G:\DWG\176-001\GRADING Tue May 14 11:50:48 1996 ZEOS

PORT VILLAGE
PROPOSED FLY ASH FILL SITE

GRADING, DRAINAGE & EROSION CONTROL PLAN

BURTON ENGINEERING ASSOCIATES
CIVIL ENGINEERS
LAND PLANNERS

2115 Rexford Rd. • Suite 540 • Charlotte, NC 28211
(704) 365-8883 • Fax (704) 365-4508

CTB — Engineer
GDM — Drawn By
5/6/96 — Date

Revisions
10-2-96 PER DENR COMMENTS
10-3-96 GRADING & EROSION CONTROL PLAN REVISED PER DENR COMMENTS
10-17-96 ACCESS ROAD & ENTRANCE MOVED

Project Number 176-001

Sheet C1 of 1

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< DENVER NC HWY 150 MOORESVILLE >

VICINITY MAP -NTS-

GRAPHIC SCALE
(IN FEET)
1 inch = 60 ft.

NCGS GRID NORTH

CONSTRUCTION SEQUENCE

1. OBTAIN APPROVAL FROM NC DEPT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES LAND QUALITY SECTION; (PH 704-663-1699).
2. NOTIFY NCDENHR 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
3. INSTALL CONSTRUCTION ENTRANCE, GRAVEL CURB INLET SEDIMENT FILTERS, SILT FENCE, DIVERSION DITCHES, AND SEDIMENT TRAP AND PIPE BASIN.
4. HAVE EROSION CONTROL DEVICES INSPECTED BY NCDENHR.
5. CLEAN AND GRADE SITE ACCORDING TO PLANS.
6. AS STORM DRAINAGE IS INSTALLED, CONSTRUCT, SILT FENCE STORM INLET SEDIMENT FILTERS AND MAINTAIN RISER BASIN (SEE NOTES ADDED TO DETAIL).
7. GRASS OR OTHERWISE STABILIZE ALL DISTURBED AREAS.
8. WITH INSPECTOR'S PERMISSION, REMOVE EROSION CONTROL DEVICES.
9. FINAL INSPECTION BY NCDENHR INSPECTOR.

LEGEND
- EXISTING CONTOURS
- PROPOSED CONTOURS
- SILT DENCE DIVERSION DITCH
- DENUDED AREA LIMITS
- SILT FENCE STORM INLET SEDIMENT TRAP
- PROPOSED STORM DRAINAGE

EXIST MH TOP 831.60

TEMP. STOP PIPE
TERMINATE STORM DR. PIPE BEFORE BASIN, UNTIL SITE IS ESTABLISHED

EXIST MH TOP 815.27 from DHB

POND

ROLLING HILLS ROAD

PENNINGTON RACING SOUTH, LTD.
134 KNOB HILL RD., MOORESVILLE, N.C. 28115

EXISTING DRAINAGE SWALE TO BE DIVERTED INTO TEMPORARY SWALE DURING FILLING OPERATION. INITIAL GRADING BY OWNER.

GRAVEL & RIP RAP SEDIMENT BASIN (INSIDE OF DIKE BASIN)

ELEVATION OF BERM AND FILTER

CONSTRUCTION ENTRANCE

Construction Specifications
1. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
3. Provide drainage to carry water to a sediment trap or other suitable outlet.
4. Use geotextile (fabric) beneath the gravel to improve stability of the foundation in locations subject to excessive or high moisture traffic.

Table 6.10b Temporary Seeding Recommendations for Summer

Seeding mixture
- Species: Common millet — Rate (lb/acre): 40
- Species: Sudangrass — Rate (lb/acre): 40

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

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

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

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

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

PERMANENT SEEDING

Seeding mixture
- Species: Tall fescue blend (equal parts of two or preferably three turf-type tall fescues) — Rate (lb/acre): 200-250

Seeding dates
- Below 2500 ft: Aug. 15 - Sept. 1 / Mar. 1 - Apr. 1 / Above 2500 ft: July 25 - Aug. 15 / Mar. 20 - Apr. 20
- Possible: July 25 - Sept. 15 / Mar. 1 - May 10 / July 15 - Aug. 30 / Mar. 5 - May 15

Soil amendments
Apply lime and fertilizer according to soil tests, or apply 4,000 lb/acre ground agricultural limestone and 1,200 lb/acre 10-10-10 fertilizer.

Mulch
Apply 3,000-4,000 lb/acre grain straw or equivalent cover of another suitable mulch. Anchor mulch by tacking with asphalt, roving, or netting or by rolling and watering.

Maintenance
The bunch-type habit of tall fescue restricts its spread into damaged areas. Reseed bare spots in the fall. Refertilize annually in late winter and again in fall. Reseed, fertilize, and mulch damaged areas immediately.

Refer to Appendix 6.02 for botanical names.

Table 6.10a Temporary Seeding Recommendations for Fall

Seeding mixture
- Species: Rye (grain) — Rate (lb/acre): 120

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

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

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

Maintenance
Repair any seedbeds damaged areas immediately. Topdress with 50 lb/acre of nitrogen if growth is poor. Do not mow regularly. Allow to grow beyond June 15, overseed with 50 lb/acre Kobe (Piedmont and Coastal Plain) or Korean (Mountains) lespedeza in late February or early March.

Table 6.11b Seeding No. 6M for: Gentle Slopes, Sun or Semi-shade; High-maintenance, Recreational Lawns
- Seeding mixture: Species: Tall fescue (Kode-in, Fawn, or Rebel Jubilee) — Rate (lb/acre): 120
- Fertilizer: 10-10-10 or equivalent — 500
- Lime: Ground agricultural limestone — 2000

Seeding dates
- Mountains—Above 2500 ft: Feb. 15 - May 15
- Piedmont—Jan. 1 - May 1
- Coastal Plain—Dec. 1 - Apr. 15

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

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

Maintenance
Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following winter and early spring damage.

Table 6.11b Seeding No. 6M for: Gentle Slopes, Sun or Semi-shade; High-maintenance, Recreational Lawns
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- Lime: Ground agricultural limestone — 2000

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- Coastal Plain—Dec. 1 - Apr. 15

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

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Maintenance
Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following winter and early spring damage.

Table 6.12a Temporary Seeding Recommendations for Fall
- Seeding mixture: Species: Rye (grain) — Rate (lb/acre): 120
- Seeding dates: Mountains—Aug. 15 - Dec. 15; Piedmont and Piedmont—Aug. 15 - Dec. 30
- Soil amendments: Apply soil tests or apply 2,000 lb/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer.
- Mulch: Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.
- Maintenance: Repair any seedbeds damaged areas immediately. Topdress with 50 lb/acre of nitrogen if growth is poor. Do not mow regularly. Allow to grow beyond June 15, overseed with 50 lb/acre Kobe (Piedmont and Coastal Plain) or Korean (Mountains) lespedeza in late February or early March.

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- Seeding mixture: Species: Sudangrass — Rate (lb/acre): 40

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

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- Mountains—May 15 - Aug. 15
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Soil amendments
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Mulch
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Maintenance
Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

PERMANENT SEEDING

Seeding mixture
- Species: Tall fescue blend (equal parts of two or preferably three turf-type tall fescues) — Rate (lb/acre): 200-250

Seeding dates
- Below 2500 ft: Aug. 15 - Sept. 1 / Mar. 1 - Apr. 1 / Above 2500 ft: July 25 - Aug. 15 / Mar. 20 - Apr. 20
- Possible: July 25 - Sept. 15 / Mar. 1 - May 10 / July 15 - Aug. 30 / Mar. 5 - May 15

Soil amendments
Apply lime and fertilizer according to soil tests, or apply 4,000 lb/acre ground agricultural limestone and 1,200 lb/acre 10-10-10 fertilizer.

Mulch
Apply 3,000-4,000 lb/acre grain straw or equivalent cover of another suitable mulch. Anchor mulch by tacking with asphalt, roving, or netting or by rolling and watering.

Maintenance
The bunch-type habit of tall fescue restricts its spread into damaged areas. Reseed bare spots in the fall. Refertilize annually in late winter and again in fall. Reseed, fertilize, and mulch damaged areas immediately.

Refer to Appendix 6.02 for botanical names.

CONSTRUCTION NOTES

1. Project shall be in accordance with N.C. Solid Wastes Management Ruled, 15 NCAC 13B, Section .1700
2. Contractor to verify size, location and inverts of all utilities prior to beginning construction. The contractor shall immediately notify the engineer of any discrepancies or differences from the plans.
3. Contractor shall notify all adjacent utilities prior to construction. Utility locations shown on plans are approximate and based on generally available information, unless indicated otherwise. Unless specifically shown on plans, underground utility depths are estimated. Contractor shall locate all utilities vertically and horizontally prior to construction. Any conflicts with the plans shall be immediately brought to the attention of the engineer.
4. The contractor shall protect adjacent streams from siltation by proper erosion and sediment control.
5. Contractor to notify 'Carolina One Call' 48 hours prior to beginning construction at 1-800-632-4949. Nonsubscribers must be contacted directly.
6. All construction within the state right-of-way to meet NCDOT standards.
7. All contours and spot elevations are top of ground, unless otherwise noted. Top of fly ash shall be (-2') top.
8. The entire area within the limits of grading shall be excavated to a depth sufficient to remove all vegetable matter, soil, muck, rubbish and other unsuitable material.
9. All fill material shall be free from roots, other organic material, and trash. Stones shall have a maximum dimension no greater than six inches.
10. The grading contractor shall conform to the elevations shown on the plans within a tolerance of plus or minus 0.10 feet.
11. The contractor is responsible for conducting his work in accordance with the latest requirements and regulations of the Occupational Safety and Health Administration (OSHA).
12. The following minimum requirements per N.C. Solid Waste Management 15 NCAC 13:
   a) Section .1703 - Construction cannot begin until notification procedures have been completed.
   b) Section .1705(c) - Maximum lifts for Ash placement shall not exceed 1'.
   c) Section .1705(j) - Minimum soil cover shall be 18" (U.N.O.)
   d) Section .1705 (1) - Side slopes shall be 3:1 (H:V) for ash application.
   e) Section .1705 (h) Fill to be placed in accordance with N.C. Sediment Pollution Control Act of 1973 per Section .1706(h).
   f) Section .1706, .1707 - Procedures for closure shall be in accordance these sections.

SITE TABULATION

ACREAGE ZONING DENUDED AREAS — HC & HB 12.0

GENERAL NOTES:

1. TOPOGRAPHICAL SURVEY PROVIDED BY WILKINS & ASSOC., LAND SURVEYING CONSULTANTS, P.O. BOX 6015 MOORESVILLE N.C. 28115 PHONE 704 663-5516.
2. OWNER: B.V. BELK INVESTMENTS 4400 PARK RD. SUITE 300, CHAR. 28209 PHONE 704 529-6344; AGENT: THOMAS W. SCOTT, PRESIDENT

Found telephone conversation on 8/15/96 W.H.H.

CHARLES E. BROWN
EST. & BOX 379, MOORESVILLE
N.C. 28115

B-P GAS STATION
FLOYD GREENE REALTY

FLOYD GREEN
P.O.BOX 1144
MOORESVILLE, NC 28078
TAX #20-4-2,3
DB 678 PG 169

RICHARD D. MARTIN
176 SAGEMORE ROAD
MOORESVILLE, NC 28115
TAX #201-1
DB 05 PG 110

MICHAEL J. HENEN
17900 PAGES POND COURT
HUNTERSVILLE, NC 28078
TAX #20-1-7

ROBERT HOWARD
720 RIVER HIGHWAY
MOORESVILLE, NC 28115
TAX #20-A2I
DB 348 PG 492

B.V. BELK JR./ CONERACO INDUSTRIES INC.
4400 PARK RD SUITE 300
CHARLOTTE, NC 28209
TAX # 176 2000300046

ZONED R-20
ZONED HB + HC
ZONED HC

CONSTRUCTION EXIT (50' X 18')

20' LANDSCAPED BUFFER

N 36° 44' 00" E 722.88'

N 79° 19' 16" W 896.5'

N 14° 46' 20" E 201.16'

N 19° 04' 45" E 119.53'

N 19° 04' 48" E 86.55'

S 81° 30' 35" E 202.74'

S 08° 58' 30" W 24.50

S 81° 30' 30" E 202.71'

N 08° 58' 30" E 200.00'

S 58° 30" W 196.98'

N 08° 32' 04" E 75.00'

S 81° 30' 30" E 264.00'

N 08° 15' W 164.86'

S 08° 15' E 216.35'

N 08° 32' 04" E

S 15° 27' W

S 75° 58' 56" E 720.42'

N 08° 32' 04" E

S 08° 58' 30" W 355.50'

S 81° 30' 30" E 264.00'

N 08° 58' 30" E 30.00'

S 08° 58' 30" W 30.00'

S 58° 30" W 196.98'

N 08° 58' 30" E 200.00'

S 81° 30' 30" E 202.74'

S 08° 58' 30" W 24.50

S 81° 30' 30" E 202.71'

N 14° 01' 40" E 119.53'

N 19° 04' 45" E 85.18'

N 19° 04' 48" E 86.55'

S 08° 58' 30" W 355.50

C:\DWG\176-001\GRADING Wed Mar 13 14:34:31 1996 Gateway P5-90

INTERSTATE 77 SOUTH >

EXIT 36

ROLLING HILLS ROAD

SITE

< DENVER HWY 150 > MOORESVILLE

VICINITY MAP -NTS-

CHARLOTTE - MECKLENBURG LAND DEVELOPMENT STANDARDS

RISER TYPE SEDIMENT BASIN

STD. NO. 800.01 REV. 30.01

APPROVED DATE 10.10.95

RISER	BARREL	z	h	r	s	x
54"	42"	6	2'	10	3	2

DATA BLOCK TO BE COMPLETED BY DESIGNER AND SUBMITTED WITH EROSION CONTROL PLANS

SEE STD. NO 30.03 FOR GENERAL NOTES

WELDED TO CMP RISER

ANTI-VORTEX PLATE

TRASH RACK

REMOVABLE TRASH RACK IS OPTIONAL FOR EASE IN MAINTENANCE

SECTION A-A

FREEBOARD

CMP PERFORATED RISER

#5 WASHED STONE FILTER

BOTTOM OF BASIN

CONC. ANCHOR

DESIGN HIGH-WATER

RISER CREST

TRASH RACK

ANTI-VORTEX PLATE

DISCHARGE PIPE

RIP-RAP APRON

ANTI-SEEP COLLARS SIZE, QTY AND SPACING VARIES

Compacted soil

2 min

6 typical

18" min

FLOW

RISER BASIN

DUKE POWER / CONTRACTOR PERFORMANCE STANDARDS
COAL ASH STRUCTURAL FILL PROJECTS

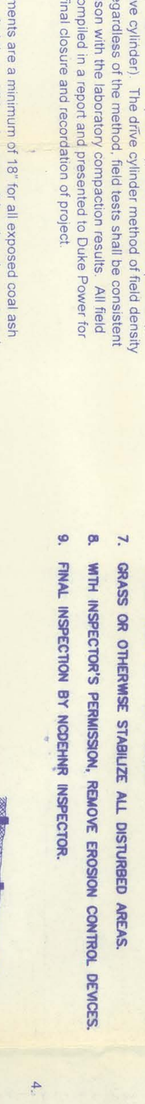
A minimum of one density test shall be performed for every 2500 cubic yards of ash placed in a fill project. All field tests failing to meet the required density are to be retested until results are within compliance specified within these standards or allowed by responsible engineer. All failing tests and retests shall be documented prior to continuing work. In the event of three consecutive failing tests, an area covering approximately 100 square feet minimum shall be reworked and retested until results are within required density. Approximate elevations of test locations and position relative to boundary lines shall be recorded on a plan view of project and submitted with final report. Allowable test methods are ASTM D1556 (sand cone), ASTM D1587 (tube sampling), ASTM D2167 (balloon), ASTM D2922 (nuclear), and ASTM D2937 (drive cylinder). The drive cylinder method of field density testing is preferred. Regardless of the method, field tests shall be consistent with respect to comparison with the laboratory compaction results. All field density tests shall be compiled in a report and presented to Duke Power for file in conjunction with final closure and recordation of project.

Final soil cover requirements are a minimum of 18" for all exposed coal ash surfaces. It is recommended that additional cover soil be placed on external slopes having a potential for extreme erosion. Additional cover in this case shall be determined by the responsible engineer. Cover soil density and thickness on all horizontal surfaces and slopes shall be verified by density tests and/or other methods by soil testing service employed by owner. Information obtained shall be included in report mentioned above. Two methods of establishing soil cover may be implemented. Method 1) Soil cover shall be placed along perimeter of fill area in conjunction with ash fill lifts to prevent loss of ash during construction period. Method 2) Soil containment berms may be established prior to ash placement. These berms shall be constructed in compacted lifts to insure structural stability.

Minimum density required shall be 95% of standard proctor value as established by ASTM D698 method A unless otherwise noted or approved by the responsible engineer.

CONSTRUCTION SEQUENCE

1. **OBTAIN APPROVAL FROM NC DEPT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES LAND QUALITY SECTION; (PH 704-663-1699).**
2. **NOTIFY NCDENHR 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.**
3. **INSTALL CONSTRUCTION ENTRANCE, GRAVEL CURB INLET SEDIMENT FILTERS, SILT FENCE, DIVERSION DITCHES, AND SEDIMENT TRAP.**
4. **HAVE EROSION CONTROL DEVICES INSPECTED BY NCDENHR.**
5. **CLEAN AND GRADE SITE ACCORDING TO PLANS.**
6. **AS STORM DRAINAGE IS INSTALLED, CONSTRUCT, SILT FENCE STORM INLET SEDIMENT FILTERS.**
7. **GRASS OR OTHERWISE STABILIZE ALL DISTURBED AREAS.**
8. **WITH INSPECTOR'S PERMISSION, REMOVE EROSION CONTROL DEVICES.**
9. **FINAL INSPECTION BY NCDEHNR INSPECTOR.**



SILT FENCE

CONSTRUCTION NOTES

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2. Contractor to verify size, location and inverts of all utilities prior to beginning construction. The contractor shall immediately notify the engineer of any discrepancies or differences from the plans.
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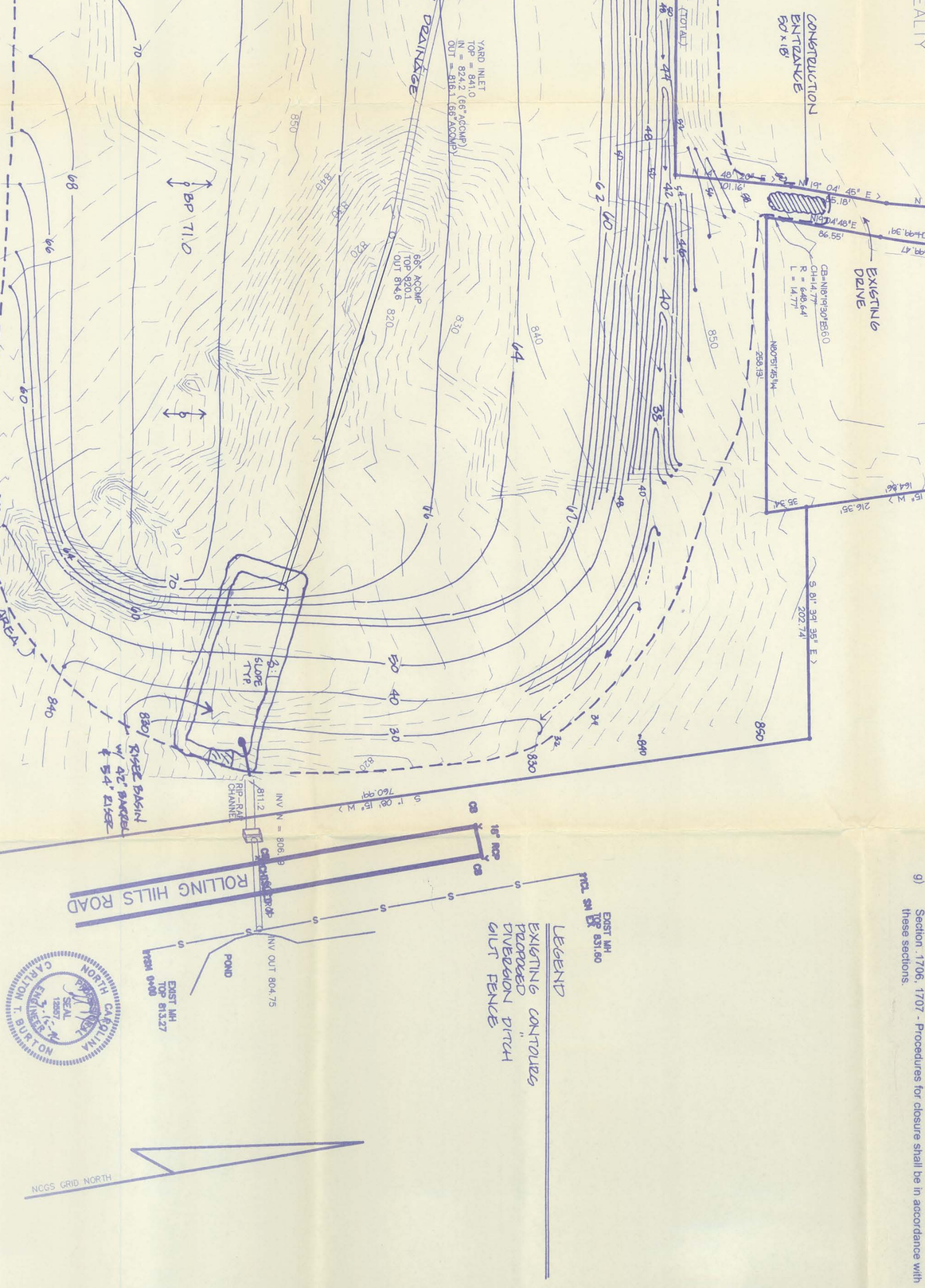
5. Contractor to notify Carolina One Call' 48 hours prior to beginning construction at 1-800-632-4949. Nonsubscribers must be contacted directly.
6. All construction within the state right-of-way to meet NCDOT standards.
7. All contours and spot elevations are top of ground, unless otherwise noted. Top of fly ash shall be (-2') typical.
8. The entire area within the limits of grading shall be excavated to a depth sufficient to remove all vegetable matter, sod, muck, rubbish and other unsuitable material.
9. All fill material shall be free from roots, other organic material, and trash. Stones shall have a maximum dimension no greater than six inches.
10. The grading contractor shall conform to the elevations shown on the plans within a tolerance of plus or minus 0.10 feet.
11. The contractor is responsible for conducting his work in accordance with the latest requirements and regulations of the Occupational Safety and Health Administration (OSHA).
12. The following minimum requirements per N.C. Solid Waste Management Rules 15 NCAC 13:
   a) Section .1703 - Construction cannot begin until notification proceedures have been completed.
   b) Section .1705(c) - Maximum lifts for Ash placement shall not exceed 1'.
   c) Section .1705(j) - Minimum soil cover shall be 18" (U.N.O.)
   d) Section .1704 - Minimum two (2) feet of soil cover over bedrock may be used in lieu of 25' buffer from bedrock outcrop specified.
   e) Section .1705 (1) - Side slopes shall be 3:1 (H:V) for ash applications.
   f) Section .1705 (h) Fill to be placed in accordance with N.C. Sediment Pollution Control Act of 1973 per Section. 105(h).
   g) Section .1706, 1707 - Procedures for closure shall be in accordance with these sections.

Response to Review Comments



Project	PORT VILLAGE PROPOSED FLY ASH FILL SITE
Sheet Title	GRADING, DRAINAGE & EROSION CONTROL PLAN

CTB
Engineer
GDM
Drawn By
3/14/96
Date

Revisions

Project Number
176-001

Sheet C1 of 1

BURTON ENGINEERING ASSOCIATES
CIVIL ENGINEERS
LAND PLANNERS

2115 Rexford Rd. • Suite 540 • Charlotte, NC 28211
(704) 365-8883 • Fax (704) 365-4508

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