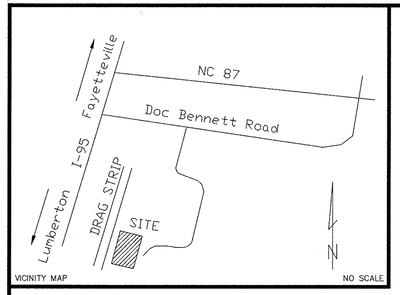
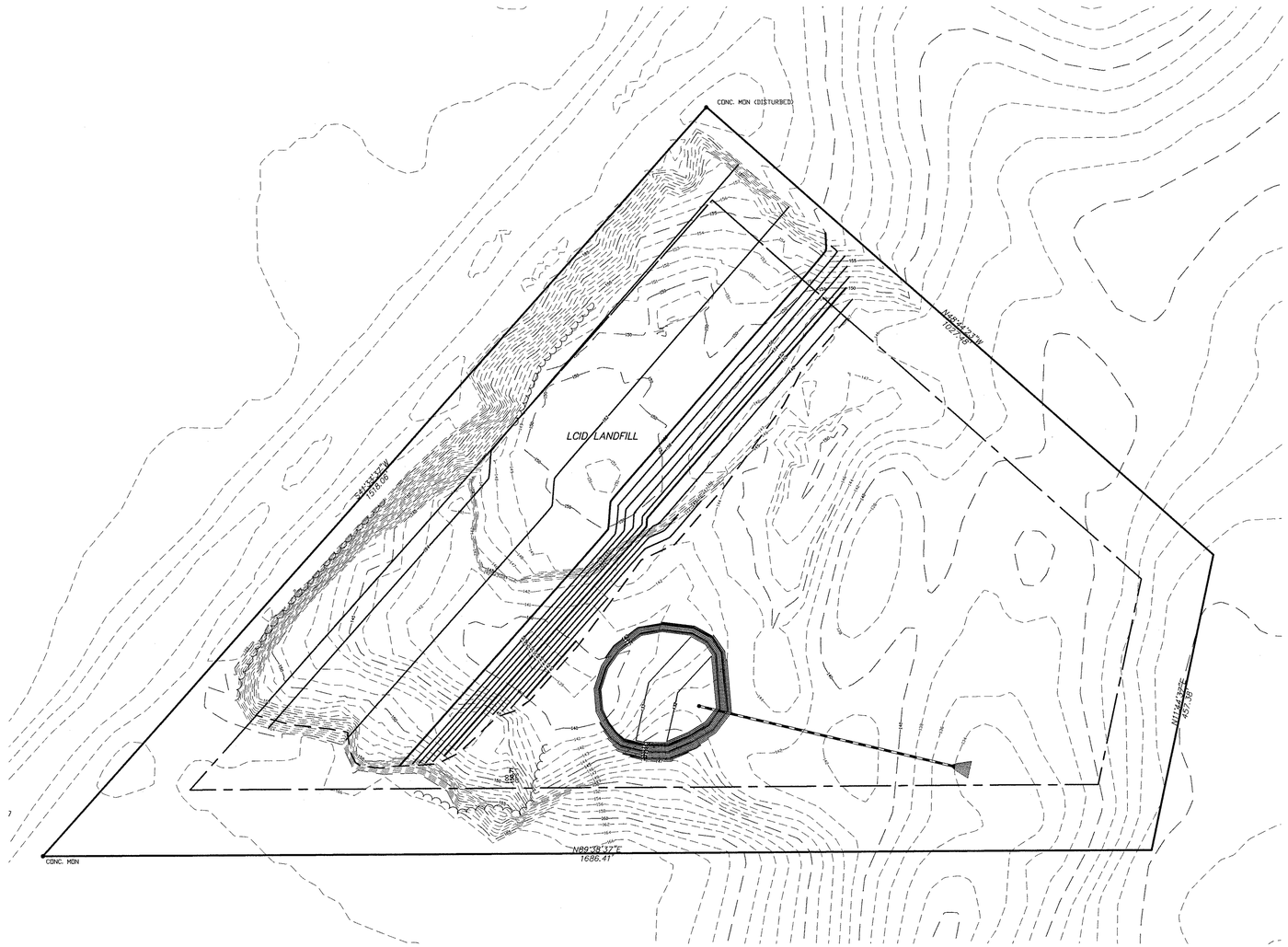


DOC BENNETT LANDFILL
FAYETTEVILLE, NC



INDEX OF SHEETS:

SHEET NO. 1	COVER SHEET
SHEET NO. 2	EXISTING SITE CONDITIONS
SHEET NO. 3	EROSION CONTROL PLAN – PHASE 1
SHEET NO. 4	EROSION CONTROL PLAN – PHASE 2
SHEET NO. 5	EROSION CONTROL NOTES & DETAILS (SHEET 1 OF 2)
SHEET NO. 6	EROSION CONTROL NOTES & DETAILS (SHEET 2 OF 2)
SHEET NO. 7	REMAINING LANDFILL CAPACITY
SHEET NO. 8	REMAINING LANDFILL CAPACITY – CROSS SECTIONS
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PROJECT NARRATIVE

The purpose of this project is to design pre and post development erosion control measures to facilitate proper drainage of stormwater runoff for the Doc Bennett LCID Landfill site, of 11.88 disturbed acres. Pre and Post-development conditions include one (1) sediment basin and associated silt fence to catch all drainage and outfall it to the natural downgrade area.

THIS PLAN IS A **FINAL DESIGN – NOT RELEASED FOR CONSTRUCTION** UNLESS INITIALLED/DATED AS APPROVED:

APPROVED: _____/_____
INITIALS DATE

ENGINEERING FIRM:

PLANS PREPARED BY: ESP ASSOCIATES, P.A.
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PHONE: (704) 583-4949

DEVELOPER BARNHILL CONTRACTING COMPANY
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www.espassociates.com

NORTH CAROLINA PROFESSIONAL SEAL 033416 ENGINEER JOHN SCOTT CHILDERS
10-22-08

GRAPHIC SCALE
100' 0 50' 100' 200' 400'
(IN FEET)
1 inch = 100 ft.

10/21/08 REVISED PER NCDENR COMMENTS EJW

SHEET 1
WG14_COVER.dwg

Printed: Wed 22-Oct-2008 - 11:06AM

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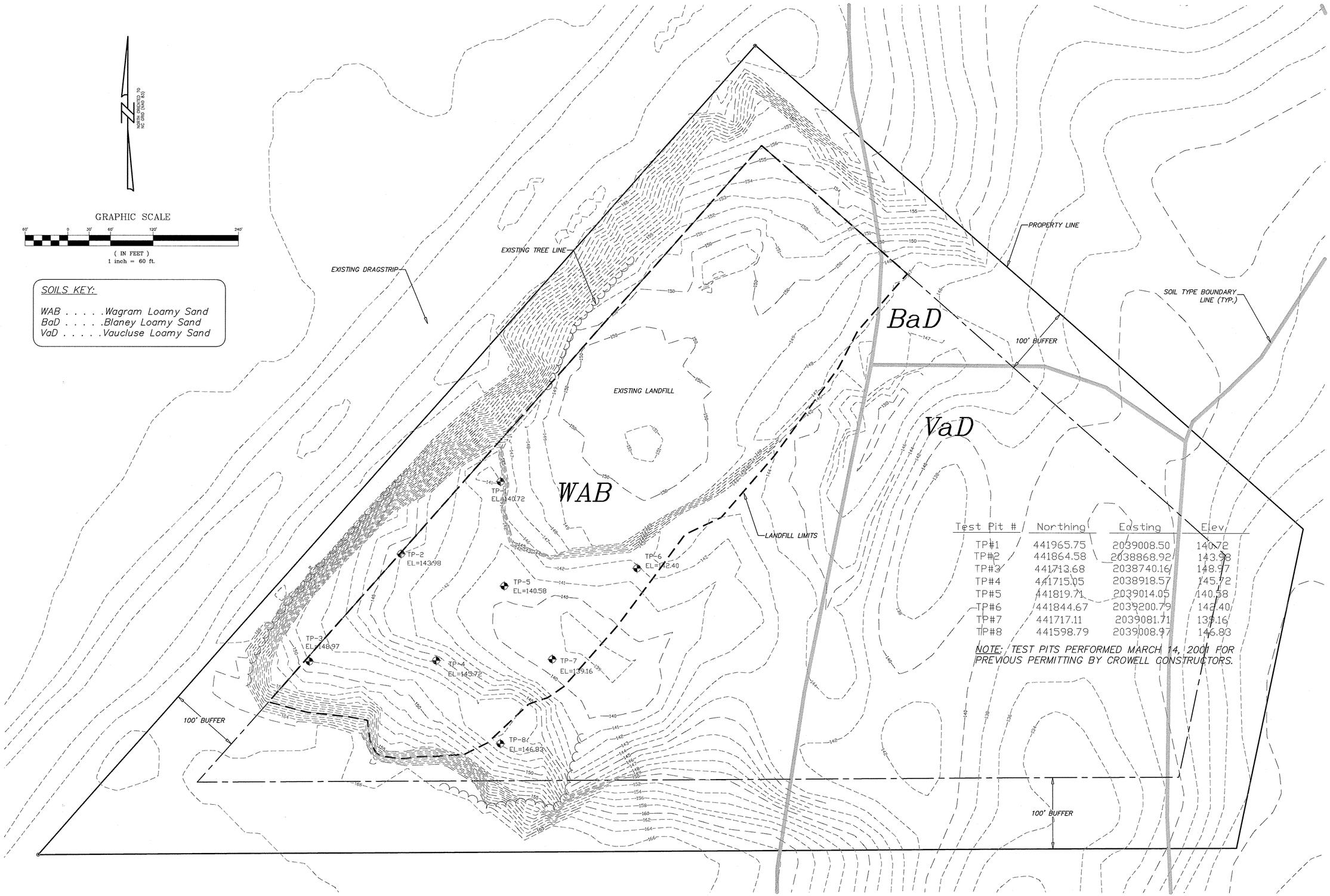

Test Pit #	Northing	Easting	Elev.
TP#1	441965.75	2039008.50	140.72
TP#2	441864.58	2038868.92	143.98
TP#3	441713.68	2038740.16	148.97
TP#4	441715.05	2038918.57	145.72
TP#5	441819.71	2039014.05	140.58
TP#6	441844.67	2039200.79	142.40
TP#7	441717.11	2039081.71	139.16
TP#8	441598.79	2039008.97	146.83

NOTE: TEST PITS PERFORMED MARCH 14, 2001 FOR PREVIOUS PERMITTING BY CROWELL CONSTRUCTORS.

NOTE: EXISTING CONDITIONS DEVELOPED FROM FIELD RUN SURVEY PERFORMED AUGUST 14, 2008 BY ESP ASSOCIATES, P.A.

NOTES

DATE OF ORIGINAL SURVEY: APRIL 5, 2001
CONTOUR INTERVAL = 1 FOOT
NGS CONTROL MONUMENTS USED FOR HORIZONTAL AND VERTICAL CONTROL: INNIS & HENRY
FAST-STATIC GPS PROCEDURES WERE USED TO SET CONTROL USING TRIMBLE 4800 RECEIVERS
VERTICAL DATUM IS NAVD 88
THIS IS A TOPOGRAPHIC SURVEY ONLY AND IS NOT INTENDED TO REPRESENT A BOUNDARY SURVEY

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CLIENT
BARNHILL CONTRACTING COMPANY
P.O. BOX 35376
FAYETTEVILLE, NC
PHONE: (910) 829-6261

SHEET TITLE
EXISTING SITE CONDITIONS

PROJECT
LCID LANDFILL PERMIT RENEWAL
DOC BENNETT LANDFILL
FAYETTEVILLE, NC
CUMBERLAND CO.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033416 JOHN SCOTT CHILDERS 10-22-08

NO.	DATE	REVISION	BY
1	10/21/08	ADDED SOILS INFORMATION PER NCDENR COMMENTS	EJW

PROJECT NO. W014.400
SCALE 1"=60'
DATE 9/22/08
DRAWN BY EJW
CHECKED BY DWW
SHEET NO. 2

W:\W014.400 Doc Bennett LCID Landfill\W014.400\dwg\W014_EXISTING.dwg, EXIST, swatch

VICINITY MAP NO SCALE

LEGEND

DENUDED LIMITS

SEDIMENT BASIN (SB)

TEMP. SILT FENCE

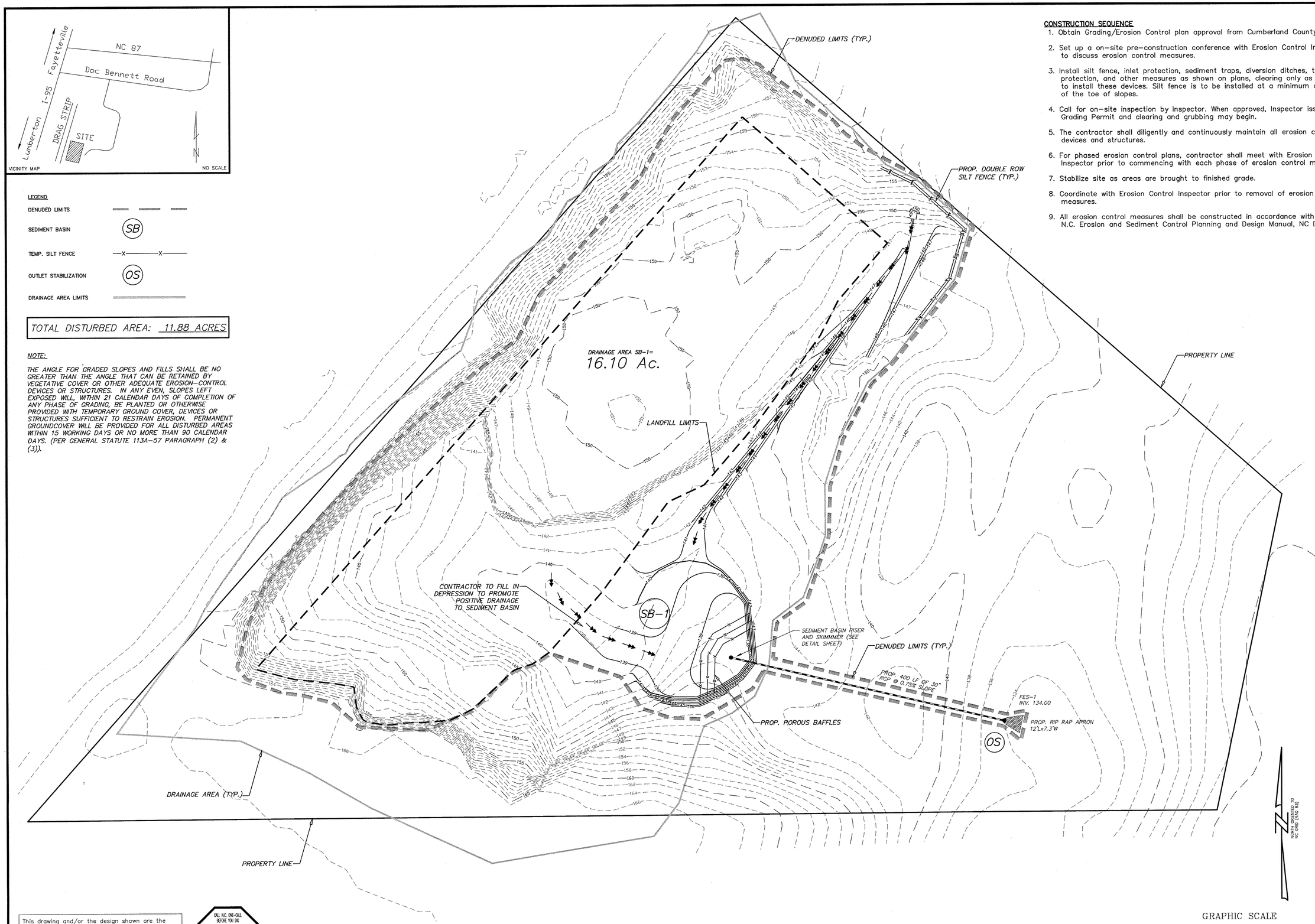
OUTLET STABILIZATION (OS)

DRAINAGE AREA LIMITS

TOTAL DISTURBED AREA: 11.88 ACRES

NOTE:

THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES. IN ANY EVEN, SLOPES LEFT EXPOSED WILL, WITHIN 21 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY GROUND COVER, DEVICES OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PERMANENT GROUNDCOVER WILL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDAR DAYS. (PER GENERAL STATUTE 113A-57 PARAGRAPH (2) & (3)).



CONSTRUCTION SEQUENCE

1. Obtain Grading/Erosion Control plan approval from Cumberland County.
2. Set up a on-site pre-construction conference with Erosion Control Inspector to discuss erosion control measures.
3. Install silt fence, inlet protection, sediment traps, diversion ditches, tree protection, and other measures as shown on plans, clearing only as necessary to install these devices. Silt fence is to be installed at a minimum of 5 feet of the toe of slopes.
4. Call for on-site inspection by Inspector. When approved, Inspector issues the Grading Permit and clearing and grubbing may begin.
5. The contractor shall diligently and continuously maintain all erosion control devices and structures.
6. For phased erosion control plans, contractor shall meet with Erosion Control Inspector prior to commencing with each phase of erosion control measures.
7. Stabilize site as areas are brought to finished grade.
8. Coordinate with Erosion Control Inspector prior to removal of erosion control measures.
9. All erosion control measures shall be constructed in accordance with the N.C. Erosion and Sediment Control Planning and Design Manual, NC DENR.

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GRAPHIC SCALE

60' 0 30' 60' 120' 240'

(IN FEET)
1 inch = 60 ft.

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Printed: Thu 12-Dec-2008 - 08:48AM

CLIENT
BARNHILL CONTRACTING COMPANY
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FAYETTEVILLE, NC
PHONE: (910) 829-6261

SHEET TITLE
EROSION CONTROL PLAN PHASE 1

PROJECT
DOC BENNETT LANDFILL
CUMBERLAND CO. FAYETTEVILLE, NC

NORTH CAROLINA PROFESSIONAL SEAL 033416 ENGINEER JOHN SCOTT CHILDERS
12-18-08

NO.	DATE	REVISION	BY
1	10/21/08	REVISED PER NCDENR COMMENTS	EJW
2	12/17/08	REVISED PER NCDENR COMMENTS	AMM

PROJECT NO. W014.400
SCALE 1"=60'
DATE 9/22/08
DRAWN BY EJW
CHECKED BY DWW
SHEET NO. 3

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VICINITY MAP NO SCALE

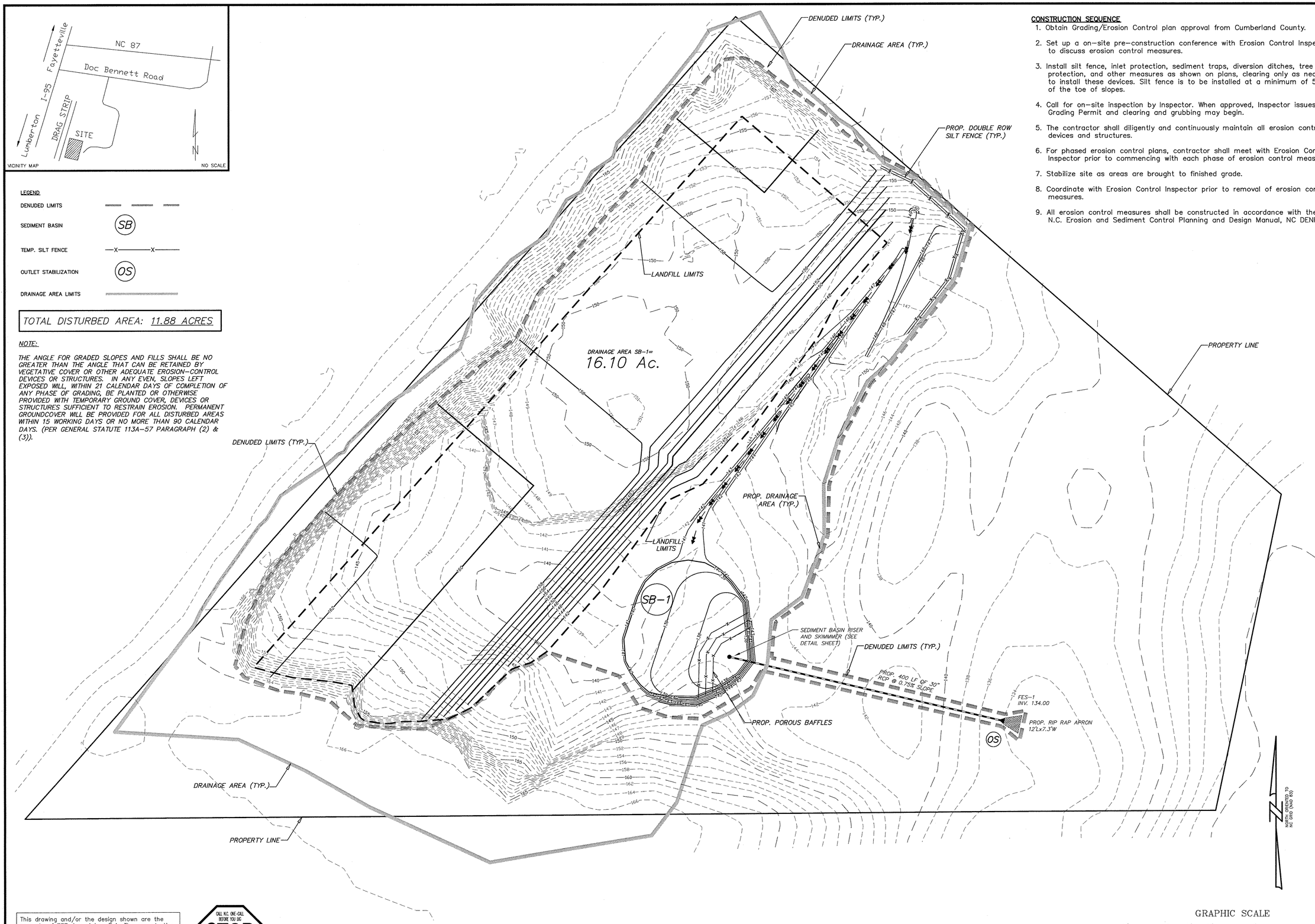
LEGEND

DENUDED LIMITS	
SEDIMENT BASIN	SB
TEMP. SILT FENCE	—X——X—
OUTLET STABILIZATION	OS
DRAINAGE AREA LIMITS	

TOTAL DISTURBED AREA: 11.88 ACRES

NOTE:

THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES. IN ANY EVEN, SLOPES LEFT EXPOSED WILL, WITHIN 21 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY GROUND COVER, DEVICES OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PERMANENT GROUNDCOVER WILL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDAR DAYS. (PER GENERAL STATUTE 113A-57 PARAGRAPH (2) & (3)).



CONSTRUCTION SEQUENCE

1. Obtain Grading/Erosion Control plan approval from Cumberland County.
2. Set up a on-site pre-construction conference with Erosion Control Inspector to discuss erosion control measures.
3. Install silt fence, inlet protection, sediment traps, diversion ditches, tree protection, and other measures as shown on plans, clearing only as necessary to install these devices. Silt fence is to be installed at a minimum of 5 feet of the toe of slopes.
4. Call for on-site inspection by Inspector. When approved, Inspector issues the Grading Permit and clearing and grubbing may begin.
5. The contractor shall diligently and continuously maintain all erosion control devices and structures.
6. For phased erosion control plans, contractor shall meet with Erosion Control Inspector prior to commencing with each phase of erosion control measures.
7. Stabilize site as areas are brought to finished grade.
8. Coordinate with Erosion Control Inspector prior to removal of erosion control measures.
9. All erosion control measures shall be constructed in accordance with the N.C. Erosion and Sediment Control Planning and Design Manual, NC DENR.

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FOR EROSION CONTROL PURPOSES ONLY!

GRAPHIC SCALE
60' 0 30' 60' 120' 240'
(IN FEET)
1 inch = 60 ft.

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CLIENT
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PHONE: (910) 829-6261

SHEET TITLE
EROSION CONTROL PLAN PHASE 2

PROJECT
DOC BENNETT LANDFILL
CUMBERLAND CO. FAYETTEVILLE, NC

NORTH CAROLINA PROFESSIONAL SEAL 033416 ENGINEER JOHN SCOTT CHILDERS
12-18-08

NO.	DATE	REVISION	BY
1	10/21/08	REVISED PER NCDENR COMMENTS	EJW
2	12/17/08	REVISED PER NCDENR COMMENTS	AMM

PROJECT NO. WG14.400
SCALE 1"=60'
DATE 9/22/08
DRAWN BY EJW
CHECKED BY DWW
SHEET NO. 4

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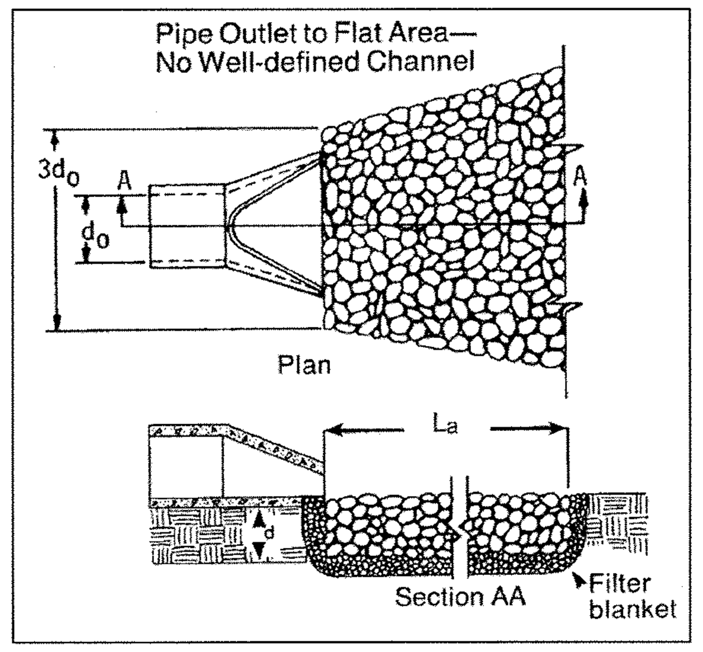


Construction Specifications
1. Ensure that the subgrade for the filter and riprap follows the required lines and grades shown in the plan. Compact any fill required in the subgrade to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also be filled by increasing the riprap thickness.
2. The riprap and gravel filter must conform to the specified grading limits shown on the plans.
3. Filter cloth, when used, must meet design requirements and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap and placing another piece of filter cloth over the damaged area. All connecting joints should overlap so the top layer is above the downstream layer a minimum of 1 foot. If the damage is extensive, replace the entire filter cloth.
4. Riprap may be placed by equipment, but take care to avoid damaging the filter.
5. The minimum thickness of the riprap should be 1.5 times the maximum stone diameter.
6. Riprap may be field stone or rough quarry stone. It should be hard, angular, highly weather-resistant and well graded.
7. Construct the apron on zero grade with no overfill at the end. Make the top of the riprap at the downstream end level with the receiving area or slightly below it.
8. Ensure that the apron is properly aligned with the receiving stream and preferably straight throughout its length. If a curve is needed to fit site conditions, place it in the upper section of the apron.
9. Immediately after construction, stabilize all disturbed areas with vegetation (Practices 6.10, Temporary Seeding, and 6.11, Permanent Seeding).

Maintenance
Inspect riprap outlet structures weekly and after significant (1/2 inch or greater) rainfall events to see if any erosion around or below the riprap has taken place, or if stones have been dislodged. Immediately make all needed repairs to prevent further damage.

OUTLET PROTECTION APRONS	D_{pipe} (ft.)	Q (cfs)	L (ft)	3 x D_{pipe}	W (ft)	d_{50} (in)	d_{max} (in)	THICKNESS (in)
OS-1	2.5	26.25	12	7.5	14.5	1.2	1.8	2.7

RIP RAP APRON
NTS

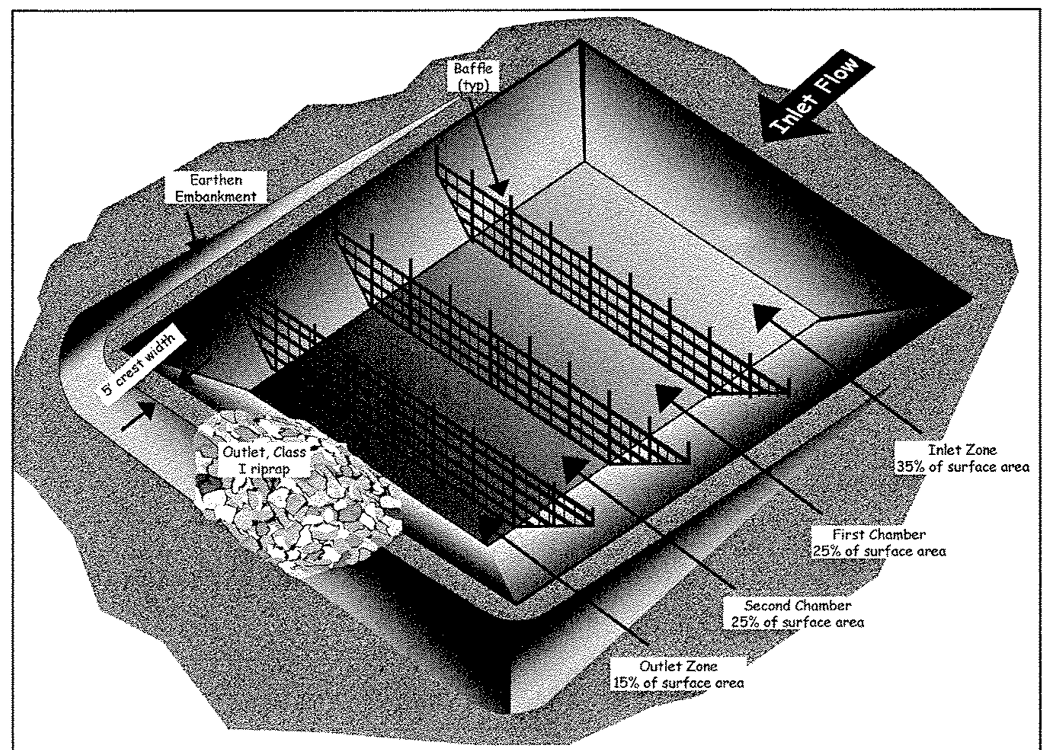


Figure 6.65c Example of porous baffle using silt fence with slits cut in each alternating space of wire backing fence. (City of High Point, NC detail.)

Construction Specification
1. Grade the basin so that the bottom is level front to back and side to side.
2. Install posts or saw horses across the width of the sediment trap (Practice 6.62, Sediment Fence).
3. Steel posts should be driven to a depth of 24 inches, spaced a maximum of 4 feet apart, and installed up the sides of the basin as well. The top of the fabric should be 6 inches higher than the invert of the spillway. Tops of baffles should be 2 inches lower than the top of the berms.
4. Install at least three rows of baffles between the inlet and outlet discharge point. Basins less than 20 feet in length may use 2 baffles.
5. When using posts, add a support wire or rope across the top of the measure to prevent sagging.
6. Wrap porous material, like jute backed by coir material, over a sawhorse or the top wire. Hammer rebar into the sawhorse legs for anchoring. The fabric should have five to ten percent openings in the weave. Attach fabric to a rope and a support structure with zip ties, wire, or staples.
7. The bottom and sides of the fabric should be anchored in a trench or pinned with 8-inch erosion control matting staples.
8. Do not splice the fabric, but use a continuous piece across the basin.

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

Be sure to maintain access to the baffles. Should the fabric of a baffle collapse, tear, decompose, or become ineffective, replace it promptly.

Remove sediment deposits when it reaches half full to provide adequate storage volume for the next rain and to reduce pressure on the baffles. Take care to avoid damaging the baffles during cleanout. Sediment depth should never exceed half the designed storage depth.

After the contributing drainage area has been properly stabilized, remove all baffle materials and unstable sediment deposits, bring the area to grade, and stabilize it.

POROUS SILT FENCE BAFFLES
NTS

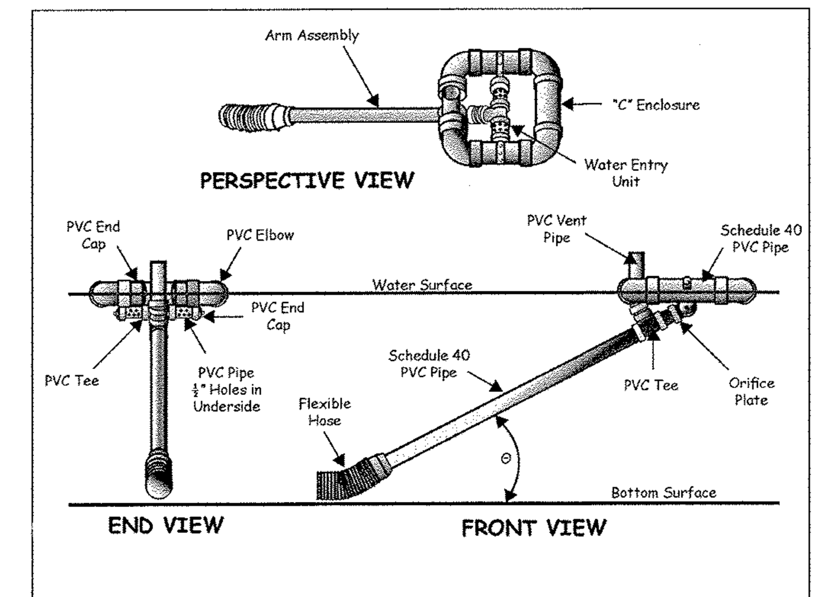


Figure 6.64a Schematic of a skimmer, from Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

Maintenance
Inspect skimmer sediment basins at least weekly and after each significant (one-half inch or greater) rainfall event and repair immediately. Remove sediment and restore the basin to its original dimensions when sediment accumulates to one-half the height of the first baffle. Pull the skimmer to one side so that the sediment underneath it can be excavated. Excavate the sediment from the entire basin, not just around the skimmer or the first cell. Make sure vegetation growing in the bottom of the basin does not hold down the skimmer.

Repair the baffles if they are damaged. Re-anchor the baffles if water is flowing underneath or around them.

If the skimmer is clogged with trash and there is water in the basin, usually jerking on the rope will make the skimmer bob up and down and dislodge the debris and restore flow. If this does not work, pull the skimmer over to the side of the basin and remove the debris. Also check the orifice inside the skimmer to see if it is clogged; if so remove the debris.

If the skimmer arm or barrel pipe is clogged, the orifice can be removed and the obstruction cleared with a plumber's snake or by flushing with water. Be sure and replace the orifice before repositioning the skimmer.

Check the fabric lined spillway for damage and make any required repairs with fabric that spans the full width of the spillway. Check the embankment, spillways, and outlet for erosion damage, and inspect the embankment for piping and settlement.

Make all necessary repairs immediately. Remove all trash and other debris from the skimmer and pool areas.

Freezing weather can result in ice forming in the basin. Some special precautions should be taken in the winter to prevent the skimmer from plugging with ice.

PROJECT NARRATIVE

The purpose of this project is to design pre and post development erosion control measures to facilitate proper drainage of stormwater runoff for the Doc Bennett LCID Landfill site, of 11.88 disturbed acres. Pre and Post-development conditions include one (1) sediment basins and silt fence to catch all drainage and outfall it to the natural downgrade area.

TEMPORARY SEDIMENT BASIN INFORMATION

Construction Specifications
1. Site preparations – Clear, grub, and strip topsoil from areas under the embankment to remove trees, vegetation, roots, and other objectionable material. Delay clearing the pool area until the dam is complete and then remove brush, trees, and other objectionable materials to facilitate sediment cleanout. Stockpile all topsoil or soil containing organic matter for use on the outer shell of the embankment to facilitate vegetative establishment. Place temporary sediment control measures below the basin as needed.
2. Cut-off trench – Excavate a cut-off trench along the center line of the earth fill embankment. Cut the trench to stable soil material, but in no case make it less than 2 feet deep. The cut-off trench must extend into both abutments to at least the elevation of the riser crest. Make the minimum bottom width wide enough to permit operation of excavation and compaction equipment, but in no case less than 2 feet. Make side slopes of the trench no steeper than 1:1. Compaction requirements are the same as those for the embankment. Keep the trench dry during backfilling and compaction operations.
3. Embankment – Take fill material from the approved areas shown on the plans. It should be clean mineral soil, free of roots, woody vegetation, rocks, and other objectionable material. Scarify areas on which fill is to be placed before placing fill. The fill material must contain sufficient moisture so it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Place fill material in 6 to 8 inch continuous layers over the entire length of the fill area and compact it. Compaction may be obtained by routing the construction hauling equipment over the fill so that the entire surface of each layer is traversed by at least one wheel or tread track of heavy equipment, or a compactor may be used. Construct the embankment to an elevation 10 percent higher than the design height to allow for settling.
4. Conduit spillways – Securely attach the riser to the barrel or barrel stub to make a watertight structural connection. Secure all connections between barrel sections by approved watertight assemblies. Place the barrel and riser on a firm, smooth foundation of impervious soil. Do not use pervious material such as sand, gravel, or crushed stone as backfill around the pipe or antiseep collars. Place the fill material around the pipe spillway in 4-inch layers, and compact it under and around the pipe to at least the same density as the adjacent embankment. Care must be taken not to raise the pipe from firm contact with its foundation when compacting under the pipe haunches. Place a minimum depth of 2 feet of compacted backfill over the pipe spillway before crossing it with construction equipment. Anchor the riser in place by concrete or other satisfactory means to prevent flotation. In no case should the pipe conduit be installed by cutting a trench through the dam after the embankment is complete.
5. Emergency spillway – Install the emergency spillway in undisturbed soil. The achievement of planned elevations, grade, design width, and entrance and exit channel slopes are critical to the successful operation of the emergency spillway.
6. Inlets – Discharge water into the basin in a manner to prevent erosion. Use diversions with outlet protection to divert sediment-laden water to the upper end of the pool area to improve basin trap efficiency (References: Runoff Control Measures and Outlet Protection).
7. Erosion control – Construct the structure so that the disturbed area is minimized. Divert surface water away from bare areas. Complete the embankment before the area is cleared. Stabilize the emergency spillway embankment and all other disturbed areas above the crest of the principal spillway immediately after construction. (References: Surface Stabilization).
8. Install porous baffles as specified in Practice 6.65, Porous Baffles.
9. Safety – Sediment basins may attract children and can be dangerous. Avoid steep side slopes, and fence and mark basins with warning signs if trespassing is likely. Follow all state and local requirements.

Maintenance
Inspect temporary sediment basins at least weekly and after each significant (½ inch or greater) rainfall event and repair immediately. Remove sediment and restore the basin to its original dimensions when it accumulates to one-half the design depth. Place removed sediment in an area with sediment controls.

Check the embankment, spillways, and outlet for erosion damage, and inspect the embankment for piping and settlement. Make all necessary repairs immediately. Remove all trash and other debris from the riser and pool area.

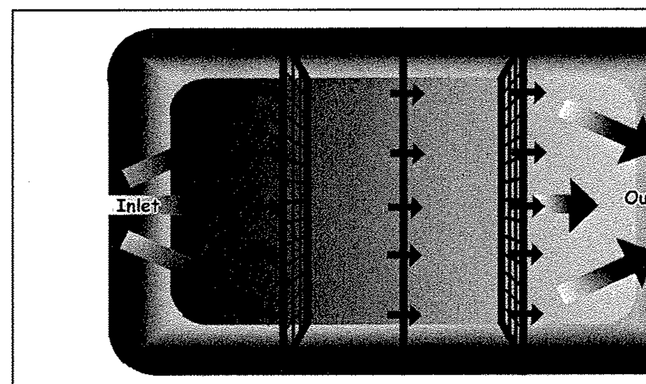


Figure 6.65a Porous baffles in a sediment basin. The flow is distributed evenly across the basin to reduce flow rates and turbulence, resulting in greater sediment retention.

Baffles need to be installed correctly in order fully provide their benefits. Refer to Figure 6.65b and the following key points:

- The baffle material needs to be secured at the bottom and sides using staples or by trenching as for silt fence.
- Most of the sediment will accumulate in the first bay, so this should be readily accessible for maintenance.

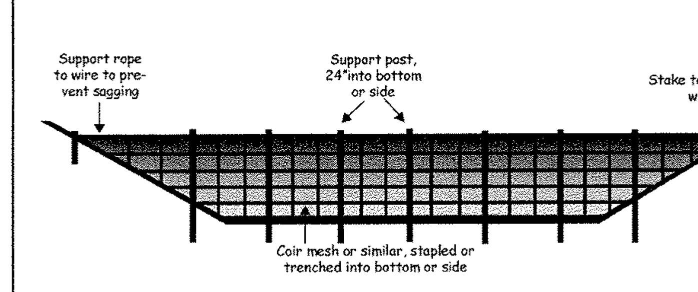


Figure 6.65b Cross-section of a porous baffle in a sediment basin. Note that there is no weir because the water flows through the baffle material.

Construction Specifications
1. Clear, grub, and strip the area under the embankment of all vegetation and root mat. Remove all surface soil containing high amounts of organic matter and stockpile or dispose of it properly. Haul all objectionable material to the designated disposal area. Place temporary sediment control measures below basin as needed
2. Ensure that fill material for the embankment is free of roots, woody vegetation, organic matter, and other objectionable material. Place the fill in lifts not to exceed 9 inches, and machine compact it. Over fill the embankment 6 inches to allow for settlement.
3. Shape the basin to the specified dimensions. Prevent the skimming device from settling into the mud by excavating a shallow pit under the skimmer or providing a low support under the skimmer of stone or timber.
4. Place the barrel (typically 4-inch Schedule 40 PVC pipe) on a firm, smooth foundation of impervious soil. Do not use pervious material such as sand, gravel, or crushed stone as backfill around the pipe. Place the fill material around the pipe spillway in 4-inch layers and compact it under and around the pipe to at least the same density as the adjacent embankment. Care must be taken not to raise the pipe from the firm contact with its foundation when compacting under the pipe haunches. Place a minimum depth of 2 feet of compacted backfill over the pipe spillway before crossing it with construction equipment. In no case should the pipe conduit be installed by cutting a trench through the dam after the embankment is complete.
5. Assemble the skimmer following the manufacturers instructions, or as designed.
6. Lay the assembled skimmer on the bottom of the basin with the flexible joint at the inlet of the barrel pipe. Attach the flexible joint to the barrel pipe and position the skimmer over the excavated pit or support. Be sure to attach a rope to the skimmer and anchor it to the side of the basin. This will be used to pull the skimmer to the side for maintenance.
7. Earthen spillways–Install the spillway in undisturbed soil to the greatest extent possible. The achievement of planned elevations, grade, design width, and entrance and exit channel slopes are critical to the successful operation of the spillway. The spillway should be lined with laminated plastic or impermeable geotextile fabric. The fabric must be wide and long enough to cover the bottom and sides and extend onto the top of the dam for anchoring in a trench. The edges may be secured with 8-inch staples or pins. The fabric must be long enough to extend down the slope and exit onto stable ground. The width of the fabric must be one piece, not joined or spliced; otherwise water can get under the fabric. If the length of the fabric is insufficient for the entire length of the spillway, multiple sections, spanning the complete width, may be used. The upper section(s) should overlap the lower section(s) so that water cannot flow under the fabric. Secure the upper edge and sides of the fabric in a trench with staples or pins. (Adapted from–A Manual for Designing, Installing and Maintaining Skimmer Sediment Basins. February, 1999. J. W. Faircloth & Son.).
8. Inlets – Discharge water into the basin in a manner to prevent erosion. Use temporary slope drains or diversions with outlet protection to divert sedimentladen water to the upper end of the pool area to improve basin trap efficiency (References: Runoff Control Measures and Outlet Protection).
9. Erosion control––Construct the structure so that the disturbed area is minimized. Divert surface water away from bare areas. Complete the embankment before the area is cleared. Stabilize the emergency spillway embankment and all other disturbed areas above the crest of the principal spillway immediately after construction (References: Surface Stabilization).
10. Install porous baffles as specified in Practice 6.65, Porous Baffles.
11. After all the sediment-producing areas have been permanently stabilized, remove the structure and all the unstable sediment. Smooth the area to blend with the adjoining areas and stabilize properly (References: Surface Stabilization).

SPECIAL
EROSION CONTROL
REQUIREMENTS & NOTES
NTS

STD. & SPEC. #	TITLE	SPECIAL REQUIREMENTS & NOTES
6.17	ROLLED EROSION CONTROL PRODUCTS	—
6.51	HARDWARE CLOTH & GRAVEL INLET PROTECTION	—
6.60	TEMPORARY SEDIMENT TRAP	WEIR TOP WIDTH 10' MIN., BOTTOM 7' MIN.
6.61	SEDIMENT BASIN	FLASH BOARD RISER NOT PERMITTED
6.64	SKIMMER SEDIMENT BASIN	1ST BAFFLE: RIP RAP & WASHED STONE BERM 2ND BAFFLE: STANDARD BAFFLE 3RD BAFFLE: HARDWARE CLOTH SURROUNDING THE SKIMMER

THE STANDARDS & SPECIFICATIONS SHOWN ARE FROM THE "NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL" (NCESCPDM) PREPARED BY NC DEPT. OF ENVIRONMENT AND NATURAL RESOURCES (NCDENR).

THE CITY OF CHARLOTTE HAS ADOPTED THE SPECIFIC STANDARDS & SPECIFICATIONS SHOWN ON THIS DETAIL AS MANDATORY MINIMUM DESIGN STANDARDS & SPECIFICATIONS. "SPECIAL REQUIREMENTS & NOTES" ARE INCLUDED WHEN THE CITY OF CHARLOTTE'S CRITERIA ARE MORE STRINGENT THAN THE NCESCPDM STANDARDS.

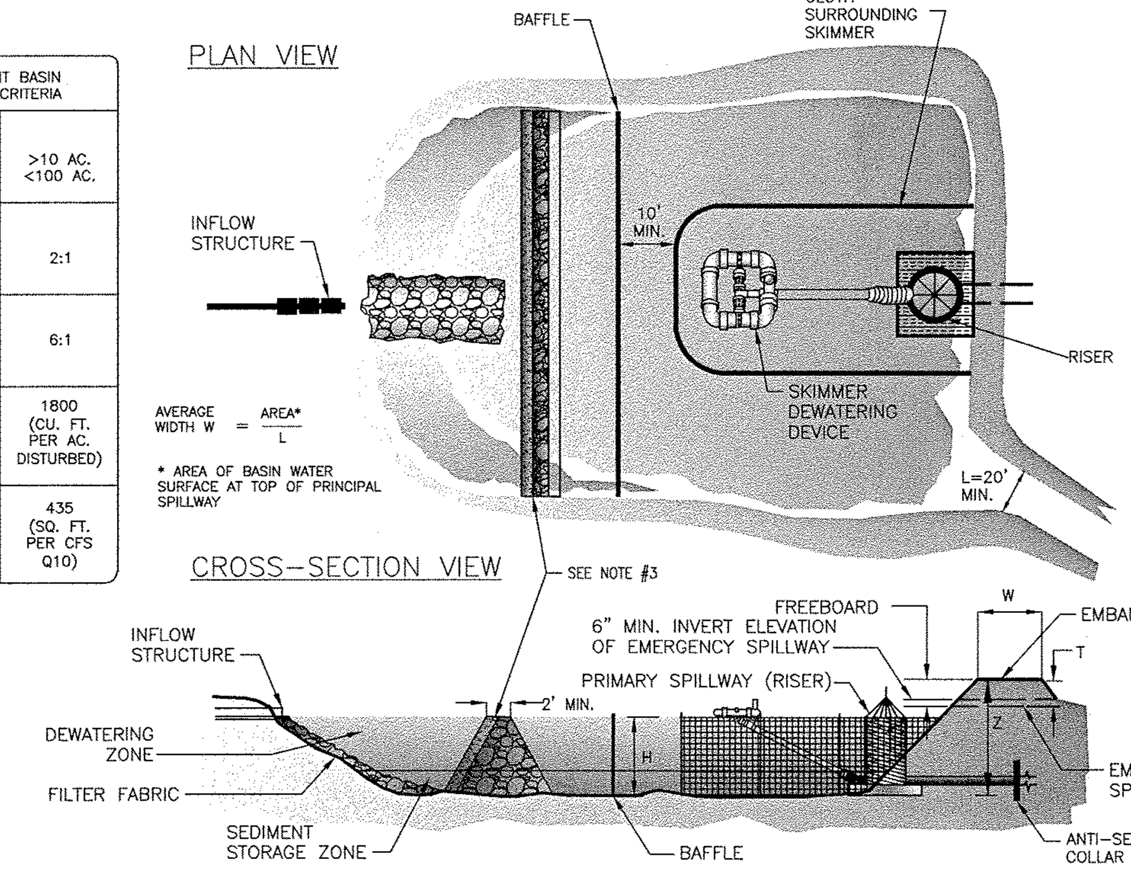
SEDIMENT BASIN DESIGN CRITERIA	
DRAINAGE AREA (ACRES)	>10 AC. <100 AC.
MIN. LENGTH TO WIDTH RATIO	2:1
MAX. LENGTH TO WIDTH RATIO	6:1
MIN. VOLUME REQUIRED	1800 (CU. FT. PER AC. DISTURBED)
SURFACE AREA REQUIRED	435 (SQ. FT. PER CFS Q10)

PLAN VIEW

AVERAGE WIDTH W = AREA* / L

* AREA OF BASIN WATER SURFACE AT TOP OF PRINCIPAL SPILLWAY

CROSS-SECTION VIEW



NOTES:

1. REFER TO NCESCPDM SECTION #6.61 FOR ADDITIONAL DESIGN SPECIFICATIONS REGARDING SEDIMENT BASINS.
2. REFER TO STD. #30.19 FOR BAFFLE SPACING AND INSTALLATION.
3. FIRST BAFFLE IS TO BE CONSTRUCTED OF RIP-RAP AND #5 WASHED STONE, WITH A MIN. HEIGHT OF 3' AND MIN. TOPWIDTH OF 2'.
4. FLASHBOARD RISER NOT PERMITTED FOR USE IN THE CITY OF CHARLOTTE

NOT TO SCALE

SEDIMENT BASIN (SB-1)
NTS

DATA BLOCK

BASIN	DRAINAGE AREA (ACRES)	DENUDED AREA (ACRES)	Q_{10}	BASIN VOLUME REQUIRED (CUBIC FT.)	BASIN VOLUME PROVIDED (CUBIC FT.)	BASIN SURFACE AREA REQUIRED (SQ FT.)	BASIN SURFACE AREA PROVIDED (SQ FT.)	CLEANOUT DEPTH (FT.)	RISER DIAMETER	BARRELL DIAMETER	BARRELL SLOPE (FT/FT)	H (FEET)	Z (FEET)	L (FEET)	T (FEET)	W (FEET)	SKIMMER PIPE DIAMETER	SKIMMER ORIFICE DIAMETER	SKIMMER PIPE LENGTH
SB-1 (PRE/POST)	16.1	12.8	2.35	28,980	39,779	25,513	27,454	137.1	36 IN.	30 IN.	.005	3	7	–	–	–	4 in.	1.62 in.	8' (MIN)

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SHEET TITLE
EROSION CONTROL NOTES & DETAILS (SHEET 1 OF 2)
WG14_ECDET DET1

PROJECT
DOC BENNETT LANDFILL
CUMBERLAND CO. FAYETTEVILLE, NC

NORTH CAROLINA PROFESSIONAL SEAL 033416 ENGINEER JOHN SCOTT CHILDERS 12-18-08

NO.	DATE	REVISION	BY
1	10/21/08	REVISED PER NCDENR COMMENTS	EJW
2	12/17/08	REVISED PER NCDENR COMMENTS	AMM

PROJECT NO. WG14.400
SCALE NTS
DATE 9/22/08
DRAWN BY EJW
CHECKED BY DWW
SHEET NO. 5

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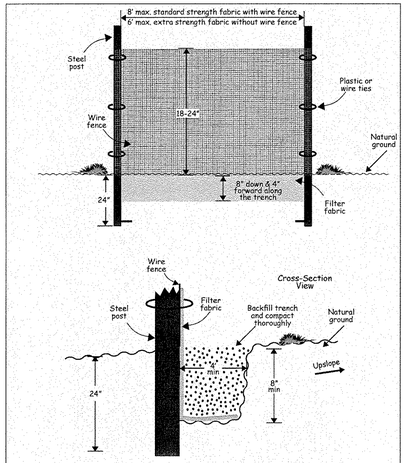

Figure 6.62a Installation detail of a sediment fence.

Construction Specifications

Materials
1. Use a synthetic filter fabric of at least 95% by weight of polyolefins or polyester, which is certified by the manufacturer or supplier as conforming to the requirements in ASTM D 6461, which is shown in part in Table 6.62b. Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 to 120° F.
2. Ensure that posts for sediment fences are 1.33 lb/linear ft steel with a minimum length of 5 feet. Make sure that steel posts have projections to facilitate fastening the fabric.
3. For reinforcement of standard strength filter fabric, use wire fence with a minimum 14 gauge and a maximum mesh spacing of 6 inches.

Construction
1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.
2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground surface. (Higher fences may impound volumes of water sufficient to cause failure of the structure.)
3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.
4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have minimum 50 pound tensile strength.
5. When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Support posts should be driven securely into the ground a minimum of 24 inches.
6. Extra strength filter fabric with 6 feet post spacing does not require wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have minimum 50 pound tensile strength.
7. Excavate a trench approximately 4 inches wide and 8 inches deep along the proposed line of posts and upslope from the barrier (Figure 6.62a).
8. Place 12 inches of the fabric along the bottom and side of the trench.
9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.
10. Do not attach filter fabric to existing trees.

Installation Specifications
1. The base of both end posts should be at least one foot higher than the middle of the fence. Check with a level if necessary.
2. Install posts 4 feet apart in critical areas and 6 feet apart on standard applications.
3. Install posts 2 feet deep on the downstream side of the silt fence, and as close as possible to the fabric, enabling posts to support the fabric from upstream water pressure.
4. Install posts with the nipples facing away from the silt fabric.
5. Attach the fabric to each post with three ties, all spaced within the top 8 inches of the fabric. Attach each tie diagonally 45 degrees through the fabric, with each puncture at least 1 inch vertically apart. Also, each tie should be positioned to hang on a post nipple when tightened to prevent sagging.
6. Wrap approximately 6 inches of fabric around the end posts and secure with 3 ties.
7. No more than 24 inches of a 36 inch fabric is allowed above ground level.
8. The installation should be checked and corrected for any deviations before compaction.
9. Compaction is vitally important for effective results. Compact the soil immediately next to the silt fence fabric with the front wheel of the tractor, skid steer, or roller exerting at least 60 pounds per square inch. Compact the upstream side first, and then each side twice for a total of 4 trips.

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

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

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

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

SILT FENCE
NTS

SEEDING SCHEDULE
(PERMANENT)

6

Table 6.11l
Seeding No. 2P for: Gentle Slopes, Average Soil; Low Maintenance

Seeding mixture

Species[1]	Rate (lb/acre)
Tall fescue	80
Sericea lespedeza	20
Kobe lespedeza	10

Seeding notes
1. After Aug. 15, use unscarified sericea seed.
2. Where periodic mowing is planned or a neat appearance is desired, omit sericea and increase Kobe lespedeza to 40 lb/acre.
3. To extend spring seeding dates into June, add 15 lb/acre hulled Bermudagrass. However, after mid-Apr. it is preferable to seed temporary cover.

Nurse plants
Between May 1 and Aug. 15, add 10 lb/acre German millet or 15 lb/acre Sudangrass. Prior to May 1 or after Aug. 15, add 40 lb/acre rye (grain).

Seeding dates

	Best	Possible
Fall:	Aug. 25 - Sept. 15	Aug. 20 - Oct. 25
Late Winter:	Feb. 15 - Mar. 21	Feb. 1 - Apr. 15

Fall is best for tall fescue and late winter for lespedezas. Overseeding of Kobe lespedeza over fall-seeded tall fescue is very effective.

Soil amendments
Apply lime and fertilizer according to soil tests, or apply 4,000 lb/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer.

Mulch
Apply 4,000 lb/acre grain straw or equivalent cover of another suitable mulch. Anchor straw by tacking with asphalt, netting, or roving or by crimping with a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

Maintenance
Refertilize in the second year unless growth is fully adequate. May be mowed once or twice a year, but mowing is not necessary. Reseed, fertilize, and mulch damaged areas immediately.

[1]Refer to *Appendix 8.02* for botanical names.

6.11.20

	GENTLE SLOPES	STEEP SLOPES
SEEDING MIXTURE	80 lbs/acre of tall fesue	100 lbs/acre tall fescue 30 lbs/acre Sericea lespedeza (unscarified after August 15) 10 lbs/acre Kobe lespedeza
SEEDING DATES	FALL: August 25 – October Late winter: February 15 – April 15 To extend spring seeding into June, add 15 lbs/acre hulled Bermudagrass Overseeding of Kobe lespedeza over fall–seeded tall fescue is very effective.	FALL: August 25 – October 15 Late winter: February 15 – April 15 To extend spring seeding into June, add 15 lbs/acre hulled Bermudagrass Overseeding of Kobe lespedeza over fall–seeded tall fescue is very effective.
SEEDING AMENDMENTS	Apply lime and fertilizer per soil tests, or 4000 lbs/acre limestone and 1000 lbs/acre 10–10–10 fertilizer.	Apply lime and fertilizer per soil tests, or 4000 lbs/acre limestone and 1000 lbs/acre 10–10–10 fertilizer.

NOTE 1
Ground Cover-- Protective cover must be established on all disturbed areas within 21 calendar days after land disturbing activity is completed or has temporarily ceased.

NOTE 2
Graded slopes and fills--Protective cover must be established on all graded slopes and fills within 21 calendar days after a phase of grading is completed or has temporarily ceased.

SEEDING SCHEDULE

TEMPORARY SEEDING FOR WARM AND COOL SEASON

	EARLY SUMMER SEASON	STEEP SLOPES
SEEDING MIXTURE	40 lbs/acre of German millet 80 lbs/acre of tall fesue	120 lbs/acre Rye (grain) 80 lbs/acre tall fesue
SEEDING DATES	May 1 – August 15 Refertilize if growth is not fully adequate. Apply 4000 lbs/acre straw or equivalent hydroseeding.	October 25 – December 30 Between December 30 – February 15, add 50 lbs/acre of annual Kobe lespedeza. Apply 4000 lbs/acre straw or equivalent hydroseeding.
SEEDING AMENDMENTS	Apply lime and fertilizer per soil tests, or 2000 lbs/acre limestone and 750 lbs/acre 10–10–10 fertilizer.	Apply lime and fertilizer per soil tests, or 2000 lbs/acre limestone and 750 lbs/acre 10–10–10 fertilizer.

SEEDING SCHEDULE
(SEASONAL)

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SHEET TITLE
EROSION CONTROL NOTES & DETAILS (SHEET 2 OF 2)

PROJECT
DOC BENNETT LANDFILL
WG14.400 DET
FAYETTEVILLE, NC
CUMBERLAND CO.

NORTH CAROLINA PROFESSIONAL SEAL 033416 ENGINEER JOHN SCOTT CHILDERS
10-22-08

NO.	DATE	REVISION	BY

PROJECT NO. WG14.400
SCALE NTS
DATE 10/21/08
DRAWN BY E.W
CHECKED BY DWW
SHEET NO. 6

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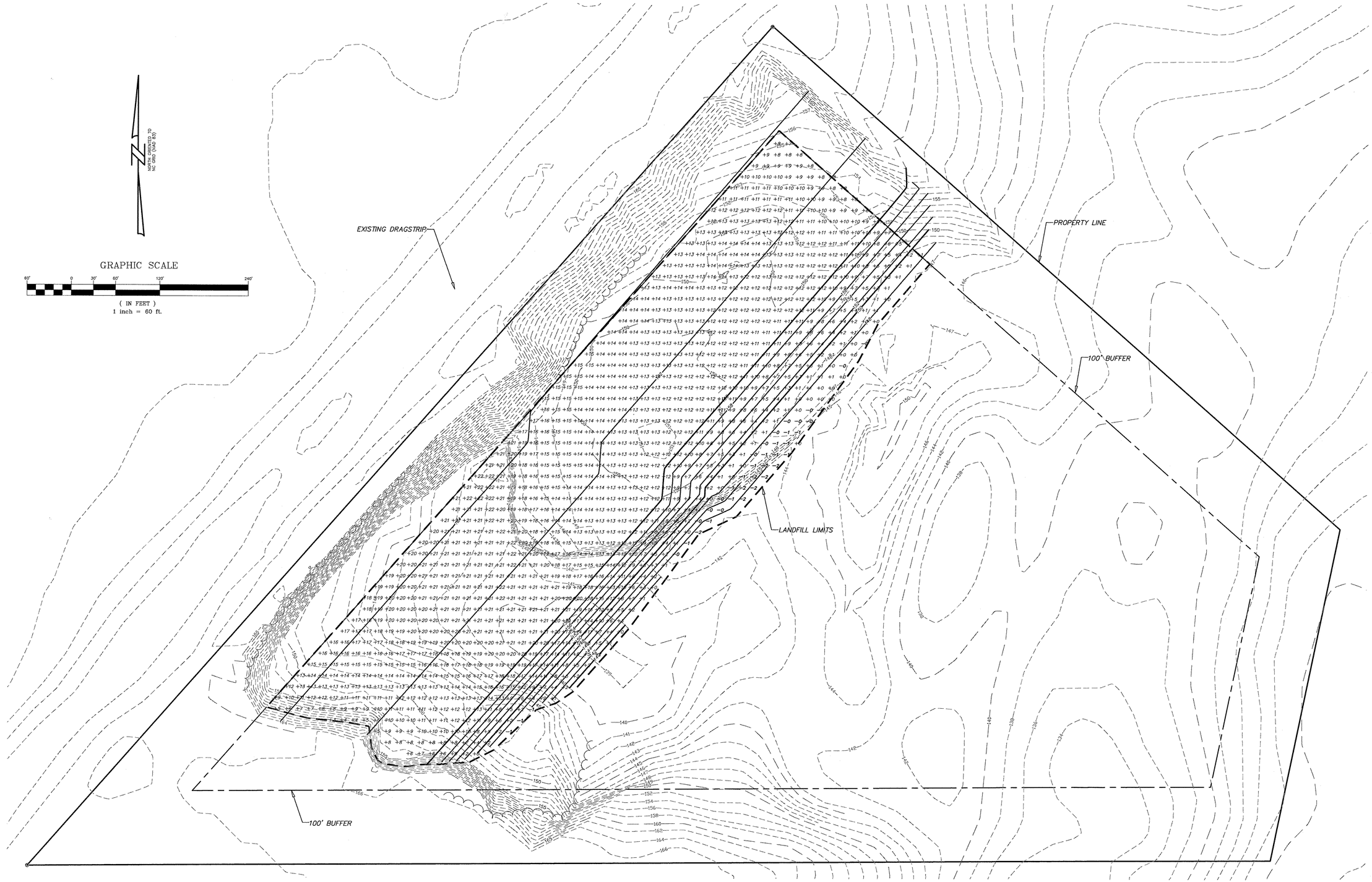

REMAINING LANDFILL CAPACITY:
121,991 CUBIC YARDS

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SHEET TITLE
REMAINING LANDFILL CAPACITY
WG14_REMAINING REMAINING

PROJECT
LCID LANDFILL PERMIT RENEWAL
DOC BENNETT LANDFILL
CUMBERLAND CO. FAYETTEVILLE, NC

NORTH CAROLINA PROFESSIONAL SEAL 033416 ENGINEER JOHN SCOTT CHILDERS 10-22-08

NO.	DATE	REVISION	BY

PROJECT NO WG14.400
SCALE 1"=60'
DATE 9/22/08
DRAWN BY EJW
CHECKED BY DWW
SHEET NO 7 OF 10

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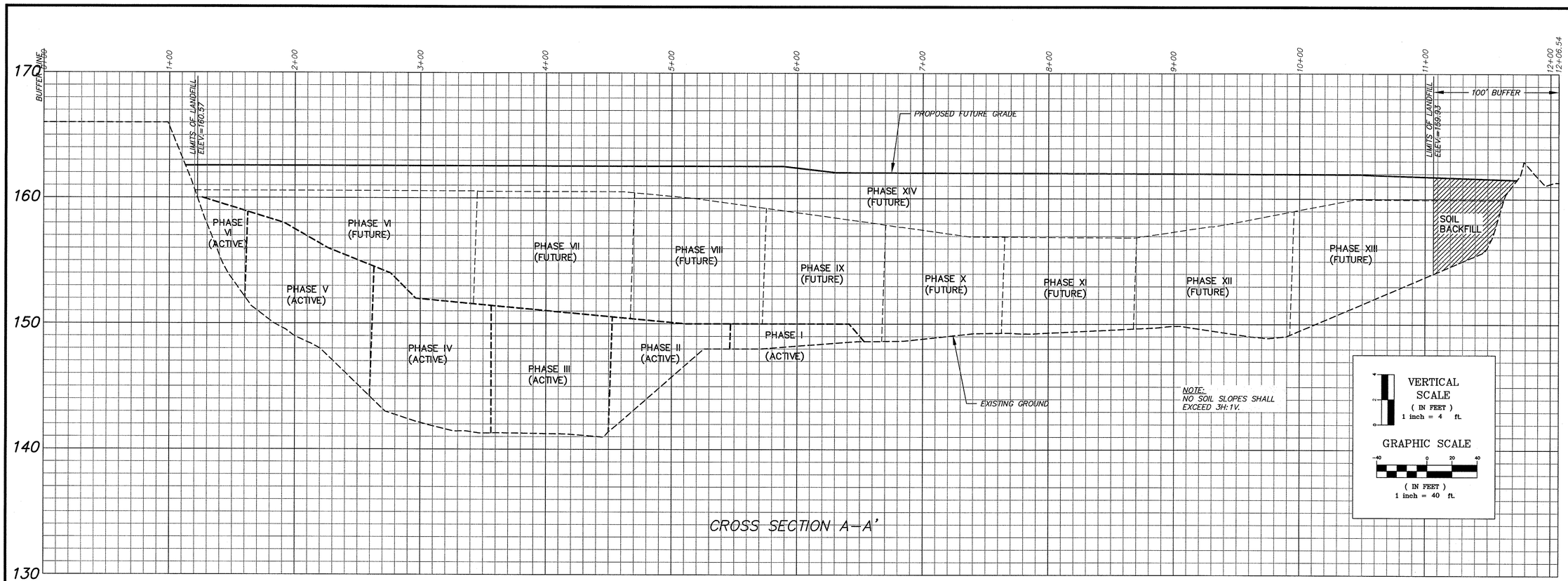
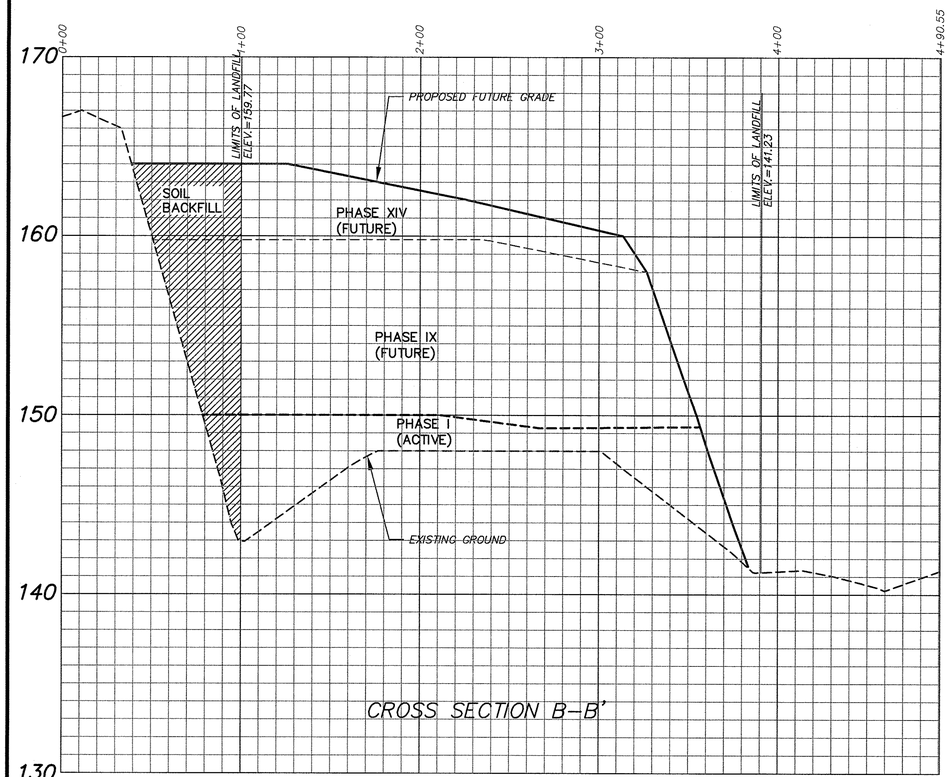


CROSS SECTION A–A'



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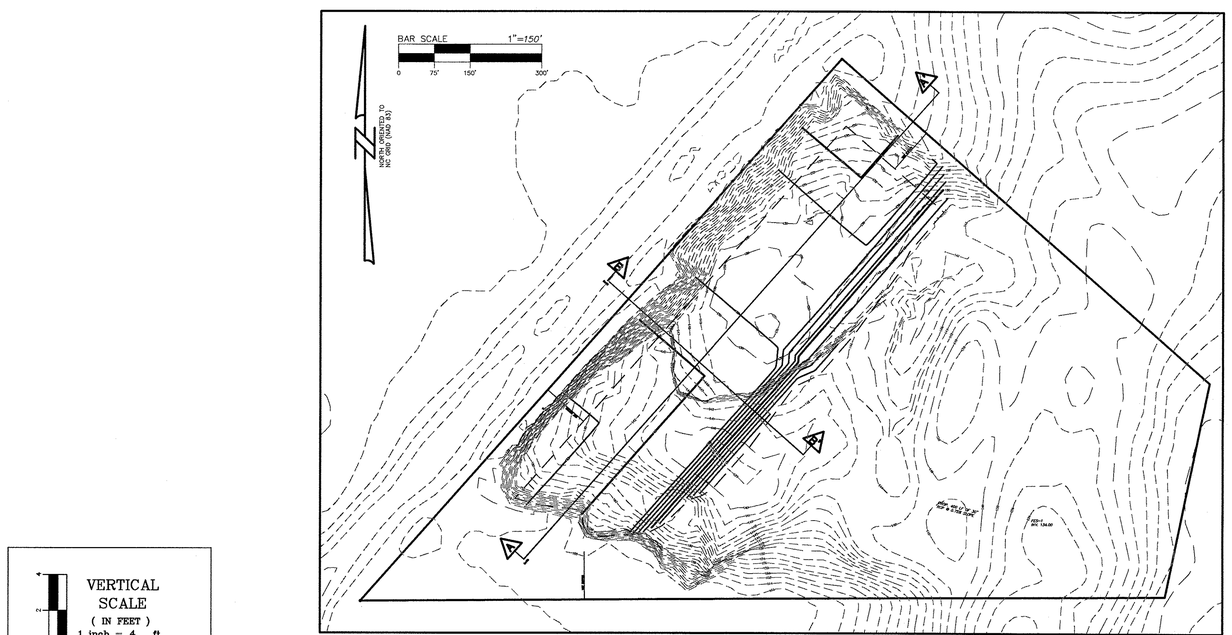

VERTICAL SCALE
(IN FEET)
1 inch = 4 ft.

GRAPHIC SCALE
-40 0 20 40
(IN FEET)
1 inch = 40 ft.

LEGEND
- BUFFER
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPERTY LINE

NOTE: GROUNDWATER WAS NOT ENCOUNTERED WITHIN 9 FEET BELOW EXISITING GROUND SURFACE, MARCH 14, 2001.

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SHEET TITLE
REMAINING LANDFILL CAPACITY CROSS SECTIONS
W014_XSECTIONS.XCST

PROJECT
LCID LANDFILL PERMIT RENEWAL
DOC BENNETT LANDFILL
CUMBERLAND CO. FAYETTEVILLE, NC

NORTH CAROLINA PROFESSIONAL SEAL 033416 ENGINEER JOHN SCOTT CHILDERS
5-5-09

NO.	DATE	REVISION	BY
1	4/23/09	PER NCDENR TECHNICAL REVIEW COMMENTS ACTIVE AND FUTURE CELLS LABELED REVISED SOIL SLOPES TO 3:1 MAX ON X-SECT A-A	
2	5/4/09		

PROJECT NO	WG14.400
SCALE	ED
DATE	9/22/08
DRAWN BY	EJW
CHECKED BY	DWW
SHEET NO.	8

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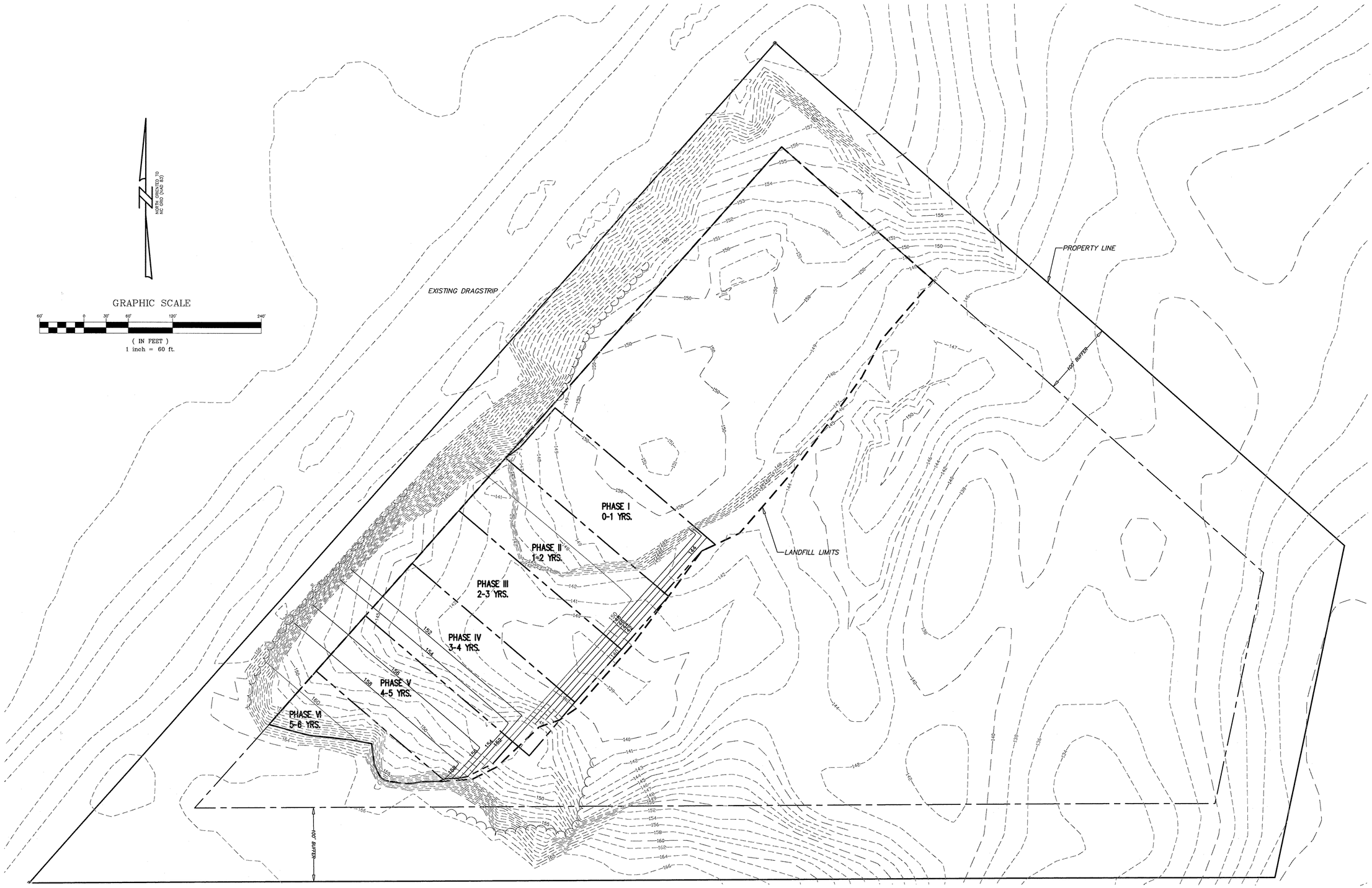

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NOTES:
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LEGEND
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- WASTE LIMITS
- PHASE LIMITS
- EXISTING CONTOURS

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PHASE DIAGRAM 1

PROJECT
LCID LANDFILL PERMIT RENEWAL
DOC BENNETT LANDFILL
CUMBERLAND, CO. FAYETTEVILLE, NC

W614_PHASES
PH1

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033416 JOHN SCOTT CHILDERS
10-22-08

NO.	DATE	REVISION	BY

PROJECT NO. W614.400
SCALE 1"=60'
DATE 9/22/08
DRAWN BY E.J.W.
CHECKED BY DWW
SHEET NO. 9

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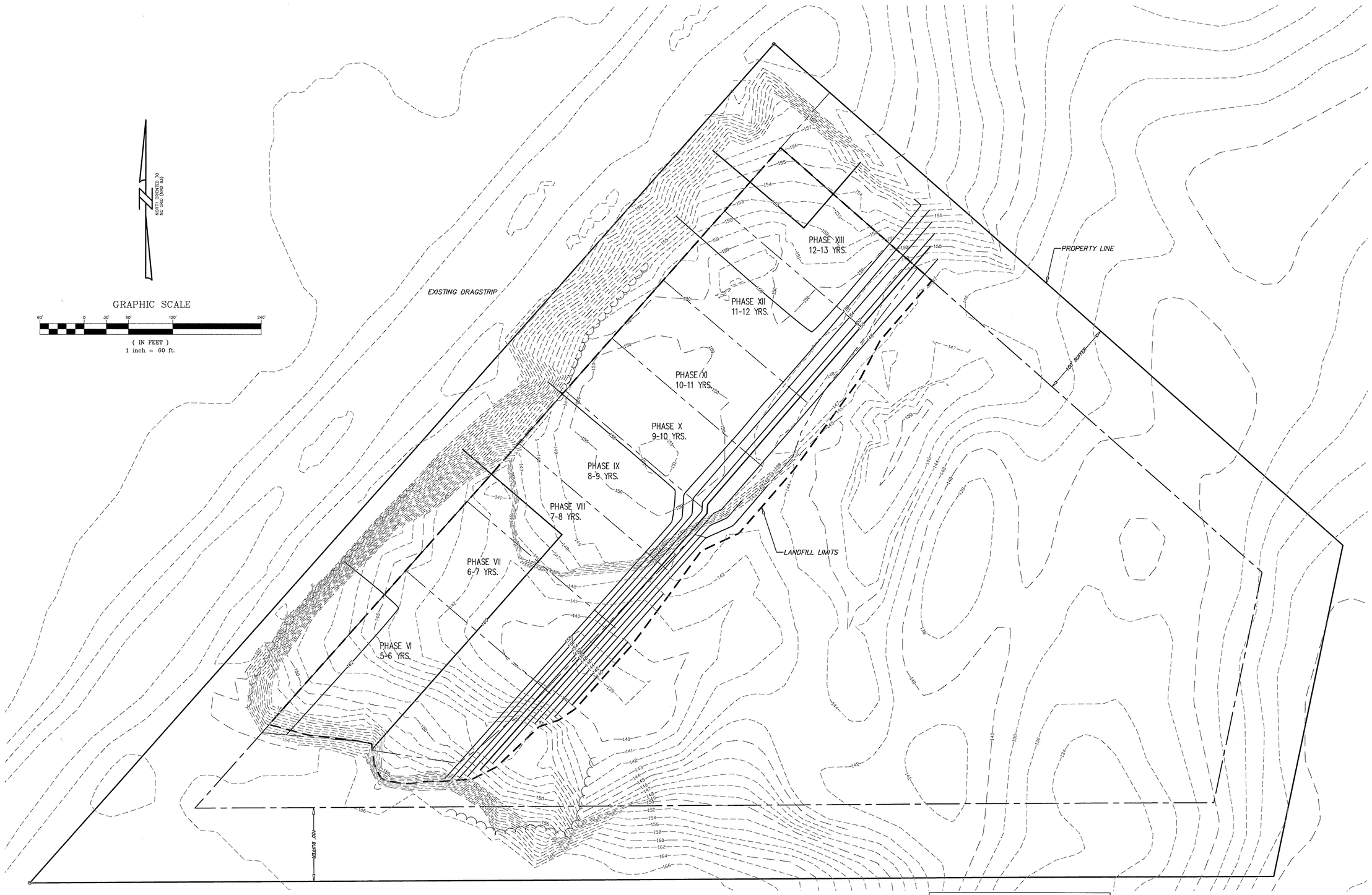

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LEGEND
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- WASTE LIMITS
- PHASE LIMITS
- EXISTING CONTOURS

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SHEET TITLE
PHASE DIAGRAM 2

PROJECT
W014_PHASES
PH2
LCID LANDFILL PERMIT RENEWAL
DOC BENNETT LANDFILL
FAYETTEVILLE NC
CUMBERLAND CO.

NORTH CAROLINA PROFESSIONAL SEAL 033416 ENGINEER JOHN SCOTT CHILDERS

NO.	DATE	REVISION	BY

PROJECT NO. W014.400
SCALE 1"=60'
DATE 9/22/08
DRAWN BY EJW
CHECKED BY DWW
SHEET NO. 10

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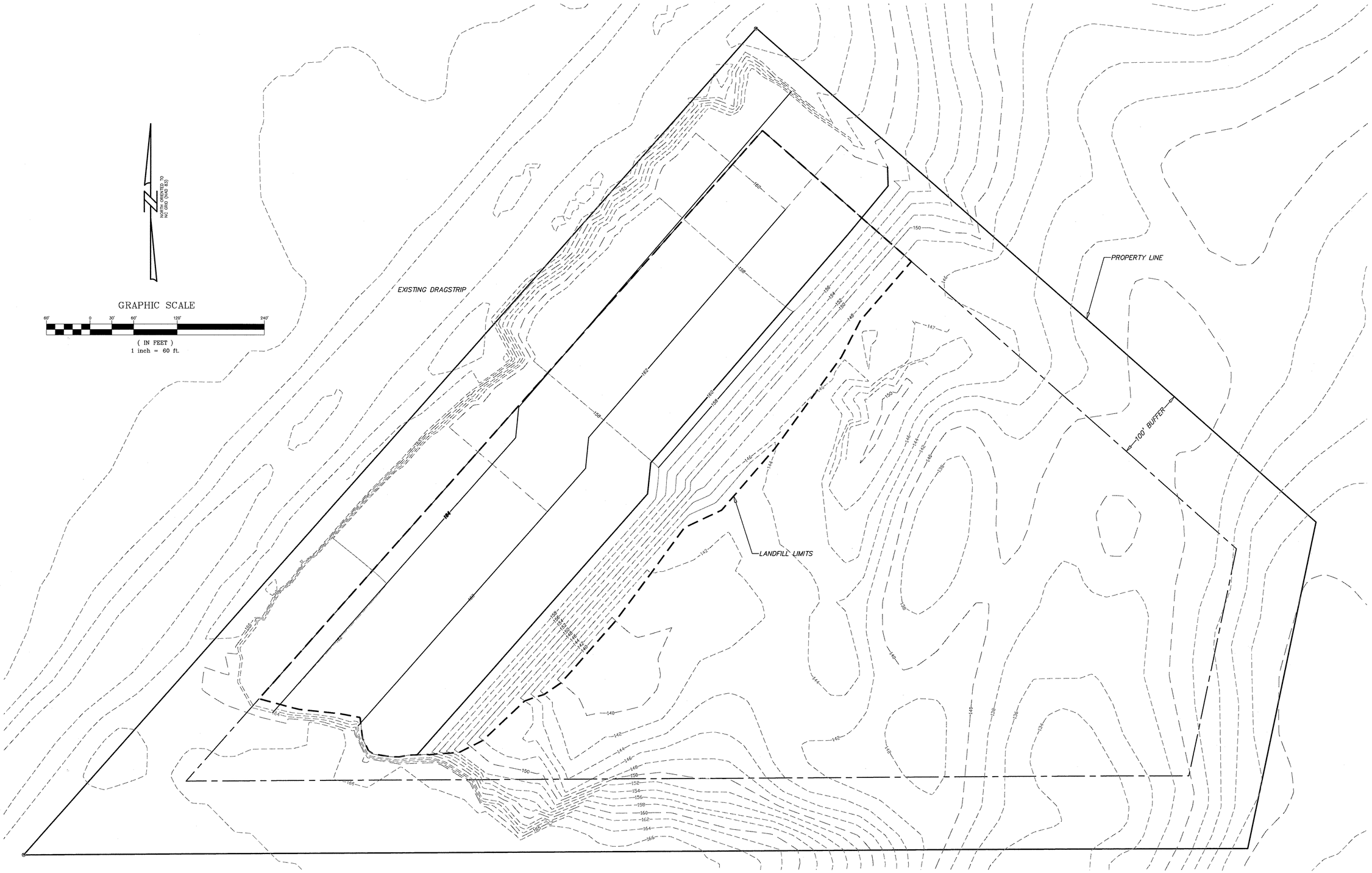

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- WASTE LIMITS
- PHASE LIMITS
- EXISTING CONTOURS

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P.O. BOX 35376
FAYETTEVILLE, NC
PHONE: (910) 829-6261

SHEET TITLE
PHASE DIAGRAM 3

PROJECT
LCID LANDFILL PERMIT RENEWAL
DOC BENNETT LANDFILL
CUMBERLAND CO. FAYETTEVILLE, NC

NORTH CAROLINA PROFESSIONAL SEAL 035416 ENGINEER JOHN SCOTT CHILDERS
10-22-08

NO.	DATE	REVISION	BY

PROJECT NO. WG14.400
SCALE 1"=60'
DATE 9/22/08
DRAWN BY EJW
CHECKED BY DWW
SHEET NO. 11

W:\WG14.400 Doc Bennett LCID Landfill\WG14.400\dwg\WG14_PHASES.dwg, PH3, ewelch