WASTE RELOCATION AND OPERATIONS PLAN

THIS PLAN HAS BEEN DEVELOPED TO IMPROVE THE STORM WATER MANAGEMENT CAPABILITIES AND REDUCE STORM WATER INFILTRATION INTO THE CITY OF ALBEMARLE C&D LANDFILL. DUE TO THE LOW VOLUME OF C&D WASTE CURRENTLY RECEIVED AT THE LANDFILL, THE CITY HAS DETERMINED THAT SOME RELOCATION OF WASTE WILL BE REQUIRED TO ACHIEVE MINIMUM INTERMEDIATE COVER SLOPES AND PROMOTE SURFACE WATER RUN-OFF. THE PROCEDURES BELOW WILL PROVIDE A SAFE, ENVIRONMENTALLY SOUND PLAN FOR THE PROPOSED WASTE RELOCATION ACTIVITIES.

THE FIRST WASTE RELOCATION AREA WILL BE SIZED BETWEEN 2 AND 3 ACRES. THE PHASE BOUNDARIES SHOWN ON THE PLAN ARE TYPICAL AND DRAWN WITH A 200' WIDE WORKING STRIP. THE PHASES HAVE BEEN ORIENTED TO APPROXIMATE AND ALLOW BALANCING THE WASTE EXCAVATION AND DEPOSITION VOLUMES DURING EACH PHASE OF WORK. THE FIRST PHASE OF WASTE RELOCATION WILL BE EVALUATED CLOSELY TO ENSURE THAT THE SELECTED WORKING STRIP SIZE IS APPROPRIATE. SUBSEQUENT PHASES MAY BE SMALLER OR LARGER DEPENDING ON THE OBSERVED RESULTS FROM THE FIRST PHASE. THE WORKING STRIP WIDTH WILL NOT EXCEED 300' IN WIDTH.

WORK AND EQUIPMENT RESOURCES SHALL BE SCHEDULED TO LIMIT THE TIME WASTE IS EXPOSED DURING THE RELOCATION EFFORT. WEATHER FORECASTS SHALL BE CLOSELY EXAMINED PRIOR TO INITIATION OF WORK IN EACH PHASE OF WORK. WORK WILL NOT BEGIN THAT MAY ALLOW THE C&D WASTE EXCAVATION AREA TO BE OPEN DURING ANTICIPATED RAINFALL EVENTS.

THE PROCEDURES FOR WASTE RELOCATION WILL INCLUDE FIRST STRIPPING THE INTERMEDIATE COVER OFF THE EXISTING WASTE. THE COVER WILL BE PUSHED AND STOCKPILED TO THE NORTH AND SOUTH LIMITS OF THE PHASE UNDER CONSTRUCTION. A STORM WATER DIVERSION BERM WILL BE CONSTRUCTED ALONG THE NORTH EDGE OF THE PHASE UNDER CONSTRUCTION TO DIVERT STORM WATER AWAY FROM THE WORKING FACE OF THE RELOCATION AREA. THIS BERM MUST BE CONSTRUCTED PRIOR TO ANY WASTE EXCAVATION. FOLLOWING BERM CONSTRUCTION, WASTE EXCAVATION WILL BEGIN. THE WASTE WILL BE EXCAVATED AND GRADED TO MATCH THE PROPOSED GRADES SHOWN IN THE PLAN (MINUS 12" OF INTERMEDIATE COVER). AS WASTE IS BEING RELOCATED AND SHAPED, THE WASTE WILL BE COMPACTED WITH WASTE COMPACTION EQUIPMENT AS DENSELY AS PRACTICABLE PRIOR TO INTERMEDIATE COVER PLACEMENT. A 12" THICK LAYER OF INTERMEDIATE COVER WILL BE SPREAD OVER THE EXPOSED WASTE AREA. THE STOCKPILED INTERMEDIATE SOIL COVER ADJACENT TO THE PHASE UNDER CONSTRUCTION WILL BE UTILIZED AND SUPPLEMENTED WITH COVER SOILS FROM THE ACTIVE BORROW AREA ON SITE.

EXPOSED WASTE WITHIN EACH PHASE OF REGRADING WILL BE COVERED AS SOON AS FINAL ELEVATIONS ARE ACHIEVED AND WASTE IS ADEQUATELY COMPACTED. THE ANTICIPATED TIME PERIOD FOR EXPOSED WASTE IN EACH PHASE IS 3-5 DAYS. AT NO TIME WILL WASTE REMAIN UNCOVERED FOR GREATER THAN 7 DAYS. COVER MAY BE SOIL OR AN APPROVED ALTERNATE DAILY COVER.

BLOWING LITTER IS NOT ANTICIPATED DUE TO THE MIXTURE OF SOIL WITH THE WASTE, THE COMPACTED NATURE OF THE WASTE, AND THE FACT THAT IT IS C&D WASTE. THE FACILITY WILL POLICE THE AREA DAILY AND REMOVE ALL LITTER FROM THE SITE. IF NECESSARY, LITTER FENCES WILL BE INSTALLED DOWNWIND OF THE PHASE UNDER CONSTRUCTION.

SOIL SHALL BE STOCKPILED ADJACENT TO THE PHASE UNDER CONSTRUCTION FOR THE PURPOSE OF FIGHTING FIRE.

NO OTHER ACTIVE WORKING FACE FOR THE C&D LANDFILL WILL BE OPEN DURING THE WASTE RELOCATION ACTIVITIES. ANY C&D WASTE RECEIVED BY THE FACILITY DURING WASTE RELOCATION WORK WILL BE LANDFILLED IN THE ACTIVE RELOCATION AREA OR DISPOSED IN THE MSW LANDFILL.

LARGE BULKY ITEMS ENCOUNTERED DURING THE WASTE EXCAVATION THAT CANNOT BE EASILY INCORPORATED INTO THE PROPOSED GRADES FOR THE C&D LANDFILL WILL BE REMOVED AND HAULED TO THE ACTIVE MSW LANDFILL ON SITE FOR DISPOSAL.

LOCAL COORDINATE SYSTEM

AERIAL TARGET - AL01: N 568515.18
E 1655255.17
ELEV=473.07

AERIAL TARGET - AL02: N 568951.06
E 1658017.64
ELEV=454.72

AERIAL TARGET - AL05: N 565752.84
E 1656812.64
ELEV=461.51

AL01
X=1655255.17
Y=568515.18
Z=473.07

CLOSED MSW LANDFILL AREA

EXISTING C&D LANDFILL AREA

EXISTING LANDFILL ACCESS ROAD (TYP.)

TYPICAL WASTE RELOCATION PHASE LINE

PHASE 1

PHASE 2

PHASE 3

PHASE 4

PHASE 5

3.0% MIN.

5.0% MIN.

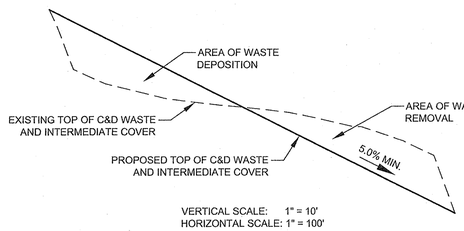
EXISTING BERM TO BE REMOVED

PROPOSED INTERIM GRADING PLAN CONTOUR (TYP.)

EXISTING PROPERTY LINE

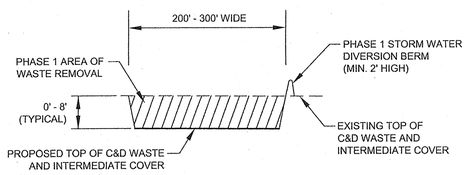
WE 392.3

WE 432.4



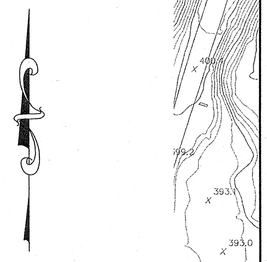
VERTICAL SCALE: 1" = 10'
HORIZONTAL SCALE: 1" = 100'

TYPICAL SECTION - EAST / WEST



VERTICAL SCALE: 1" = 10'
HORIZONTAL SCALE: 1" = 100'

TYPICAL SECTION - NORTH / SOUTH



NORTH CAROLINA PROFESSIONAL SEAL 27198 ENGINEER R. BRANT LAWS 2/9/11

NORTH CAROLINA PROFESSIONAL SEAL 32249 ENGINEER M. MATTHEW CREEK 2/9/11

WASTE RELOCATION OPERATIONS PLAN

CITY OF ALBEMARLE LANDFILL

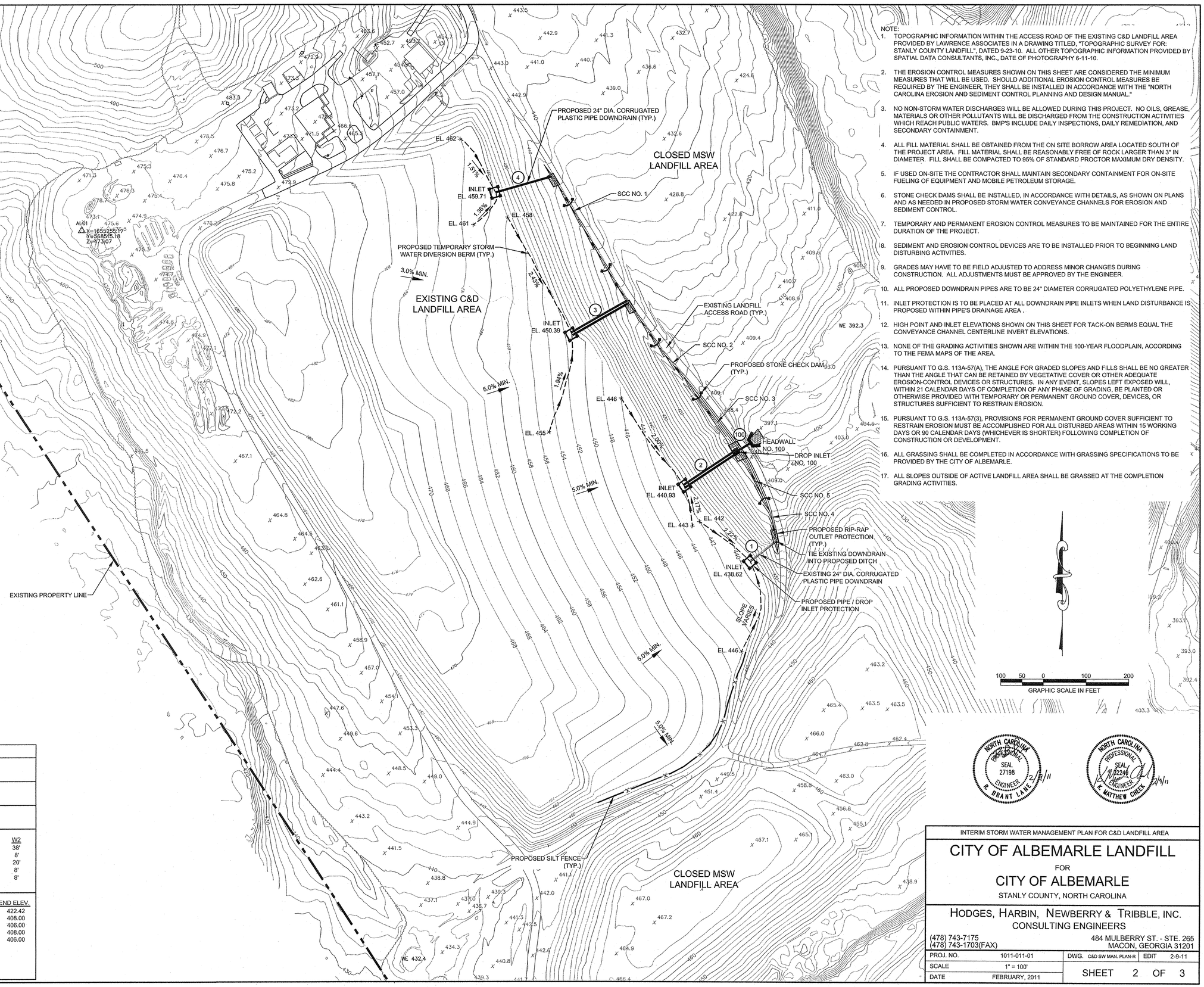
FOR

CITY OF ALBEMARLE

STANLY COUNTY, NORTH CAROLINA

HODGES, HARBIN, NEWBERRY & TRIBBLE, INC.
CONSULTING ENGINEERS
(478) 743-7175
(478) 743-1703(FAX)
484 MULBERRY ST. - STE. 265
MACON, GEORGIA 31201

PROJ. NO.	1011-011-01	DWG. C&D WASTE RELOCATION	EDIT 2-9-11
SCALE	1" = 100'	SHEET 1 OF 3	
DATE	FEBRUARY, 2011		



NOTE:

1. TOPOGRAPHIC INFORMATION WITHIN THE ACCESS ROAD OF THE EXISTING C&D LANDFILL AREA PROVIDED BY LAWRENCE ASSOCIATES IN A DRAWING TITLED, "TOPOGRAPHIC SURVEY FOR: STANLY COUNTY LANDFILL", DATED 9-23-10. ALL OTHER TOPOGRAPHIC INFORMATION PROVIDED BY SPATIAL DATA CONSULTANTS, INC., DATE OF PHOTOGRAPHY 6-11-10.
2. THE EROSION CONTROL MEASURES SHOWN ON THIS SHEET ARE CONSIDERED THE MINIMUM MEASURES THAT WILL BE USED. SHOULD ADDITIONAL EROSION CONTROL MEASURES BE REQUIRED BY THE ENGINEER, THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE "NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL."
3. NO NON-STORM WATER DISCHARGES WILL BE ALLOWED DURING THIS PROJECT. NO OILS, GREASE, MATERIALS OR OTHER POLLUTANTS WILL BE DISCHARGED FROM THE CONSTRUCTION ACTIVITIES WHICH REACH PUBLIC WATERS. BMP'S INCLUDE DAILY INSPECTIONS, DAILY REMEDIATION, AND SECONDARY CONTAINMENT.
4. ALL FILL MATERIAL SHALL BE OBTAINED FROM THE ON SITE BORROW AREA LOCATED SOUTH OF THE PROJECT AREA. FILL MATERIAL SHALL BE REASONABLY FREE OF ROCK LARGER THAN 3" IN DIAMETER. FILL SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY.
5. IF USED ON-SITE THE CONTRACTOR SHALL MAINTAIN SECONDARY CONTAINMENT FOR ON-SITE FUELING OF EQUIPMENT AND MOBILE PETROLEUM STORAGE.
6. STONE CHECK DAMS SHALL BE INSTALLED, IN ACCORDANCE WITH DETAILS, AS SHOWN ON PLANS AND AS NEEDED IN PROPOSED STORM WATER CONVEYANCE CHANNELS FOR EROSION AND SEDIMENT CONTROL.
7. TEMPORARY AND PERMANENT EROSION CONTROL MEASURES TO BE MAINTAINED FOR THE ENTIRE DURATION OF THE PROJECT.
8. SEDIMENT AND EROSION CONTROL DEVICES ARE TO BE INSTALLED PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES.
9. GRADES MAY HAVE TO BE FIELD ADJUSTED TO ADDRESS MINOR CHANGES DURING CONSTRUCTION. ALL ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER.
10. ALL PROPOSED DOWNDRAIN PIPES ARE TO BE 24" DIAMETER CORRUGATED POLYETHYLENE PIPE.
11. INLET PROTECTION IS TO BE PLACED AT ALL DOWNDRAIN PIPE INLETS WHEN LAND DISTURBANCE IS PROPOSED WITHIN PIPE'S DRAINAGE AREA .
12. HIGH POINT AND INLET ELEVATIONS SHOWN ON THIS SHEET FOR TACK-ON BERMS EQUAL THE CONVEYANCE CHANNEL CENTERLINE INVERT ELEVATIONS.
13. NONE OF THE GRADING ACTIVITIES SHOWN ARE WITHIN THE 100-YEAR FLOODPLAIN, ACCORDING TO THE FEMA MAPS OF THE AREA.
14. PURSUANT TO G.S. 113A-57(A), 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 EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 21 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.
15. PURSUANT TO G.S. 113A-57(3), PROVISIONS FOR PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.
16. ALL GRASSING SHALL BE COMPLETED IN ACCORDANCE WITH GRASSING SPECIFICATIONS TO BE PROVIDED BY THE CITY OF ALBEMARLE.
17. ALL SLOPES OUTSIDE OF ACTIVE LANDFILL AREA SHALL BE GRASSED AT THE COMPLETION GRADING ACTIVITIES.

LOCAL COORDINATE SYSTEM

AERIAL TARGET - AL01: N 568515.18
E 1655255.17
ELEV=473.07

AERIAL TARGET - AL02: N 568951.06
E 1658017.64
ELEV=454.72

AERIAL TARGET - AL05: N 565752.84
E 1656812.64
ELEV=461.51

NEW DOWNDRAIN STRUCTURES

DOWNDRAIN NO.	SIZE OF DOWNDRAIN
1	24" *
2	2-24"
3	2-24"
4	24"

*EXISTING DOWNDRAIN.

PROPOSED DRAINAGE STRUCTURES

PIPE NO.	SIZE	LENGTH	SLOPE	MATERIAL
100	48"	40'	1.25%	RCP

DROP INLET NO.	TOP	THROAT	INVERT
100	408.00	406.00	400.50

HEADWALL NO.	INVERT
100	400.00

EROSION CONTROL DEVICES

X SINGLE ROW SILT FENCE

DROP INLET / PIPE INLET PROTECTION

STONE CHECK DAM

W2 / L / W1 RIP-RAP OUTLET PROTECTION

PIPE NO.	RIP-RAP SIZE	LENGTH(L)	W1	W2
100	12"	26'	12'	38'
DD 1	6"	13'	8'	8'
DD 2	12"	40'	20'	20'
DD 3	6"	13'	8'	8'
DD 4	6"	13'	8'	8'

DD = DOWNDRAIN PIPE NUMBER REQUIRING OUTLET PROTECTION

TURF REINFORCEMENT LINED STORM WATER CONVEYANCE CHANNEL (SCC)

SCC NO.	LENGTH	SLOPE*	START ELEV.	END ELEV.
1	377'	3.60%	436.00	422.42
2	266'	5.42%	422.42	408.00
3**	165'	1.21%	408.00	406.00
4	126'	9.52%	420.00	408.00
5	131'	1.53%	408.00	406.00

*SLOPE = AVERAGE SCC SLOPE. SCC SHALL BE 2' DEEP AND MATCH THE SLOPE OF THE EXISTING LANDFILL ACCESS ROAD.

**SCC NO. 3 IS A TRAPEZOIDAL SCC WITH A BOTTOM WIDTH OF 2'.

NORTH CAROLINA PROFESSIONAL SEAL 27198 ENGINEER R. BRANT LANE 2/8/11

NORTH CAROLINA PROFESSIONAL SEAL 32246 ENGINEER M. MATTHEW CHEEK 2/8/11

INTERIM STORM WATER MANAGEMENT PLAN FOR C&D LANDFILL AREA

CITY OF ALBEMARLE LANDFILL

FOR

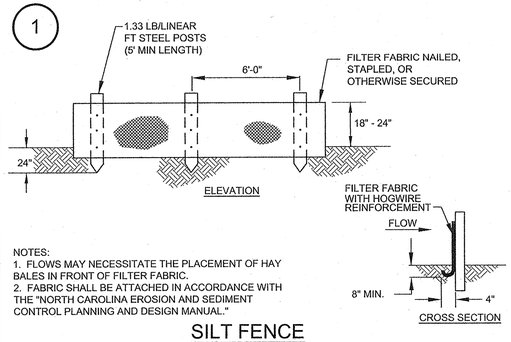
CITY OF ALBEMARLE

STANLY COUNTY, NORTH CAROLINA

HODGES, HARBIN, NEWBERRY & TRIBBLE, INC.
CONSULTING ENGINEERS
(478) 743-7175
(478) 743-1703(FAX)
484 MULBERRY ST. - STE. 265
MACON, GEORGIA 31201

PROJ. NO.	1011-011-01	DWG. C&D SW MAN. PLAN-R	EDIT 2-9-11
SCALE	1" = 100'	SHEET 2 OF 3	
DATE	FEBRUARY, 2011		

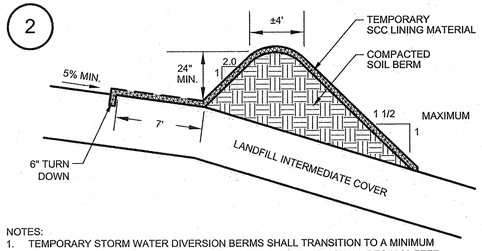
1



NOTES:
1. FLOWS MAY NECESSITATE THE PLACEMENT OF HAY BALES IN FRONT OF FILTER FABRIC.
2. FABRIC SHALL BE ATTACHED IN ACCORDANCE WITH THE "NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL."

SILT FENCE

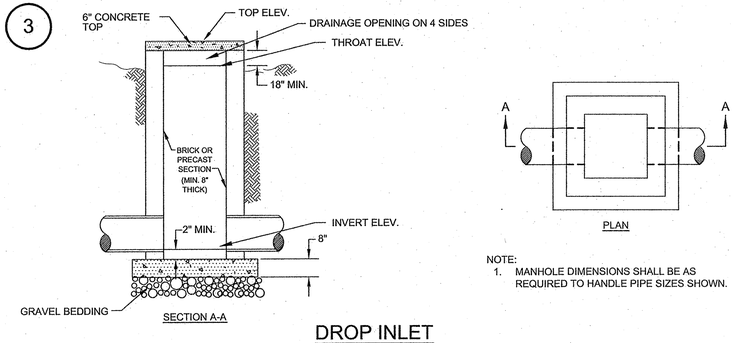
2



NOTES:
1. TEMPORARY STORM WATER DIVERSION BERMS SHALL TRANSITION TO A MINIMUM DEPTH OF 3.5 FEET AT ALL DOWNDRAIN INLETS. TRANSITION SHALL BEGIN 20 FEET PRIOR TO DOWNDRAIN INLET.
2. EXCELSIOR MATTING SHALL BE AN EROSION CONTROL BLANKET CONSISTING OF EXCELSIOR MAT WITH SYNTHETIC NETTING ON BOTH SIDES SIMILAR AND EQUAL TO CURLEX AS MANUFACTURED BY AMERICAN EXCELSIOR COMPANY.

TEMPORARY STORM WATER DIVERSION BERM

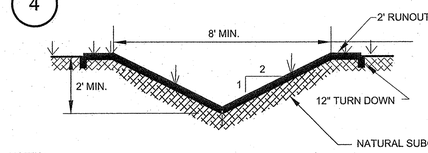
3



NOTE:
1. MANHOLE DIMENSIONS SHALL BE AS REQUIRED TO HANDLE PIPE SIZES SHOWN.

DROP INLET

4

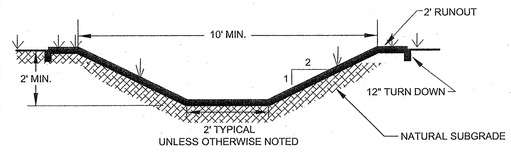


NOTES:
1. ROLL OUT TURF REINFORCEMENT PARALLEL TO DIRECTION OF FLOW AND OVER PROTECTIVE MULCH IN DITCHES.
2. TRM SHALL BE AN EROSION CONTROL MAT COMPRISED OF A DENSE, THREE-DIMENSIONAL WEB OF POLYOLEFIN FIBERS ORIENTED AND MECHANICALLY BONDED BETWEEN NETS, AND DESIGNED TO BE NON-SOIL FILLED. PRODUCT SHALL BE SIMILAR AND EQUAL TO LANDLOK TRM 450 BY SYNTHETIC INDUSTRIES.
3. ANCHORING DEVICES SHALL BE 8 GAUGE WIRE STAPLES OR 3/16 INCH DIAMETER STEEL NAILS.

TURF REINFORCEMENT LINED DITCH

TRIANGULAR STORM WATER CONVEYANCE CHANNEL SECTION

5

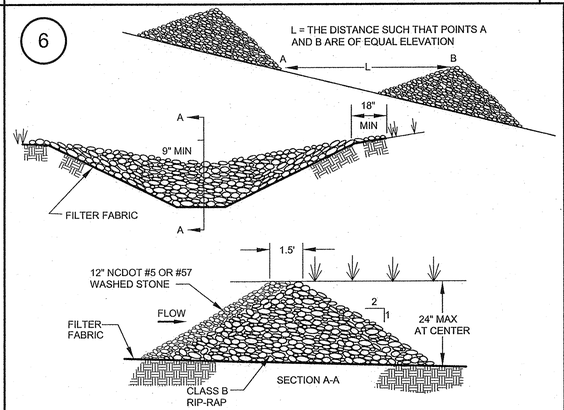


NOTES:
1. ROLL OUT TURF REINFORCEMENT PARALLEL TO DIRECTION OF FLOW AND OVER PROTECTIVE MULCH IN DITCHES.
2. TRM SHALL BE AN EROSION CONTROL MAT COMPRISED OF A DENSE, THREE-DIMENSIONAL WEB OF POLYOLEFIN FIBERS ORIENTED AND MECHANICALLY BONDED BETWEEN NETS, AND DESIGNED TO BE NON-SOIL FILLED. PRODUCT SHALL BE SIMILAR AND EQUAL TO LANDLOK TRM 450 BY SYNTHETIC INDUSTRIES.
3. ANCHORING DEVICES SHALL BE 8 GAUGE WIRE STAPLES OR 3/16 INCH DIAMETER STEEL NAILS.

TURF REINFORCEMENT MATTING DITCH LINING

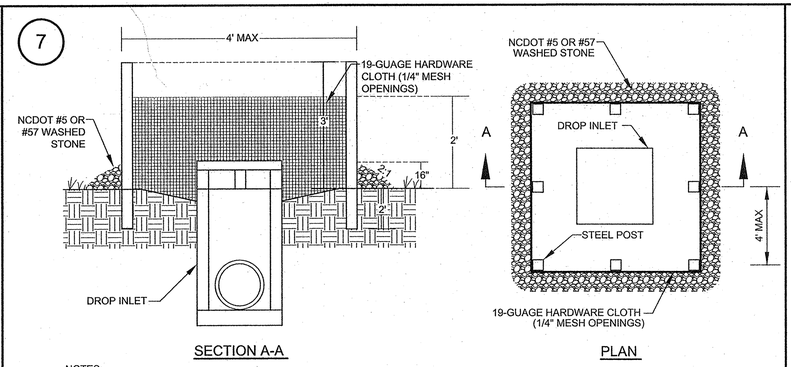
TRAPEZOIDAL STORM WATER CONVEYANCE CHANNEL SECTION

6



CHECK DAM

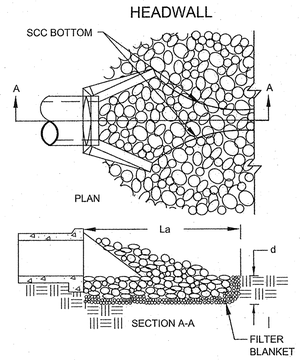
7



NOTES:
1. CONTRACTOR SHALL UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. WIRE MESH SHALL BE SECURED AT TOP, MIDDLE AND BOTTOM OF STEEL POSTS.

DROP INLET PROTECTION
(AS NEEDED)

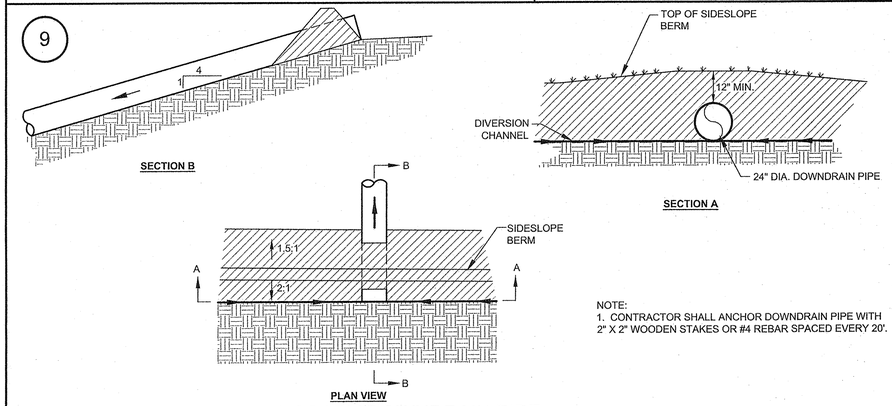
8



NOTES:
1. La IS THE LENGTH OF THE RIP-RAP APRON
2. 12" THICK FOR 6" RIP-RAP
   18" THICK FOR 9" RIP-RAP
   24" THICK FOR 12" RIP-RAP
3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP IN THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIP-RAP AND SOIL FOUNDATION.

OUTLET PROTECTION

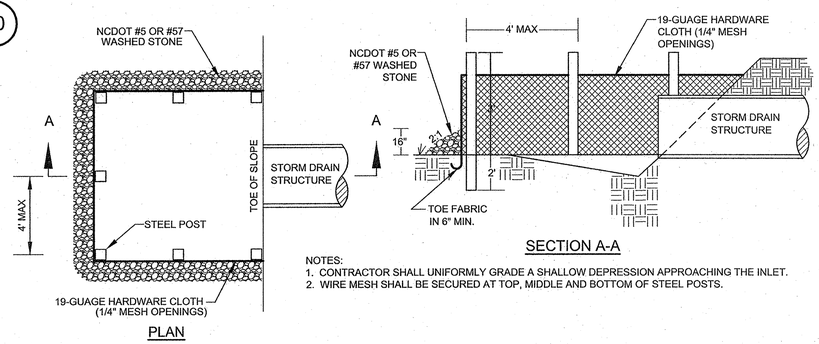
9



NOTE:
1. CONTRACTOR SHALL ANCHOR DOWNDRAIN PIPE WITH 2" X 2" WOODEN STAKES OR #4 REBAR SPACED EVERY 20'.

TEMPORARY DOWNDRAIN PIPE

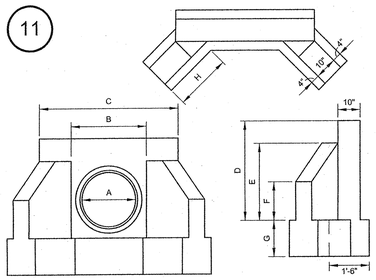
10



NOTES:
1. CONTRACTOR SHALL UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. WIRE MESH SHALL BE SECURED AT TOP, MIDDLE AND BOTTOM OF STEEL POSTS.

PIPE INLET PROTECTION

11



NOTES:
1. PRECAST CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE NC. D.O.T. AND ASTM C-478.
2. REINFORCING STEEL SHALL BE A MINIMUM OF #4 @ 6" O.C.E.W.
3. FOR TWIN PIPES, DOUBLE DIMENSIONS "B" AND "C."

"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"
36"	4'-0"	6'-4"	4'-10"	4'-0"	2'-0"	1'-8"	2'-11"
42"	4'-6"	6'-10"	5'-4"	4'-6"	2'-3"	2'-0"	3'-6"
48"	5'-2"	7'-6"	6'-0"	5'-2"	2'-6"	2'-0"	4'-0"
54"	5'-9"	8'-1"	6'-7"	5'-9"	2'-9"	2'-0"	4'-6"
60"	6'-4"	8'-8"	7'-2"	6'-4"	3'-0"	2'-2"	5'-0"

CONCRETE HEADWALL

NORTH CAROLINA PROFESSIONAL SEAL 27198 ENGINEER R. BRANT LANEY — 2/9/11

NORTH CAROLINA PROFESSIONAL SEAL 32246 ENGINEER K. MATTHEW CHEEK — 2/9/11

MISCELLANEOUS DETAILS

CITY OF ALBEMARLE LANDFILL

FOR

CITY OF ALBEMARLE

STANLY COUNTY, NORTH CAROLINA

HODGES, HARBIN, NEWBERRY & TRIBBLE, INC.
CONSULTING ENGINEERS
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PROJ. NO.	1011-011-01	DWG. C&D SW MAN-D1	EDIT 2-9-11
SCALE	NOT TO SCALE	SHEET 3 OF 3	
DATE	FEBRUARY, 2011		