

HALIFAX COUNTY C&D LANDFILL

AREA 2 PERMIT TO CONSTRUCT DRAWINGS

DECEMBER 2012

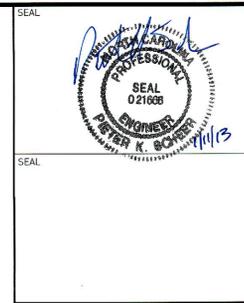


DEPARTMENT OF
PUBLIC UTILITIES

Permit No.	Scan Date	DIN
4204-CDLF-2013	February 5, 2013	18903

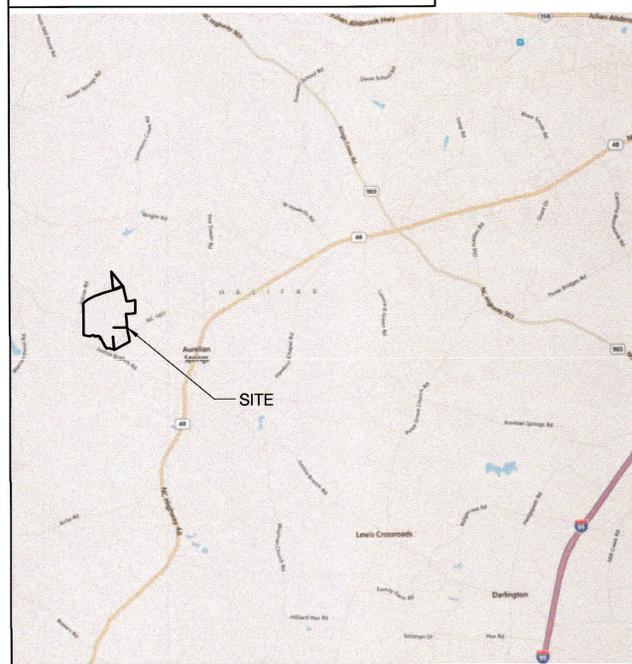
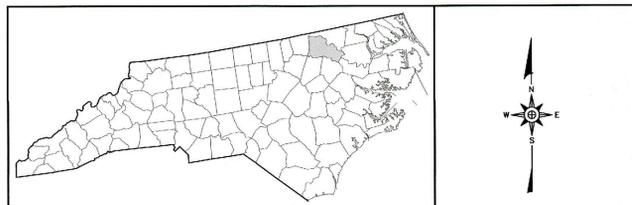
RECEIVED
February 4, 2013
Solid Waste Section
Asheville Regional Office

APPROVED DOCUMENT
Division of Waste Management
Solid Waste Section
Date **September 18, 2013** By **LY Frost**



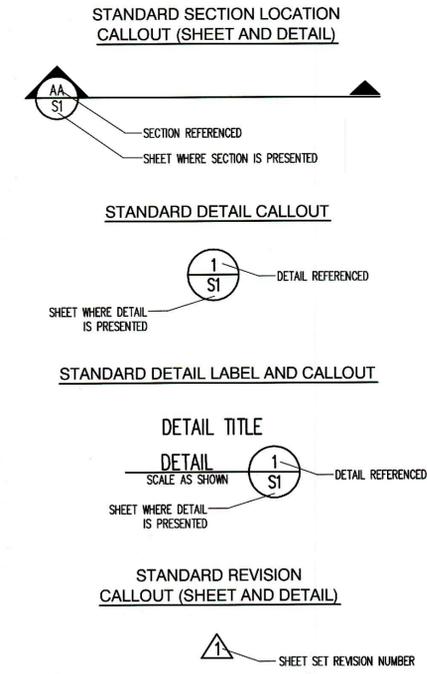
REV.	DATE	DESCRIPTION

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SITE LOCATION MAP
NOT TO SCALE
RIVER BASIN: TAR-PAMLICO

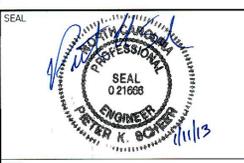
SHEET NO.	DRAWING NO.	DRAWING TITLE
1	--	TITLE - COVER SHEET
2	S1	EXISTING CONDITIONS
3	S2	AREA 2 SUBGRADE GRADING AND DRAINAGE PLAN
4	S3	AREA 2 FINAL COVER GRADING AND DRAINAGE PLAN
5	D1	DETAILS (SHEET 1 OF 5)
6	D2	DETAILS (SHEET 2 OF 5)
7	D3	DETAILS (SHEET 3 OF 5)
8	D4	DETAILS (SHEET 4 OF 5)
9	D5	DETAILS (SHEET 5 OF 5)
10	EX1	ENGINEERING CROSS SECTIONS
11	P1	PHASING PLAN



PERMIT ISSUE
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NC LIC. NO. C-0828 (ENGINEERING)
SMITH+GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577



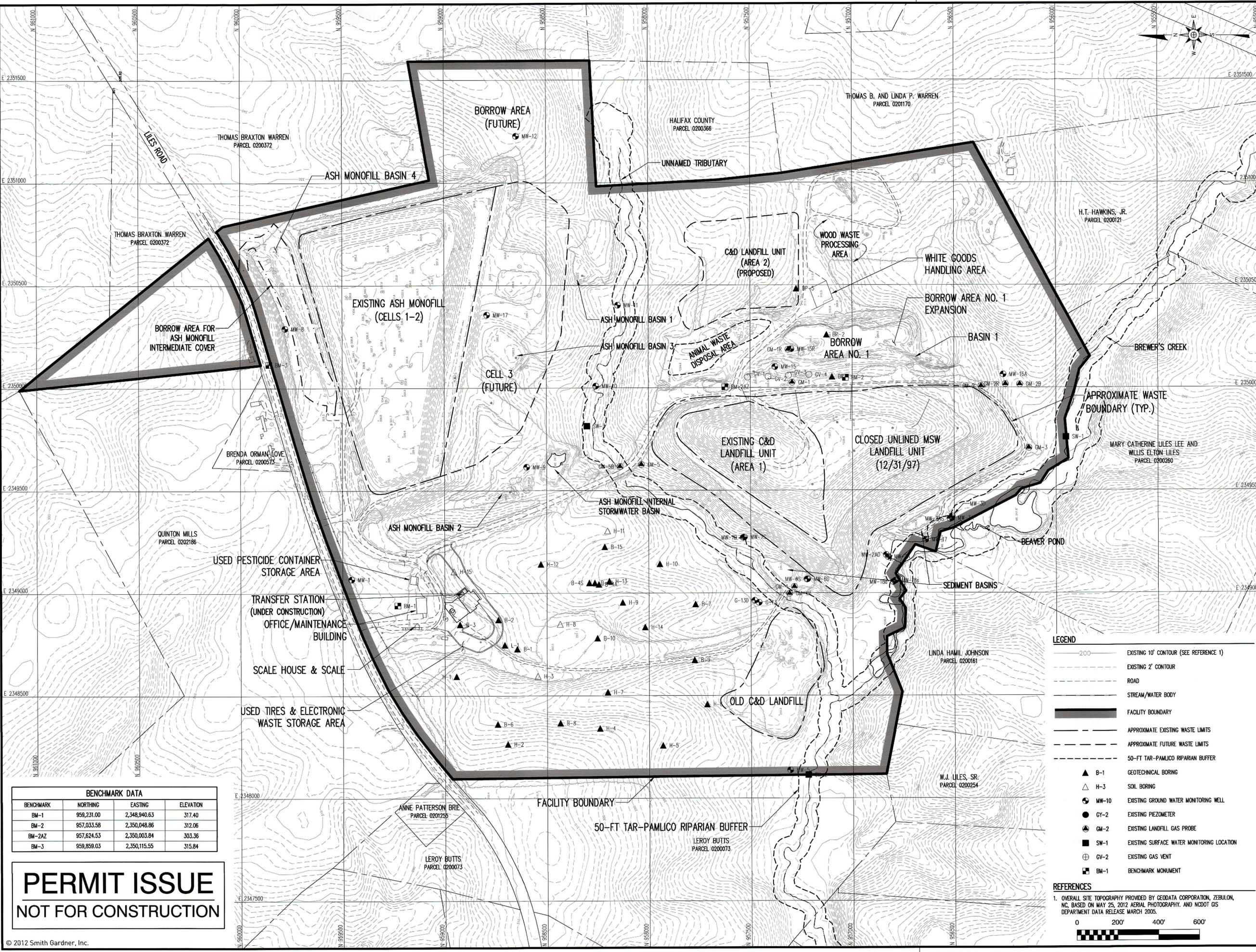
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PROJECT TITLE:
**HALIFAX COUNTY
 C&D LANDFILL
 AREA 2
 PERMIT TO CONSTRUCT
 DRAWINGS**

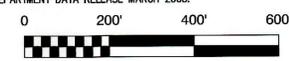
DRAWING TITLE:
EXISTING CONDITIONS

DESIGNED: P.K.S.	PROJECT NO. HALIFAX-12-1
DRAWN: C.T.J.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALI-D0214	SHEET NUMBER: 2
DRAWING NUMBER: S1	



- LEGEND**
- 200— EXISTING 10' CONTOUR (SEE REFERENCE 1)
 - - - - - EXISTING 2' CONTOUR
 - ROAD
 - STREAM/WATER BODY
 - FACILITY BOUNDARY
 - - - - - APPROXIMATE EXISTING WASTE LIMITS
 - - - - - APPROXIMATE FUTURE WASTE LIMITS
 - - - - - 50-FT TAR-PAMLICO RIPARIAN BUFFER
 - ▲ B-1 GEOTECHNICAL BORING
 - △ H-3 SOIL BORING
 - MW-10 EXISTING GROUND WATER MONITORING WELL
 - GY-2 EXISTING PIEZOMETER
 - GM-2 EXISTING LANDFILL GAS PROBE
 - SW-1 EXISTING SURFACE WATER MONITORING LOCATION
 - ⊕ GY-2 EXISTING GAS VENT
 - BM-1 BENCHMARK MONUMENT

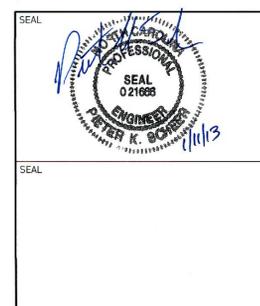
- REFERENCES**
- OVERALL SITE TOPOGRAPHY PROVIDED BY GEODATA CORPORATION, ZEBULON, NC, BASED ON MAY 25, 2012 AERIAL PHOTOGRAPHY, AND NCDOT GIS DEPARTMENT DATA RELEASE MARCH 2005.



BENCHMARK DATA

BENCHMARK	NORTHING	EASTING	ELEVATION
BM-1	959,231.00	2,348,940.63	317.40
BM-2	957,033.58	2,350,048.86	312.06
BM-ZAZ	957,624.53	2,350,003.84	303.36
BM-3	959,859.03	2,350,115.55	315.84

**PERMIT ISSUE
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REV.	DATE	DESCRIPTION

PROJECT TITLE:
**HALIFAX COUNTY
 C&D LANDFILL
 AREA 2
 PERMIT TO CONSTRUCT
 DRAWINGS**

DRAWING TITLE:
**AREA 2
 SUBGRADE GRADING
 AND DRAINAGE PLAN**

DESIGNED: P.K.S.	PROJECT NO: HALIFAX-12-1
DRAWN: J.A.L.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALI-00215	DRAWING NUMBER:
SHEET NUMBER: 3	DRAWING NUMBER: S2

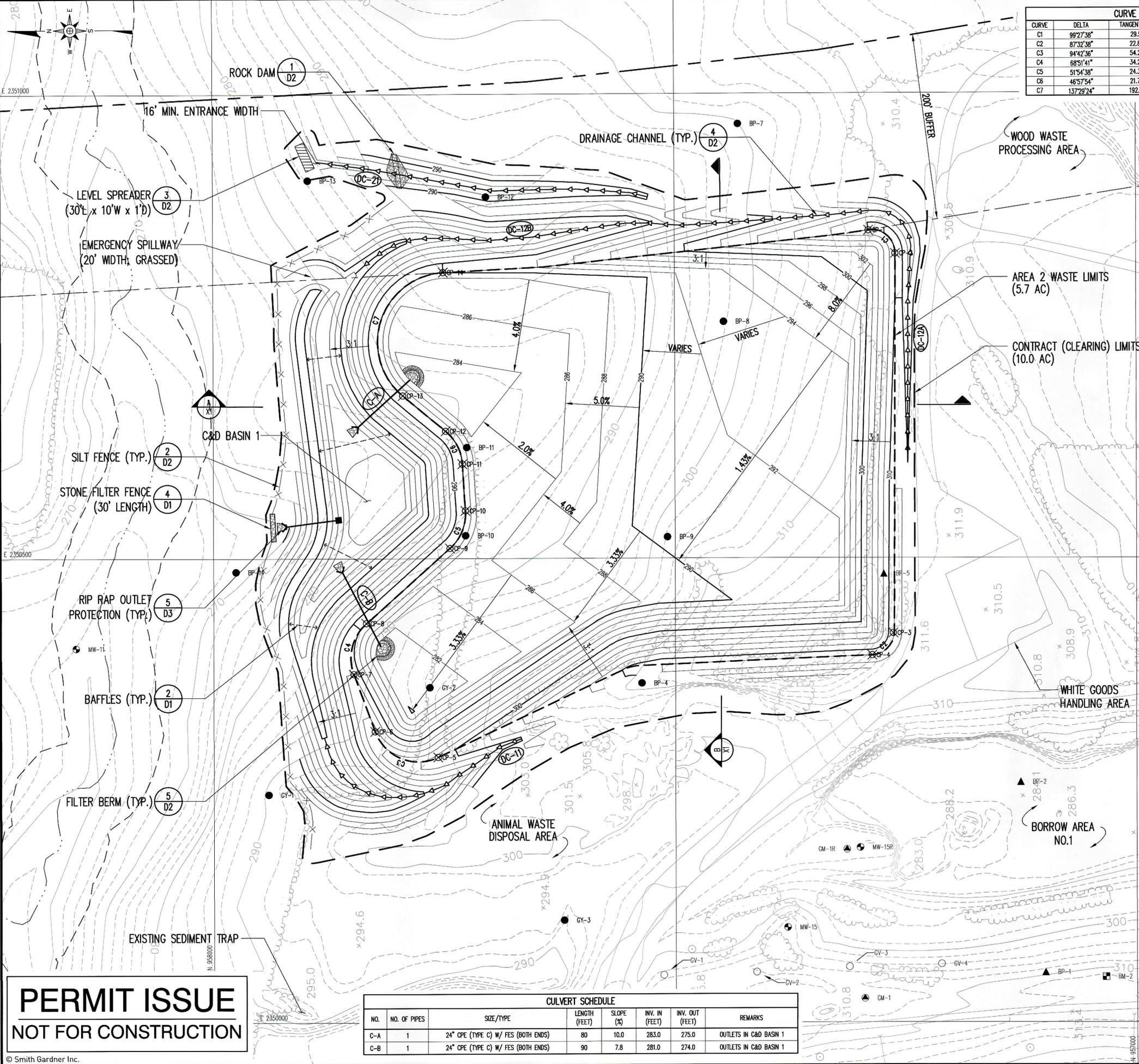
CURVE	DELTA	TANGENT (FT)	RADIUS (FT)	CHORD LENGTH (FT)
C1	99°27'38"	29.51	25.00	38.15
C2	87°32'38"	22.84	23.84	32.98
C3	94°42'36"	54.29	50.00	73.56
C4	68°51'41"	34.27	50.00	56.54
C5	51°54'38"	24.34	50.00	43.77
C6	46°57'54"	21.72	50.00	39.85
C7	137°29'24"	192.81	75.00	139.80

NODE ID	NORTHING	EASTING
CP-1	957289.83	2350852.24
CP-2	957280.95	2350827.30
CP-3	957283.90	2350418.94
CP-4	957286.71	2350395.13
CP-5	957285.21	2350285.98
CP-6	957825.11	2350313.78
CP-7	957848.24	2350375.58
CP-8	957834.57	2350430.45
CP-9	957743.66	2350511.09
CP-10	957726.94	2350551.54
CP-11	957730.00	2350601.83
CP-12	957748.07	2350637.35
CP-13	957794.38	2350675.59
CP-14	957750.50	2350808.32

LEGEND

- 200 — EXISTING 10' CONTOUR
- 200 — EXISTING 2' CONTOUR
- — — — — PROPERTY LINE
- — — — — PROPOSED 10' CONTOUR (SEE NOTE 1)
- — — — — PROPOSED 2' CONTOUR (SEE NOTE 1)
- — — — — PROPOSED WASTE LIMITS
- — — — — CONTRACT (CLEARING) LIMITS
- — — — — STREAM AND RIPARIAN BUFFER
- — — — — GEOTECHNICAL BORING
- ▲ B-1 SOIL BORING
- △ H-3 SOIL BORING
- ⊕ MW-10 EXISTING GROUND WATER MONITORING WELL
- GY-2 EXISTING PIEZOMETER
- ⊙ GM-2 EXISTING LANDFILL GAS PROBE
- ⊕ SW-1 EXISTING SURFACE WATER MONITORING LOCATION
- ⊕ GY-2 EXISTING GAS VENT
- ⊕ BM-1 BENCHMARK MONUMENT
- ⊕ (DC-11) DRAINAGE CHANNEL NUMBER
- ⊕ (C-A) CULVERT NUMBER
- x — x — SILT FENCE

- NOTES**
- GRADES SHOWN REPRESENT TOP OF SUBGRADE.
 - GROUT OR REMOVE TEMPORARY CULVERTS PRIOR TO WASTE PLACEMENT OVER AREA AROUND INLET.
- REFERENCES**
- OVERALL SITE TOPOGRAPHY PROVIDED BY GEODATA CORPORATION, ZEBULON, NC, BASED ON MAY 25, 2012 AERIAL PHOTOGRAPHY.
- GENERAL EROSION AND SEDIMENTATION CONTROL NOTES**
- ALL EROSION AND SEDIMENTATION CONTROL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL AS WELL AS APPLICABLE REGULATIONS.
 - EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE ESTABLISHED PRIOR TO, OR AS SOON AS PRACTICAL THEREAFTER, ANY LAND CLEARING OR CONSTRUCTION ACTIVITIES MAY BEGIN. THE CONTRACTOR SHALL FOLLOW THE FOLLOWING SCHEDULE:
 - FLAG THE CLEARING LIMITS AND IDENTIFY ANY TREE PROTECTION AREAS WITH THE OWNER.
 - INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT.
 - CLEAR THE VEGETATED PORTION OF THE SITE AND INSTALL SILT AND STONE FILTER FENCING PRIOR TO STRIPPING/GRUBBING.
 - CONSTRUCT THE LEVEL SPREADER, ROCK DAM, AND NORTHERN PORTION OF DC-21. DO NOT ALLOW DIVERTED FLOW FROM THE EAST TO PASS THROUGH ROCK DAM UNTIL AREA BELOW THE ROCK DAM IS STABILIZED.
 - ONLY STRIP/GRUB AREAS REQUIRED FOR INSTALLATION OF STRUCTURES, BERMS, AND DRAINAGE CHANNELS. OTHER AREAS WILL BE STRIPPED/GRUBBED ONCE THE SEDIMENT BASIN IS COMPLETED.
 - INSTALL SEDIMENT BASIN OUTLET STRUCTURE; OUTLET PROTECTION AND/OR CHANNEL, BERM, AND EMERGENCY SPILLWAY.
 - PERFORM FINE GRADING AND PERMANENT VEGETATION.
 - AFTER STABILIZATION, REMOVE SILT AND STONE FILTER FENCING AND OTHER TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.
 - ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CONSTRUCTED ACCORDING TO THE CONTRACT DRAWINGS AND SPECIFICATIONS.
 - ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT OF GREATER THAN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD AND APPROPRIATE MAINTENANCE CONDUCTED. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO:
 - THE REMOVAL AND SATISFACTORY DISPOSAL OF TRAPPED OR DEPOSITED SEDIMENTS FROM BASINS, TRAPS, BARRIERS, FILTERS, AND/OR DRAINAGE FEATURES/DEVICES;
 - REPLACEMENT OF FILTER FABRICS USED FOR SILT FENCES UPON LOSS OF EFFICIENCY; AND
 - REPLACEMENT OF ANY OTHER COMPONENTS WHICH ARE DAMAGED OR CANNOT SERVE THE INTENDED USE.
 - SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF THE SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:
 - ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3H:1V) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
 - ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
 - BASINS, TRAPS, CHANNELS, AND DIVERSIONS SHALL BE LINED WITH ANCHORED ROLLED EROSION PRODUCTS OR RIP RAP AND/OR VEGETATED UPON CONSTRUCTION.



NO.	NO. OF PIPES	SIZE/TYPE	LENGTH (FEET)	SLOPE (%)	INV. IN (FEET)	INV. OUT (FEET)	REMARKS
C-A	1	24" CPE (TYPE C) W/ FES (BOTH ENDS)	80	10.0	283.0	275.0	OUTLETS IN C&D BASIN 1
C-B	1	24" CPE (TYPE C) W/ FES (BOTH ENDS)	90	7.8	281.0	274.0	OUTLETS IN C&D BASIN 1

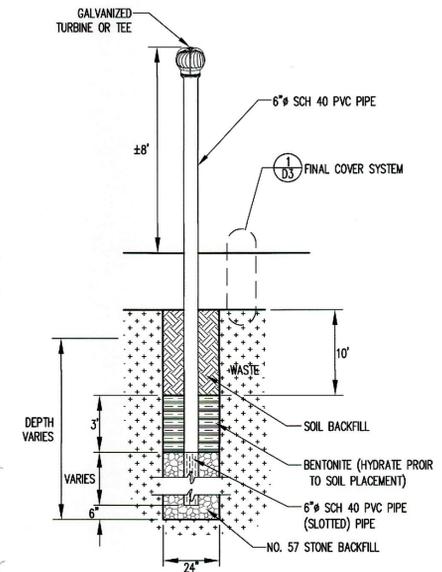
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PERMIT ISSUE NOT FOR CONSTRUCTION

HALIFAX COUNTY
NORTH CAROLINA
DEPARTMENT OF
PUBLIC UTILITIES

PREPARED BY:
NC LIC. NO. C-0828 (ENGINEERING)

**SMITH+
GARDNER**
ENGINEERS
14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577



NOTES:
1. AS AN ALTERNATIVE TO WELLS, GAS COLLECTION TRENCHES MAY BE INSTALLED JUST BELOW THE FINAL COVER. TRENCHES SHALL CONSIST OF PERFORATED PIPE BEDDED IN NO. 57 STONE AND WRAPPED IN A TYPE G-S GEOTEXTILE. TRENCHES SHALL HAVE NOMINAL SIZE OF 6" WIDE x 20' LONG x 2' DEEP.

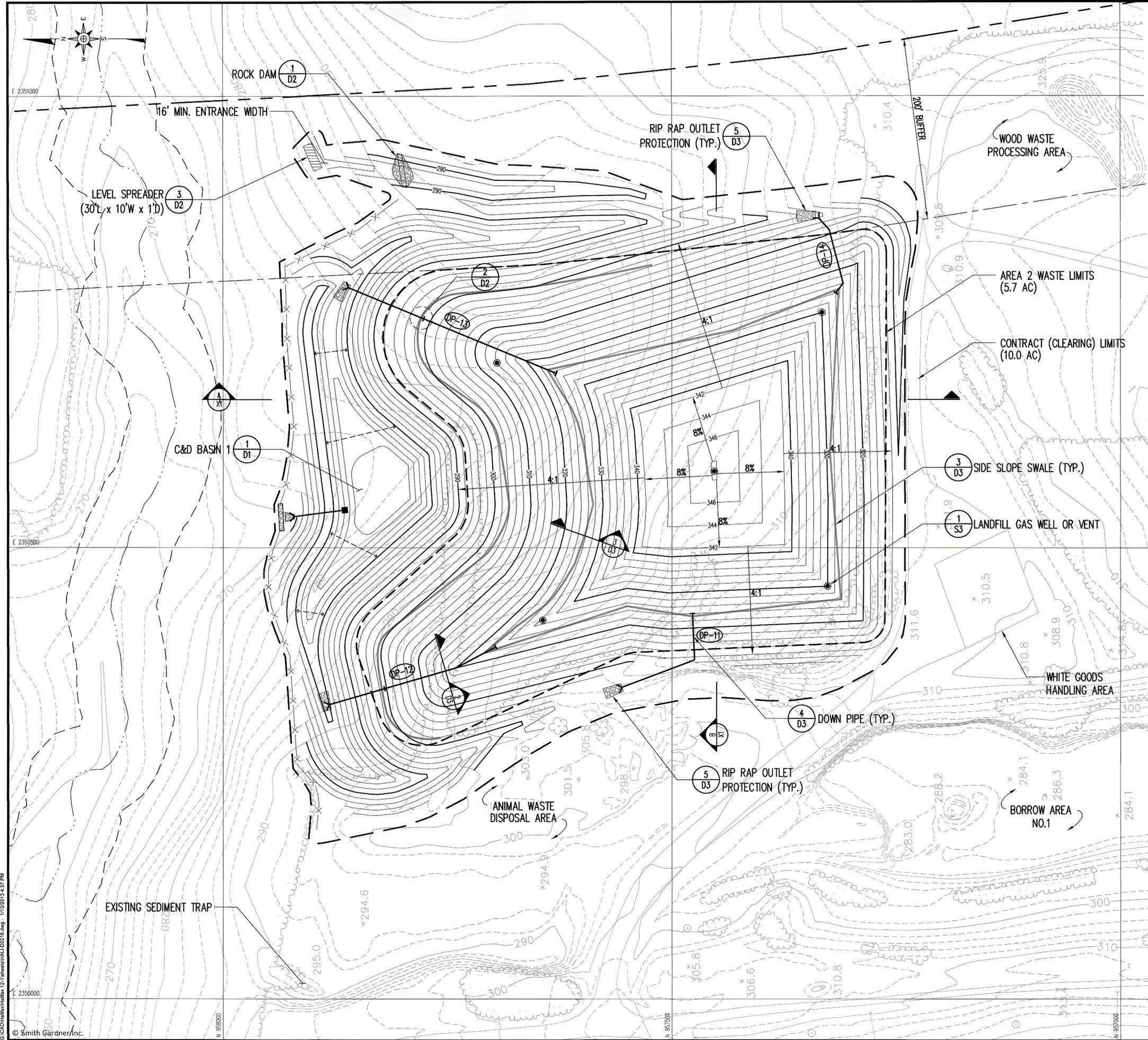
TYPICAL LANDFILL GAS WELL
DETAIL 1 S3
NOT TO SCALE

DOWN PIPE	DIAMETER (IN)
DP-11	18"
DP-12	18"
DP-13	24"
DP-14	18"

- LEGEND**
- 200 --- EXISTING 10' CONTOUR
 - 290 --- EXISTING 2' CONTOUR
 - PROPERTY LINE
 - PROPOSED 10' CONTOUR (SEE NOTE 1)
 - PROPOSED 2' CONTOUR (SEE NOTE 1)
 - PROPOSED WASTE LIMITS
 - CONTRACT (CLEARING) LIMITS
 - STREAM AND RIPARIAN BUFFER
 - DP-1 DOWN PIPE NUMBER
 - SIDE SLOPE SWALE
 - SILT FENCE
 - LFG WELL OR VENT

NOTES
1. GRADES SHOWN INSIDE AREA 2 WASTE LIMITS REPRESENT TOP OF FINAL COVER ELEVATIONS.

REFERENCES
1. OVERALL SITE TOPOGRAPHY PROVIDED BY GEODATA CORPORATION, ZEBULON, NC, BASED ON MAY 25, 2012 AERIAL PHOTOGRAPHY.

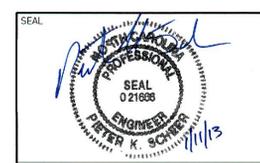


REV.	DATE	DESCRIPTION

PROJECT TITLE:
**HALIFAX COUNTY
C&D LANDFILL
AREA 2
PERMIT TO CONSTRUCT
DRAWINGS**

DRAWING TITLE:
**AREA 2
FINAL COVER
GRADING AND
DRAINAGE PLAN**

DESIGNED: P.K.S. PROJECT NO: HALIFAX-12-1
DRAWN: J.A.L. SCALE: AS SHOWN
APPROVED: DATE: DEC. 2012
FILENAME: HALI-D0216
SHEET NUMBER: DRAWING NUMBER:
4 S3



REV.	DATE	DESCRIPTION

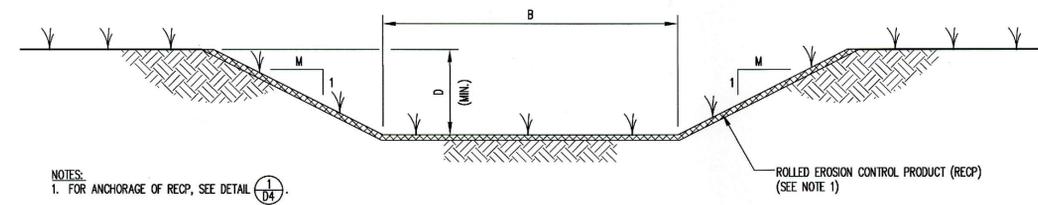
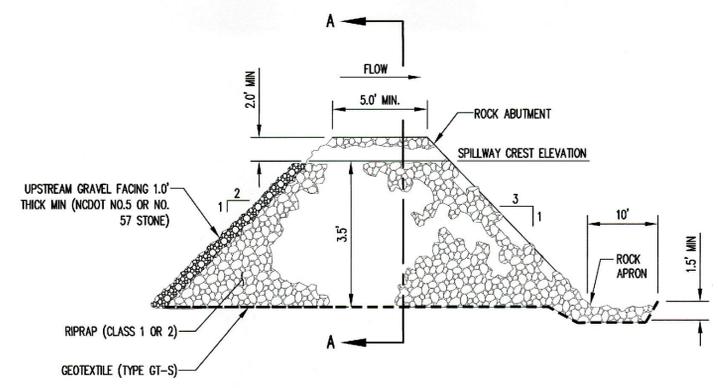
PROJECT TITLE:
**HALIFAX COUNTY
 C&D LANDFILL
 AREA 2
 PERMIT TO CONSTRUCT
 DRAWINGS**

DRAWING TITLE:
**DETAILS
 (SHEET 2 OF 5)**

DESIGNED:	P.K.S.	PROJECT NO.:	HALIFAX-12-1
DRAWN:	J.A.L.	SCALE:	AS SHOWN
APPROVED:		DATE:	DEC. 2012
FRENAME:	HALI-D0217	SHEET NUMBER:	6
SHEET NUMBER:	6	DRAWING NUMBER:	D2

DRAINAGE CHANNEL	LINING	B	D	M
DC-11	TRM*	4.0	2.0	3
DC-12A	ECB*	0.0	2.0	3
DC-12B	TRM	4.0	2.0	3
DC-21	TRM	6.0	2.0	3

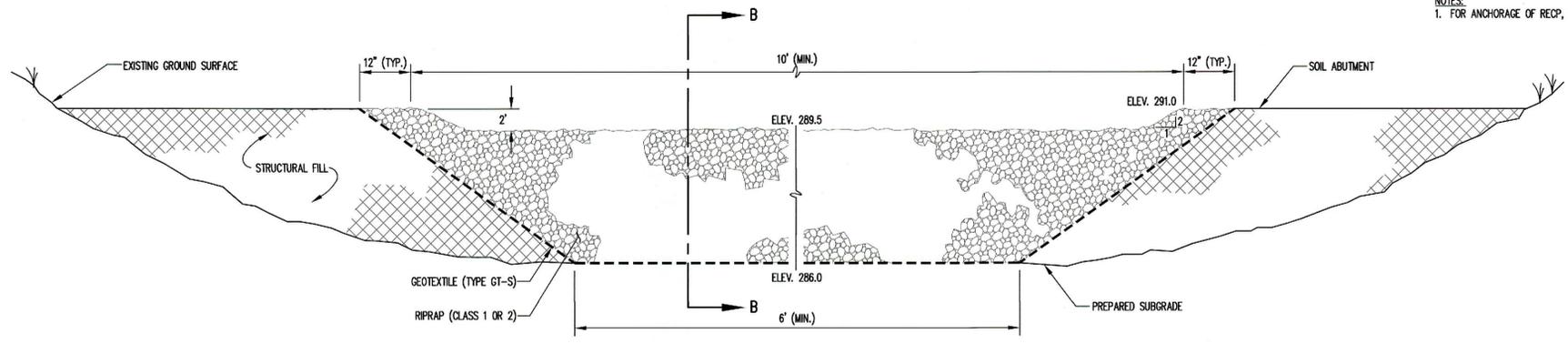
*ECB = EROSION CONTROL BLANKET / TRM = TURF REINFORCEMENT MATTING



RECP LINED CHANNELS

DRAINAGE CHANNEL

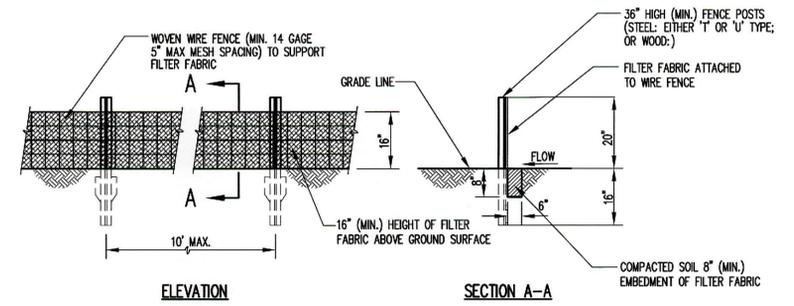
DETAIL 4 D2
 NOT TO SCALE



SECTION A-A

ROCK DAM

DETAIL 1 D2
 NOT TO SCALE

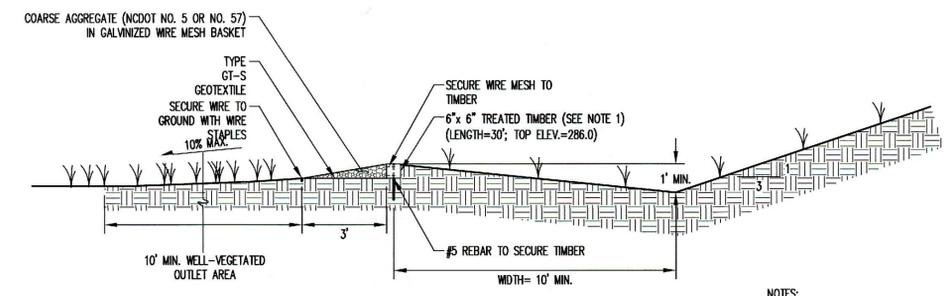


ELEVATION

SECTION A-A

SILT FENCE

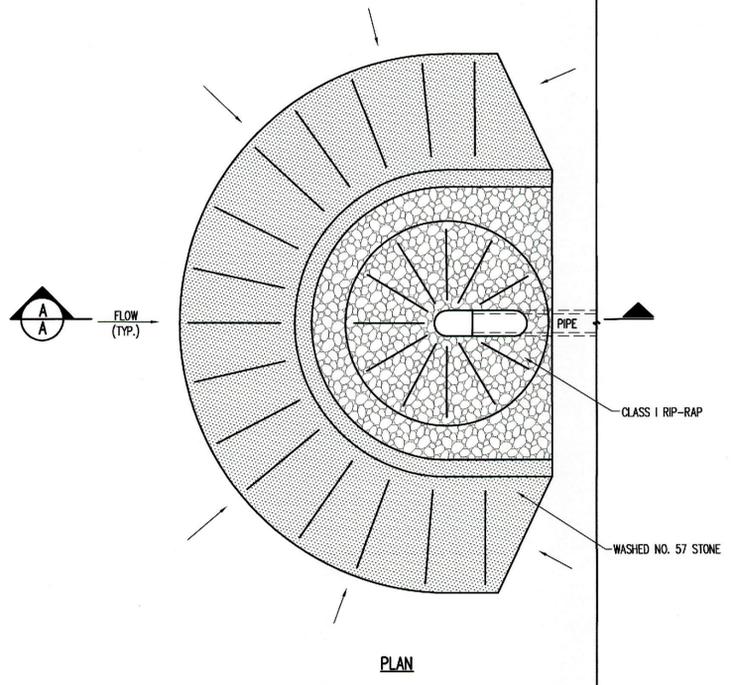
DETAIL 2 D2
 NOT TO SCALE



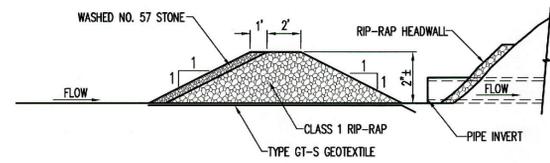
NOTES:
 1. TOP OF TIMBER MUST BE LEVEL.

LEVEL SPREADER

DETAIL 3 D2
 NOT TO SCALE



PLAN

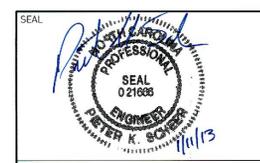


SECTION A-A

FILTER-BERM

DETAIL 5 D2
 NOT TO SCALE

**PERMIT ISSUE
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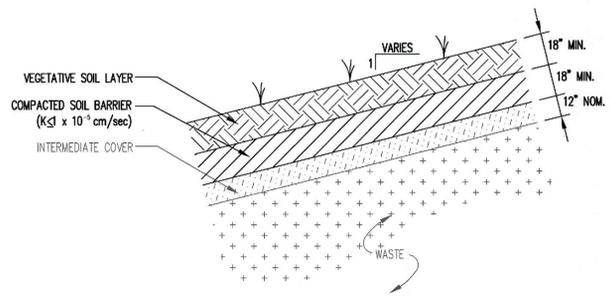
REV.	DATE	DESCRIPTION

PROJECT TITLE:
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 C&D LANDFILL
 AREA 2
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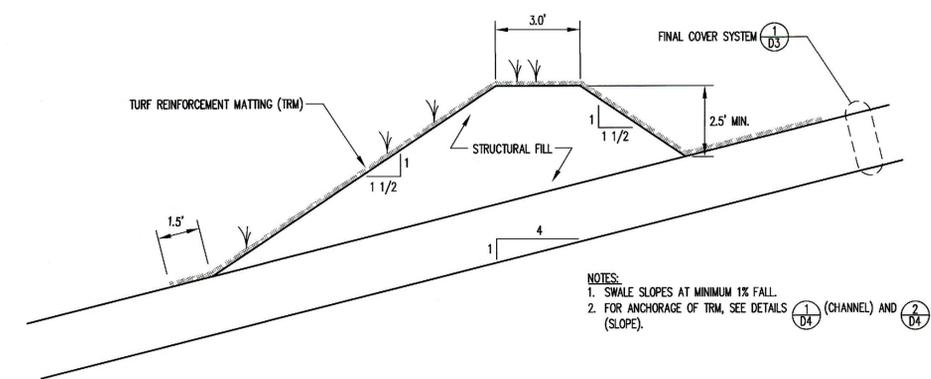
DRAWING TITLE:
**DETAILS
 (SHEET 3 OF 5)**

DESIGNED: P.K.S.	PROJECT NO: HALIFAX-12-1
DRAWN: J.A.L.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALI-D0219	
SHEET NUMBER: 7	DRAWING NUMBER: D3

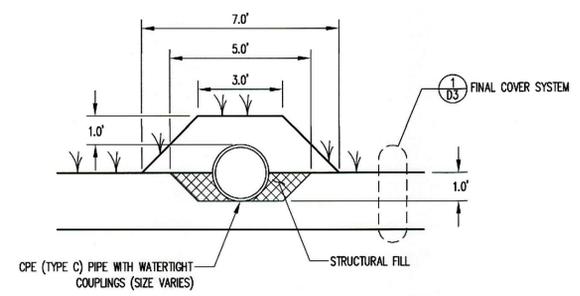
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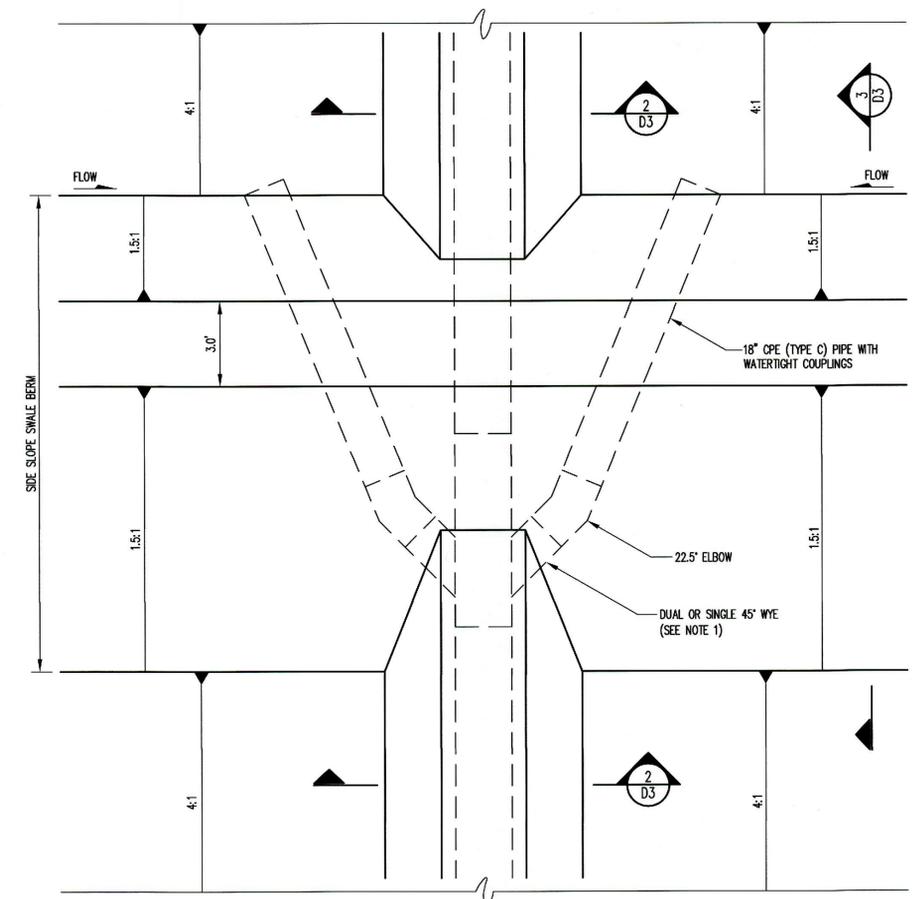
FINAL COVER SYSTEM
 DETAIL 1
 NOT TO SCALE D3



FINAL COVER SIDE SLOPE SWALE
 DETAIL 3
 NOT TO SCALE D3

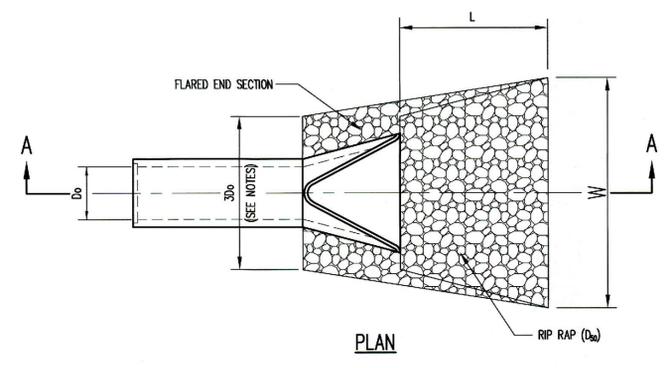
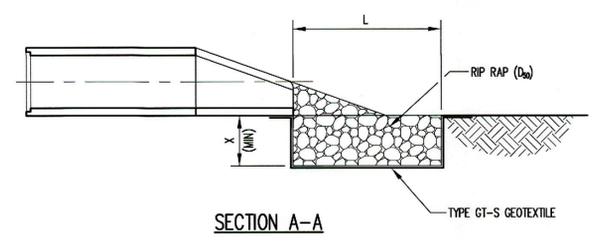


DOWNPIPE ON SLOPE
 DETAIL 2
 NOT TO SCALE D3



DOWNPIPE
 DETAIL 4
 NOT TO SCALE D3

NOTES:
 1. DEPENDING ON LOCATION AND SIZE OF DOWN PIPE, WYE FITTING MAY BE SINGLE OR DUAL AND MAY BE A REDUCING WYE.

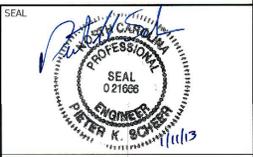


RIPRAP OUTLET PROTECTION
 (OUTLET TO FLAT AREA)
 DETAIL 5
 NOT TO SCALE D3

NOTE:
 1. D₅₀ REFERS TO THE MINIMUM REQUIRED AVERAGE STONE SIZE.
 2. FOR MORE THAN ONE PIPE, EXTEND RIP RAP 1.0' MIN. BEYOND OUTSIDE EDGES OF PIPES.
 3. WHEN OUTLETING INTO DEFINED CHANNEL, CONTINUE RIP RAP TO TOP OF BANK.

PIPE	D ₅₀ (INCHES)	L (FEET)	W (FEET)	D ₅₀ (INCHES)	X (FEET)
C-A	24	18	10	6	1.0
C-B	24	18	10	6	1.0
C&D BASIN 1 BARREL	18	14	16	6	1.0
DP-11	18	14	16	6	1.0
DP-12	18	14	16	6	1.0
DP-13	24	14	16	6	1.0
DP-14	18	14	16	6	1.0

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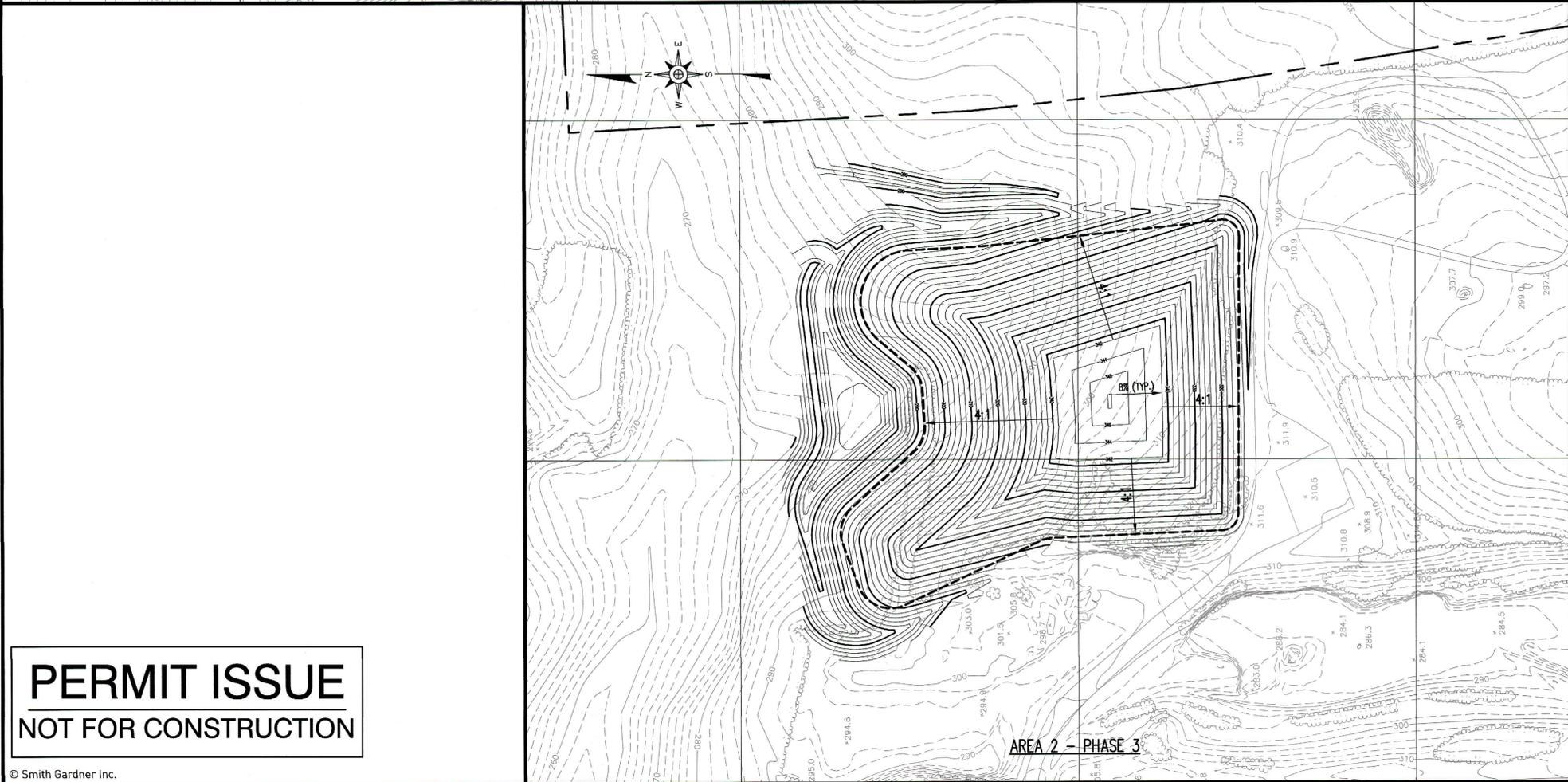
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PROJECT TITLE:
**HALIFAX COUNTY
 C&D LANDFILL
 AREA 2
 PERMIT TO CONSTRUCT
 DRAWINGS**

DRAWING TITLE:
PHASING PLAN

DESIGNED: P.K.S.	PROJECT NO: HALIFAX-12-1
DRAWN: J.A.L.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALJ-D0221	
SHEET NUMBER: 11	DRAWING NUMBER: P1



- LEGEND**
- 200 — EXISTING 10' CONTOUR
 - - - - - EXISTING 2' CONTOUR
 - — — — — PROPERTY LINE
 - - - - - AREA 2 WASTE LIMITS
 - — — — — PROPOSED 10' CONTOUR
 - - - - - PROPOSED 2' CONTOUR

- REFERENCES:**
- OVERALL SITE TOPOGRAPHY PROVIDED BY GEODATA CORPORATION, ZEBULON, NC, BASED ON MAY 25, 2012 AERIAL PHOTOGRAPHY.
 - WASTE CONTOURS FROM SURVEY DATED SEPTEMBER 2002.
 - BORROW SITE CONTOURS FROM SURVEY BY BURR & ASSOCIATES DATED SEPTEMBER 12, 2001.



**PERMIT ISSUE
 NOT FOR CONSTRUCTION**