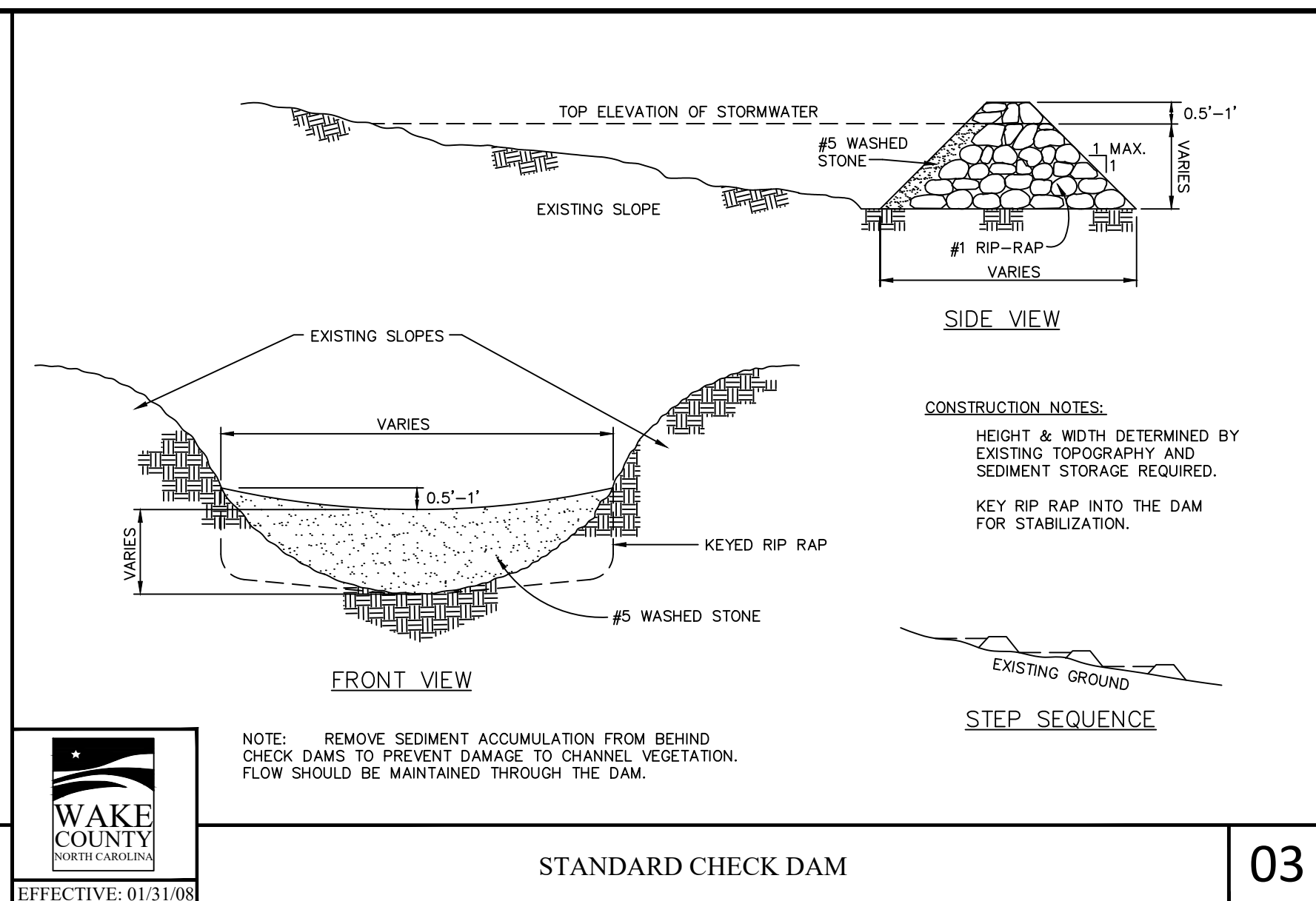
STANDARD GRAVEL BAG CURB INLET PROTECTION

01



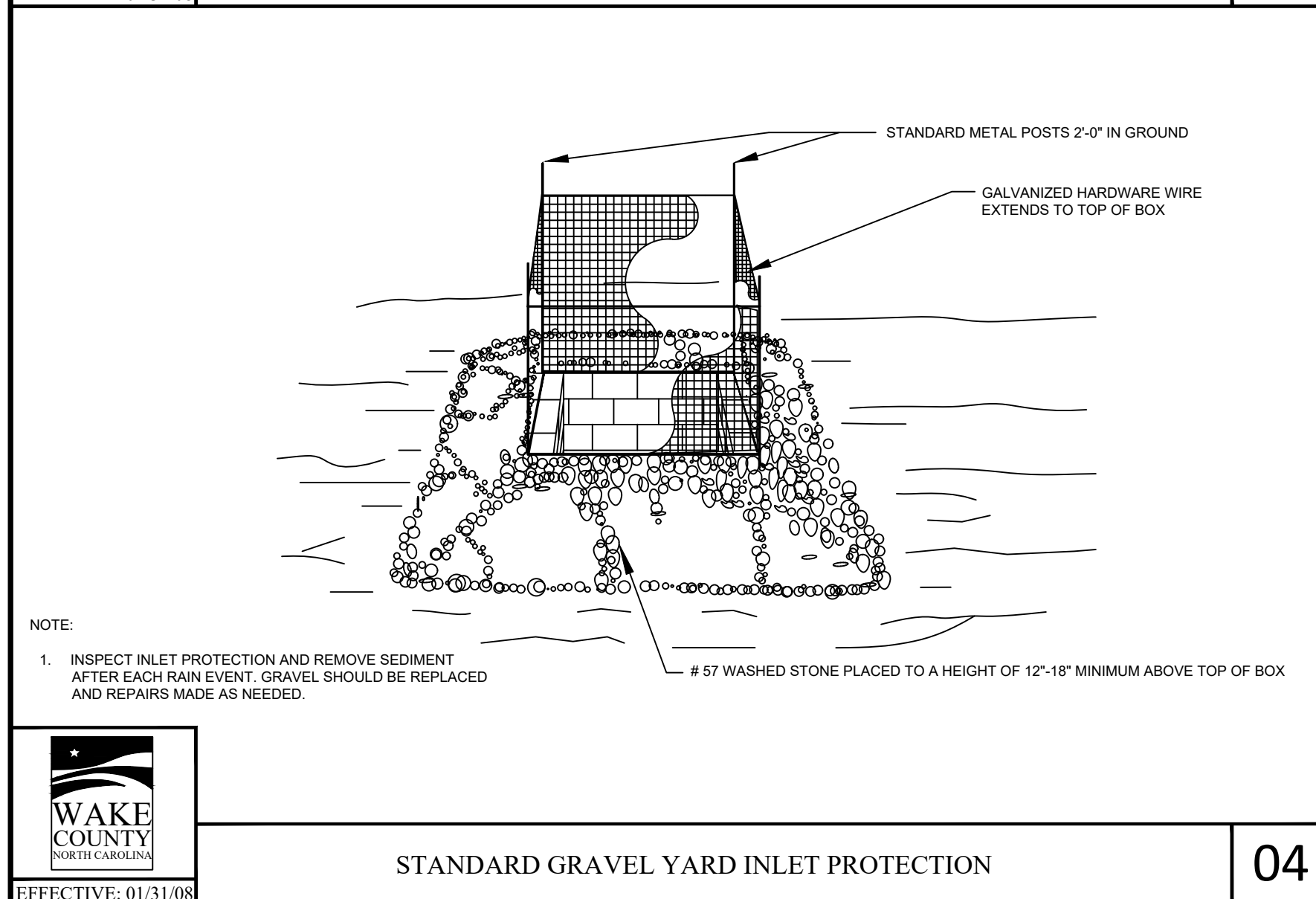
STANDARD CONSTRUCTION ENTRANCE

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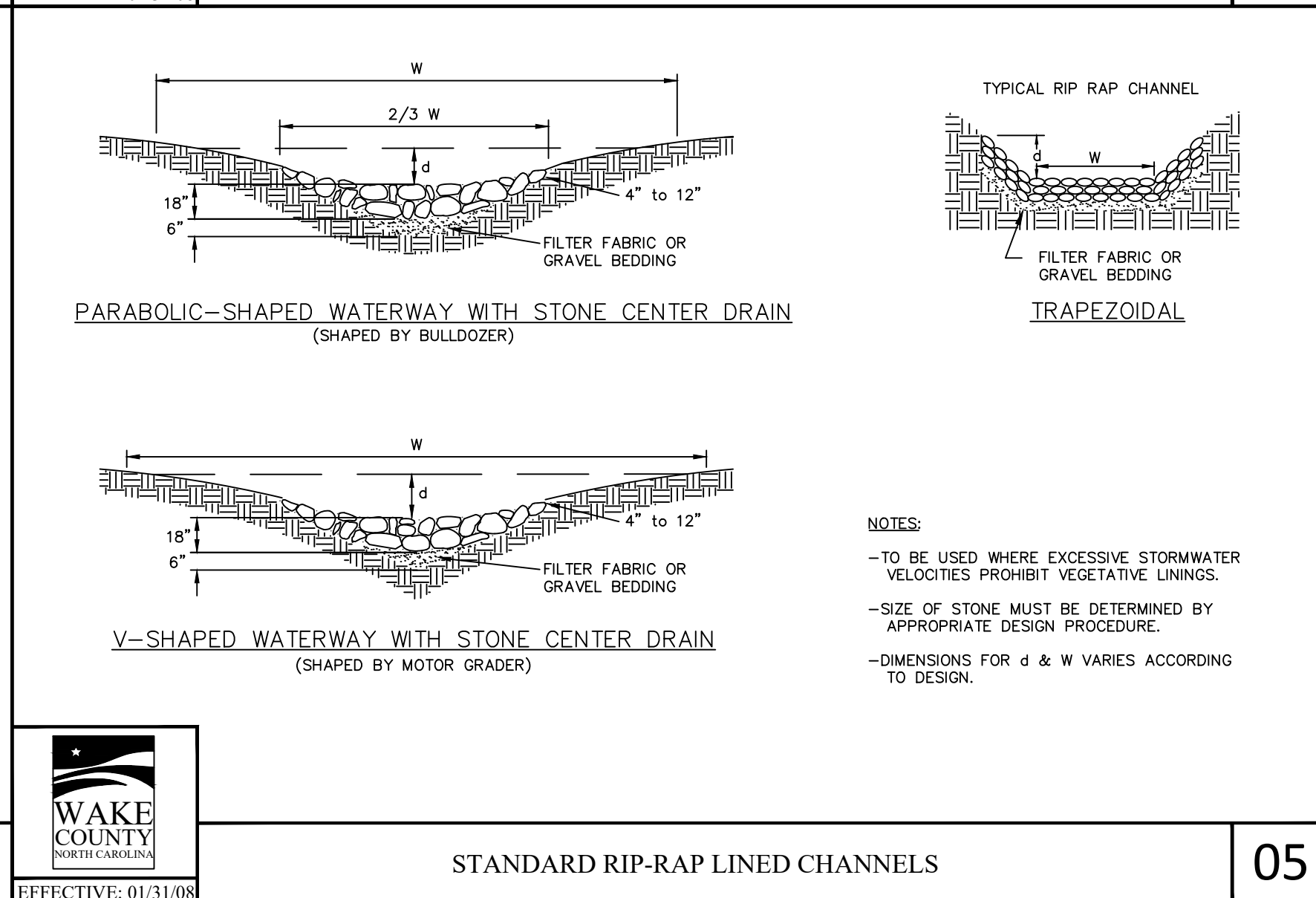
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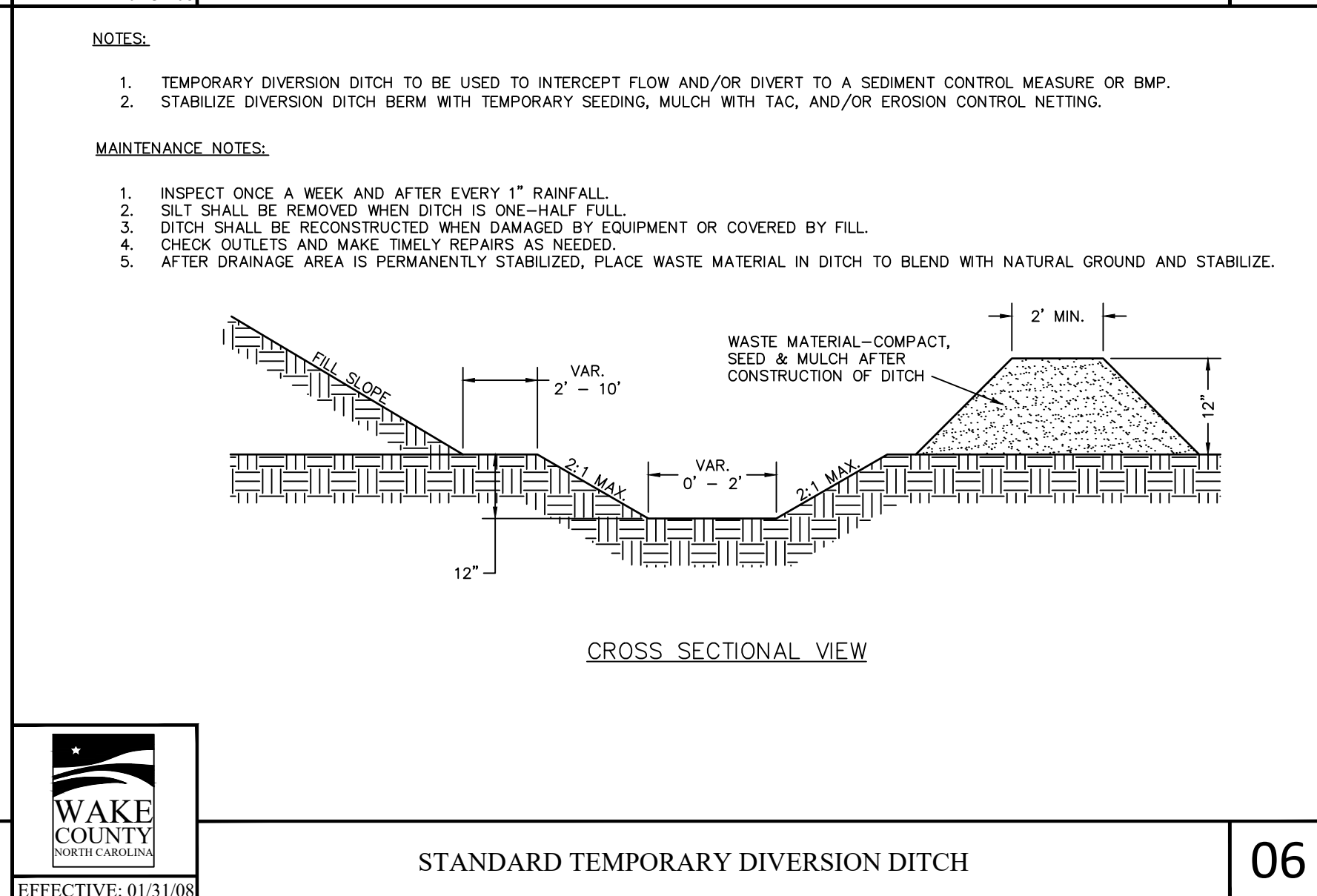
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04



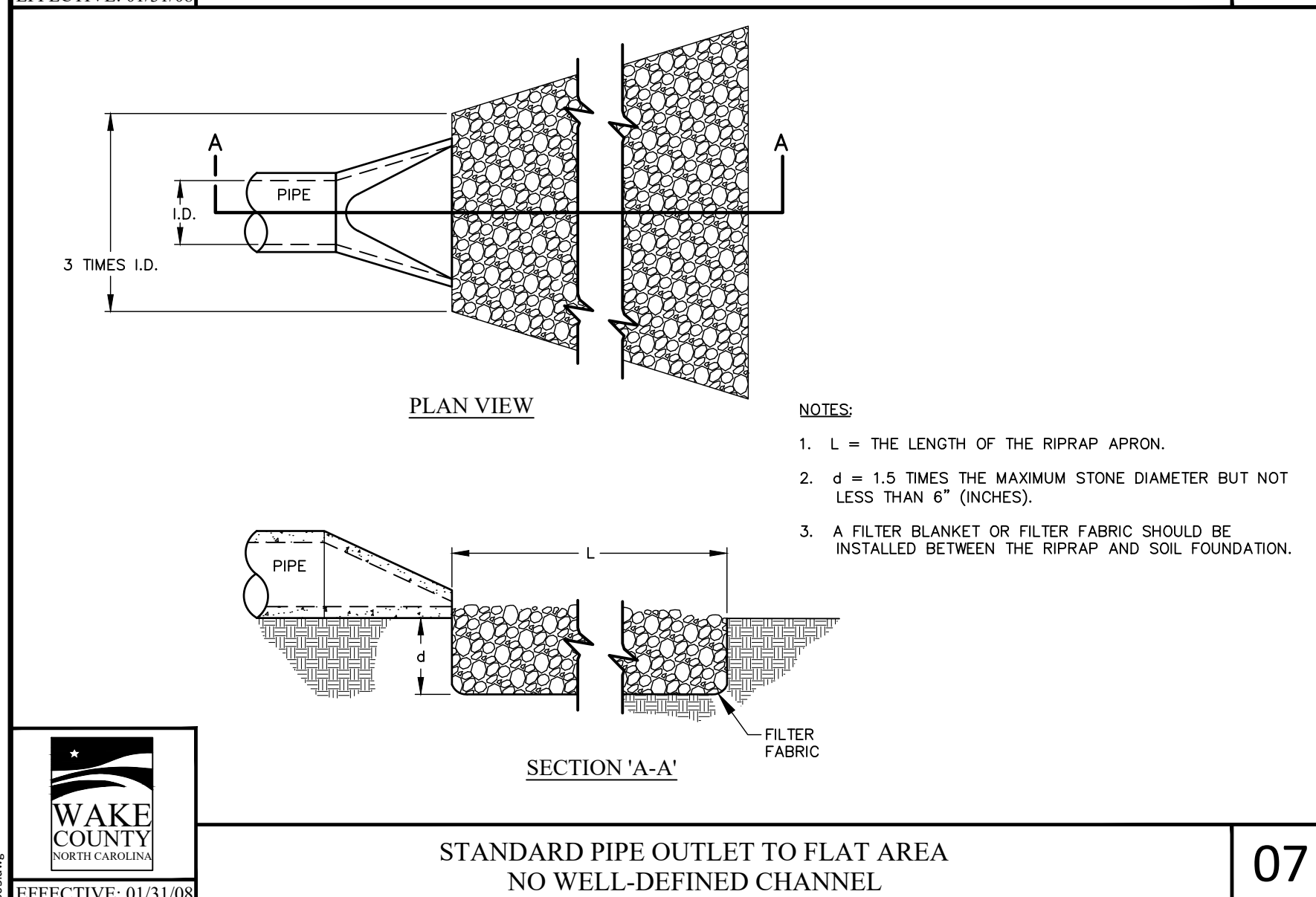
STANDARD RIP-RAP LINED CHANNELS

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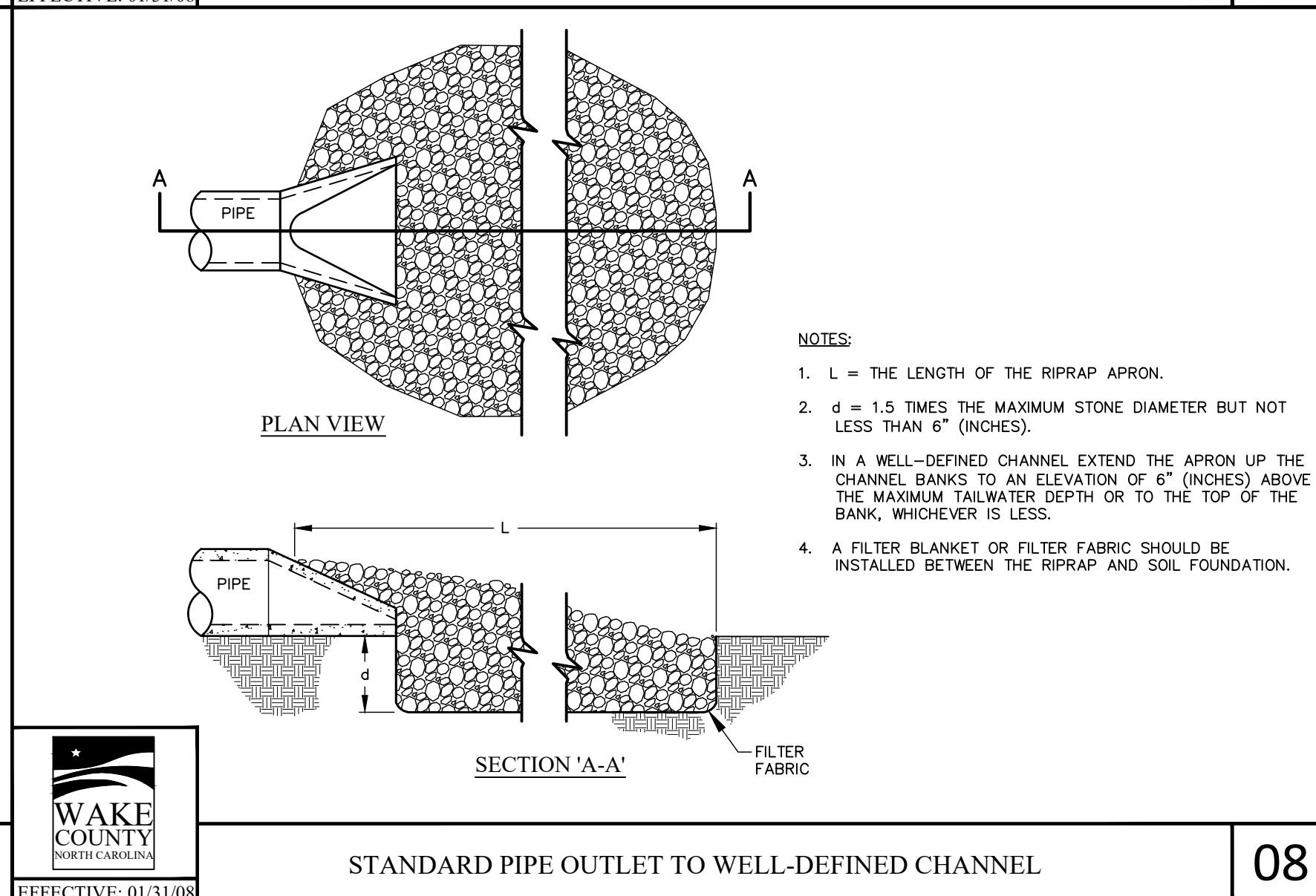
STANDARD TEMPORARY DIVERSION DITCH

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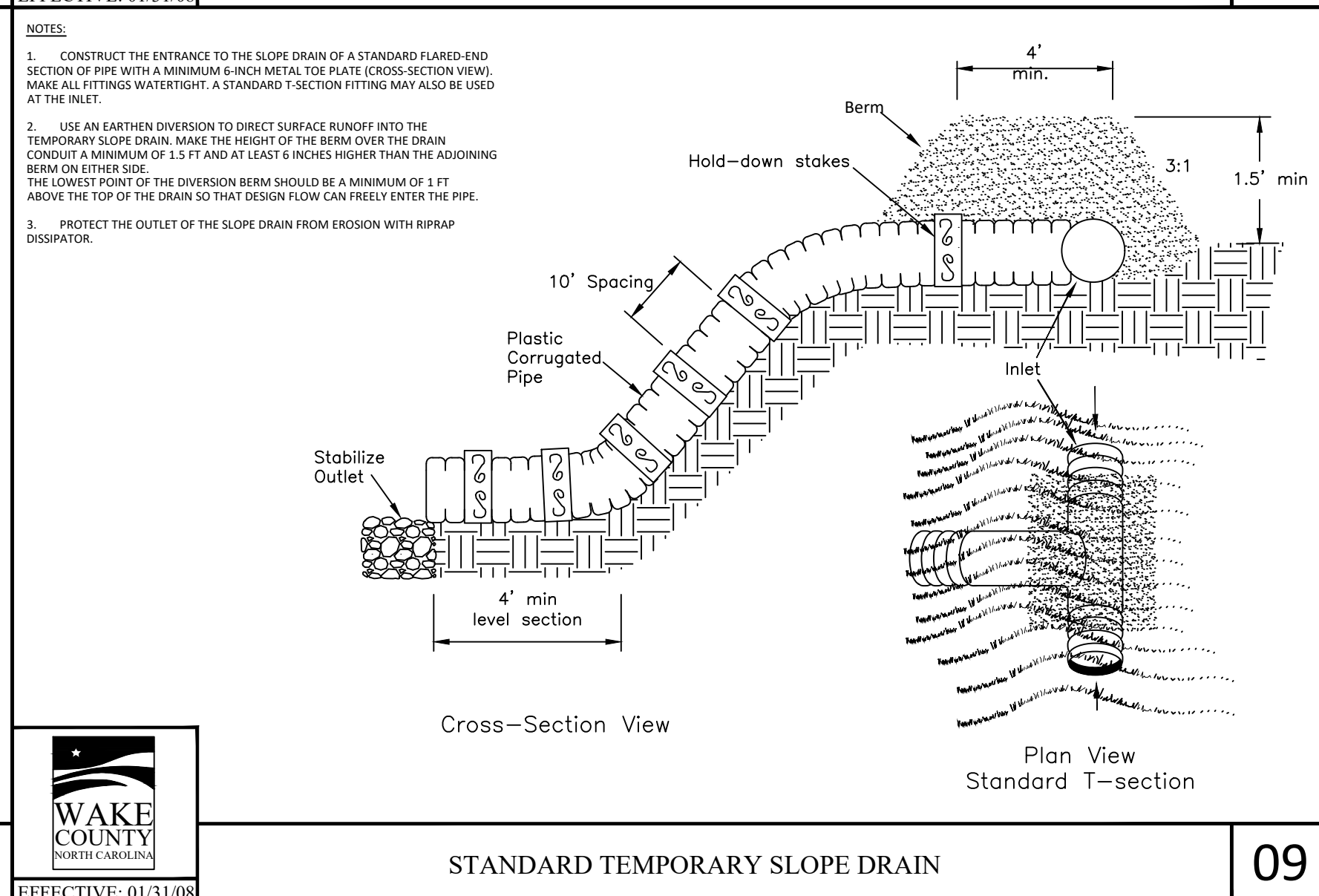
STANDARD PIPE OUTLET TO FLAT AREA NO WELL-DEFINED CHANNEL

07



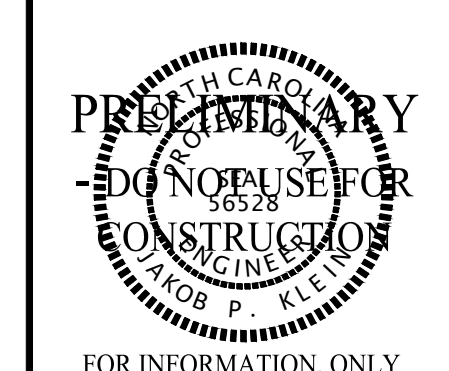
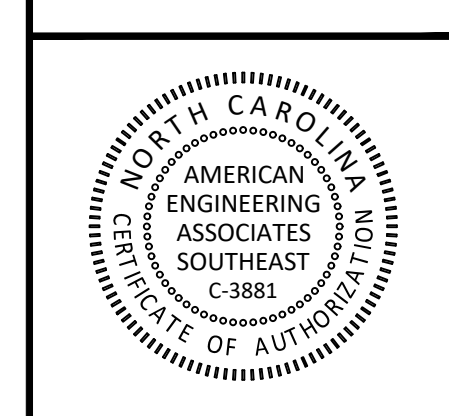
STANDARD PIPE OUTLET TO WELL-DEFINED CHANNEL

08



STANDARD TEMPORARY SLOPE DRAIN

09



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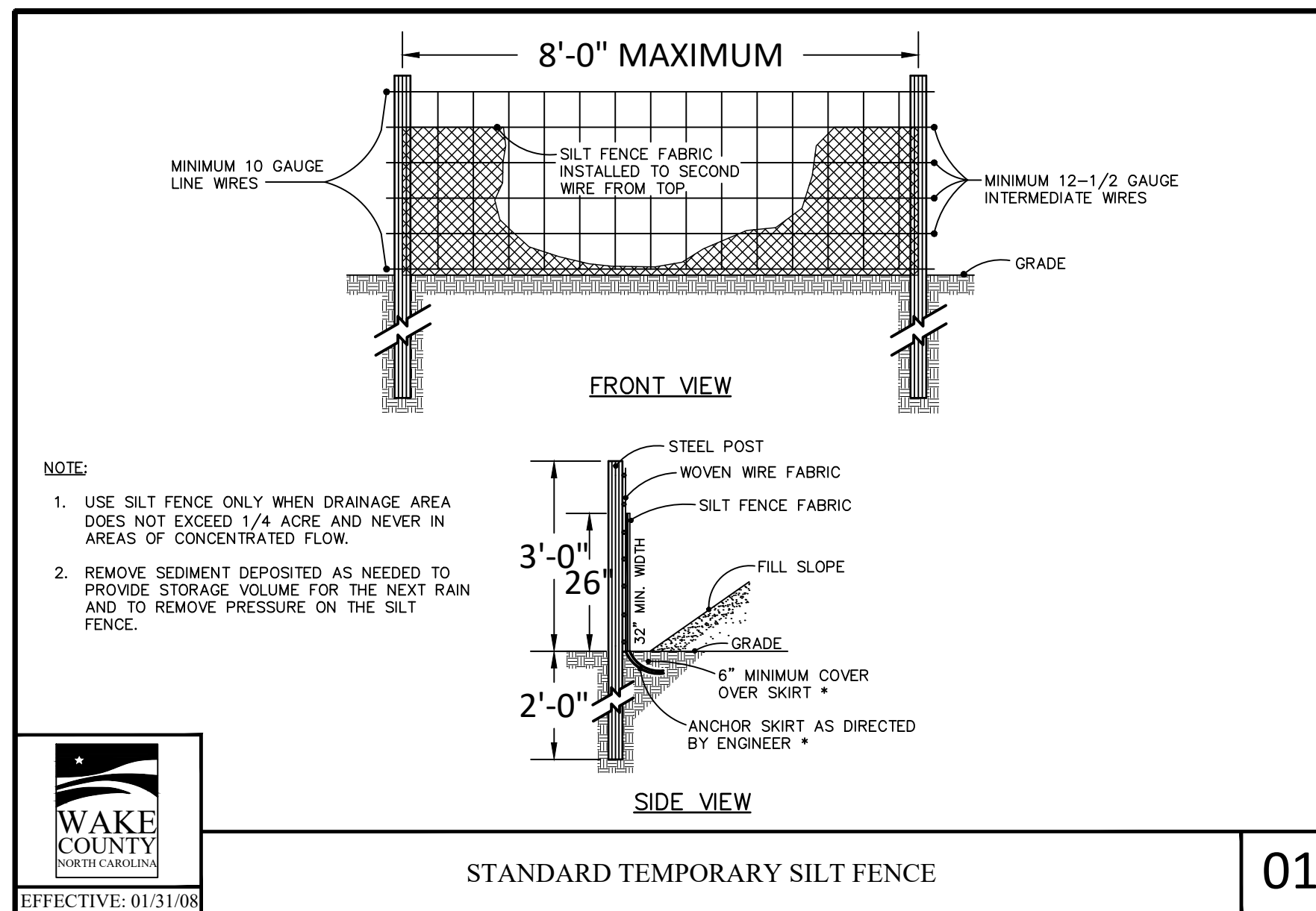
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DOCUMENTS
CID-25-01
TOWN OF ROLESVILLE,
WAKE COUNTY, NC

JOB NUMBER: R180115
CHECKED BY: JK
DRAWN BY: GE, RC
DATE: 03-03-2025
SHEET TITLE:

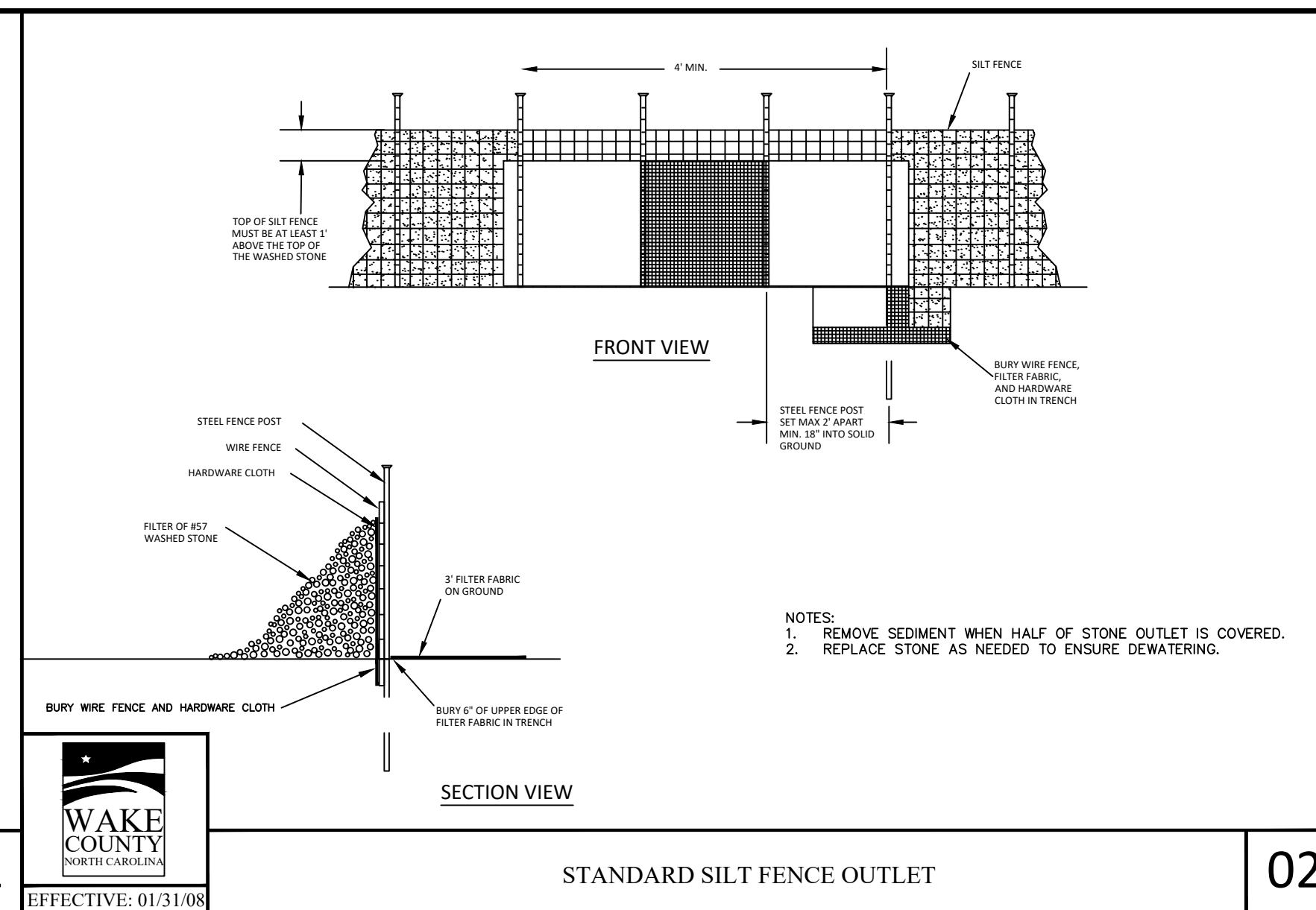
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SHEET NO.:
CE501





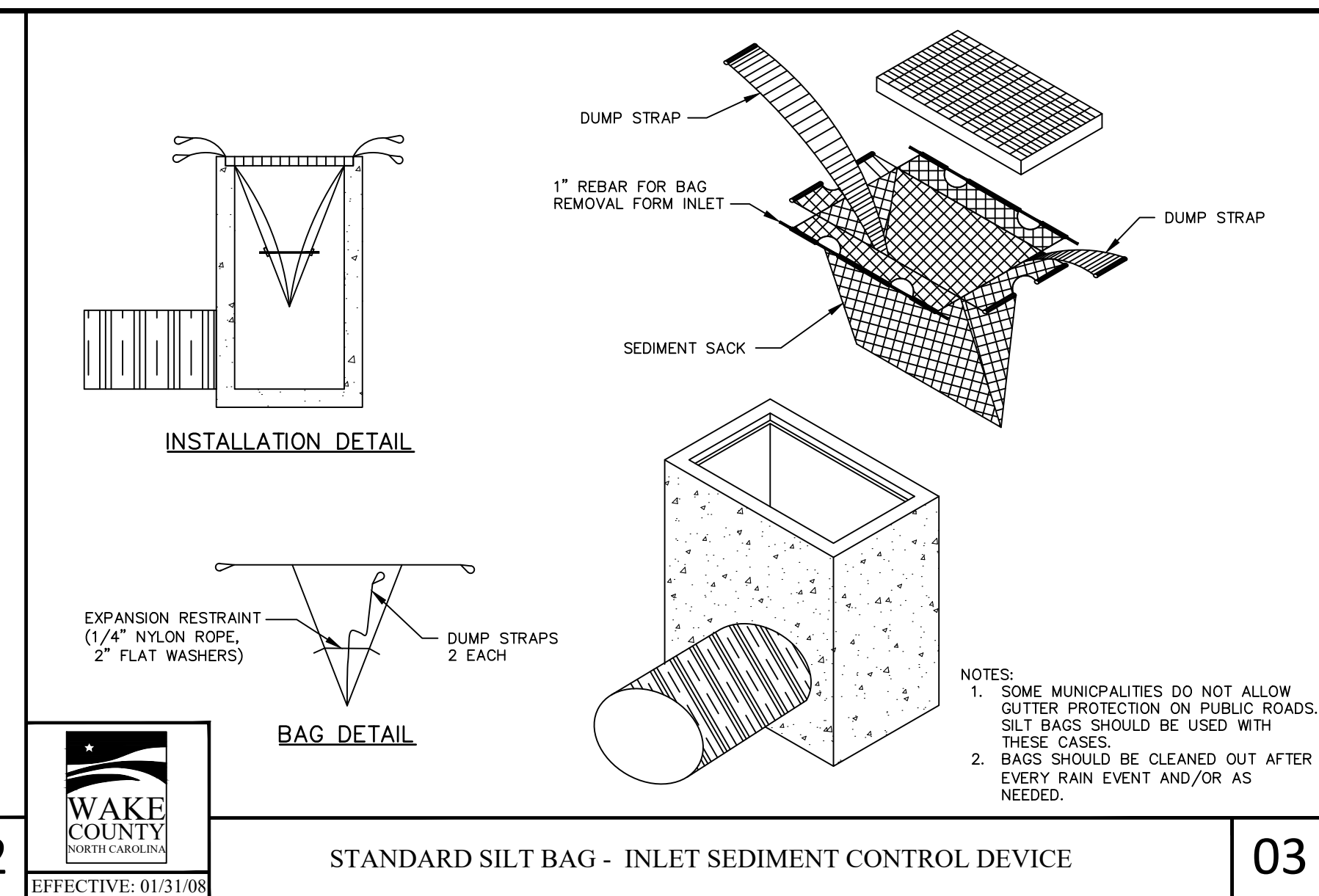
STANDARD TEMPORARY SILT FENCE

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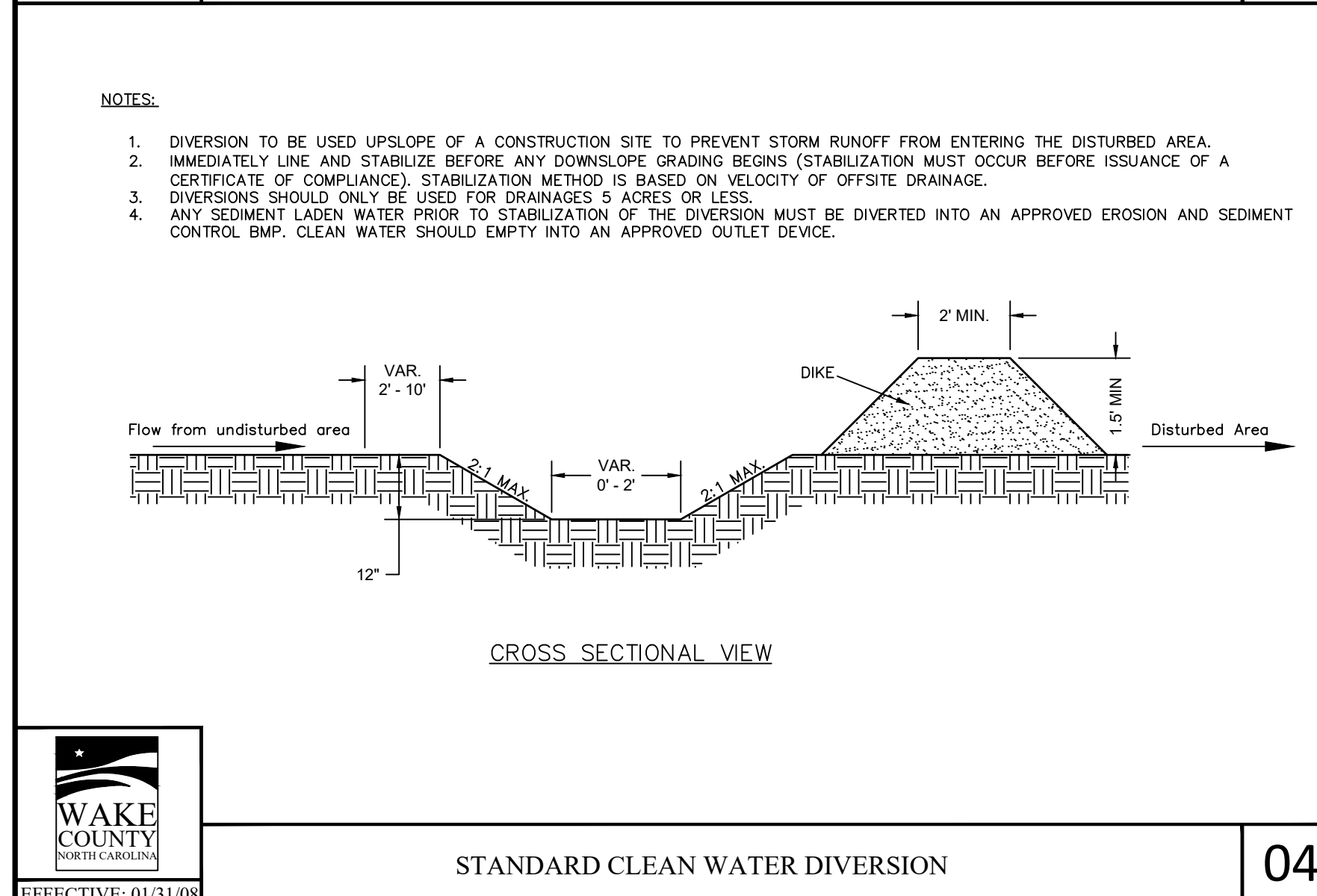
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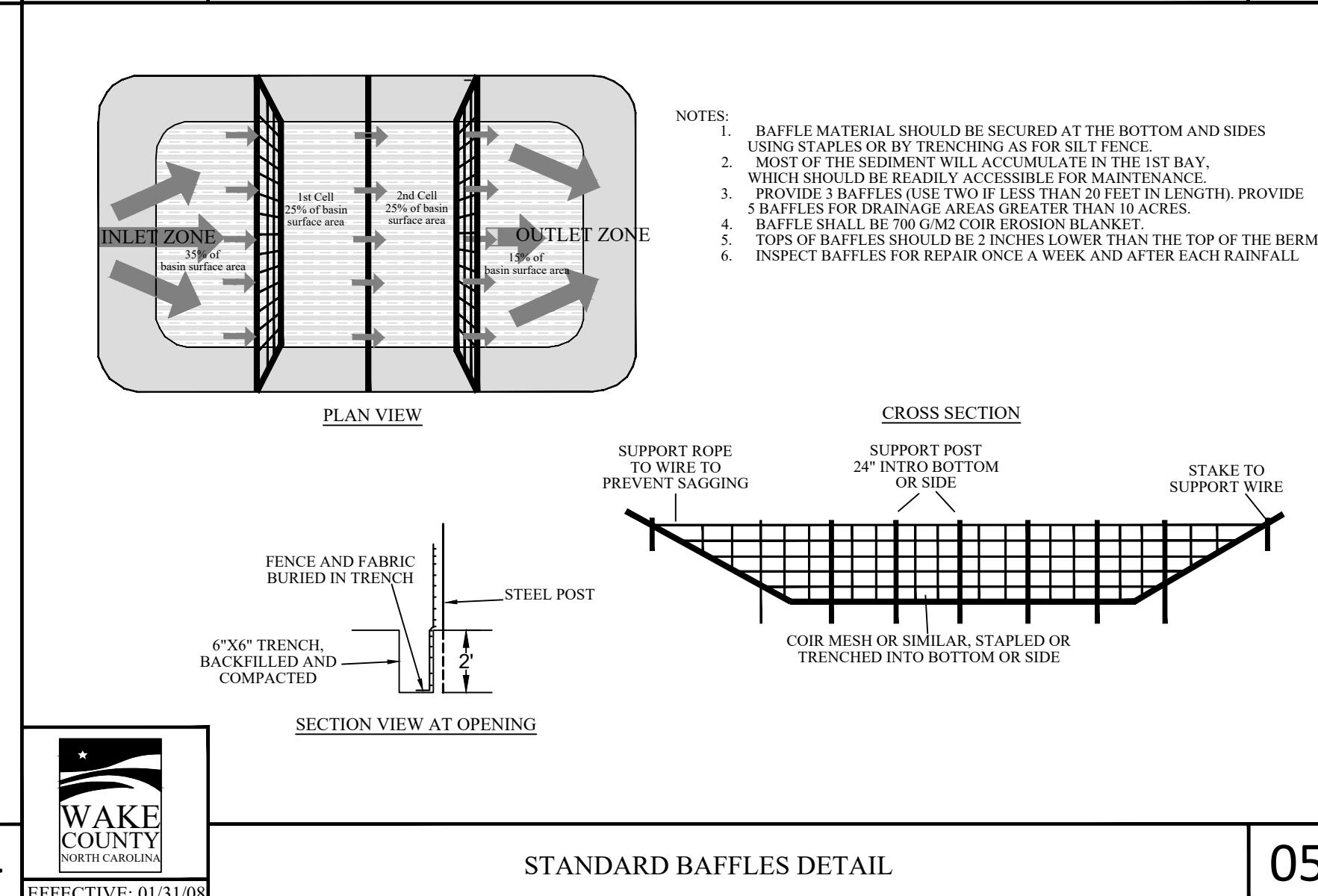
STANDARD SILT BAG - INLET SEDIMENT CONTROL DEVICE

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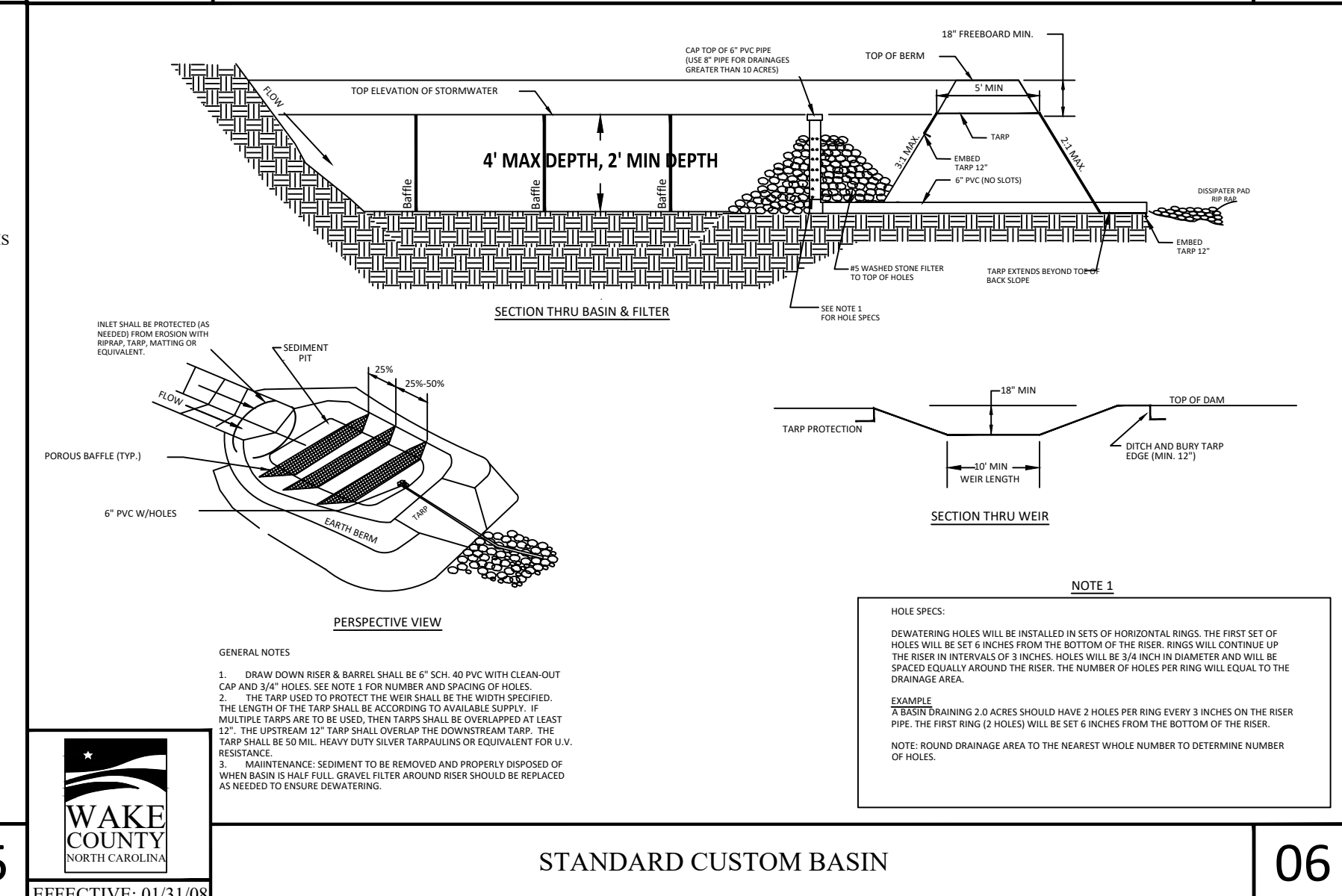
STANDARD CLEAN WATER DIVERSION

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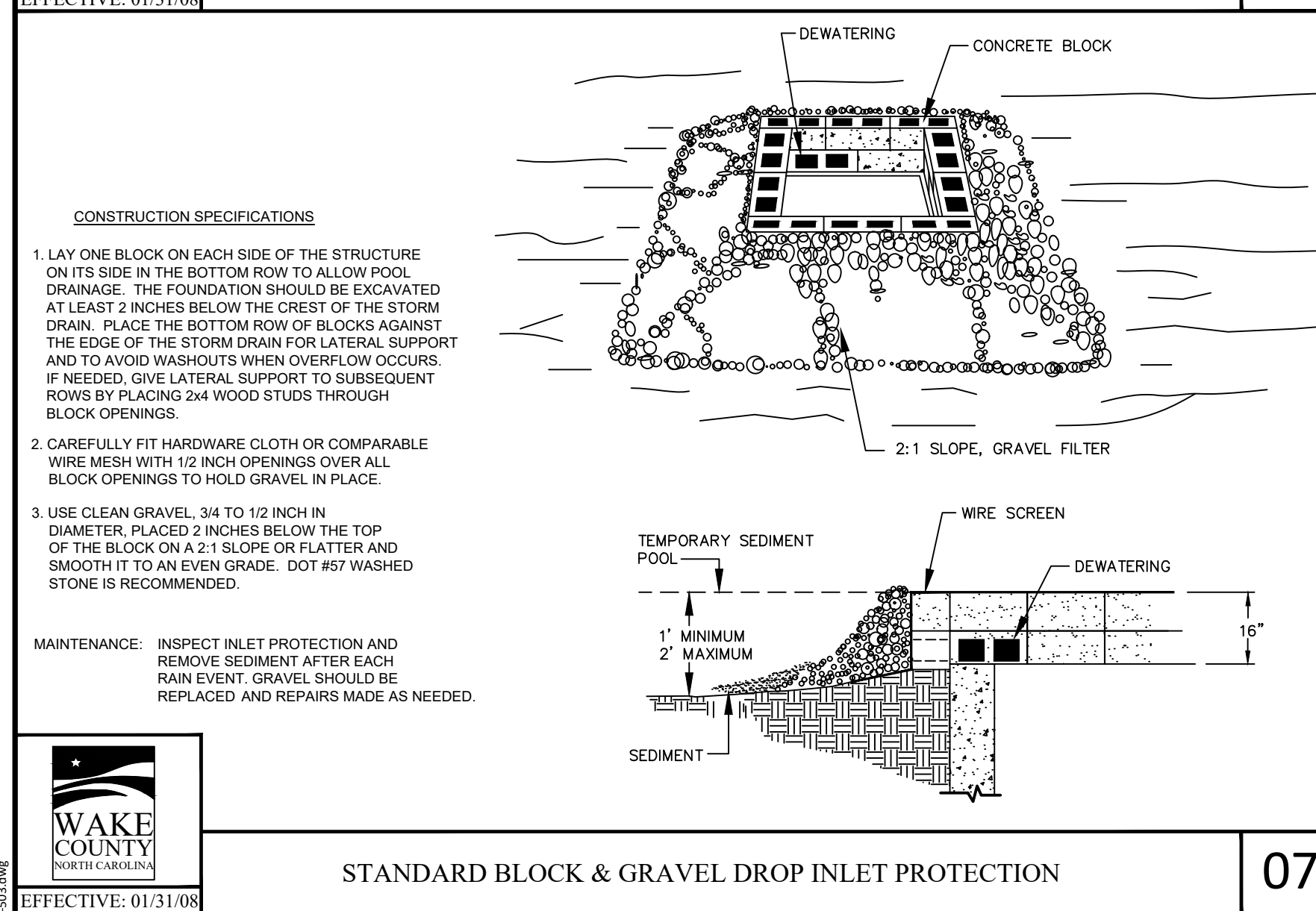
STANDARD BAFFLES DETAIL

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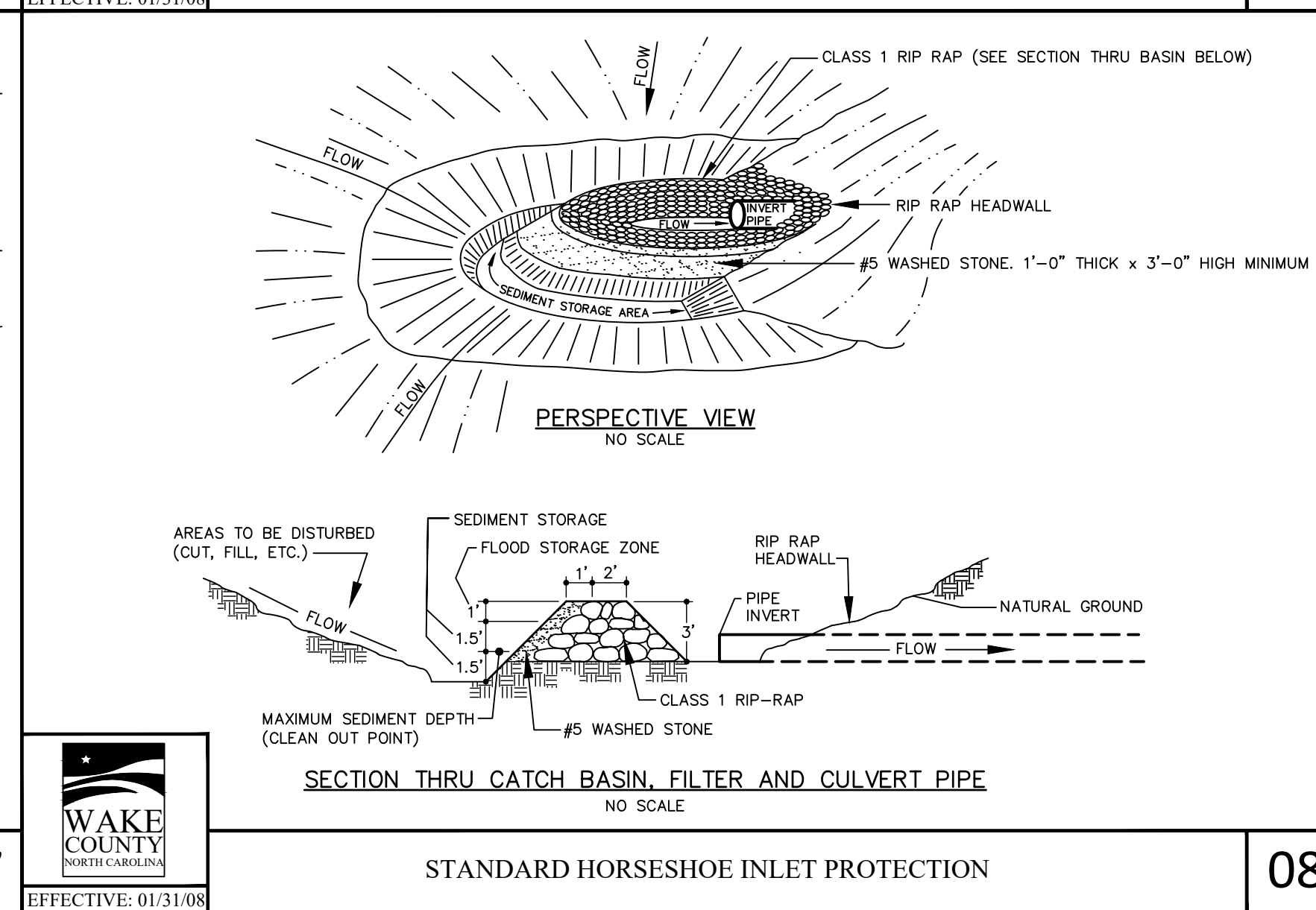
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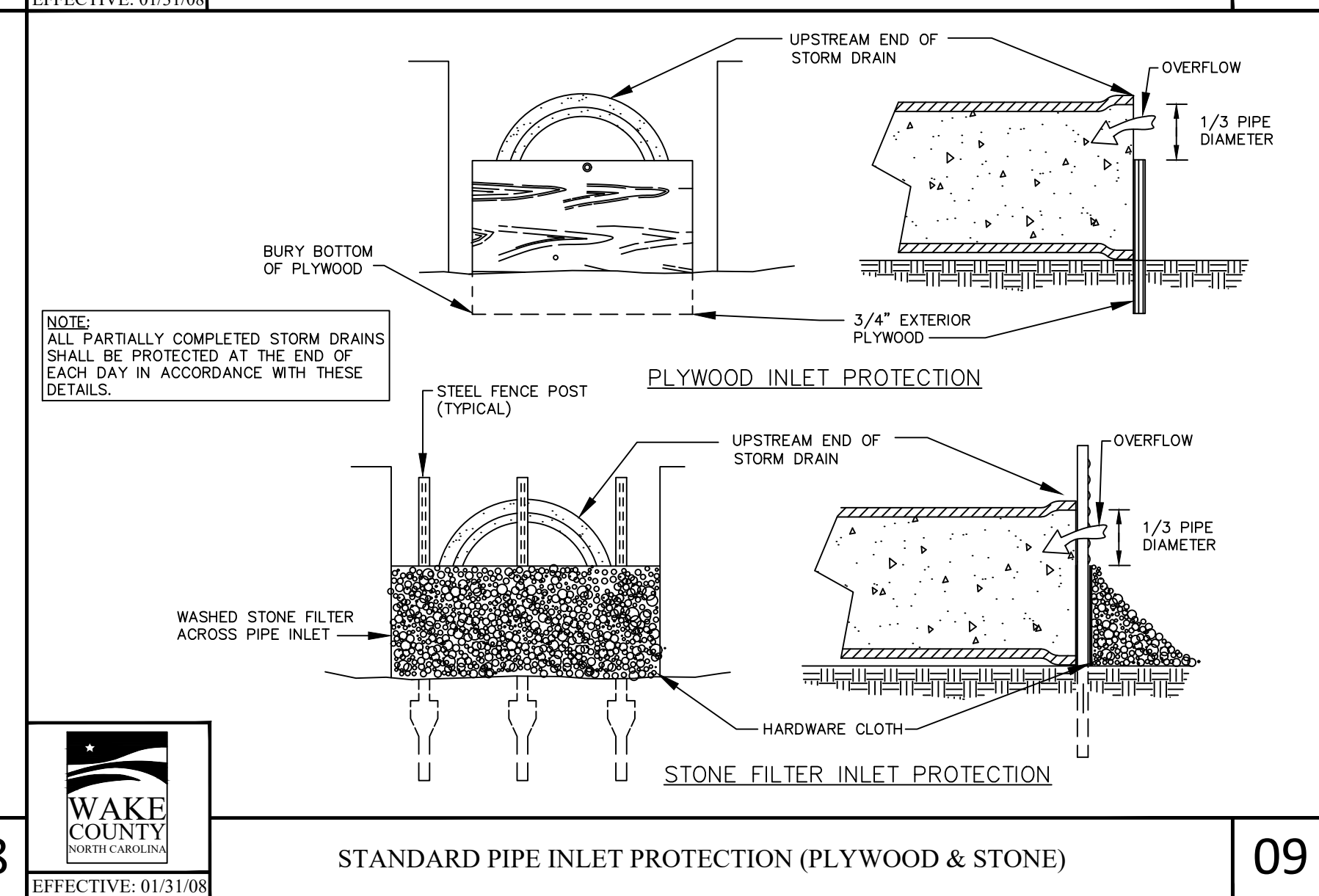
STANDARD BLOCK & GRAVEL DROP INLET PROTECTION

07



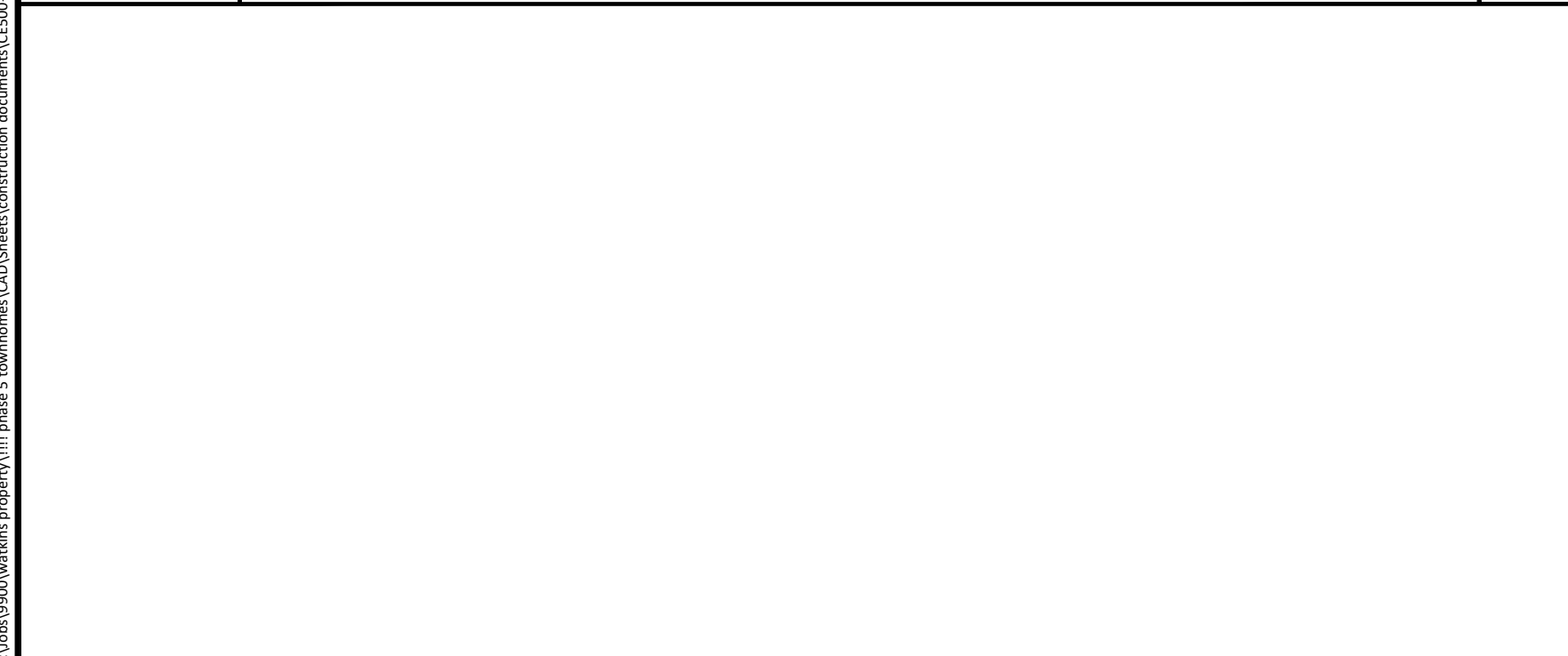
STANDARD HORSESHOE INLET PROTECTION

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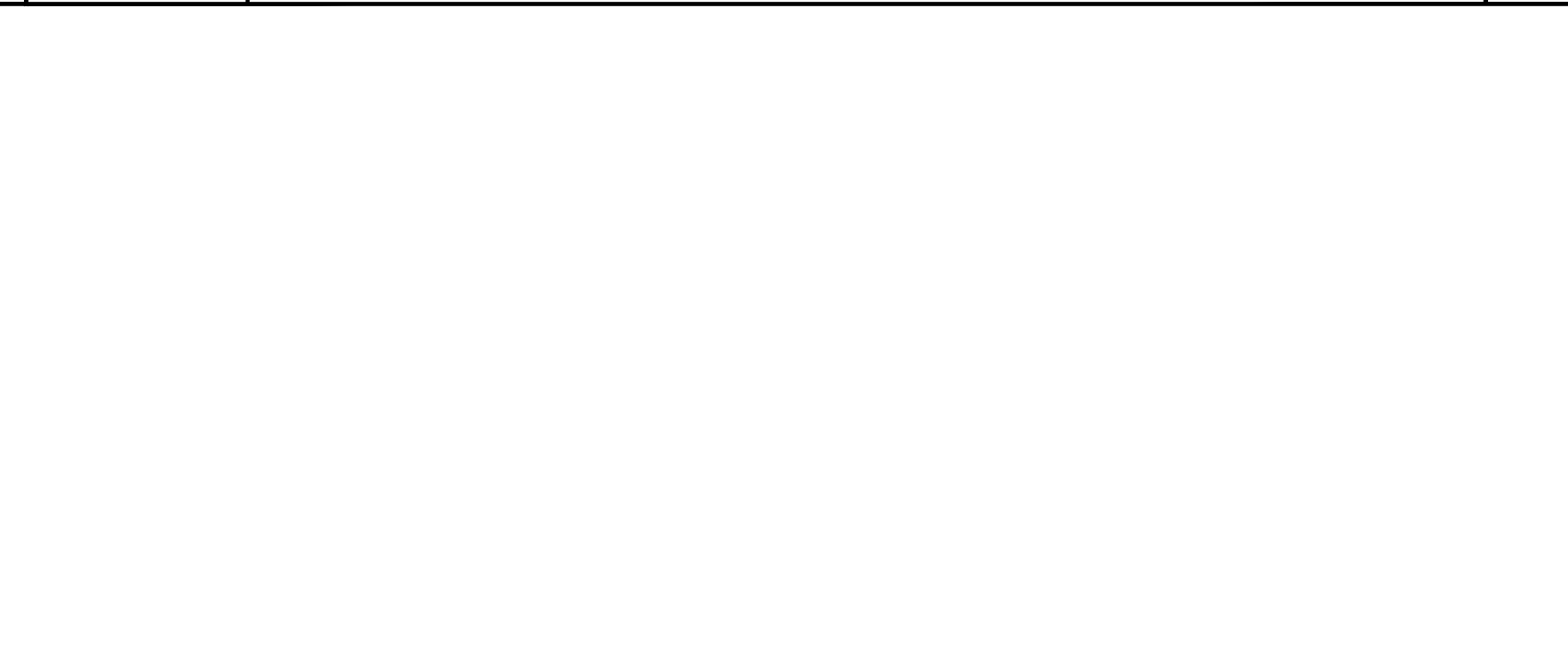
STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)

09



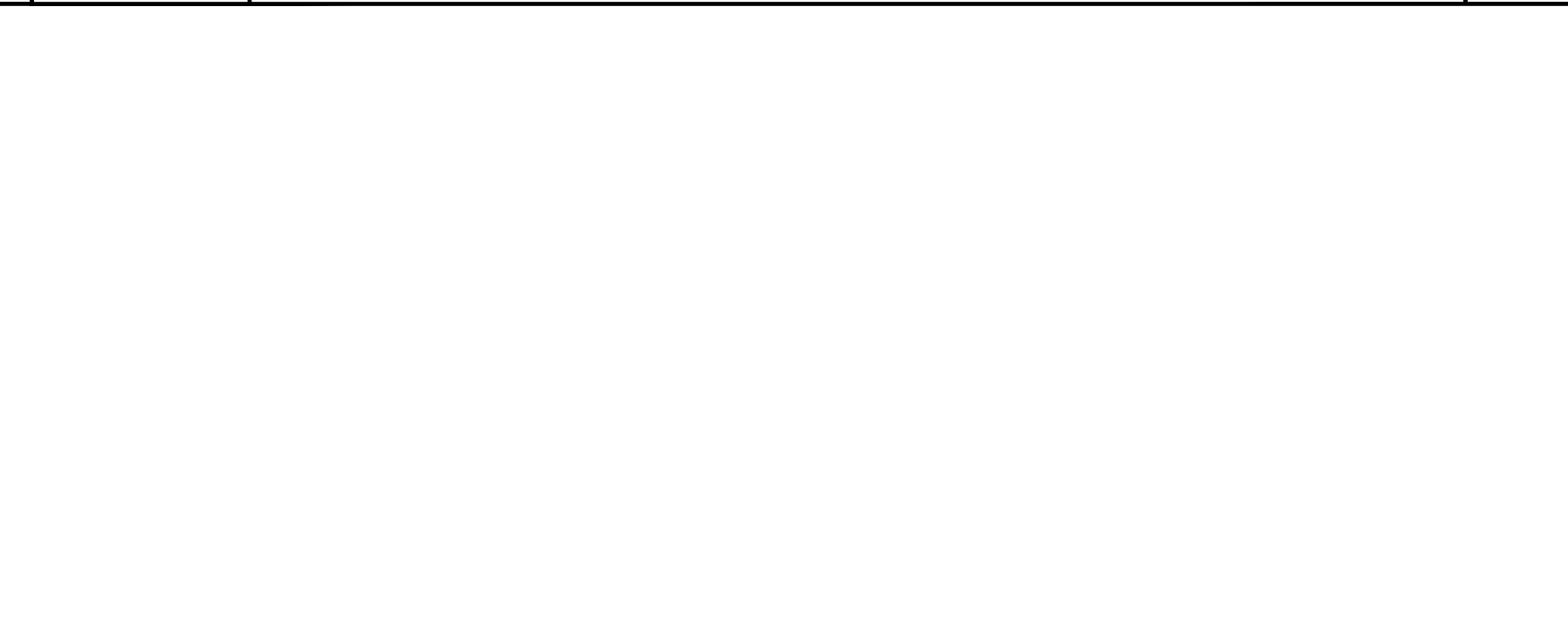
STANDARD BLOCK & GRAVEL DROP INLET PROTECTION

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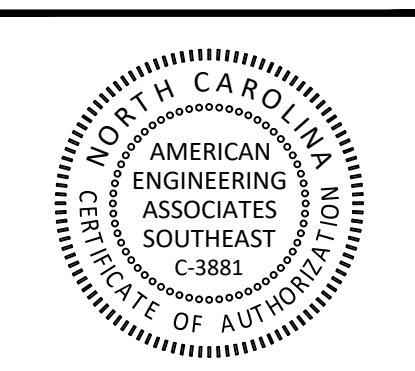
STANDARD HORSESHOE INLET PROTECTION

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STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)

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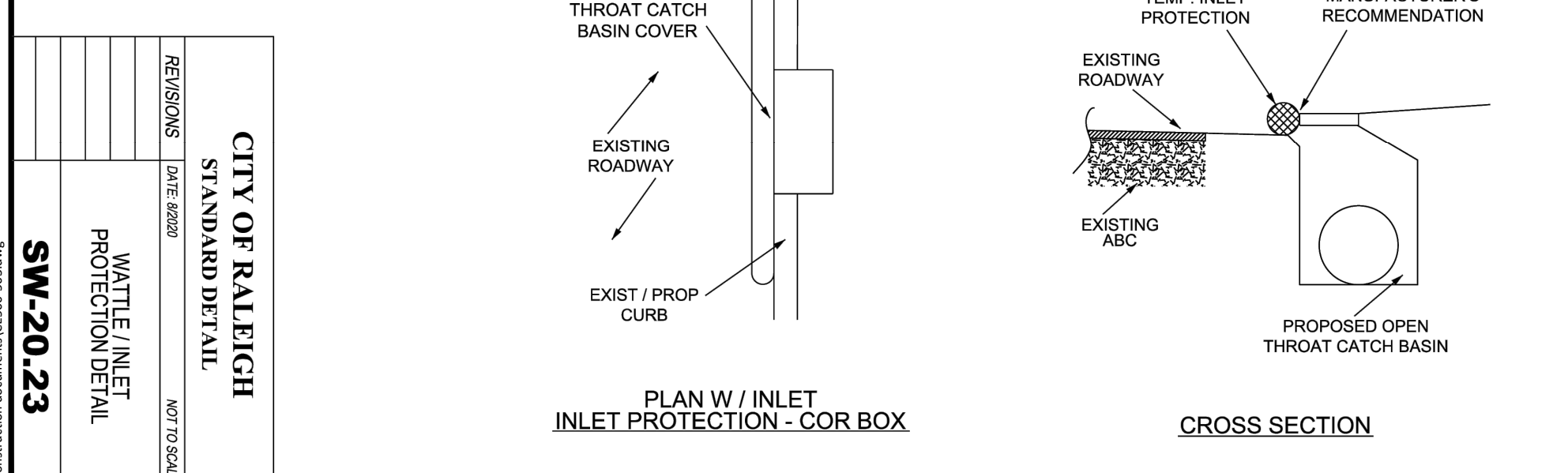
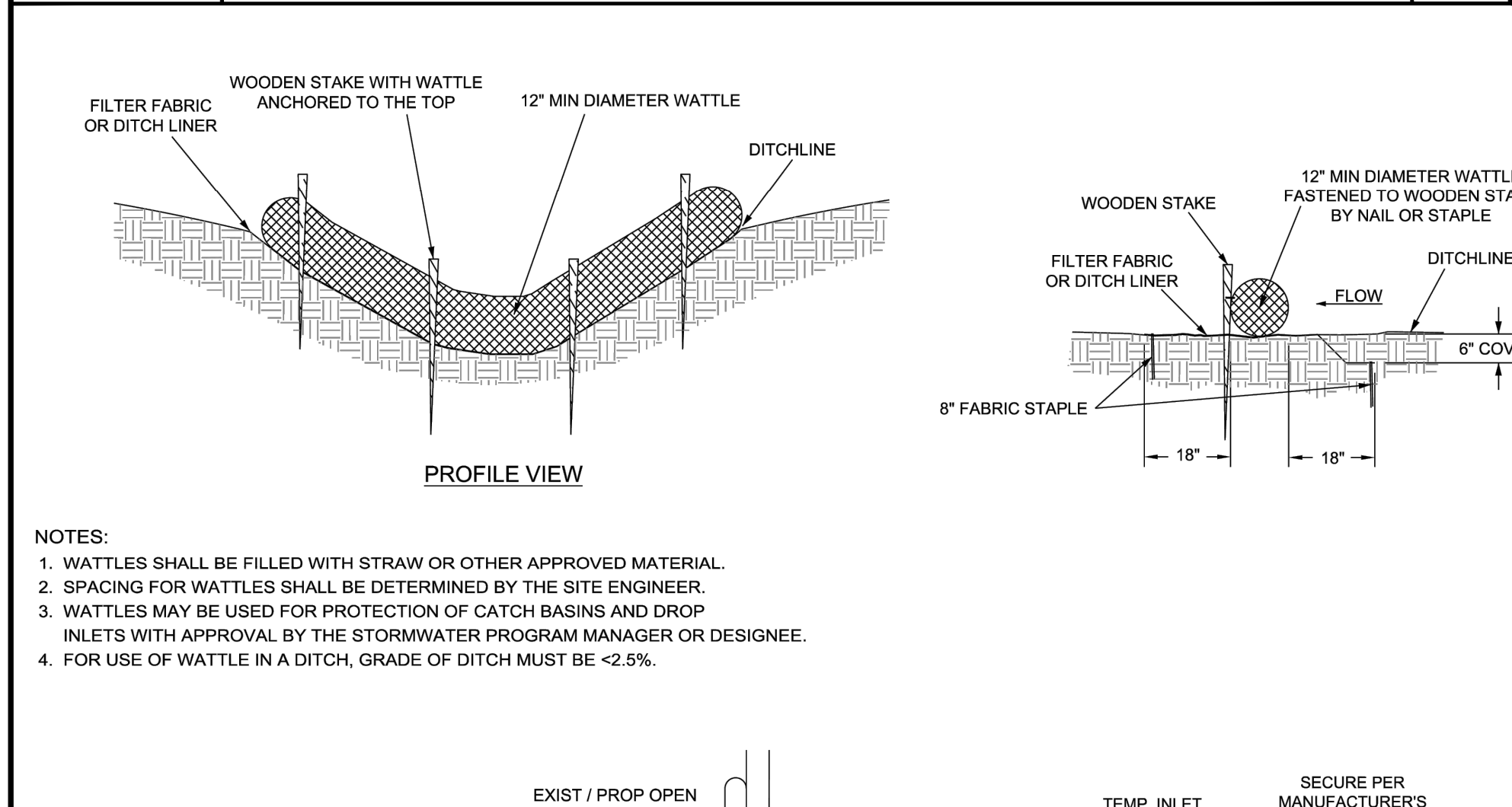
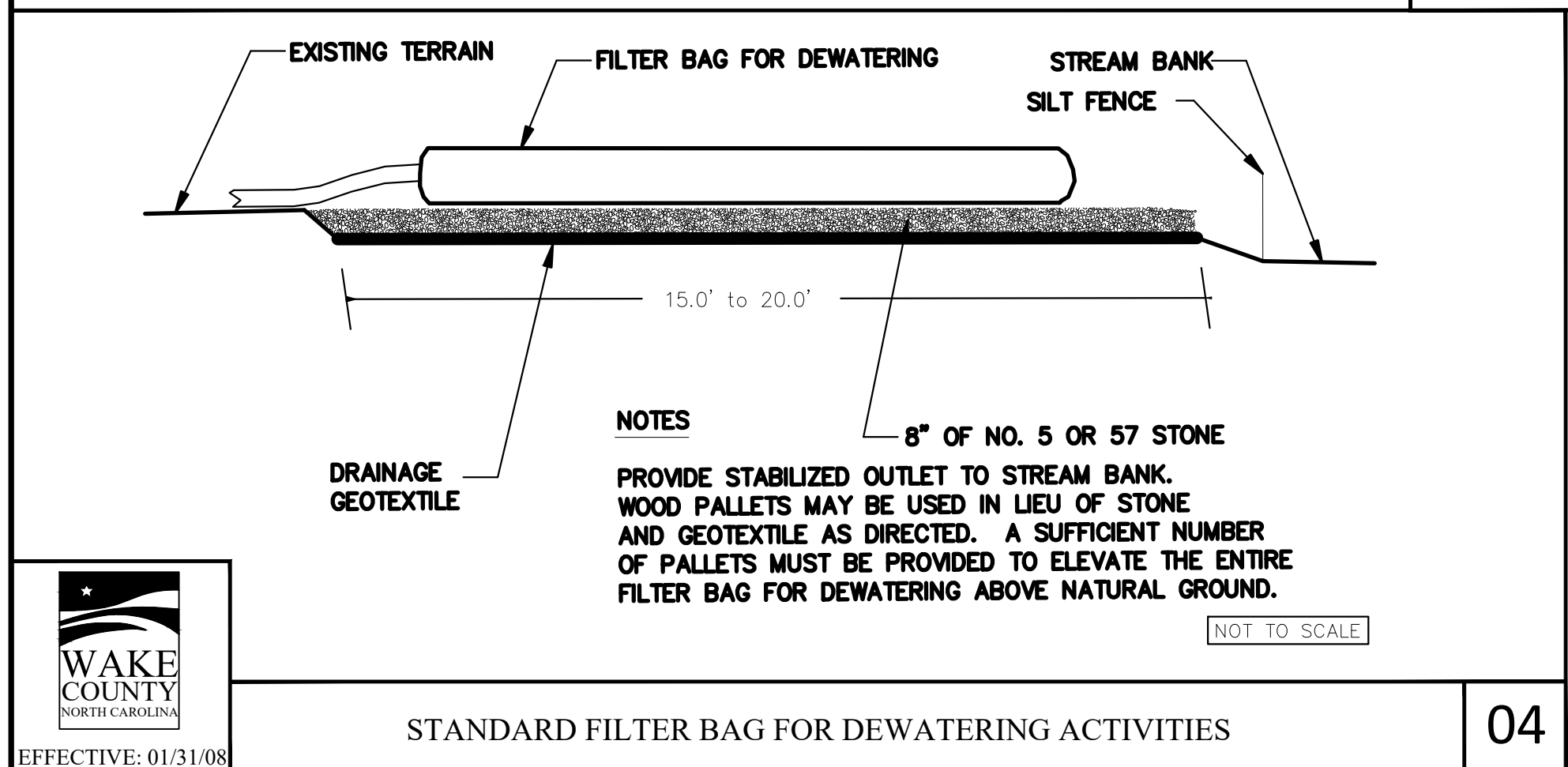
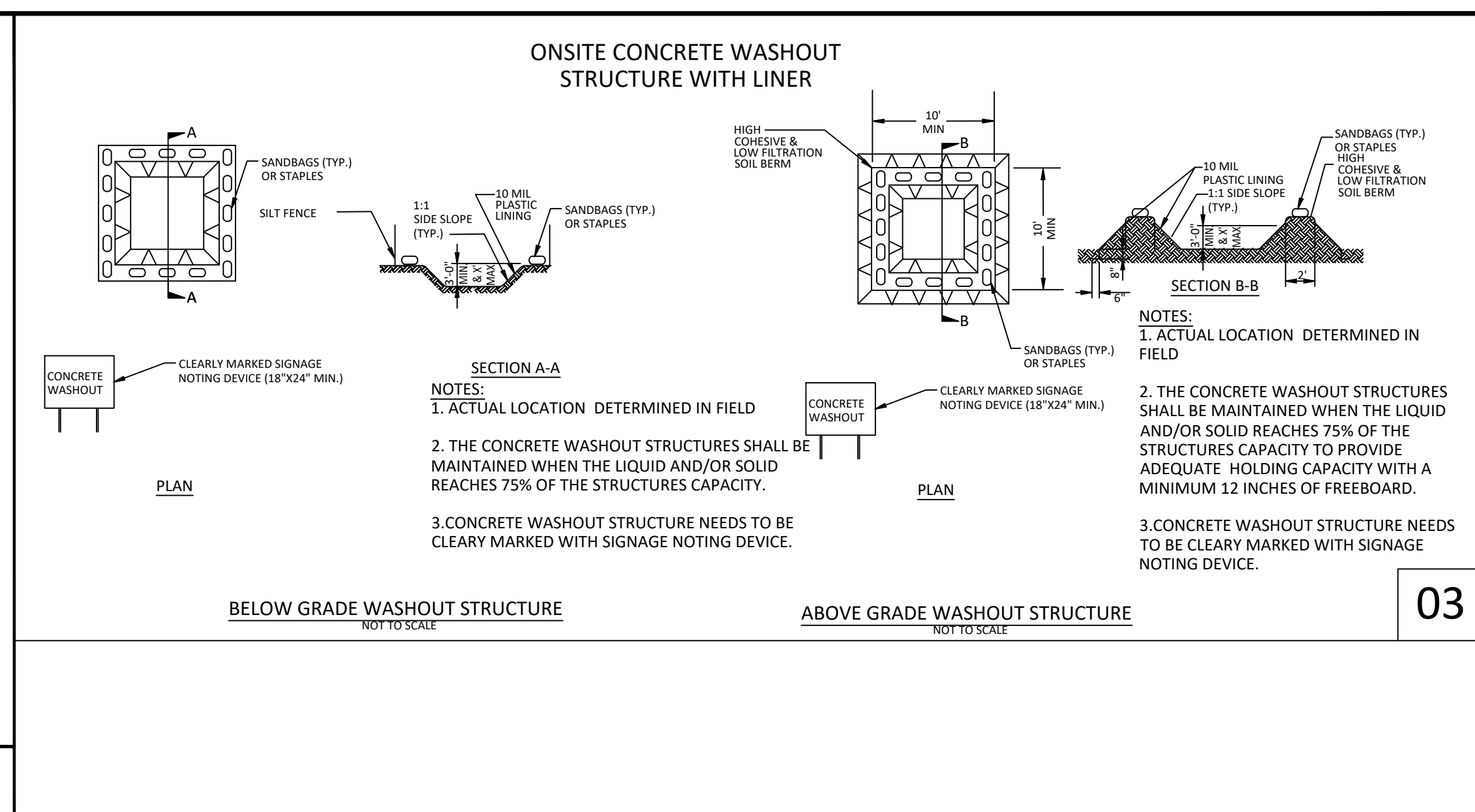
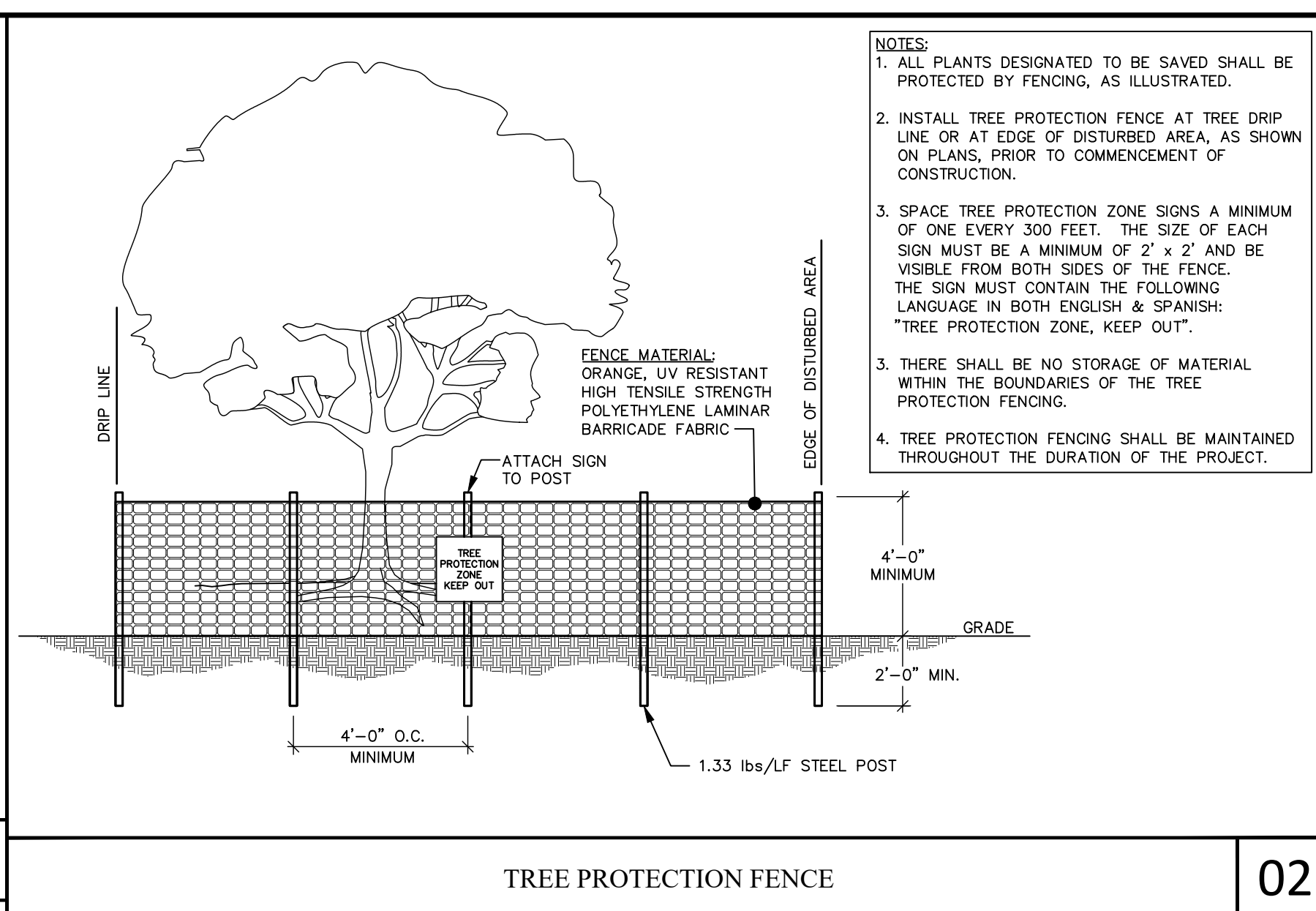
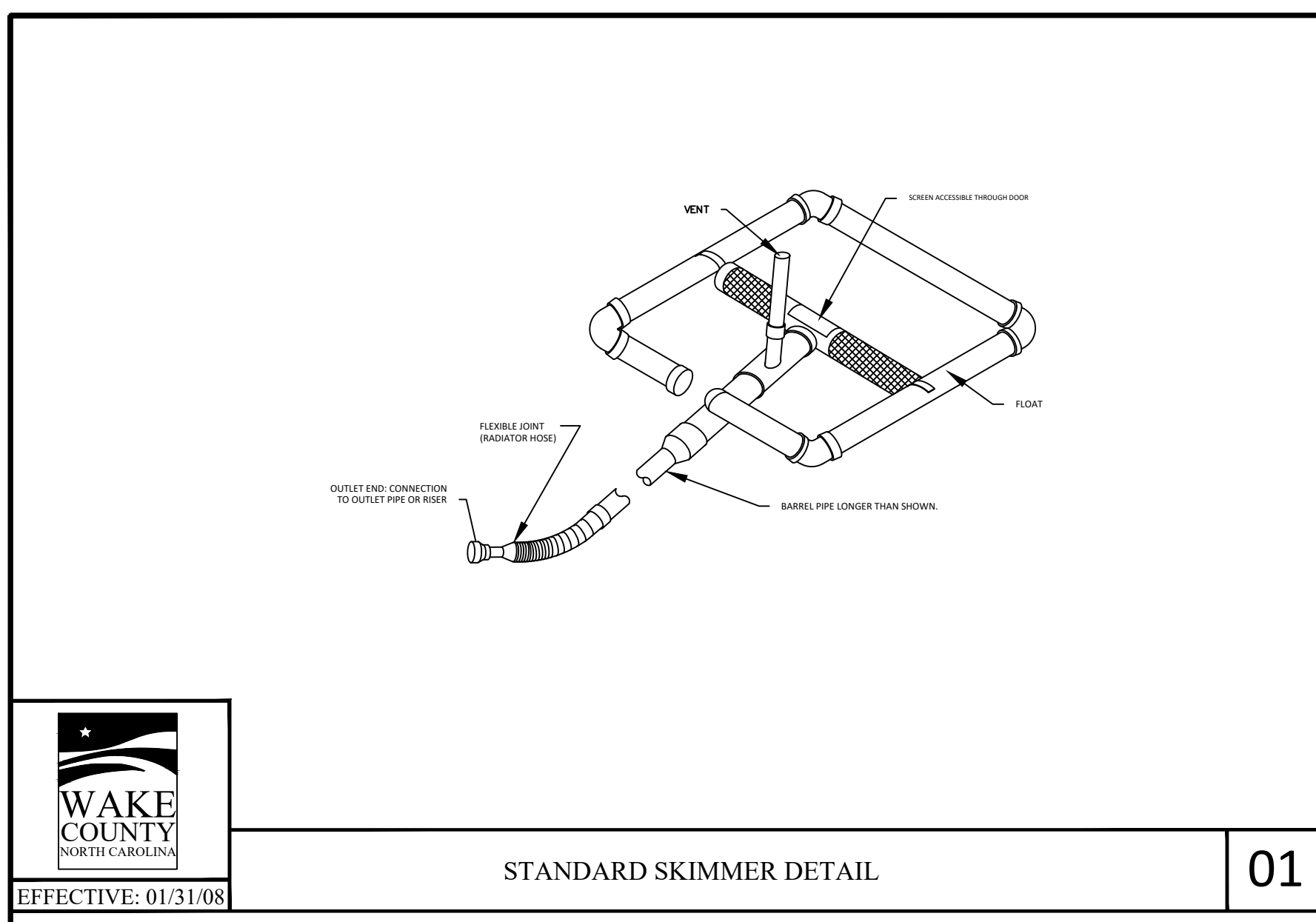
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SHEET TITLE:
ESC DETAILS
SHEET NO.:
CE502





REVISIONS	DATE	BY	DESCRIPTION
1	01/31/08	SW-20.23	WATTLE/INLET PROTECTION DETAIL

CITY OF RALEIGH
STANDARD DETAIL

SW-20.23

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

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

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

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

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

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

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

2. **Additional Documentation to be Kept on Site**
 In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:
 (a) This General Permit as well as the Certificate of Coverage, after it is received.
 (b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

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

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

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

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

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 3(b)-(c) above	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(i)(7)]	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue, and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. [40 CFR 122.41(i)(6)]. Division staff may waive the requirement for a written report on a case-by-case basis.

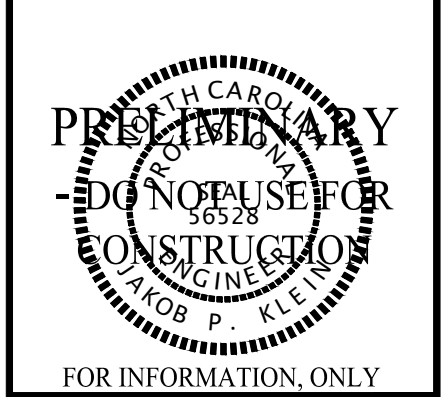
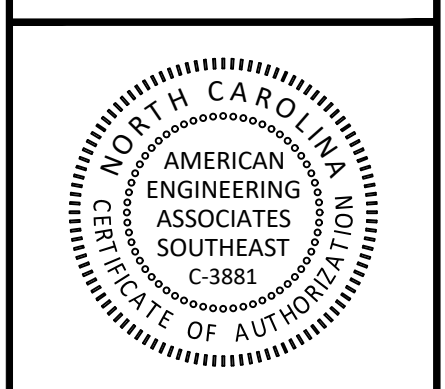
PART II, SECTION 6, ITEM (4) DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

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

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

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19



FOR INFORMATION ONLY

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Figure 1. Minimum Anchor Pattern

Maximum Design Conditions	Anchor Pattern		
Shear Stress	Velocity	Wave Height	Anchor Pattern
<= 6 lbs/ft ²	<= 14 ft/s	6 in.	F
> 6-8 lbs/ft ²	> 14-18 ft/s	12 in.	G
> 8 lbs/ft ²	> 18 ft/s	18 in.	H

Figure 2. Minimum Anchor Type

Soil Type	Anchor Type
Clay-Clay Loam	10 in Wire Staple
Silt Loam - Loam	10 in Wire Staple
Sandy Loam	12 in Wire Staple
Sand / Muck <= 6 in	12 in Rebar Staple
Sand / Muck 6-12 in	18 in Rebar Staple
Sand / Muck 12-18 in	24 in Earth Anchor = 12 in Rebar Staple
Sand / Muck > 18 in	36 in Earth Anchor = 18 in Rebar Staple

Figure 3. Anchor Patterns for use with Wire/Rebar Staples

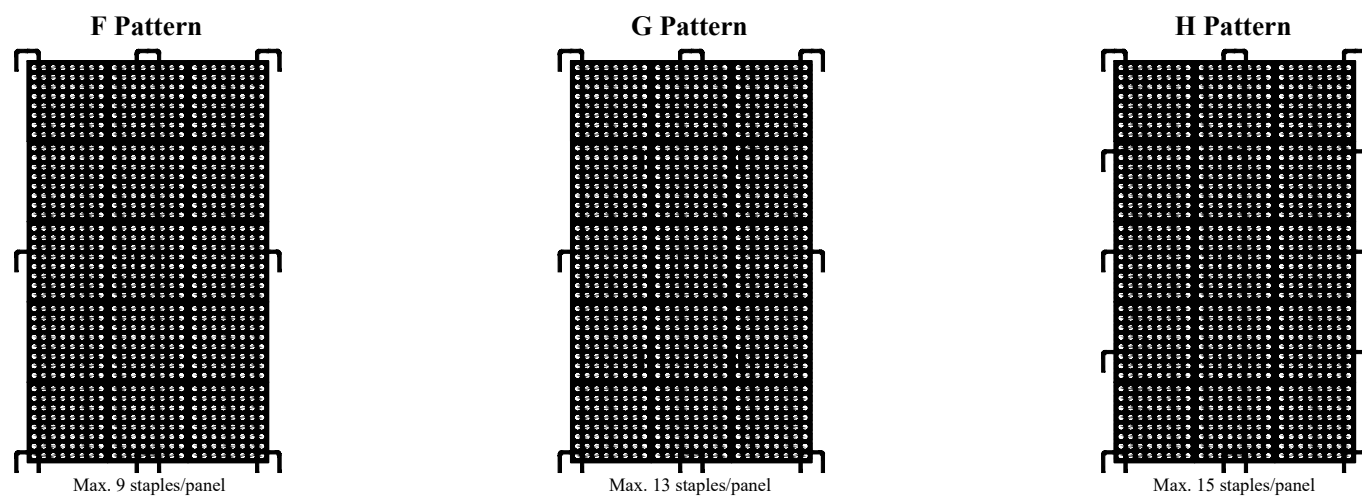
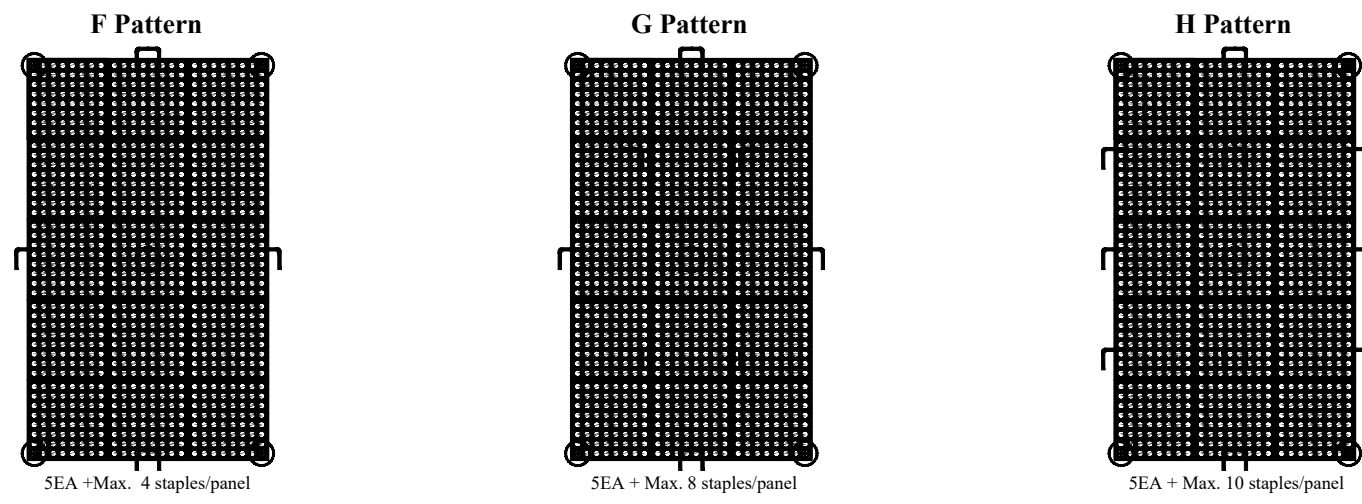


Figure 4. Anchor Patterns for use with Combination of Earth Anchors and Staples



ShoreMax

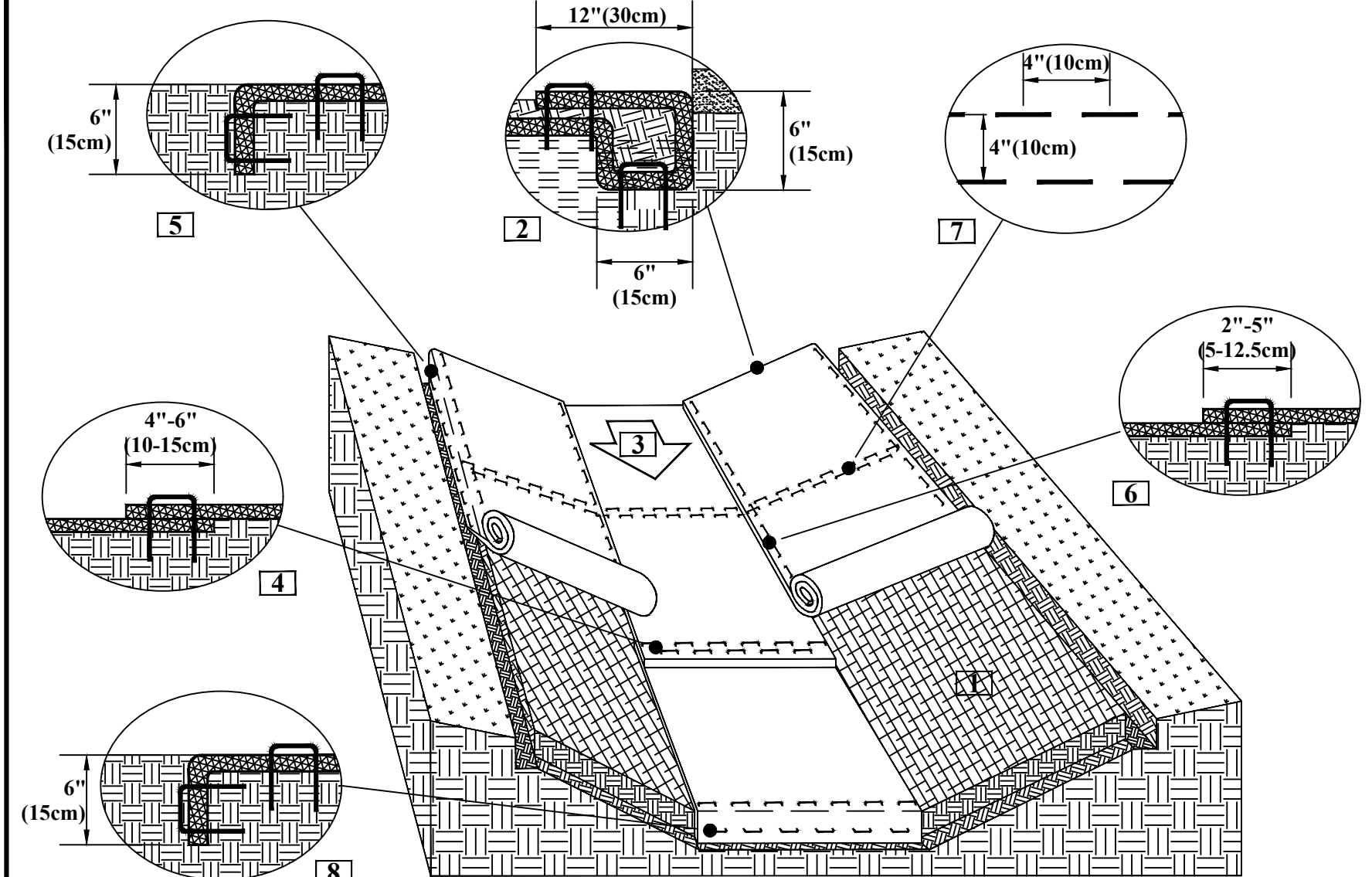
ANCHORING GUIDE

- When installing ShoreMax mat, the anchor pattern (figure 3 or 4) should be selected based on the expected maximum design conditions (shear stress, velocity, or wave impact) (figure 1).
- Anchor selection should be based on the soil type and pull-out strength required (figure 2). In soft, highly erodible soils percussion earth anchors may be necessary. Earth anchors can be installed in conjunction with rebar staples (figure 4).
- When using percussion earth anchors, position anchors in each corner and the center of the panel. Place staples in the appropriate pattern through remainder of mat. Staples can be shared between two adjacent panels.

Note:
Number of staples used per panel can be reduced by 30-40% when sharing staples between panels.

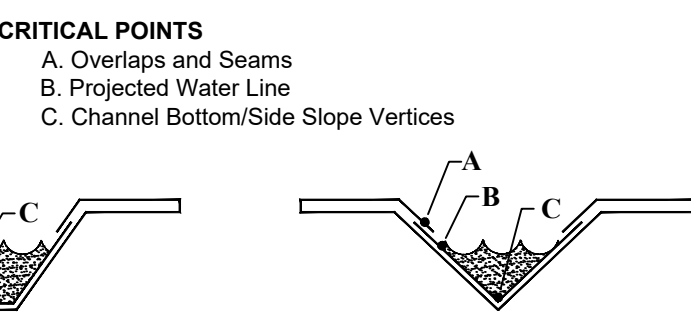
- - Wire/Rebar Staple
- ⊙ - Percussion Earth Anchor

Drawn on: 5-4-17



CHANNEL INSTALLATION DETAIL

- Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
- Begin at the top of the channel by anchoring the RECPs in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12"(30cm) of RECPs extended beyond the up-slope portion of the trench. Use ShoreMax mat at the channel/culvert outlet as supplemental scour protection as needed. Anchor the RECPs with a row of staples/stakes approximately 12"(30cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and the remaining 12"(30cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12" apart across the width of the RECPs.
- Roll center RECPs in direction of water flow in bottom of channel. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
- Place consecutive RECPs end-over-end (Shingle style) with a 4" (10cm) overlap. Use a double row of staples staggered 4" apart and 4" on center to secure RECPs.
- Full length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes approximately 12"(30cm) apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after stapling.
- Adjacent RECPs must be overlapped approximately 2" (5-12.5cm) (Depending on RECPs type) and stapled.
- In high flow channel applications a staple check slot is recommended at 30 to 40 foot (9-12m) intervals. Use a double row of staples staggered 4"(10cm) apart and 4"(10cm) on center over entire width of the channel.
- The terminal end of the RECPs must be anchored with a row of staples/stakes approximately 12" (30cm) apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after stapling.



NOTES:
*Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.
**In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECPs.

North American Green logo and contact information: 5401 St. Wendel - Cynthiana Rd. Poseyville, IN 47633. PH: 800-722-2040. www.nagreen.com

STAPLE PATTERN GUIDE

- 4:1 Slopes (A)
- 3:1 Slopes (B)
- 2:1 Slopes (C)
- 1:1 & Steeper Slopes (D)
- Medium/High Flow Channel (D)
- High Flow Channel And Shoreline (E)

NOTES:
* Use ECMDS® for more accurate staple pattern selection.

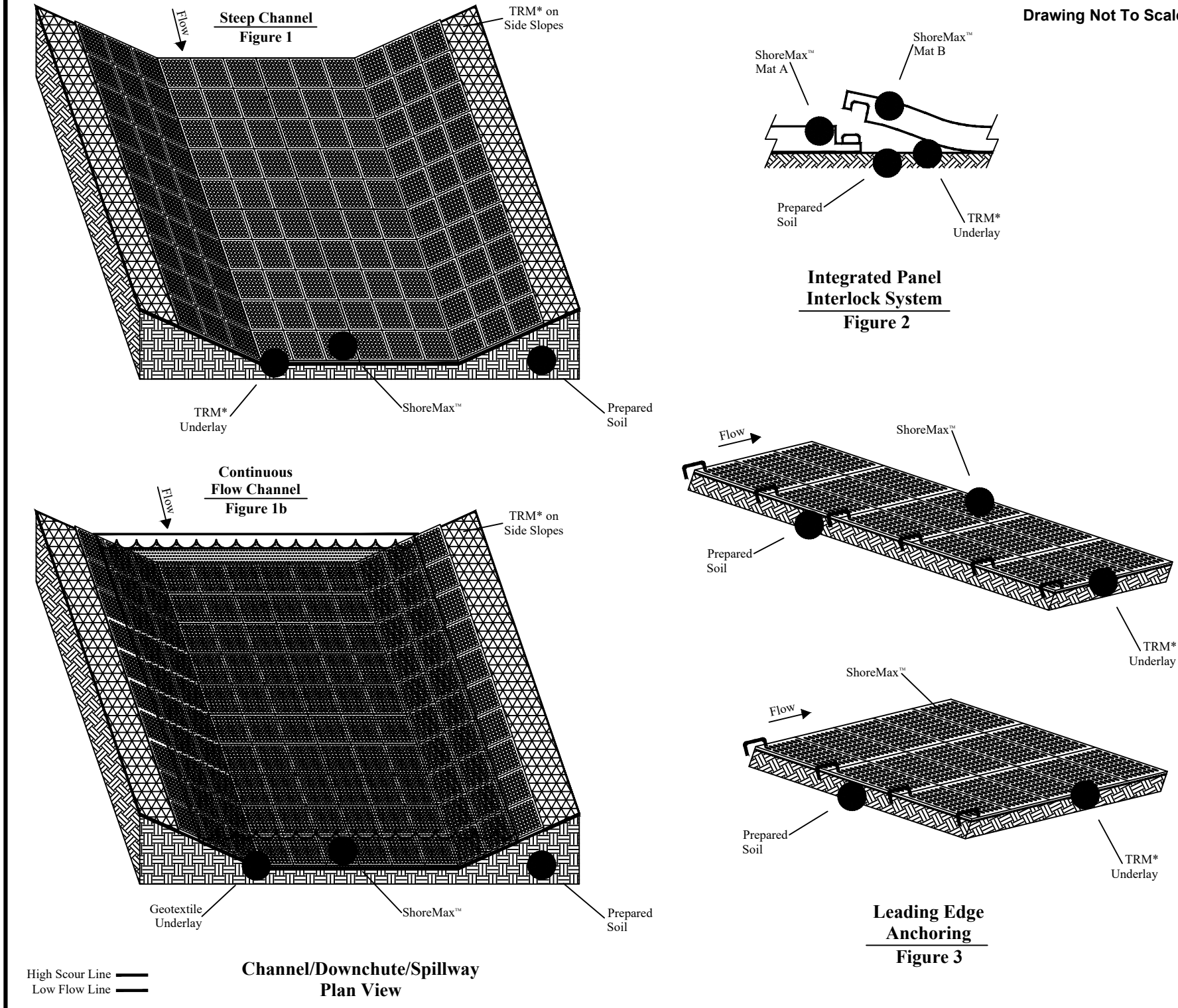
Drawn on: 5-4-17

ShoreMax

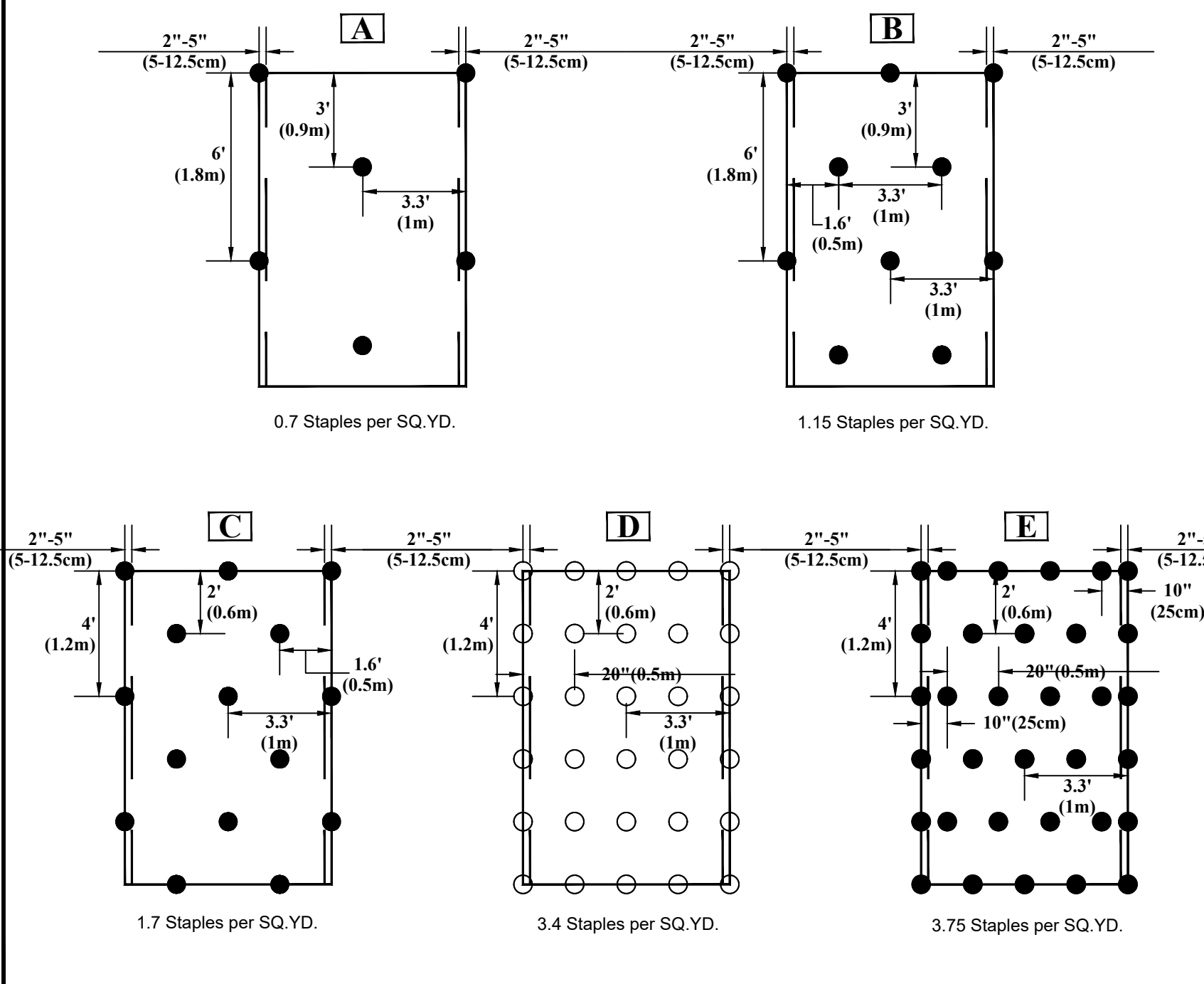
STEEP CHANNEL/CHUTE/SPILLWAY DETAIL

* ShoreMax mats can be installed over a variety of underlayments including: sod, turf reinforcement mats (TRMs), geotextiles, and in some cases erosion control blankets (ECBs).

- Prepare soil before installing erosion control products, including any necessary application of lime, fertilizer, and seed (when installing TRM or ECB underlayment).
- Install turf reinforcement mat (TRM) over prepared soils according to manufacturer's recommendations.
- Place ShoreMax mat in the bottom of the channel over the installed TRM (figure 1). The ShoreMax mat should be installed up to the appropriate elevation on the side slope as determined by the engineer. When using multiple panels, connect the panels using the Integrated Panel Interlock System (figure 2). ShoreMax mat can be laid in either direction.
- For channels carrying continuous water flows, an appropriate geotextile should be placed under the ShoreMax mat for submerged applications (figure 1b).
- Place staples/anchors in the appropriate pattern. Perimeter staples can be shared between two adjacent panels. In soft or highly erodible soils, percussion earth anchors may be required. View ShoreMax Anchoring Guide, for additional details.
- At beginning of channel and areas where significant concentrated flows are directed onto the ShoreMax mat, place 1 staple/pin per linear foot along the leading edge of the ShoreMax system, resulting in 1 staple/pin on each corner and gridline (figure 3).



North American Green logo and contact information: 5401 St. Wendel - Cynthiana Rd. Poseyville, IN 47633. PH: 800-722-2040. www.nagreen.com



North American Green logo and contact information: 5401 St. Wendel - Cynthiana Rd. Poseyville, IN 47633. PH: 800-722-2040. www.nagreen.com

NO.	DATE	REVISION:
1	12/25/2024	CID-SUBMITTAL #1

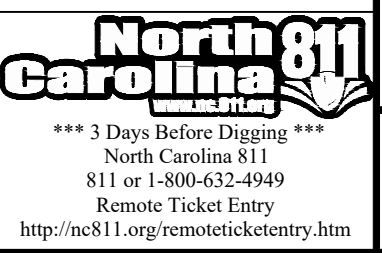
STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS
PHASE 5
CONSTRUCTION INFRASTRUCTURE DOCUMENTS
CID-25-01
TOWN OF ROLESVILLE,
WAKE COUNTY, NC

JOB NUMBER:	R180115
CHECKED BY:	JK
DRAWN BY:	GE, RC
DATE:	03-03-2025
SHEET TITLE:	

ESC DETAILS

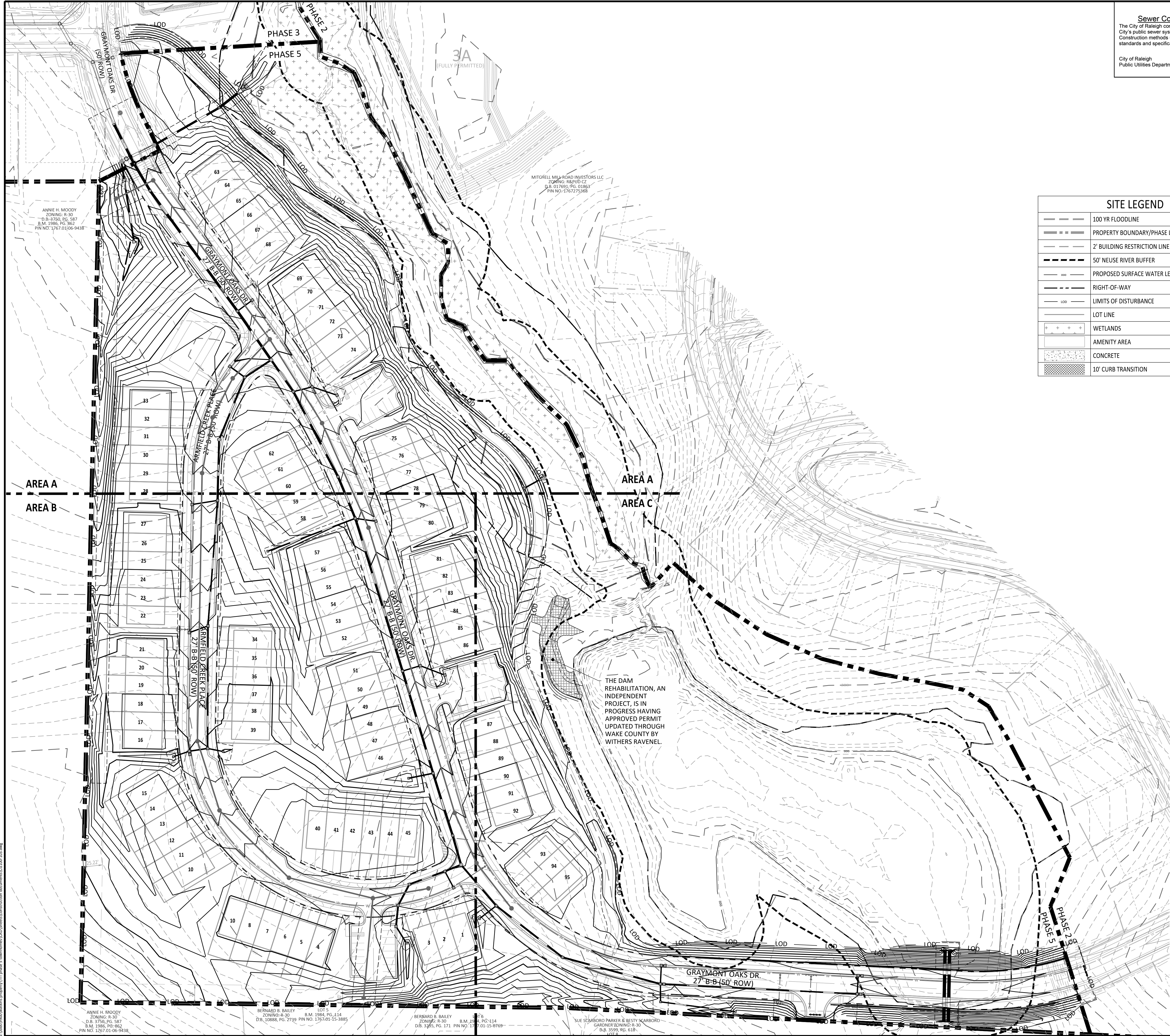
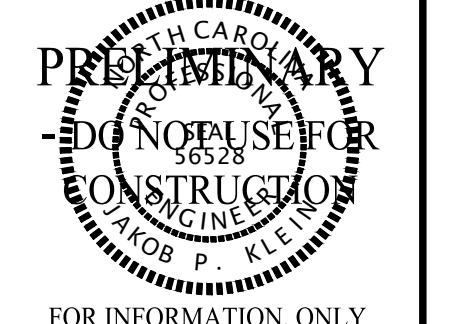
SHEET NO.:
CE504



Public
Sewer Collection / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

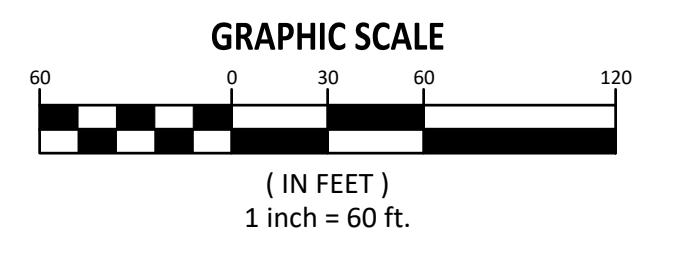
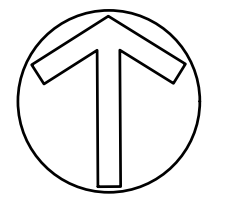


SITE LEGEND	
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[Symbol]	PROPERTY BOUNDARY/PHASE LINE
[Symbol]	2' BUILDING RESTRICTION LINE
[Symbol]	50' NEUSE RIVER BUFFER
[Symbol]	PROPOSED SURFACE WATER LEVEL
[Symbol]	RIGHT-OF-WAY
[Symbol]	LIMITS OF DISTURBANCE
[Symbol]	LOT LINE
[Symbol]	WETLANDS
[Symbol]	AMENITY AREA
[Symbol]	CONCRETE
[Symbol]	10' CURB TRANSITION

ANNIE H. MOODY
ZONING: R-30
D.B. 3754, PG. 187
B.M. 1986, PG. 862
PIN NO. 1767-01-06-9438

MITCHELL MILLS ROAD INVESTORS LLC
ZONING: R&PUB CZ
D.B. 017801, PG. 02059
PIN NO. 1767275368

THE DAM REHABILITATION, AN INDEPENDENT PROJECT, IS IN PROGRESS HAVING APPROVED PERMIT UPDATED THROUGH WAKE COUNTY BY WITHERS RAVENEL.



North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-432-4949
Remote Ticket Entry
<http://nc811.org/remoteticketentry.htm>

NO.	DATE	REVISION:
1	12/25/2024	CID-SUBMITTAL #1

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KALAS FALLS PHASE 5 CONSTRUCTION INFRASTRUCTURE DOCUMENTS
CID-25-01
TOWN OF ROLESVILLE, WAKE COUNTY, NC

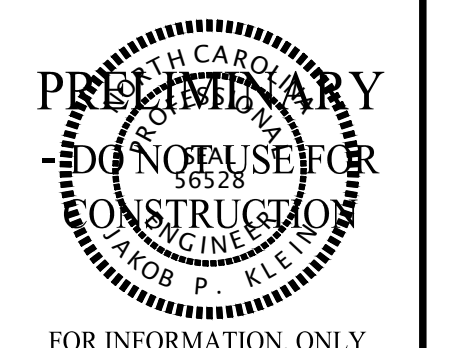
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CHECKED BY: JK
DRAWN BY: GE, RC
DATE: 03-03-2025
SHEET TITLE: **GRADING & DRAINAGE OVERALL**
SHEET NO.: **CG100**

AREA A

AREA B

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FOR INFORMATION ONLY

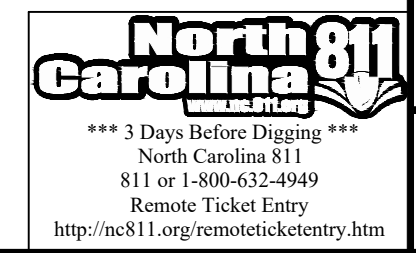
NO.	DATE	REVISION:
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KALAS FALLS
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 CID-25-01
 TOWN OF ROLESVILLE,
 WAKE COUNTY, NC

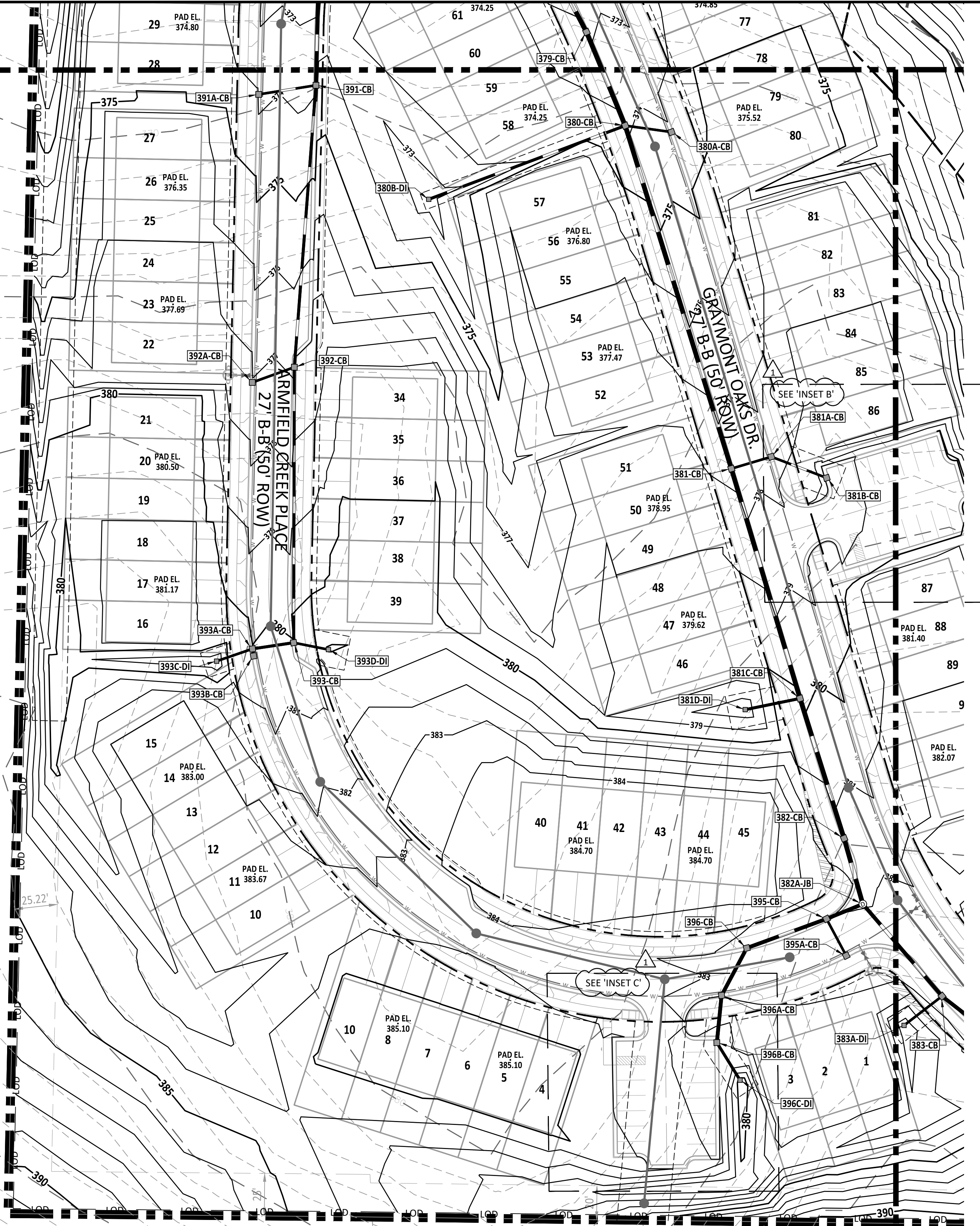
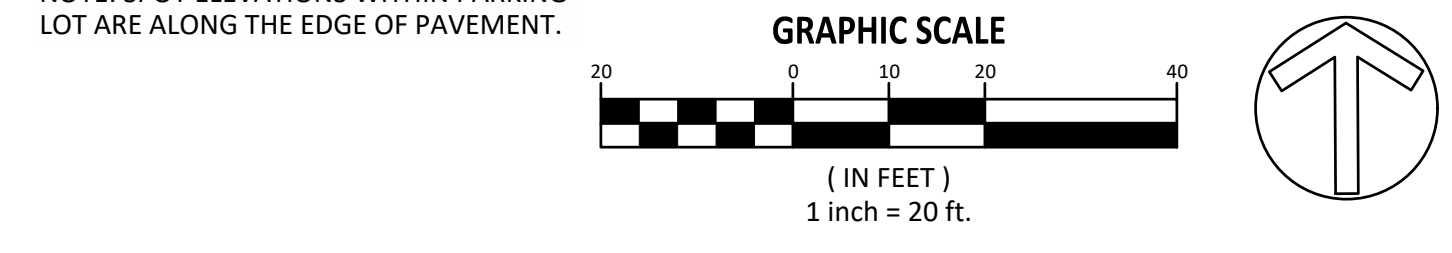
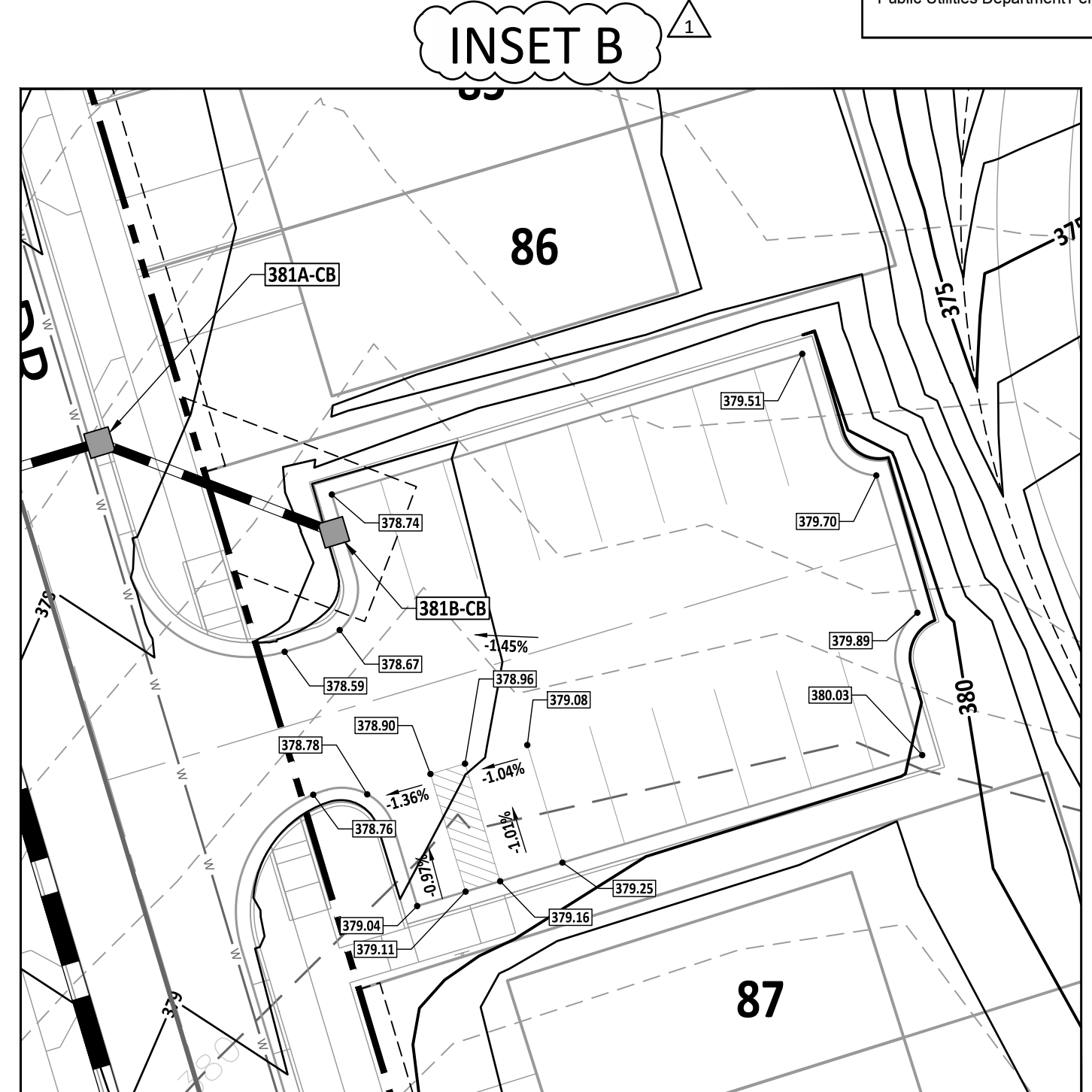
JOB NUMBER: R180115
 CHECKED BY: JK
 DRAWN BY: GE, RC
 DATE: 03-03-2025

SHEET TITLE:
GRADING & DRAINAGE AREA B
 SHEET NO.:
CG401



SITE LEGEND

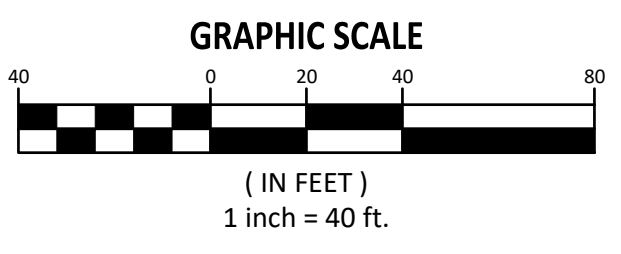
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	PROPERTY BOUNDARY/PHASE LINE
	2' BUILDING RESTRICTION LINE
	50' NEUSE RIVER BUFFER
	PROPOSED SURFACE WATER LEVEL
	RIGHT-OF-WAY
	LIMITS OF DISTURBANCE
	LOT LINE
	WETLANDS
	AMENITY AREA
	CONCRETE
	10' CURB TRANSITION



ANNIE H. MOODY
 ZONING: R-30
 D.B. 3750, PG. 587
 B.M. 1986, PG. 862
 PIN NO. 1767.01-06-9438

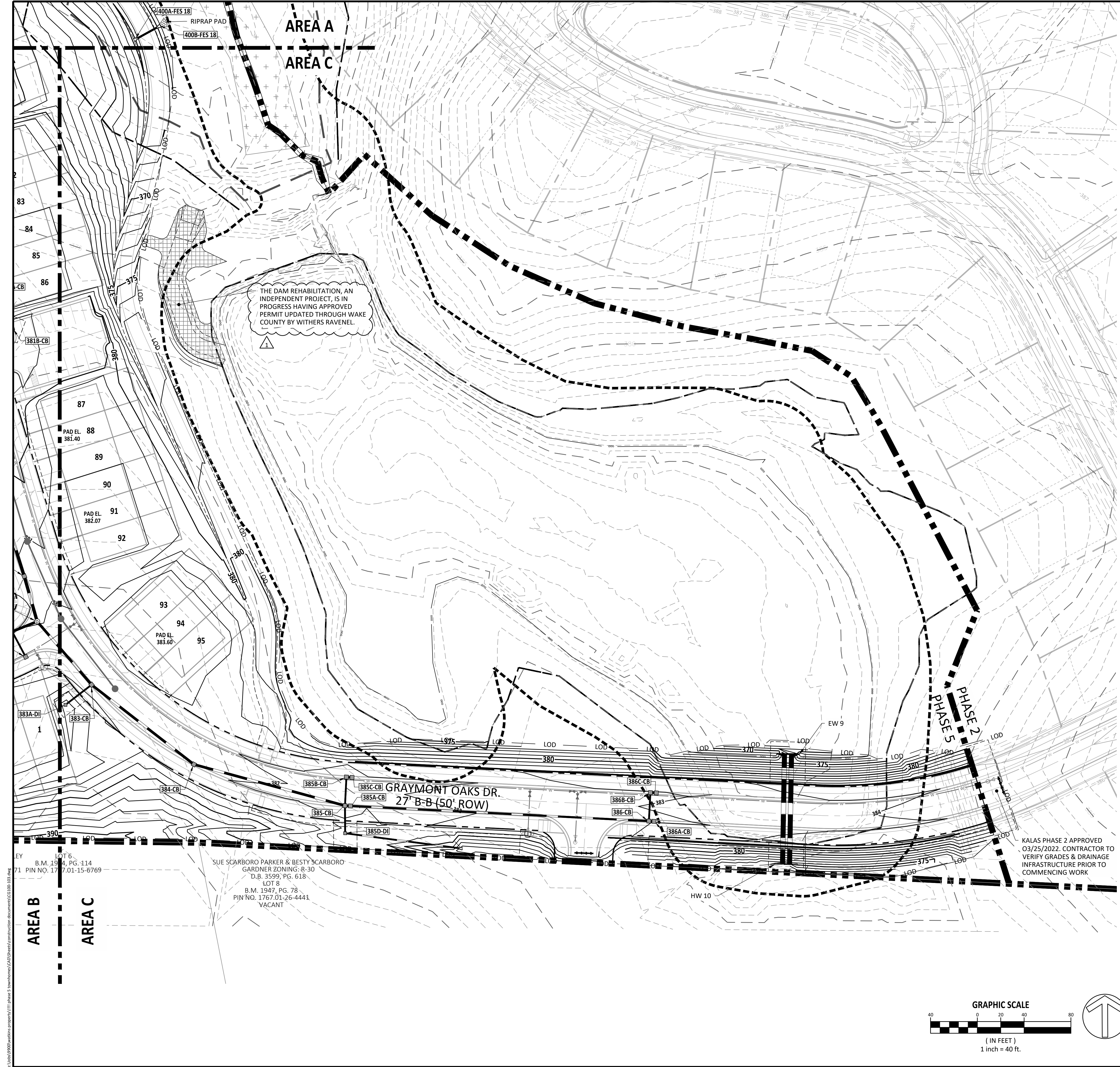
BERNARD B. BAILEY LOT 5
 ZONING: R-30 B.M. 1984, PG. 114
 D.B. 10888, PG. 2739 PIN NO. 1767.01-15-3885

BERNARD B. BAILEY LOT 6
 ZONING: R-30 B.M. 1984, PG. 114
 D.B. 3285, PG. 171 PIN NO. 1767.01-15-6769



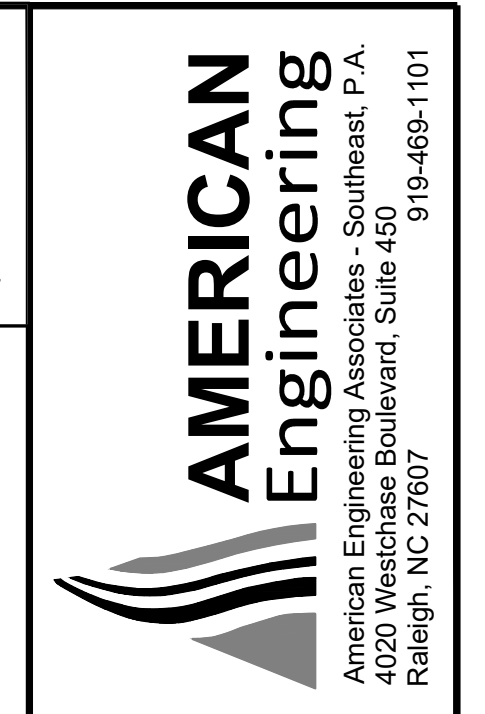
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2025-03-03



Public Sewer Collection / Extension System
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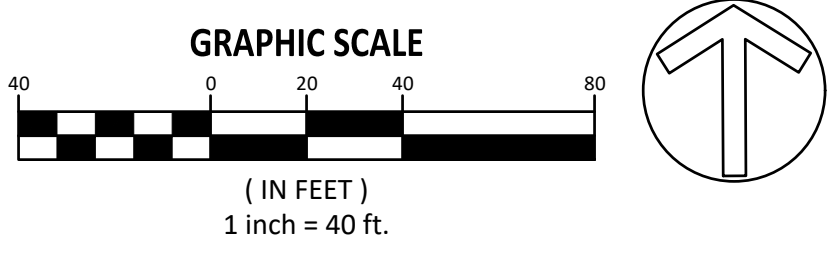
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	2' BUILDING RESTRICTION LINE
	50' NEUSE RIVER BUFFER
	PROPOSED SURFACE WATER LEVEL
	RIGHT-OF-WAY
	LIMITS OF DISTURBANCE
	LOT LINE
	WETLANDS
	AMENITY AREA
	CONCRETE
	10' CURB TRANSITION

NO.	DATE	REVISION:
1	12/25/2024	CID-SUBMITTAL #1

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KALAS FALLS
 PHASE 5
 CONSTRUCTION INFRASTRUCTURE DOCUMENTS
 CID-25-01
 TOWN OF ROLESVILLE,
 WAKE COUNTY, NC

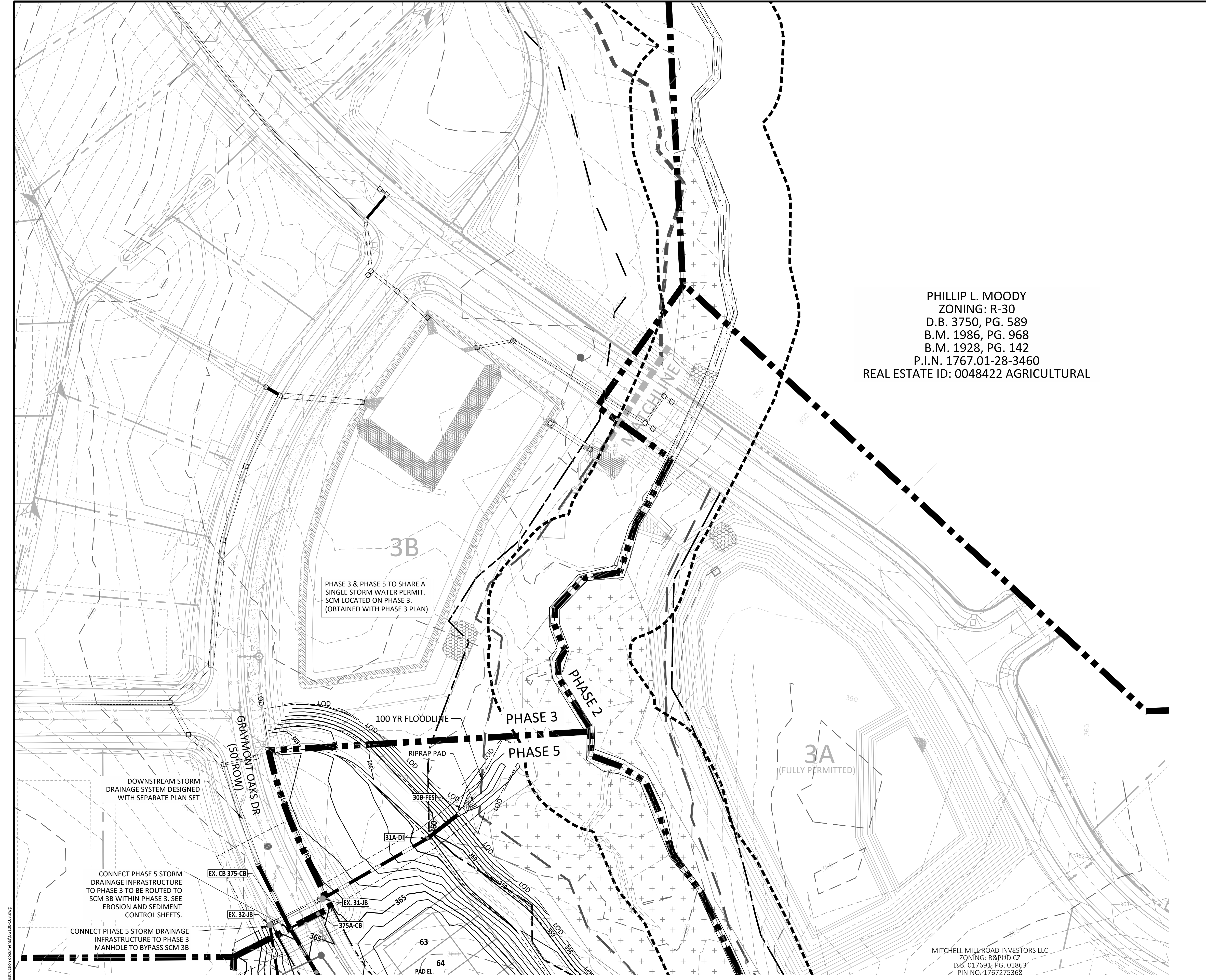
JOB NUMBER: R180115
 CHECKED BY: JK
 DRAWN BY: GE, RC
 DATE: 03-03-2025
 SHEET TITLE:
GRADING & DRAINAGE AREA C
 SHEET NO.:
CG402



LOT 6
 B.M. 1944, PG. 114
 PIN NO. 177.01-15-6769

LOT 5
 SUE SCARBORO PARKER & BESTY SCARBORO
 GARDNER ZONING: R-30
 D.B. 3559, PG. 618
 B.M. 1947, PG. 78
 PIN NO. 1767.01-26-4441
 VACANT

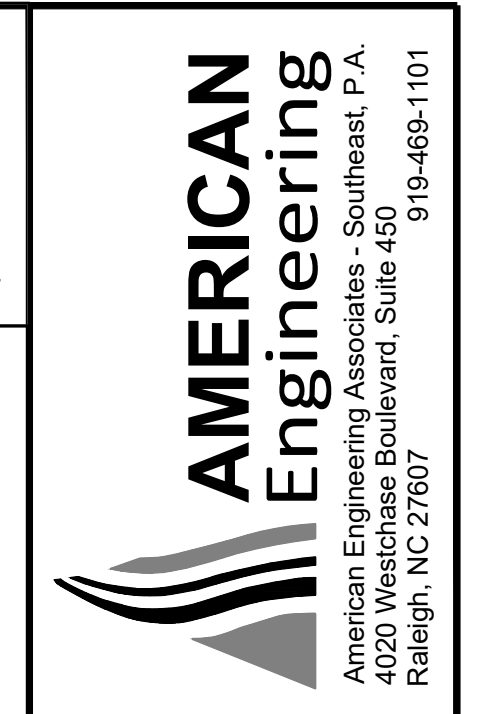
KALAS PHASE 2 APPROVED
 03/25/2022. CONTRACTOR TO
 VERIFY GRADES & DRAINAGE
 INFRASTRUCTURE PRIOR TO
 COMMENCING WORK



PHILLIP L. MOODY
 ZONING: R-30
 D.B. 3750, PG. 589
 B.M. 1986, PG. 968
 B.M. 1928, PG. 142
 P.I.N. 1767.01-28-3460
 REAL ESTATE ID: 0048422 AGRICULTURAL

Public Sewer Collection / Extension System
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	RIGHT-OF-WAY
	LIMITS OF DISTURBANCE
	LOT LINE
	WETLANDS
	AMENITY AREA
	CONCRETE
	10' CURB TRANSITION

NO.	DATE	REVISION
1	12/23/2024	CID-SUBMITTAL #1

STIPULATION FOR REUSE

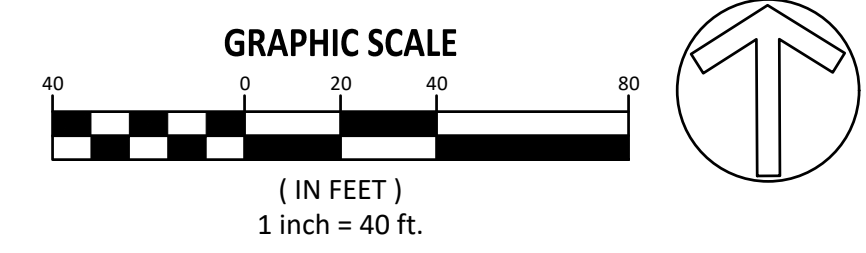
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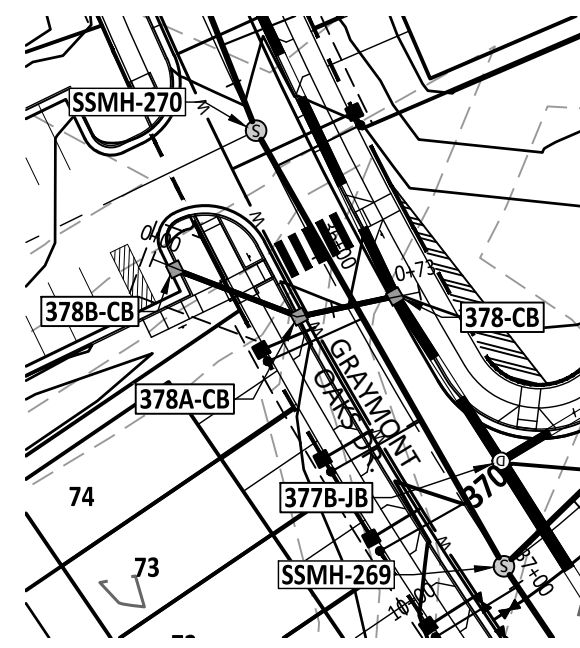
KALAS FALLS
 PHASE 5
 CONSTRUCTION INFRASTRUCTURE
 DOCUMENTS
 CID-25-01
 TOWN OF ROLESVILLE,
 WAKE COUNTY, NC

JOB NUMBER: R180115
 CHECKED BY: JK
 DRAWN BY: GE, RC
 DATE: 03-03-2025

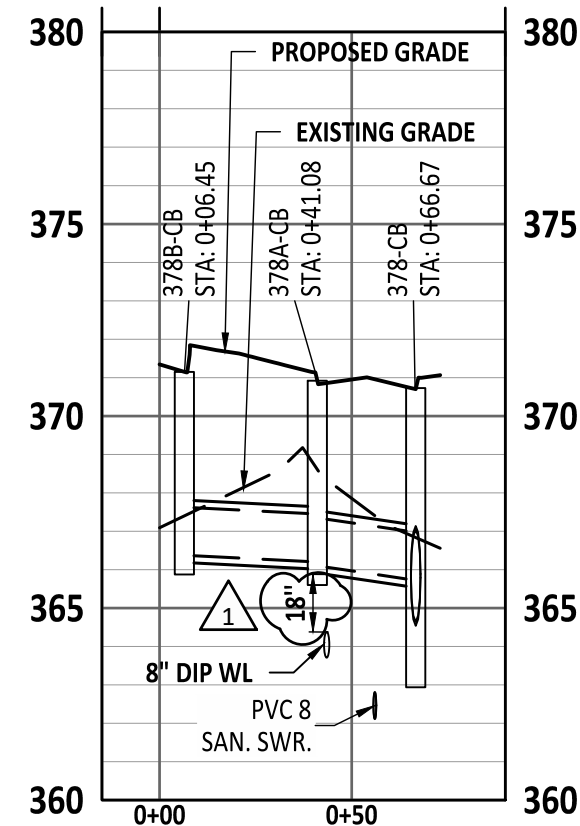
SHEET TITLE:
GRADING & DRAINAGE OFFSITE
CG403

SHEET NO.:

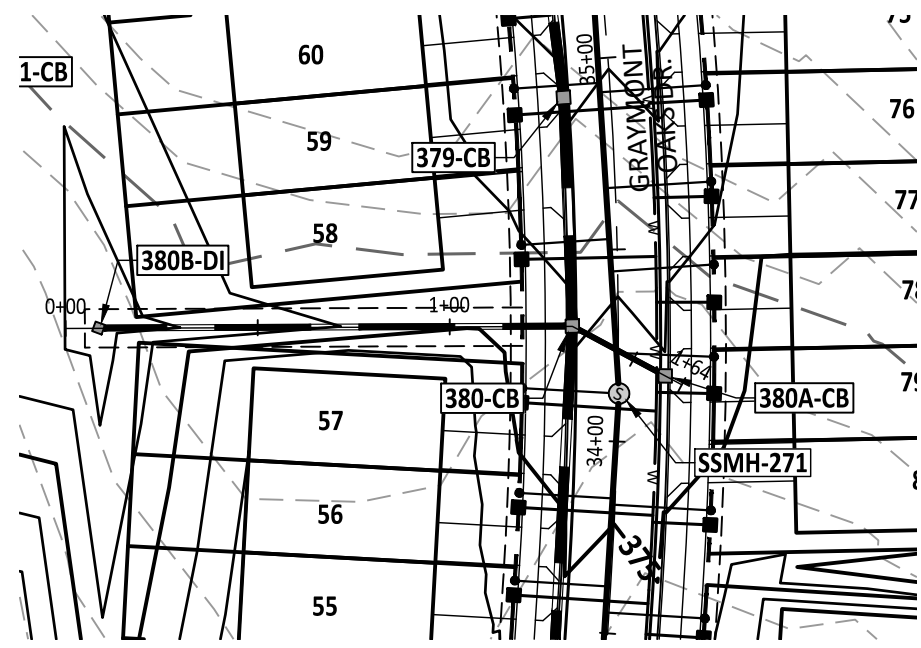




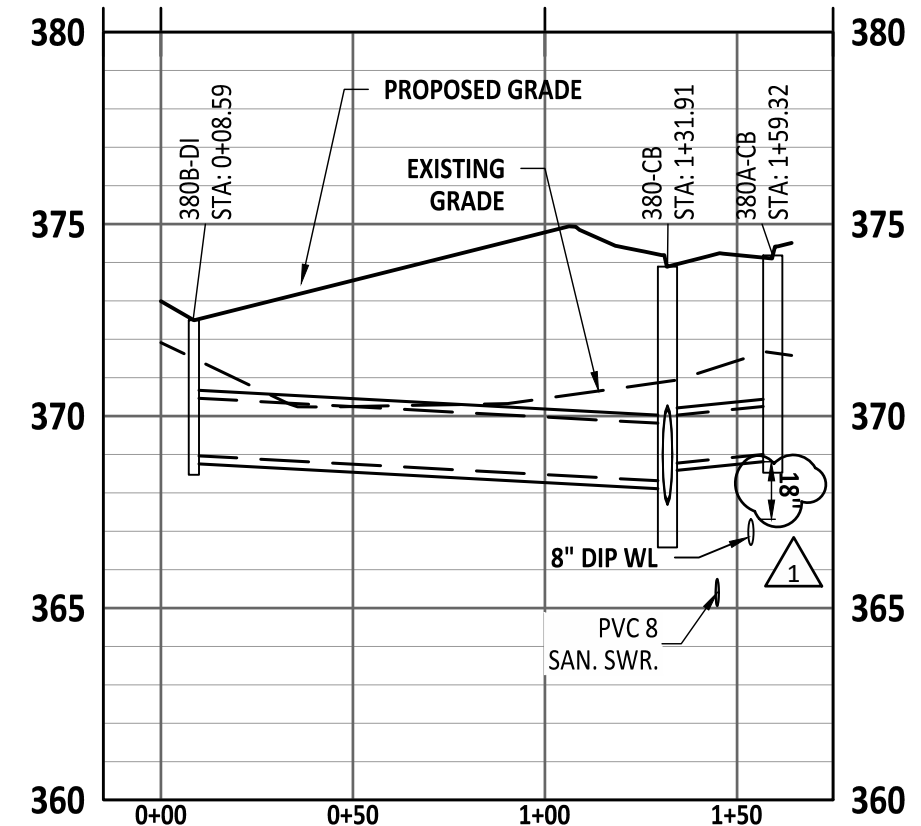
378B-CB TO 378-CB PLAN



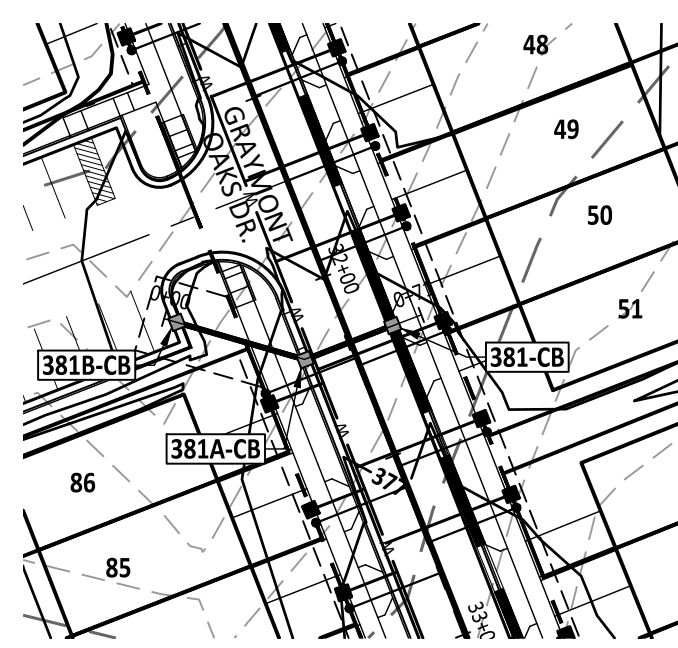
378B-CB TO 378-CB PROFILE



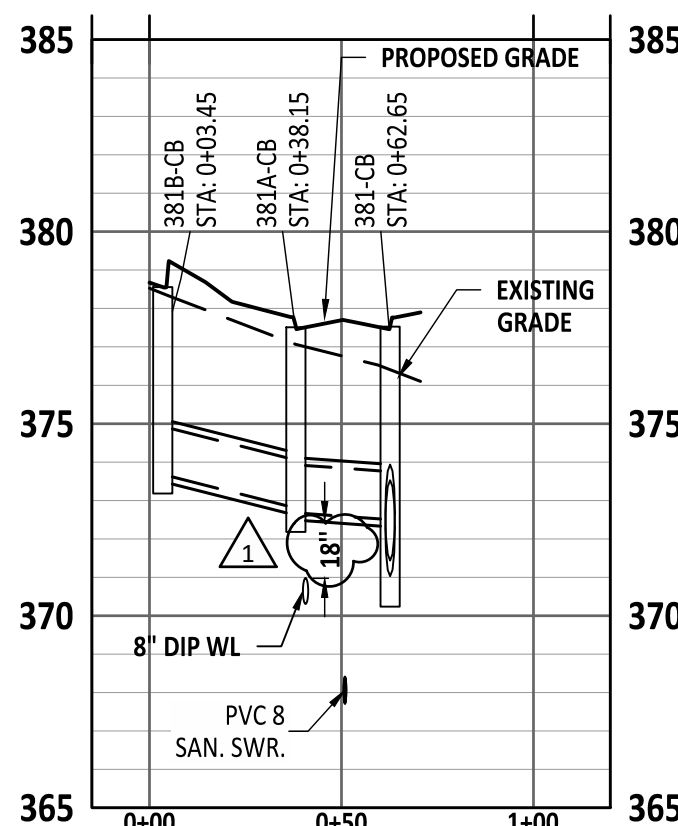
380B-DI TO 380A-CB PLAN



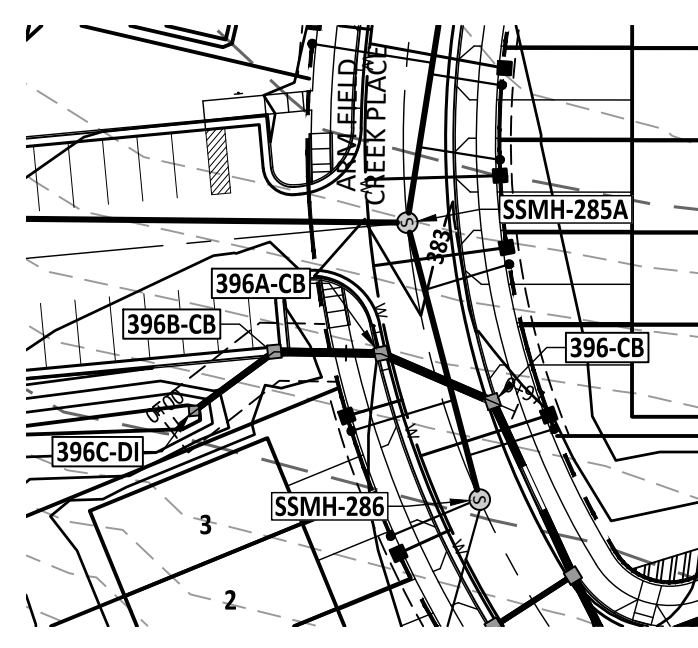
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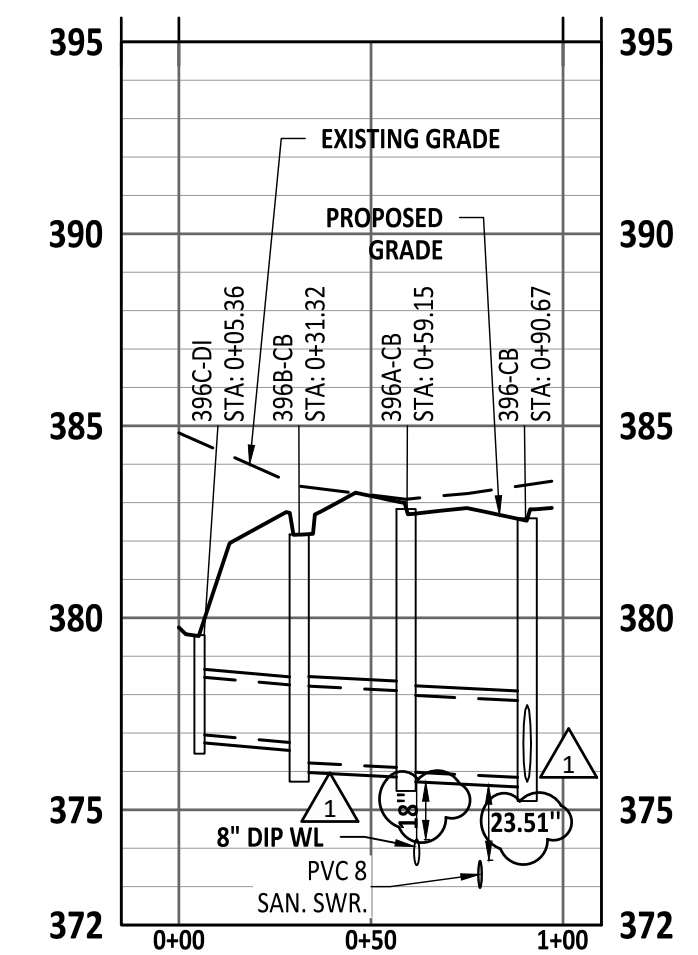
381B-CB TO 381-CB PLAN



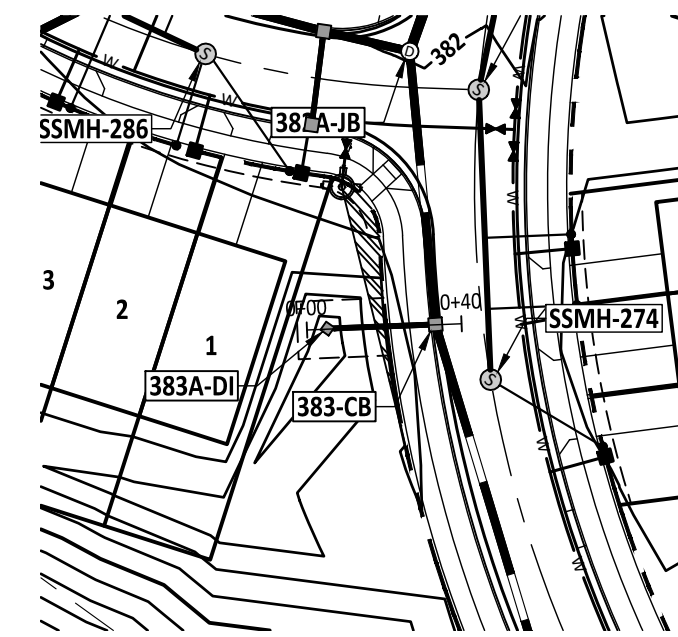
381B-CB TO 381-CB PROFILE



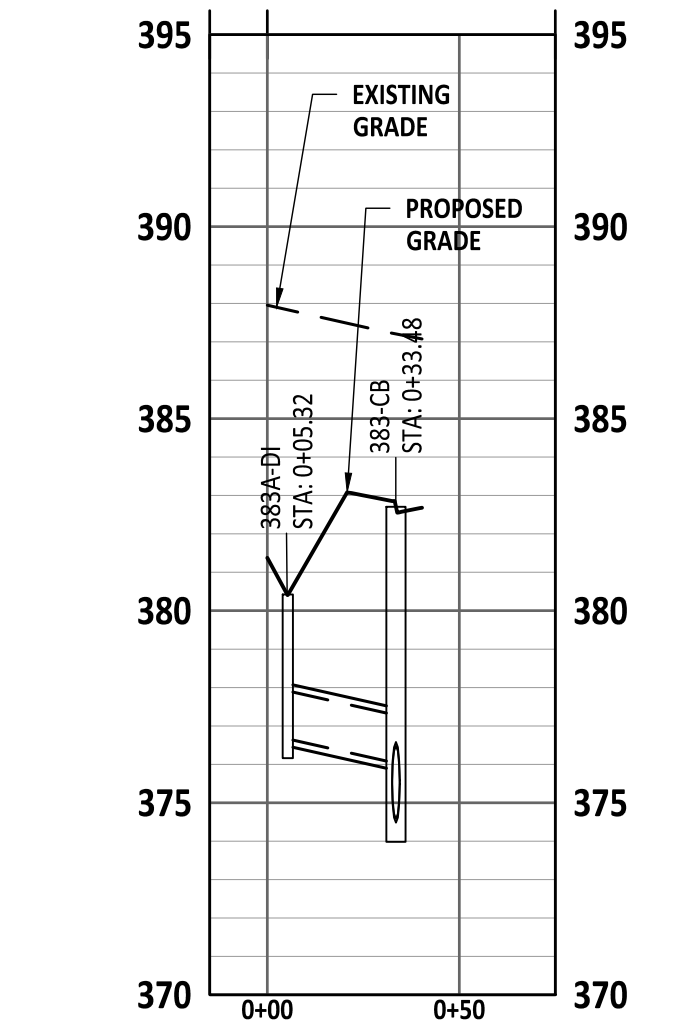
396C-DI TO 396-CB PLAN



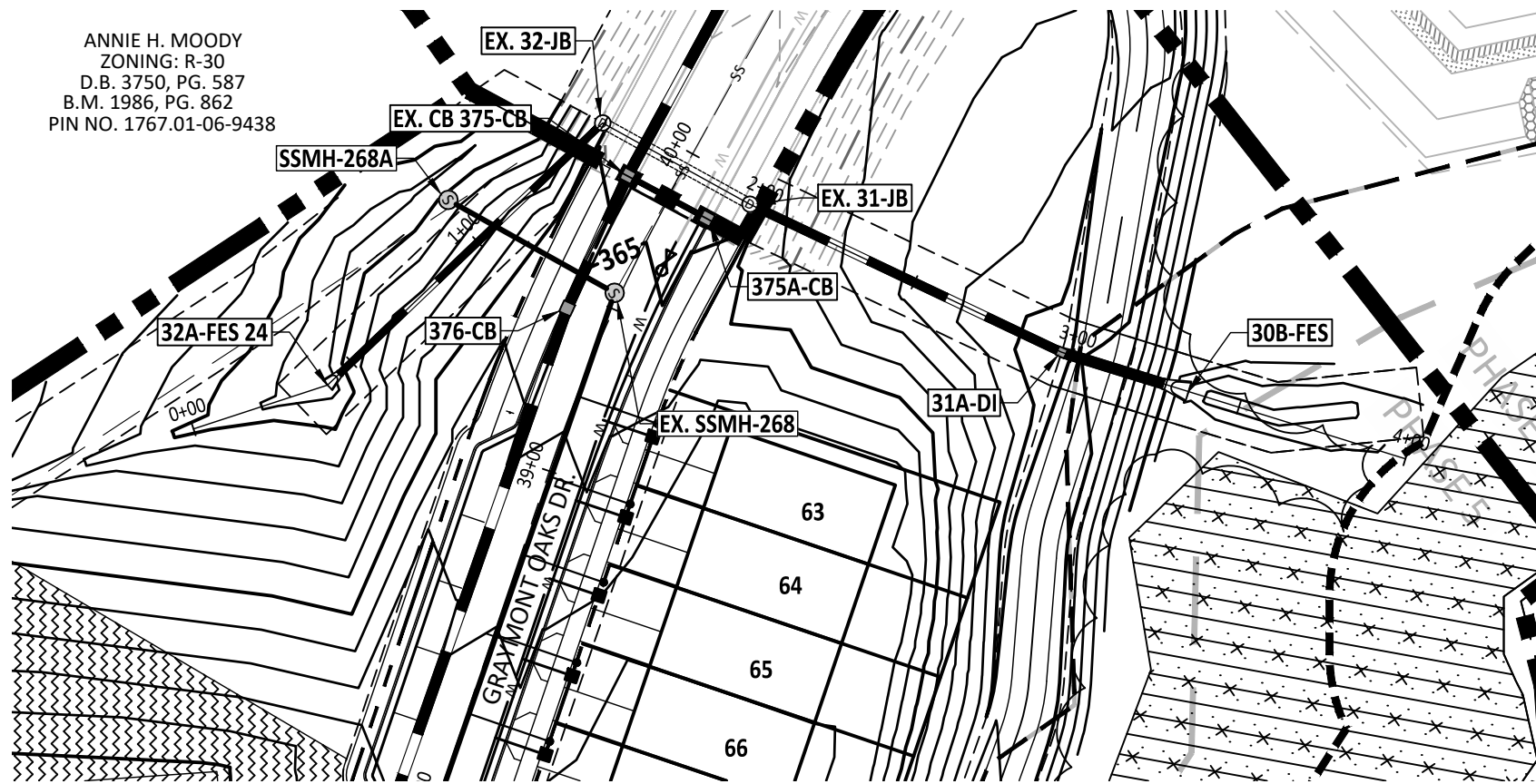
396C-DI TO 396-CB PROFILE



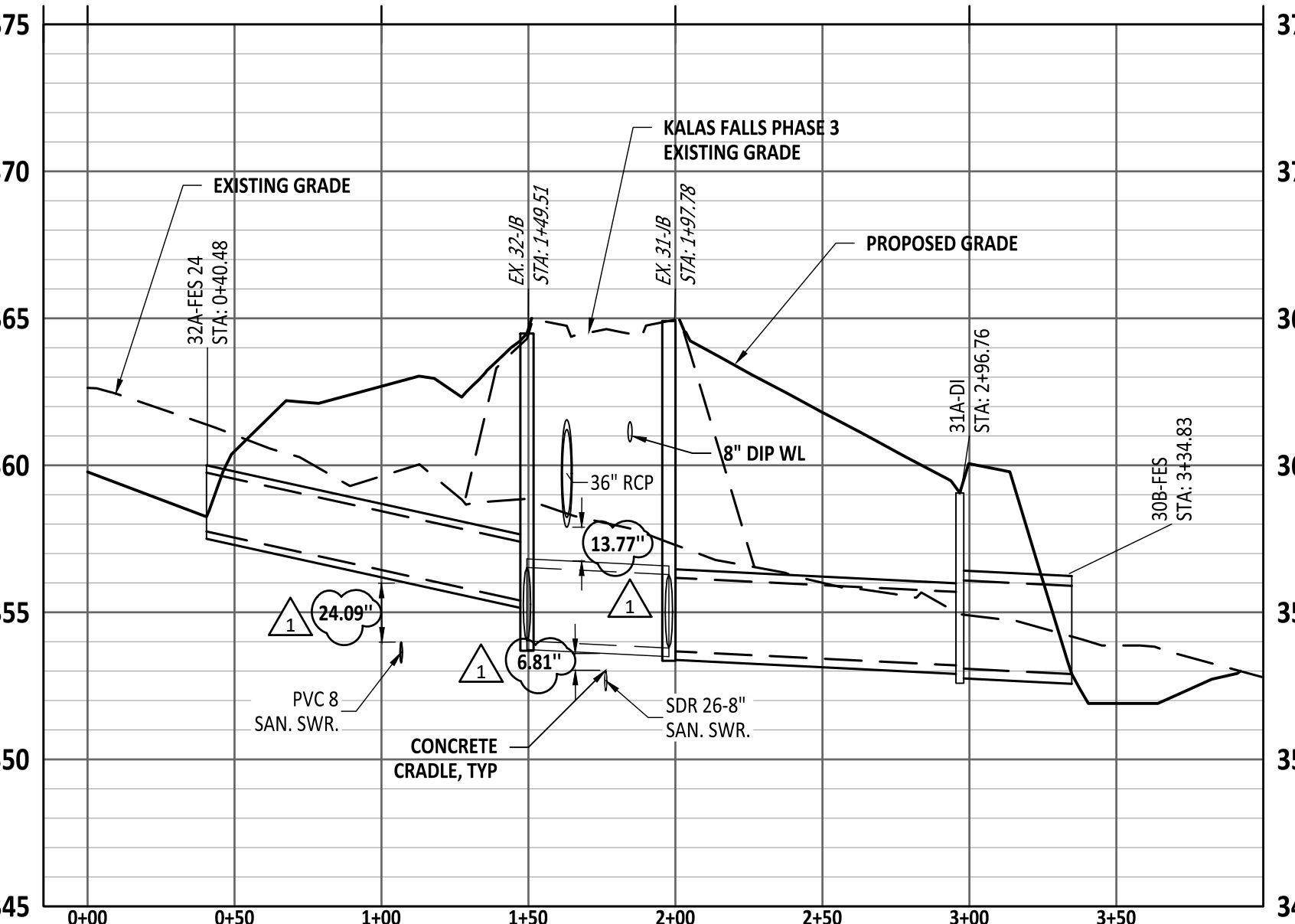
383A-DI TO 383-CB PLAN



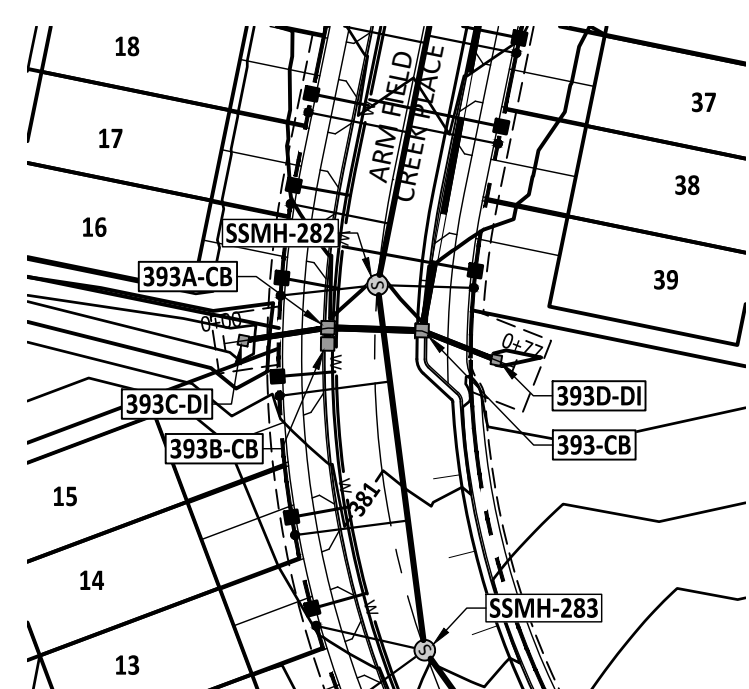
383A-DI TO 383-CB PROFILE



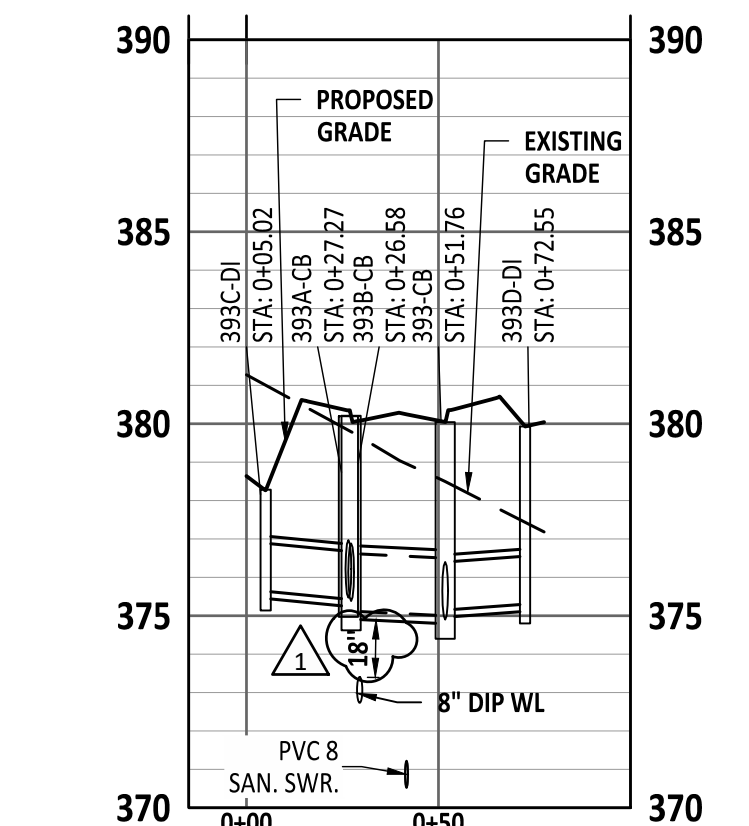
32A-FES 24 TO 30B-FES 30 PLAN



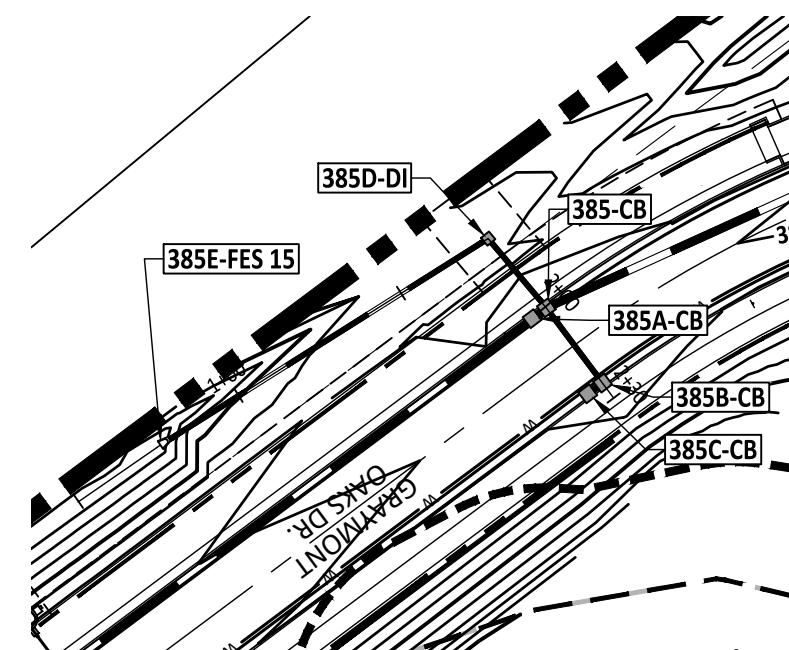
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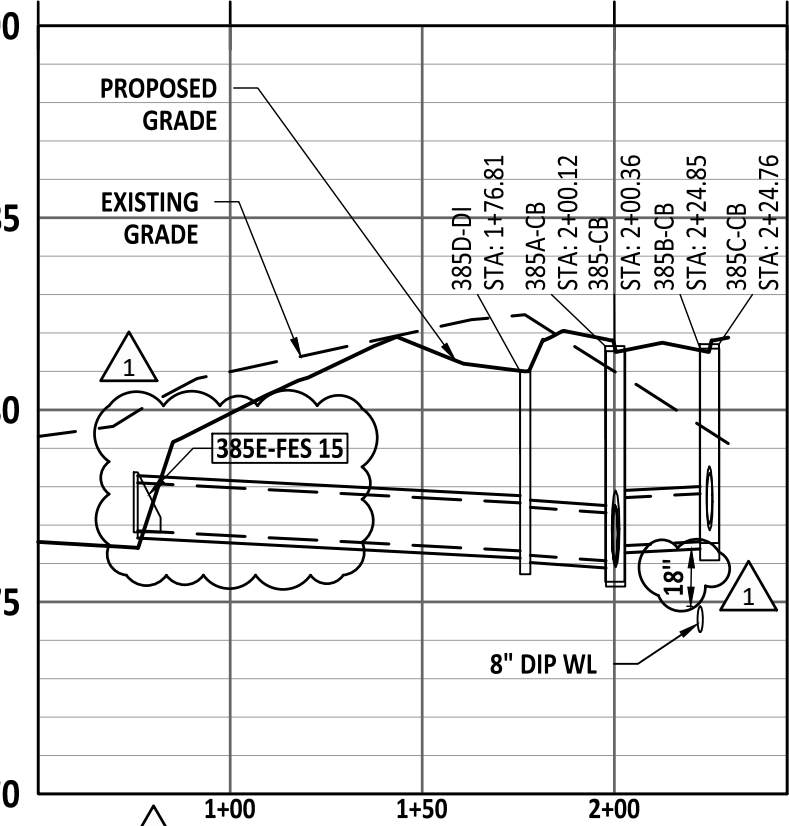
393C-DI TO 393D-DI PLAN



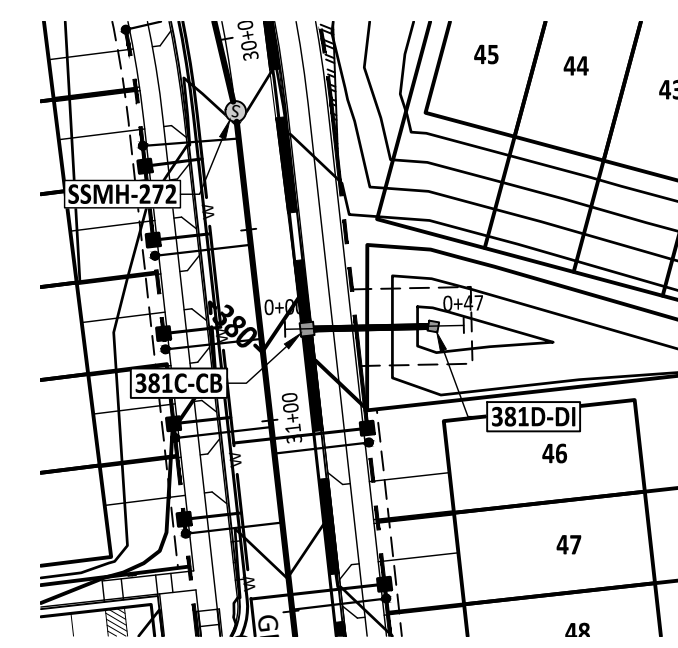
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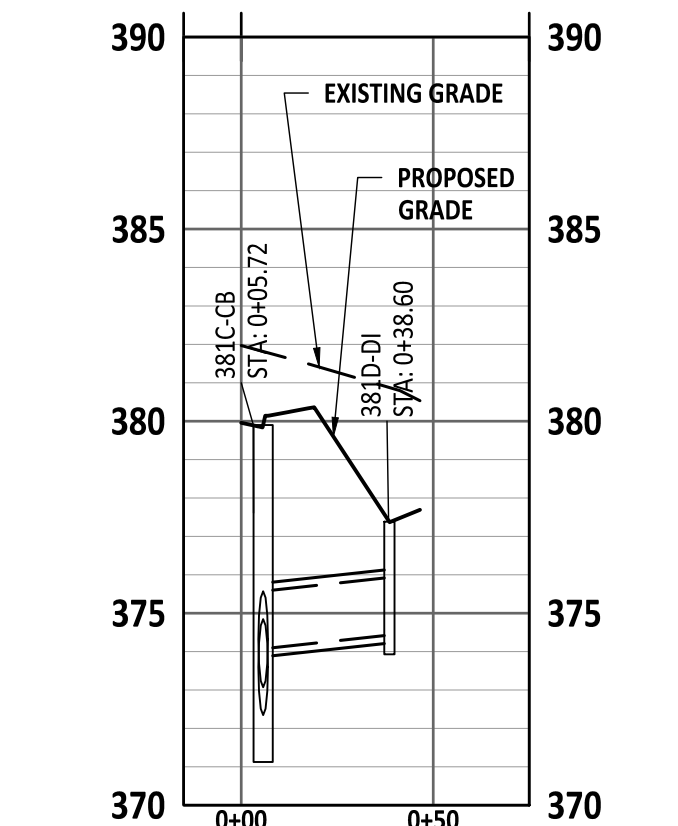
385D-DI TO 385A-CB PLAN



385D-DI TO 385A-CB PROFILE



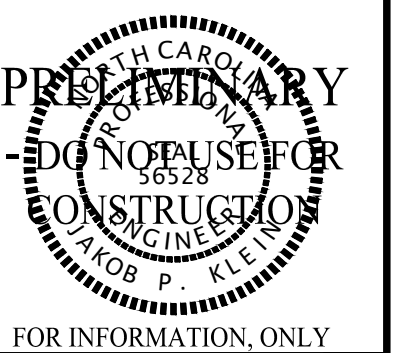
381C-CB TO 381D-DI PLAN



381C-CB TO 381D-DI PROFILE

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FOR INFORMATION ONLY

NO.	DATE	REVISION	DESCRIPTION
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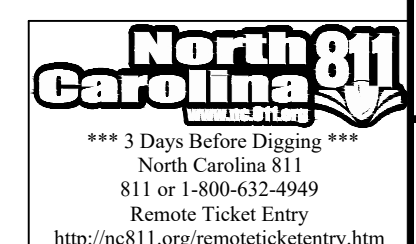
STIPULATION FOR REUSE
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KALAS FALLS PHASE 5 CONSTRUCTION INFRASTRUCTURE DOCUMENTS
CID-25-01
TOWN OF ROLESVILLE, WAKE COUNTY, NC

JOB NUMBER: R180115
CHECKED BY: JK
DRAWN BY: GE, RC
DATE: 03-03-2025

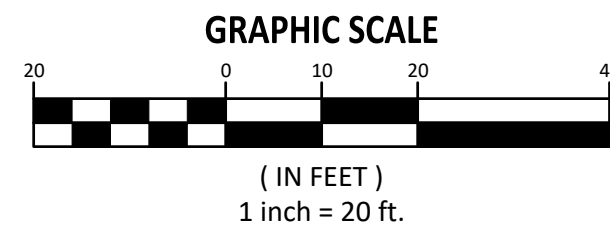
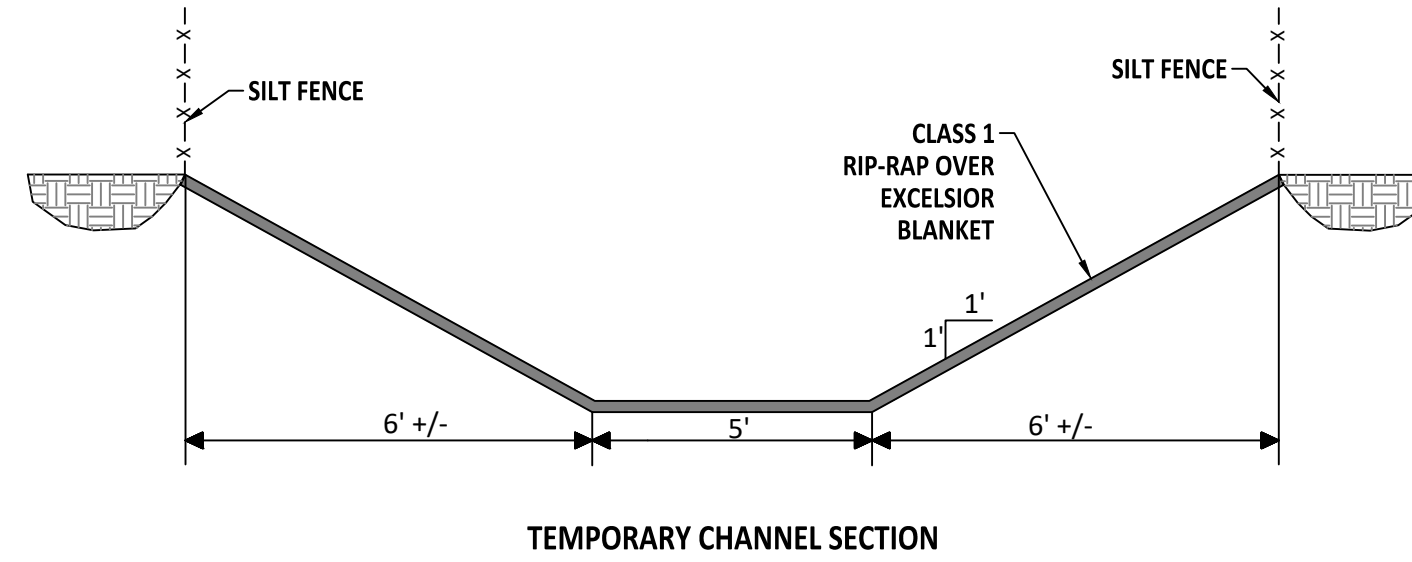
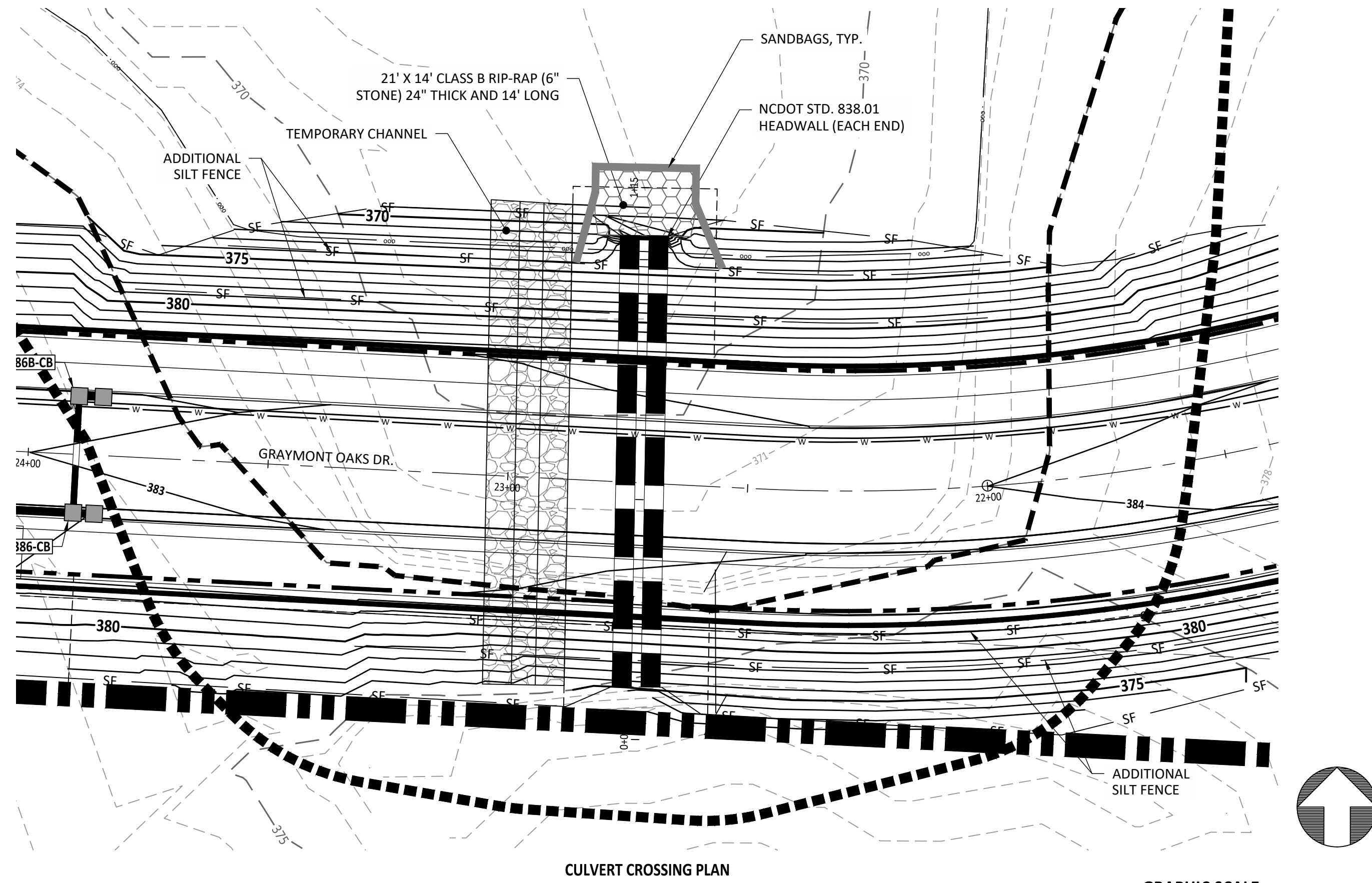
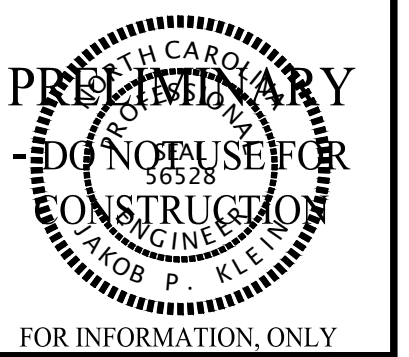
SHEET TITLE:
STORM DRAINAGE PLAN & PROFILES

SHEET NO.:
CD200



Public
Sewer Collection / Extension System
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Public
Water Distribution / Extension System
 The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # _____



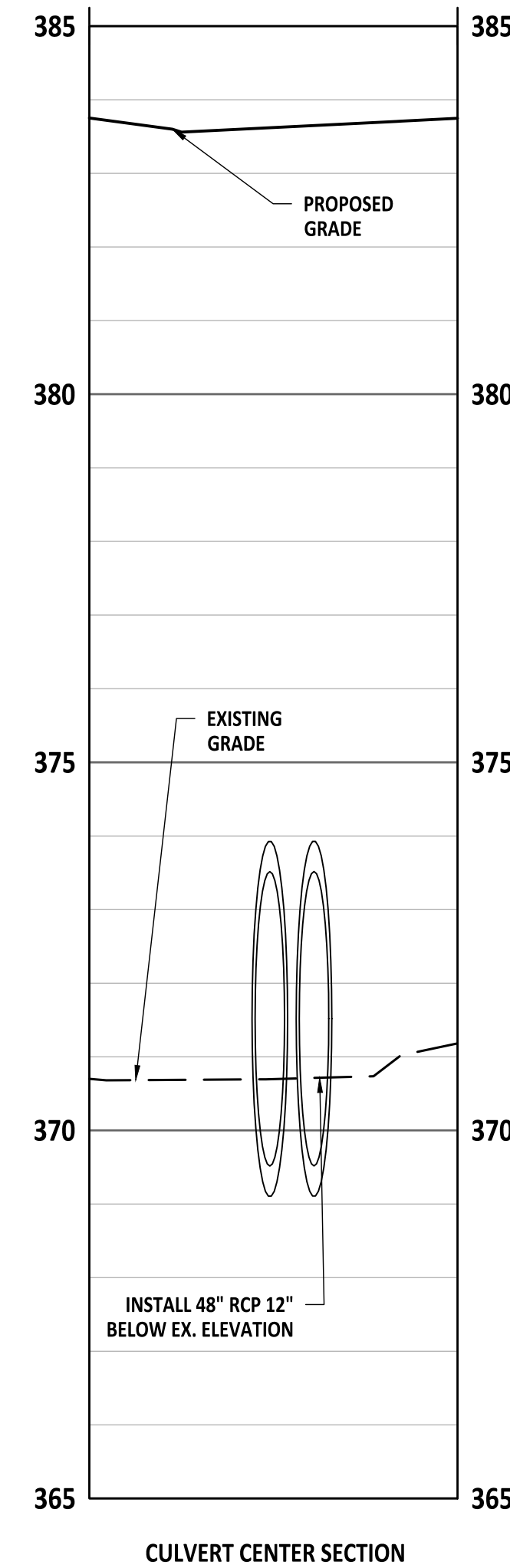
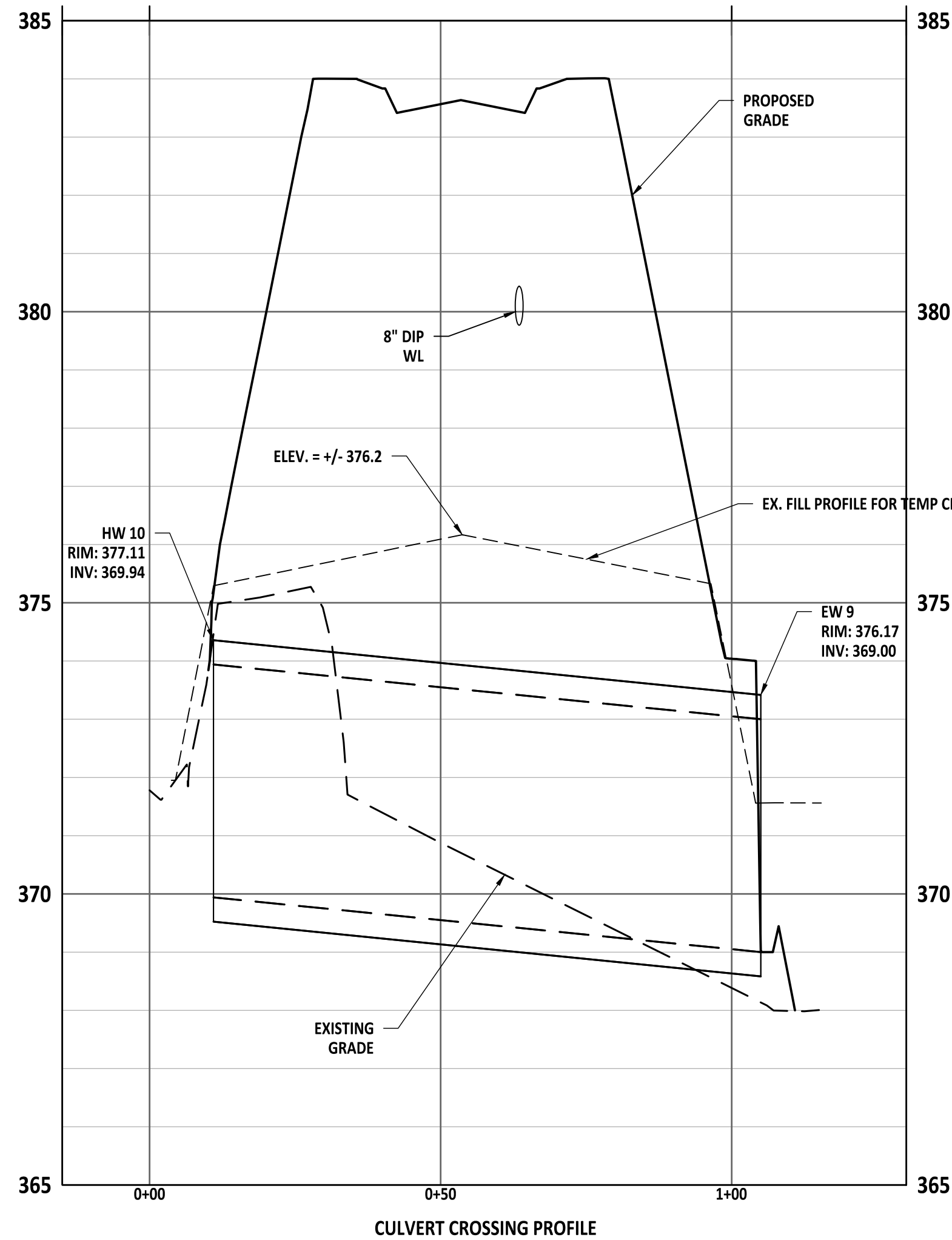
CONSTRUCTION SEQUENCE FOR THE GRAYMONT OAKS CROSSING OF THE EXISTING POND NEAR THE SOUTHERN BORDER OF KALAS FALLS SUBDIVISION SHALL BE AS FOLLOWS:

- STAGE 1A CULVERT CROSSING INSTALLATION:**
1. CONDUCT A MEETING WITH THE WAKE COUNTY INSPECTOR PRIOR TO PROCEEDING WITH THE CONSTRUCTION OF THE CULVERT CROSSING.
 2. PUMP THE EXISTING POND DOWN SO IT IS BELOW THE PROPOSED PIPE INVERTS.
 3. INSTALL THE BYPASS CHANNEL AS SHOWN WITH LINING LEAVING A PORTION OF THE BANK ON EACH END TO ACT AS A DAM TO PREVENT WATER FLOW DURING CONSTRUCTION OF THE CHANNEL. (STEPS 4 - 8 SHOULD BE ACCOMPLISHED DURING ONE WORKDAY).
 4. DURING A PERIOD OF DRY WEATHER AND WHEN THE WATER LEVEL OF THE POND IS BELOW THE CHANNEL INVERT, REMOVE THE DOWNSTREAM DAM FIRST AND CONSTRUCT THE REMAINDER OF THE CHANNEL TO THE EXISTING POND.
 5. REMOVE THE UPSTREAM DAM AND CONSTRUCT THE REMAINDER OF THE CHANNEL TO TIE TO THE LOW AREA INCLUDING LINING.
 6. ADD SANDBAGS ACROSS THE LOW POINT AT THE UPSTREAM END TO FORCE THE WATER FLOW INTO THE BY-PASS CHANNEL.
 7. ADD SANDBAGS ACROSS THE DOWNSTREAM END OF THE LOW POINT JUST ABOVE THE POINT WHERE THE BY-PASS CHANNEL RE-ENTERS THE POND TO PREVENT FLOW INTO THE LOCATION OF THE PIPE TO BE INSTALLED.
 8. SEED/SOD AND STABILIZE ALL DENUDED AREAS ONCE THE CHANNEL IS IN PLACE.
 9. THE PUMP IS TO REMAIN ON SITE AND TO KEEP POND ELEVATION AT OR BELOW THE CHANNEL AND PIPE INVERTS.

- STAGE 1B CULVERT CROSSING INSTALLATION:**
1. OBTAIN PERMISSION FROM THE WAKE COUNTY INSPECTOR TO PROCEED WITH THIS STEP.
 2. EXCAVATE AREA AS SHOWN AND INSTALL PIPE WITH HEADWALLS AND DOWNSTREAM RIP-RAP AS SHOWN IN RIP-RAP CROSS-SECTION WITHIN THE WORKABLE AREA.
 3. OBTAIN WAKE COUNTY APPROVAL OF THE PIPE INSTALLATION.

- STAGE 1C CULVERT CROSSING INSTALLATION**
1. WITHIN ONE ACTIVE WORKDAY, REMOVE THE TEMPORARY DAM ON DOWNSTREAM AND UPSTREAM ENDS.
 2. REMOVE LINING ON UPSTREAM END OF BY-PASS CHANNEL AND INSTALL EARTHEN DAM ACROSS THE UPSTREAM END OF THE BY-PASS CHANNEL. REUSE SANDBAGS TO FORCE WATER FLOW THROUGH THE PIPE.
 3. INSTALL EARTHEN DAM ACROSS THE DOWNSTREAM OF THE BY-PASS CHANNEL AFTER REMOVING THE LINING.
 4. REMOVE REMAINDER OF THE BY-PASS CHANNEL LINING AND FILL THE CHANNEL COMPACTING THOROUGHLY IN LAYERS.
 5. INSTALL SILT FENCE AT THE TOE OF SLOPES AND TIE TO ENDWALLS AS SHOWN ON THIS PLAN.
 6. INSTALL ADDITIONAL SILT FENCE ALONG THE SLOPE AS SHOWN AND AS NEEDED.
 7. COMPLETE FILL AROUND THE PIPE TO A LEVEL AT LEAST TWO (2) FEET ABOVE THE TOP OF THE PIPE TO ALLOW CONSTRUCTION EQUIPMENT TO PASS OVER IT.
 8. COMPLETE FILL BRINGING THE AREA TO FINISHED GRADE.
 9. INSTALL PAVEMENT AND FOLLOW THE SEEDING SCHEDULE FOR ALL BARE AREAS.
 10. REFER TO MAIN CONSTRUCTION SEQUENCE FOR OTHER DETAILS.

- GENERAL NOTES**
1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH WAKE COUNTY STANDARDS AND REGULATIONS.
 2. THERE SHALL BE NO DISTURBANCE OUTSIDE THE LIMITS SHOWN ON THIS PLAN WITHOUT AN APPROVED PLAN AMENDMENT BY WAKE COUNTY.
 3. ALL DISTURBED AREAS SHALL BE SEEDED PER THE SEEDING SCHEDULE.
 4. PERMANENT GROUND COVER SHALL BE ESTABLISHED PER NPDES SEEDING SCHEDULE AT EITHER 7 DAYS OR 14 DAYS DEPENDING ON MEASURE AND SLOPE.
 5. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SELF-INSPECTION LOG.
 6. CUT AND FILL SLOPES THAT ARE 2:1 OR GREATER SHALL BE STABILIZED WITH PERMANENT SLOPE RETENTION DEVICES OR A SUITABLE COMBINATION OF PLANTING AND RETENTION DEVICES. SLOPES GREATER THAN 3:1 SHALL NOT BE STABILIZED WITH TURF GRASS BUT MUST BE STABILIZED WITH VEGETATION THAT REQUIRES MINIMAL MAINTENANCE SUCH AS WEEPING LOVE GRASS, RED FESCUE, OR OTHER APPROVED VARIETY.



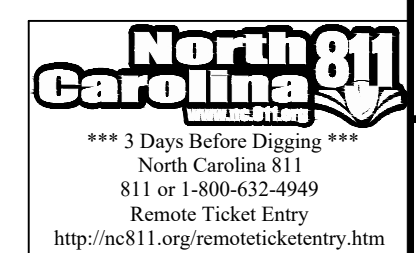
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1	12/25/2024	CID-SUBMITTAL #1

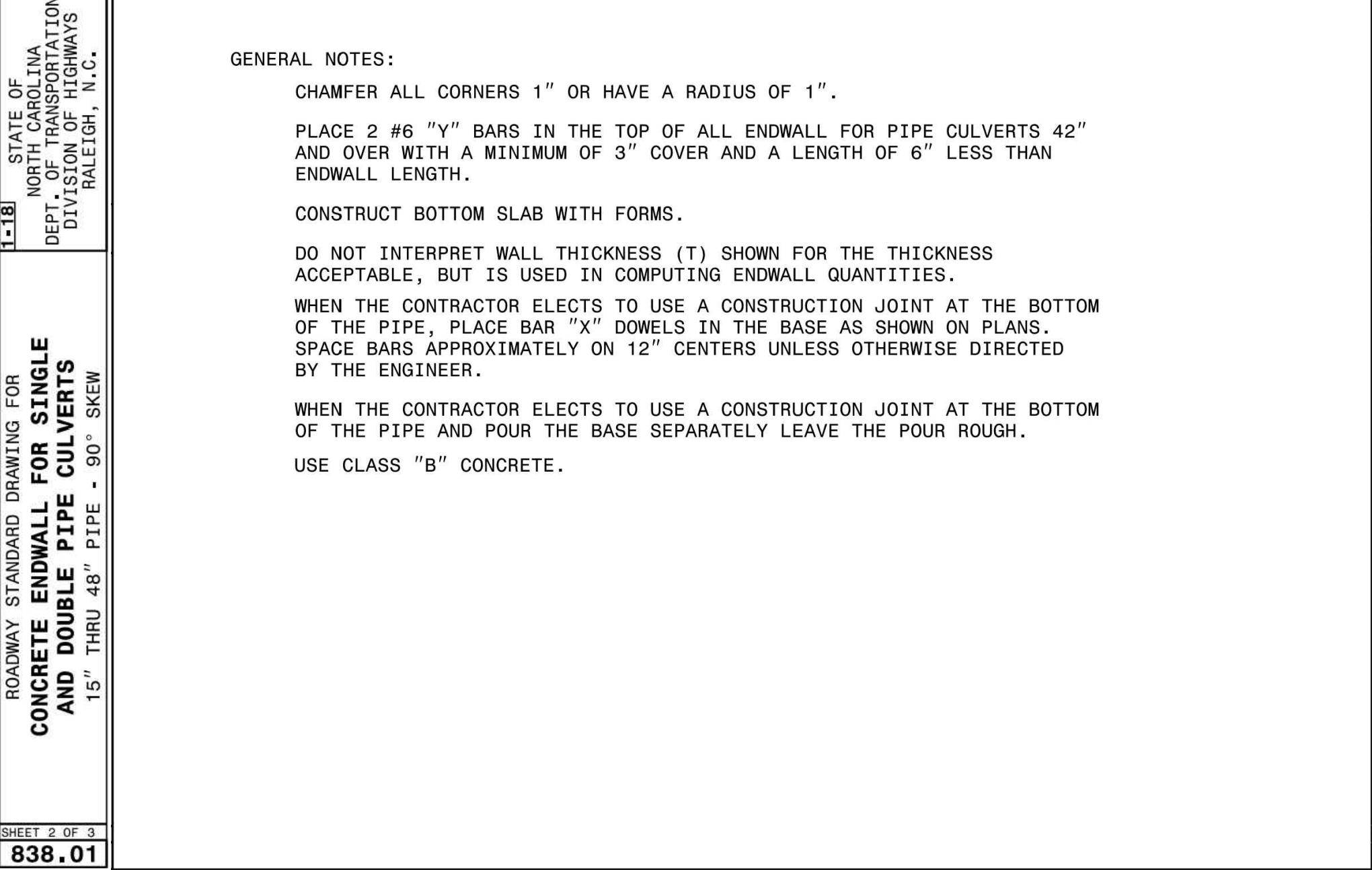
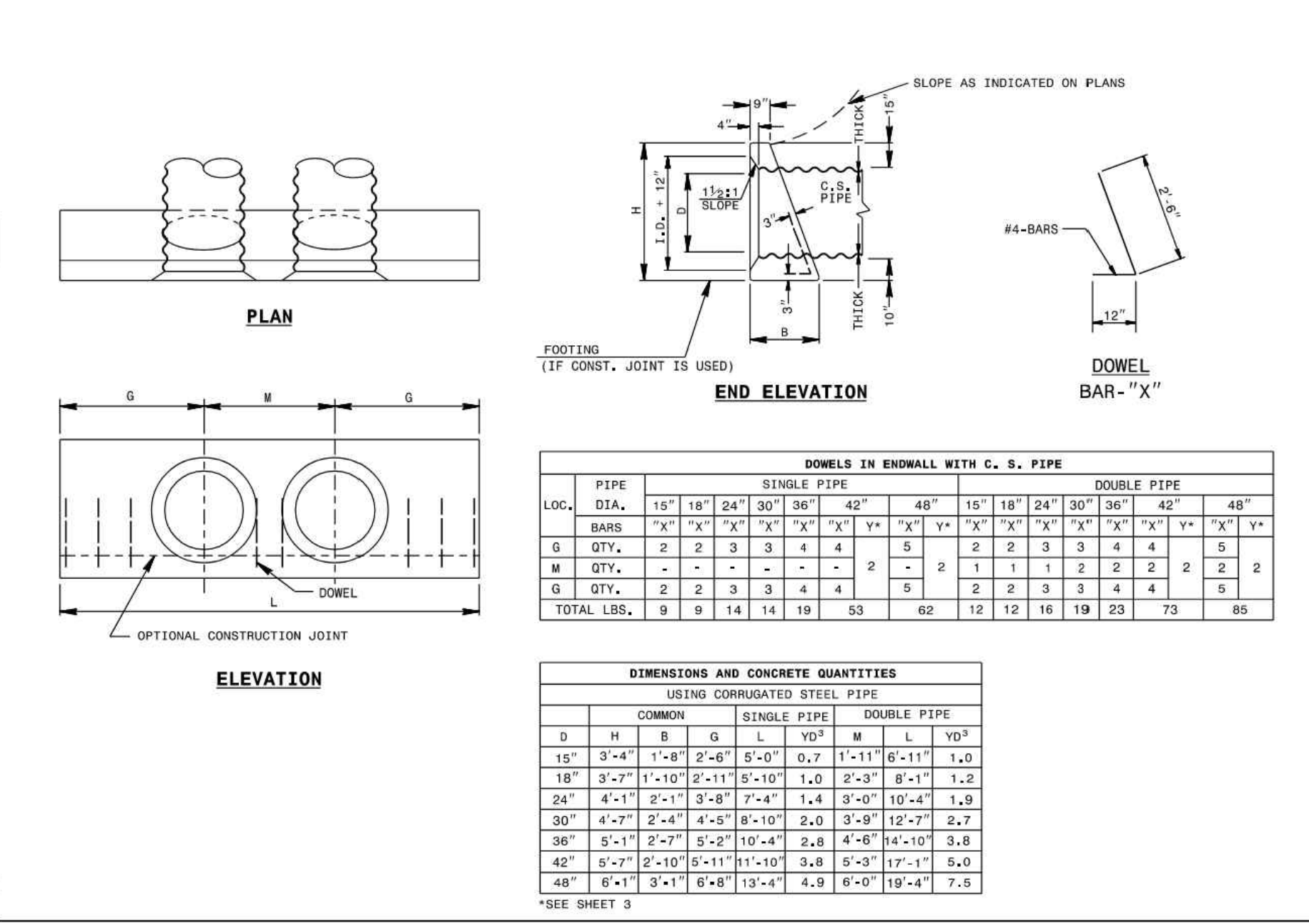
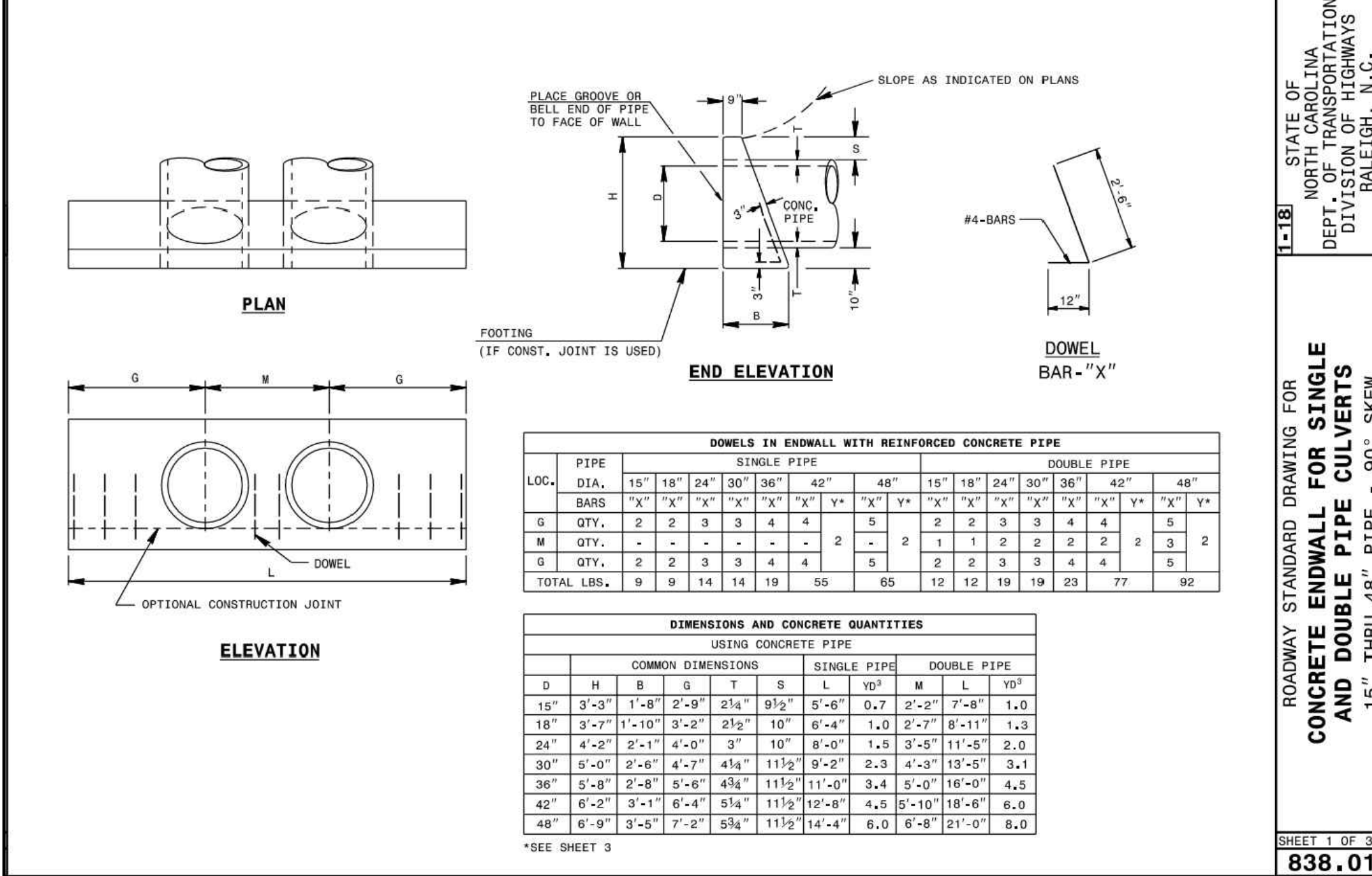
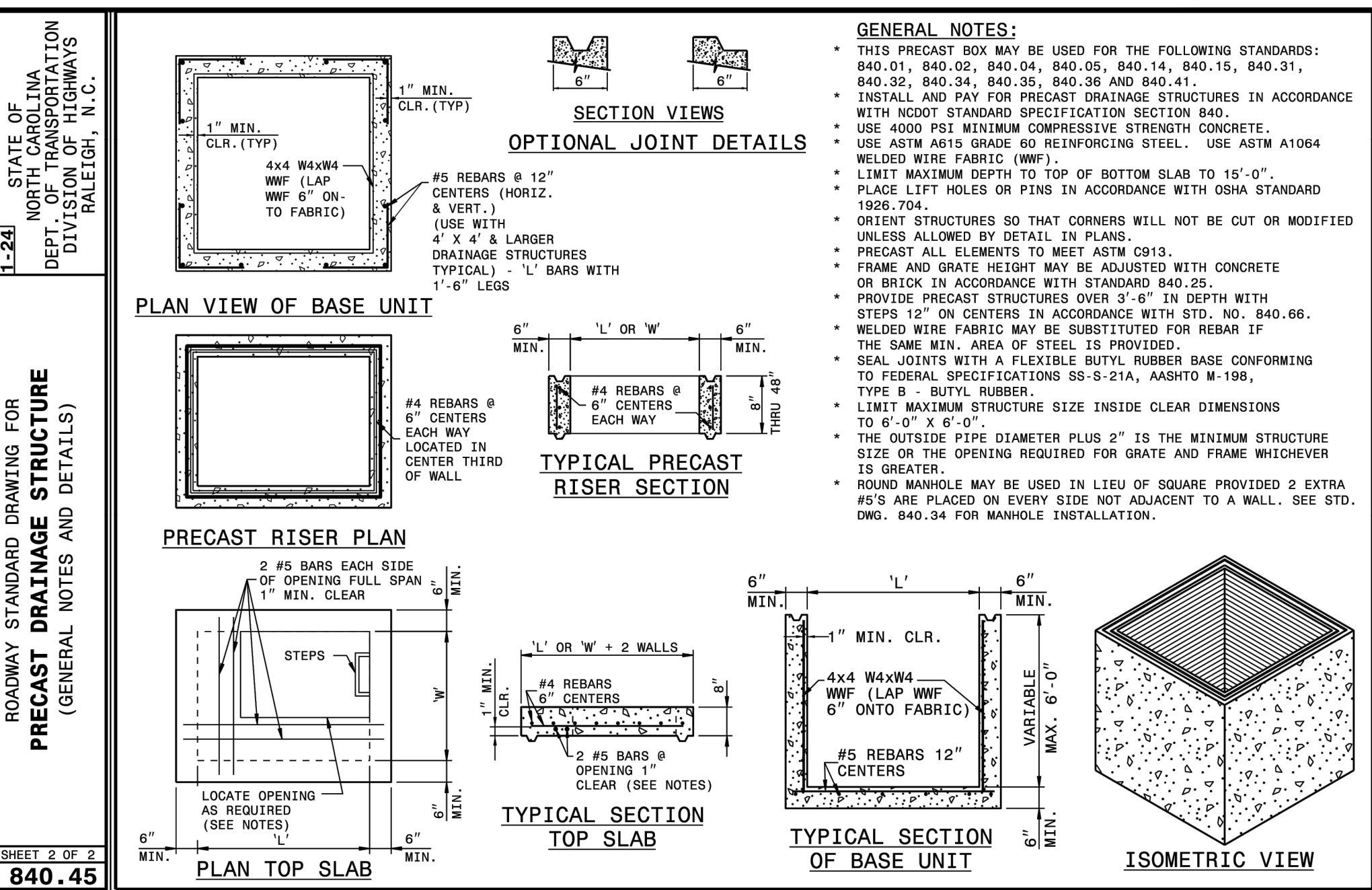
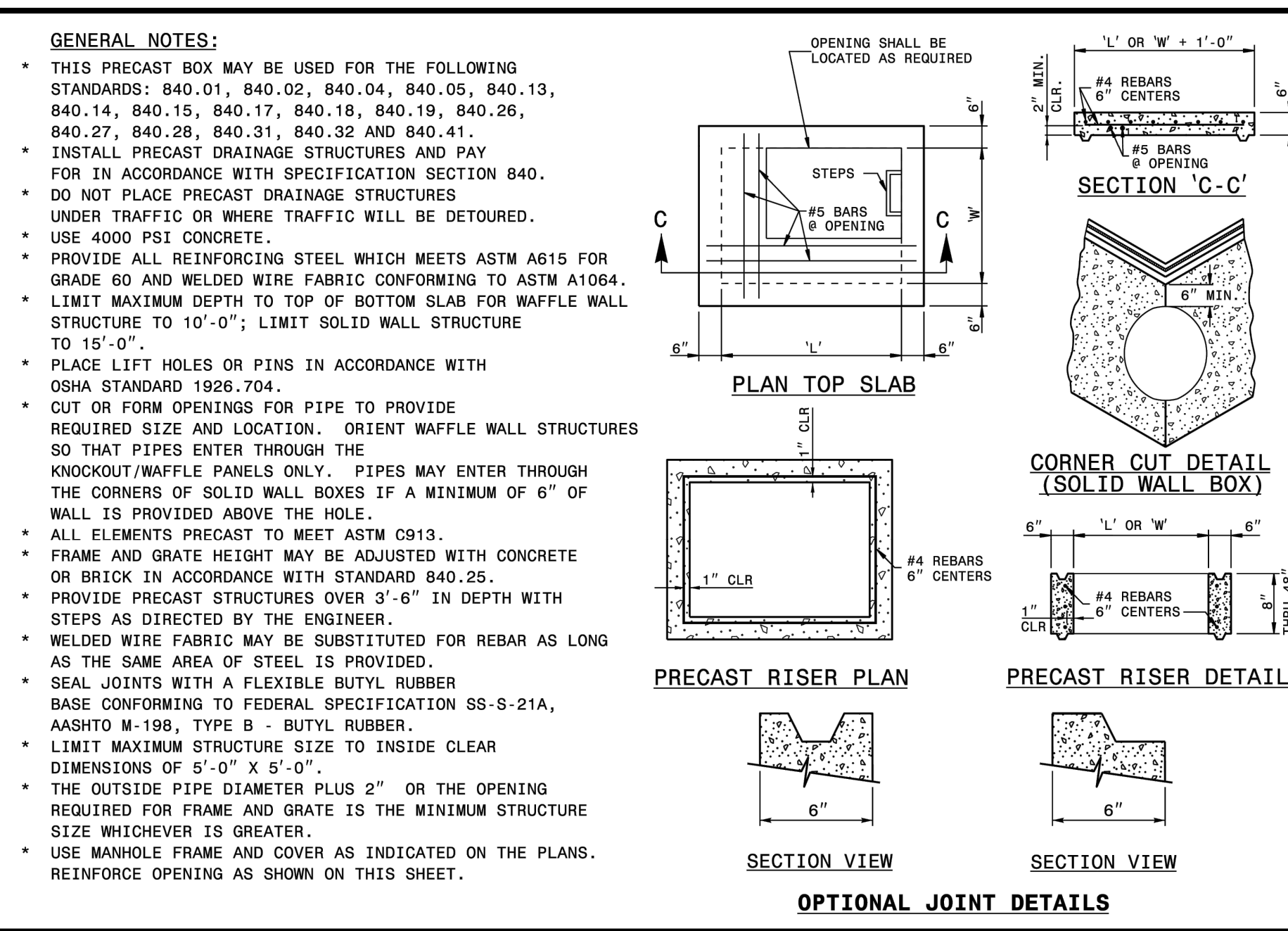
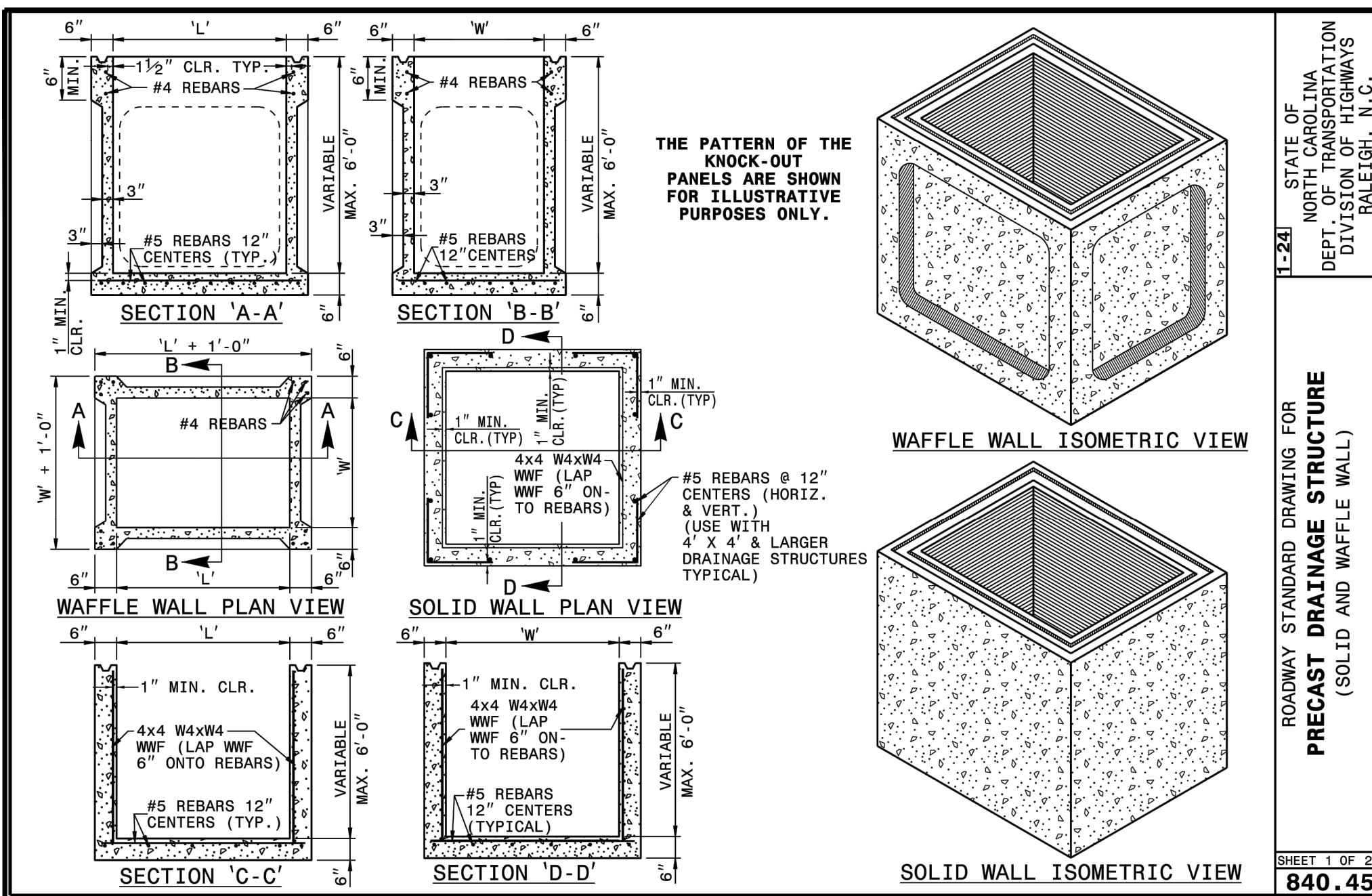
STIPULATION FOR REUSE
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KALAS FALLS
 PHASE 5
 CONSTRUCTION INFRASTRUCTURE
 DOCUMENTS
 CID-25-01
 TOWN OF ROLESVILLE,
 WAKE COUNTY, NC

JOB NUMBER: R180115
 CHECKED BY: JK
 DRAWN BY: GE, RC
 DATE: 03-03-2025

SHEET TITLE:
**CULVERT
 CROSSING
 PLAN &
 PROFILE**
 SHEET NO.:
CD201





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

ROADWAY STANDARD DRAWING FOR TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE

REVISIONS:

NO.	DATE	REVISION
1	12/27/2024	CID:SDRBTAL-#1

CID:SDRBTAL-#1

840.45

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

ROADWAY STANDARD DRAWING FOR CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS 15" THRU 48" PIPE - 90° SKEW

REVISIONS:

NO.	DATE	REVISION
1	12/27/2024	CID:SDRBTAL-#1

CID:SDRBTAL-#1

838.01

FOR INFORMATION ONLY

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KALAS FALLS PHASE 5 CONSTRUCTION INFRASTRUCTURE DOCUMENTS CID-25-01 TOWN OF ROLESVILLE, WAKE COUNTY, NC

JOB NUMBER: R180115
CHECKED BY: JK
DRAWN BY: GE, RC
DATE: 03-03-2025

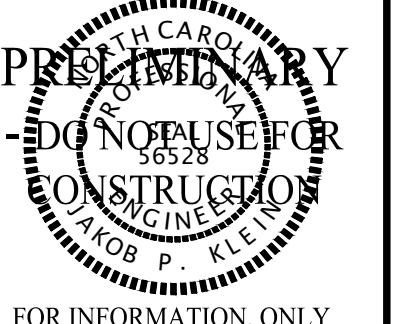
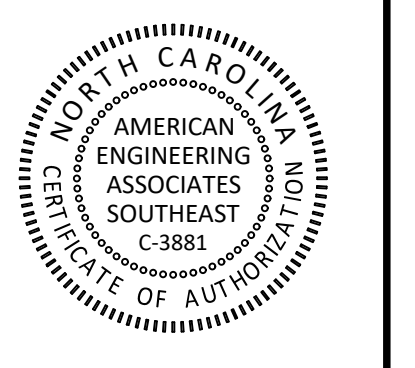
DATE TITLE: DRAINAGE DETAILS

SHEET NO.: CD500

AMERICAN
Engineering

American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607

919-469-1101



NO.	DATE	REVISION	CID:SUBMITTAL#1
1	12/25/2024		

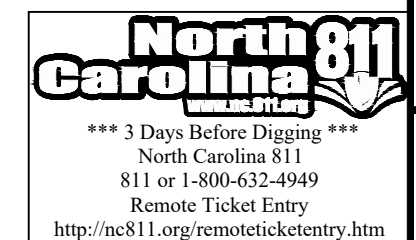
STIPULATION FOR REUSE

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KALAS FALLS
 PHASE 5
 CONSTRUCTION INFRASTRUCTURE DOCUMENTS
 CID-25-01
 TOWN OF ROLESVILLE,
 WAKE COUNTY, NC

JOB NUMBER: R180115
 CHECKED BY: JK
 DRAWN BY: GE, RC
 DATE: 03-03-2025

SHEET TITLE:
DRAINAGE DETAILS
 SHEET NO.:
CD501



ROADWAY STANDARD DRAWING FOR GUIDE FOR RIP RAP AT PIPE OUTLETS
 SHEET 1 OF 1
876.02

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

4 X D

D	OUTLET W/DITCH		OUTLET W/O DITCH	
	CLASS 'B' RIP RAP TONS	S.Y.	CLASS 'B' RIP RAP TONS	S.Y.
12"	2	5	5	1
15"	2	7	7	1
18"	3	10	10	2
24"	5	14	15	3
30"	8	21	21	5
36"	11	28	29	7
42"	15	37	39	10
48"	-	-	49	17
54"	-	-	60	21
60"	-	-	73	26
66"	-	-	87	32
72"	-	-	102	38

NOTES:
 FOR CALCULATION PURPOSES
 CLASS 'B' RIP RAP = 100 LBS./FT³
 CLASS 'I' RIP RAP = 105 LBS./FT³

PLAN
 SLOPE 1½:1 OR FLATTER

SECTION A-A
 PIPE OUTLET WITH DITCH

SECTION B-B
 PIPE OUTLET WITHOUT DITCH

H = RIP RAP TO TOP OF PIPE (MAX. H = D + T)
 T = 18" CLASS 'I' RIP RAP, UNLESS OTHERWISE SHOWN ON PLANS
 T = 12" CLASS 'B' RIP RAP, UNLESS OTHERWISE SHOWN ON PLANS
 KEY-IN RIP RAP

ROADWAY STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE
 SHEET 2 OF 2
840.02

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

EXPANSION JOINTS

PLAN
 CURB AND GUTTER WITH CATCH BASIN ON STEEP GRADES

ELEVATION
 NORMAL CURB AND GUTTER ON LIGHT GRADES

ELEVATION
 NORMAL CURB AND GUTTER ON STEEP GRADES

SECTION S-S
 PLAN OF TOP SLAB

SECTION R-R
 DOWEL

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER)													
PIPE DIM.	SPAN		WIDTH		MIN. HEIGHT	COVER DIMENSION	BARS - U			TOTAL LBS. SLAB	TOP SURFACE AREA C.F.	REDUCTIONS ONE PIPE	
	A	B	C	D			NO.	LENGTH	NO.				LENGTH
12"	3'-0"	2'-2"	-	-	2'-0"	6"	4	11'-0"	3	3'-0"	0.235	0.027	0.019
15"	3'-0"	2'-2"	-	-	3'-0"	6"	4	11'-0"	3	3'-0"	0.235	0.029	0.023
18"	3'-0"	2'-2"	-	-	3'-0"	6"	4	11'-0"	3	3'-0"	0.235	0.027	0.023
24"	3'-0"	2'-2"	-	-	3'-0"	6"	4	11'-0"	3	3'-0"	0.235	0.027	0.023
30"	3'-0"	2'-2"	3'-4"	-	4'-0"	6"	4	11'-0"	3	3'-0"	0.235	0.027	0.023
36"	3'-0"	2'-2"	3'-10"	-	4'-6"	6"	4	11'-0"	3	3'-0"	0.235	0.027	0.023
42"	3'-0"	2'-2"	4'-5"	3'-2"	5'-0"	6"	4	11'-0"	3	3'-0"	0.235	0.027	0.023
48"	3'-0"	2'-2"	5'-0"	3'-8"	5'-6"	6"	4	11'-0"	3	3'-0"	0.235	0.027	0.023
54"	3'-0"	2'-2"	5'-7"	4'-3"	6'-3"	6"	4	11'-0"	3	3'-0"	0.235	0.027	0.023

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

ROADWAY STANDARD DRAWING FOR CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
 SHEET 1 OF 1
840.01

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

6" WALL
 6" WALL WITH 4" LIP
 8" WALL
 8" WALL WITH 4" LIP

PART SECTION 6" WALL
 PART SECTION 6" WALL WITH 4" LIP
 PART SECTION 8" WALL
 PART SECTION 8" WALL WITH 4" LIP

TABLES OF QUANTITIES FOR PIPE SET IN PAD

PIPE DIM.	"W"	"W1"	"T"	C.Y. QUANTITIES WHEN L IS		
				12"	16"	20"
12"	1'-1 7/8"	0'-7 7/8"	0'-2"	0.005	0.007	0.008
15"	1'-0 9/8"	0'-8 9/8"	0'-2"	0.006	0.008	0.010
18"	1'-5 1/4"	0'-10 9/8"	0'-2"	0.007	0.010	0.012
24"	1'-8 3/4"	1'-0 3/8"	0'-3"	0.011	0.014	0.018
30"	2'-0 1/4"	1'-2 3/4"	0'-3 1/2"	0.014	0.018	0.023
36"	2'-3 3/8"	1'-5 9/8"	0'-4"	0.017	0.023	0.025
42"	2'-7 7/8"	1'-7"	0'-5 1/4"	0.025	0.030	0.038
48"	2'-10 9/8"	1'-8 3/4"	0'-5 3/4"	0.028	0.038	0.047
54"	3'-2 1/8"	1'-10 1/2"	0'-6 1/4"	0.035	0.047	0.058
60"	3'-5 9/8"	2'-0 1/4"	0'-6 3/4"	0.042	0.056	0.071
66"	3'-9"	2'-2 1/4"	0'-7 1/4"	0.050	0.067	0.084
72"	4'-0 1/2"	2'-3 3/4"	0'-7 3/4"	0.059	0.078	0.098

GENERAL NOTES:
 USE THIS STANDARD WITH ALL DRAINAGE STRUCTURES USING REINFORCED CONCRETE PIPE SET IN BASE SLAB.

ROADWAY STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE
 SHEET 1 OF 2
840.03

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

FRAME, GRATE, AND HOOD

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

TYPE "G"
 TYPE "E"
 TYPE "F"

WATER FLOW → SAG → WATER FLOW

SECTION - LL
 SECTION - MM

SECTION - AA
 FRAME, GRATE, & HOOD ASSY

SECTION - BB
 NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

SECTION - CC
 ALIGN FRAME WITH INSIDE EDGE OF WALL TO ALLOW FOR VERTICAL ADJUSTMENT

SECTION - DD
 SECTION - EE
 SECTION - FF
 SECTION - GG
 SECTION - HH
 SECTION - II
 SECTION - JJ
 SECTION - KK
 HOOD ELEVATION

SECTION - RR
 SECTION - SS
 SECTION - TT
 SECTION - UU
 SECTION - VV
 SECTION - WW
 SECTION - XX
 SECTION - YY
 SECTION - ZZ

ROADWAY STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE
 SHEET 2 OF 2
840.02

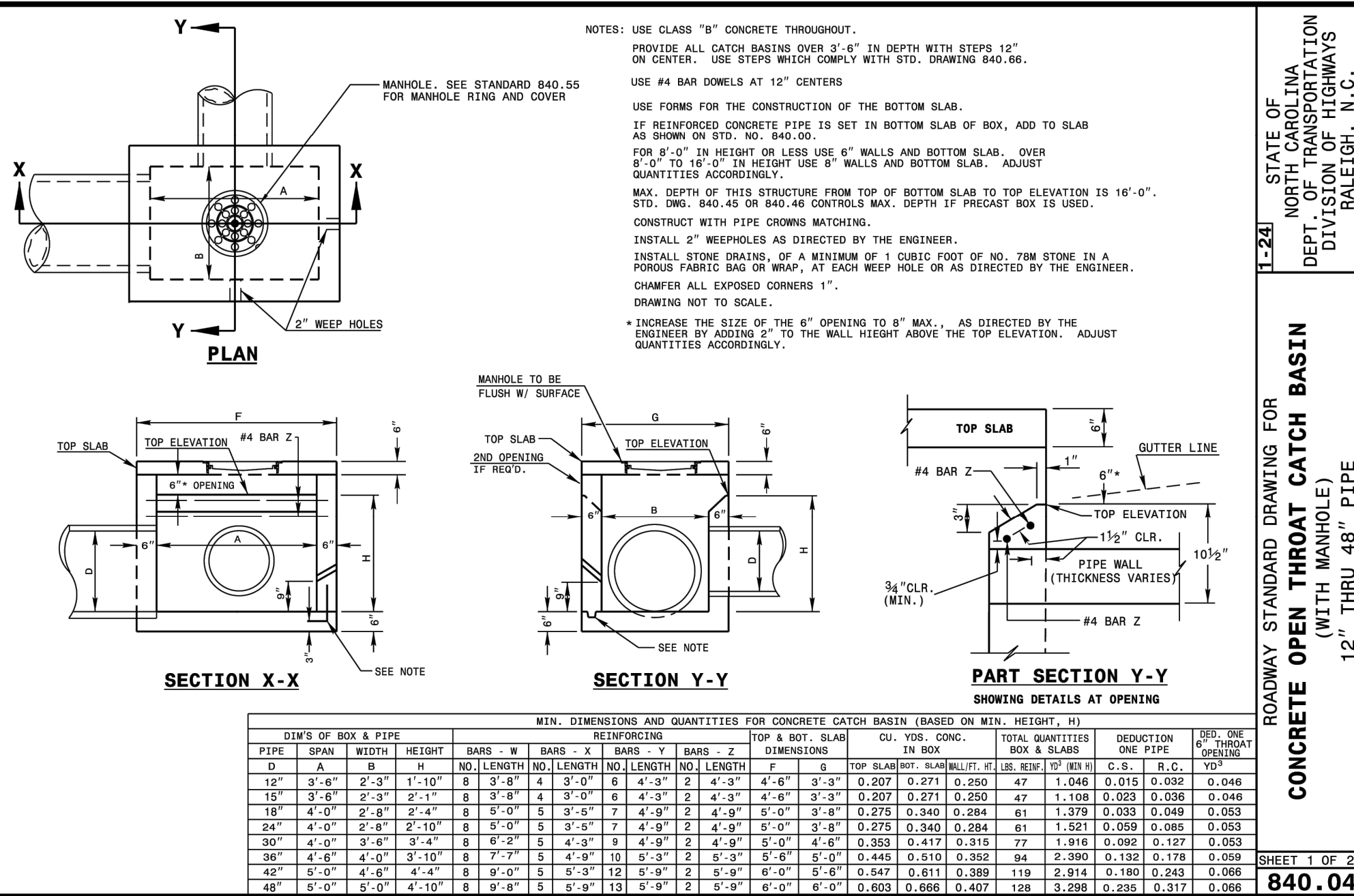
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 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

TYPE "G"
 TYPE "E"
 TYPE "F"

WATER FLOW → SAG → WATER FLOW

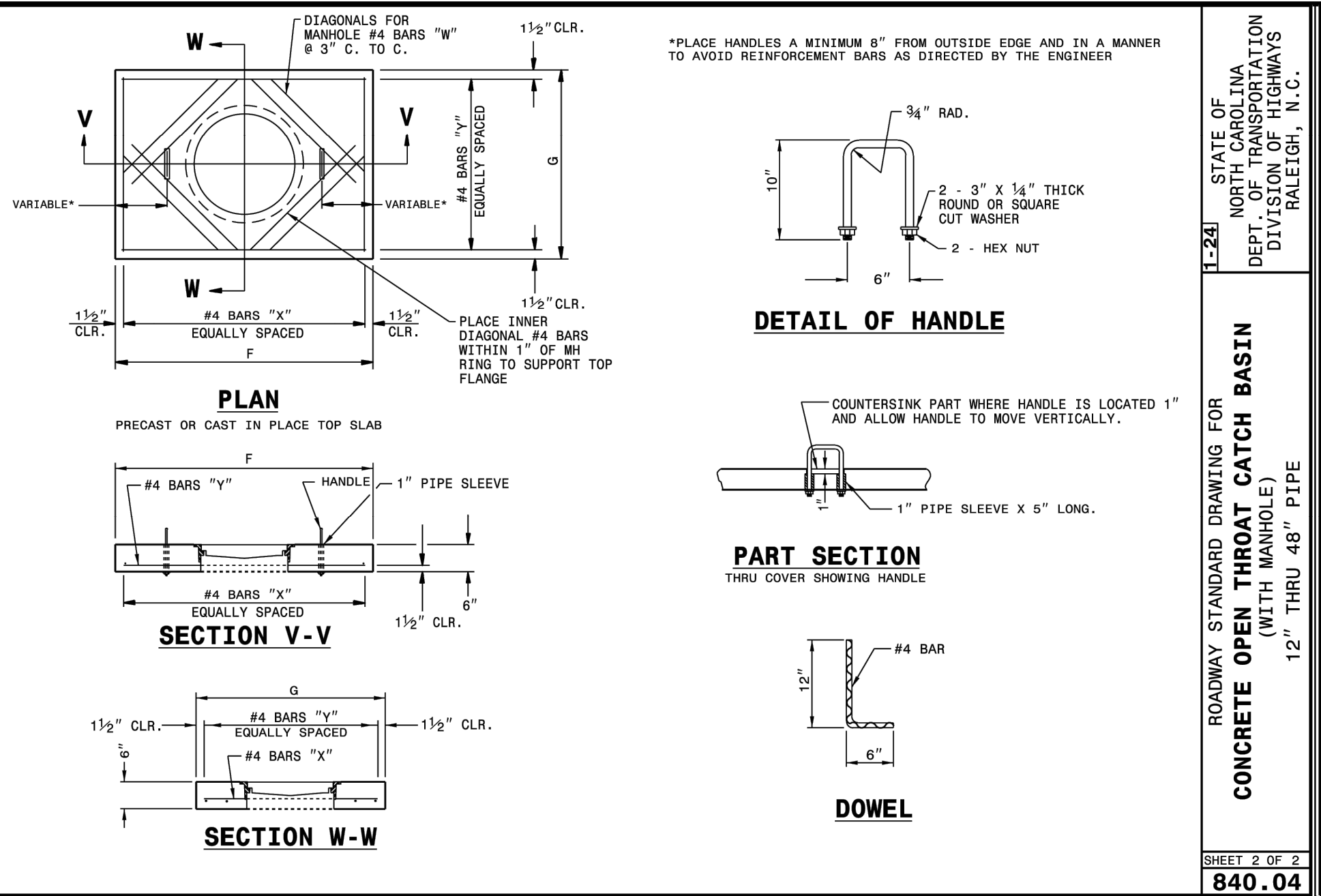
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 SECTION - BB
 SECTION - CC
 SECTION - DD
 SECTION - EE
 SECTION - FF
 SECTION - GG
 SECTION - HH
 SECTION - II
 SECTION - JJ
 SECTION - KK
 SECTION - LL
 SECTION - MM
 SECTION - NN
 SECTION - OO
 SECTION - PP
 SECTION - QQ
 SECTION - RR
 SECTION - SS
 SECTION - TT
 SECTION - UU
 SECTION - VV
 SECTION - WW
 SECTION - XX
 SECTION - YY
 SECTION - ZZ



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

ROADWAY STANDARD DRAWING FOR
CONCRETE OPEN THROAT CATCH BASIN
(WITH MANHOLE)
12" THRU 48" PIPE

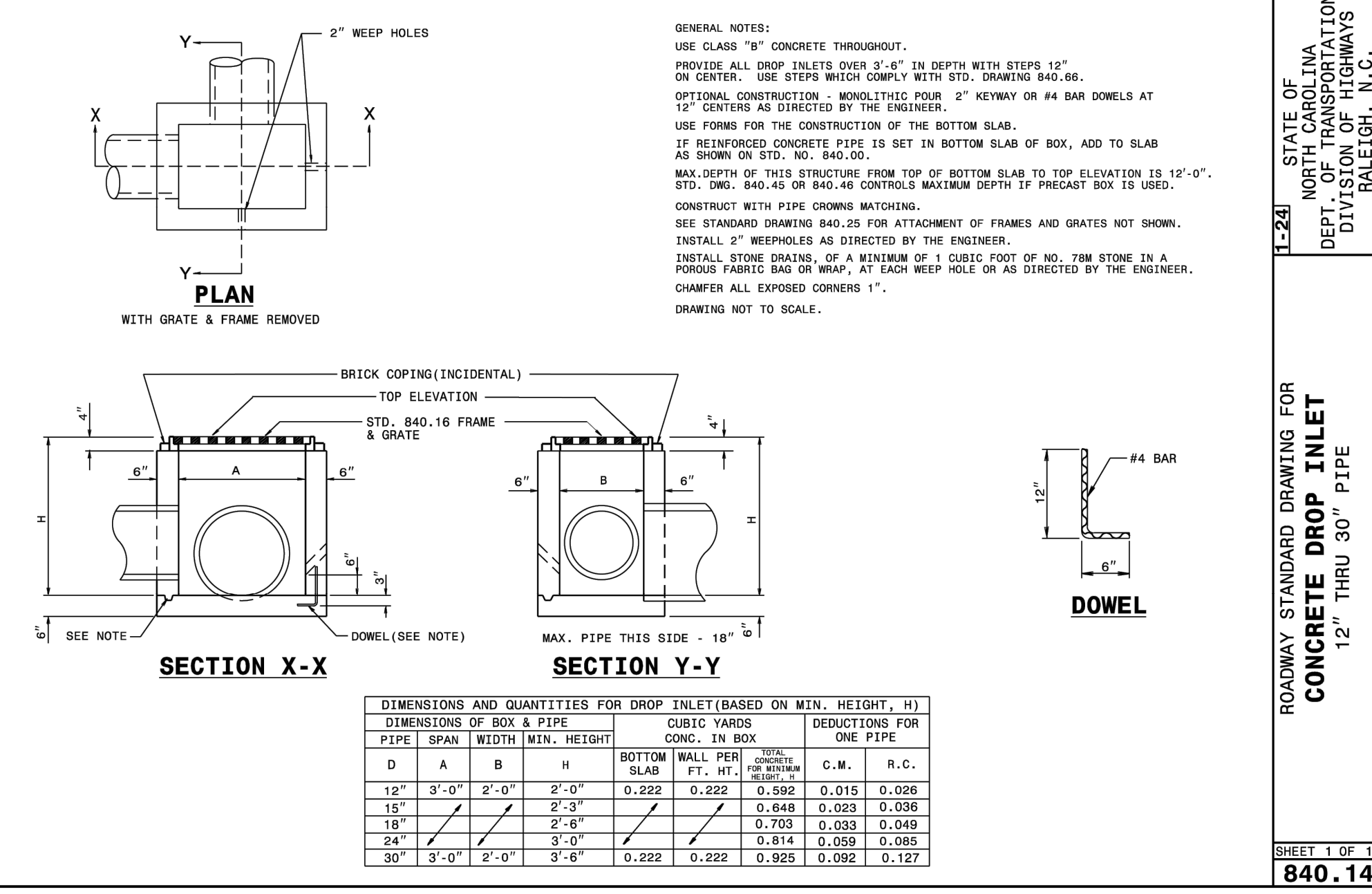
SHEET 1 OF 2
840.04



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

ROADWAY STANDARD DRAWING FOR
CONCRETE OPEN THROAT CATCH BASIN
(WITH MANHOLE)
12" THRU 48" PIPE

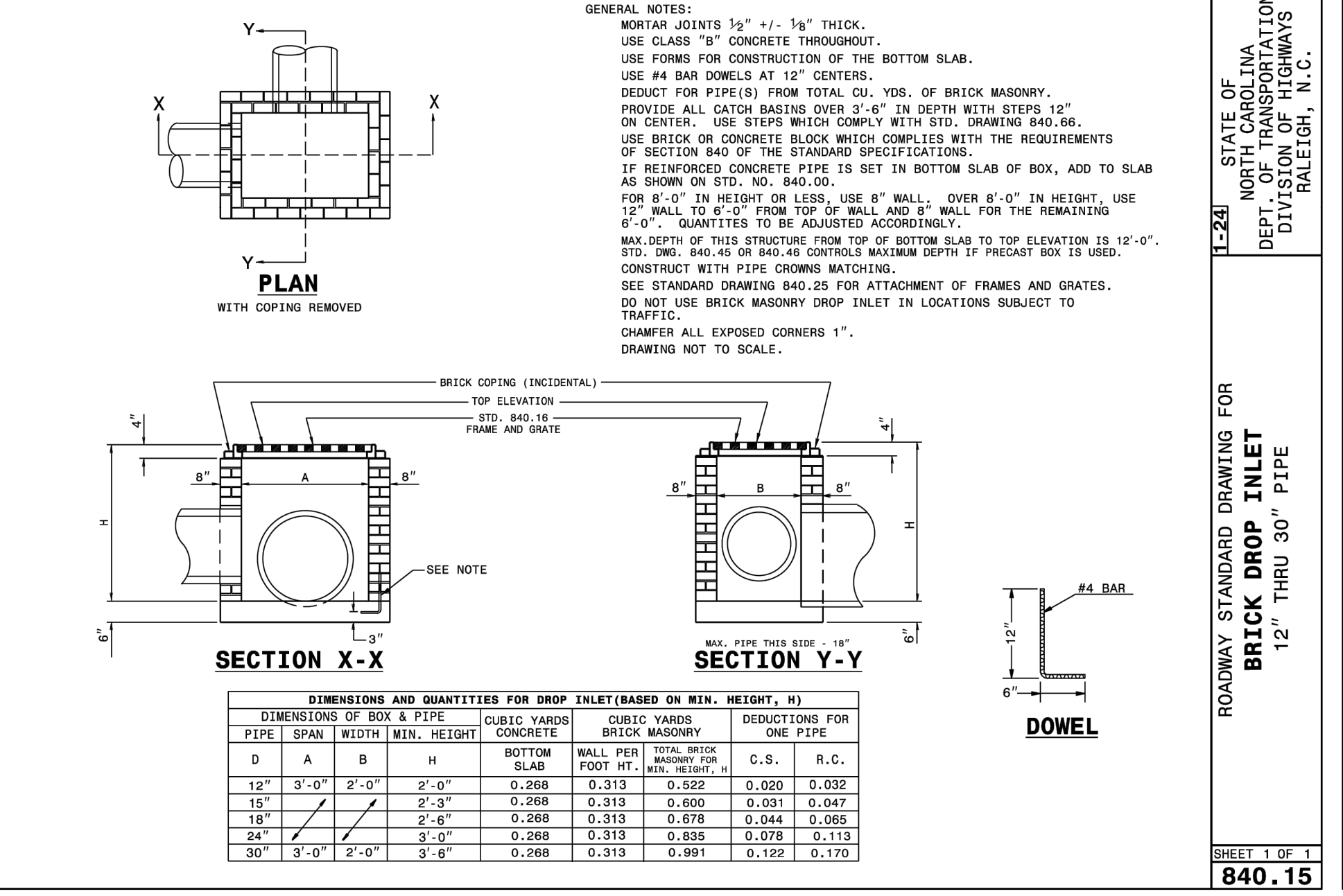
SHEET 2 OF 2
840.04



STATE OF NORTH CAROLINA
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ROADWAY STANDARD DRAWING FOR
CONCRETE DROP INLET
12" THRU 30" PIPE

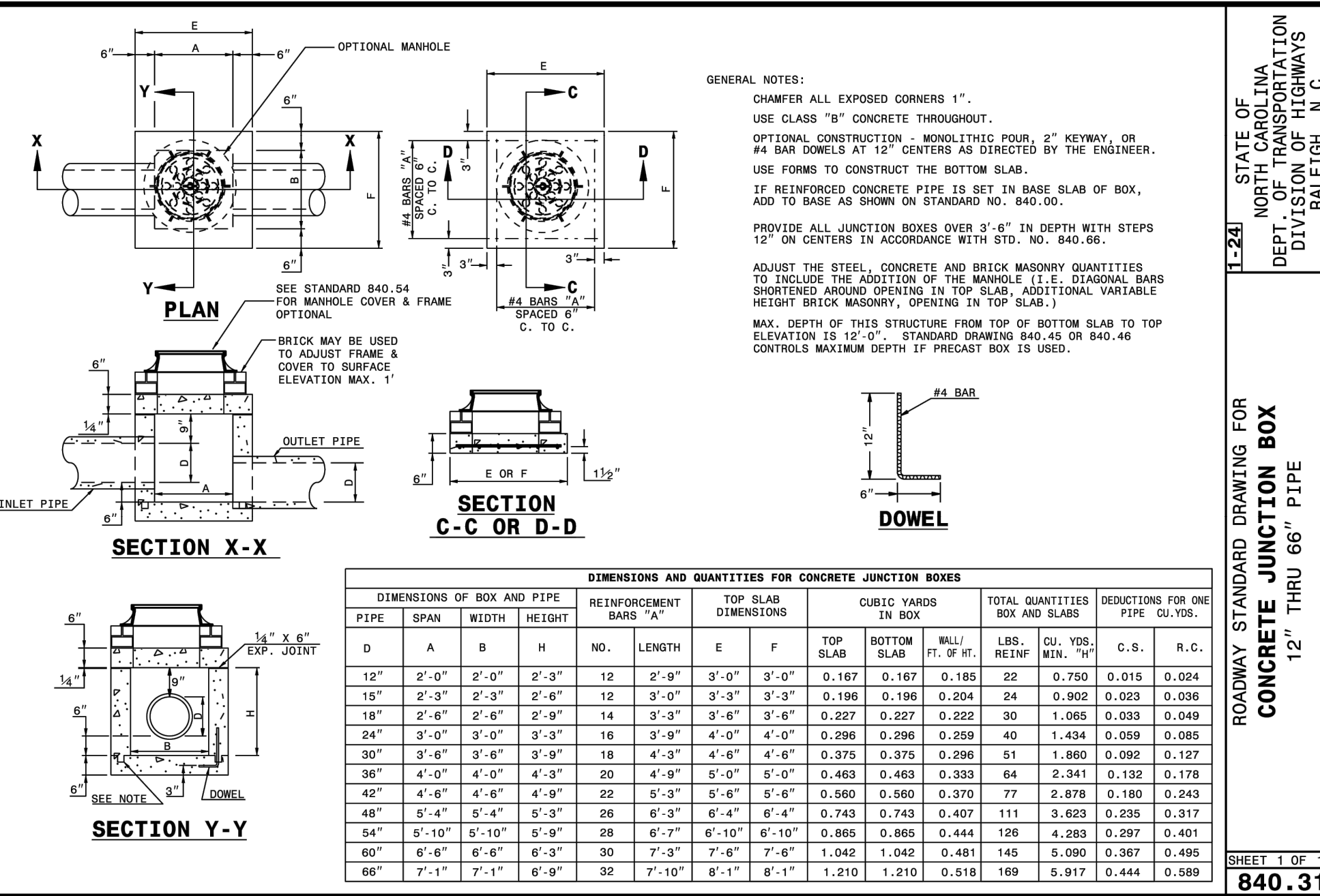
SHEET 1 OF 1
840.14



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

ROADWAY STANDARD DRAWING FOR
BRICK DROP INLET
12" THRU 30" PIPE

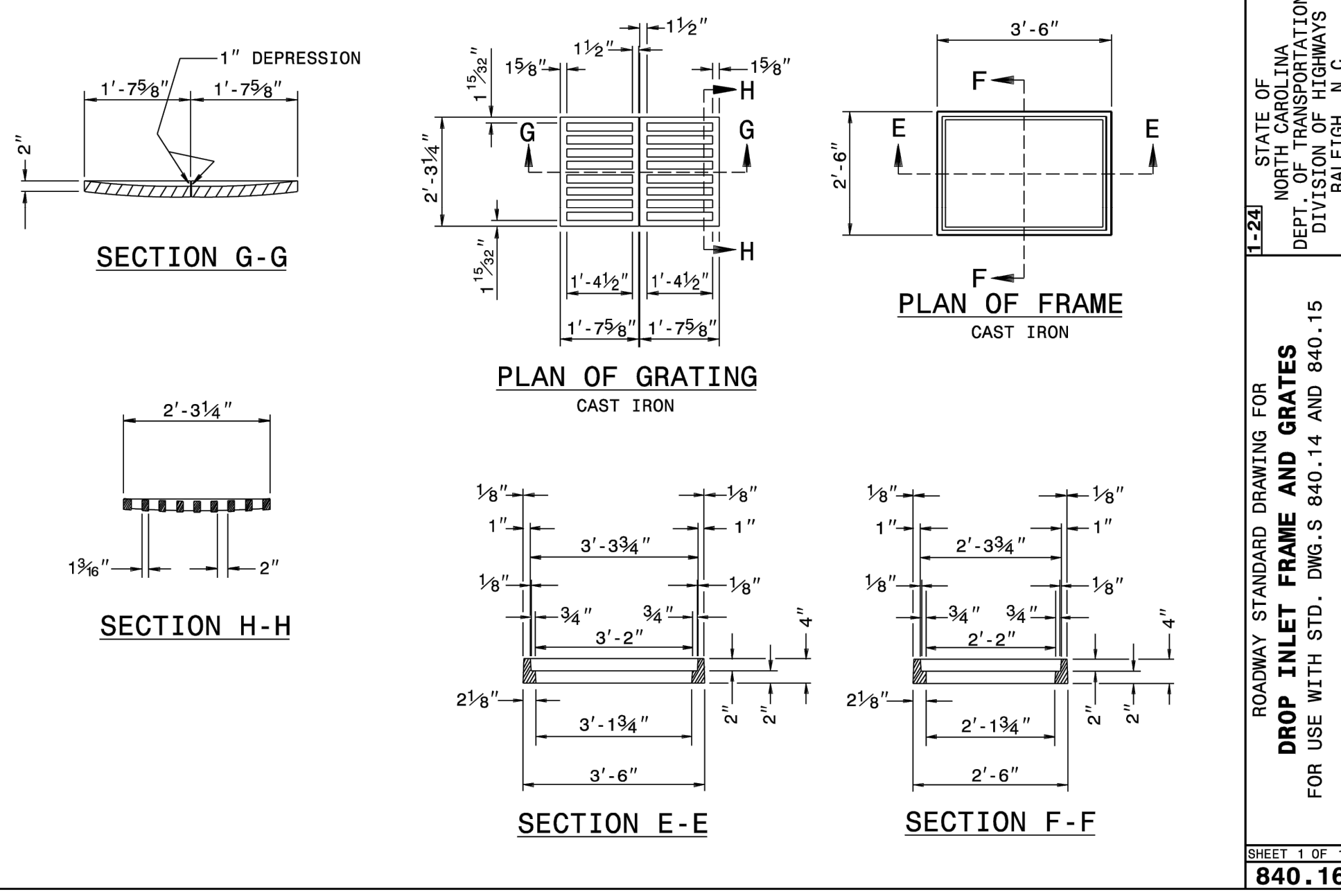
SHEET 1 OF 1
840.15



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

ROADWAY STANDARD DRAWING FOR
CONCRETE JUNCTION BOX
12" THRU 66" PIPE

SHEET 1 OF 1
840.31



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

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

SHEET 1 OF 1
840.16

NOTES: USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC FOUR 2" KEYWAY OR #4 BAR DOMELS AT 12" CENTERS.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 16'-0".
STD. DWG. 840.45 OR 840.46 CONTROLS MAXIMUM DEPTH IF PRECAST BOX IS USED.
CONSTRUCT WITH PIPE CROWNS MATCHING.
INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.
INSTALL STONE DRAINAGE OF A MINIMUM OF 1 CUBIC FOOT OF NO. 75M STONE IN A PARALLEL FABRIC BAG OR MAT AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC FOUR 2" KEYWAY OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
FOR 8'-0" IN HEIGHT OR LESS, USE 6" WALL OVER 8'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE REMAINING 6'-0". QUANTITIES TO BE ADJUSTED ACCORDINGLY.
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12'-0".
STD. DWG. 840.45 OR 840.46 CONTROLS MAXIMUM DEPTH IF PRECAST BOX IS USED.
CONSTRUCT WITH PIPE CROWNS MATCHING.
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES.
DO NOT USE BRICK MASONRY DROP INLET IN LOCATIONS SUBJECT TO TRAFFIC.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H)

PIPE DIAM.	SPAN	WIDTH	HEIGHT	REINFORCING BARS - W				TOP & BOT. SLAB DIMENSIONS				TOTAL QUANTITIES BOX & SLAB				DEDUCTIONS FOR ONE PIPE	C.S.	R.C.						
				NO.	LENGTH	NO.	LENGTH	F	G	H	MIN.	MAX.	MIN.	MAX.	MIN.				MAX.					
12"	3'-6"	2'-3"	1'-10"	8	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	0.167	0.167	0.168	22	0.750	0.015	0.024
15"	3'-6"	2'-3"	2'-1"	8	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	0.198	0.198	0.204	24	0.902	0.023	0.036
18"	4'-0"	2'-6"	2'-4"	8	5'-0"	5	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	0.227	0.227	0.232	30	1.065	0.033	0.049
24"	4'-0"	2'-6"	2'-10"	8	5'-0"	5	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	0.296	0.296	0.299	40	1.434	0.059	0.085
30"	4'-0"	2'-6"	3'-0"	8	5'-0"	5	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	4	3'-9"	0.375	0.375	0.396	51	1.860	0.092	0.127
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	5'-0"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	0.463	0.463	0.533	64	2.341	0.132	0.178
42"	4'-0"	4'-6"	4'-6"	22	5'-3"	5'-6"	5'-6"	5'-6"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	0.560	0.560	0.570	77	2.878	0.180	0.243
48"	5'-4"	5'-4"	5'-3"	26	6'-3"	6'-4"	6'-4"	6'-4"	6'-3"	6'-3"	6'-3"	6'-3"	6'-3"	6'-3"	6'-3"	6'-3"	6'-3"	0.743	0.743	0.407	111	3.623	0.235	0.317
54"	5'-10"	5'-10"	5'-9"	28	6'-7"	6'-10"	6'-10"	6'-10"	6'-7"	6'-7"	6'-7"	6'-7"	6'-7"	6'-7"	6'-7"	6'-7"	6'-7"	0.865	0.865	0.444	126	4.283	0.297	0.401
60"	6'-6"	6'-6"	6'-3"	30	7'-3"	7'-6"	7'-6"	7'-6"	7'-3"	7'-3"	7'-3"	7'-3"	7'-3"	7'-3"	7'-3"	7'-3"	7'-3"	1.042	1.042	0.481	145	5.090	0.367	0.495
66"	7'-1"	7'-1"	6'-6"	32	7'-10"	8'-1"	8'-1"	8'-1"	7'-10"	7'-10"	7'-10"	7'-10"	7'-10"	7'-10"	7'-10"	7'-10"	7'-10"	1.210	1.210	0.518	169	5.917	0.444	0.589

MIN. DIMENSIONS AND QUANTITIES FOR DROP INLET (BASED ON MIN. HEIGHT, H)

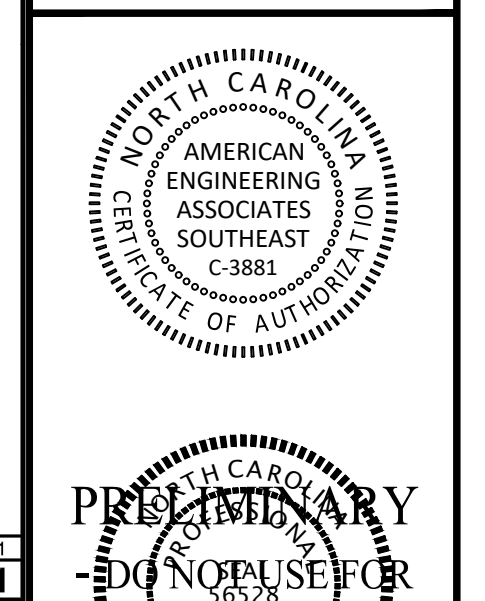
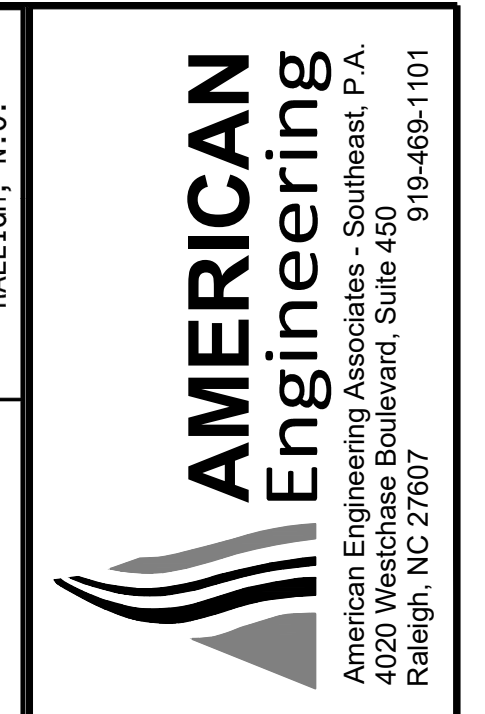
PIPE DIAM.	SPAN	WIDTH	MIN. HEIGHT	CUBIC YARDS CONG. IN BOX		C.W.	R.C.	
				BOTTOM SLAB	WALL PER FT. HT.			
12"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.592	0.015	0.036
15"	3'-0"	2'-3"	2'-3"	0.222	0.222	0.648	0.023	0.036
18"	3'-0"	2'-6"	2'-6"	0.222	0.222	0.703	0.033	0.049
24"	3'-0"	3'-0"	3'-0"	0.222	0.222	0.814	0.059	0.085
30"	3'-0"	3'-6"	3'-6"	0.222	0.222	0.925	0.092	0.127

MIN. DIMENSIONS AND QUANTITIES FOR DROP INLET (BASED ON MIN. HEIGHT, H)

PIPE DIAM.	SPAN	WIDTH	MIN. HEIGHT	CUBIC YARDS CONCRETE		CUBIC YARDS BRICK MASONRY		DEDUCTIONS FOR ONE PIPE	C.S.	R.C.
				BOTTOM SLAB	WALL PER FOOT HT.	TOTAL BRICK MASONRY PER MIN. HEIGHT	MIN. HEIGHT			
12"	3'-0"	2'-0"	2'-0"	0.268	0.313	0.522	0.020	0.032		
15"	3'-0"	2'-3"	2'-3"	0.268	0.313	0.600	0.031	0.047		
18"	3'-0"	2'-6"	2'-6"	0.268	0.313	0.678	0.044	0.065		
24"	3'-0"	3'-0"	3'-0"	0.268	0.313	0.885	0.078	0.113		
30"	3'-0"	3'-6"	3'-6"	0.268	0.313	0.991	0.122	0.170		

STIPULATION FOR REUSE

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NO.	DATE	REVISION
1	12/25/2024	CID:SUBMITTAL#1

KALAS FALLS
PHASE 5
CONSTRUCTION INFRASTRUCTURE
DOCUMENTS
CID-25-01
TOWN OF ROLESVILLE,
WAKE COUNTY, NC

JOB NUMBER: R180115
CHECKED BY: JK
DRAWN BY: GE, RC
DATE: 03-03-2025
SHEET TITLE: DRAINAGE DETAILS
SHEET NO.: CD502



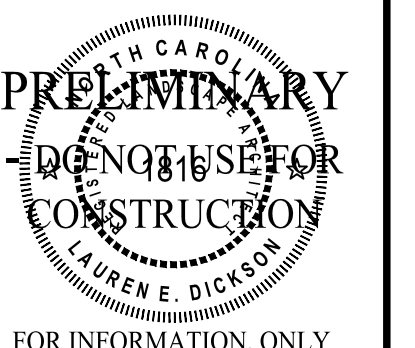


GENERAL PLANTING NOTES:

- All plant material shall conform with the standards set forth by the American Association of Nurserymen, American Standard for Nursery Stock, ANSI Z60.1.
- Locate all existing utilities prior to installation of plant material. Notify owner of any discrepancies between field conditions and those shown on the plan.
- Contractor engaged in landscape installation shall be a landscape contractor registered in the state of North Carolina.
- Tree protection fence shall be maintained on site until all site work and the final site inspection is completed. The fencing shall be removed prior to the certificate of occupancy (CO) inspection is scheduled.
- Verification of total quantities as shown on the plant list shall be the responsibility of the contractor.
- All plant groupings shall be mulched as one bed. 3" of triple shredded hardwood mulch shall be used around all plantings.
- Apply pre-emergent herbicide to all new planting beds at manufacturer's recommended rate prior to installation of mulch.
- Establish positive drainage in all planting beds and away from buildings.
- Do not install plant material in impervious soils, (i.e. holes which, when filled with water, do not completely drain within two hours.)
- Lawn areas shall be seeded with Riviera or Sunstar Bermuda grass 95% coverage (based on a per square yard sample) shall be attained prior to final inspection. All 3:1 slopes shall be stabilized with biodegradable erosion control matting. See detail sheet seeding schedule.
- General contractor shall be responsible for keeping all equipment & subcontractors away from seeded areas. If damage occurs, through no fault of the owner, areas shall be regraded and reseeded immediately at no additional cost to the owner. Contractor shall water and maintain those areas until they are at 95% coverage at final completion.
- Install permanent seeding along all roadside ditches and channels within construction limits of project. See erosion control plans for additional information.
- Areas damaged from plant relocation or other activities of landscape contractor to be reseeded and established at no additional cost to the owner.
- Mulch and no-mow mixes shall be replenished as needed, especially after heavy rain events. If no-mow mix germinates at a rate of less than 90%, other species shall be removed and the area re-seeded.
- Contractor is responsible for importing, testing, and preparing the soil on site per the recommendations of a soil test. Plants shall be watered at least 2 times per week unless soil is moist based on core sample or moisture meter reading. Water more frequently during establishment.
- Remove (either manually or with pesticide treatment) all weeds in mulch areas, plant beds, tree rings, and hardscape areas: including but not limited to nutsedge, grasses, invasive plants, and any non-desirable plant material. This treatment shall occur monthly until the end of the warranty / maintenance period.
- Mulch line smooth continuous curves.
- All trees not within a plant bed to be treated with a 6-ft diameter mulch ring (typ).
- All foundation trees are to be planted a minimum of 8' away from building wall. Notify Landscape Architect of any discrepancies.

LANDSCAPE REQUIREMENTS

TYPE		UDO SECTION	
PERIMETER BUFFER			
	REQUIRED	PROVIDED	
25' type A 1255 LF (1285 LF - 30 LF easement)	50% of trees and shrubs evergreen Trees 10' between canopies at maturity	207 Evergreen Shrubs + 169 Deciduous Shrubs 22 Evergreen Trees + 21 Deciduous Trees	14.6.7 (1)
20' type B 1061 LF (1111 LF - 50 LF R/W)	50% of shrubs evergreen Trees 20' between canopies at maturity	121 Evergreen Shrubs + 104 Deciduous Shrubs 21 Deciduous Trees	14.6.7 (2)
STREET FRONT TYPE D BUFFER			
	REQUIRED	PROVIDED	
1 canopy tree per 40 LF		73	156
VEHICULAR SURFACE AREA BUFFER			
			14.7
all spots within 60' of trunk of large tree			



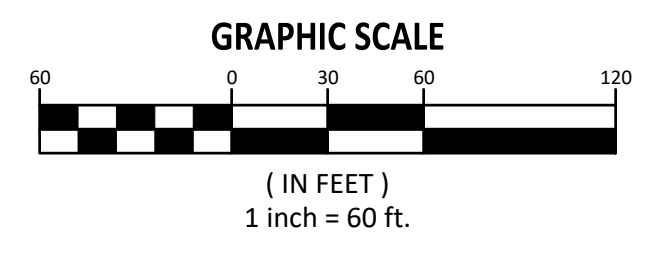
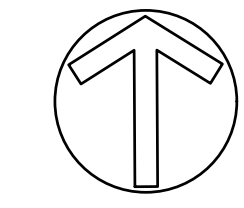
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KALAS FALLS PHASE 5 CONSTRUCTION INFRASTRUCTURE DOCUMENTS
 CID-25-01
 TOWN OF ROLESVILLE, WAKE COUNTY, NC

JOB NUMBER: R180115
 CHECKED BY: JK
 DRAWN BY: GE, RC
 DATE: 03-03-2025

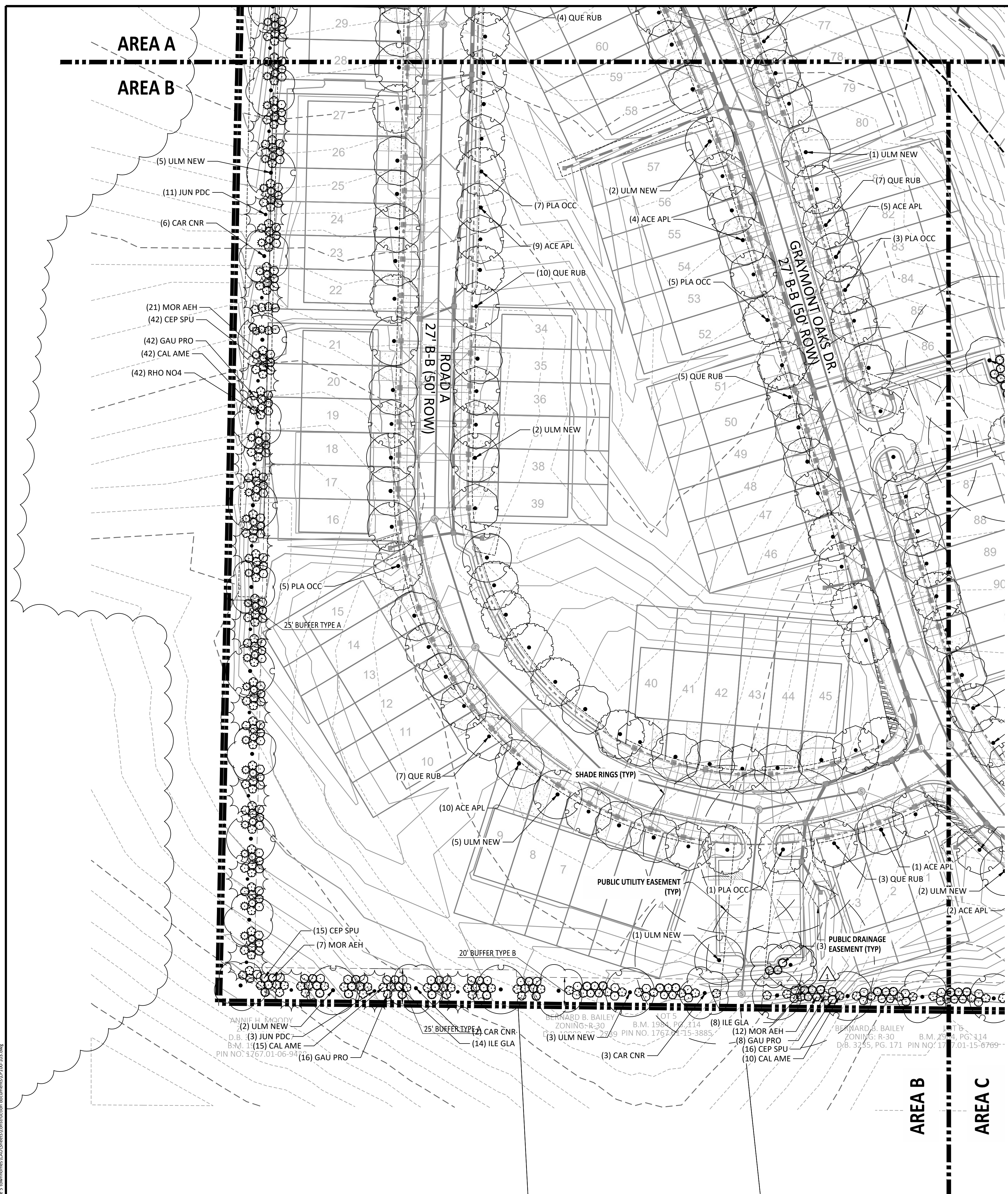
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 SHEET NO.: **LP100**



2025-03-03

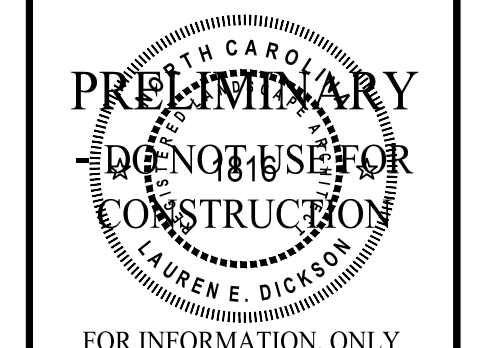
AREA A

AREA B



PLANT SCHEDULE AREA B

CODE	BOTANICAL / COMMON NAME	CAL	CONT	SIZE	QTY	REMARKS
CANOPY TREES						
ACE APL	Acer rubrum 'Built to Last' / Built to Last® Red Maple	2.5" Cal.		8" Height Min.	28	Single straight leader.
CAR CNR	Carpinus caroliniana 'CCMFE1' / Collynair® American Hornbeam	2.5" Cal.		8" Height Min.	11	Single straight leader.
PLA OCC	Platanus occidentalis / American Sycamore	2.5" Cal.		8" Height Min.	21	Single straight leader.
QUE RUB	Quercus rubra / Northern Red Oak	2.5" Cal.		8" Height Min.	32	Single straight leader.
ULM NEW	Ulmus americana 'New Harmony' / New Harmony American Elm	2.5" Cal.		8" Height Min.	21	Single straight leader.
EVERGREEN TREES						
JUN PDC	Juniperus virginiana 'Providence' / Providence Eastern Redcedar	2.5" Cal.		8" Height Min.	14	Single straight leader.
DECIDUOUS SHRUBS						
CAL AME	Callicarpa americana / American Beautyberry	18" Height Min.	3 gal		69	Fully rooted.
CEP SPU	Cephalanthus occidentalis 'Sputnik' / Sputnik Buttonbush	18" Height Min.	3 gal		76	Fully rooted.
EVERGREEN SHRUBS						
GAU PRO	Gaultheria procumbens / Wintergreen	18" Height Min.	3 gal		68	Fully rooted.
ILE GLA	Ilex glabra / Inkberry Holly	18" Height Min.	3 gal		25	Fully rooted.
MOR AEH	Morella cerifera 'Nana' / Dwarf Southern Wax Myrtle	18" Height Min.	3 gal		41	Fully rooted.
RHO NO4	Rhododendron catawbiense 'Nova Zembla' / Catawba Rhododendron	18" Height Min.	3 gal		44	Fully rooted.



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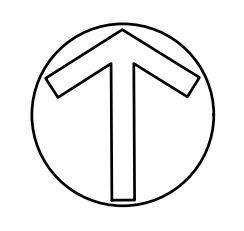
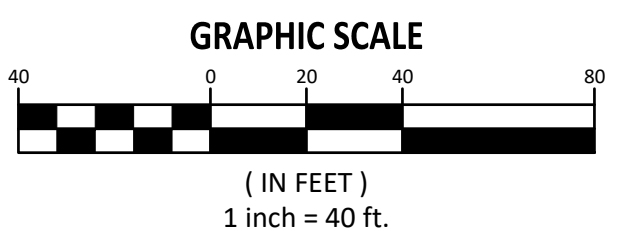
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 WAKE COUNTY, NC

JOB NUMBER: R180115
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 DATE: 03-03-2025

LANDSCAPE PLAN AREA B

SHEET NO.: LP402



2025-03-03



PLANT SCHEDULE AREA C

CODE	BOTANICAL / COMMON NAME	CAL	CONT	SIZE	QTY	REMARKS
CANOPY TREES						
ACE APL	Acer rubrum 'Built to Last' / Built to Last® Red Maple	2.5" Cal.		8' Height Min.	7	Single straight leader.
CAR CNR	Carpinus caroliniana 'CCMTF1' / Collynair® American Hornbeam	2.5" Cal.		8' Height Min.	8	Single straight leader.
PLA OCC	Platanus occidentalis / American Sycamore	2.5" Cal.		8' Height Min.	5	Single straight leader.
QUE RUB	Quercus rubra / Northern Red Oak	2.5" Cal.		8' Height Min.	4	Single straight leader.
ULM NEW	Ulmus americana 'New Harmony' / New Harmony American Elm	2.5" Cal.		8' Height Min.	11	Single straight leader.
DECIDUOUS SHRUBS						
CAL AME	Callicarpa americana / American Beautyberry	18" Height Min.	3 gal		25	Fully rooted.
CEP SPU	Cephalanthus occidentalis 'Sputnik' / Sputnik Buttonbush	18" Height Min.	3 gal		50	Fully rooted.
EVERGREEN SHRUBS						
GAU PRO	Gaultheria procumbens / Wintergreen	18" Height Min.	3 gal		27	Fully rooted.
ILE GLA	Ilex glabra / Inkberry Holly	18" Height Min.	3 gal		39	Fully rooted.
MOR AEH	Morella cerifera 'Nana' / Dwarf Southern Wax Myrtle	18" Height Min.	3 gal		39	Fully rooted.



PRELIMINARY
DO NOT USE FOR
CONSTRUCTION
LAUREN E. DICKSON
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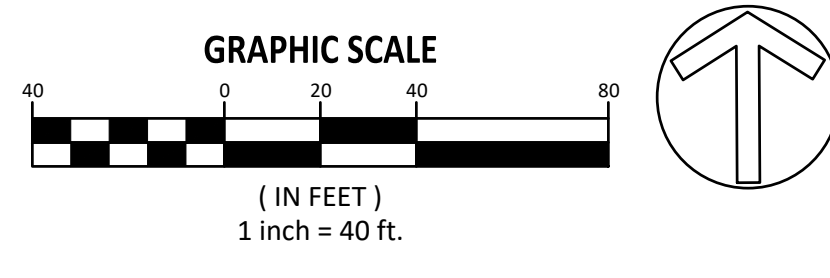
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WAKE COUNTY, NC

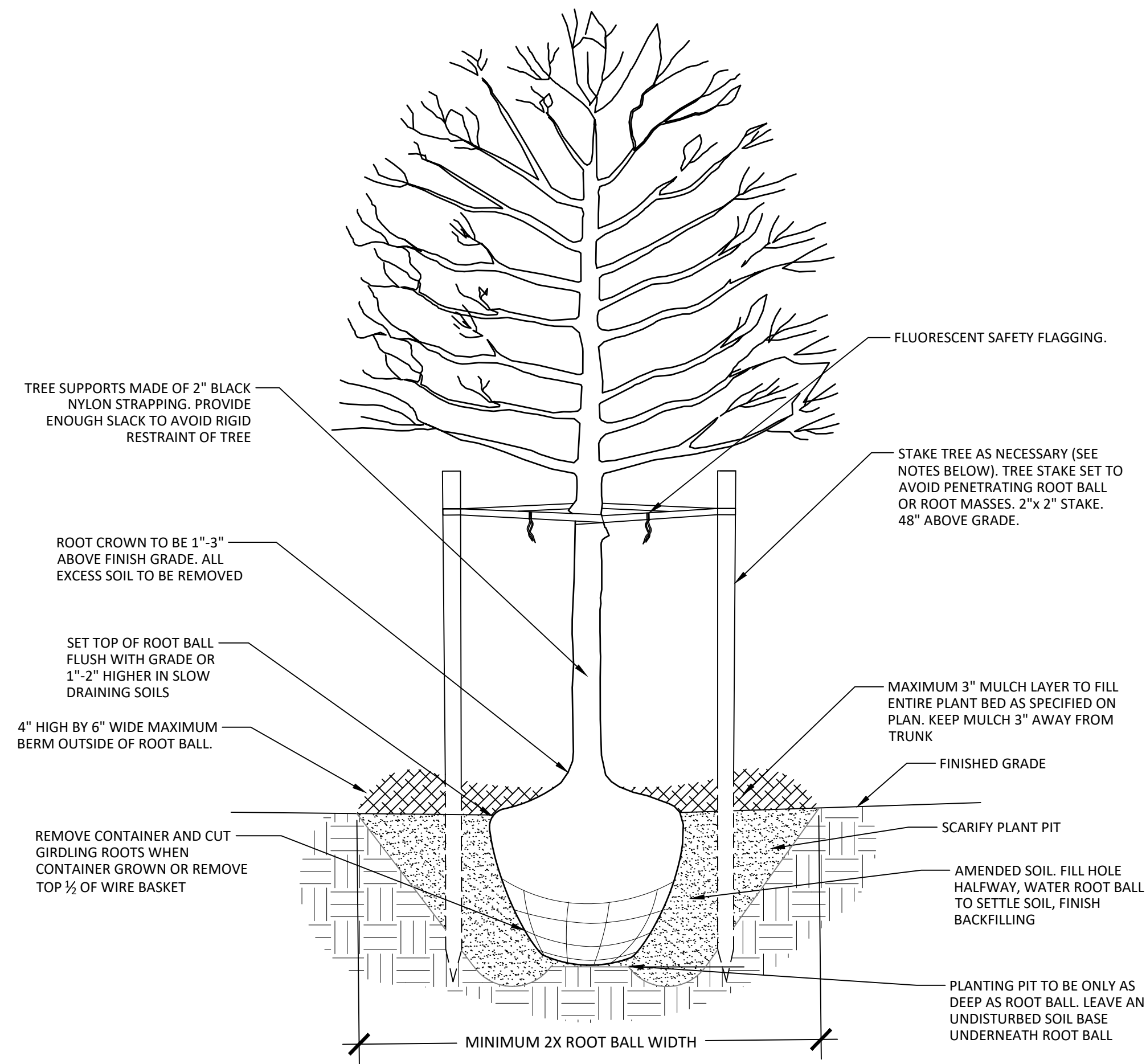
JOB NUMBER: R180115
CHECKED BY: JK
DRAWN BY: GE, RC
DATE: 03-03-2025

SHEET TITLE:
**LANDSCAPE
PLAN AREA C**

SHEET NO.:
LP403



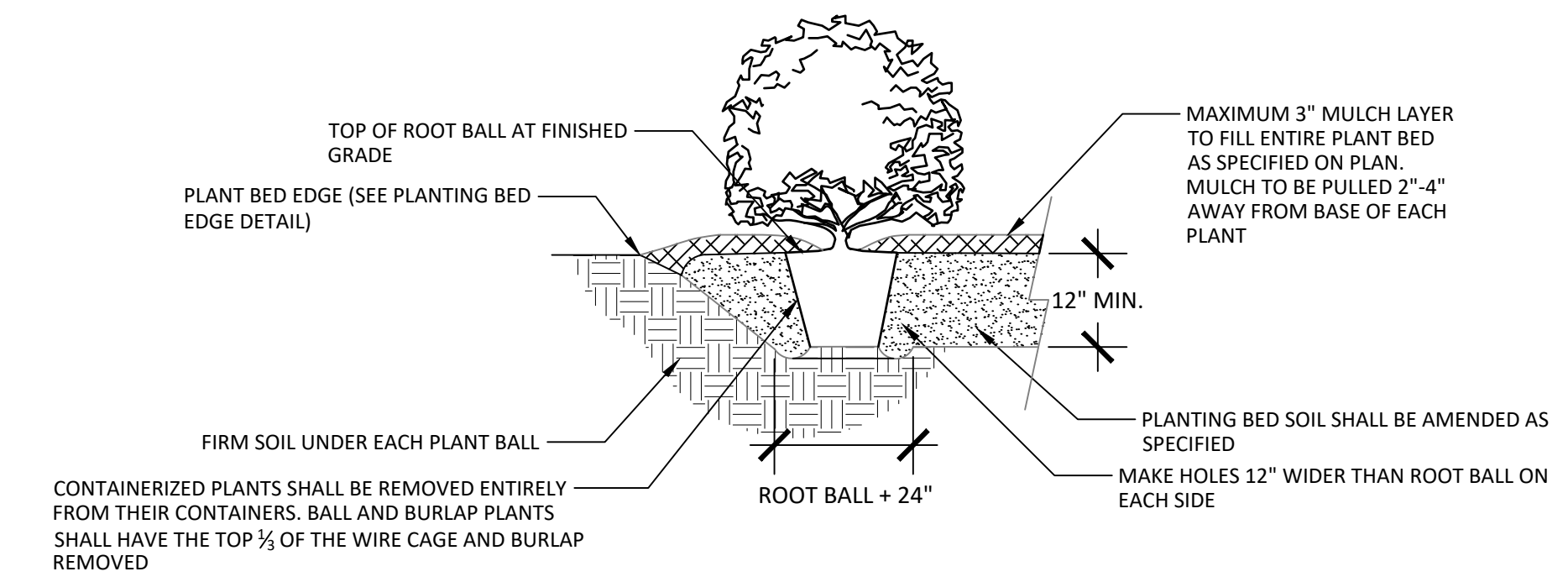
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 2025-03-03



- NOTES**
- All trees shall meet American Standard for Nursery Stock (ANSI z60.1-2004)
 - Remove wire and nylon twine from ball and canopy.
 - Soak root ball and plant pit immediately after installation.
 - Do not stake or wrap trunk unless:
 - Tree has a large crown.
 - Planting site is consistently windy or is a steep slope.
 - Planting site is susceptible to vandalism.
 - Remove all staking material after 1 year.
 - Remove all tags and labels from plant material.
 - Do not heavily prune the tree at planting. Only prune crossover limbs, co-dominant leaders, and broken or dead branches. Do not remove the terminal buds of branches that extend to the edge of the crown. Some interior twigs and lateral branches may be pruned.

1 TYPICAL TREE PLANTING
NOT TO SCALE

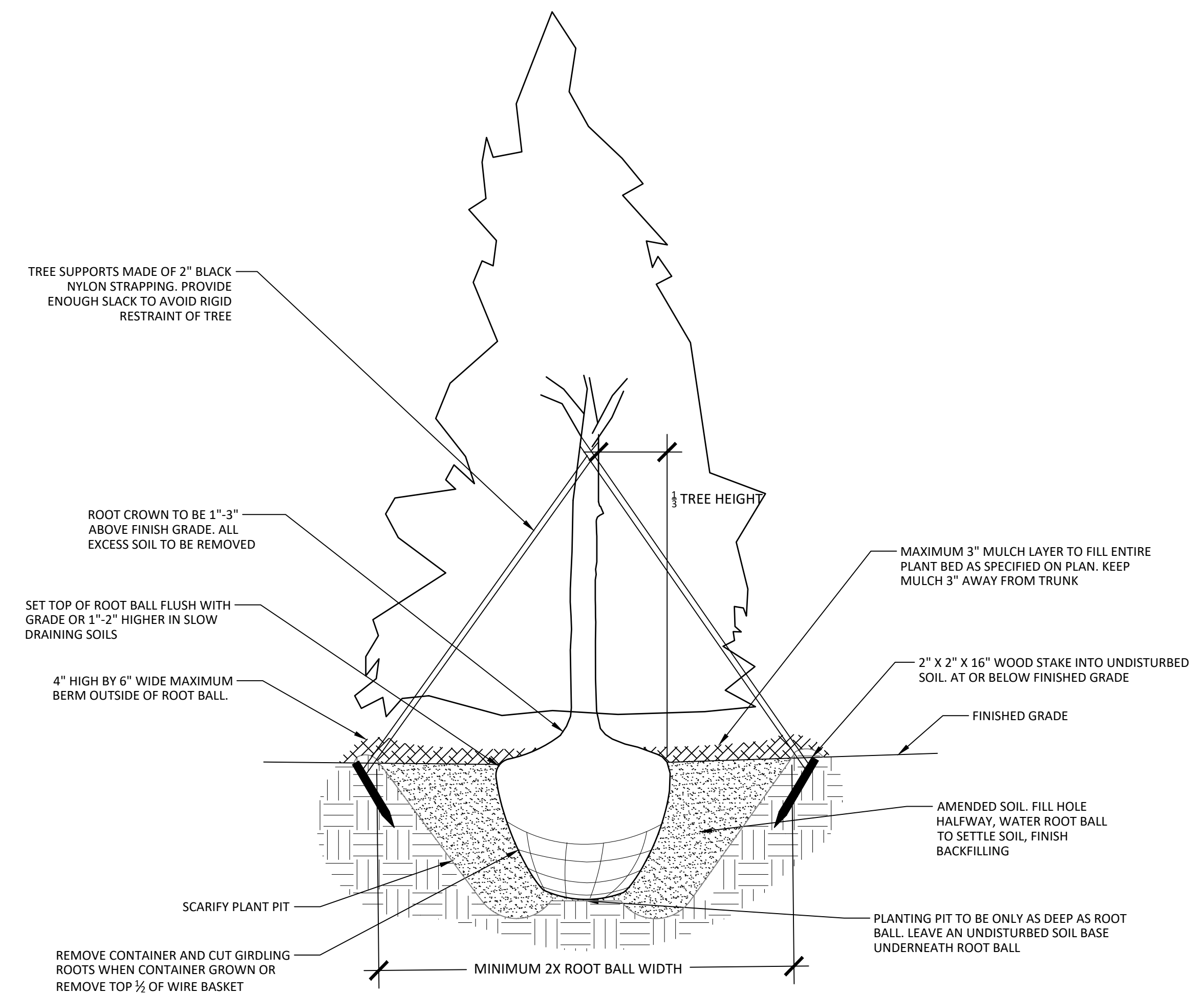
P-R-01



- NOTES**
- Scarify root mass of containerized plants.
 - Plant root ball should be installed 1-3 inches maximum above finished grade.
 - Water each plant immediately after installation and before installation of mulch.
 - Plant pits only for single plants. For plant beds, prepare the entire bed area.
 - Spacing of shrubs varies, refer to landscape plans.

2 TYPICAL SHRUB PLANTING
NOT TO SCALE

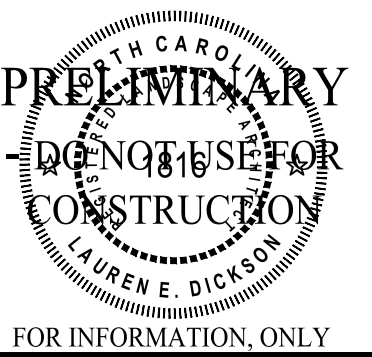
P-R-02



- NOTES**
- All trees shall meet American Standard for Nursery Stock (ANSI z60.1-2004)
 - Remove wire and nylon twine from ball and canopy.
 - Soak root ball and plant pit immediately after installation.
 - Do not stake or wrap trunk unless:
 - Tree has a large crown.
 - Planting site is consistently windy or is a steep slope.
 - Planting site is susceptible to vandalism.
 - Remove all staking material after 1 year.
 - Remove all tags and labels from plant material.
 - Do not heavily prune the tree at planting. Only prune crossover limbs, co-dominant leaders, and broken or dead branches. Do not remove the terminal buds of branches that extend to the edge of the crown. Some interior twigs and lateral branches may be pruned.

3 TYPICAL EVERGREEN TREE PLANTING
NOT TO SCALE

P-R-08



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KALAS FALLS
PHASE 5
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TOWN OF ROLESVILLE,
WAKE COUNTY, NC

JOB NUMBER: R180115
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SHEET TITLE:
**LANDSCAPE
DETAILS**
SHEET NO.:
LP500

