



HDR Engineering, Inc. of the Carolinas
 440 S. Church St.
 Suite 1000
 Charlotte, NC 28202-2075
 704.338.6700
 N.C.B.E.L.S. F-0116

Owner/Permittee: Green Meadow, LLC
 Operator: Charah, Inc.
 Engineer of Record: HDR Engineering, Inc. of the Carolinas



Permit Drawings For

Colon Mine Site Mine Permit Transfer/ Modification

Permit No. 53-05

Civil

HDR Project No.
 00000000235691

Sanford, North Carolina
 November 2014
 Revised December 2014

Submitted to NCDENR Division of Mining

INDEX OF DRAWINGS

GENERAL

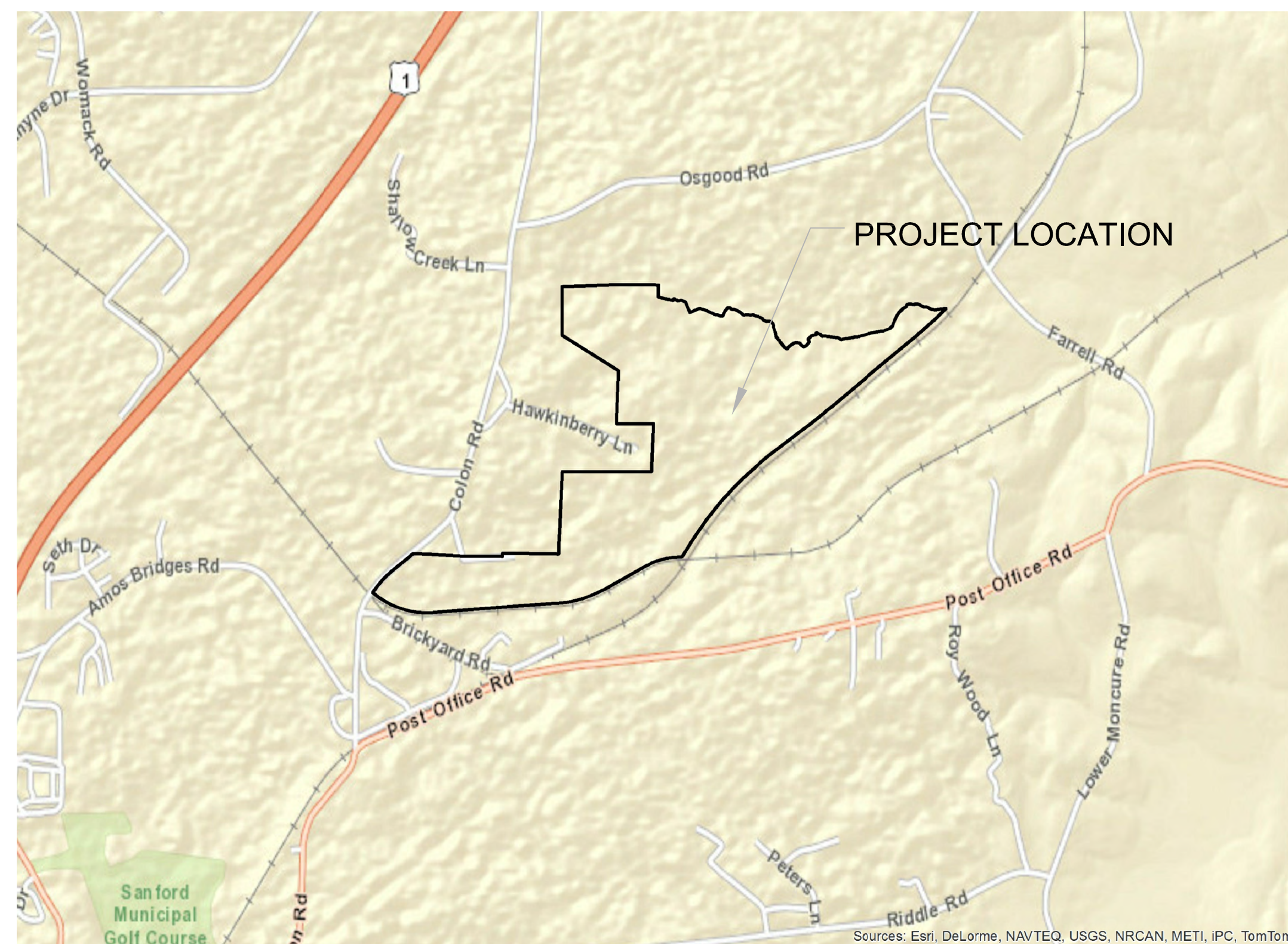
02G-01 COVER
 02G-02 MINE MAP

SITE WORK

02C-01 MINE EXCAVATION
 02C-02 RECLAMATION PLAN
 02C-03 SITE CROSS SECTIONS
 02C-04 DETAILS

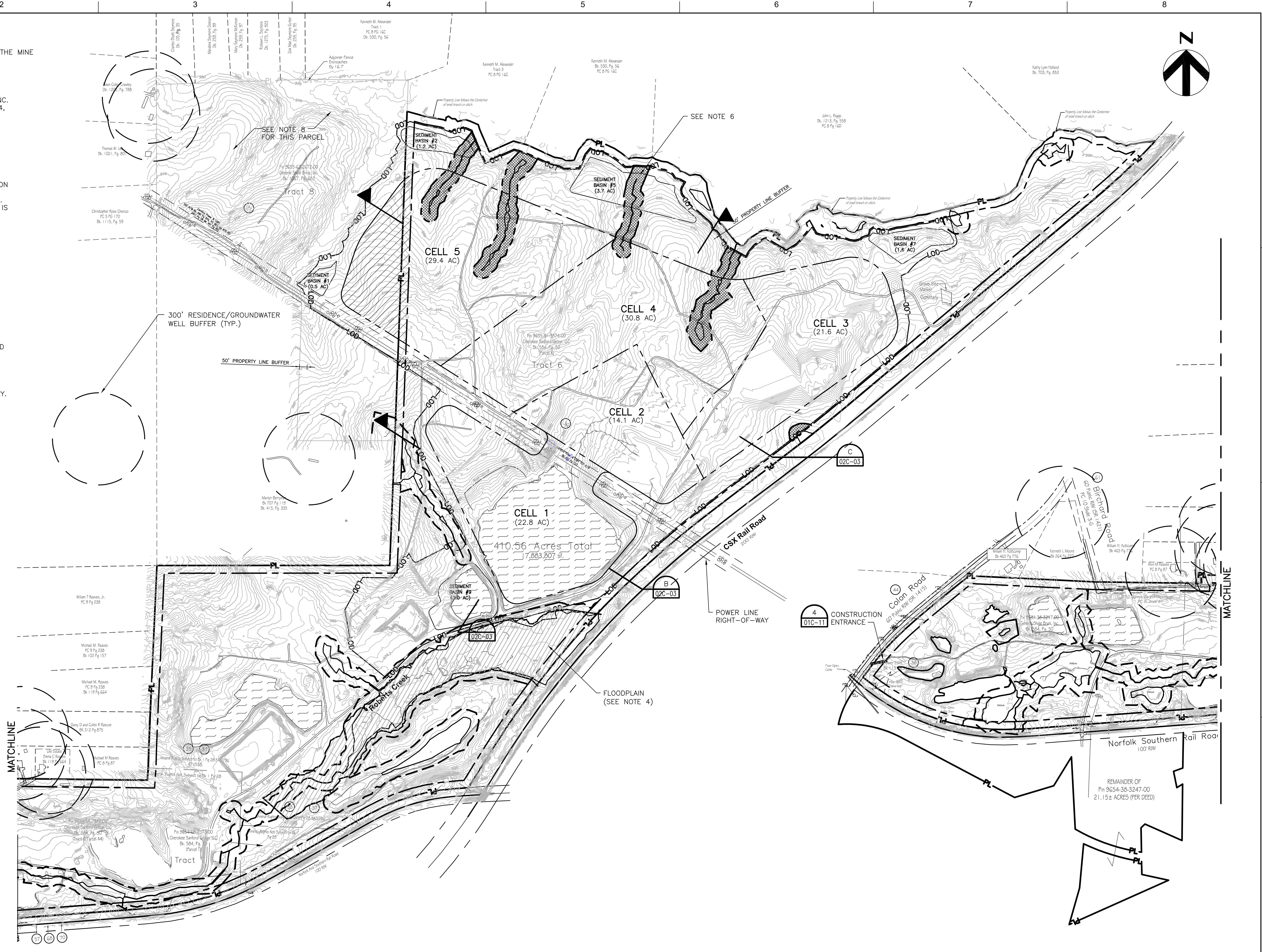
EROSION AND SEDIMENT CONTROL

01C-01 EROSION AND SEDIMENTATION CONTROL PLAN - PHASE 1 OVERALL
 01C-02 EROSION AND SEDIMENTATION CONTROL PHASE 1 PLAN 1
 01C-03 EROSION AND SEDIMENTATION CONTROL PHASE 1 PLAN 2
 01C-04 EROSION AND SEDIMENTATION CONTROL PHASE 1 PLAN 3
 01C-05 EROSION AND SEDIMENTATION CONTROL PHASE 1 PLAN 4
 01C-06 EROSION AND SEDIMENTATION CONTROL PLAN - PHASE 2 OVERALL
 01C-07 EROSION AND SEDIMENTATION CONTROL PHASE 2 PLAN 1
 01C-08 EROSION AND SEDIMENTATION CONTROL PHASE 2 PLAN 2
 01C-09 EROSION AND SEDIMENTATION CONTROL PHASE 2 PLAN 3
 01C-10 EROSION AND SEDIMENTATION CONTROL PHASE 2 PLAN 4
 01C-11 EROSION AND SEDIMENTATION CONTROL DETAILS (1 OF 3)
 01C-12 EROSION AND SEDIMENTATION CONTROL DETAILS (2 OF 3)
 01C-13 EROSION AND SEDIMENTATION CONTROL DETAILS (3 OF 3)



SCOPE:
THE PURPOSE OF THESE DRAWINGS IS TO TRANSFER THE OWNERSHIP OF THE MINE AND UPDATE BOTH THE EXCAVATION PLAN AND RECLAMATION PLAN.

- NOTES:
- TOPOGRAPHIC SURVEY PROVIDED BY AVIO IMAGE MAPPING SERVICES, INC. ALTA SURVEY COMPLETED BY LAWRENCE ASSOCIATES DATED AUGUST 14, 2014. CLEARWATER ENVIRONMENTAL PROVIDED WETLAND LOCATIONS TO LAWRENCE ASSOCIATES FOR INCLUSION INTO THEIR SURVEY.
 - PROPERTY BOUNDARY PROVIDED BY LAWRENCE ASSOCIATES DATED SEPTEMBER 5, 2014.
 - GROUNDWATER WELL LOCATIONS PROVIDED BY LAWRENCE ASSOCIATES DATED SEPTEMBER 5, 2014.
 - FLOODPLAIN LOCATION IS FROM LAWRENCE ASSOCIATES AS IDENTIFIED ON FLOOD INSURANCE RATE MAP FOR LEE COUNTY NORTH CAROLINA, COMMUNITY PANEL NUMBER 3710965400J, DATED SEPTEMBER 6, 2006. LAWRENCE ASSOCIATES CERTIFIES THAT A PORTION OF THIS PROPERTY IS LOCATED IN A SPECIAL FLOOD HAZARD AREA AS DETERMINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
 - WETLANDS DELINEATED BY CLEARWATER ENVIRONMENTAL ON AUGUST 8, 2014.
 - THE WETLANDS AND STREAMS THAT ARE IMPACTED BY THIS PROJECT WILL BE PERMITTED THROUGH NC DIVISION OF WATER QUALITY AND MITIGATED AS REQUIRED PRIOR TO LAND DISTURBANCE. ESTIMATED IMPACTS INCLUDE:
 - 2,040 LINEAR FEET OF STREAMS
 - 27,106 SQ. FT. (0.62 ACRES) OF WETLANDS
 ACCORDING TO LAWRENCE ASSOCIATES SURVEY, LEE COUNTY PUBLIC WORKS PROVIDED THE ADDRESSES FOR DRINKING WATER WELL LOCATIONS AND WATER SERVICES TO ADJOINING PARCELS WITHIN 500 FEET OF THE PROPERTY LINE. LEE COUNTY PUBLIC WORKS PROVIDED PARCELS SERVED BY COUNTY WATER. PUBLIC WATER SUPPLY (WATERLINE) IS LOCATED ALONG COLON ROAD.
 - THE PRIMARY SITE ENTRANCE IS FROM COLON ROAD.
 - THIS PARCEL OF LAND IS NOT A PART OF THE MINE PERMIT BOUNDARY. IT WILL BE PERMITTED SEPARATELY THROUGH THE DIVISION OF WASTE MANAGEMENT.
 - SOIL STOCKPILE AREAS TO BE DESIGNED AND PERMITTED AS NEEDED FOR OPERATIONS.



LEGEND

	PROPERTY LINE
	50' PROPERTY LINE BUFFER
	50' WETLANDS/STREAM BUFFER
	LIMITS OF DISTURBANCE
	300' RESIDENCE/GROUNDWATER WELL BUFFER
	EXISTING TOPOGRAPHY
	EXISTING ROAD
	IMPACTED WETLANDS/STREAMS
	OVERHEAD ELECTRIC
	PARCEL BOUNDARIES
	RAILROAD
	CELL BOUNDARIES
	PLANIMETRICS
	OPEN WATER
	STORMWATER BASIN FROM PRIOR MINING ACTIVITIES
	FLOODPLAIN

MATCHLINE

MATCHLINE



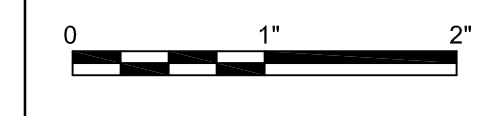
HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

ISSUE	DATE	DESCRIPTION
C	12/31/14	REVISED PER NCDENR COMMENTS
B	12/2014	ADDED PROPERTY SOUTH OF THE NORFOLK SOUTHERN RAILROAD
A	11/2014	ISSUED FOR APPROVAL

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	P. WESTMORELAND, P.E.
DRAWN BY	J. GAUL
CHECKED BY	J. READLING, P.E.
PROJECT NUMBER	453925-235691-018



COLON MINE SITE
MINE PERMIT TRANSFER/MODIFICATION
SANFORD, NC

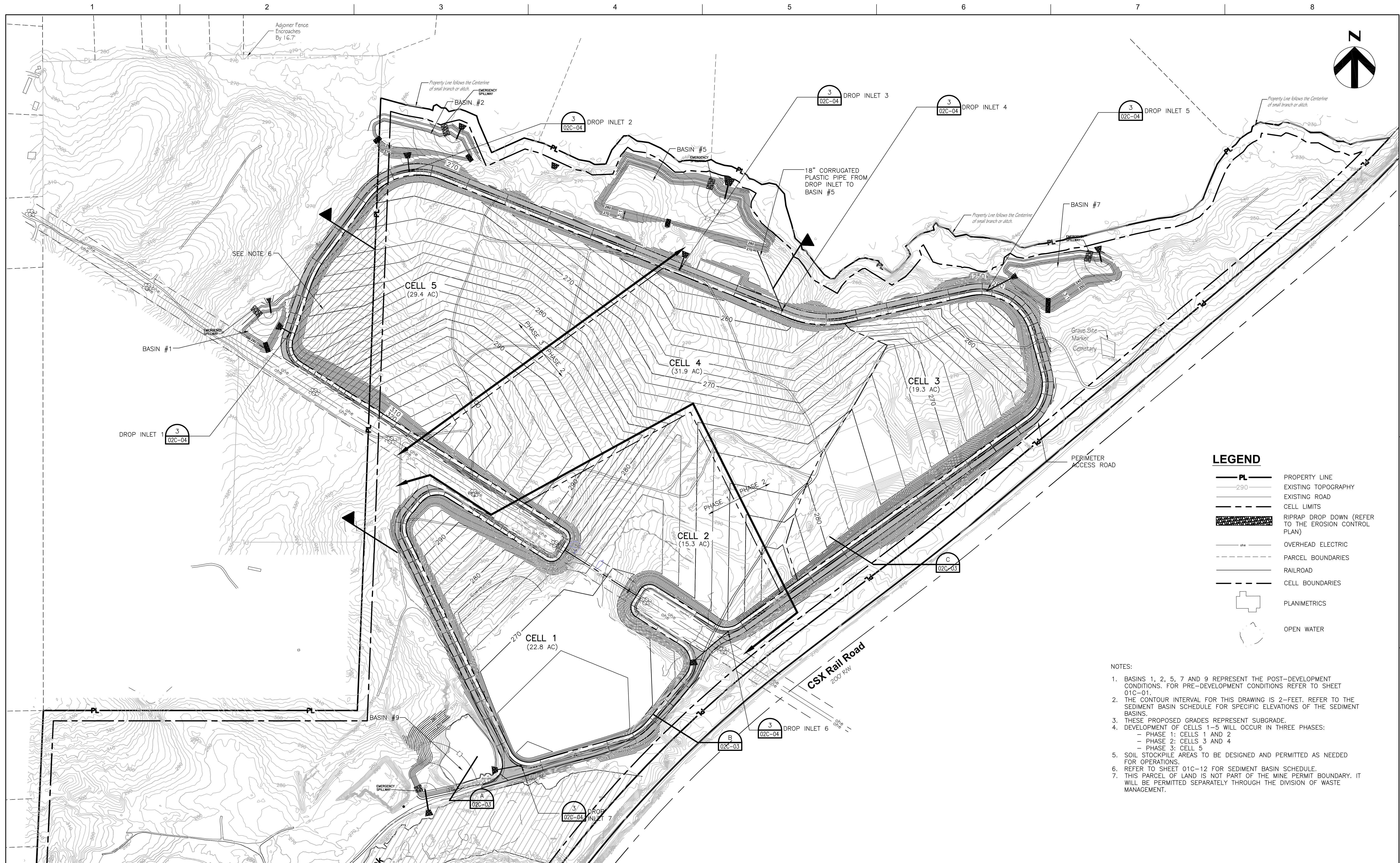


MINE MAP

FILENAME | 02G-02.dwg
SCALE | 1"=300'

SHEET
02G-02

C:\working\1405238102\02G.dwg, Pld, 11/20/15 5:21:25 AM, pwestmor



C:\working\14062503\02C-01.dwg, Plot: 1/5/2015 4:28:13 AM, pwestmor



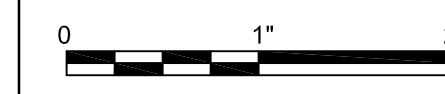
HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	P. WESTMORELAND, P.E.
DRAWN BY	J. GAUL
CHECKED BY	J. READLING, P.E.
PROJECT NUMBER	453925-235691-018



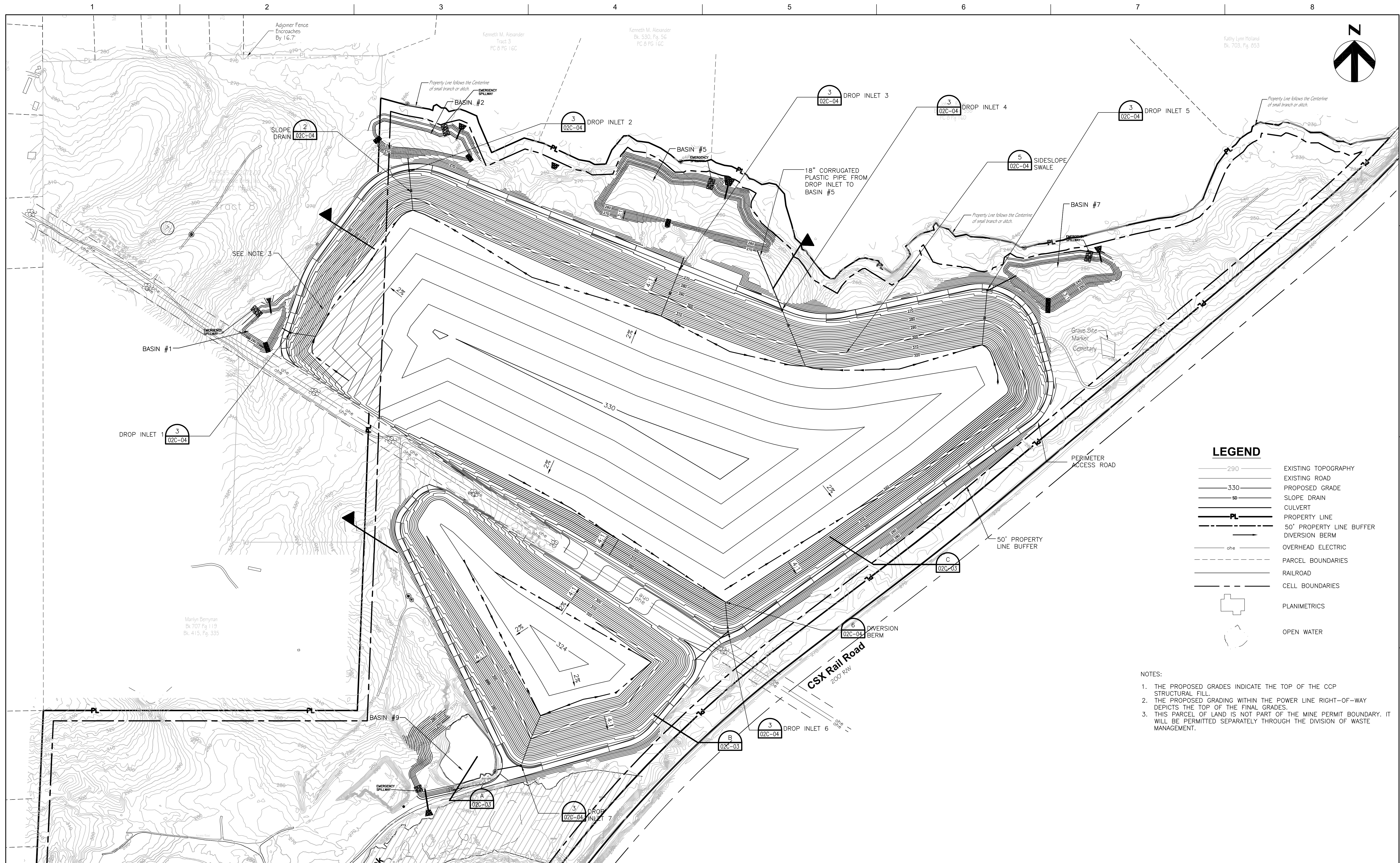
COLON MINE SITE
MINE PERMIT TRANSFER/MODIFICATION
SANFORD, NC



MINE EXCAVATION

FILENAME 02C-01.dwg
SCALE 1"=200'

SHEET
02C-01



- NOTES:
1. THE PROPOSED GRADES INDICATE THE TOP OF THE CCP STRUCTURAL FILL.
 2. THE PROPOSED GRADING WITHIN THE POWER LINE RIGHT-OF-WAY DEPICTS THE TOP OF THE FINAL GRADES.
 3. THIS PARCEL OF LAND IS NOT PART OF THE MINE PERMIT BOUNDARY. IT WILL BE PERMITTED SEPARATELY THROUGH THE DIVISION OF WASTE MANAGEMENT.



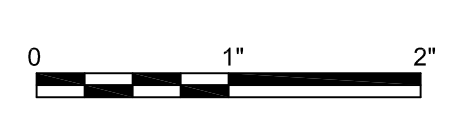
HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

PROJECT MANAGER	M.D. PLUMMER, P.E.	
DESIGNED BY	P. WESTMORELAND, P.E.	
DRAWN BY	J. GAUL	
CHECKED BY	J. READLING, P.E.	
ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL
PROJECT NUMBER	453925-235691-018	



COLON MINE SITE
MINE PERMIT TRANSFER/MODIFICATION
SANFORD, NC

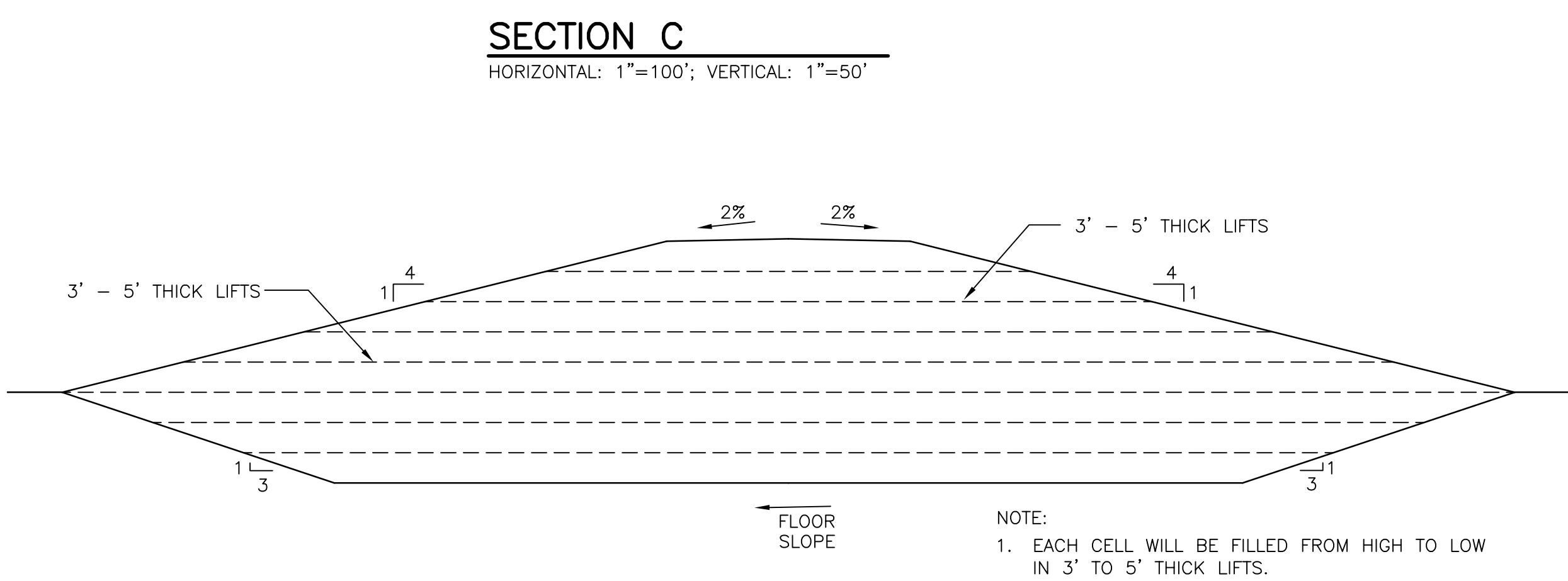
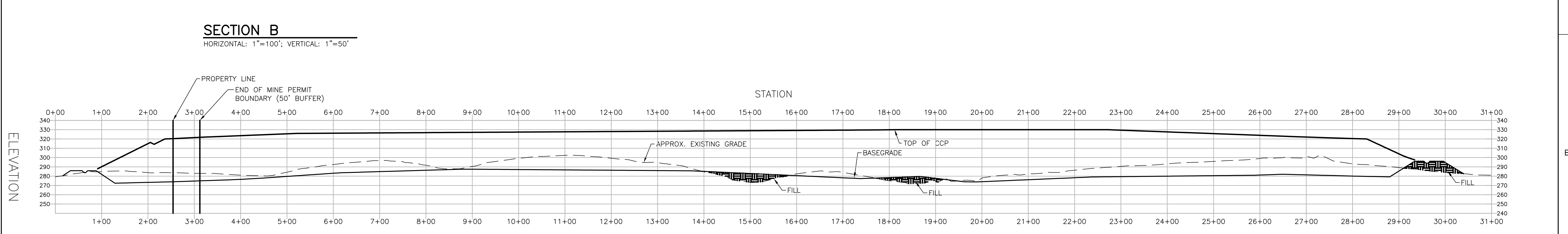
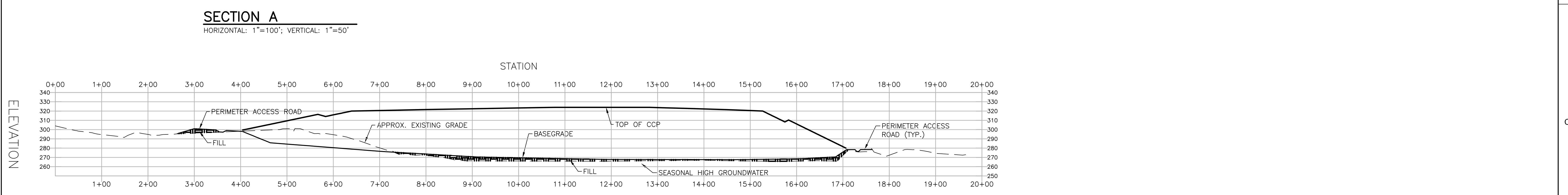
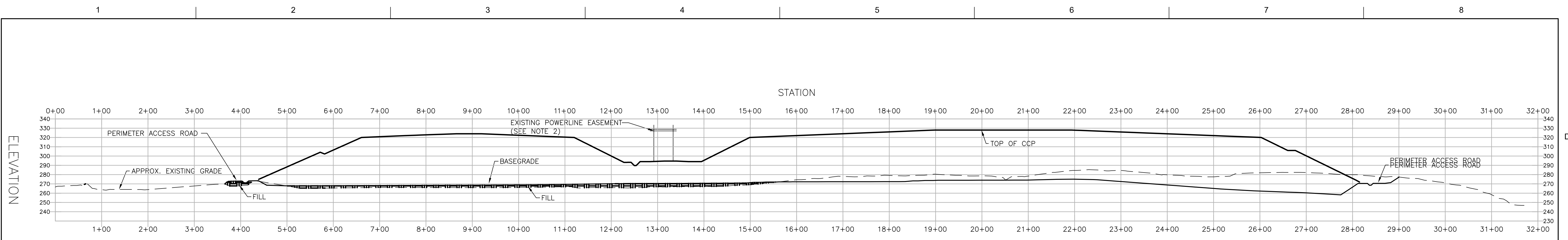
RECLAMATION PLAN



FILENAME | 02C-02.dwg
SCALE | 1"=200'

SHEET
02C-02

C:\working\14062583\02C-02.dwg, Plot: 1/15/2015 5:28:45 AM, dwmshor



- NOTES:**
1. IN THE AREAS WHERE SUBGRADE IS HIGHER THAN EXISTING GRADE, CLEAN SOIL WILL BE USED TO BRING EXISTING GRADE TO SUBGRADE. THE CLEAN SOIL WILL BE COMPACTED AS REQUIRED.
 2. THE SEPARATION BETWEEN THE TOP OF THE FINAL GRADES AND THE OVERHEAD ELECTRICAL WILL BE MAINTAINED.
 3. REFER TO SHEET O2C-02 FOR SLOPE OF THE TOP OF THE CCP.



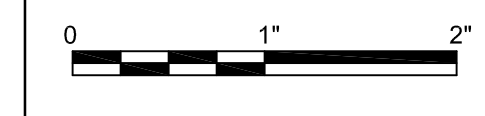
HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	P. WESTMORELAND, P.E.
DRAWN BY	J. GAUL
CHECKED BY	J. READLING, P.E.
PROJECT NUMBER	453925-235691-018



COLON MINE SITE
MINE PERMIT TRANSFER/MODIFICATION
SANFORD, NC

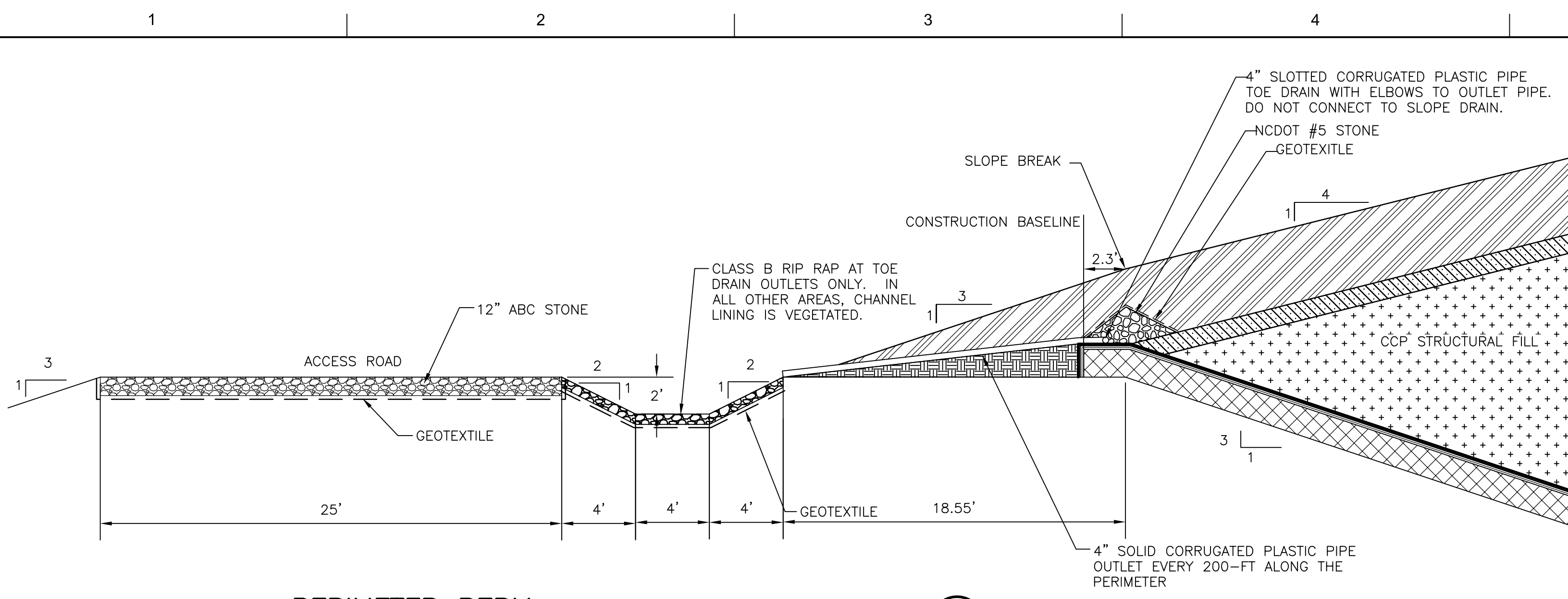


SITE CROSS SECTIONS

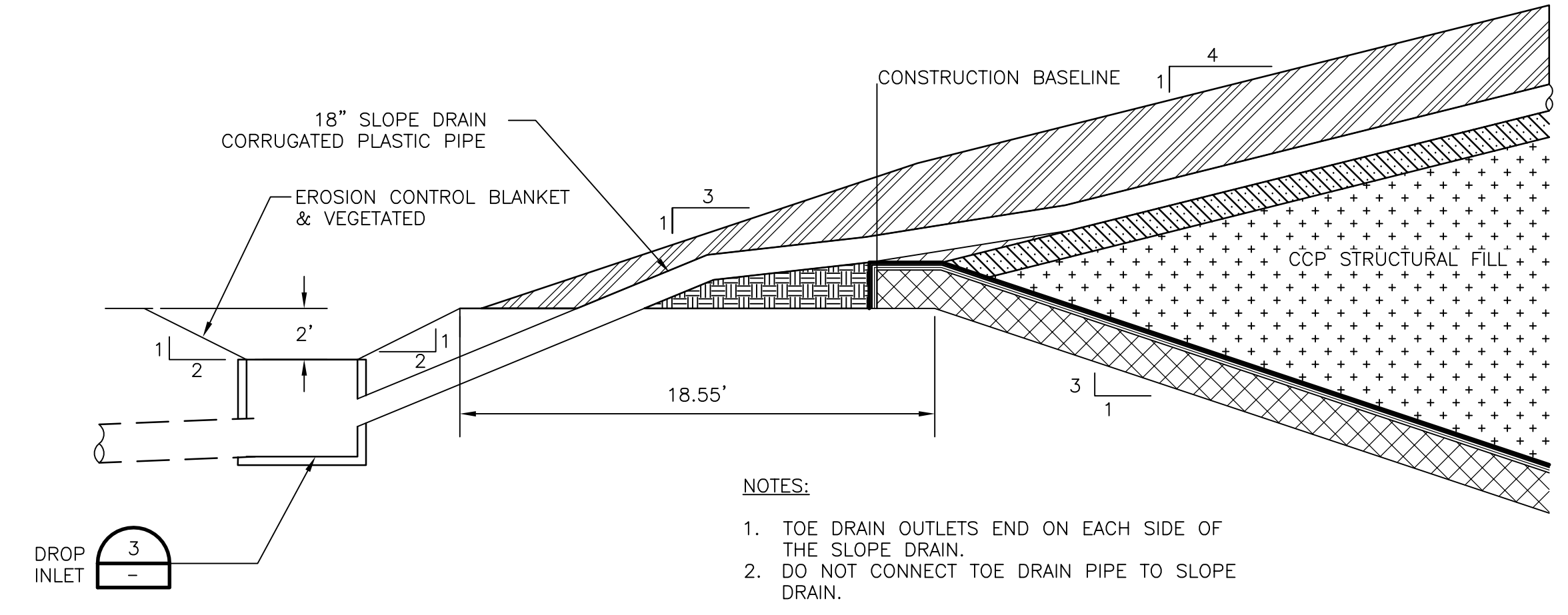
FILENAME: O2C-03.dwg
SCALE: 1"=100'

SHEET
O2C-03

C:\working\hadr\0228302\O2C-03.dwg, Pld, 1/5/2015 4:08:07 AM, pwestmor

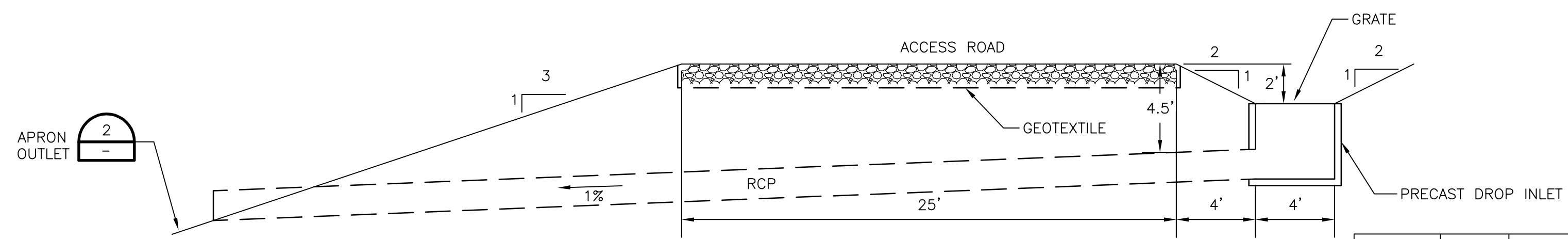


PERIMETER BERM
1"=5'



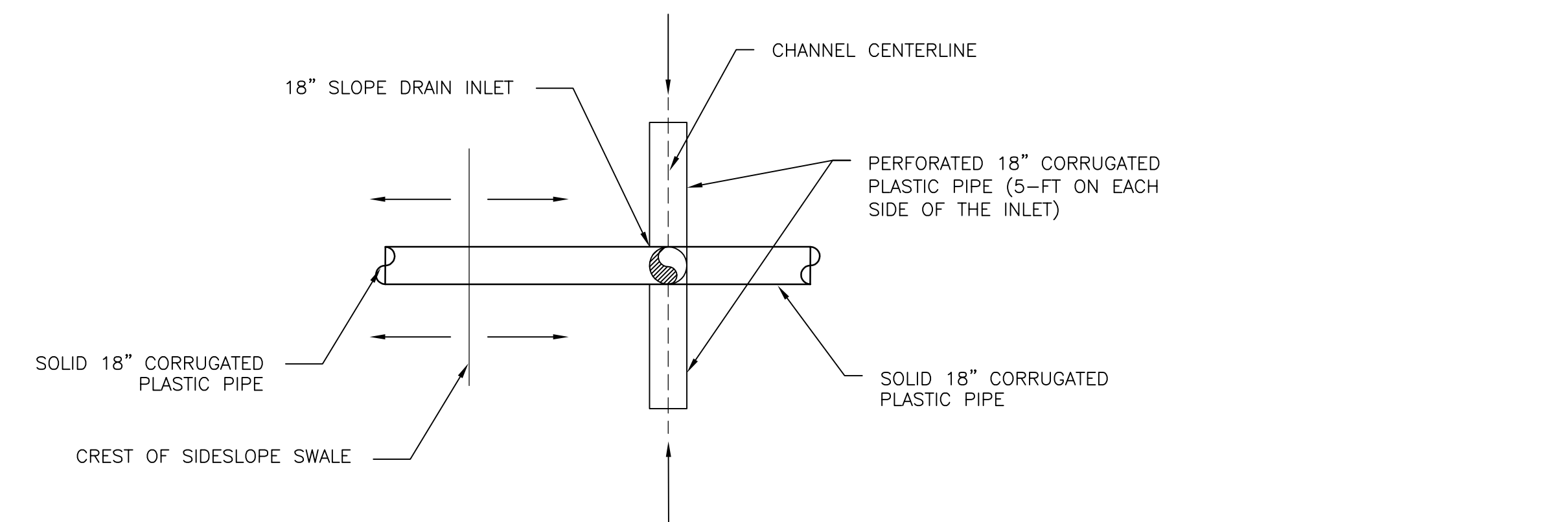
SLOPE DRAIN
1"=5'

- NOTES:
- TOE DRAIN OUTLETS END ON EACH SIDE OF THE SLOPE DRAIN.
 - DO NOT CONNECT TOE DRAIN PIPE TO SLOPE DRAIN.

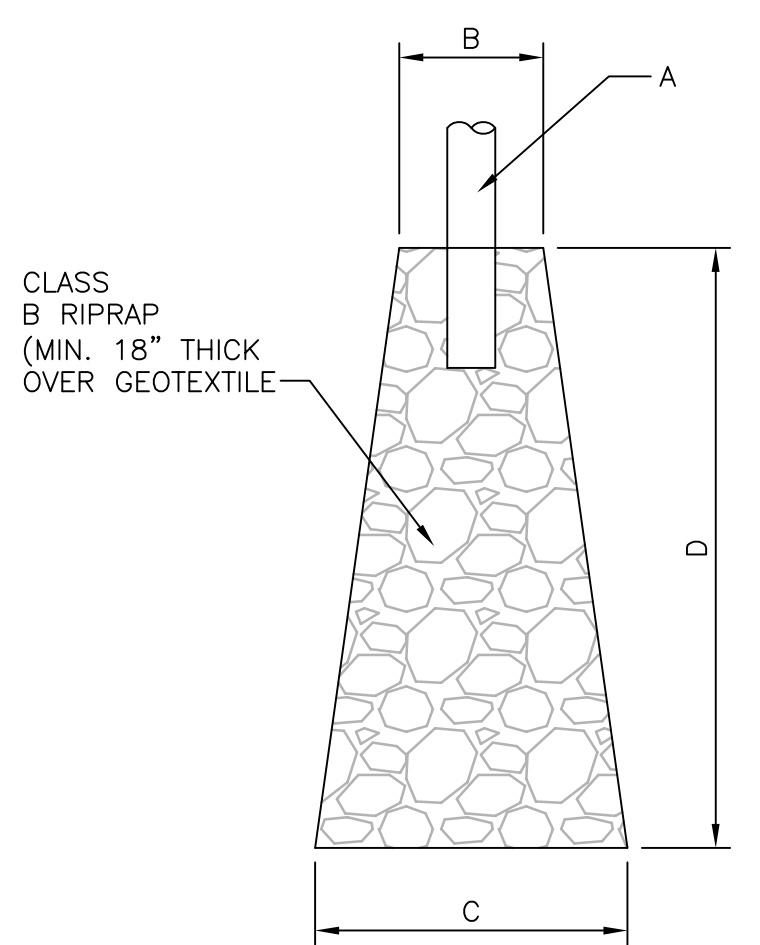


DROP INLET
1"=5'

DROP INLET #	# OF PIPES	SIZE OF PIPE (IN)	GRATE INLET AREA (SF)
1	1	30	6
2	1	30	6
3	1	30	6
4	1	18	6
5	1	30	6
6	1	36	12
7	2	36	12

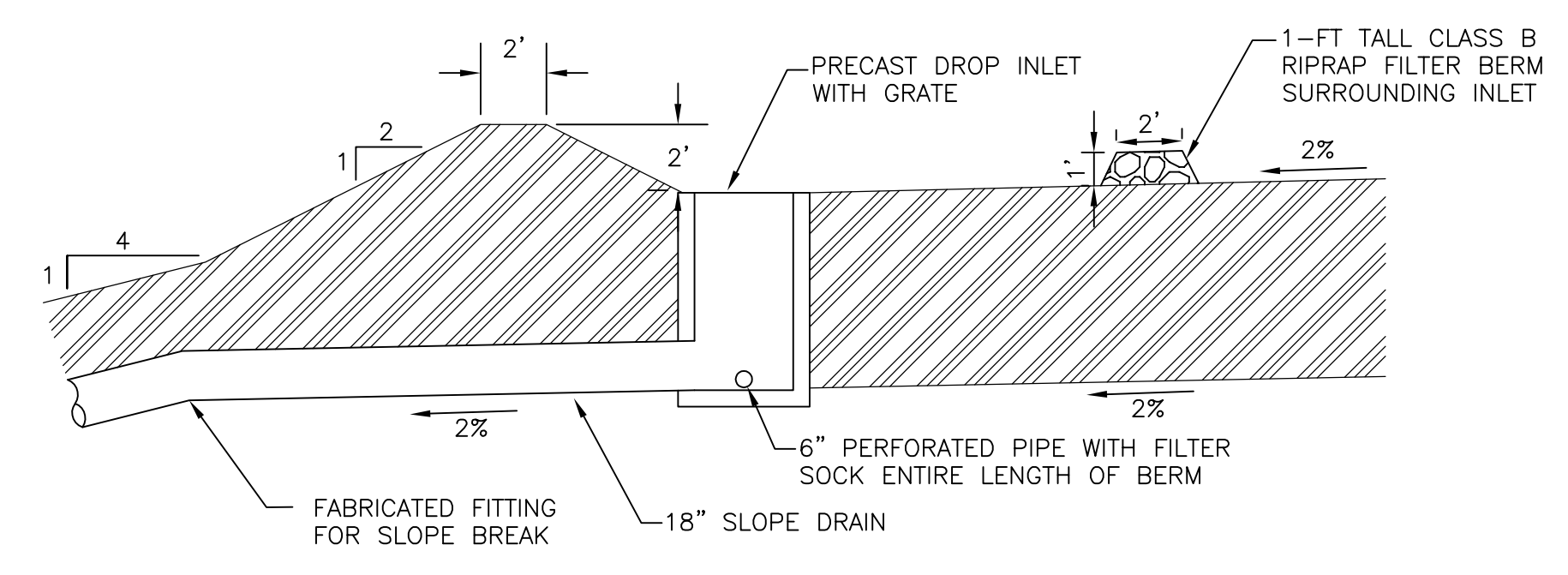


PLAN VIEW

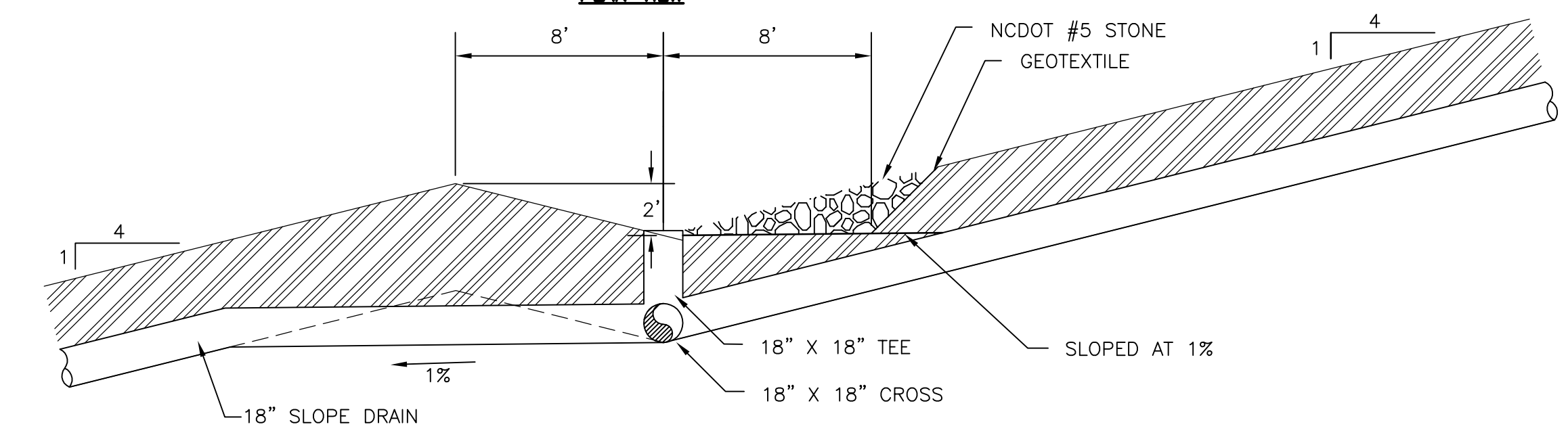


A (IN)	B (FT)	C (FT)	D (FT)
24	6	14	16
36	9	20	23

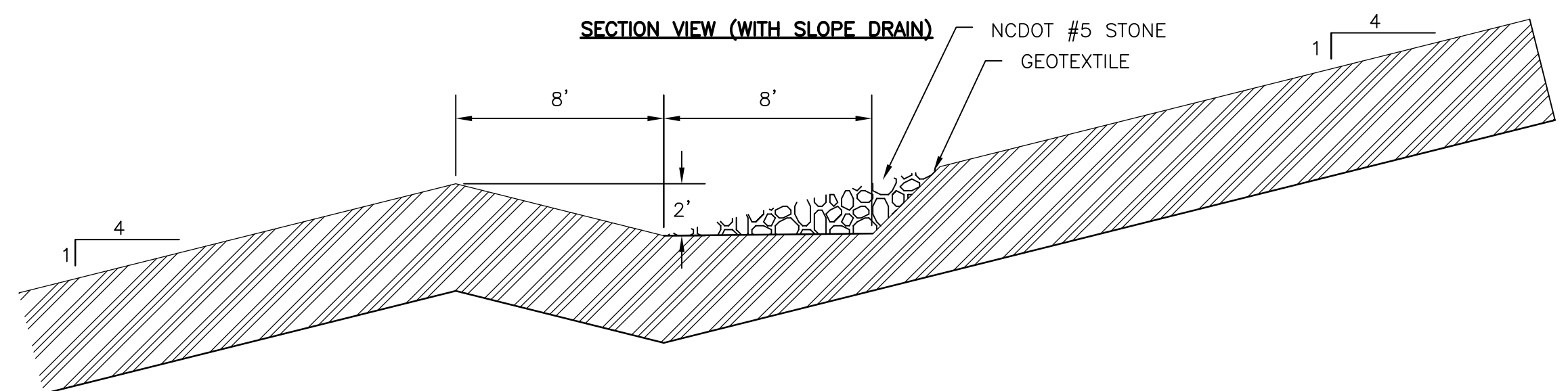
APRON OUTLET
1"=8'



DIVERSION BERM
1"=5'



SECTION VIEW (WITH SLOPE DRAIN)



SECTION VIEW (WITHOUT SLOPE DRAIN)

SIDESLOPE SWALE
1"=5'



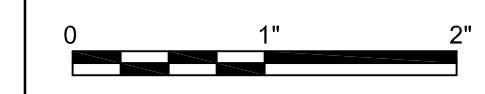
HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	P. WESTMORELAND, P.E.
DRAWN BY	L. MCCAUL
CHECKED BY	J. READLING, P.E.
PROJECT NUMBER	453925-235691-018



COLON MINE SITE
MINE PERMIT TRANSFER/MODIFICATION
SANFORD, NC



DETAILS

FILENAME | 02C-04.dwg
SCALE | AS SHOWN

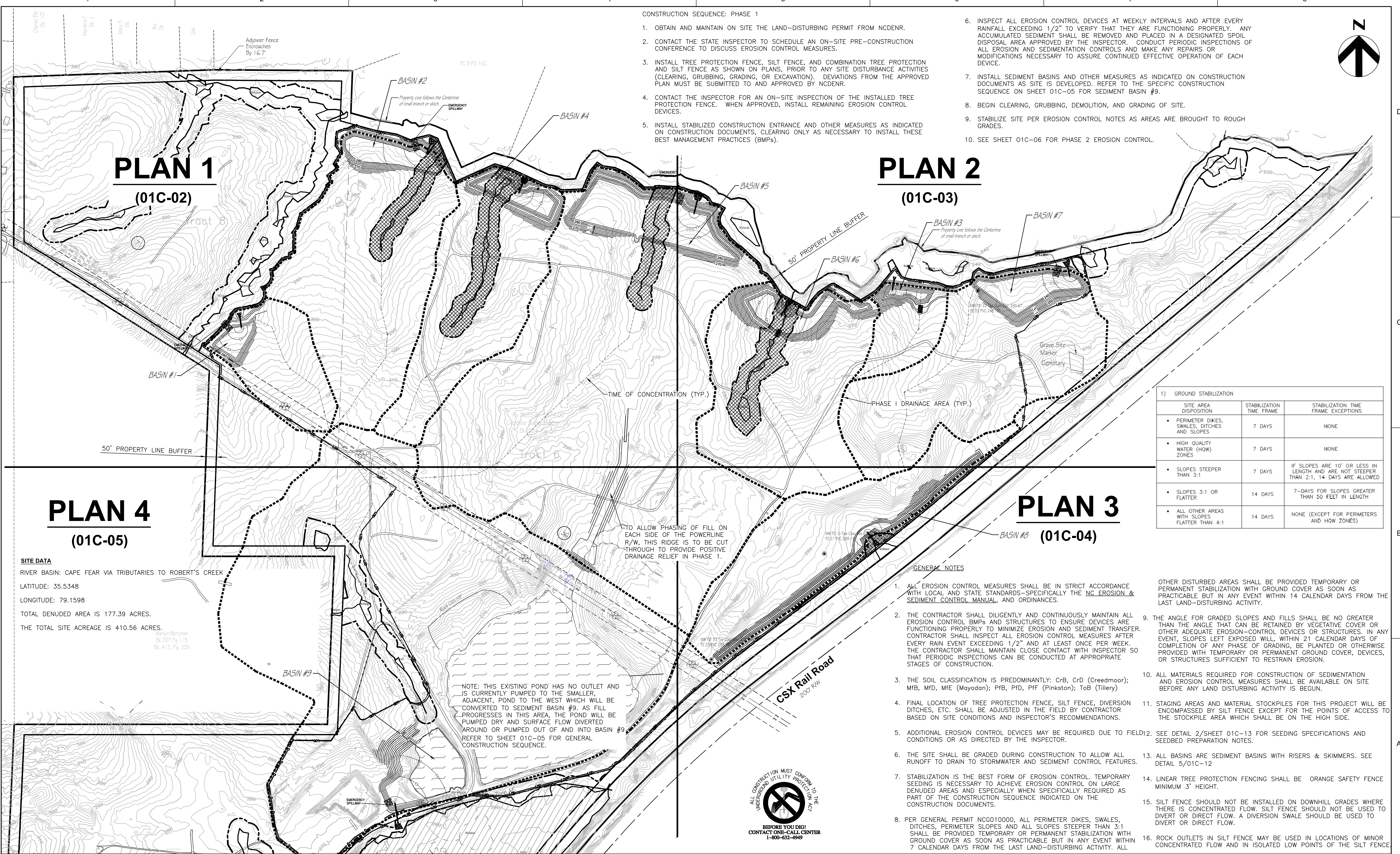
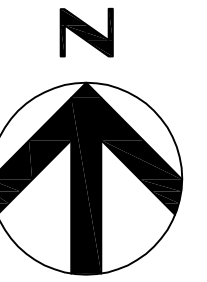
SHEET
02C-04

C:\working\hadr\0253925\02C-04.dwg, Pld, 1/5/2015 4:21:59 AM, pwestmor

CONSTRUCTION SEQUENCE: PHASE 1

1. OBTAIN AND MAINTAIN ON SITE THE LAND-DISTURBING PERMIT FROM NCDENR.
2. CONTACT THE STATE INSPECTOR TO SCHEDULE AN ON-SITE PRE-CONSTRUCTION CONFERENCE TO DISCUSS EROSION CONTROL MEASURES.
3. INSTALL TREE PROTECTION FENCE, SILT FENCE, AND COMBINATION TREE PROTECTION AND SILT FENCE AS SHOWN ON PLANS, PRIOR TO ANY SITE DISTURBANCE ACTIVITIES (CLEARING, GRUBBING, GRADING, OR EXCAVATION). DEVIATIONS FROM THE APPROVED PLAN MUST BE SUBMITTED TO AND APPROVED BY NCDENR.
4. CONTACT THE INSPECTOR FOR AN ON-SITE INSPECTION OF THE INSTALLED TREE PROTECTION FENCE. WHEN APPROVED, INSTALL REMAINING EROSION CONTROL DEVICES.
5. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND OTHER MEASURES AS INDICATED ON CONSTRUCTION DOCUMENTS, CLEARING ONLY AS NECESSARY TO INSTALL THESE BEST MANAGEMENT PRACTICES (BMPs).

6. INSPECT ALL EROSION CONTROL DEVICES AT WEEKLY INTERVALS AND AFTER EVERY RAINFALL EXCEEDING 1/2" TO VERIFY THAT THEY ARE FUNCTIONING PROPERLY. ANY ACCUMULATED SEDIMENT SHALL BE REMOVED AND PLACED IN A DESIGNATED SPOIL DISPOSAL AREA APPROVED BY THE INSPECTOR. CONDUCT PERIODIC INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROLS AND MAKE ANY REPAIRS OR MODIFICATIONS NECESSARY TO ASSURE CONTINUED EFFECTIVE OPERATION OF EACH DEVICE.
7. INSTALL SEDIMENT BASINS AND OTHER MEASURES AS INDICATED ON CONSTRUCTION DOCUMENTS AS SITE IS DEVELOPED. REFER TO THE SPECIFIC CONSTRUCTION SEQUENCE ON SHEET 01C-05 FOR SEDIMENT BASIN #9.
8. BEGIN CLEARING, GRUBBING, DEMOLITION, AND GRADING OF SITE.
9. STABILIZE SITE PER EROSION CONTROL NOTES AS AREAS ARE BROUGHT TO ROUGH GRADES.
10. SEE SHEET 01C-06 FOR PHASE 2 EROSION CONTROL.



1) GROUND STABILIZATION	SITE AREA DISPOSITION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
• PERIMETER DIKES, SWALES, DITCHES AND SLOPES		7 DAYS	NONE
• HIGH QUALITY WATER (HOW) ZONES		7 DAYS	NONE
• SLOPES STEEPER THAN 3:1		7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
• SLOPES 3:1 OR FLATTER		14 DAYS	7-DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
• ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1		14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HOW ZONES)

SITE DATA
 RIVER BASIN: CAPE FEAR VIA TRIBUTARIES TO ROBERT'S CREEK
 LATITUDE: 35.5348
 LONGITUDE: 79.1598
 TOTAL DENUDED AREA IS 177.39 ACRES.
 THE TOTAL SITE ACREAGE IS 410.56 ACRES.
 Design: Bryan Bk 707 Pg 119
 Dk 415, Pg 335

NOTE: THIS EXISTING POND HAS NO OUTLET AND IS CURRENTLY PUMPED TO THE SMALLER, ADJACENT, POND TO THE WEST WHICH WILL BE CONVERTED TO SEDIMENT BASIN #9. AS FILL PROGRESSES IN THIS AREA, THE POND WILL BE PUMPED DRY AND SURFACE FLOW DIVERTED AROUND OR PUMPED OUT OF AND INTO BASIN #9. REFER TO SHEET 01C-05 FOR GENERAL CONSTRUCTION SEQUENCE.

- GENERAL NOTES**
1. ALL EROSION CONTROL MEASURES SHALL BE IN STRICT ACCORDANCE WITH LOCAL AND STATE STANDARDS—SPECIFICALLY THE NC EROSION & SEDIMENT CONTROL MANUAL, AND ORDINANCES.
 2. THE CONTRACTOR SHALL DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL BMPs AND STRUCTURES TO ENSURE DEVICES ARE FUNCTIONING PROPERLY TO MINIMIZE EROSION AND SEDIMENT TRANSFER. CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES AFTER EVERY RAIN EVENT EXCEEDING 1/2" AND AT LEAST ONCE PER WEEK. THE CONTRACTOR SHALL MAINTAIN CLOSE CONTACT WITH INSPECTOR SO THAT PERIODIC INSPECTIONS CAN BE CONDUCTED AT APPROPRIATE STAGES OF CONSTRUCTION.
 3. THE SOIL CLASSIFICATION IS PREDOMINANTLY: CrB, CrD (Creedmoor); MfB, MfD, MfE (Moydan); PfB, PfD, PfE (Pinkston); ToB (Tillery)
 4. FINAL LOCATION OF TREE PROTECTION FENCE, SILT FENCE, DIVERSION DITCHES, ETC. SHALL BE ADJUSTED IN THE FIELD BY CONTRACTOR BASED ON SITE CONDITIONS AND INSPECTOR'S RECOMMENDATIONS.
 5. ADDITIONAL EROSION CONTROL DEVICES MAY BE REQUIRED DUE TO FIELD CONDITIONS OR AS DIRECTED BY THE INSPECTOR.
 6. THE SITE SHALL BE GRADED DURING CONSTRUCTION TO ALLOW ALL RUNOFF TO DRAIN TO STORMWATER AND SEDIMENT CONTROL FEATURES.
 7. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. TEMPORARY SEEDING IS NECESSARY TO ACHIEVE EROSION CONTROL ON LARGE DENUDED AREAS AND ESPECIALLY WHEN SPECIFICALLY REQUIRED AS PART OF THE CONSTRUCTION SEQUENCE INDICATED ON THE CONSTRUCTION DOCUMENTS.
 8. PER GENERAL PERMIT NCG010000, ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1 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.
 9. 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.
 10. ALL MATERIALS REQUIRED FOR CONSTRUCTION OF SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE AVAILABLE ON SITE BEFORE ANY LAND DISTURBING ACTIVITY IS BEGUN.
 11. STAGING AREAS AND MATERIAL STOCKPILES FOR THIS PROJECT WILL BE ENCOMPASSED BY SILT FENCE EXCEPT FOR THE POINTS OF ACCESS TO THE STOCKPILE AREA WHICH SHALL BE ON THE HIGH SIDE.
 12. SEE DETAIL 2/SHEET 01C-13 FOR SEEDING SPECIFICATIONS AND SEEDED PREPARATION NOTES.
 13. ALL BASINS ARE SEDIMENT BASINS WITH RISERS & SKIMMERS. SEE DETAIL 5/01C-12
 14. LINEAR TREE PROTECTION FENCING SHALL BE ORANGE SAFETY FENCE MINIMUM 3' HEIGHT.
 15. SILT FENCE SHOULD NOT BE INSTALLED ON DOWNHILL GRADES WHERE THERE IS CONCENTRATED FLOW. SILT FENCE SHOULD NOT BE USED TO DIVERT OR DIRECT FLOW. A DIVERSION SWALE SHOULD BE USED TO DIVERT OR DIRECT FLOW.
 16. ROCK OUTLETS IN SILT FENCE MAY BE USED IN LOCATIONS OF MINOR CONCENTRATED FLOW AND IN ISOLATED LOW POINTS OF THE SILT FENCE.

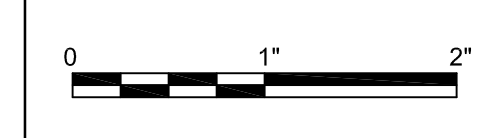


HDR Engineering, Inc.
 of the Carolinas
 440 S. Church St. Suite 1000
 Charlotte, NC 28202-2075
 704.338.6700
 N.C.B.E.L.S. License Number F-0116

PROJECT MANAGER	M.D. PLUMMER, P.E.	
DESIGNED BY	R. BAYSDEN, P.E.	
DRAWN BY	R. BAYSDEN, P.E.	
CHECKED BY	J. READLING, P.E.	
PROJECT NUMBER	453925-235691-018	
ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL



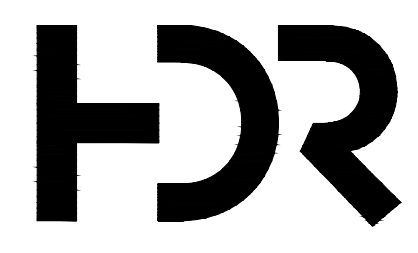
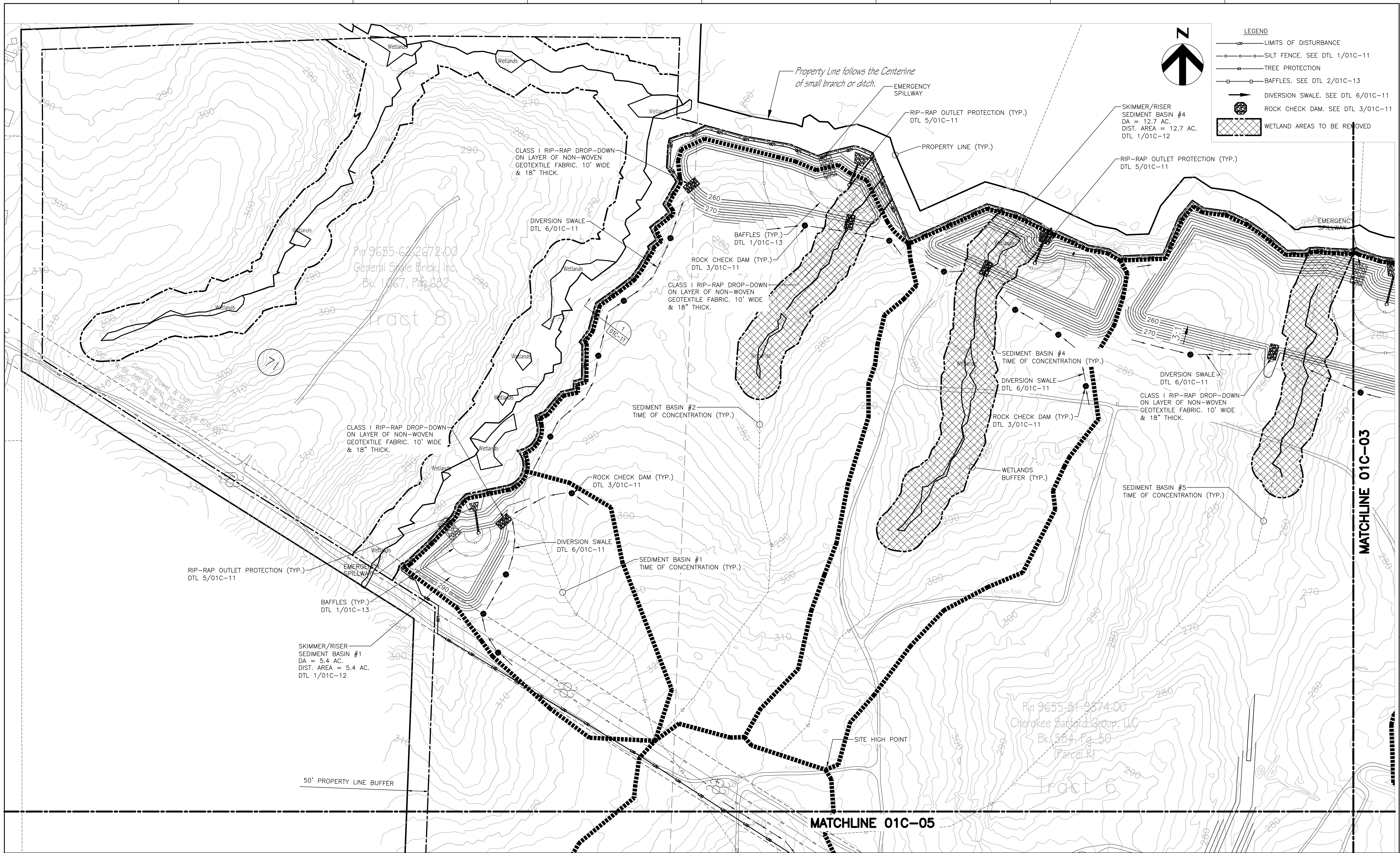
Charah
 COLON MINE SITE STRUCTURAL FILL
 SANFORD, NC



FILENAME | 01C-01.dwg
 SCALE | 1"=200'

SHEET
01C-01

C:\working\hadr\022838\01C-01.dwg, Plo, 15/2015, 12:34:42 PM, pwestmor



HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

PROJECT MANAGER	M.D. PLUMMER, P.E.	
DESIGNED BY	R. BAYSDEN, P.E.	
DRAWN BY	R. BAYSDEN, P.E.	
CHECKED BY	J. READLING, P.E.	
ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL
PROJECT NUMBER	453925-235691-018	



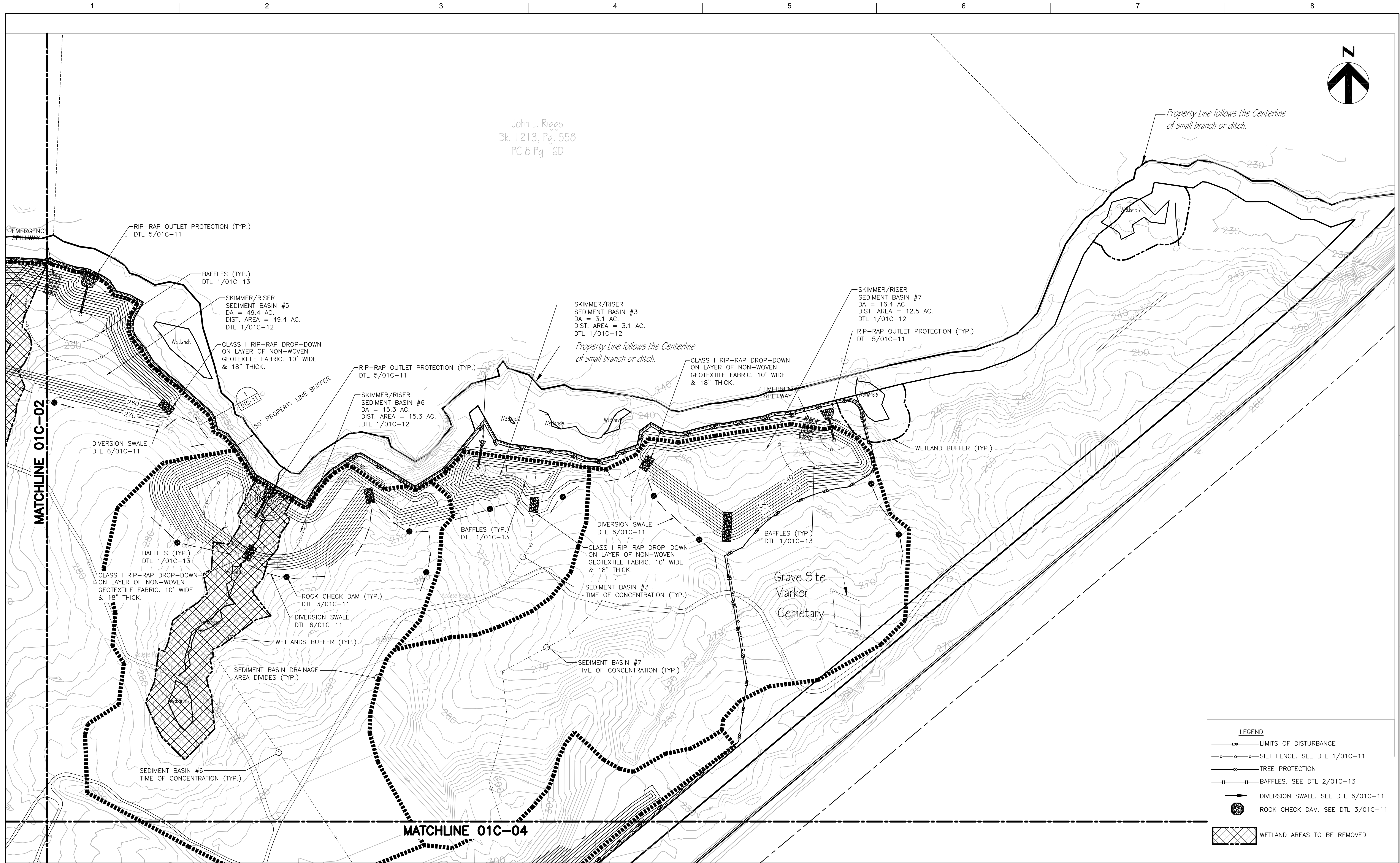
COLON MINE SITE STRUCTURAL FILL
SANFORD, NC

EROSION AND SEDIMENTATION CONTROL PLAN - PHASE 1 PLAN 1

SCALE 1"=100'

FILENAME 01C-02.dwg SHEET 01C-02

C:\pwworking\hdr\0603301C-02.dwg Plot: 1/20/15 11:21:32 AM ajh



John L. Riggs
Bk. 1213, Pg. 558
PC 8 Pg 16D

Property Line follows the Centerline
of small branch or ditch.

Property Line follows the Centerline
of small branch or ditch.

MATCHLINE 01C-02

MATCHLINE 01C-04

LEGEND	
	LIMITS OF DISTURBANCE
	SILT FENCE. SEE DTL 1/01C-11
	TREE PROTECTION
	BAFFLES. SEE DTL 2/01C-13
	DIVERSION SWALE. SEE DTL 6/01C-11
	ROCK CHECK DAM. SEE DTL 3/01C-11
	WETLAND AREAS TO BE REMOVED



HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

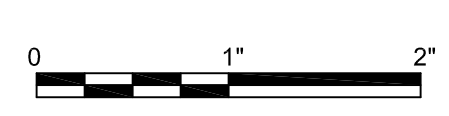
ISSUE	DATE	DESCRIPTION	PROJECT NUMBER
B	12/31/14	REVISED PER NCDENR COMMENTS	453925-235691-018
A	11/2014	ISSUED FOR APPROVAL	

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	R. BAYSDEN, P.E.
DRAWN BY	R. BAYSDEN, P.E.
CHECKED BY	J. READLING, P.E.



COLON MINE SITE STRUCTURAL FILL
SANFORD, NC

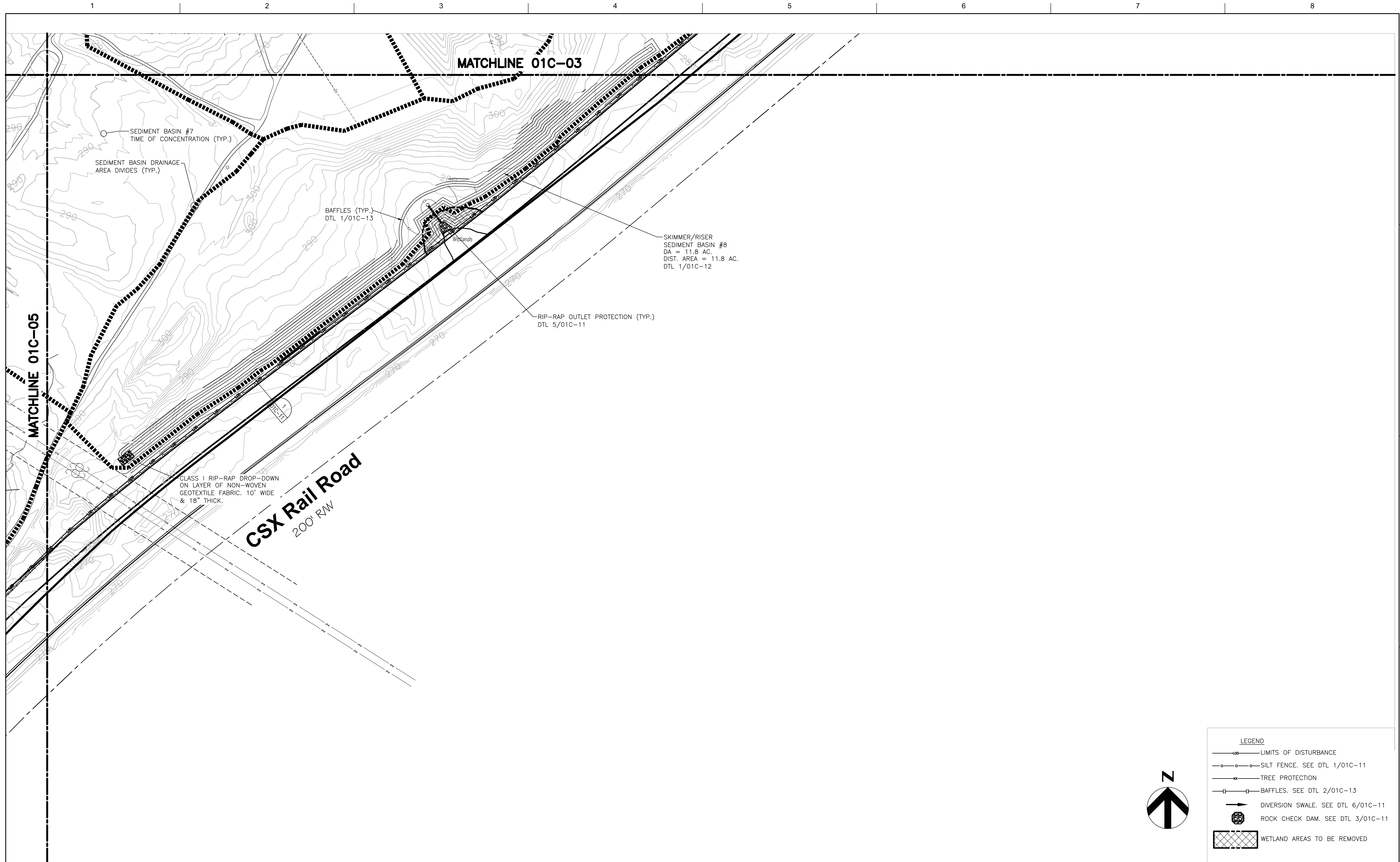
EROSION AND SEDIMENTATION
CONTROL PLAN - PHASE 1
PLAN 2



FILENAME 01C-03.dwg
SCALE 1"=100'

SHEET
01C-03

C:\working\14062583101C-03.dwg, Plot: 1/5/2015 12:36:59 PM, pwestmor



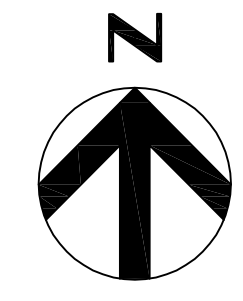
HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL

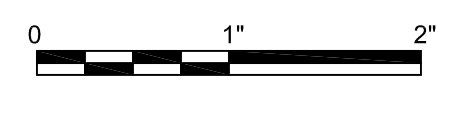
PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	R. BAYSDEN, P.E.
DRAWN BY	R. BAYSDEN, P.E.
CHECKED BY	J. READLING, P.E.
PROJECT NUMBER	453925-235691-018



Charah
COLON MINE SITE STRUCTURAL FILL
SANFORD, NC



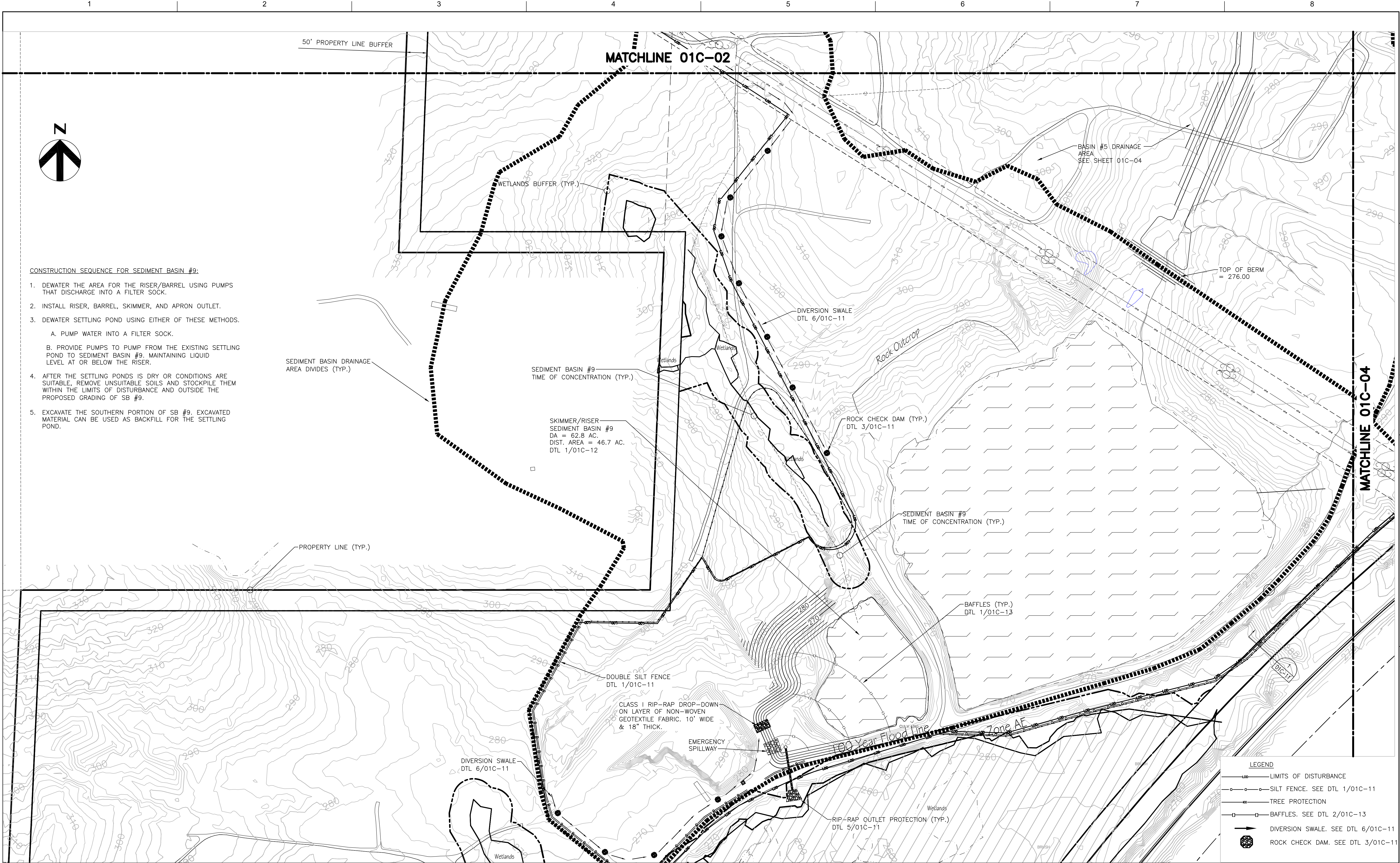
LEGEND	
	LIMITS OF DISTURBANCE
	SILT FENCE. SEE DTL 1/01C-11
	TREE PROTECTION
	BAFFLES. SEE DTL 2/01C-13
	DIVERSION SWALE. SEE DTL 6/01C-11
	ROCK CHECK DAM. SEE DTL 3/01C-11
	WETLAND AREAS TO BE REMOVED



FILENAME 01C-04.dwg
SCALE 1"=100'

SHEET
01C-04

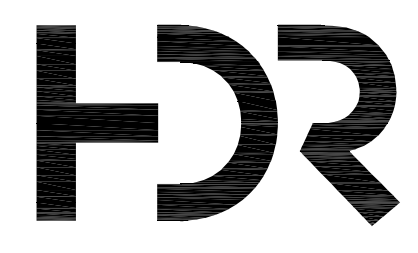
C:\working\453925\01C-04.dwg, Plot: 1/5/2015 12:37:11 PM, eviewer



- CONSTRUCTION SEQUENCE FOR SEDIMENT BASIN #9:**
- DEWATER THE AREA FOR THE RISER/BARREL USING PUMPS THAT DISCHARGE INTO A FILTER SOCK.
 - INSTALL RISER, BARREL, SKIMMER, AND APRON OUTLET.
 - DEWATER SETTLING POND USING EITHER OF THESE METHODS.
 - PUMP WATER INTO A FILTER SOCK.
 - PROVIDE PUMPS TO PUMP FROM THE EXISTING SETTLING POND TO SEDIMENT BASIN #9, MAINTAINING LIQUID LEVEL AT OR BELOW THE RISER.
 - AFTER THE SETTLING PONDS IS DRY OR CONDITIONS ARE SUITABLE, REMOVE UNSUITABLE SOILS AND STOCKPILE THEM WITHIN THE LIMITS OF DISTURBANCE AND OUTSIDE THE PROPOSED GRADING OF SB #9.
 - EXCAVATE THE SOUTHERN PORTION OF SB #9. EXCAVATED MATERIAL CAN BE USED AS BACKFILL FOR THE SETTLING POND.

LEGEND

- LIMITS OF DISTURBANCE
- SILT FENCE. SEE DTL 1/01C-11
- ×— TREE PROTECTION
- BAFFLES. SEE DTL 2/01C-13
- DIVERSION SWALE. SEE DTL 6/01C-11
- ⊠— ROCK CHECK DAM. SEE DTL 3/01C-11



HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

PROJECT MANAGER	M.D. PLUMMER, P.E.	
DESIGNED BY	R. BAYSDEN, P.E.	
DRAWN BY	R. BAYSDEN, P.E.	
CHECKED BY	J. READLING, P.E.	
PROJECT NUMBER	453925-235691-018	
ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL



Charah
COLON MINE SITE STRUCTURAL FILL
SANFORD, NC

EROSION AND SEDIMENTATION CONTROL PLAN - PHASE 1 PLAN 4

0 1" 2"

FILENAME | 01C-05.dwg
SCALE | 1"=100'

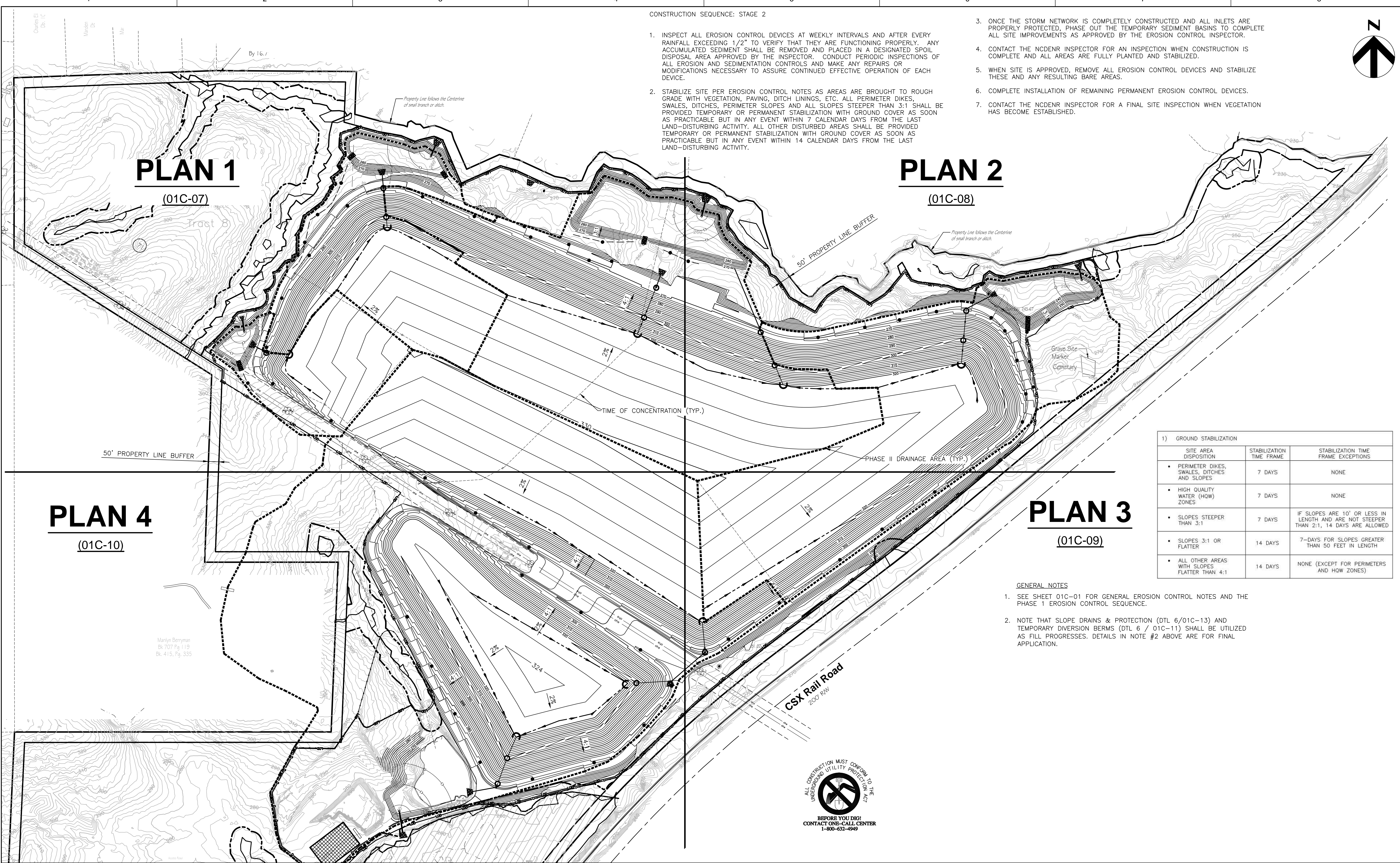
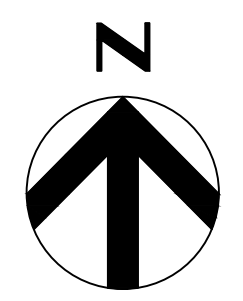
SHEET
01C-05

C:\working\0102283101C-05.dwg, Plot: 1/5/2015 12:38:13 PM, pwestmor

CONSTRUCTION SEQUENCE: STAGE 2

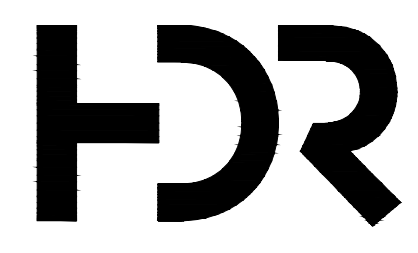
1. INSPECT ALL EROSION CONTROL DEVICES AT WEEKLY INTERVALS AND AFTER EVERY RAINFALL EXCEEDING 1/2" TO VERIFY THAT THEY ARE FUNCTIONING PROPERLY. ANY ACCUMULATED SEDIMENT SHALL BE REMOVED AND PLACED IN A DESIGNATED SPOIL DISPOSAL AREA APPROVED BY THE INSPECTOR. CONDUCT PERIODIC INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROLS AND MAKE ANY REPAIRS OR MODIFICATIONS NECESSARY TO ASSURE CONTINUED EFFECTIVE OPERATION OF EACH DEVICE.
2. STABILIZE SITE PER EROSION CONTROL NOTES AS ARE BROUGHT TO ROUGH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1 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.

3. ONCE THE STORM NETWORK IS COMPLETELY CONSTRUCTED AND ALL INLETS ARE PROPERLY PROTECTED, PHASE OUT THE TEMPORARY SEDIMENT BASINS TO COMPLETE ALL SITE IMPROVEMENTS AS APPROVED BY THE EROSION CONTROL INSPECTOR.
4. CONTACT THE NCDENR INSPECTOR FOR AN INSPECTION WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE FULLY PLANTED AND STABILIZED.
5. WHEN SITE IS APPROVED, REMOVE ALL EROSION CONTROL DEVICES AND STABILIZE THESE AND ANY RESULTING BARE AREAS.
6. COMPLETE INSTALLATION OF REMAINING PERMANENT EROSION CONTROL DEVICES.
7. CONTACT THE NCDENR INSPECTOR FOR A FINAL SITE INSPECTION WHEN VEGETATION HAS BECOME ESTABLISHED.



1) GROUND STABILIZATION		
SITE AREA DISPOSITION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
• PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
• HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
• SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
• SLOPES 3:1 OR FLATTER	14 DAYS	7-DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
• ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HOW ZONES)

- GENERAL NOTES**
1. SEE SHEET 01C-01 FOR GENERAL EROSION CONTROL NOTES AND THE PHASE I EROSION CONTROL SEQUENCE.
 2. NOTE THAT SLOPE DRAINS & PROTECTION (DTL 6/01C-13) AND TEMPORARY DIVERSION BERMS (DTL 6 / 01C-11) SHALL BE UTILIZED AS FILL PROGRESSES. DETAILS IN NOTE #2 ABOVE ARE FOR FINAL APPLICATION.



HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

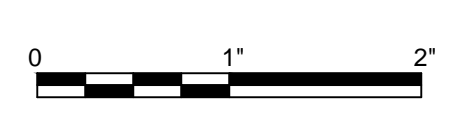
PROJECT MANAGER	M. PLUMMER, P.E.
DESIGNED BY	R. BAYSDEN, P.E.
DRAWN BY	R. BAYSDEN, P.E.
CHECKED BY	J. READLING, P.E.
PROJECT NUMBER	453925-235691-018

B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL
ISSUE	DATE	DESCRIPTION



COLON MINE SITE STRUCTURAL FILL
SANFORD, NC

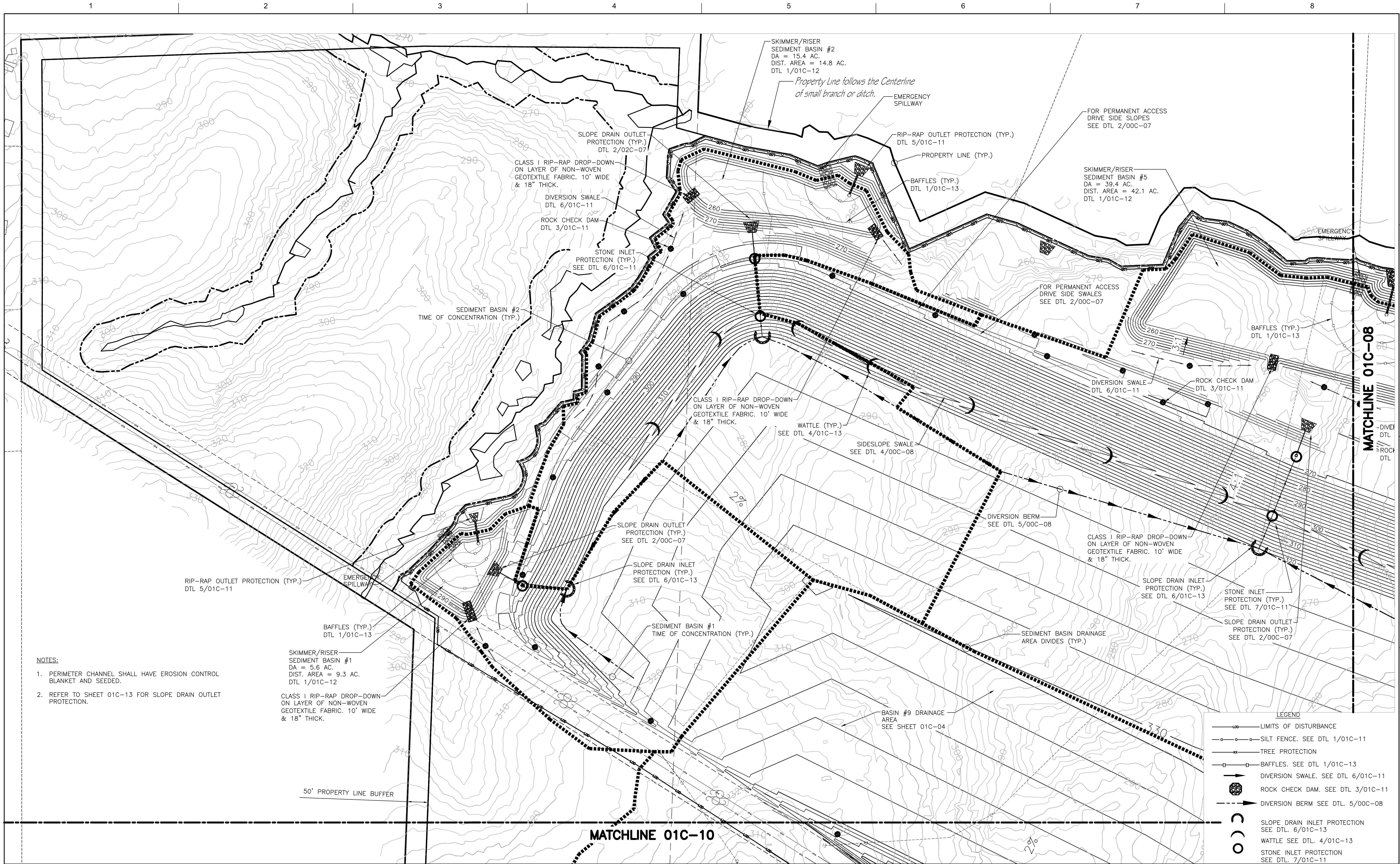
EROSION AND SEDIMENTATION CONTROL PLAN - PHASE 2 OVERALL



FILENAME | 01C-06.dwg
SCALE | 1"=200'

SHEET
01C-06

C:\pwworking\hadr\060330101C-06.dwg Plot: 1/2/2015 12:01:15 PM jgh



- NOTES:**
- PERIMETER CHANNEL SHALL HAVE EROSION CONTROL BLANKET AND SEED.
 - REFER TO SHEET 01C-13 FOR SLOPE DRAIN OUTLET PROTECTION.

SKIMMER/RISER
SEDIMENT BASIN #1
DA = 5.6 AC.
DIST. AREA = 9.3 AC.
DTL 1/01C-12

CLASS I RIP-RAP DROP-DOWN
ON LAYER OF NON-WOVEN
GEOTEXTILE FABRIC. 10' WIDE
& 18" THICK.

SKIMMER/RISER
SEDIMENT BASIN #2
DA = 15.4 AC.
DIST. AREA = 14.8 AC.
DTL 1/01C-12

FOR PERMANENT ACCESS
DRIVE SIDE SLOPES
SEE DTL 2/00C-07

SKIMMER/RISER
SEDIMENT BASIN #5
DA = 39.4 AC.
DIST. AREA = 42.1 AC.
DTL 1/01C-12

- LEGEND**
- LIMITS OF DISTURBANCE
 - SILT FENCE. SEE DTL 1/01C-11
 - TREE PROTECTION
 - BAFFLES. SEE DTL 1/01C-13
 - DIVERSION SWALE. SEE DTL 6/01C-11
 - ⊗ ROCK CHECK DAM. SEE DTL 3/01C-11
 - DIVERSION BERM SEE DTL 5/00C-08
 - SLOPE DRAIN INLET PROTECTION SEE DTL 6/01C-13
 - WATTLE SEE DTL 4/01C-13
 - STONE INLET PROTECTION SEE DTL 7/01C-11



HDR Engineering, Inc.
of the Carolinas

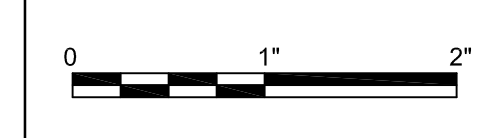
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

PROJECT MANAGER	M. PLUMMER, P.E.	
DESIGNED BY	R. BAYSDEN, P.E.	
DRAWN BY	R. BAYSDEN, P.E.	
CHECKED BY	J. READLING, P.E.	
ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL
PROJECT NUMBER	453925-235691-018	



Charah

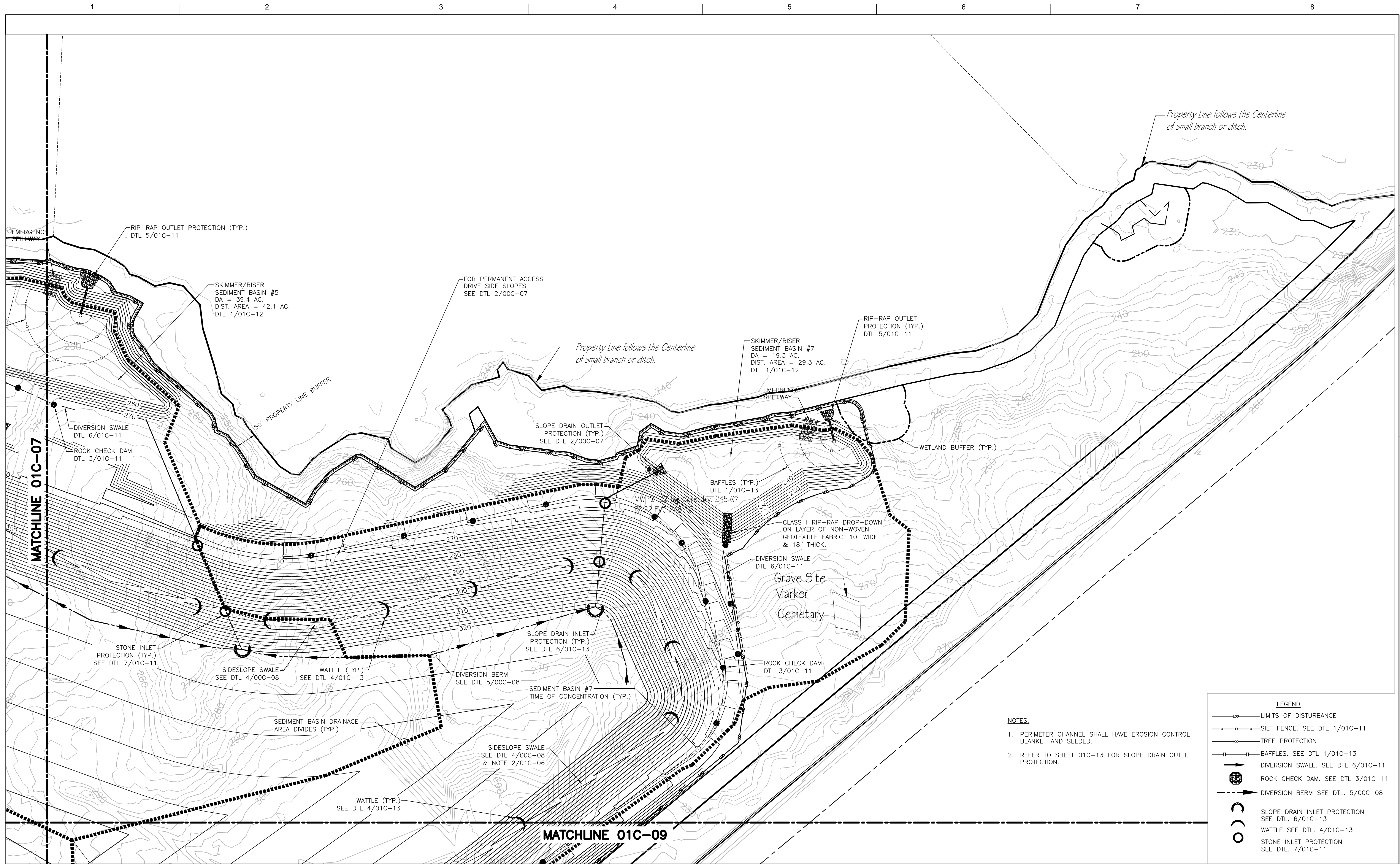
COLON MINE SITE STRUCTURAL FILL
SANFORD, NC



FILENAME 01C-07.dwg
SCALE 1"=100'

SHEET
01C-07

C:\working\1406258301C-07.dwg, Pld, 15/2015 12:13:17 PM, mlls



LEGEND

- LIMITS OF DISTURBANCE
- SILTY FENCE. SEE DTL 1/01C-11
- TREE PROTECTION
- BAFFLES. SEE DTL 1/01C-13
- DIVERSION SWALE. SEE DTL 6/01C-11
- ROCK CHECK DAM. SEE DTL 3/01C-11
- DIVERSION BERM SEE DTL. 5/00C-08
- SLOPE DRAIN INLET PROTECTION SEE DTL. 6/01C-13
- WATTLE SEE DTL. 4/01C-13
- STONE INLET PROTECTION SEE DTL. 7/01C-11

- NOTES:**
1. PERIMETER CHANNEL SHALL HAVE EROSION CONTROL BLANKET AND SEEDED.
 2. REFER TO SHEET 01C-13 FOR SLOPE DRAIN OUTLET PROTECTION.



HDR Engineering, Inc.
of the Carolinas

440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL

PROJECT MANAGER	M. PLUMMER, P.E.
DESIGNED BY	R. BAYSDEN, P.E.
DRAWN BY	R. BAYSDEN, P.E.
CHECKED BY	J. READLING, P.E.
PROJECT NUMBER	453925-235691-018



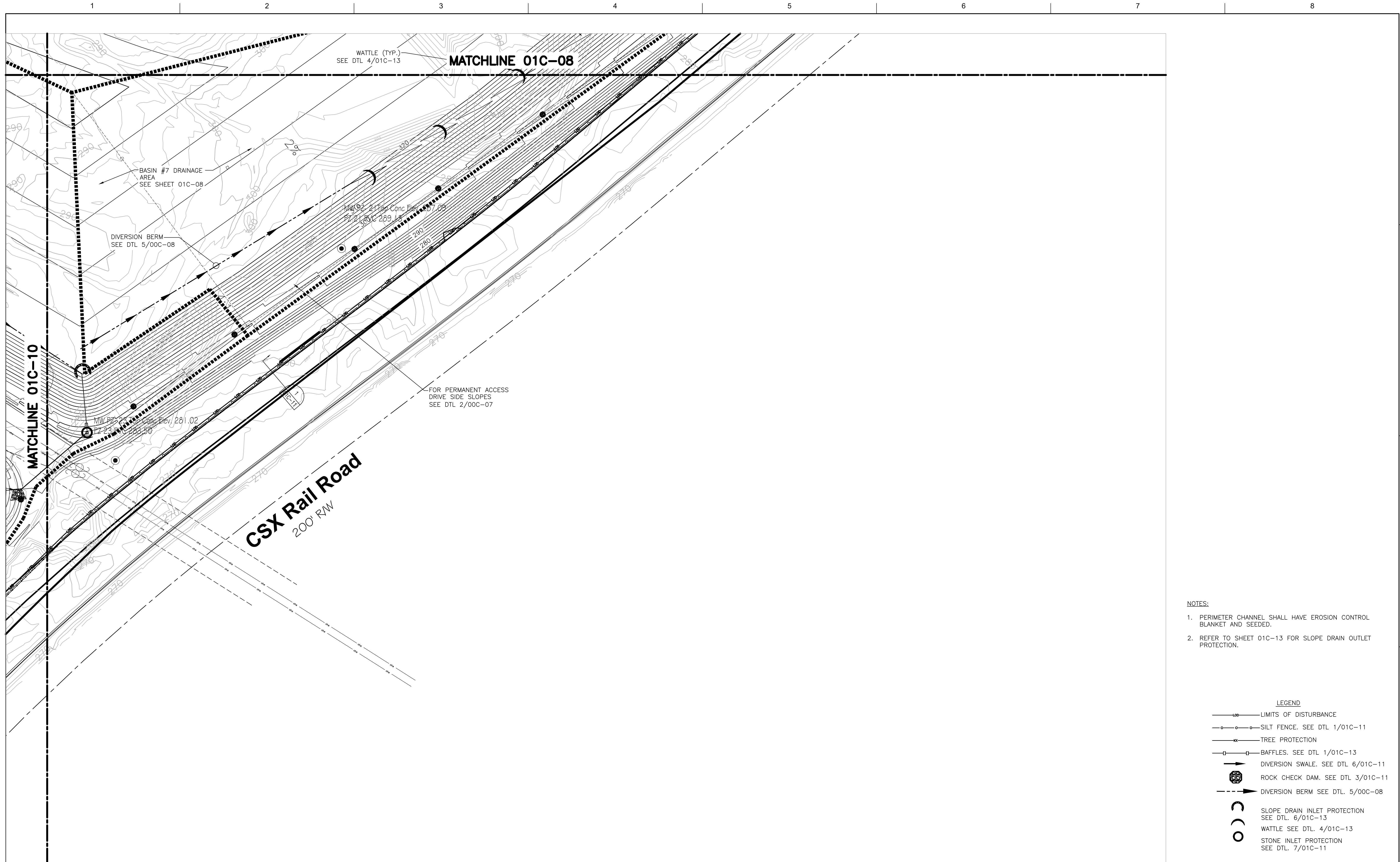
COLON MINE SITE STRUCTURAL FILL
SANFORD, NC

**EROSION AND SEDIMENTATION
CONTROL PLAN - PHASE 2
PLAN 2**



FILENAME | 01C-08.dwg
SCALE | 1"=100'

SHEET
01C-08



- NOTES:**
1. PERIMETER CHANNEL SHALL HAVE EROSION CONTROL BLANKET AND SEEDING.
 2. REFER TO SHEET 01C-13 FOR SLOPE DRAIN OUTLET PROTECTION.

- LEGEND**
- LIMITS OF DISTURBANCE
 - SILT FENCE. SEE DTL 1/01C-11
 - x—x— TREE PROTECTION
 - BAFFLES. SEE DTL 1/01C-13
 - ▶— DIVERSION SWALE. SEE DTL 6/01C-11
 - ROCK CHECK DAM. SEE DTL 3/01C-11
 - ▶— DIVERSION BERM SEE DTL. 5/00C-08
 - SLOPE DRAIN INLET PROTECTION SEE DTL. 6/01C-13
 - WATTLE SEE DTL. 4/01C-13
 - STONE INLET PROTECTION SEE DTL. 7/01C-11



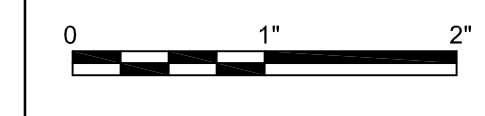
HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL

PROJECT MANAGER	M. PLUMMER, P.E.
DESIGNED BY	R. BAYSDEN, P.E.
DRAWN BY	R. BAYSDEN, P.E.
CHECKED BY	J. READLING, P.E.
PROJECT NUMBER	453925-235691-018



Charah
COLON MINE SITE STRUCTURAL FILL
SANFORD, NC



FILENAME | 01C-09.dwg
SCALE | 1"=100'

SHEET
01C-09

C:\working\01c\01c-09.dwg, Plot: 1/5/2015 12:11:29 PM, melle



NOTES:

- PERIMETER CHANNEL SHALL HAVE EROSION CONTROL BLANKET AND SEEDED.
- REFER TO SHEET 01C-13 FOR SLOPE DRAIN OUTLET PROTECTION.

LEGEND

- LIMITS OF DISTURBANCE
- SILT FENCE. SEE DTL 1/01C-11
- TREE PROTECTION
- BAFFLES. SEE DTL 1/01C-13
- DIVERSION SWALE. SEE DTL 6/01C-11
- ROCK CHECK DAM. SEE DTL 3/01C-11
- DIVERSION BERM SEE DTL. 5/00C-08
- SLOPE DRAIN INLET PROTECTION SEE DTL. 6/01C-13
- WATTLE SEE DTL. 4/01C-13
- STONE INLET PROTECTION SEE DTL. 7/01C-11



HDR Engineering, Inc.
of the Carolinas

440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

PROJECT MANAGER	M.D. PLUMMER, P.E.	
DESIGNED BY	R. BAYSDEN, P.E.	
DRAWN BY	R. BAYSDEN, P.E.	
CHECKED BY	J. READLING, P.E.	
ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL
PROJECT NUMBER	453925-235691-018	



Charah

COLON MINE SITE STRUCTURAL FILL
SANFORD, NC

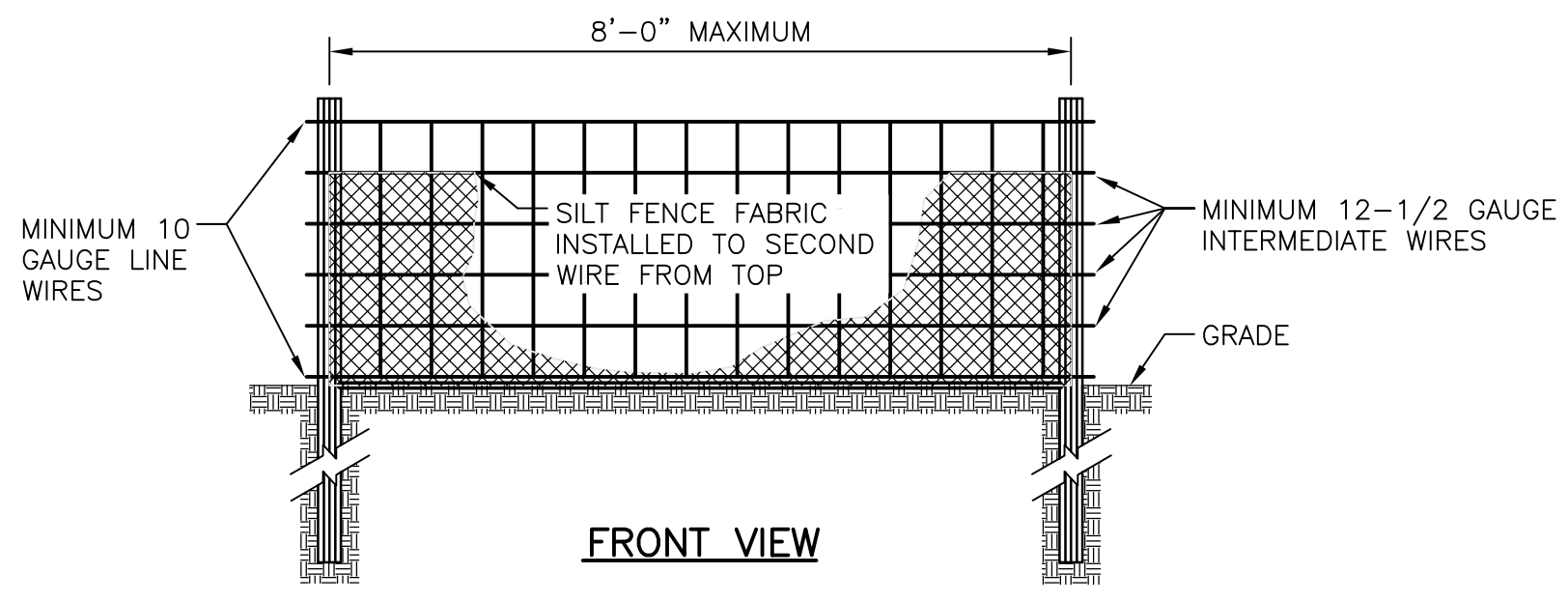
EROSION AND SEDIMENTATION CONTROL PLAN - PHASE 2 PLAN 4

SCALE 1"=100'

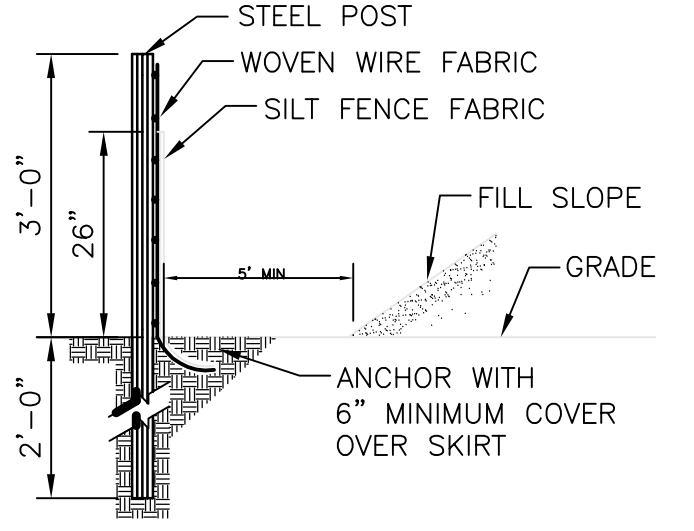
FILENAME 01C-10.dwg

SHEET 01C-10

C:\working\01025381010.dwg, Pld, 15/2015 12:06:13 PM, malle



FRONT VIEW

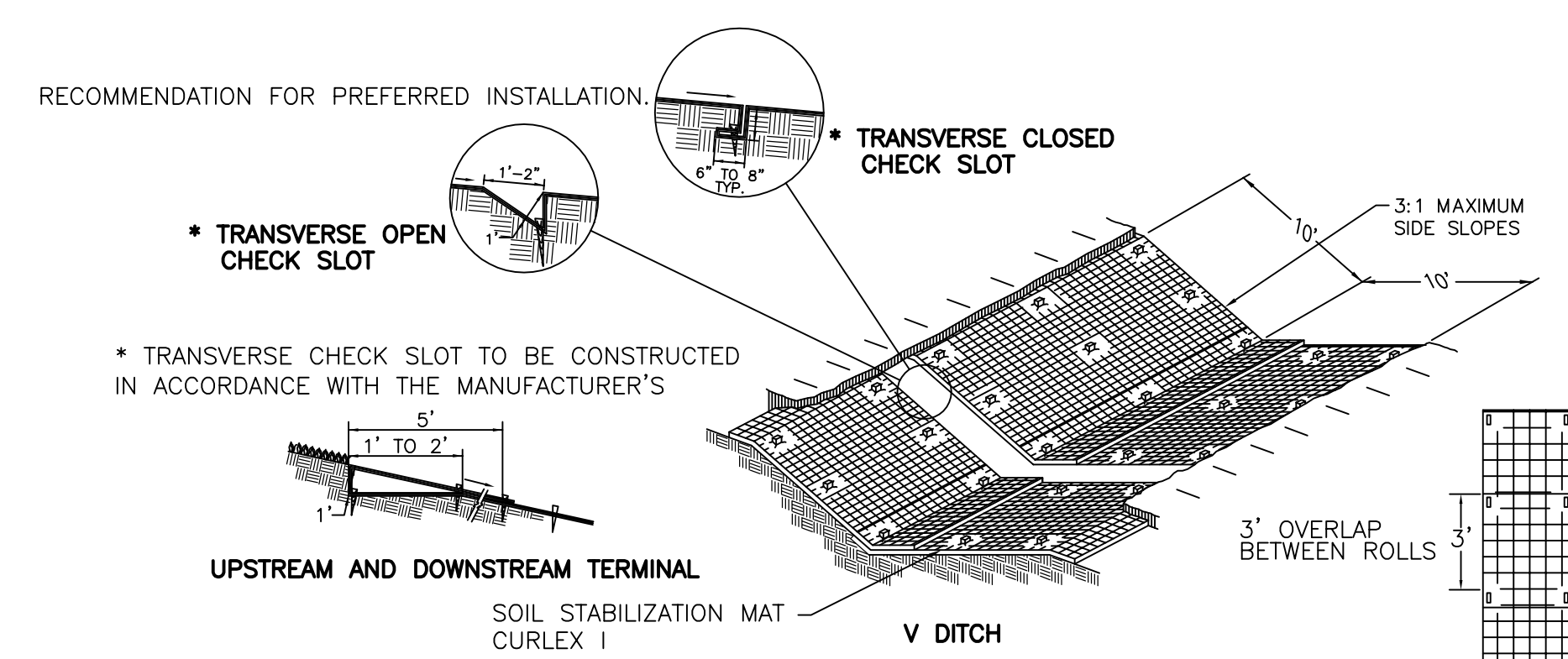


SIDE VIEW

TEMPORARY SILT FENCE DETAIL

NOT TO SCALE

- NOTE:**
1. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.
 2. SILT FENCE IS TO BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
 3. INSPECT FREQUENTLY AND REPAIR OR REPLACE PROMPTLY AS NEEDED.
 4. REMOVE SEDIMENT DEPOSITED AS NEEDED TO PROVIDE STORAGE VOLUME FOR THE NEXT RAIN AND TO REMOVE PRESSURE ON THE SILT FENCE. UNIFORMLY DISTRIBUTE ON THE SOURCE AREA PRIOR TO TOPSOILING.



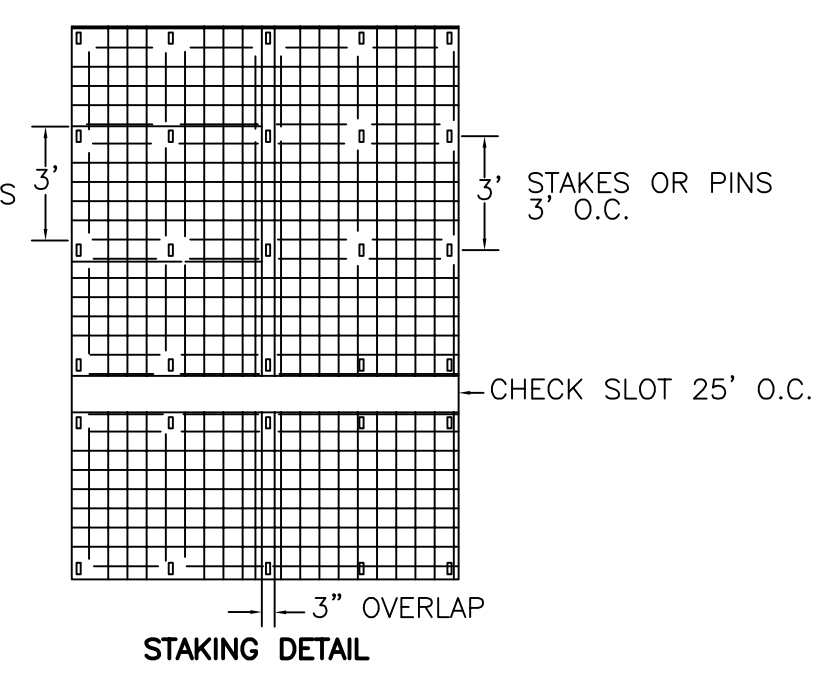
RECOMMENDATION FOR PREFERRED INSTALLATION

- * TRANSVERSE OPEN CHECK SLOT
- * TRANSVERSE CLOSED CHECK SLOT
- * TRANSVERSE CHECK SLOT TO BE CONSTRUCTED IN ACCORDANCE WITH THE MANUFACTURER'S

UPSTREAM AND DOWNSTREAM TERMINAL

SOIL STABILIZATION MAT CURLEX I

LINING SHALL EXTEND 10' UP SIDE SLOPES OF LINED AREAS. LINING SHALL BE CURLEX I OR EQUAL. SIDE SLOPES SHALL BE A MAXIMUM SLOPE OF 3 TO 1. LINING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION PROCEDURES.



STAKING DETAIL

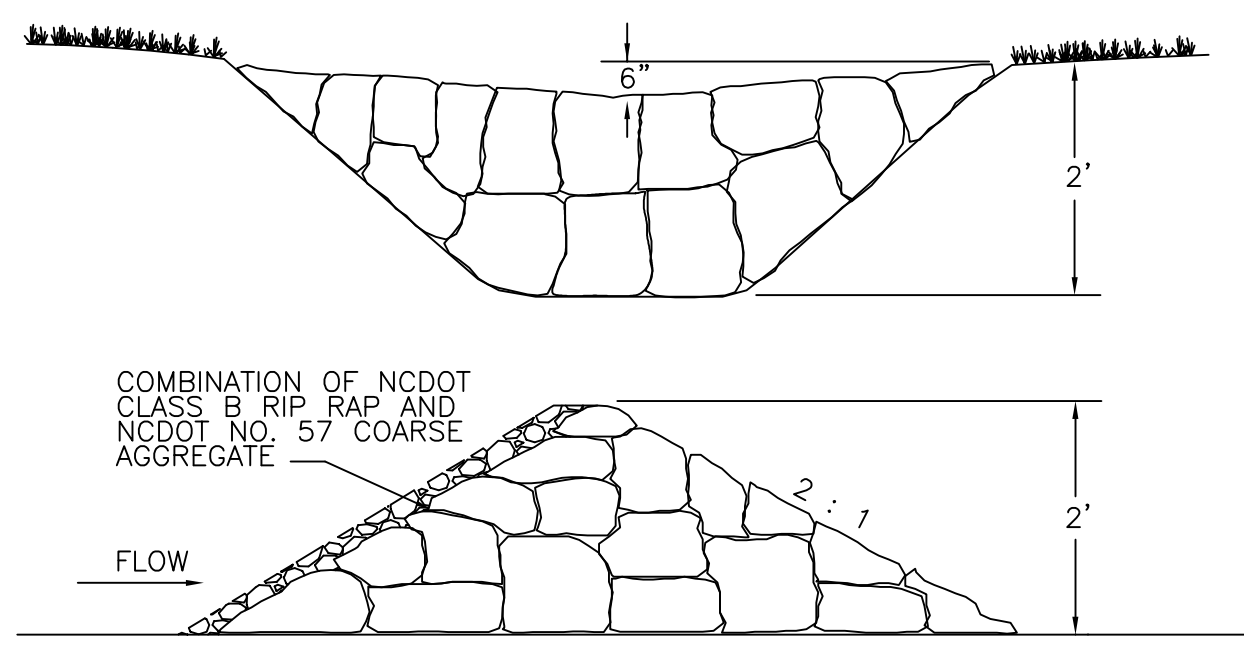
NOTE: STAKES SHALL BE WOOD OR METAL AS RECOMMENDED BY MANUFACTURER AND SHALL BE AT LEAST 12" IN LENGTH.

SLOPE INSTALLATION-EROSION CONTROL BLANKET NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF FERTILIZER AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP x 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS DOWN OR HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED BY PLACING STAPLES/STAKES IN APPROXIMATE LOCATIONS, SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.

TYPICAL SECTION FOR SOIL STABILIZATION MAT LINED AREAS (TYP.)

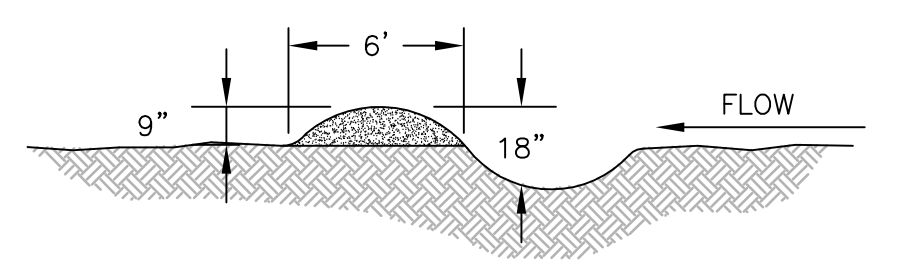
NTS



ROCK CHECK DAM

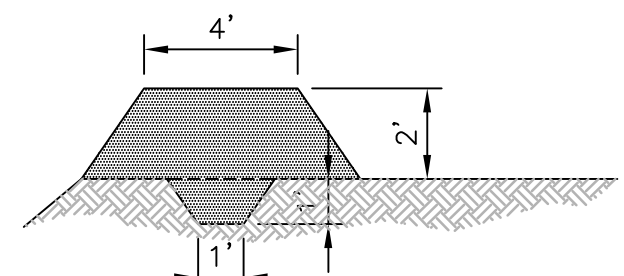
NTS

NOTE: PLACE EVERY 100' ALONG FLOW PATH.



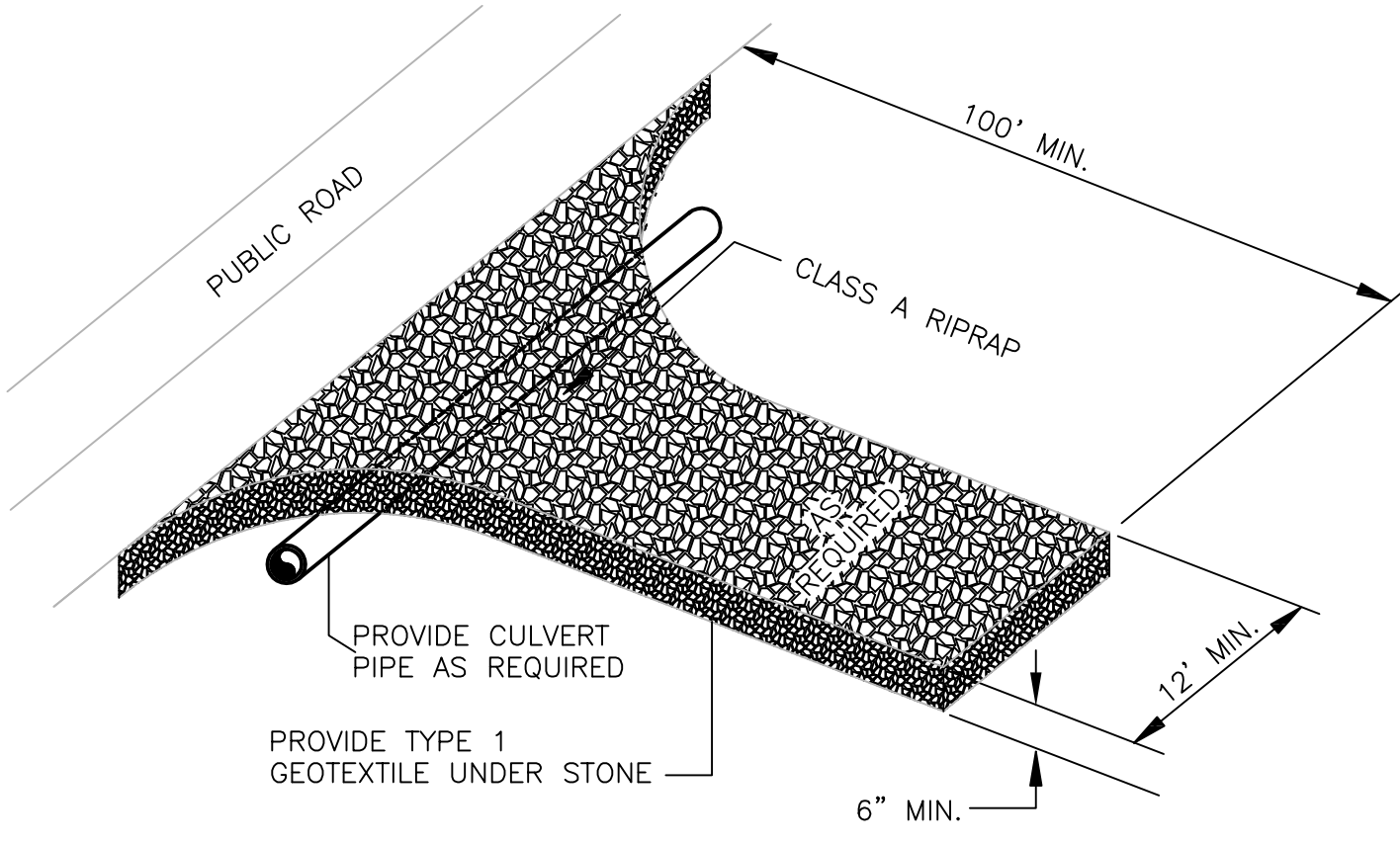
DIVERSION SWALE

N.T.S.



DIVERSION DIKE

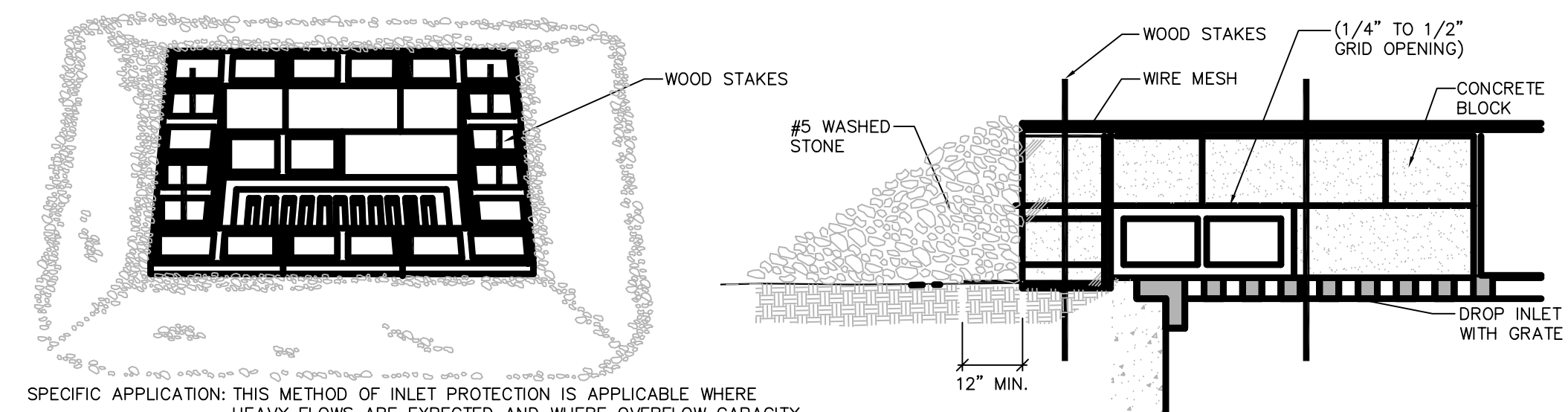
N.T.S.



TEMPORARY GRAVEL CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

NCDENR 6.06



SPECIFIC APPLICATION: THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.

BLOCK AND GRAVEL STONE INLET SEDIMENT FILTER

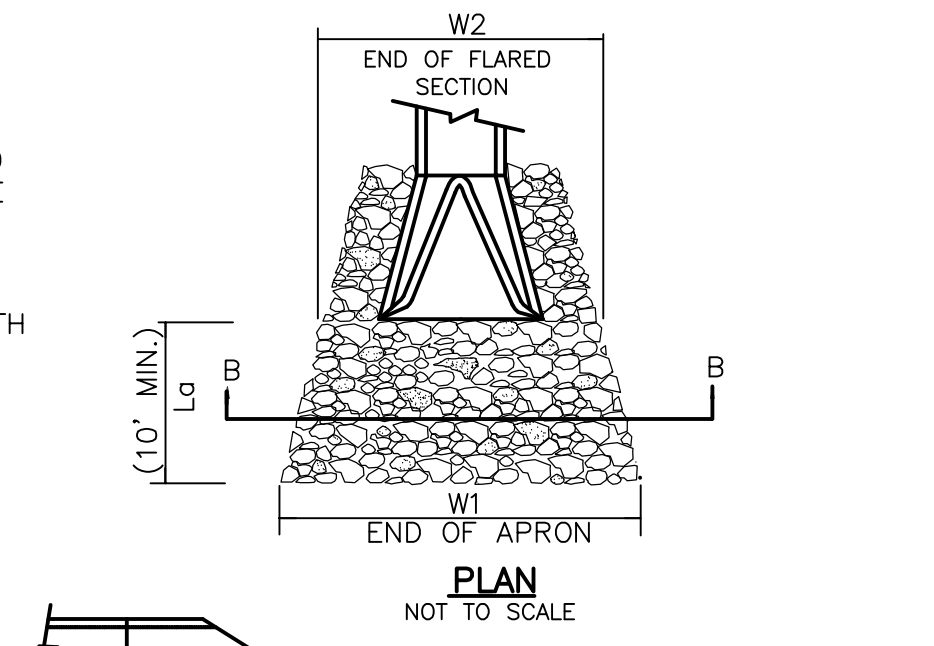
NOT TO SCALE

NOTES:

1. CLASS OR MEDIAN SIZE OF RIP RAP AND LENGTH, WIDTH AND DEPTH OF APRON TO BE SHOWN ON PLANS.
2. RIP RAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.
3. THERE SHALL BE NO OVERTOPPING FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL. THE AREA TO BE PAVED OR RIP RAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE WALL AT THE DOWNSTREAM END.
4. THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAXIMUM TAPER TO RECEIVING CHANNEL 5:1.
5. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95% OR GREATER.
6. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.
7. NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON UNLESS OTHERWISE SHOWN.
8. TYPE 2 GEOTEXTILE FILTER FABRIC SHALL BE INSTALLED ON COMPACTED SUBGRADE PRIOR TO PLACEMENT OF RIP RAP.
9. ANY DISTURBED AREA FROM END OF APRON TO RECEIVING CHANNEL MUST BE STABILIZED.

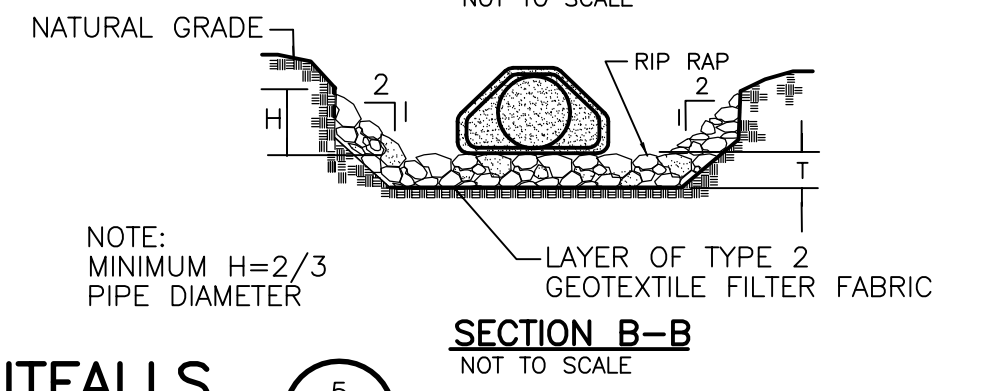
LOCATION	W1	W2	L _a	D50	D _{max}	T
SB1	23'	9'	20'	7"	11"	18"
SB2	38'	20'	26'	11"	16"	24"
SB3	16'	6'	14'	6"	9"	18"
SB4	29'	15'	20'	7"	11"	18"
SB5	53'	25'	38'	12"	18"	24"
SB6	30'	12'	26'	11"	16"	24"
SB7	35'	18'	24'	8"	12"	18"
SB8	30'	12'	26'	11"	16"	24"
SB9	38'	20'	26'	11"	16"	24"

SB = SEDIMENT BASIN



ELEVATION

NOT TO SCALE



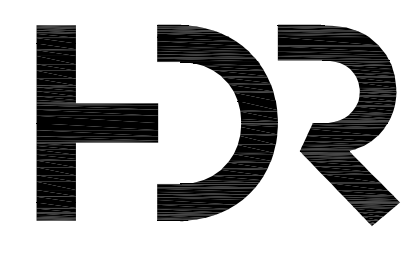
NOTE: MINIMUM H=2/3 PIPE DIAMETER

SECTION B-B

NOT TO SCALE

RIPRAP APRON AT PIPE OUTFALLS

NTS



HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

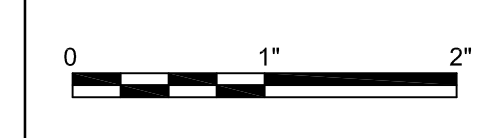
ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	R. BAYSDEN, P.E.
DRAWN BY	R. BAYSDEN, P.E.
CHECKED BY	J. READLING, P.E.
PROJECT NUMBER	453925-235691-018



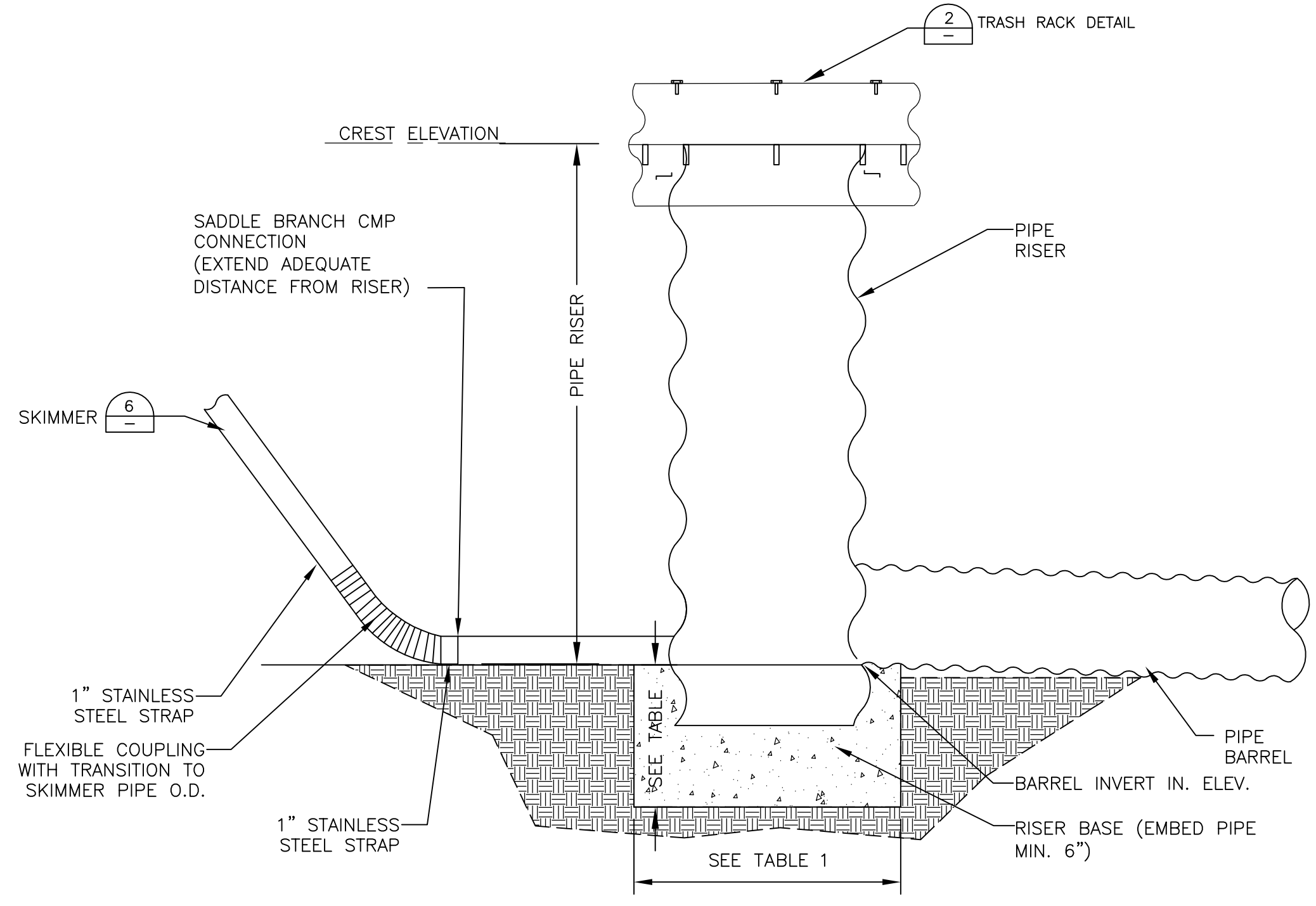
COLON MINE SITE STRUCTURAL FILL
SANFORD, NC

EROSION AND SEDIMENTATION CONTROL DETAILS (1 OF 3)

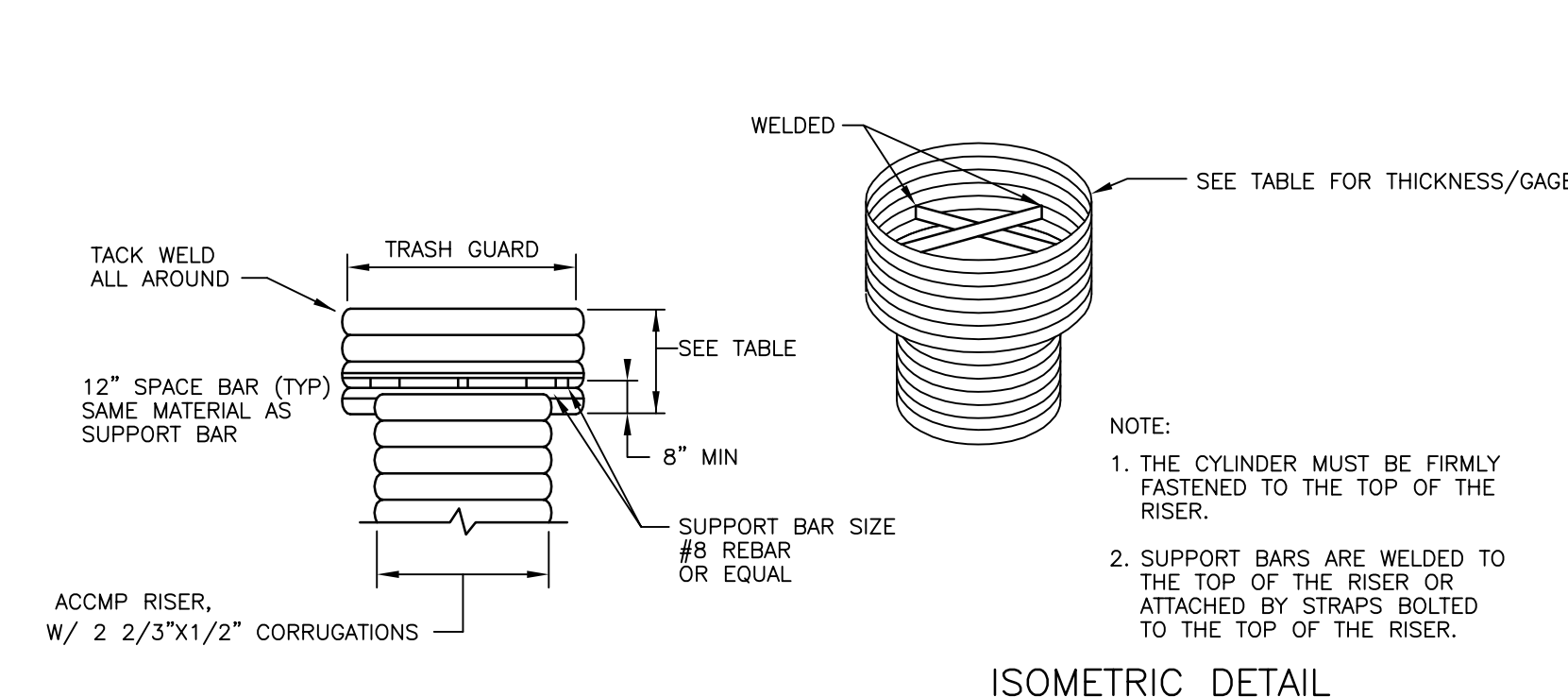


FILENAME | 01C-11.dwg
SCALE | AS SHOWN

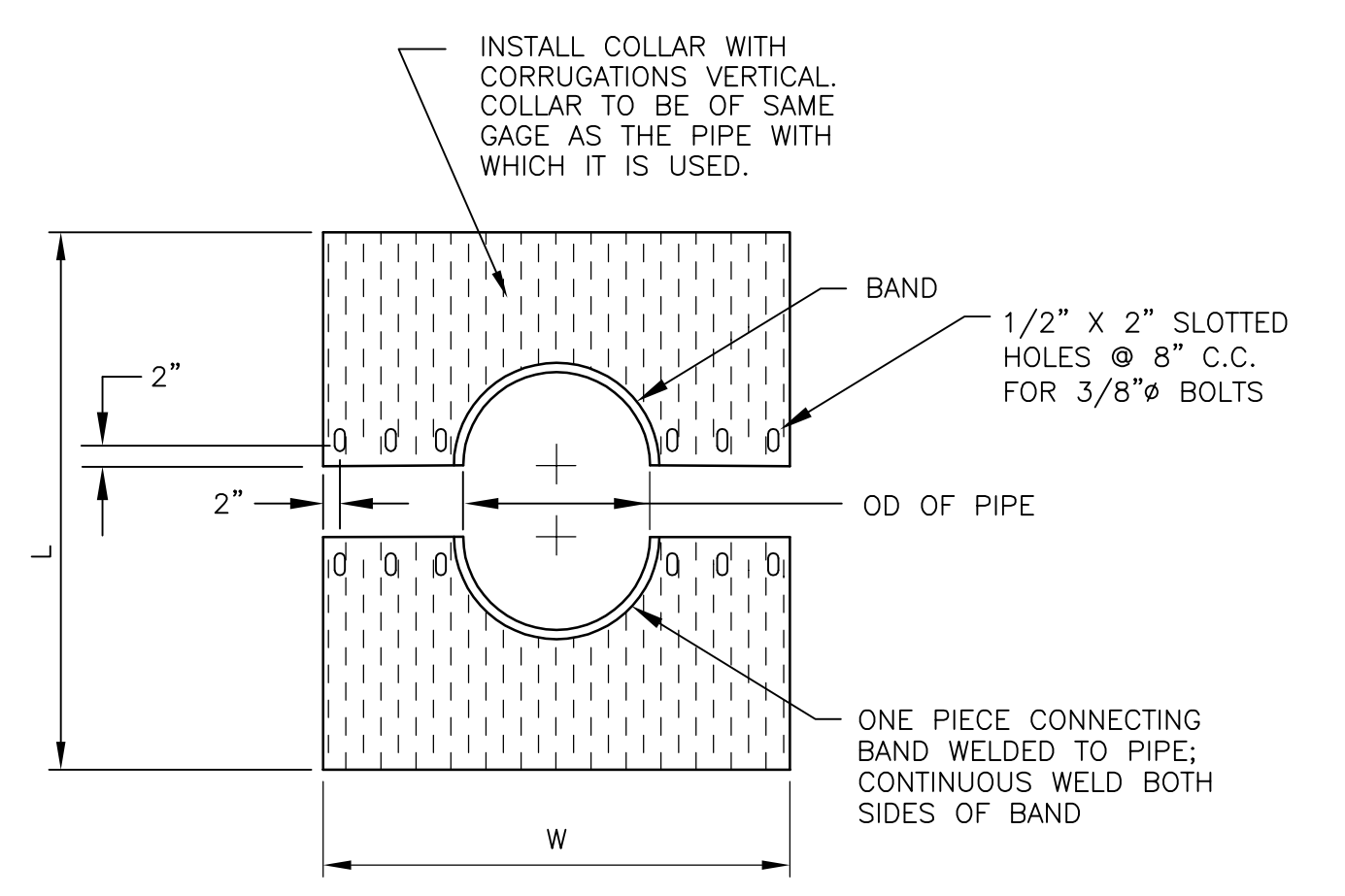
SHEET
01C-11



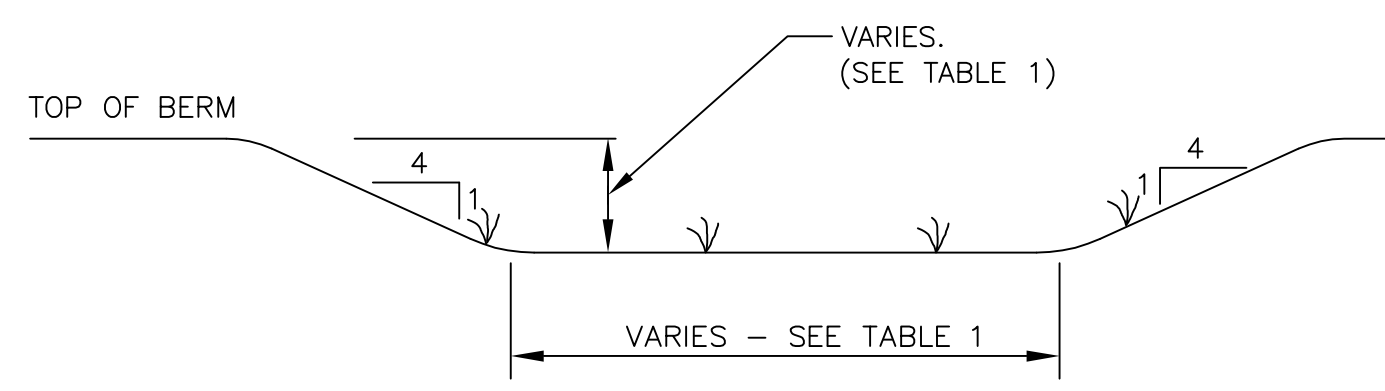
OUTLET STRUCTURE ENLARGEMENT
N.T.S.



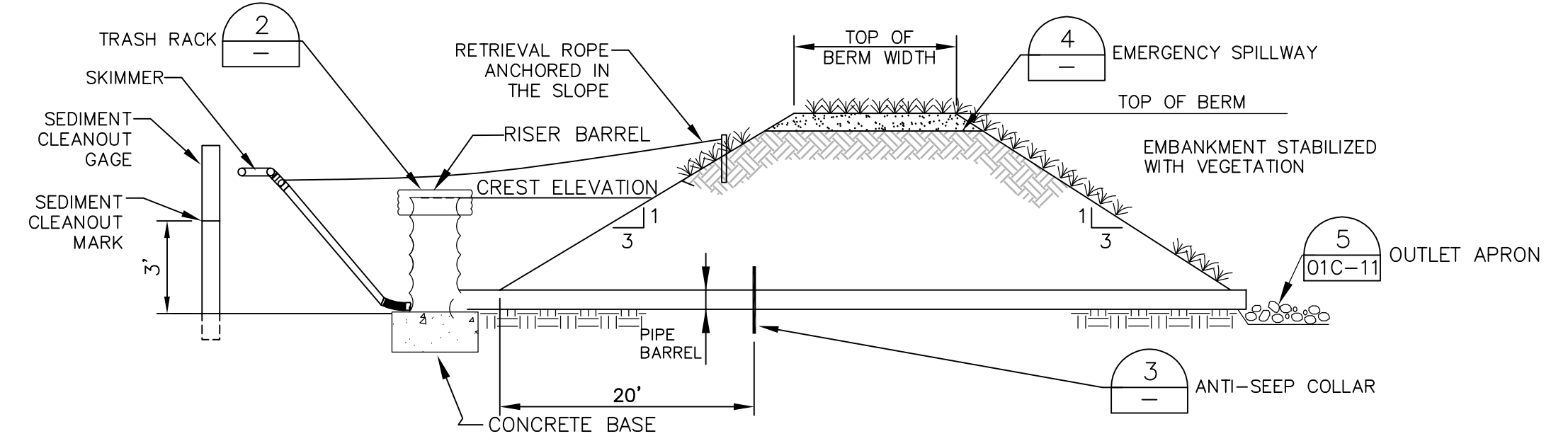
TRASH RACK DETAIL
N.T.S.



ANTI-SEEP COLLAR DETAIL
N.T.S.



EMERGENCY SPILLWAY TYPICAL
N.T.S.



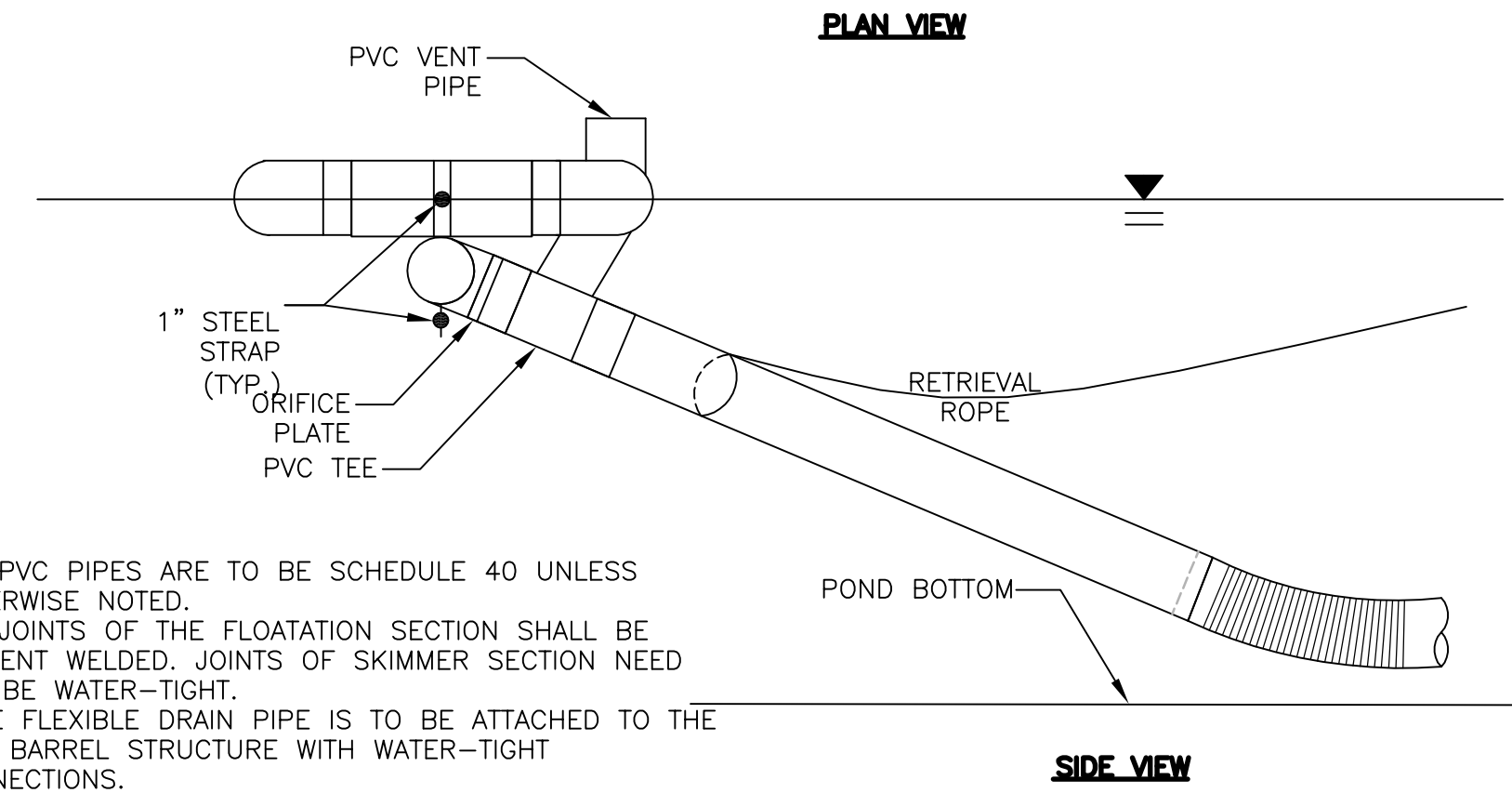
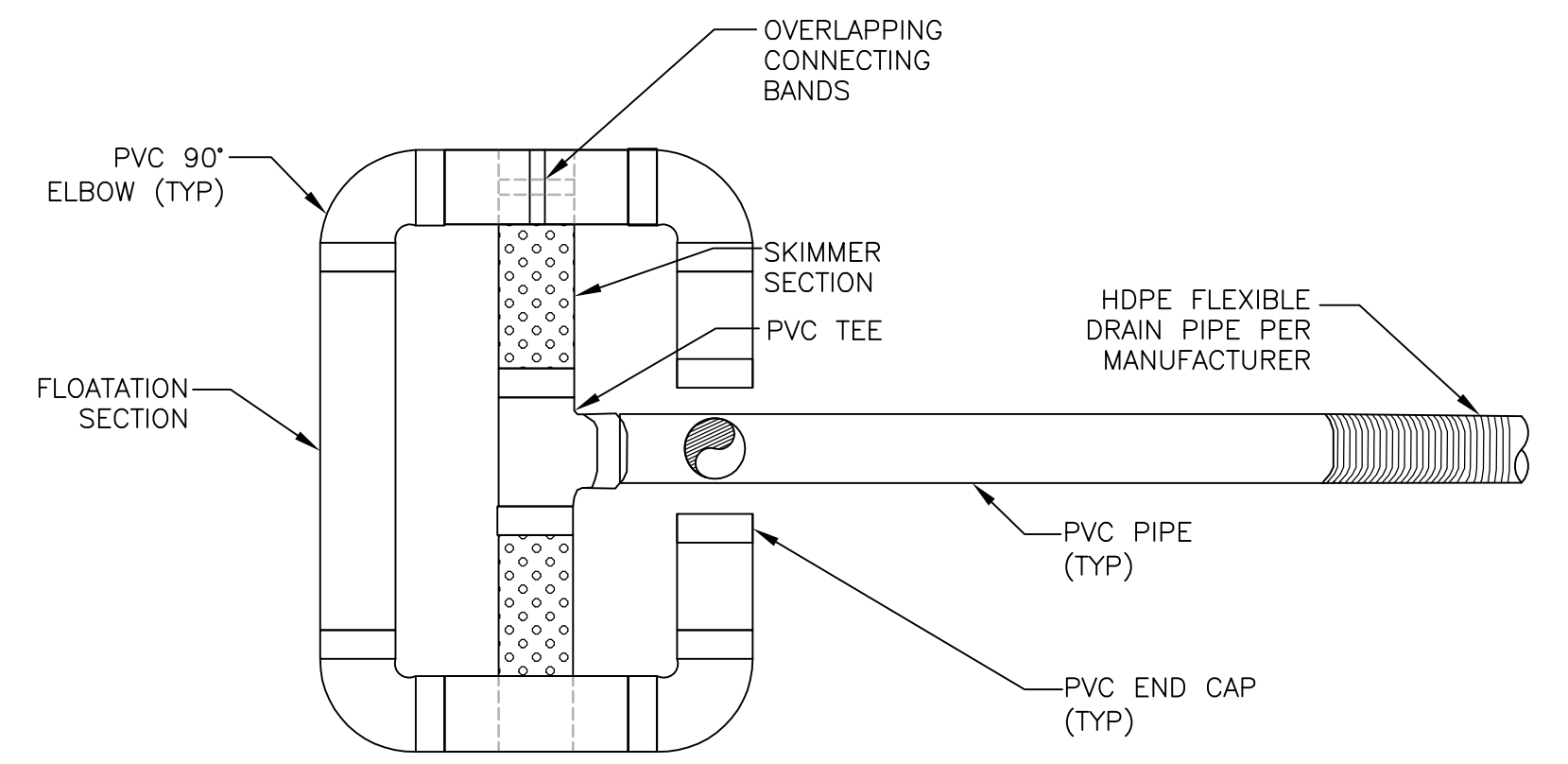
Sediment Basin #	Useful Life (Phase)	Bottom Elevation (MSL)	Top of Berm Elevation (MSL)	Top of Berm Width (FT)	Emergency Spillway Elevation (MSL)	Emergency Spillway Width (FT)	Number of Riser/Barrel Assemblies	Riser Diameter (IN)	Riser Crest Elevation (MSL)	Trash Guard Diameter (IN)	Trash Guard Thickness (Gage) (IN)	Trash Guard Height (FT)	Concrete Ballast Dimensions (FT)	Barrel Diameter (IN)	Barrel Invert In (MSL)	Barrel Out (MSL)	Antiseep Collar Size (FT)
1	1 & 2	283	290.5	3	290	20	1	54	289.4	78	16	25	6x6x2	18	283	282.5	3x3
2	1 & 2	259	266	6	265	15	2	60	264.2	90	14	29	6x6x2	24	259	258.5	4x4
3	1	244	250	12	249	10	1							12	244	243.5	2x2
4	1	261	267	12	266.4	20	1							12	261	260.5	2x2
5	1 & 2	255	262	12	261	20	2	48	260.3	72	16	21	5x5x2	24	255	253.75	4x4
6	1	249	256	12	254.5	10	1							12	249	248.5	2x2
7	1 & 2	238	245.5	12	244.9	20	2	60	244.4	90	14	29	6x6x2.5	24	238	237.5	4x4
8	1	273	279	12	278	10	1							12	273	272	2x2
9	1 & 2	262	270.5	3	269.5	50	2	72	269.2	102	14	36	7x7x3	42	262	260.75	7x7

NOTES:
1. MSL = MEAN SEA LEVEL
2. ALL PIPES ARE ASPHALT COATED 16GA OR HEAVIER EXCEPT FOR SKIMMER

SEDIMENT BASIN SCHEDULE DETAIL
N.T.S.

MAINTENANCE AND INSPECTION

- INSPECT SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 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. PLACED REMOVED SEDIMENT IN AN AREA WITH SEDIMENT CONTROLS
- CHECK 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.
- ALL CMP SHALL BE FULLY ASPHALT COATED, 16 GA OR HEAVIER
- POND DIMENSIONS SHOWN ARE FOR THE CONTROLLING PHASE.



NOTES:
1. ALL PVC PIPES ARE TO BE SCHEDULE 40 UNLESS OTHERWISE NOTED.
2. ALL JOINTS OF THE FLOATATION SECTION SHALL BE SOLVENT WELDED. JOINTS OF SKIMMER SECTION NEED NOT BE WATER-TIGHT.
3. HDPE FLEXIBLE DRAIN PIPE IS TO BE ATTACHED TO THE PIPE BARREL STRUCTURE WITH WATER-TIGHT CONNECTIONS.
4. SEE SCHEDULE FOR ORIFICE SIZE.
5. FAIRCLOTH TYPE OR EQUIVALENT SKIMMER TO BE USED.

FAIRCLOTH SKIMMER DETAIL
N.T.S.



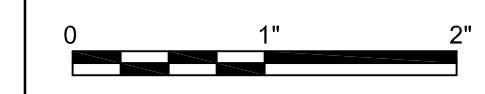
HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

ISSUE	DATE	DESCRIPTION
B	12/31/14	REVISED PER NCDENR COMMENTS
A	11/2014	ISSUED FOR APPROVAL

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	R. BAYSDEN, P.E.
DRAWN BY	R. BAYSDEN, P.E.
CHECKED BY	J. READLING, P.E.
PROJECT NUMBER	453925-235691-018

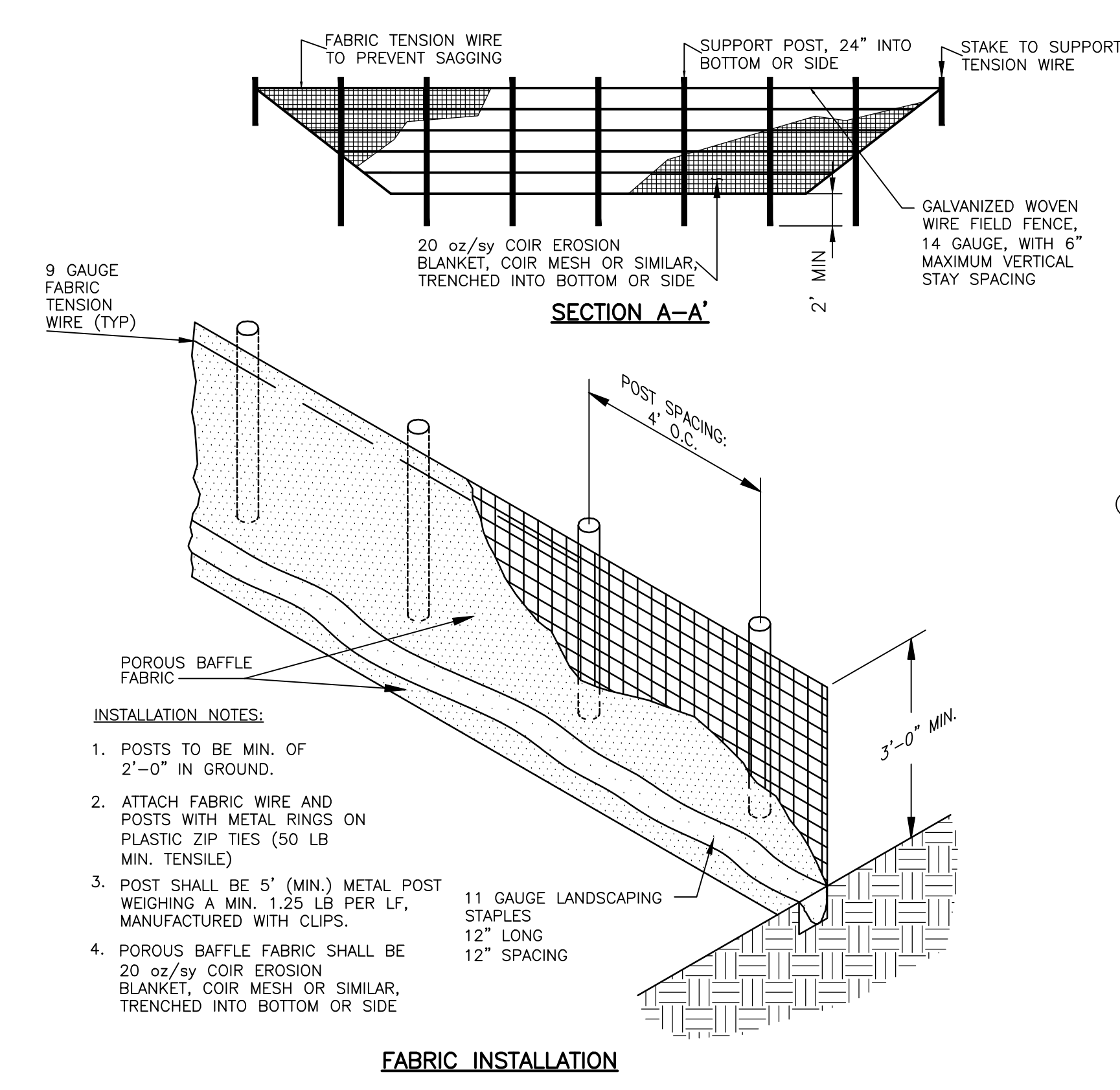


EROSION AND SEDIMENTATION CONTROL DETAILS (2 OF 3)



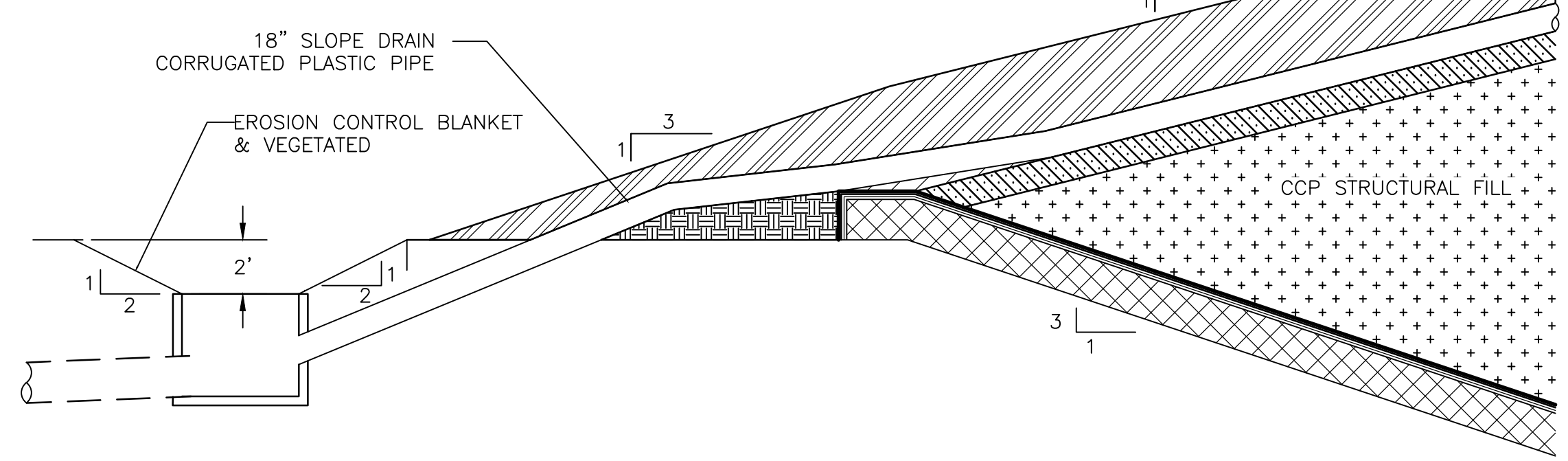
FILENAME | 01C-12.dwg
SCALE | AS SHOWN

SHEET
01C-12

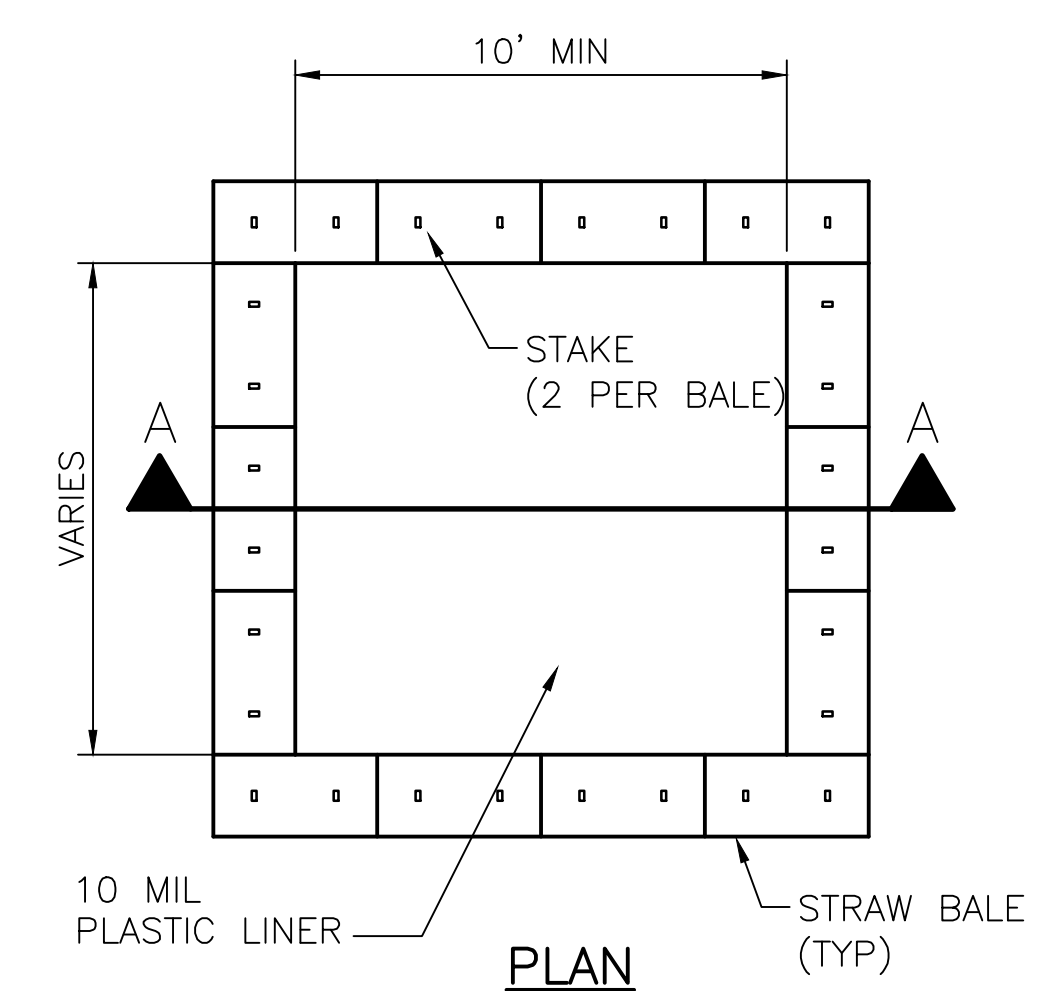


- INSTALLATION NOTES:**
1. POSTS TO BE MIN. OF 2'-0" IN GROUND.
 2. ATTACH FABRIC WIRE AND POSTS WITH METAL RINGS ON PLASTIC ZIP TIES (50 LB MIN. TENSILE)
 3. POST SHALL BE 5" (MIN) METAL POST WEIGHING A MIN. 1.25 LB PER LF, MANUFACTURED WITH CLIPS.
 4. POROUS BAFFLE FABRIC SHALL BE 20 oz/sy COIR EROSION BLANKET, COIR MESH OR SIMILAR, TRENCHED INTO BOTTOM OR SIDE

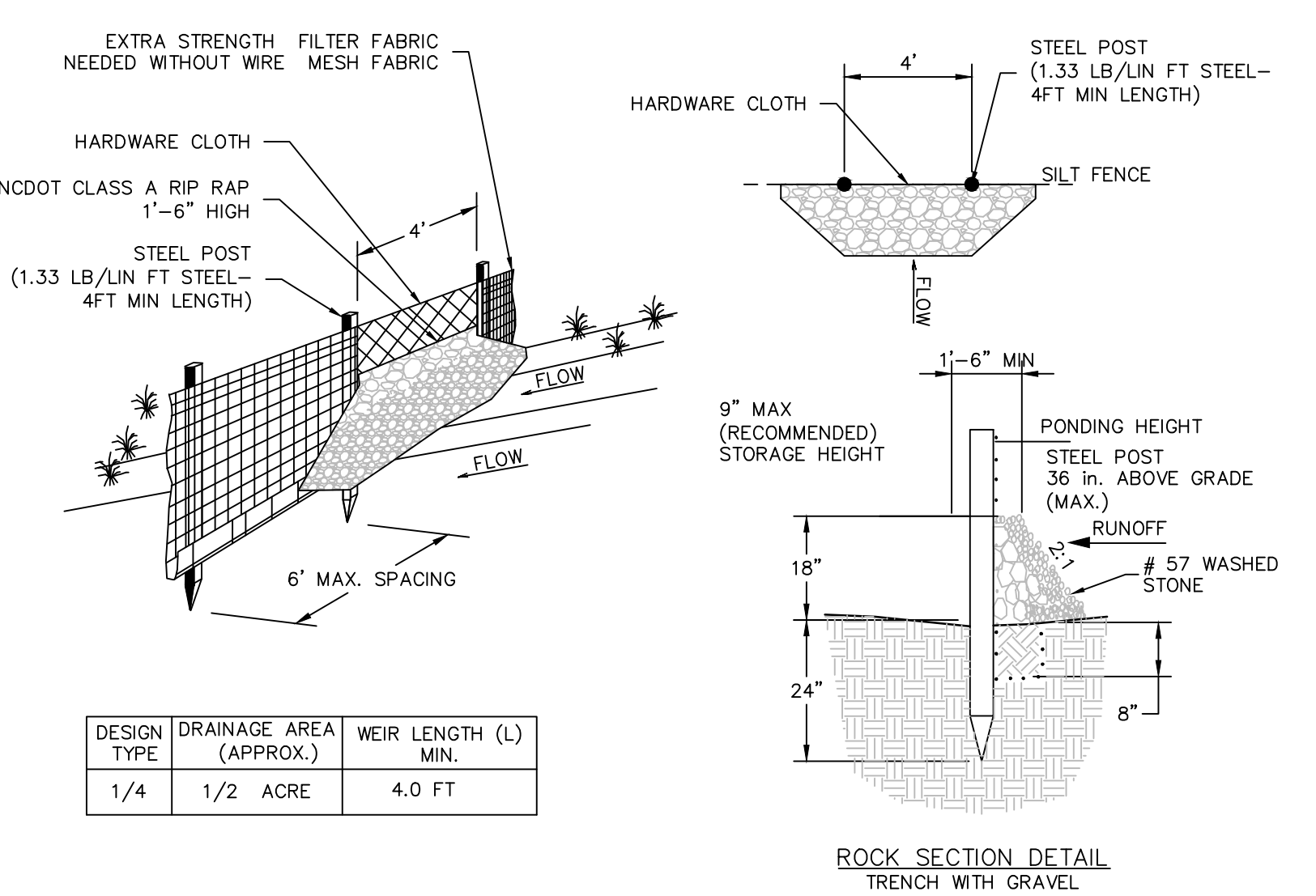
SEDIMENT BAFFLE
N.T.S.



SLOPE DRAIN INLET / OUTLET PROTECTION
NOT TO SCALE



CONCRETE WASHOUT AREA DETAIL
NOT TO SCALE



DESIGN TYPE	DRAINAGE AREA (APPROX.)	WEIR LENGTH (L) MIN.
1/4	1/2 ACRE	4.0 FT

ROCK SECTION DETAIL
TRENCH WITH GRAVEL

FOR SHOULDERS, SIDE DITCHES, SLOPES (MAX 3:1):

DATE	TYPE	PLANTING RATE
AUG 15 - NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 - MAR 1	TALL FESCUE & ABRUZZI RYE	300 LBS/ACRE
MAR 1 - APR 15	HULLED COMMON BERMUDAGRASS	300 LBS/ACRE
APR 15 - JUN 30	TALL FESCUE AND BROWNTOP MILLET OR SORGHUM-SUDAN HYBRIDS***	300 LBS/ACRE
APR 15 - JUN 30	TALL FESCUE AND BROWNTOP MILLET OR SORGHUM-SUDAN HYBRIDS***	300 LBS/ACRE

*** TEMPORARY: RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW MORE THAN 12" IN HEIGHT BEFORE MOWING; OTHERWISE, FESCUE MAY BE SHADED OUT.

FOR SHOULDERS, SIDE DITCHES, SLOPES (MAX 3:1 TO 2:1):

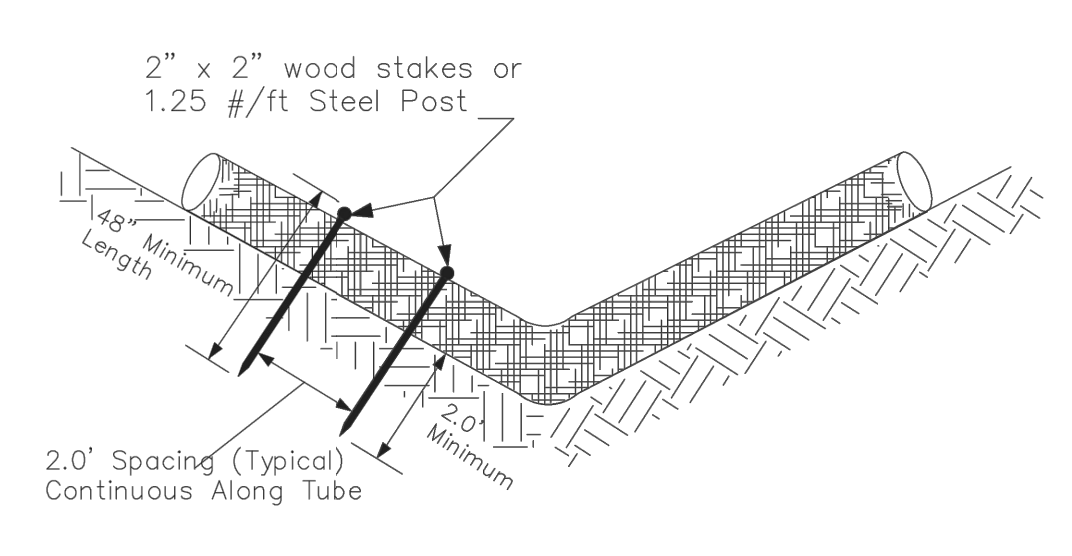
DATE	TYPE	PLANTING RATE
MAR 1 - JUN 1	SERICEA LESPEDEZA (SCARIFIED) AND USE THE FOLLOWING COMBINATIONS:	50 LBS/ACRE (SERICEA LESPEDEZA);
MAR 1 - APR 15	ADD TALL FESCUE	120 LBS/ACRE
MAR 1 - JUN 30	OR ADD WEEPING LOVE GRASS	10 LBS/ACRE
MAR 1 - JUN 30	OR ADD HULLED COMMON BERMUDAGRASS	25 LBS/ACRE
SEPT 1 - MAR 1	SERICEA LESPEDEZA (UNHULLED UNSCARIFIED) AND TALL FESCUE	70 LBS/ACRE (SERICEA LESPEDEZA); 120 LBS/ACRE (TALL FESCUE)
NOV 1 - MAR 1	AND ABRUZZI RYE	25 LBS/ACRE

IF SOIL CONDITIONS ARE NOT KNOWN, APPLY LIME AT A RATE OF 1 TO 1.5 TONS/ACRE ON COARSE TEXTURED SOILS AND 2-3 TONS/ACRE ON FINE-TEXTURED SOILS. APPLY LIMESTONE UNIFORMLY AND INCORPORATE INTO THE TOP 4-6 INCHES OF SOIL. APPLY 10-10-10 FERTILIZER AT 700-1000 LBS/ACRE MIXED INTO THE TOP 4-6 INCHES OF SOIL.

- SEEDBED PREPARATION NOTES**
1. SURFACE WATER CONTROL MEASURES TO BE INSTALLED ACCORDING TO PLAN.
 2. AREAS TO BE SEEDBED SHALL BE RIPPED AND SPREAD WITH AVAILABLE TOPSOIL 3" DEEP. TOTAL SEEDBED PREPARED DEPTH SHALL BE 4" TO 6" DEEP.
 3. LOOSE ROCKS, ROOTS AND OTHER OBSTRUCTIONS SHALL BE REMOVED FROM THE SURFACE SO THAT THEY WILL NOT INTERFERE WITH ESTABLISHMENT AND MAINTENANCE OF VEGETATION. SURFACE FOR FINAL SEEDBED PREPARATION AT FINISHED GRADES SHOWN SHALL BE REASONABLY SMOOTH AND UNIFORM.
 4. IF NO SOIL TEST IS TAKEN, FERTILIZER AND LIME TO BE ACCORDING TO SEEDING SPECIFICATIONS BELOW. IN ADDITION, PROVIDE 15 LBS/1000 S.F. OF SUPERPHOSPHATE.
 5. IF SOIL TEST IS TAKEN, PROVIDE LIME AND FERTILIZER ACCORDING TO SOIL TEST REPORT.
 6. LIME AND FERTILIZER SHALL BE APPLIED UNIFORMLY AND MIXED WITH THE SOIL DURING SEEDBED PREPARATION. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED DEPENDING ON FIELD CONDITION.
 7. MULCH TO BE TACKED OR MECHANICALLY TIED DOWN IMMEDIATELY AFTER MULCH IS SPREAD.
 8. ALL SLOPES GREATER THAN 2.5:1 SHALL BE STABILIZED WITH JUTE MESH.

SEEDING
N.T.S.

SEDIMENT TUBE INSTALLATION



SEDIMENT TUBE SPACING

SLOPE	MAX. SEDIMENT TUBE SPACING
LESS THAN 2%	150- FEET
2%	100- FEET
3%	75- FEET
4%	50- FEET
5%	40- FEET
6%	30- FEET
GREATER THAN 6%	25- FEET

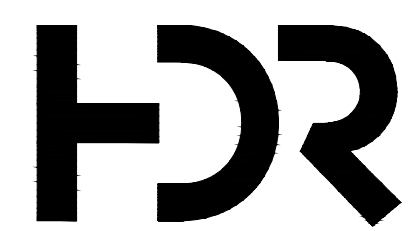
SEDIMENT TUBES - GENERAL NOTES

1. Sediment tubes may be installed along contours, in drainage conveyance channels, and around inlets to help prevent off-site discharge of sediment-laden stormwater runoff.
2. Sediment tubes are elongated tubes of compacted geotextiles, curled excelsior wood, natural coconut fiber, or hardwood mulch. Straw, pine needle, and leaf mulch-filled sediment tubes are not permitted.
3. The outer netting of the sediment tube should consist of seamless, high-density polyethylene photodegradable materials treated with ultraviolet stabilizers or a seamless, high-density polyethylene non-degradable material.
4. Sediment tubes, when used as checks within channels, should range between 18-inches and 24-inches depending on channel dimensions. Diameters outside this range may be allowed where necessary when approved.
5. Curled excelsior wood, or natural coconut products that are rolled up to create a sediment tube are not allowed.
6. Sediment tubes should be staked using wooden stakes, (2-inch X 2-inch) or steel posts (standard "U" or "T" sections with a minimum weight of 1.25 pounds per foot) at a minimum of 48-inches in length placed on 2-foot centers.
7. Install all sediment tubes to ensure that no gaps exist between the soil and the bottom of the tube. Manufacturer's recommendations should always be consulted before installation.
8. The ends of adjacent sediment tubes should be overlapped 6-inches to prevent flow and sediment from passing through the field joint.
9. Sediment tubes should not be stacked on top of one another, unless recommended by manufacturer.
10. Each sediment tube should be installed in a trench with a depth equal to 1/5 the diameter of the sediment tube.
11. Sediment tubes should continue up the side slopes a minimum of 1-foot above the design flow depth of the channel.
12. Install stakes at a diagonal facing incoming runoff.

SEDIMENT TUBES - INSPECTION & MAINTENANCE

1. The key to functional sediment tubes is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of sediment tubes shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall event that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations in front of the sediment tube is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the sediment tube.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Large debris, trash, and leaves should be removed from in front of tubes when found.
7. If erosion causes the edges to fail to a height equal to or below the height of the sediment tube, repairs should be made immediately to prevent runoff from bypassing tube.
8. Sediment tubes should be removed after the contributing drainage area has been completely stabilized. Permanent vegetation should replace areas from which sediment tubes have been removed.

WATTLE INSTALLATION
NOT TO SCALE

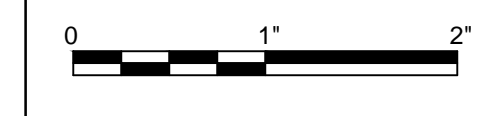


HDR Engineering, Inc.
of the Carolinas
440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700
N.C.B.E.L.S. License Number F-0116

PROJECT MANAGER	M.D. PLUMMER, P.E.
DESIGNED BY	R. BAYSDEN, P.E.
DRAWN BY	R. BAYSDEN, P.E.
CHECKED BY	J. READLING, P.E.
ISSUE DATE	DESCRIPTION
B 12/31/14	REVISED PER NCDENR COMMENTS
A 11/2014	ISSUED FOR APPROVAL
PROJECT NUMBER	453925-235691-018



Charah
COLON MINE SITE STRUCTURAL FILL
SANFORD, NC



FILENAME | 01C-13.dwg
SCALE | AS SHOWN

SHEET
01C-13