OPERATION/CONSTRUCTION MANAGERS
Municipal Services
CIVIL/SANITARY ENGINEERS
Engineering Company, P.A.

May 31, 2011

Mr. Brian Wootton
Solid Waste Section
Division of Waste Management
North Carolina Department of Environment and Natural Resources
401 Oberlin Road, Suite 150
Raleigh, NC 27605

Re: Site Hydrogeologic Study - Steele Property, Expansion
Iredell County Subtitle D Landfill
Permit No. 49-03

Mr. Wootton,

In response to your letter dated April 29, 2011, Municipal Engineering Services Co., P.A. (MESCO) revised the Site Hydrogeologic Study for the Iredell County Subtitle D Landfill, Steele Property.

Following are responses to the additional information requested:

Site Study Application – September 22, 2010
Regional Characterization 2-Mile Perimeter Map

Solid Waste Section Response: According to the Regional…railroad tracks.

The waste limit line was adjusted. PSW3 dimensions are shown from the waste limit. Hard copies of amended maps are provided for your reference, engineering adjustments will be submitted separately.

PO Box 97, Garner, North Carolina 27529 (919) 772-5393
PO Box 828, Morehead City, NC 28557 (252) 726-9481
PO Box 349, Boone, North Carolina 28607 (828) 262-1767

Site Hydrogeologic Study – May 18, 2009
Section 2– Field Investigation
Plate 2 – General Site Map
Plate 3 – Single Day Potentiometric Map with Flow Directions
Plate 4A – Seasonal High Water Table
Plate 4B – Estimated Long-Term Seasonal High Water Table
Plate 7 – Estimated Top of Competent Rock
Site Study Application – September 22, 2010
Section 3.0 – Site Hydrogeologic Summary
Section 3.2 – Site Investigation and Laboratory Tests
**Drawing F1 – Sheet 4 of 10 – Facility Plan – Areal Limits & Existing Conditions*
Drawing F3 – Sheet 5 of 10 – Facility Plan – Leachate Collection System

Solid Waste Section Response: The Site Study Application, Section 3.2, Page 10 states…from a previous investigation, or were installed recently, etc.

The additional piezometers depicted on Drawing No. F1 were proposed for the Phase 5-Design Study. That plate has been amended to match the other plates and text. A hard copy is provided for your reference.

Site Hydrogeologic Study – May 18, 2009
Section 5.4– Local Precipitation
Section 5.5 – Water Table Fluctuation
Section 5.6 – Seasonal High Groundwater Estimation
Appendix D – Climatic Data
Table 1 – Groundwater Elevation Summary
Plate 4A – Seasonal High Water Table
Plate 8 – Cross Sections
Site Study Application – September 22, 2010
Drawing F2 – Sheet 4 of 10 – Facility Plan Proposed Subgrade
Drawing F3 – Sheet 5 of 10 – Facility Plan Leachate Collection System

Solid Waste Section Response: Further discussion and additional on-site monitoring…meeting to discuss this topic.

Per our meeting on May 4, 2011 the sections regarding the estimated long-term seasonal high have been updated, this includes corresponding tables, plates and appendices. The estimated long-term seasonal high was updated based on additional water levels collected from a more "typical" season and modified correction factor derived from the average fluctuation across the site. The estimated long-term seasonal high elevation is generally 3.47 feet above its previously estimated value.

Site Hydrogeologic Study – May 18, 2009
Appendix A– Boring and Piezometer Information
Log of Boring: P-81, Pages A-8 & A-9, Pages A-42 & A-43
Table 1 – Groundwater Elevation Summary

Solid Waste Section Response: Data stated on both the "Log of Boring: P-81" and…Please revise accordingly.

Elevation data has been amended.

To facilitate the review process hard copies of the amended sections, plates and tables have been included as well as an updated PDF of the Site Study Report. Please contact me at (919) 772-5393 with additional questions or comments.

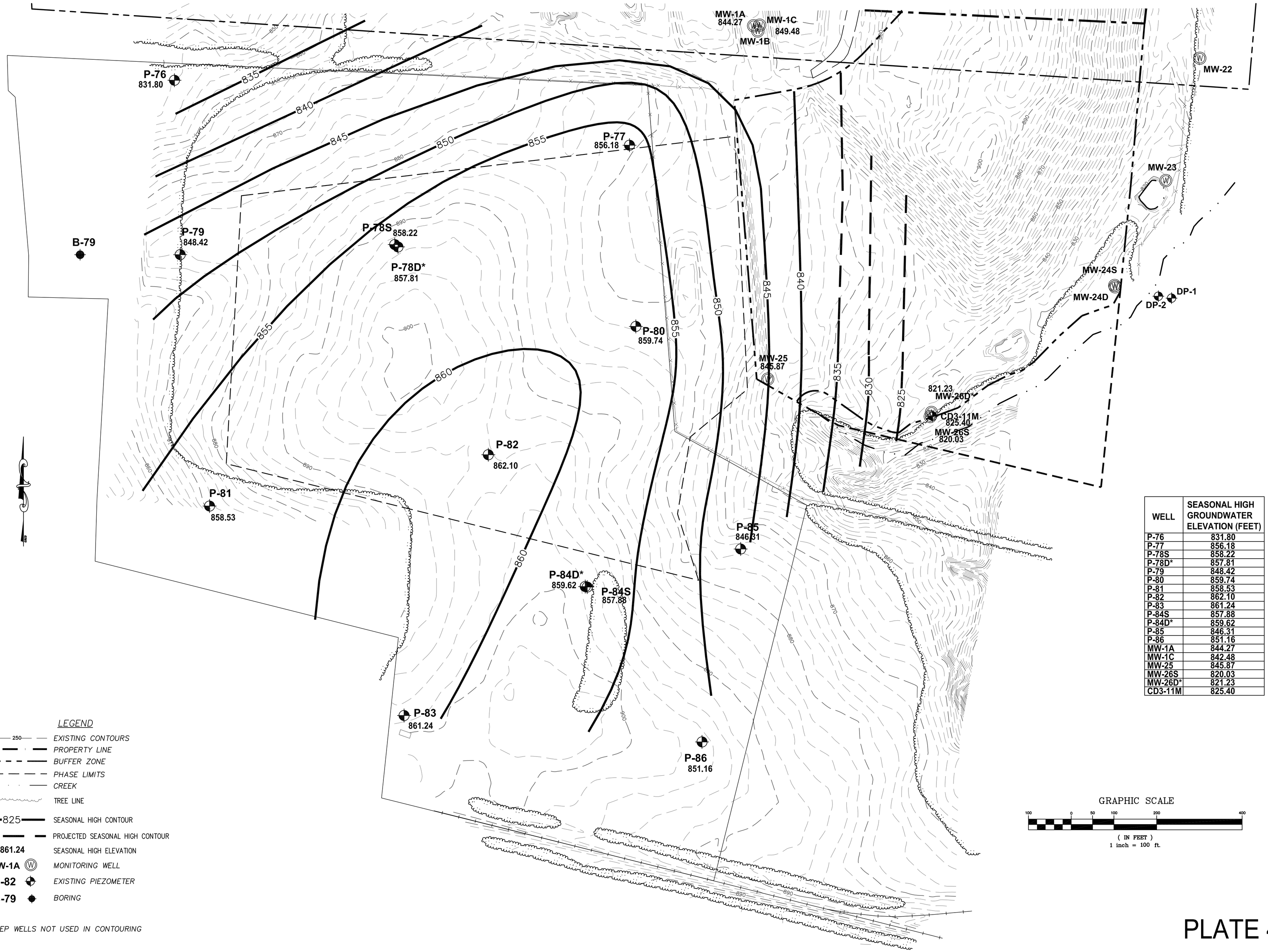
Sincerely,

MUNICIPAL ENGINEERING SERVICES CO., P.A.

Madeline German, PG

Enclosures

cc: Wayne Sullivan, MESCO
David Lambert, Iredell County



WELL	SEASONAL HIGH GROUNDWATER ELEVATION (FEET)
P-76	831.80
P-77	856.18
P-78S	858.22
P-78D*	857.81
P-79	848.42
P-80	859.74
P-81	858.53
P-82	862.10
P-83	861.24
P-84S	857.88
P-84D*	859.62
P-85	846.31
P-86	851.16
MW-1A	844.27
MW-1C	842.48
MW-25	845.87
MW-26S	820.03
MW-26D*	821.23
CD3-11M	825.40

LEGEND

- 250 — EXISTING CONTOURS
- PROPERTY LINE
- BUFFER ZONE
- PHASE LIMITS
- CREEK
- TREE LINE
- 825 — SEASONAL HIGH CONTOUR
- PROJECTED SEASONAL HIGH CONTOUR
- 861.24 — SEASONAL HIGH ELEVATION
- MW-1A — MONITORING WELL
- P-82 — EXISTING PIEZOMETER
- B-79 — BORING

* DEEP WELLS NOT USED IN CONTOURING

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

PLATE 4A

Municipal Services Engineering Company, P.A.
LICENSE NUMBER: C-0281
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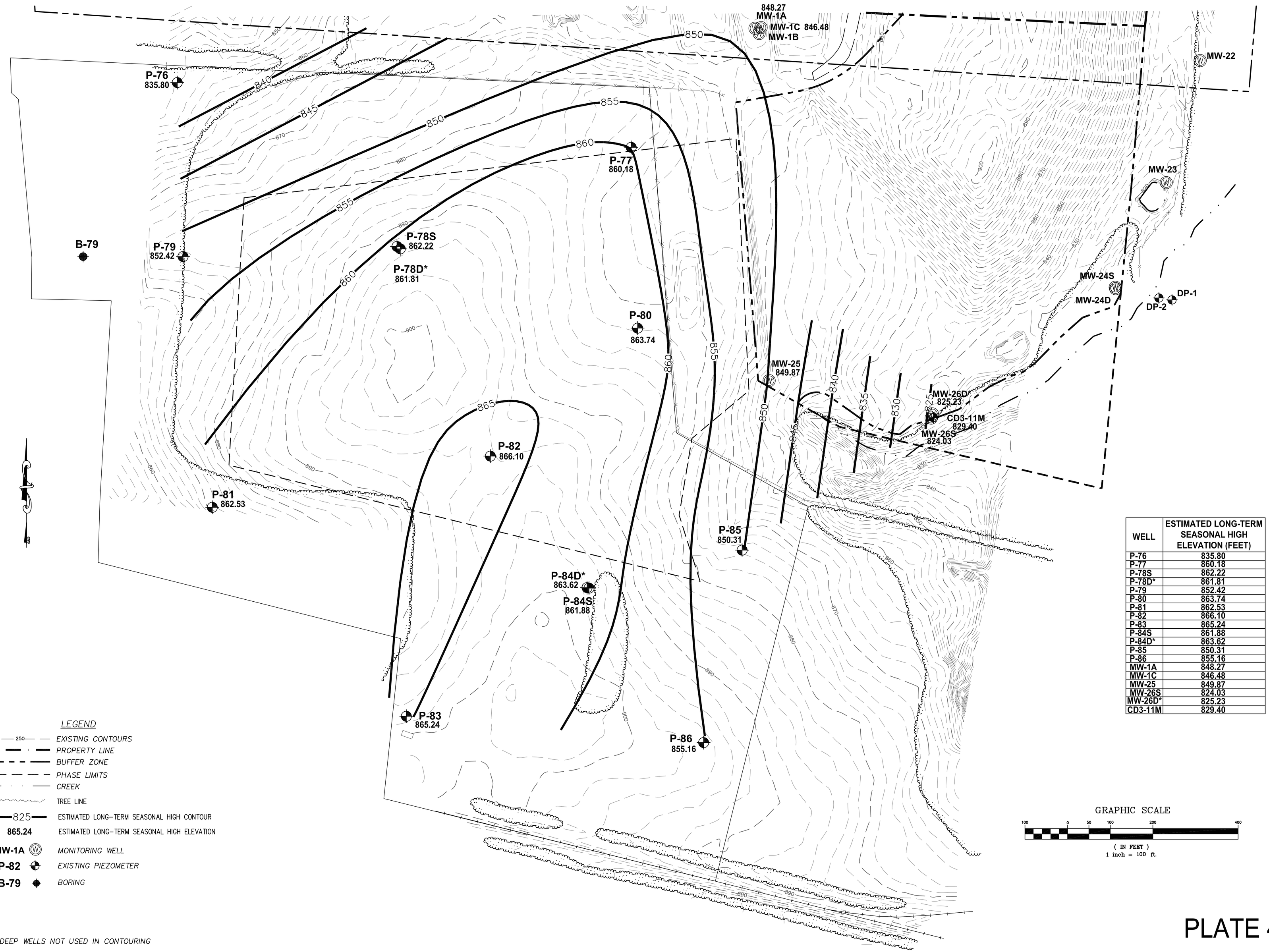
P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767
P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9481

STEELE PROPERTY
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

SEASONAL HIGH WATER TABLE

SCALE: 1" = 100'
DATE: 05/13/2009
DRWN. BY: M. GERMAN
CHKD. BY: M. GERMAN
PROJECT NUMBER G08002.0
DRAWING NO. PLATE 4A
SHEET NO. 1 of 1



WELL	ESTIMATED LONG-TERM SEASONAL HIGH ELEVATION (FEET)
P-76	835.80
P-77	860.18
P-78S	862.22
P-78D*	861.81
P-79	852.42
P-80	863.74
P-81	862.53
P-82	866.10
P-83	865.24
P-84S	861.88
P-84D*	863.62
P-85	850.31
P-86	855.16
MW-1A	848.27
MW-1C	846.48
MW-25	849.87
MW-26S	824.03
MW-26D*	825.23
CD3-11M	829.40

PLATE 4B

LICENSE NUMBER: C-0281
Municipal Services Engineering Company, P.A.
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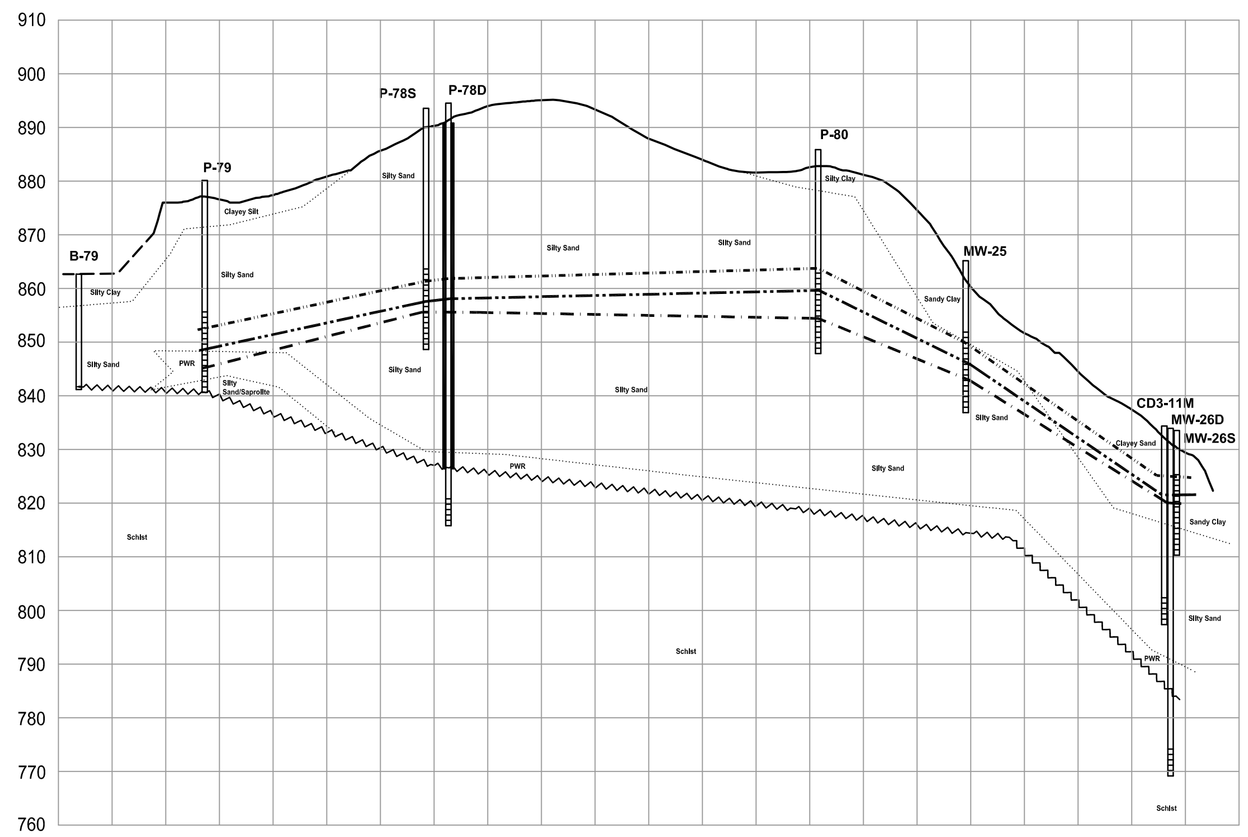
P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9481

STEELE PROPERTY
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

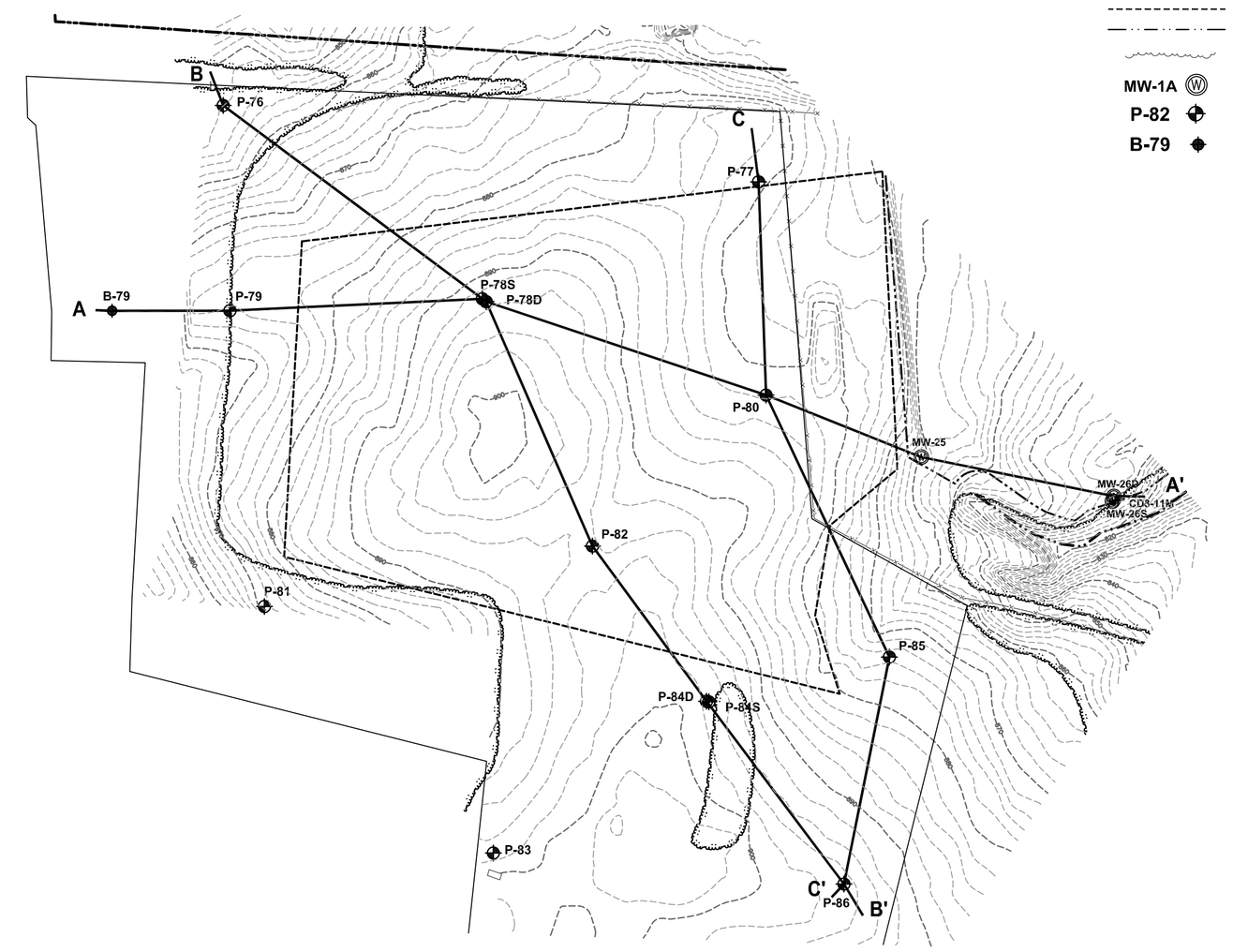
ESTIMATED LONG-TERM SEASONAL HIGH WATER TABLE

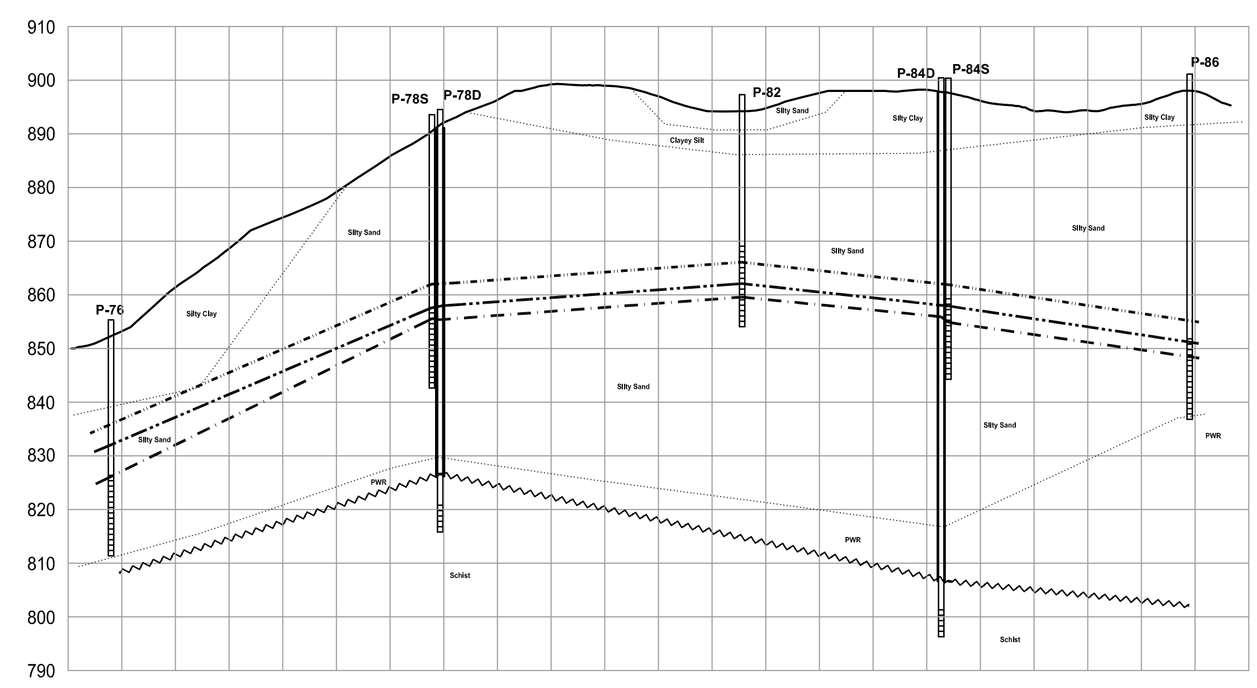
SCALE: 1" = 100'
DATE: 05/13/2009
DRWN. BY: M. GERMAN
CHKD. BY: M. GERMAN
PROJECT NUMBER G08002.0
DRAWING NO. PLATE 4B
SHEET NO. 1 of 1



SECTION A-A'

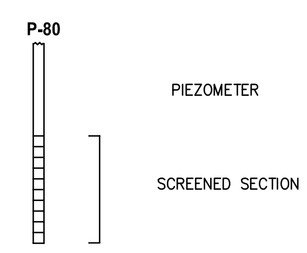
SCALE HORIZ. 1" = 100'
VERT. 1" = 10'





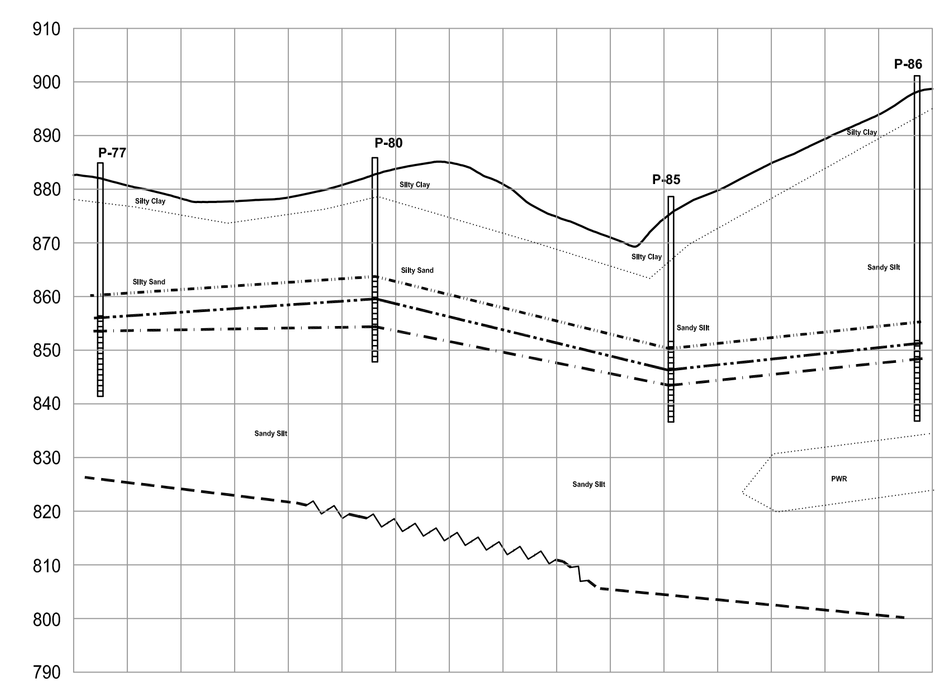
SECTION B-B'

SCALE HORIZ. 1" = 100'
VERT. 1" = 10'



LEGEND:

- EXISTING GROUND SURFACE
- ESTIMATED STRATIGRAPIC CONTACT
- TOP OF COMPETENT ROCK
- ESTIMATED TOP OF COMPETENT ROCK
- SINGLE DAY
- OBSERVED SEASONAL HIGH
- ESTIMATED LONG–TERM SEASONAL HIGH



SECTION C-C'

SCALE HORIZ. 1" = 100'
VERT. 1" = 10'

NOTE:
- NUMBERS SHOWN IN THIS PLATE ARE IN UNITS OF FEET UNLESS INDICATED OTHERWISE.
- SOIL PROFILES SHOWN HEREIN ARE INTERPOLATED FROM AVAILABLE BORING RECORDS.
- SOIL PROFILE BOUNDARIES DO NOT NECESSARILY INDICATE ABRUPT CHANGE IN SOIL TEXTURES.
- SINGLE DAY WATER TABLE AND TOP OF ROCK SURFACES WERE DERIVED FROM THEIR RESPECTIVE CONTOUR SURFACES IN PLATES 3 AND 7.

PLATE 8

LICENSE NUMBER: C–0281
Municipal Services
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Engineering Company, P.A.
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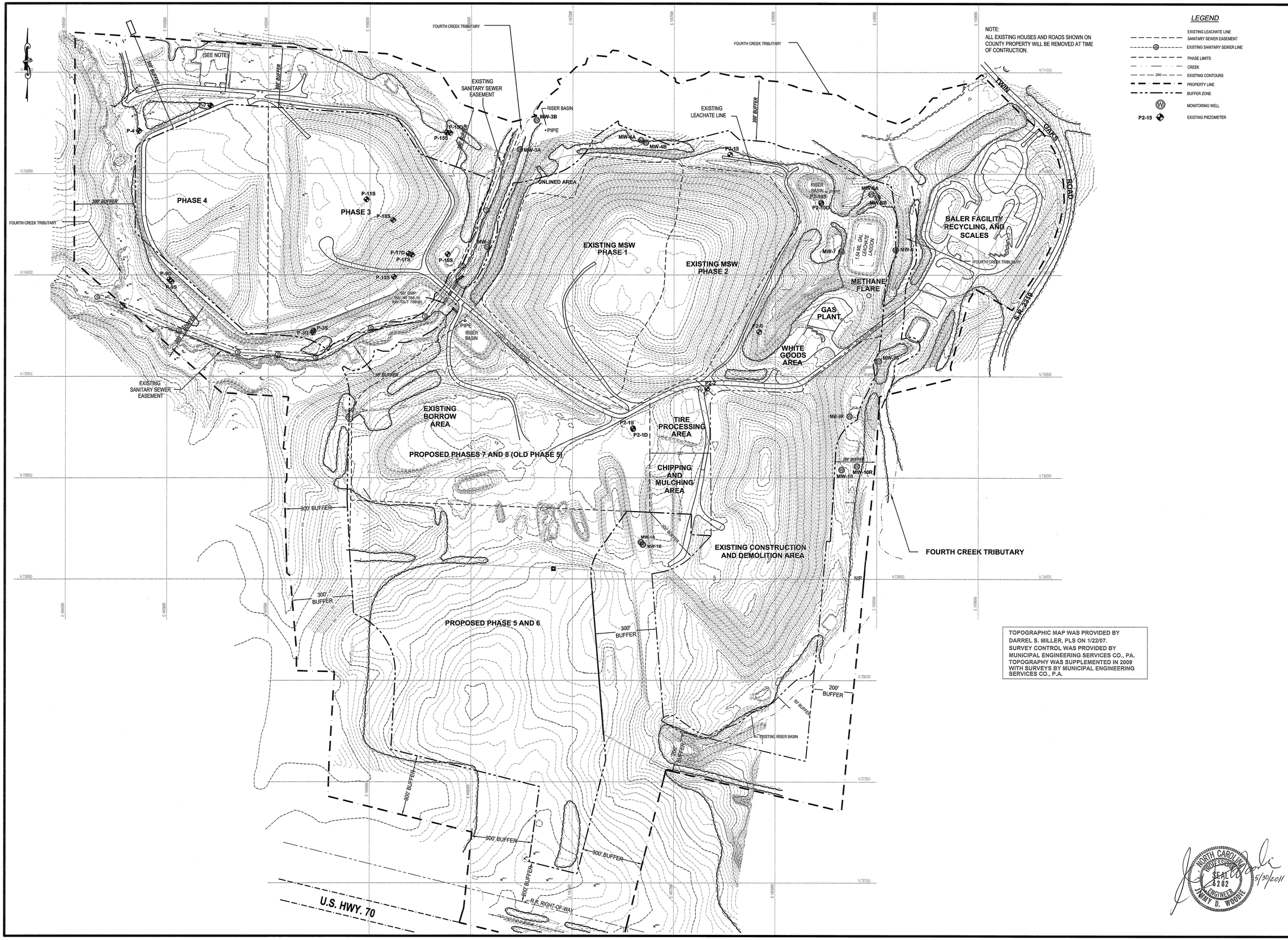
P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726–9481

STEELE PROPERTY
LANDFILL FACILITY
IREDELL COUNTY
NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

CROSS SECTIONS

SCALE:	AS SHOWN
DATE:	05/13/2009
DRWN. BY:	M. GERMAN
CHKD. BY:	M. GERMAN
PROJECT NUMBER	G08002.0
DRAWING NO.	PLATE 8
SHEET NO.	1 of 1



NOTE:
ALL EXISTING HOUSES AND ROADS SHOWN ON COUNTY PROPERTY WILL BE REMOVED AT TIME OF CONTRUCTION.

LEGEND

- EXISTING LEACHATE LINE
- SANITARY SEWER EASEMENT
- EXISTING SANITARY SEWER LINE
- PHASE LIMITS
- CREEK
- 250 EXISTING CONTOURS
- PROPERTY LINE
- BUFFER ZONE
- MONITORING WELL
- P2-15 EXISTING PIEZOMETER

TOPOGRAPHIC MAP WAS PROVIDED BY DARREL S. MILLER, PLS ON 1/22/07. SURVEY CONTROL WAS PROVIDED BY MUNICIPAL ENGINEERING SERVICES CO., PA. TOPOGRAPHY WAS SUPPLEMENTED IN 2009 WITH SURVEYS BY MUNICIPAL ENGINEERING SERVICES CO., P.A.

NORTH CAROLINA PROFESSIONAL SEAL 16282 ENGINEER JIMMY D. WOODIE
5/30/2011

Municipal Engineering Services Company, P.A.
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MUNICIPAL SOLID WASTE LANDFILL FACILITY SITE STUDY
EXPANSION OF EXISTING FACILITY IREDELL COUNTY, NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION
5/30/2011	LHC	1	REVISED PER DWM COMMENT LETTER DATED 4/29/2011

FACILITY PLAN
AREAL LIMITS & EXISTING CONDITIONS

SCALE:	1" = 200'
DATE:	9/17/2010
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G08002
DRAWING NO.	F1
SHEET NO.	3 OF 10

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Municipal Engineering Services Company, P.A.
P.O. BOX 97 GARNER, N.C. 27529 (919) 772-5393
P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767
P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9481
LICENSE NUMBER: C-0281

MUNICIPAL SOLID WASTE LANDFILL FACILITY SITE STUDY

EXPANSION OF EXISTING FACILITY IREDELL COUNTY, NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION
5/30/2011	LHC	1	REVISED PER DWM COMMENT LETTER DATED 4/29/2011

FACILITY PLAN
LEACHATE COLLECTION SYSTEM

SCALE:	1" = 200'
DATE:	9/17/2010
DRWN. BY:	L. HAMPTON
CHKD. BY:	J. WOODIE
PROJECT NUMBER	G08002
DRAWING NO.	F3
SHEET NO.	5 OF 10

NORTH CAROLINA PROFESSIONAL SEAL 8282 ENGINEER JIMMY D. WOODIE 5/30/2011

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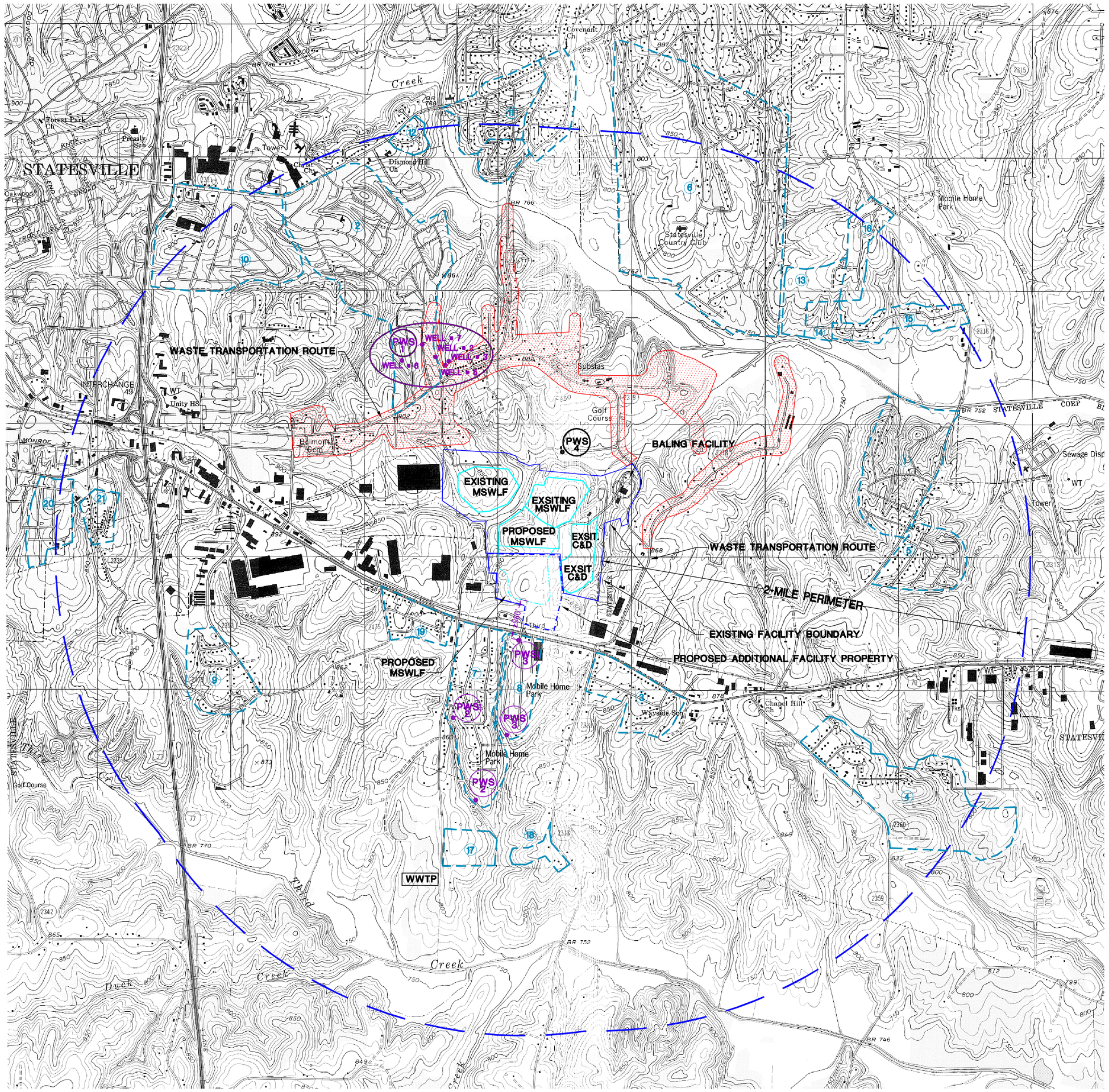

NOTES:

1. General topography and features are shown on this map. USGS maps Statesville East(2002) and Sheperds were used for this map.
2. The proposed landfill is shown on this map.
3. There are 10 Public Water Supply wells located within the 2-mile perimeter, they are as follows:

   PWS 1: 5-wells all named as Murdock Road water system Well No.'s 2,3
   PWS 2: 2-wells all named as Suburban Acres Well No.'s 1 and 2
   PWS 3: 2-wells all named as Statesville MHP Well No.'s 1 and 2
   PWS 4: 1 well named Twin Oaks Golf Club Well No. 1

4. There are 20 residential subdivisions, and 1 moble home park within the 2-mile perimeter, they are as follows:

   1) Bellwood
   2) Del-Wan Heights
   3) Beaver Farms
   4) Forest Acres
   5) Oak Creek
   6) Statesville Country Club
   7) Suburban Acres
   8) Statesville MHP
   9) Glen Echo
   10) Green Acres
   11) Mitchell College.Mitchell-Aire, and Broadview
   12) Eastfield Estates
   13) Carters Farm
   14) Horne Estates
   15) Maywood
   16) Skyland
   17) Third Creek Place
   18) Homestead Estates
   19) Keller Acres
   20) Highland Acres
   21) Miller Estates

5. Waste Transportation routes are shown on this map. They are US Highway 70, SR 2320, and SR 2319.
6. There are no public use airports or runways located within the 2-mile perimeter.
7. The red hatched areas indicated areas not served by the City of Statesville Water System. All other areas within the 2-mile perimeter are served by the City of Statesville.

LEGEND:

- EXSITING FACILITY BOUNDARY LINE
- PROPOSED ADDITIONAL FACILITY BOUNDARY LINE
- EXISTING FACILITY MSWLF AND C&DLF UNITS
- PROPOSED MSWLF LIMIT
- 2-MILE PERIMETER LINE
- PWS 3 — INDICATES PUBLIC WATER SUPPLY WELL
- 8 — INDICATES SUBDIVISION/RESIDENTIAL AREA
- INDICATES AREAS NOT SERVED BY THE CITY OF STATESVILLE WATER SYSTEM

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MUNICIPAL SOLID WASTE LANDFILL FACILITY SITE STUDY
EXPANSION OF EXISTING FACILITY IREDELL COUNTY, NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION
5/30/2011	LHC	1	REVISED PROP. MSWLF LIMIT AND DIMENSION

REGIONAL CHARACTERIZATION
2-MILE PERIMETER MAP

SCALE: 1" = 1500'
DATE: 7/2/08
DRWN. BY: L. HAMPTON
CHKD. BY: J. WOODIE
PROJECT NUMBER G08002
DRAWING NO.
SHEET NO. 1 OF 1

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