

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE
 SPECIES RATE (lb/acre)
 TALL FESCUE 80
 KOBE LESPEDEZA 40

NURSE PLANTS:
 BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre GERMAN MILLET OR 15 lb/acre SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/ac RYE (GRAIN)

SEEDING DATES:
 BEST POSSIBLE
 FALL AUG. 15 - SEPT. 15 AUG. 20 - OCT. 25
 LATE WINTER FEB. 15 - MAR. 21 FEB. 1 - APR. 15

FALL IS BEST FOR TALL FESCUE AND LATER WINTER FOR LESPEDEZAS. OVERSEEDING OF DOBE LESPEDEZA OVER FALL-SEEDED TALL FESCUE IS VERY EFFECTIVE.

SOIL AMENDMENTS:
 FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
 APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
 REFERTILIZE IN THE SECOND YEAR UNLESS GROWTH IS FULLY ADEQUATE. MAY BE MOWED ONCE OR TWICE A YEAR, BUT MOWING IS NOT NECESSARY. RESEED, REFERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

RECOMMENDATIONS FOR GRASS-LINED CHANNELS

SEEDING MIXTURE
 SPECIES RATE (lb/acre)
 TALL FESCUE 200

NURSE PLANTS:
 BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre SUDANGRASS OR 15 lb/acre GERMAN MILLET. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/ac RYE (GRAIN)

SEEDING DATES:
 BEST: AUG. 25 - OCT.
 POSSIBLE: FEB. - APR. 15

AVOID SEEDING FROM NOV. TO JAN. IF SEEDING MUST BE DONE AT THIS TIME, ADD 40 lb/acre RYE GRAIN AND USE A CHANNEL LINING THAT OFFERS MAXIMUM PROTECTION

SOIL AMENDMENTS:
 FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 1,000 lb/acre 10-10-10 FERTILIZER

MULCH:
 USE ROLLED EROSION CONTROL PRODUCT TO COVER THE BOTTOM OF THE CHANNELS AND DITCHES, AND STAPLE SECURELY. THE LINING SHOULD EXTEND ABOVE THE HIGHEST CALCULATED DEPTH OF FLOW. ON CHANNEL SIDE SLOPES ABOVE THIS HEIGHT, AND IN DRAINAGES NOT REQUIRING TEMPORARY LININGS, APPLY 4,000 lb/acre GRAIN STRAW, AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

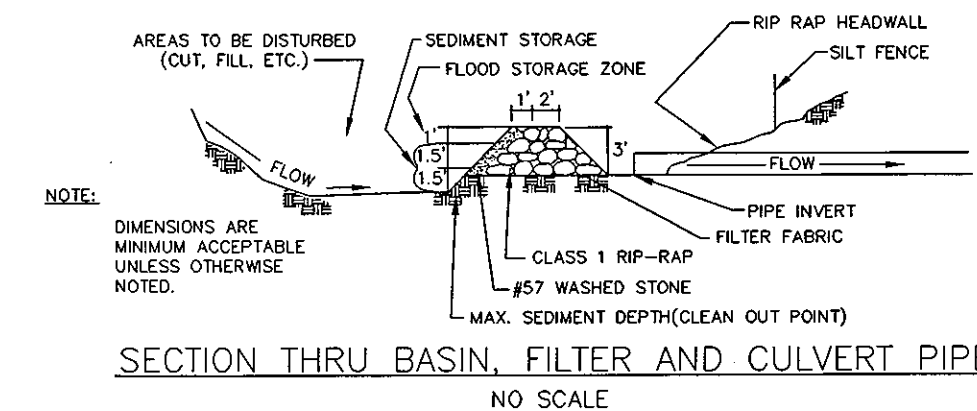
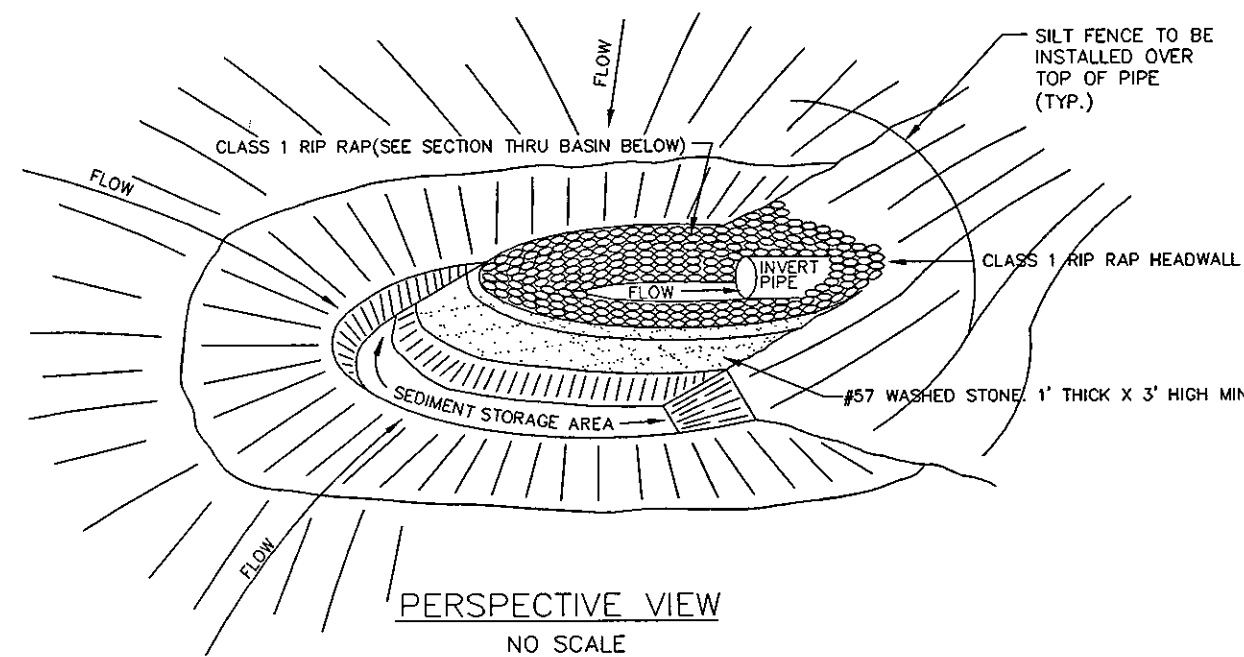
MULCH AND ANCHORING MATERIALS MUST NOT BE ALLOWED TO WASH DOWN SLOPES WHERE THEY CAN CLOG DRAINAGE DEVICES.

MAINTENANCE:
 INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR; USE SOIL TESTS OR APPLY 150 lb/acre 10-10-10. MOW REGULARLY TO A HEIGHT OF 2-4 INCHES.

NOTE:
 SEE NCDENR'S EROSION AND SEDIMENT CONTROL PLANNING DESIGN MANUAL SECTION 6.11 FOR ADDITIONAL PERMANENT SEEDING OPTIONS.

PERMANENT SEEDING SCHEDULE

NTS



ARC FILTER INLET PROTECTION

NTS

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE
 SPECIES RATE (lb/acre)
 RYE (GRAIN) 120
 ANNUAL LESPEDEZA (KOBE IN 50
 PIEDMONT & COASTAL PLAIN,
 KOREAN IN MOUNTAINS)

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE

SEEDING DATES:
 MOUNTAINS (ABOVE 2,500'): FEB. 15 - MAY 15
 (BELOW 2,500'): FEB. 1 - MAY 1
 PIEDMONT: JAN. 1 - MAY 1
 COASTAL PLAIN: DEC. 1 - APR. 15

SOIL AMENDMENTS:
 FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
 APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
 REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

RECOMMENDATIONS FOR SUMMER

SEEDING MIXTURE
 SPECIES RATE (lb/acre)
 GERMAN MILLET 40

IN THE PIEDMONT AND MOUNTAINS, A SMALL-STEMMED SUDANGRASS MAY BE SUBSTITUTED AT A RATE OF 50 lb/acre.

SEEDING DATES:
 MOUNTAINS MAY 15 - AUG. 15
 PIEDMONT: MAY 1 - AUG. 15
 COASTAL PLAIN: APR. 15 - AUG. 15

SOIL AMENDMENTS:
 FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
 APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
 REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

RECOMMENDATIONS FOR FALL

SEEDING MIXTURE
 SPECIES RATE (lb/acre)
 RYE (GRAIN) 120

SEEDING DATES:
 MOUNTAINS: AUG. 15 - DEC. 15
 COASTAL PLAIN AND PIEDMONT: AUG. 15 - DEC. 30

SOIL AMENDMENTS:
 FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
 APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
 REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOPDRESS WITH 50 lb/acre OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 lb/acre KOBE (PIEDMONT AND COASTAL PLAIN) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

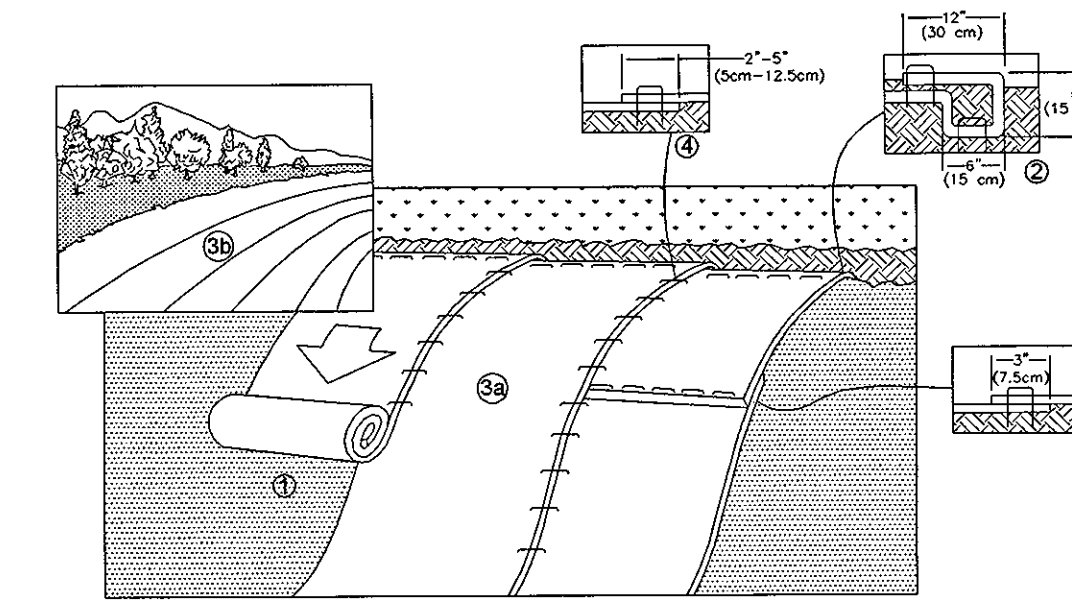
TEMPORARY SEEDING SCHEDULE

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- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
 - RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
 - REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
 - APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW*).
 - CONTINUE TILLAGE UNTIL A WELL - PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
 - SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
 - MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
 - INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
 - CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.
- * APPLY: AGRICULTURAL LIMESTONE - 2 TONS/ACRE OR 3 TONS/ACRE IN CLAY SOILS
 FERTILIZER - 1000 LBS/ACRE (10-10-10)
 SUPERPHOSPHATE - 500 LBS/ACRE (20%)
 MULCH - 2 TONS/ACRE (SMALL GRAIN STRAW)ANCHOR - ASPHALT EMULSION AT 450 GAL./ACRE

SEEDBED PREPARATION

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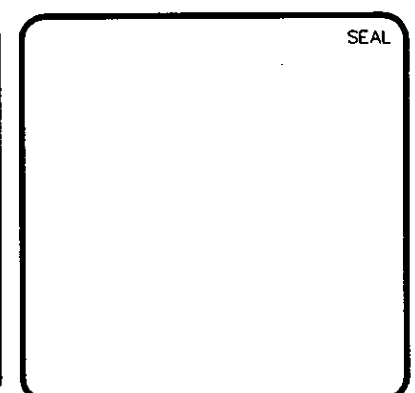


- PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPs), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
 - BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPs IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECPs EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPs WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECPs BACK OVER SEED AND COMPACTED SOIL. SECURE RECPs OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECPs.
 - ROLL THE RECPs (A.) DOWN (FOR SLOPES 3:1 OR GREATER) OR (B.) HORIZONTALLY (FOR SLOPES LESS THAN 3:1) ACROSS THE SLOPE. RECPs WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPs MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
 - THE EDGES OF PARALLEL RECPs MUST BE STAPLED WITH APPROXIMATELY 2" -5" (5 CM -12.5 CM) OVERLAP DEPENDING ON RECPs TYPE.
 - CONSECUTIVE RECPs SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECPs WIDTH.
- NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECPs.

TEMPORARY STABILIZATION FOR SLOPES GREATER THAN 10 FEET

NTS

NO.	DESCRIPTION	DATE
1	SUBMITTAL TO CLIENT FOR REVIEW	08.09.2009
2	PRELIMINARY PLAT SUBMITTAL TO CHATHAM COUNTY PLANNING	09.10.2010



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**EROSION AND SEDIMENTATION CONTROL
 DETAILS**

DATE: AUGUST 6, 2010	SCALE:	MAC FILE NUMBER: CE501
MCE PROJ. # 02735-0069	HORIZONTAL: NA	DRAWING NUMBER: D-2
DRAWN: CMB	VERTICAL: NA	
DESIGNED: CMB		
CHECKED: GML		
PROJ. MGR: GML		
STATUS: ISSUED FOR PERMIT	REVISION: 2	

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR CONCRETE JUNCTION BOX (WITH OPTIONAL MANHOLE) 12" THRU 66" PIPE

GENERAL NOTES:
 CHAMFER ALL EXPOSED CORNERS 1".
 USE CLASS "B" CONCRETE THROUGHOUT.
 OPTIONAL CONSTRUCTION - MONOLITHIC POOR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STD. NO. 840.06.
 PROVIDE ALL JUNCTION BOXES OVER 3' 6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.06.
 ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE POSITION OF THE MANHOLE (I.E.: DIAGONAL BARS SLOTTED AND SPACED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB).
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

SECTION X-X
 SECTION C-C OR D-D
 SECTION Y-Y
 DOWEL

DIMENSIONS OF BOX AND PIPE		REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CONCRETE JUNCTION BOXES		TOTAL QUANTITIES FOR ONE PIPE		SECTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	TOP SLAB	NO. REINFORCING	CU. YDS. CONCR.	NO. REINFORCING
12"	2'-0"	2'-0"	2'-0"	12	2'-0"	3'-0"	3'-0"	0.167	0.168	22	0.730
15"	2'-3"	2'-3"	2'-0"	12	2'-0"	3'-3"	3'-3"	0.196	0.198	24	0.902
18"	2'-6"	2'-6"	2'-0"	14	2'-3"	3'-6"	3'-6"	0.227	0.222	30	1.056
24"	3'-0"	3'-0"	2'-0"	16	2'-3"	4'-0"	4'-0"	0.296	0.289	40	1.434
30"	3'-6"	3'-6"	2'-0"	18	4'-3"	4'-6"	4'-6"	0.376	0.376	51	1.860
36"	4'-0"	4'-0"	2'-0"	20	4'-9"	5'-0"	5'-0"	0.463	0.463	64	2.341
42"	4'-6"	4'-6"	2'-0"	22	5'-3"	5'-6"	5'-6"	0.560	0.570	77	2.878
48"	5'-0"	5'-0"	2'-0"	24	6'-3"	6'-6"	6'-6"	0.743	0.743	111	3.623
54"	5'-6"	5'-6"	2'-0"	28	6'-9"	6'-11"	6'-11"	0.885	0.885	136	4.283
60"	6'-0"	6'-0"	2'-0"	30	7'-3"	7'-6"	7'-6"	1.042	1.042	146	5.020
66"	7'-1"	7'-1"	2'-0"	33	7'-10"	8'-1"	8'-1"	1.210	1.210	169	5.917

SHEET 1 OF 1
840.31

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR CONCRETE GRATED DROP INLET TYPE 'D' 12" THRU 36" PIPE

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS. USE STEPS WELDED CORNERS WITH STD. DRAWING 840.06.
 OPTIONAL CONSTRUCTION - MONOLITHIC POOR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.06.
 CONTRACT WITH PIPE CHAINS MATCHING.
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.
 USE STANDARD FRAMES AND GRATES 840.22 (SHOW), 840.24 (SHOW), 840.20, 840.29, AND 840.33.
 SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.

CONCRETE APRON
 SECTION X-X
 SECTION Y-Y
 DOWEL "A"

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET		CONCRETE VOLUMES FOR ONE PIPE		REINFORCEMENT FOR ONE PIPE					
PIPE	SPAN	WIDTH	HEIGHT	NO. REINFORCING	CU. YDS. CONCR.				
12"	3'-0"	2'-0"	1'-0"	0.362	0.247	0.393	0.753	0.020	0.032
15"	3'-0"	2'-0"	1'-1"	0.362	0.247	0.453	0.815	0.033	0.036
18"	3'-0"	2'-0"	2'-2"	0.362	0.247	0.515	0.877	0.033	0.049
24"	3'-0"	2'-0"	2'-6"	0.362	0.247	0.659	1.021	0.039	0.085
30"	3'-0"	2'-0"	3'-2"	0.362	0.247	0.793	1.144	0.082	0.127
36"	3'-0"	2'-0"	3'-8"	0.362	0.247	0.906	1.258	0.132	0.178

SHEET 1 OF 1
840.19

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS. USE STEPS WELDED CORNERS WITH STD. DRAWING 840.06.
 OPTIONAL CONSTRUCTION - MONOLITHIC POOR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.06.
 USE TYPE "E", "F", AND "G" GRATES UNLESS OTHERWISE INDICATED.
 FOR 8" O.D. "F" AND "G" GRATES USE 6" WALLS AND BOTTOM SLAB. OVER 8" O.D. TO 12" O.D. USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES WITH PIPE CHAINS MATCHING.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.

SECTION X-X
 SECTION Y-Y
 SECTION J-J
 SECTION M-M

SHEET 1 OF 2
840.02

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR MANHOLE FRAME AND COVER

SOLID COVER SHOWN PERFORATED. PERFORATED AVAILABLE IF SPECIFIED.
 STATE USE OF SYSTEM ON COVER (I.E.: SEWER, STORM DRAIN, ELECTRICAL).

PLAN OF FRAME
 PLAN OF COVER
 SECTION A-A
 SECTION B-B

MINIMUM WEIGHTS - LBS.
 FRAME - 180
 COVER - 100
 TOTAL - 300
 SPECIFICATION CLASS 30 IRON MEETING ASTM A-48

SHEET 1 OF 1
840.54

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR FRAMES AND WIDE SLOT SAG GRATES

PLAN
 GRATE SECTION Y-Y
 FRAME SECTION Y-Y
 GRATE SECTION X-X
 FRAME SECTION X-X
 SECTION R-R

NOTE: SEE STD. DWG. 840.25 FOR FRAME ANCHORAGE.

SHEET 1 OF 1
840.22

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE

EXPANSION JOINTS
 PLAN OF TOP SLAB
 SECTION S-S
 SECTION R-R
 DOWEL

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER)		CONCRETE VOLUMES FOR ONE PIPE		REINFORCEMENT FOR ONE PIPE					
PIPE	SPAN	WIDTH	HEIGHT	NO. REINFORCING	CU. YDS. CONCR.				
12"	3'-0"	2'-0"	1'-0"	0.362	0.247	0.393	0.753	0.020	0.032
15"	3'-0"	2'-0"	1'-1"	0.362	0.247	0.453	0.815	0.033	0.036
18"	3'-0"	2'-0"	2'-2"	0.362	0.247	0.515	0.877	0.033	0.049
24"	3'-0"	2'-0"	2'-6"	0.362	0.247	0.659	1.021	0.039	0.085
30"	3'-0"	2'-0"	3'-2"	0.362	0.247	0.793	1.144	0.082	0.127
36"	3'-0"	2'-0"	3'-8"	0.362	0.247	0.906	1.258	0.132	0.178

SHEET 2 OF 2
840.02

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

PLAN
 SECTION - AA
 SECTION - BB
 SECTION - NN
 SECTION - PP
 SECTION - HH
 SECTION - JJ
 SECTION - KK
 SECTION - RR

SHEET 1 OF 2
840.03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

SECTION B-B

SHEET 2 OF 2
840.03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

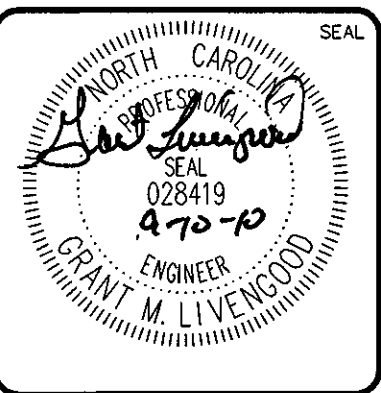
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ENGLISH STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

SECTION A-A
 SECTION B-B

SHEET 2 OF 2
840.03

REV. NO.	DESCRIPTIONS	DATE
2	PRELIMINARY PLAT SUBMITTAL TO CHATHAM COUNTY PLANNING	09.10.2010
1	SUBMITTAL TO CLIENT FOR REVIEW	08.06.2010



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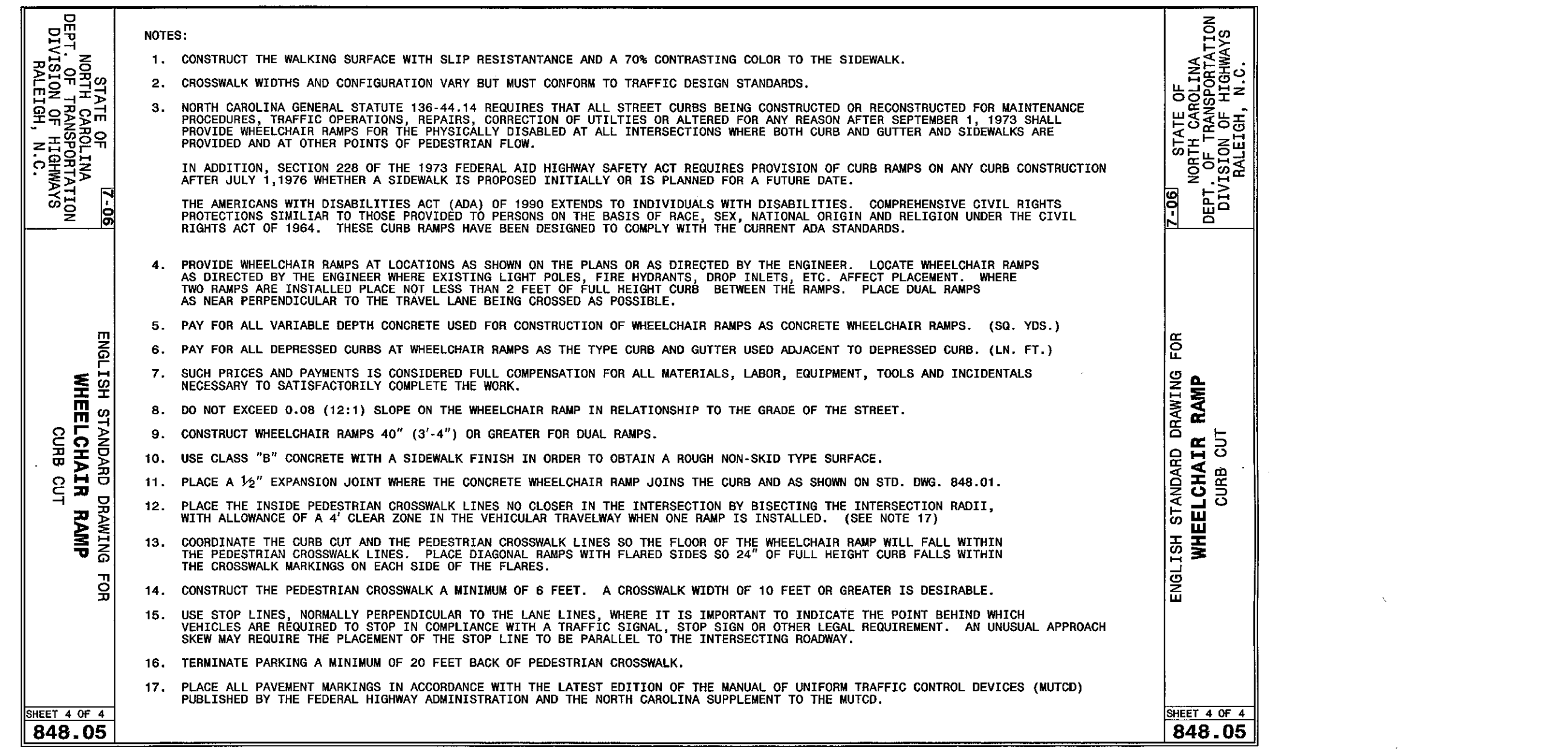
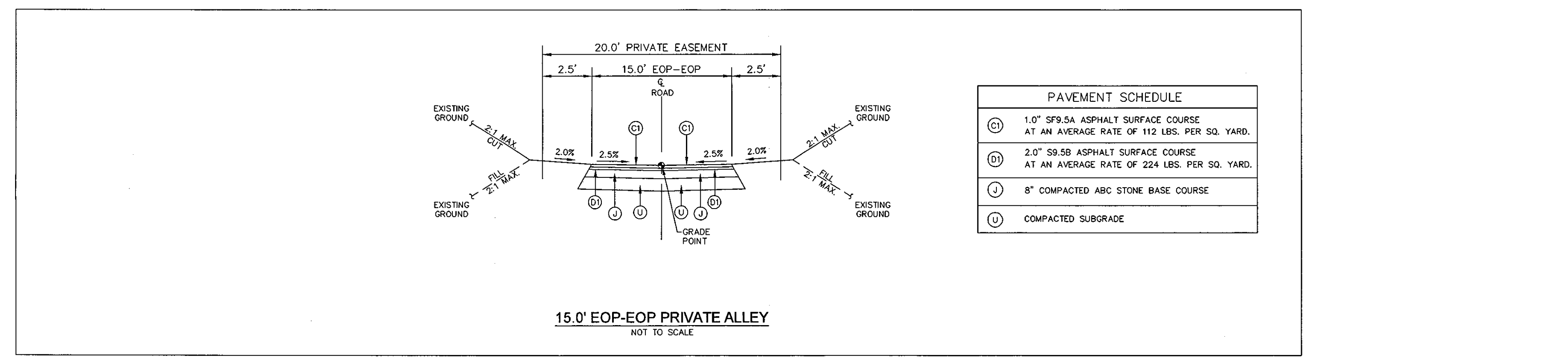
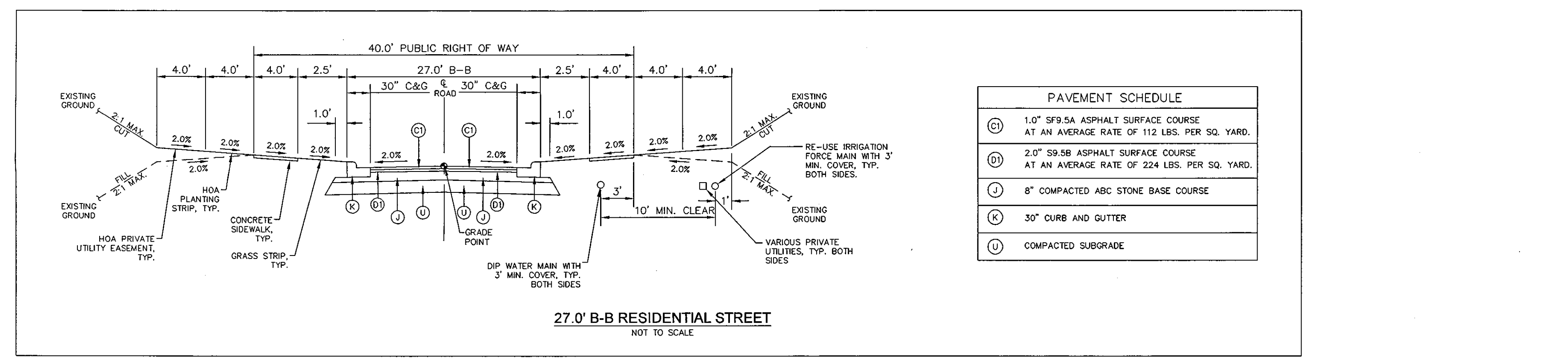
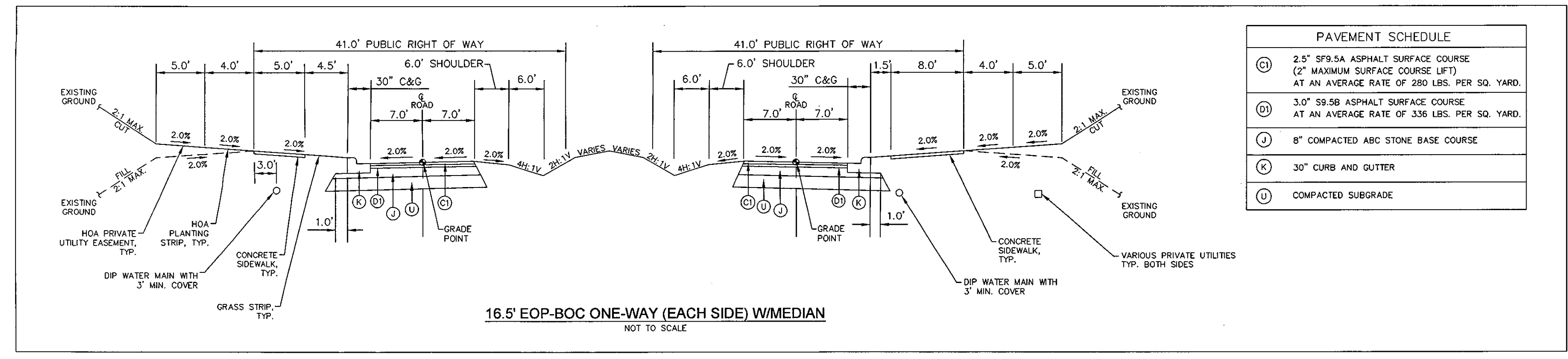
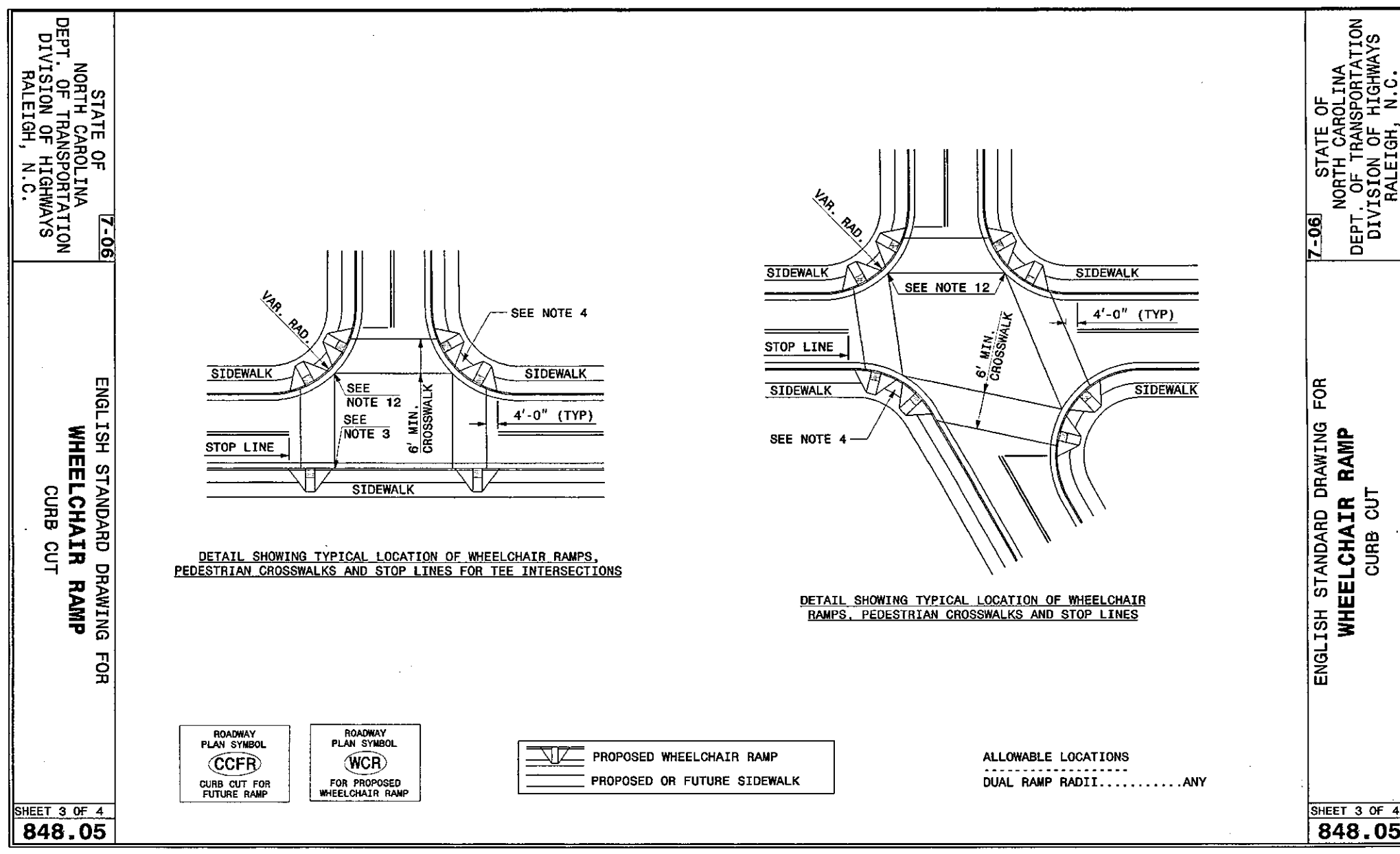
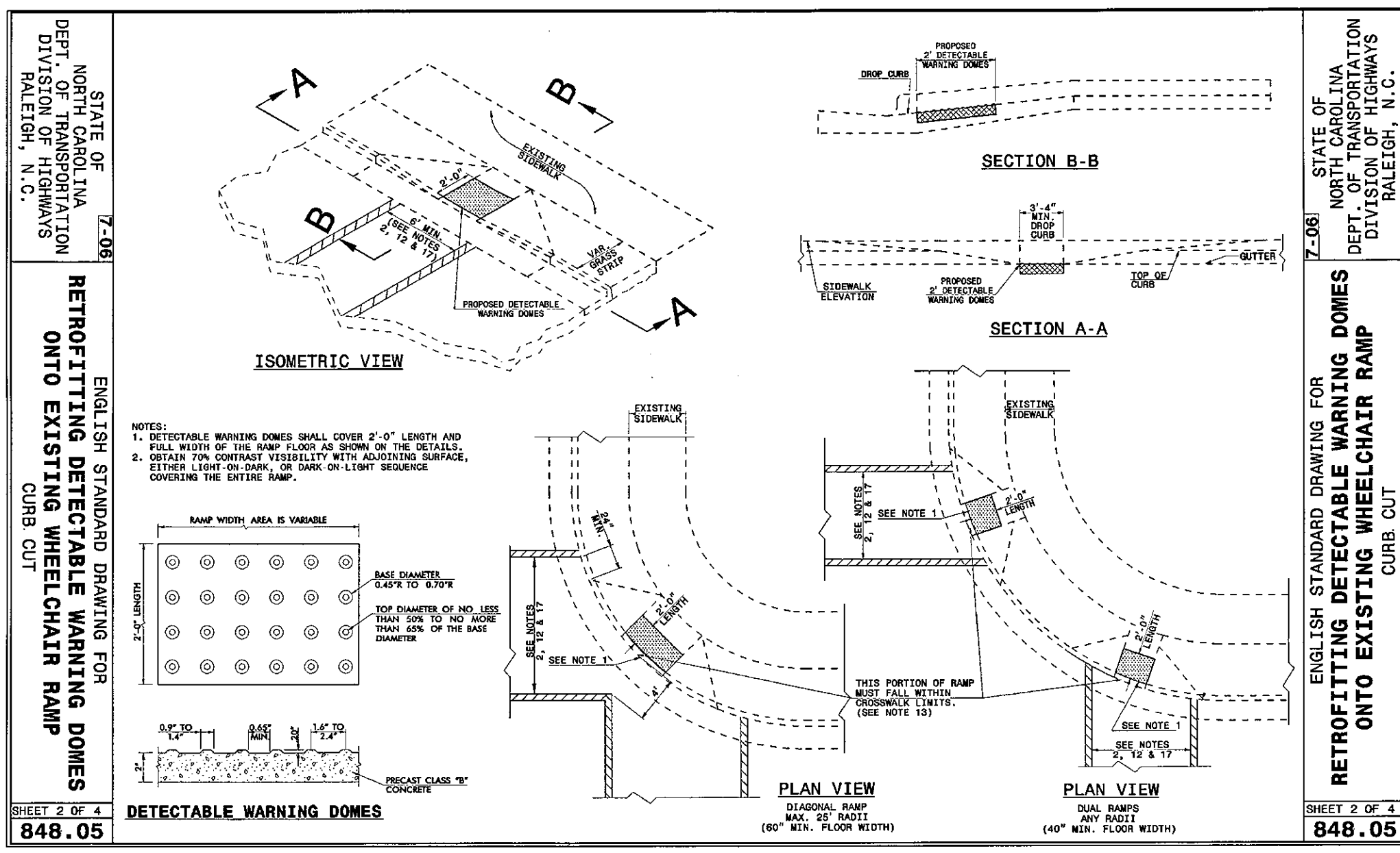
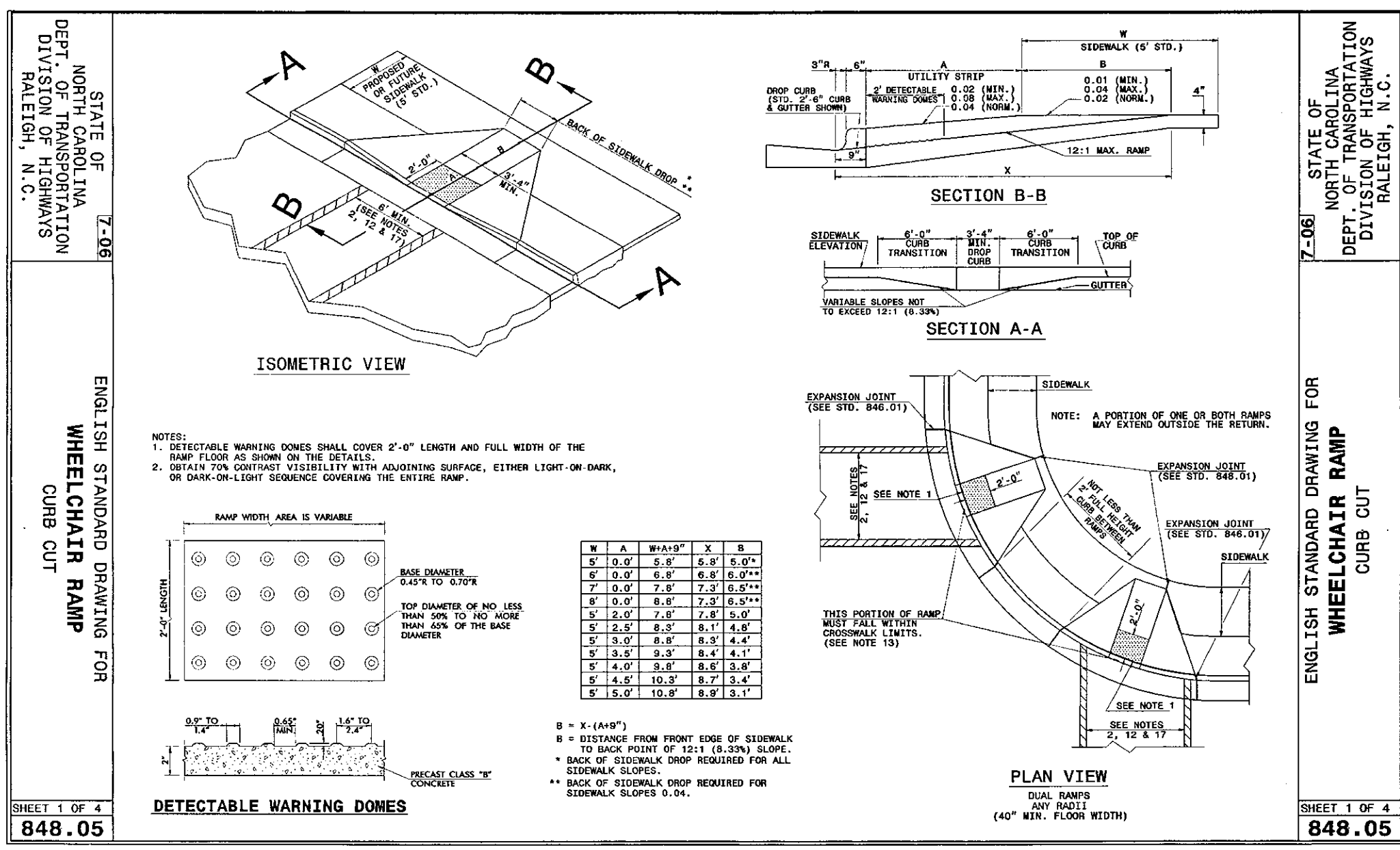
**BRIAR CHAPEL
 PHASE 5 NORTH
 CHATHAM COUNTY, NORTH CAROLINA**
 NCDOT DRAINAGE DETAILS

DATE: AUGUST 6, 2010
 MCE PROJ. # 02735-0069
 DRAWN: OMB
 DESIGNED: OMB
 CHECKED: GML
 PROJ. MGR: GML

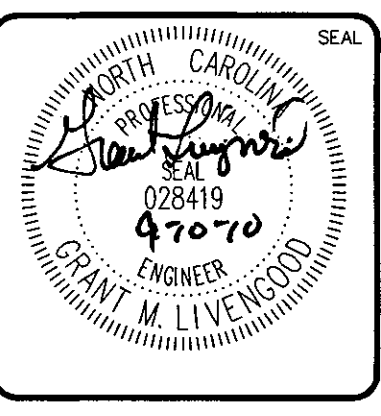
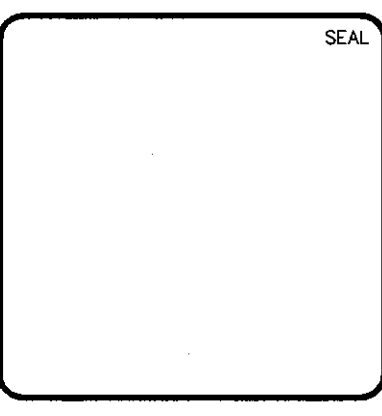
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 VERTICAL: NA

MAC FILE NUMBER: CT501
 DRAWING NUMBER: D-3

STATUS: ISSUED FOR PERMIT
 REVISION: 2



REV. NO.	DESCRIPTION	DATE
2	PRELIMINARY PLAT SUBMITTAL TO CHATHAM COUNTY PLANNING	08.10.2010
1	SUBMITTAL TO CLIENT FOR REVIEW	08.06.2010



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**BRIAR CHAPEL
PHASE 5 NORTH
CHATHAM COUNTY, NORTH CAROLINA**

NCDOT ROADWAY DETAILS

DATE: AUGUST 6, 2010
MCE PROJ. # 02735-0069
DRAWN: CMB
DESIGNED: CMB
CHECKED: GML
PROJ. MGR: GML

SCALE
HORIZONTAL: NA
VERTICAL: NA

MAC FILE NUMBER
CT501
DRAWING NUMBER
D-4

STATUS: ISSUED FOR PERMIT
REVISION: 2

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. Z-068

ENGLISH STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER

SECTION VIEW OF CURBS OR CURBS AND GUTTERS

GENERAL NOTES:
 1. PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
 2. CONTRACTION JOINTS MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
 3. CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS.
 4. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1 1/2\"/>

SECTION VIEW OF JOINTS

ENGLISH STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER

SHEET 1 OF 3 846.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. Z-068

ENGLISH STANDARD DRAWING FOR DRIVEWAY TURNOUT DROP CURB TYPE

PLAN DETAIL OF DRIVEWAY

SECTION A-A

SECTION B-B

METHOD OF TIE IN
 WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE, SAW CUT 2\"/>

GENERAL NOTES:
 **NO CONSTRUCTION JOINT WILL BE PERMITTED IF FORMS ARE USED TO CAST DRIVEWAY. SLEW FORMING OF CURB AND GUTTER PERMITS THE USE OF CONSTRUCTION JOINT.

ENGLISH STANDARD DRAWING FOR DRIVEWAY TURNOUT DROP CURB TYPE

SHEET 1 OF 2 848.03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. Z-068

ENGLISH STANDARD DRAWING FOR PAVEMENT MARKINGS LINE TYPES

CONTINUOUS LINES

SKIP LINES

MINI-SKIP LINES

TURN LANE LINE

CENTER LINE

GORE LINE

DIAGONAL LINE

CROSSWALK LINE

R/R LINE

STOP OR TRANSVERSE BAR

*GENERAL NOTES
 1. WHERE TWO WIDTHS ARE INDICATED, THE FIRST WIDTH APPLIES TO A "NORMAL" WIDTH LINE, THE SECOND WIDTH APPLIES TO A "WIDE" LINE.
 2. "WIDE" LINES ARE REQUIRED WHEN DESIGNATED IN THE PLANS, OR WHEN DIRECTED BY THE ENGINEER. REFER TO PAVEMENT MARKING GUIDELINES.

ENGLISH STANDARD DRAWING FOR PAVEMENT MARKINGS LINE TYPES

SHEET 1 OF 2 1205.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. Z-068

ENGLISH STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER

SECTION VIEWS OF EXPRESSWAY GUTTER IN SUPER ELEVATION

SECTION VIEWS OF 2'-6" CURB AND GUTTER SUPERELEVATION RATES

ENGLISH STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER

SHEET 2 OF 3 846.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. Z-068

ENGLISH STANDARD DRAWING FOR DRIVEWAY TURNOUT DRIVEWAY GRADES

DESIRABLE DRIVEWAY GRADES

MAXIMUM DRIVEWAY GRADES

CURB WIDTH	DIST.	GRADE	
		A	B
8' OR LESS	5'-0"	+2%	+2%
8' OR LESS	2'-0"	+6%	+6%
10'	4'-0"	+4%	+4%
12' & OVER	4'-6"	+4%	+2%

ENGLISH STANDARD DRAWING FOR DRIVEWAY TURNOUT DRIVEWAY GRADES

SHEET 2 OF 2 848.03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. Z-068

ENGLISH STANDARD DRAWING FOR PAVEMENT MARKINGS OFFSETS

EDGE LINE OFFSET DETAIL

CENTER LINE OFFSET DETAIL

LANE LINE OFFSET DETAIL

MULTI-LANE ROADWAY

WIDTH (IN FT.) OF TRAVEL PAVEMENT FROM E.O.P.	MAX. EDGE LINE OFFSET FROM E.O.P.	MINIMUM LANE WIDTH
16'	10'	8'
18'	10'	8'
20'	10'	10'
22'	10'	10'
24'	10'	10'
26'	10'	11'
28'	10'	12'
30'	10'	12'
32'	10'	12'

ENGLISH STANDARD DRAWING FOR PAVEMENT MARKINGS OFFSETS

SHEET 2 OF 2 1205.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. Z-068

ENGLISH STANDARD DRAWING FOR MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

HORIZONTAL AND VERTICAL CLEARANCES

FRAMING AND CROSS-BRACING DETAILS FOR COMBINATION TYPE "D" & "E" SIGNS

FRAMING AND CROSS-BRACING DETAILS FOR COMBINATION TYPE "E" & "F" SIGNS

NOTES:
 1. SELECT TYPE "D", "E", AND "F" SIGNS ON FREESTANDING WITH THE REAR EDGE OF THE SIGN 20 FT. FROM THE SHOULDER AND TYPE "D" SIGNS ON FREESTANDING WITH THE REAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER OR AT LEAST 10 FT. FROM THE SHOULDER. THE MINIMUM CLEARANCE, 12 FT. DESIRABLE, FROM THE EDGE OF TRAVEL LANE, OR AS DIMENSIONED ON PLAN SHEETS.
 2. SELECT TYPE "D", "E", AND "F" SIGNS WITH THE BOTTOM OF SIGN ASSEMBLY AT LEAST 7 FT. ABOVE THE EDGE OF THE TRAVEL LANE OR ROAD WITH 5 OR MORE LANES AND AT LEAST 8 FT. ON OTHER ROADWAYS. THE VERTICAL CLEARANCE IS 7 FT. WHERE REQUIRED FOR PEDESTRIAN TRAFFIC AND/OR PARKED VEHICLES.
 3. THE VERTICAL CLEARANCE BETWEEN MOUNTING HOLE CENTERS ON ALL TYPE "D", "E", AND "F" SIGNS IS 20 INCHES. THE VERTICAL AND HORIZONTAL CLEARANCES BETWEEN MOUNTING HOLE IS TO THE WHOLE INCH. EACH SIGN PANEL HAS A MINIMUM OF 2 BOLTS PER SUPPORT.
 4. REMOVE BOLT THROUGH WITH A WRENCH OR DIESEL AFTER INSTALLATION TO SUFFICIENTLY REMOVE REMAINS BY HAND.
 5. PROVIDE AN INITIAL CROSS-BRACING AS SHOWN IN DETAIL.
 6. INITIAL POST AND CROSS-BRACING WITH THE WIDE SIDE OF THE FLANGE TOWARD THE BACK OF SIGN(S) FOR COMBINATION TYPE "D" AND "E" SIGNS.
 7. THE SHIELD HEIGHTS IN THESE ASSEMBLIES CAN NOT BE LARGER THAN 24".

ENGLISH STANDARD DRAWING FOR MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SHEET 1 OF 2 904.50

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. Z-068

ENGLISH STANDARD DRAWING FOR MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

FRAMING AND CROSS-BRACING DETAILS FOR COMBINATION TYPE "D" & "E" SIGNS

FRAMING AND CROSS-BRACING DETAILS FOR COMBINATION TYPE "E" & "F" SIGNS

NOTES:
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ENGLISH STANDARD DRAWING FOR MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SHEET 2 OF 2 904.50

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. Z-068

ENGLISH STANDARD DRAWING FOR MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

FRAMING AND CROSS-BRACING DETAILS FOR COMBINATION TYPE "D" & "E" SIGNS

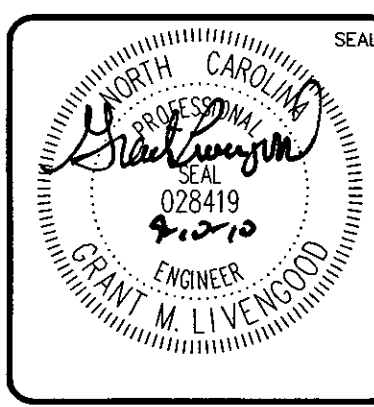
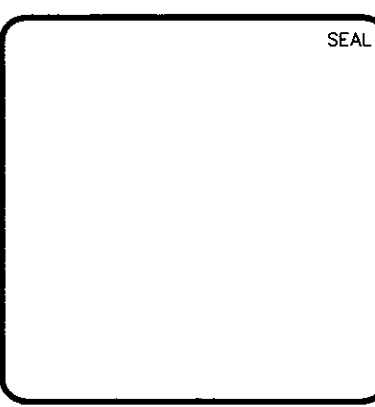
FRAMING AND CROSS-BRACING DETAILS FOR COMBINATION TYPE "E" & "F" SIGNS

NOTES:
 1. SELECT TYPE "D", "E", AND "F" SIGNS ON FREESTANDING WITH THE REAR EDGE OF THE SIGN 20 FT. FROM THE SHOULDER AND TYPE "D" SIGNS ON FREESTANDING WITH THE REAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER OR AT LEAST 10 FT. FROM THE SHOULDER. THE MINIMUM CLEARANCE, 12 FT. DESIRABLE, FROM THE EDGE OF TRAVEL LANE, OR AS DIMENSIONED ON PLAN SHEETS.
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ENGLISH STANDARD DRAWING FOR MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SHEET 2 OF 2 904.50

REV. NO.	DESCRIPTION	DATE
2	PRELIMINARY PLAT SUBMITTAL TO CHATHAM COUNTY PLANNING	09.10.2010
1	SUBMITTAL TO CLIENT FOR REVIEW	08.08.2010



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 CHATHAM COUNTY, NORTH CAROLINA**

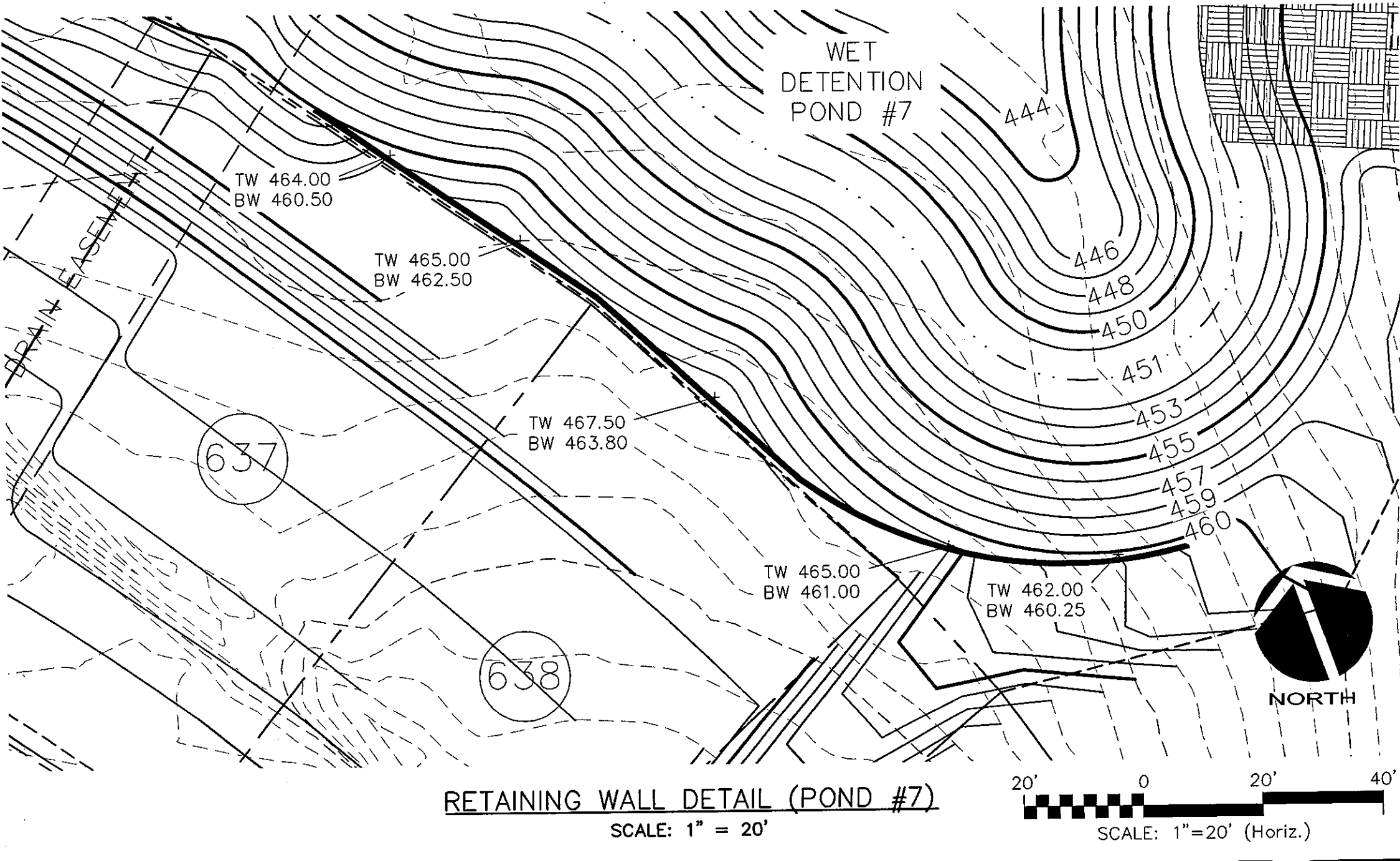
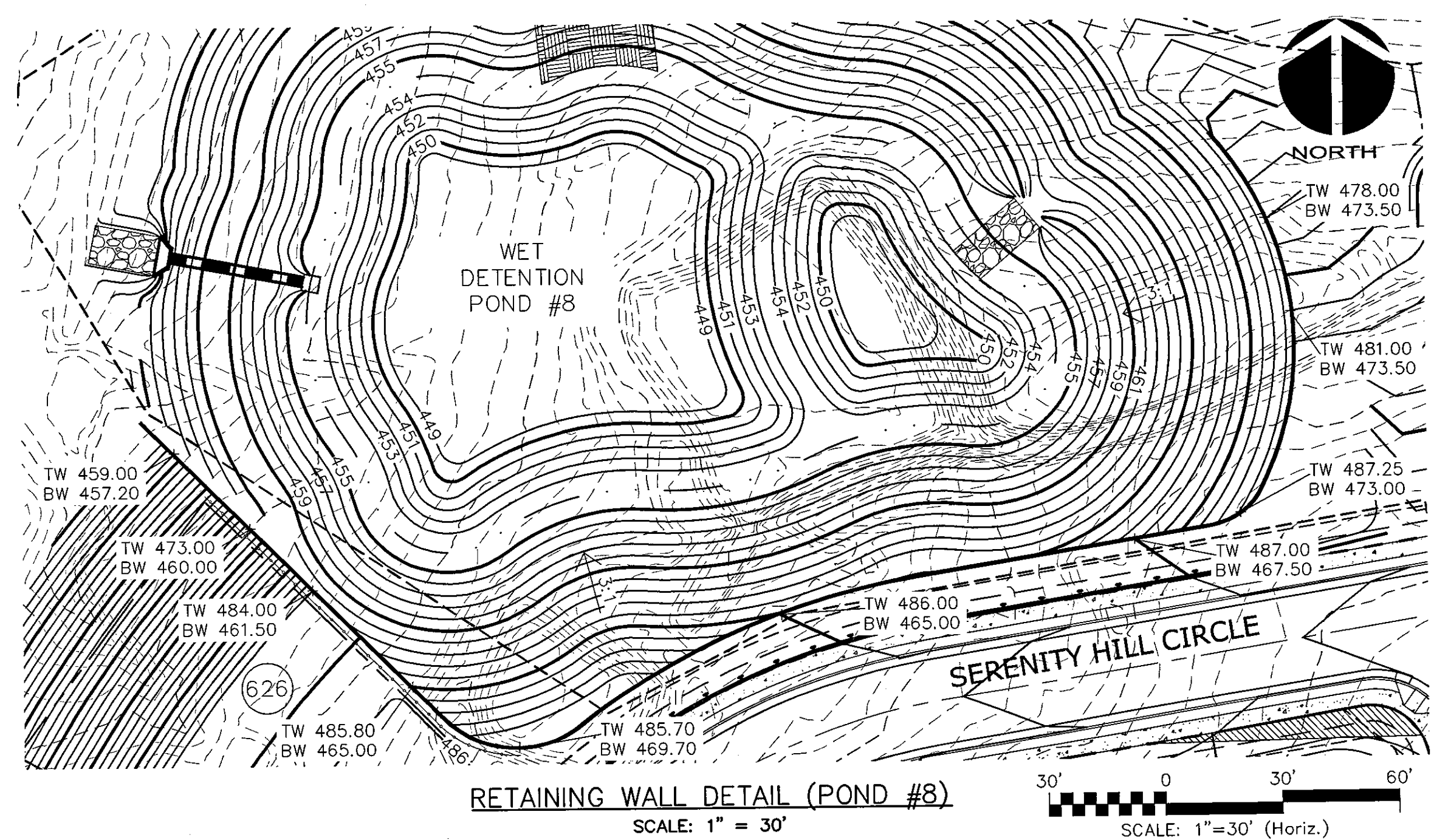
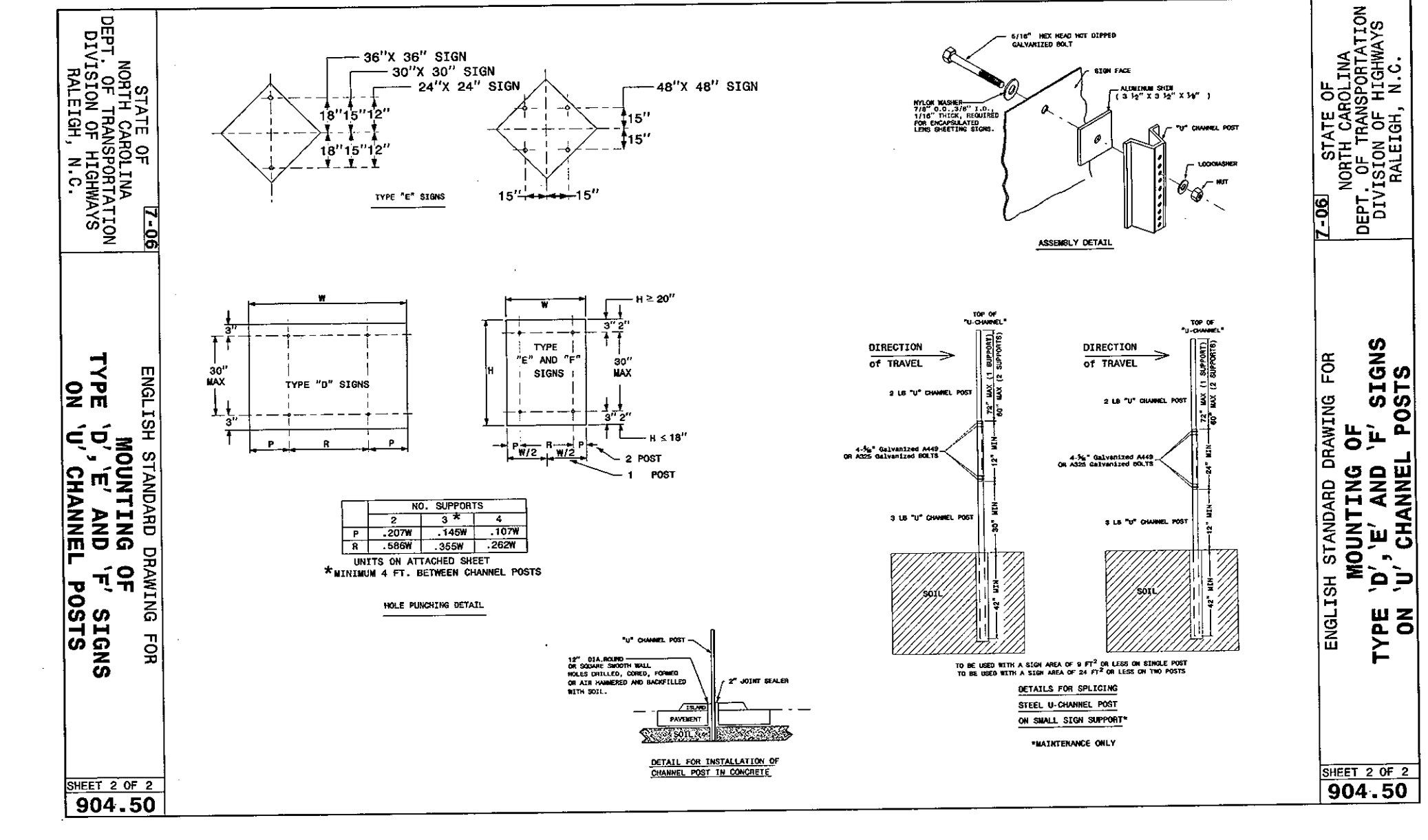
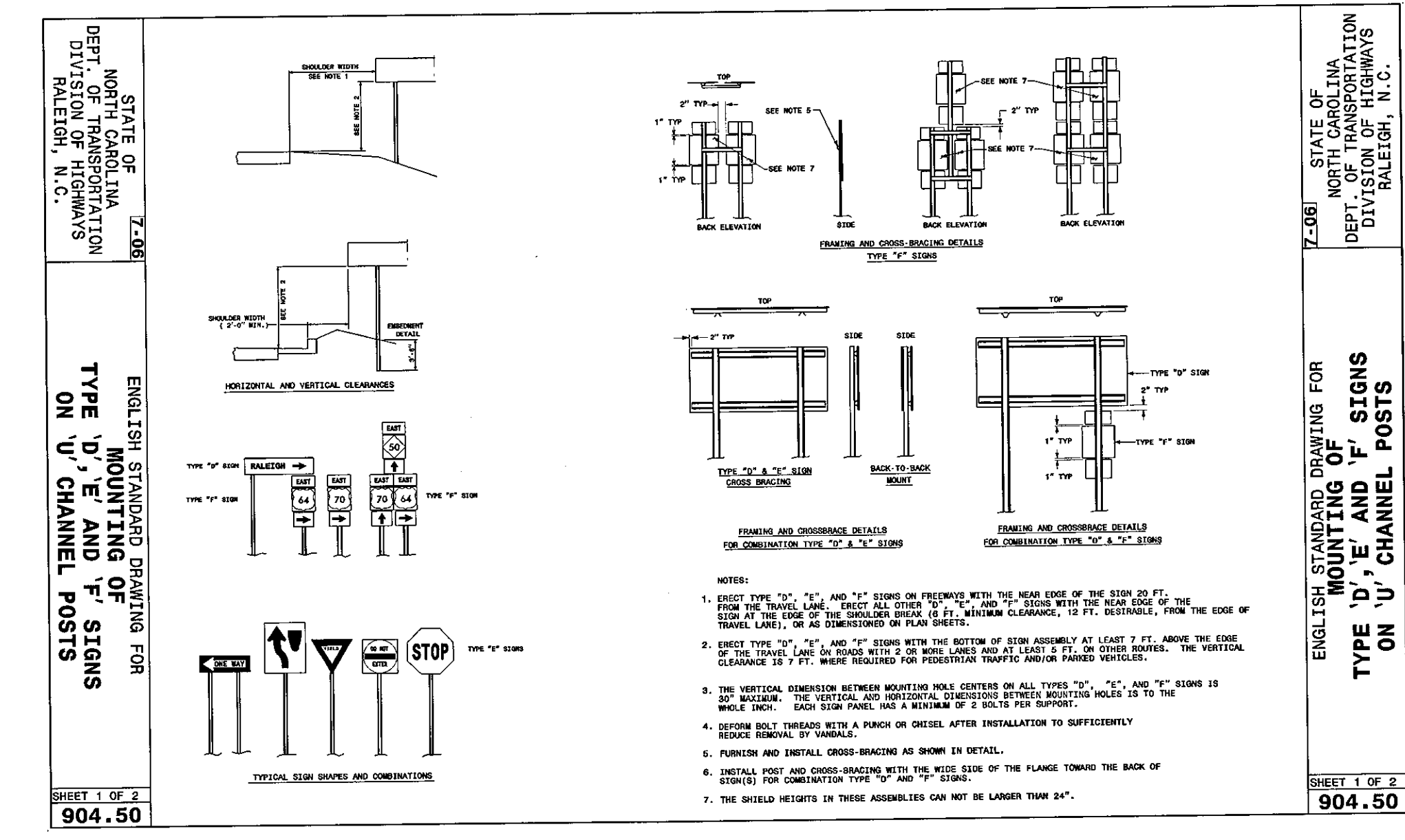
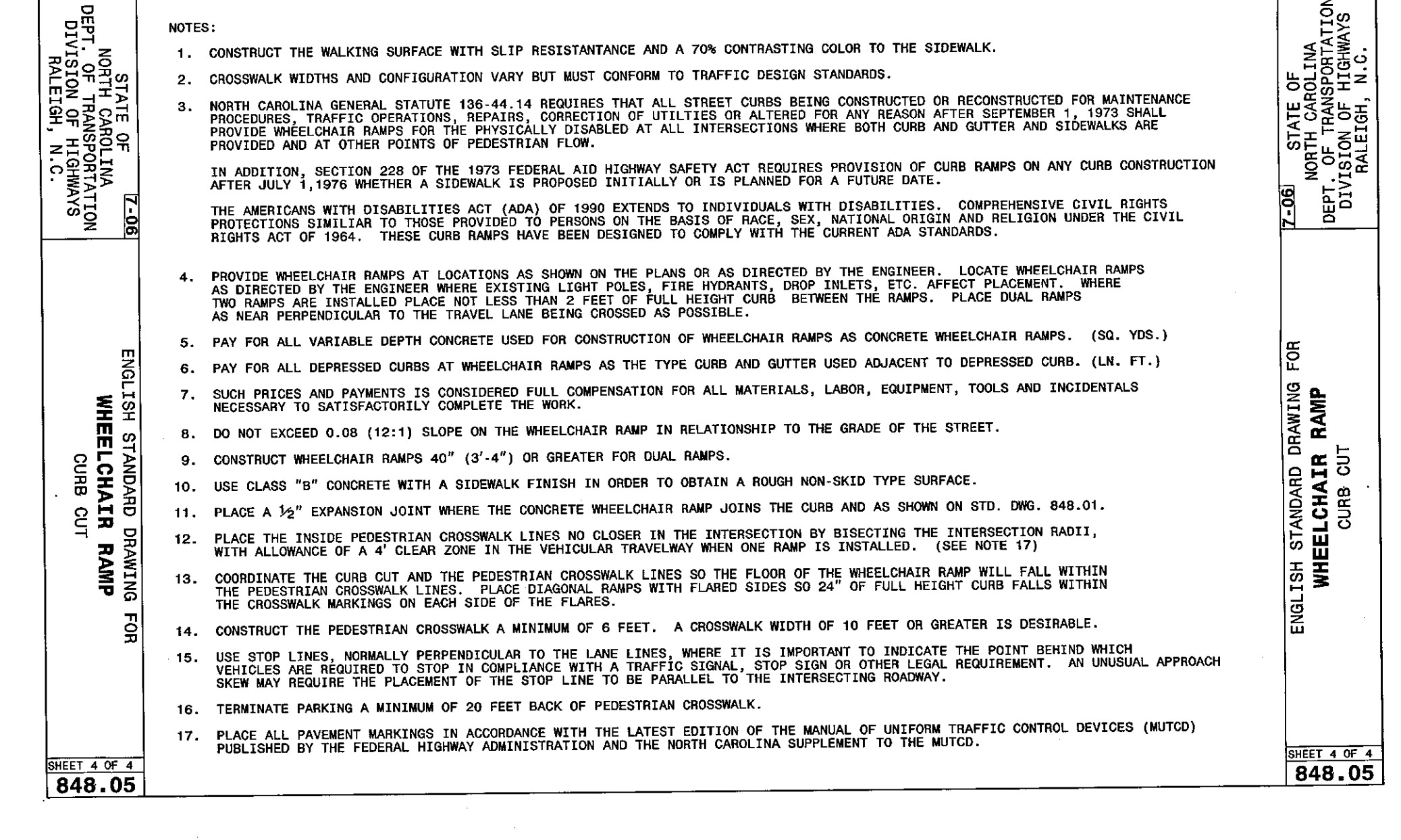
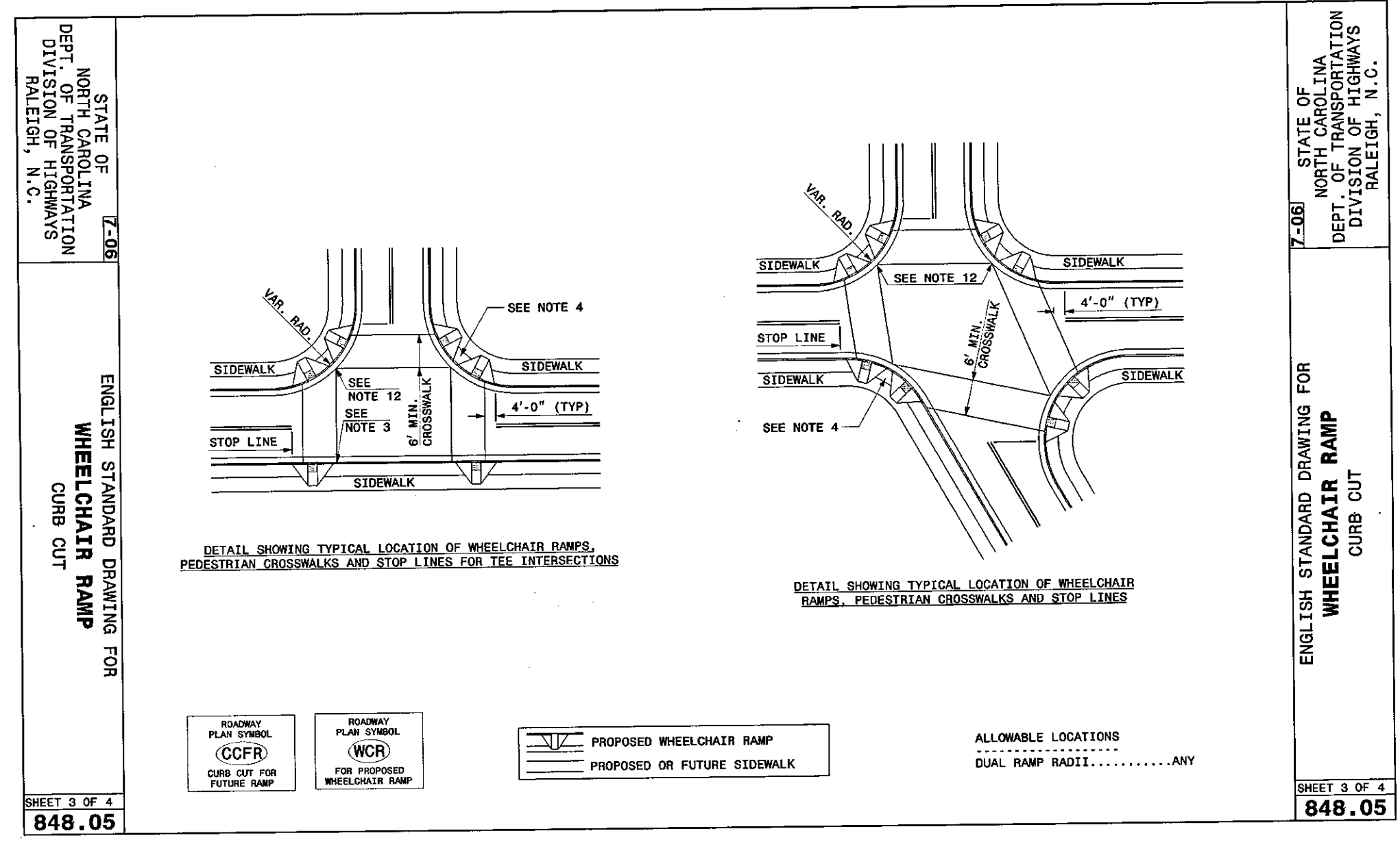
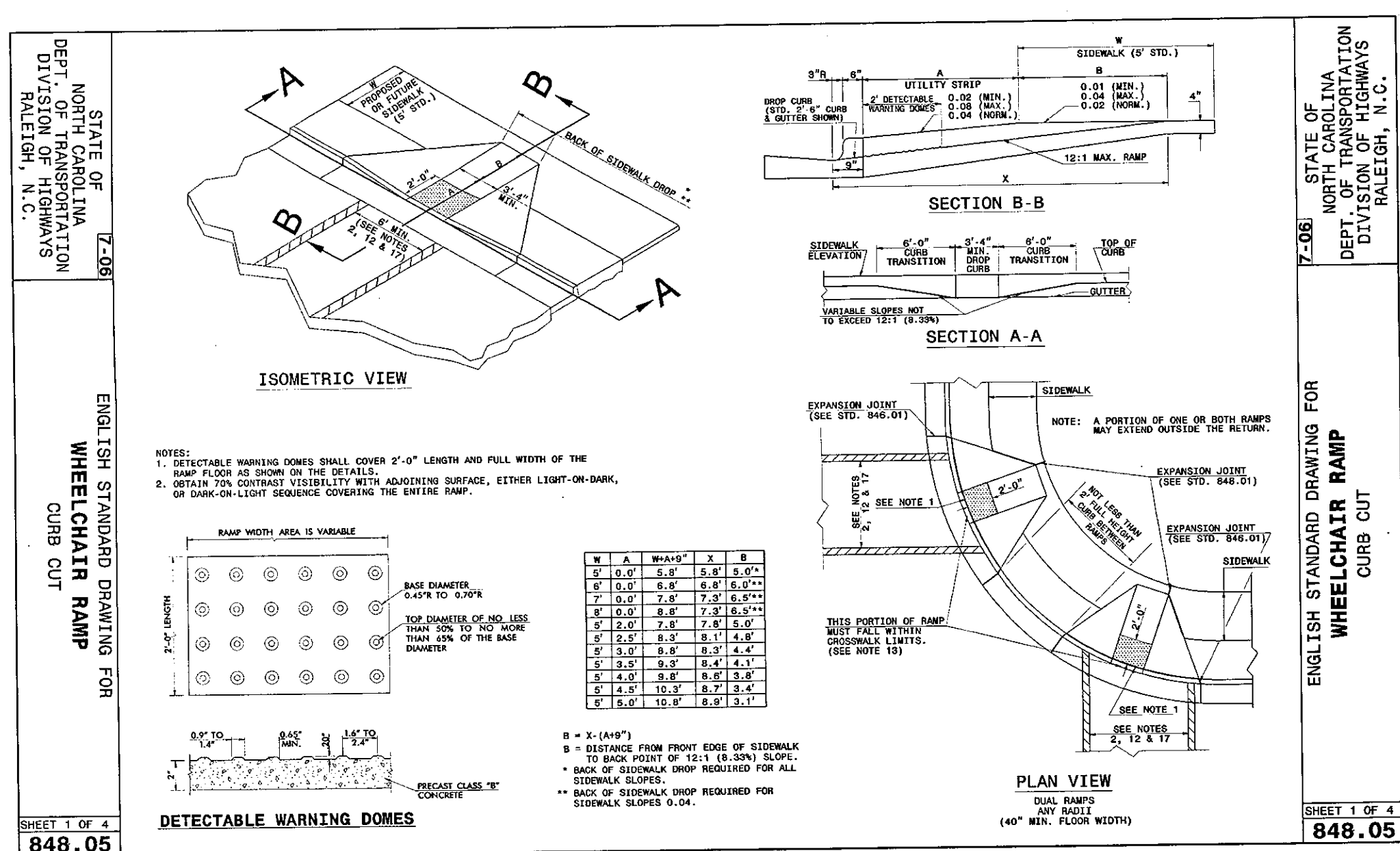
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DATE: AUGUST 6, 2010
 MCE PROJ. # 02735-0069
 DRAWN: CMB
 DESIGNED: CMB
 CHECKED: GML
 PROJ. MGR.: GML

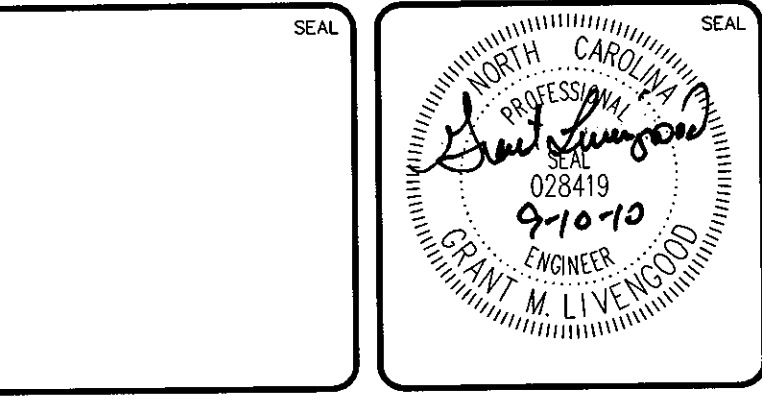
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 VERTICAL: NA

MFC FILE NUMBER: CT501
 DRAWING NUMBER: D-5

STATUS: ISSUED FOR PERMIT
 REVISION: 2



REVNO.	DESCRIPTIONS	DATE
2	PRELIMINARY PLAT SUBMITTAL TO CHATHAM COUNTY PLANNING	09.10.2010
1	SUBMITTAL TO CLIENT FOR REVIEW	08.06.2010



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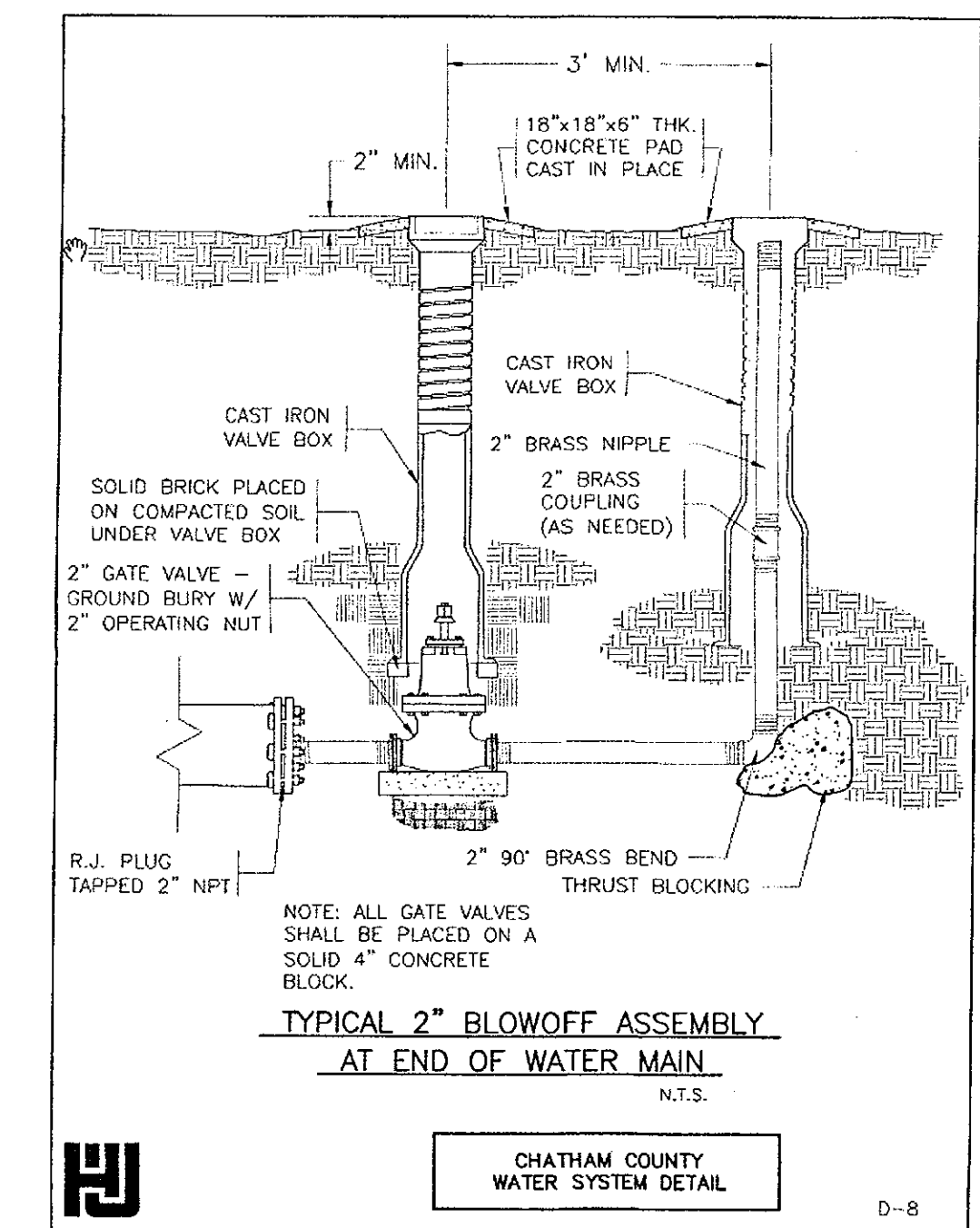
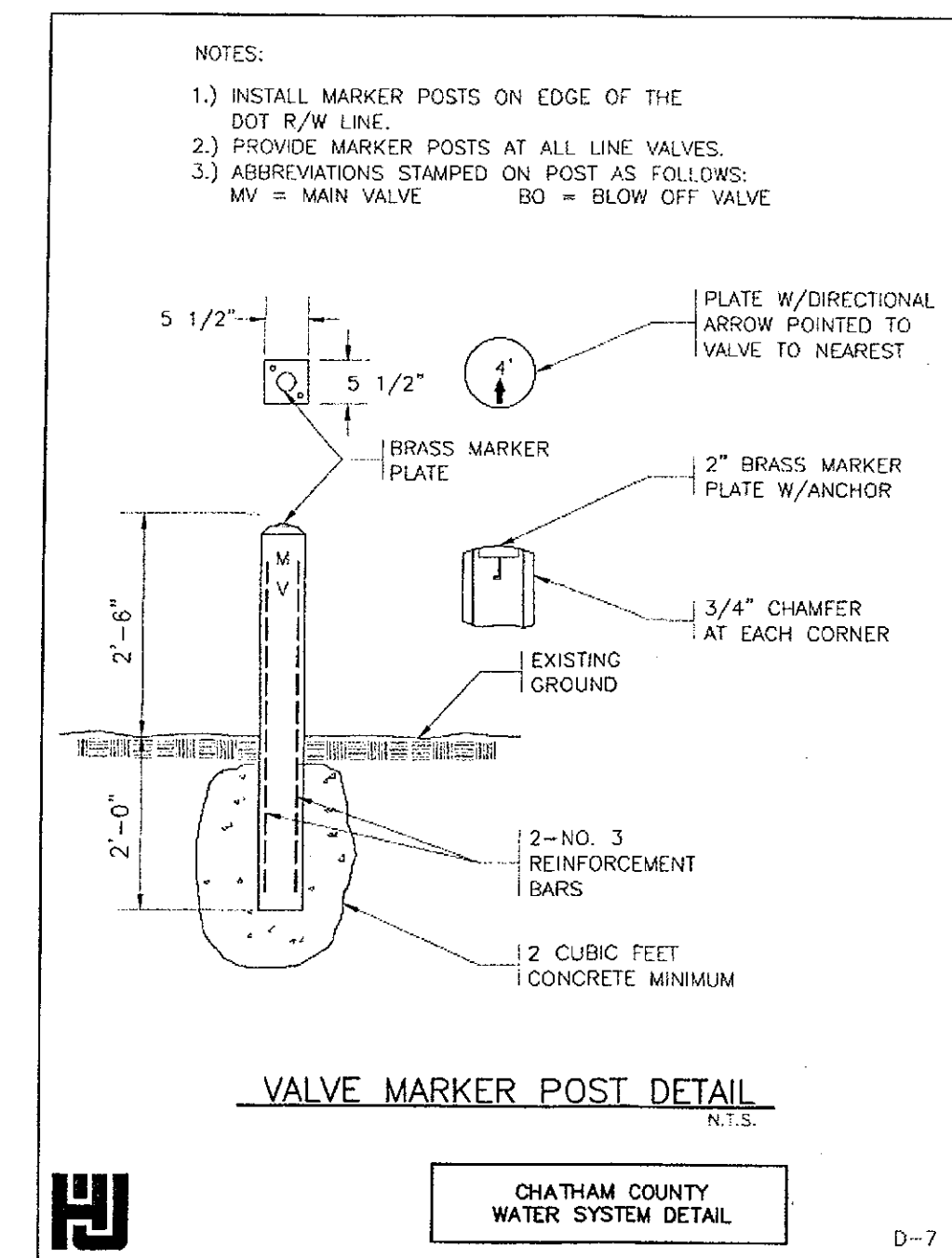
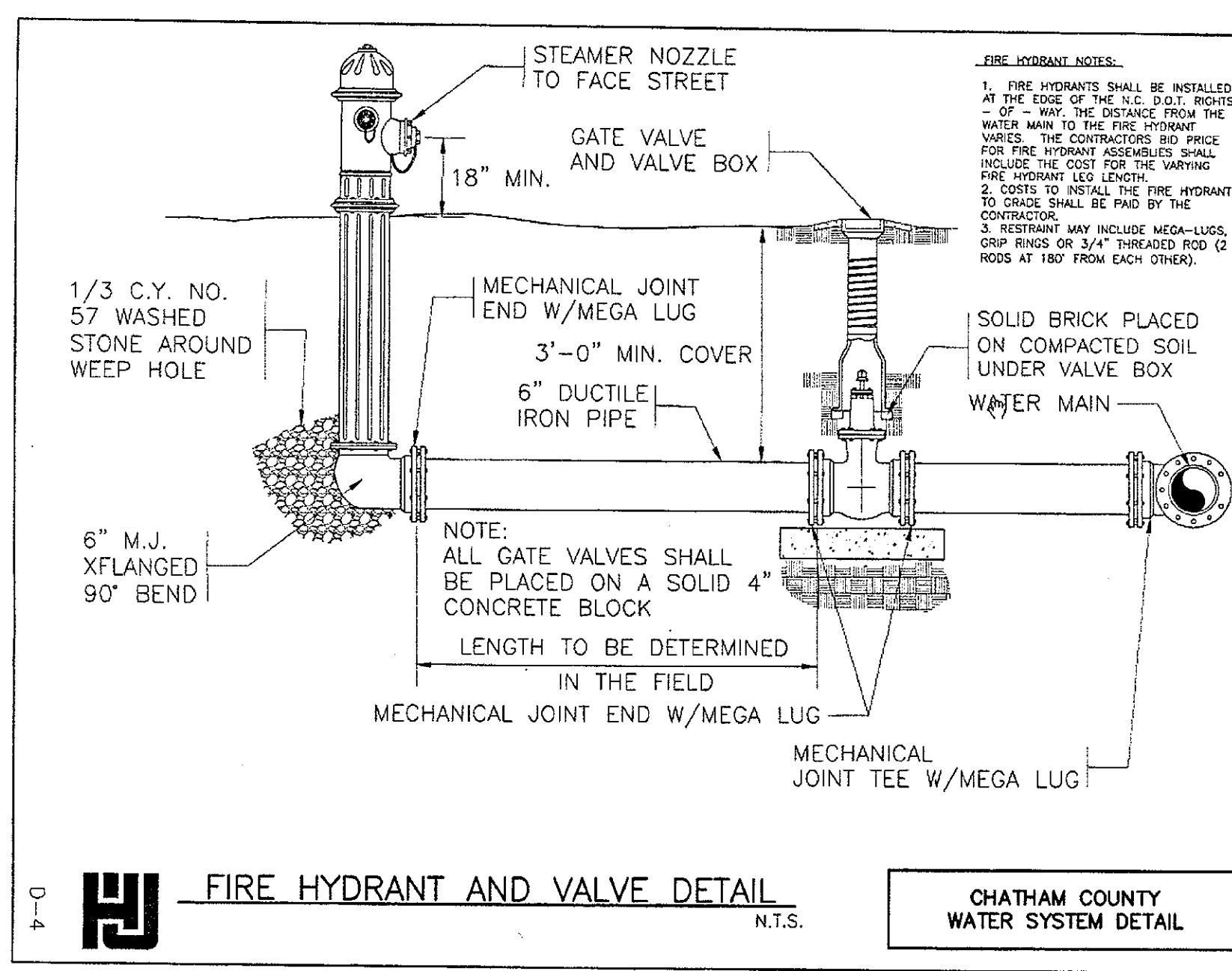
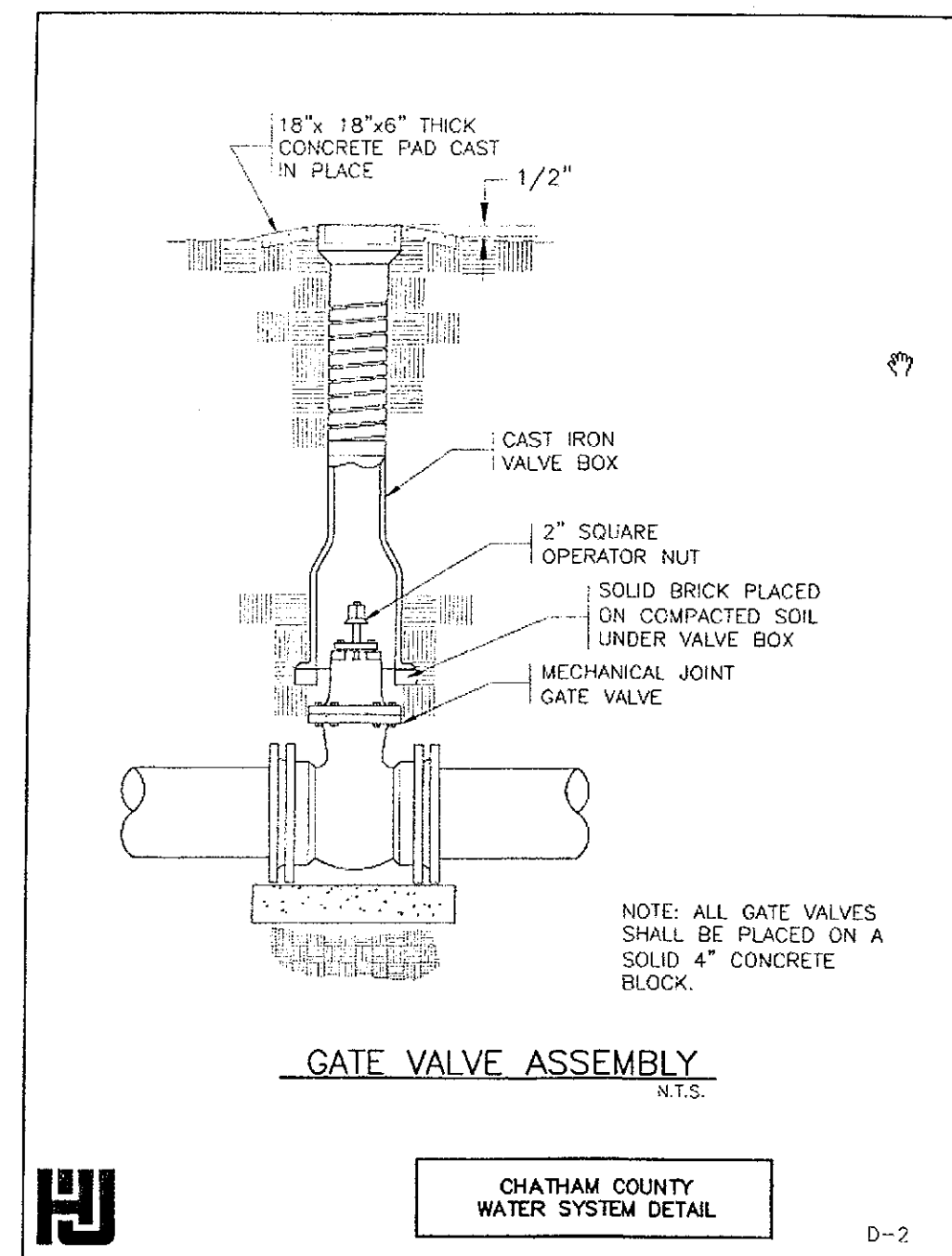
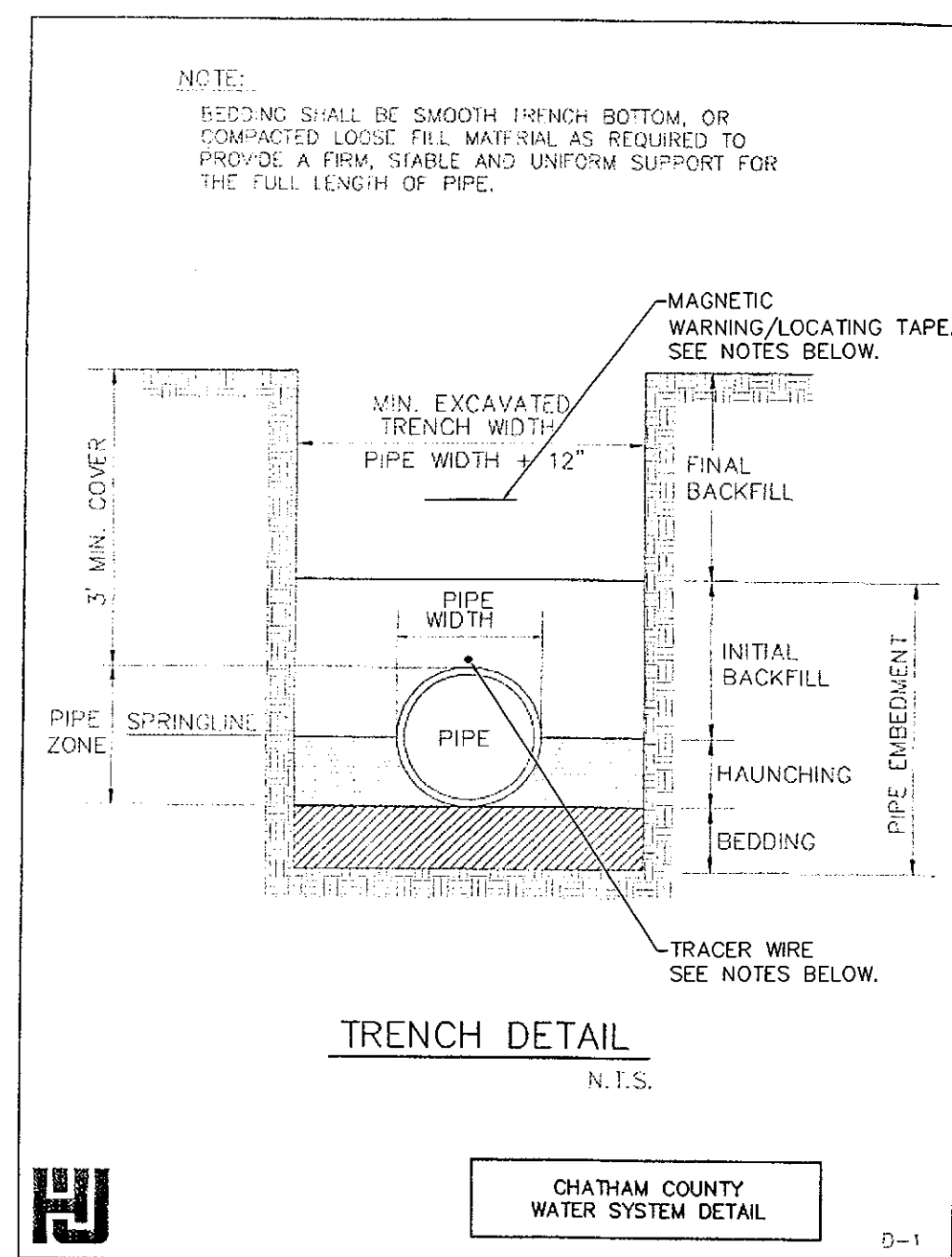
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**BRIAR CHAPEL
PHASE 5 NORTH
CHATHAM COUNTY, NORTH CAROLINA**

SITE DETAILS

DATE: AUGUST 6, 2010	SCALE: CS501
MCE PROJ. # 02735-0089	DRAWING NUMBER: D-6
DRAWN: CMB	HORIZONTAL: NA
DESIGNED: CMB	VERTICAL: NA
CHECKED: GML	REVISION: 2
PROJ. MGR: GML	STATUS: ISSUED FOR PERMIT

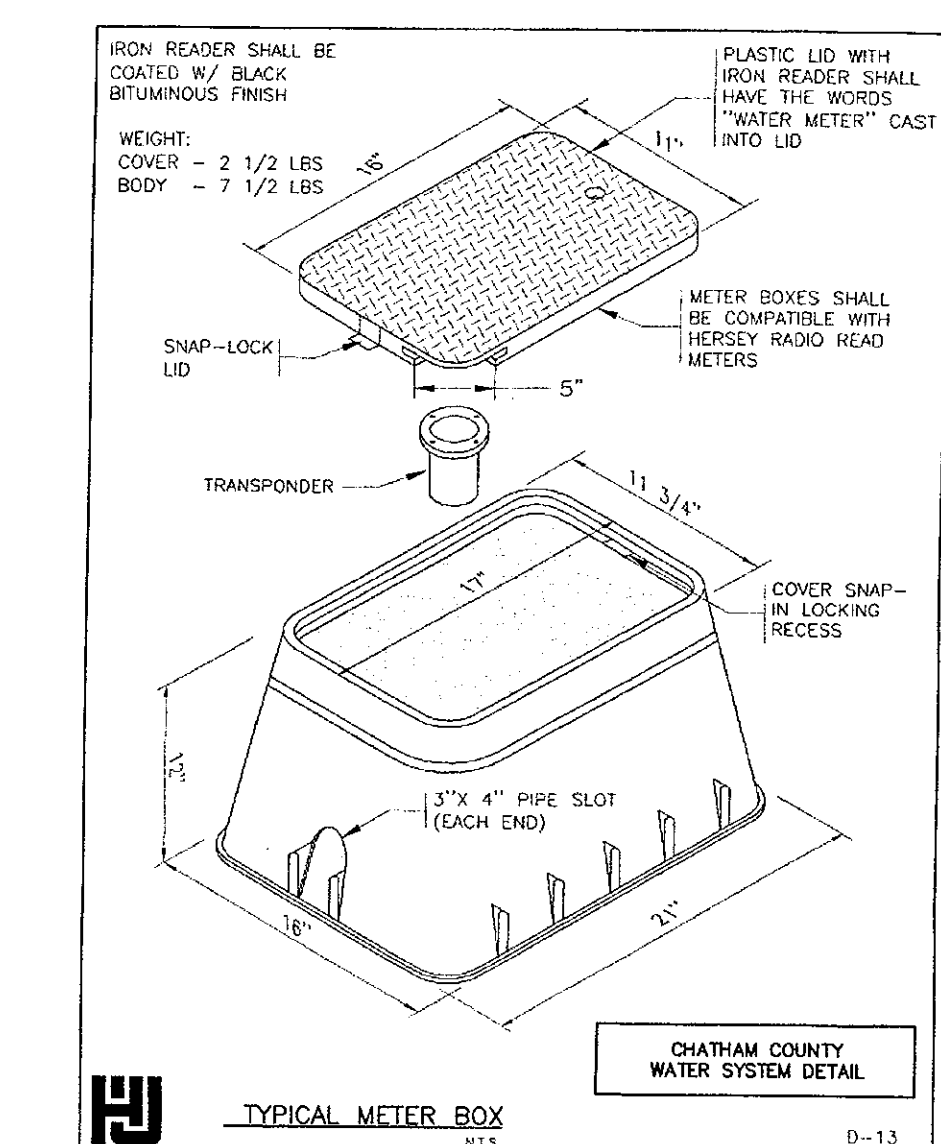
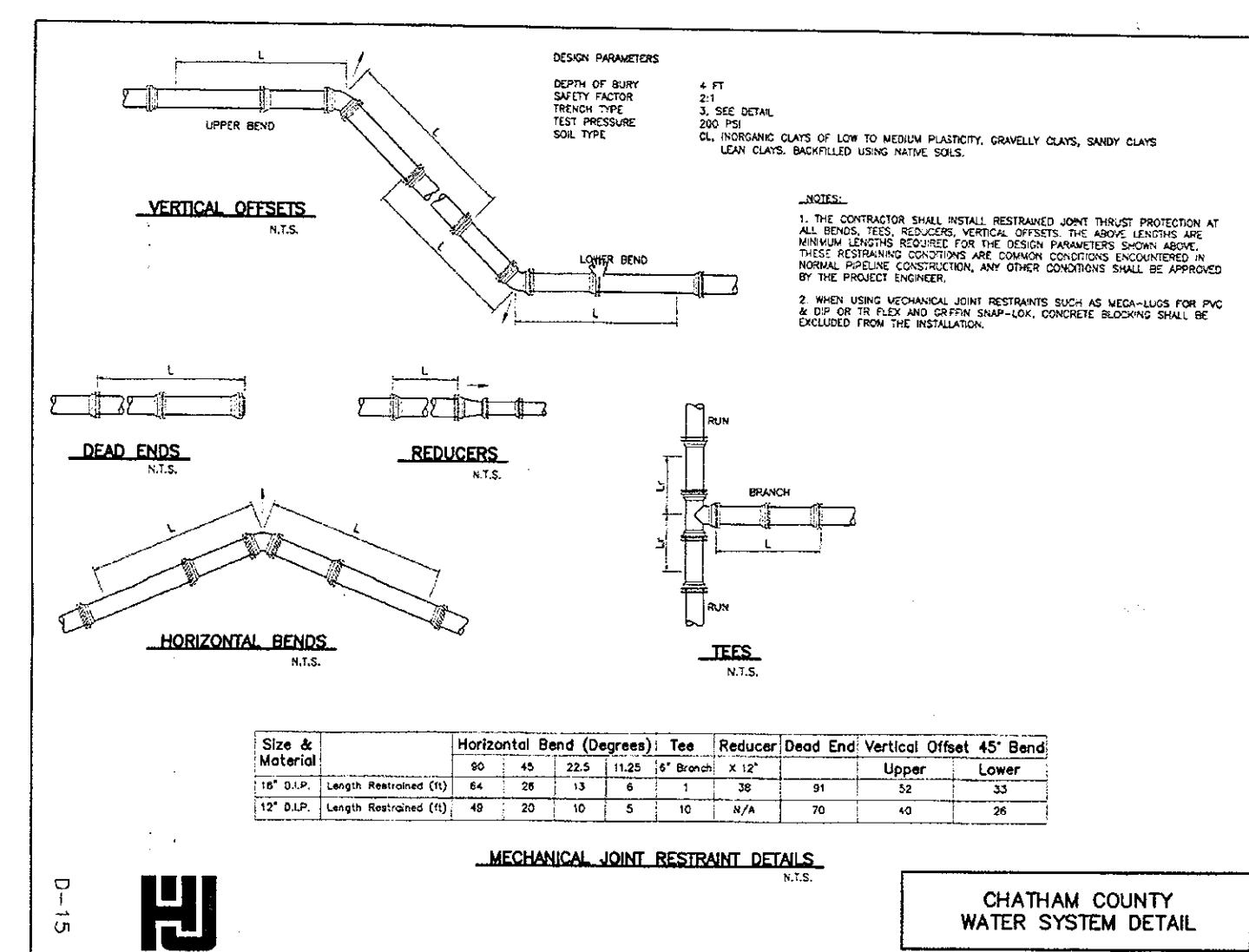
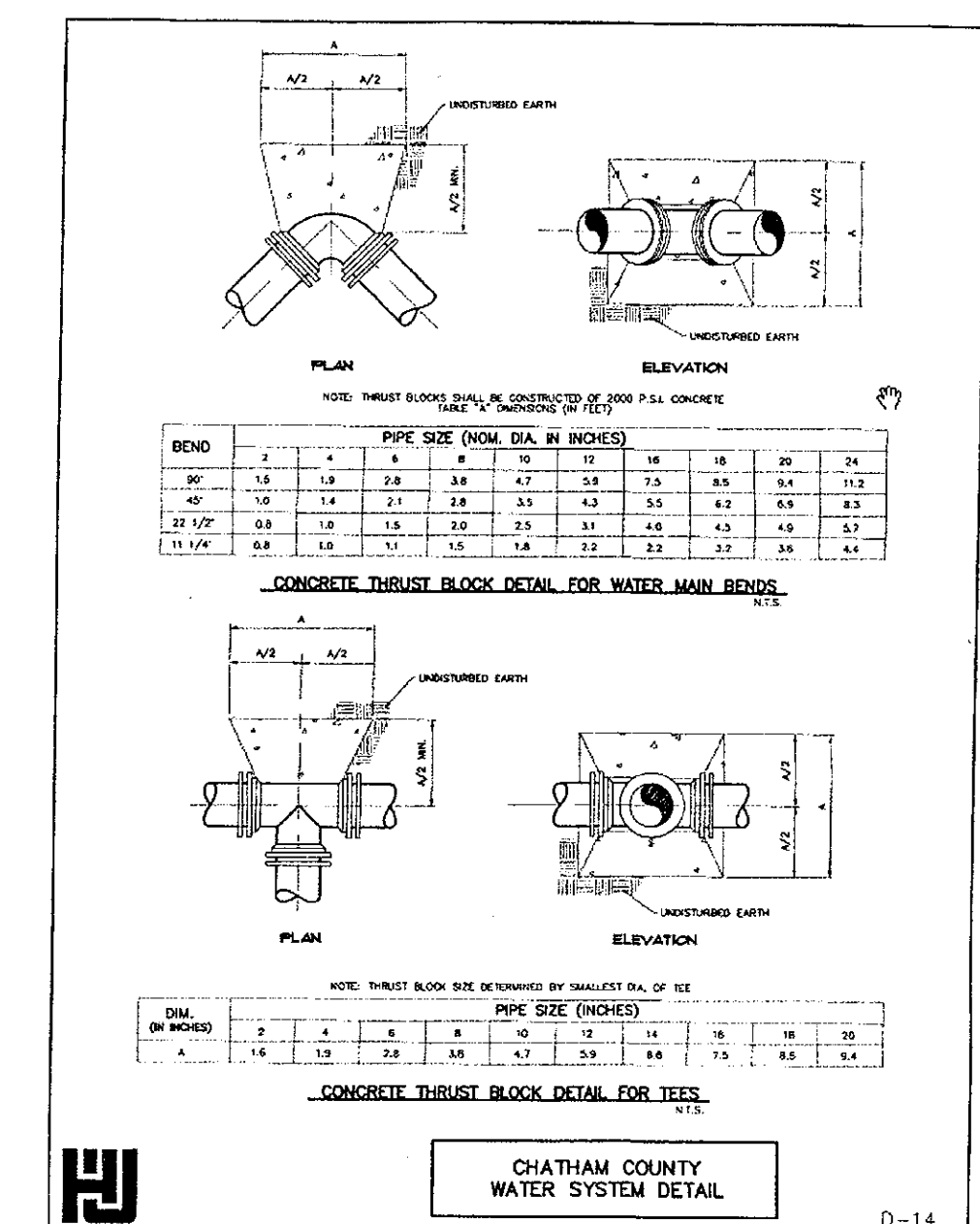
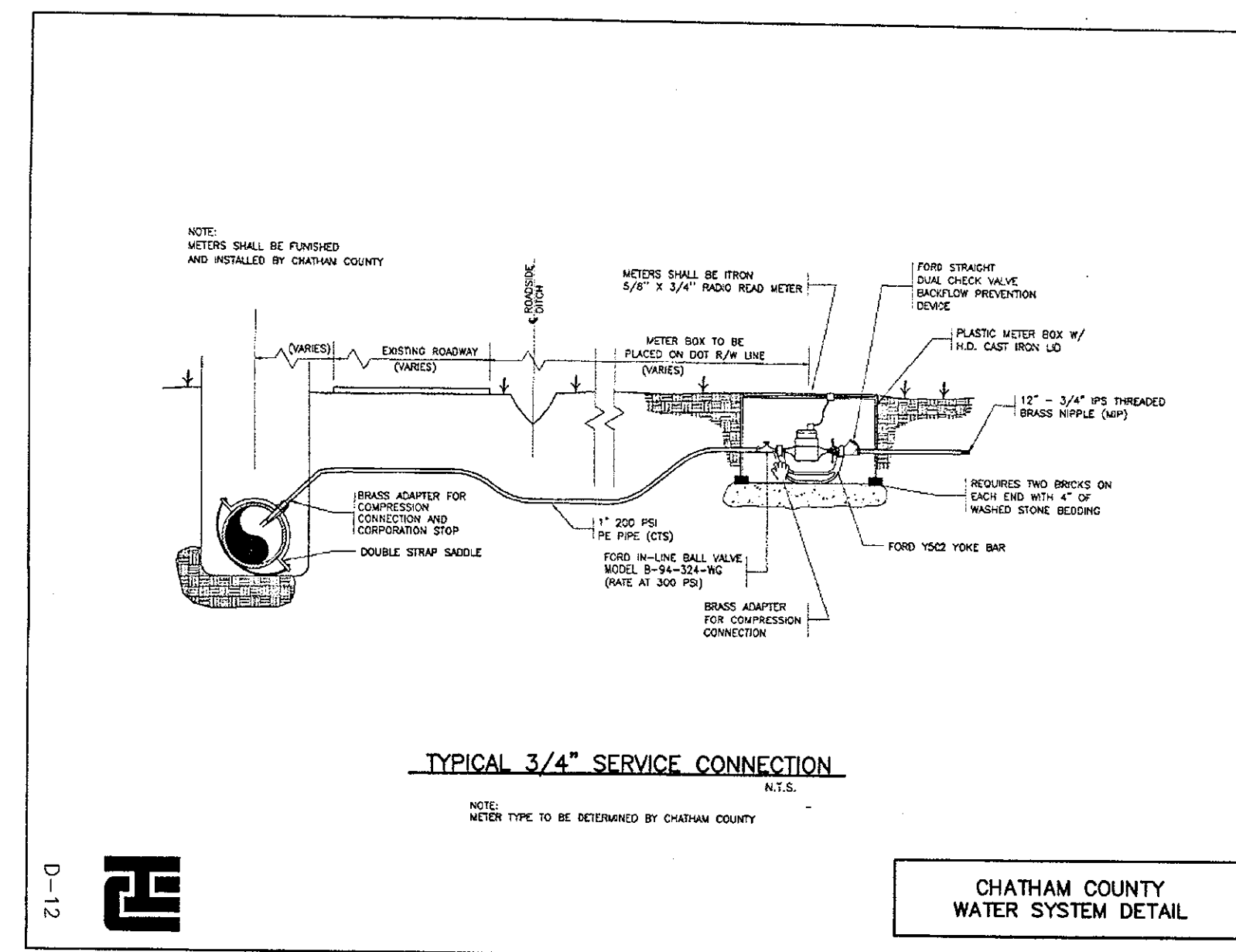
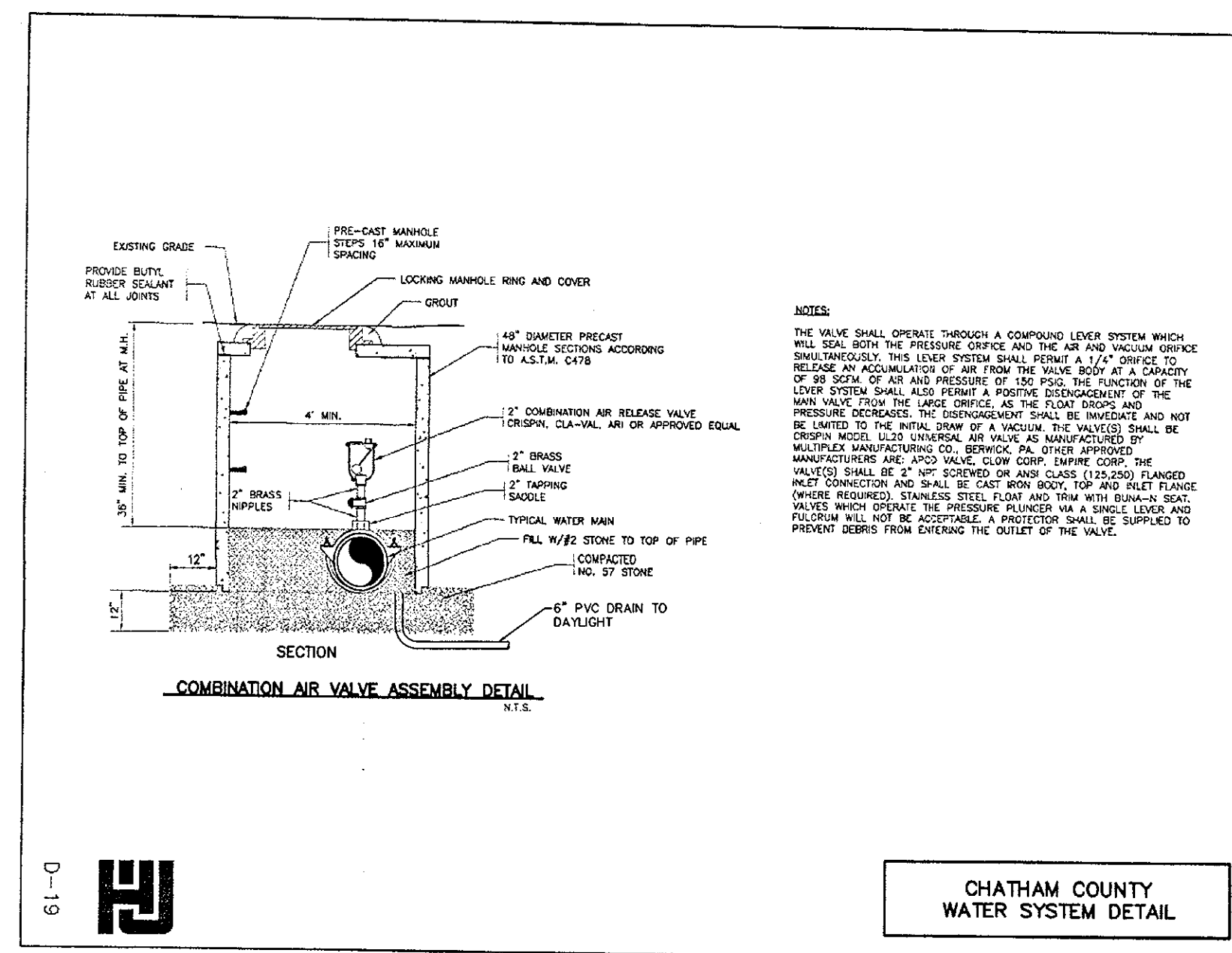
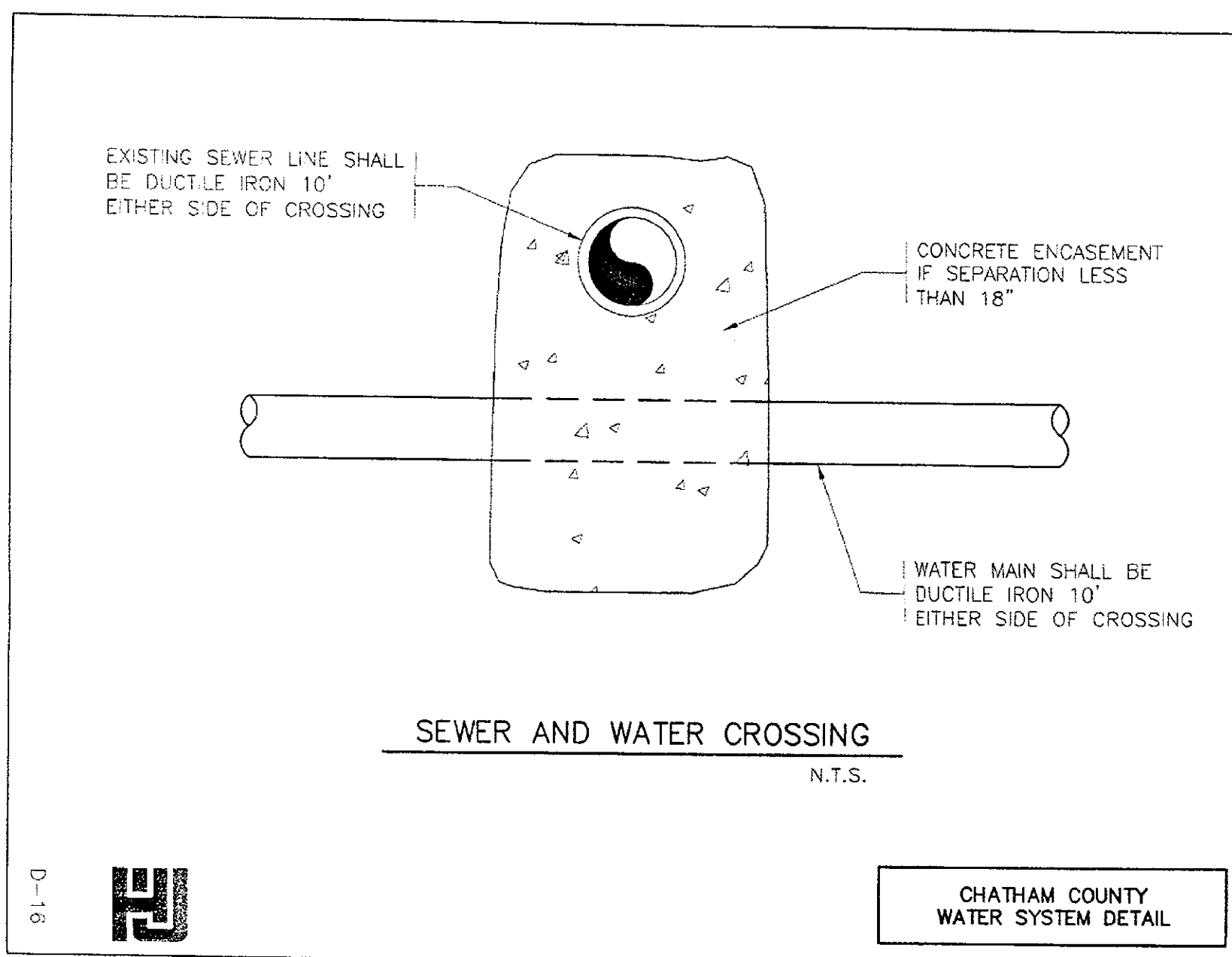


DETECTABLE WARNING TAPE NOTES:

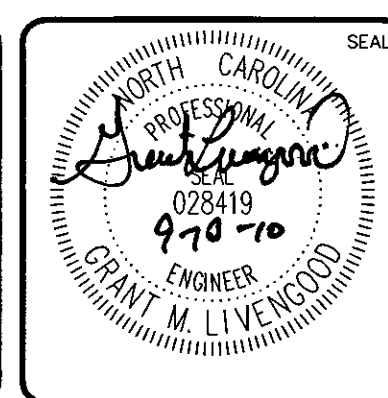
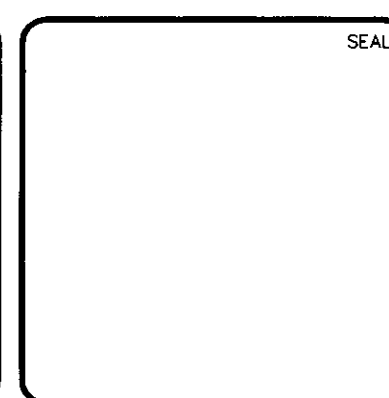
1. THE TAPE SHALL BE AN INERT, BONDED LAYER PLASTIC WITH A METALIZED FOIL CORE AND SHALL BE HIGHLY RESISTANT TO ALKALIS, ACID, OR OTHER DESTRUCTIVE CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS.
2. THE TAPE SHALL BE BRIGHTLY COLORED TO CONTRAST WITH SOIL AND SHALL BEAR AN IMPRINT IDENTIFYING THE TYPE OF LINE BURIED BELOW. THE TAPE SHALL BE A MINIMUM OF 2" WIDE.
3. THE TAPE SHALL BE BURIED A MINIMUM OF 6" AND A MAXIMUM OF 12" BELOW THE GROUND SURFACE DIRECTLY ABOVE THE WATER LINE WITH PRINTED SIDE UP.

TRACER WIRE NOTES:

1. TRACER WIRE IS TO BE STANDARD NO. 12 GAUGE COATED COPPER WIRE.
2. LOCATION WIRE CONNECTIONS ARE TO BE A WATER TIGHT CONNECTION USING TWISTER DB PLUS WATERPROOF WIRE CONNECTORS OR AN APPROVED EQUIV.



REV.	DESCRIPTION	DATE
3	PRELIMINARY PLAT SUBMITTAL TO CHATHAM COUNTY PLANNING	09.10.2010
2	REVISED PER CHATHAM COUNTY PUBLIC UTILITIES COMMENTS	09.01.2010
1	SUBMITTAL TO CLIENT FOR REVIEW	08.06.2010



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BRIAR CHAPEL PHASE 5 NORTH CHATHAM COUNTY, NORTH CAROLINA
WATER DETAILS

DATE: AUGUST 6, 2010	SCALE:	MAC FILE NUMBER:
MCE PROJ. # 02735-0089	HORIZONTAL: NA	CU501
DRAWN: CMB	VERTICAL: NA	D-7
DESIGNED: CMB		
CHECKED: GML		
PROJ. MGR.: GML		
STATUS: ISSUED FOR PERMIT	REVISION: 3	

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PRECAST SANITARY SEWER MANHOLE 4' AND 5' DIAMETER

4' PRECAST MANHOLE

5' PRECAST MANHOLE

GENERAL NOTES:
 PROVIDE PRECAST MANHOLE COMPONENTS WHICH COMPLY WITH AASHTO M199. ASSEMBLE RISERS AND GRADE RINGS SO STEPS HAVE A SPACING OF 12" FROM THE TOP TO THE BOTTOM OF THE MANHOLE. WHERE THE MANHOLE IS EXPOSED TO ROADWAY TRAFFIC, PLACE THE TOP OF THE MANHOLE FLUSH WITH THE GROUND; AND AT OTHER LOCATIONS PLACE THE TOP A MINIMUM OF 6" ABOVE THE GROUND.
 REINFORCED CONCRETE FOOTING IS REQUIRED WHEN THE MANHOLE IS OVER 12' OR ON A POOR SOIL BASE. THE FOOTING AND BASE SECTION MAY BE PRECAST.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PRECAST SANITARY SEWER MANHOLE 4' AND 5' DIAMETER

SHEET 1 OF 2 1525.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PRECAST SANITARY SEWER MANHOLE 4' AND 5' DIAMETER

REINFORCED CONCRETE FOOTING FOR 5' PRECAST MANHOLE OR 4' PRECAST MANHOLE

BILL OF MATERIAL FOR 7'-0" FOOTING

BAR SIZE	LENGTH	NO.	WT. lbs.
T1	#5 6'-6"	20	136
CLASS "A" CONC.	YD ³ 9"	THICK	1.361
CLASS "A" CONC.	YD ³ 12"	THICK	1.815

BILL OF MATERIAL FOR 6'-0" FOOTING

BAR SIZE	LENGTH	NO.	WT. lbs.
T2	#5 5'-6"	18	103
CLASS "A" CONC.	YD ³ 9"	THICK	1.000

BILL OF MATERIAL FOR 8'-0" FOOTING

BAR SIZE	LENGTH	NO.	WT. lbs.
T3	#5 7'-6"	24	188
CLASS "A" CONC.	YD ³ 12"	THICK	2.370

PLACE REINFORCING STEEL SO THAT STEEL IS PLACED A MIN. OF 2" AND A MAX. OF 4" FROM THE TOP OF THE SLAB.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PRECAST SANITARY SEWER MANHOLE 4' AND 5' DIAMETER

SHEET 2 OF 2 1525.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PRECAST SANITARY SEWER MANHOLE 4' AND 5' DIAMETER

MANHOLE COVER AND FRAME

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PRECAST SANITARY SEWER MANHOLE 4' AND 5' DIAMETER

SHEET 1 OF 1 840.54

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PRECAST SANITARY SEWER DROP MANHOLE 5' DIAMETER

5' PRECAST SANITARY SEWER DROP MANHOLE

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PRECAST SANITARY SEWER DROP MANHOLE 5' DIAMETER

SHEET 1 OF 1 1525.04

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PRECAST CONCRETE SANITARY SEWER MANHOLE 5' DIAMETER

5' PRECAST CONCRETE SANITARY SEWER MANHOLE

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PRECAST CONCRETE SANITARY SEWER MANHOLE 5' DIAMETER

SHEET 1 OF 1 1525.06

CONCRETE ENCASUREMENT (3000 PSI MIX)

FINISHED GRADE

2-1/2" MIN THICKNESS ASPHALT PAVEMENT

3000 PSI CONCRETE MINIMUM 6" THICK

STANDARD MANHOLE RING & COVER

STANDARD MANHOLE CONE

BASE COURSE (THICKNESS PER ROADWAY DESIGN)

COMPACTED BACKFILL

18" MIN

FOR MANHOLES LOCATED WITHIN PAVED AREAS ONLY

STANDARD MANHOLE RING & COVER ENCASUREMENT

NTS

NOTES:
 1. SANITARY SEWER CLEANOUT TO BE LOCATED JUST OUTSIDE ROW LINE FOR REAR SERVICED LOTS AND 8 FT OFF ROW LINE FOR FRONT SERVICED LOTS.

STANDARD SANITARY SEWER TAP AND SERVICE

NTS

SOLVENT CEMENT SEAL

ABS OR PVC SADDLE

STAINLESS STEEL BANDS

PVC PIPE

SPECIAL GASKET BY MFR WITH SPECIAL SEALANT

CAST IRON SADDLE

DUCTILE IRON PIPE

VARIES (SEE NOTE)

R.O.W.

CLEANOUT PLUG

SANITARY SEWER

PLAN

CLEANOUT ADAPTER H X FPT OR SPG X FPT

EXTENDED TO GRADE

LONG TURN TEE WYE

SERVICE PIPE AS SPECIFIED

1/8 BEND

MIN GRADIENT 1/8" PER FT.

ELEVATION

TAPPING SADDLE & ADAPTER AS REQ'D

NOTES:
 1. SANITARY SEWER CLEANOUT TO BE LOCATED JUST OUTSIDE ROW LINE FOR REAR SERVICED LOTS AND 8 FT OFF ROW LINE FOR FRONT SERVICED LOTS.

SANITARY SEWER SERVICE CONNECTIONS

NTS

REVNO.	DESCRIPTION	DATE
2	PRELIMINARY PLAT SUBMITTAL TO CHATHAM COUNTY PLANNING	09.10.2010
1	SUBMITTAL TO CLIENT FOR REVIEW	08.06.2010

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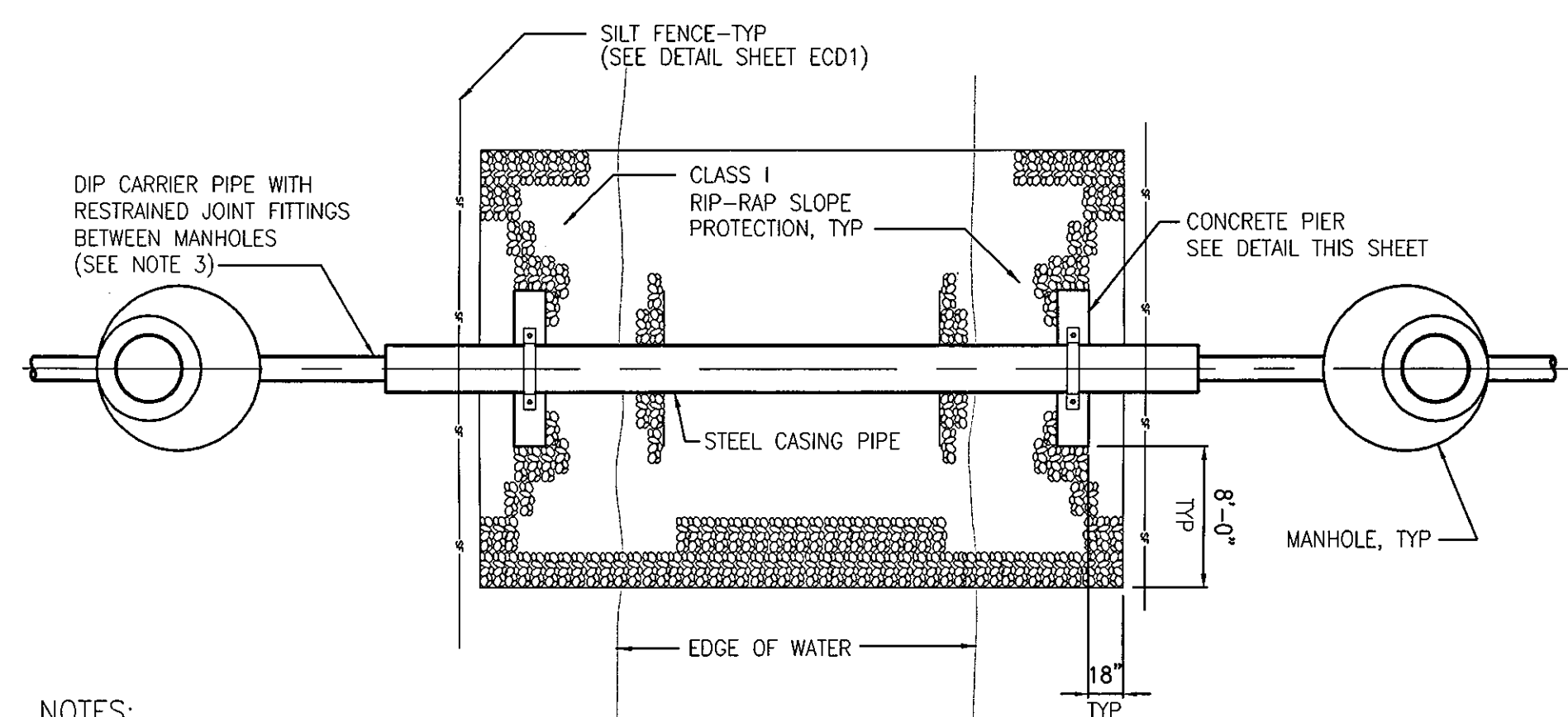
SEWER DETAILS

DATE: AUGUST 6, 2010
 MCE PROJ. # 02735-0069
 DRAWN: CMB
 DESIGNED: CMB
 CHECKED: GML
 PROJ. MGR.: GML

SCALE
 HORIZONTAL: NA
 VERTICAL: NA

MAC FILE NUMBER
 CU501
 DRAWING NUMBER
 D-8

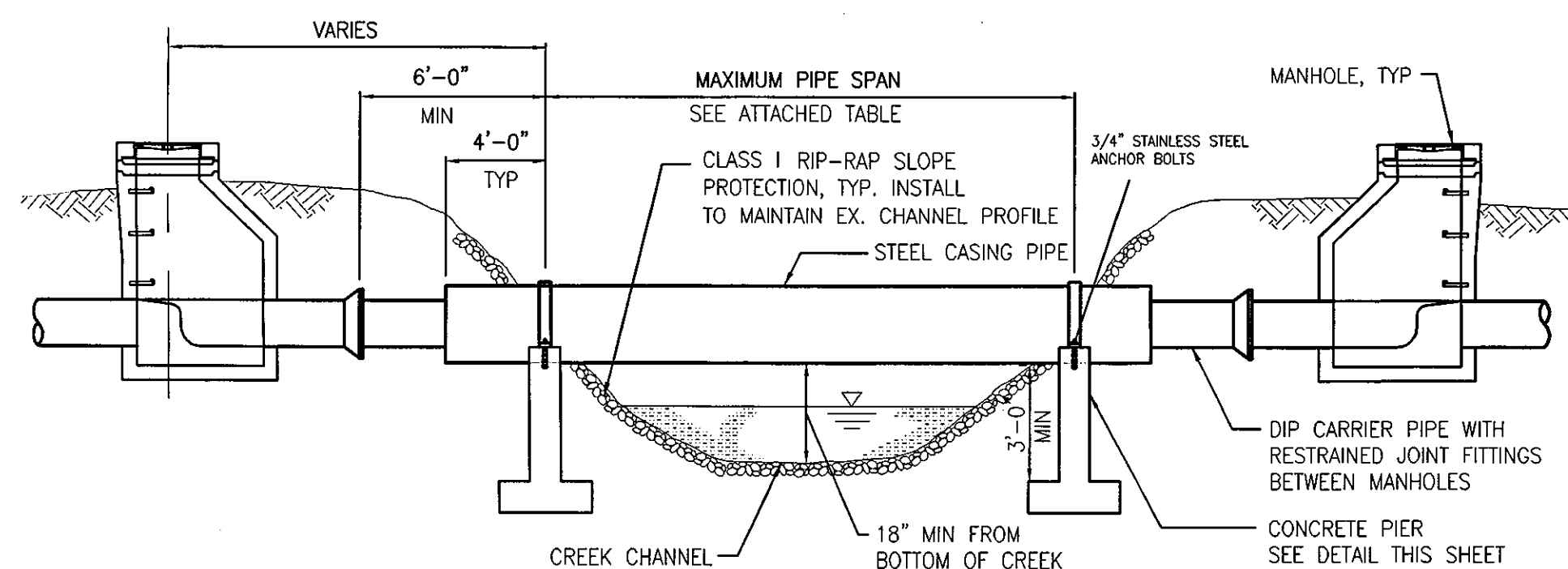
STATUS: ISSUED FOR PERMIT
 REVISION: 2



NOTES:

1. RIP RAP FOR SLOPE PROTECTION SHALL BE CLASS I RIP RAP IN ACCORDANCE WITH SECTION 868 OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES".
2. RIP RAP SHALL BE PLACED IN ACCORDANCE WITH DRAWING 868.01 OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S "ROADWAY STANDARD DRAWINGS".
3. WHERE DUCTILE IRON PIPE IS USED FOR CARRIER PIPE, DUCTILE IRON CARRIER PIPE SHALL BE INSTALLED UTILIZING 2 PIPE ALIGNMENT GUIDES.

AERIAL PIPE CROSSING - PLAN
NOT TO SCALE

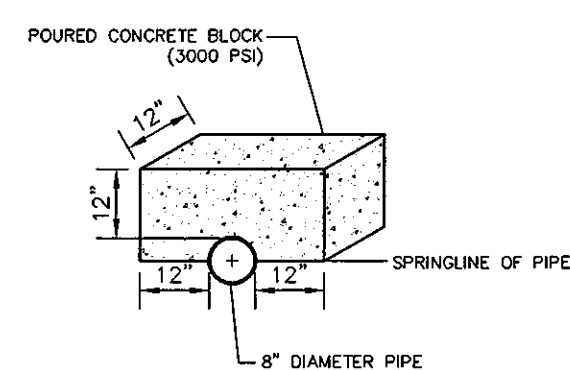


ALLOWABLE SPANS FOR STEEL CASING PIPE			
CARRIER PIPE, DIP DIAMETER (IN.)	CASING PIPE, STEEL DIAMETER (IN.)	MINIMUM CASING PIPE WALL THICKNESS (IN.)	ALLOWABLE SPAN (FT.)
6	14	0.2500	40
8	16	0.2500	45
10	18	0.3125	50
12	20	0.3125	50
14	24	0.3125	55
16	26	0.3750	55
18	30	0.3750	60
20	32	0.3750	60
24	36	0.4375	65
30	42	0.4375	65
36	48	0.4375	65
42	56	0.5000	65

NOTES:

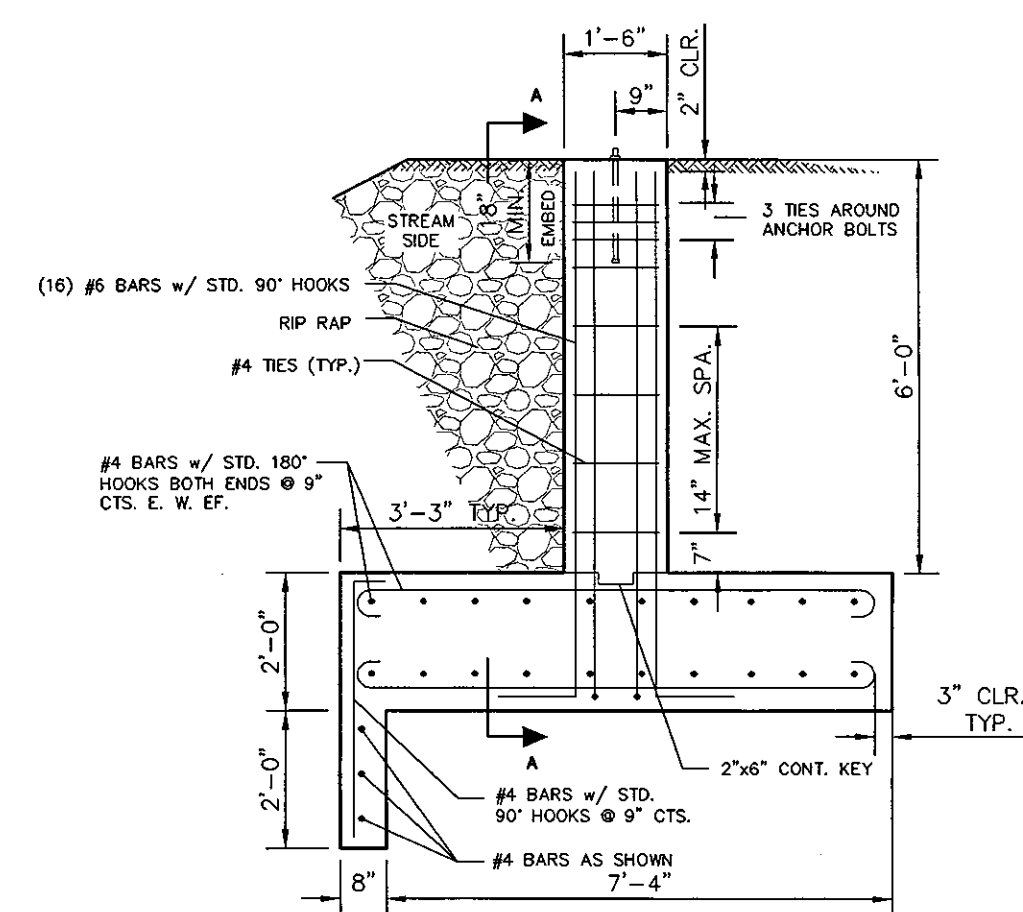
1. STEEL PIPE SHALL BE EITHER SPIRAL WELDED OR SMOOTH WALL SEAMLESS WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI. PAINTING AND LINING SHALL BE AS REQUIRED BY CHATHAM COUNTY PUBLIC WORKS.
2. DUCTILE IRON PIPE SHALL BE SUPPORTED WITH TWO SPIDERS AT EVERY JOINT WITHIN THE CASING PIPE USING APPROVED PIPE ALIGNMENT GUIDE. ALL JOINTS SHALL BE RESTRAINED JOINT.
3. SUPPORT TYPE FOR PIERS SHALL BE DETERMINED BY ENGINEER BASED ON SUBGRADE CONDITIONS AT SITE.

AERIAL PIPE CROSSING - ELEVATION
NOT TO SCALE



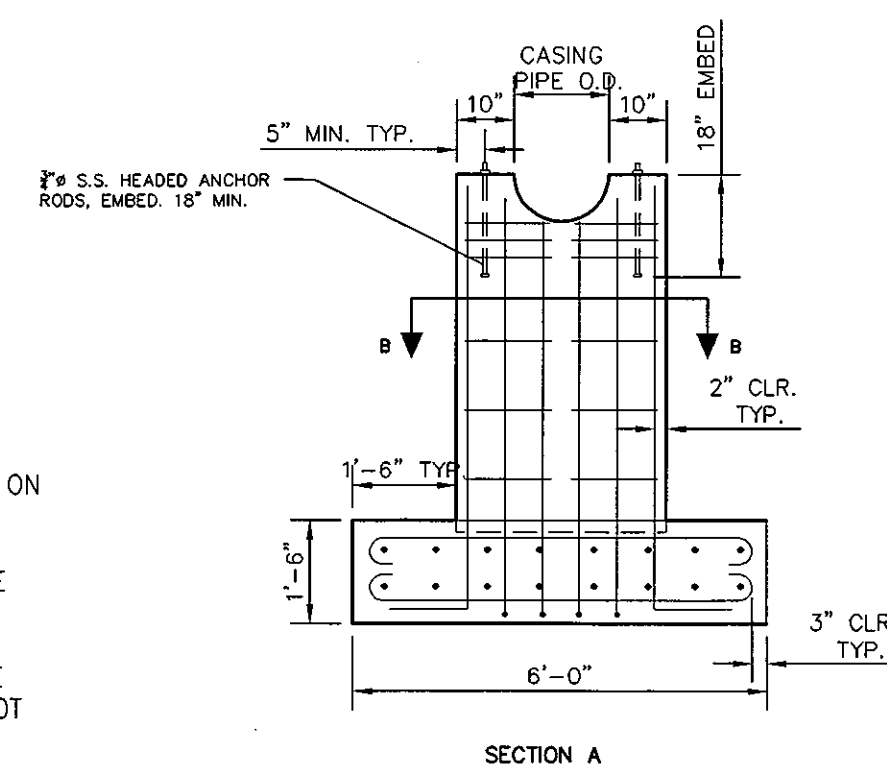
NOTE:
TWO BALLAST BLOCKS REQUIRED PER 20 FT LENGTH OF 8\"/>

PIPE BALLAST
NOT TO SCALE

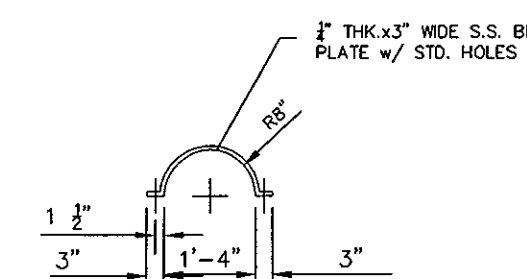
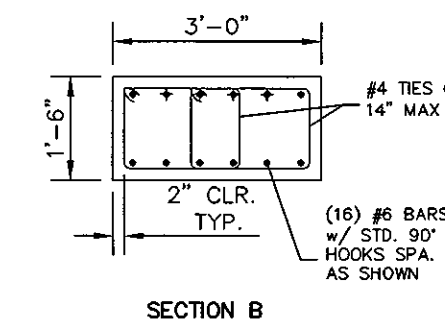


NOTES:

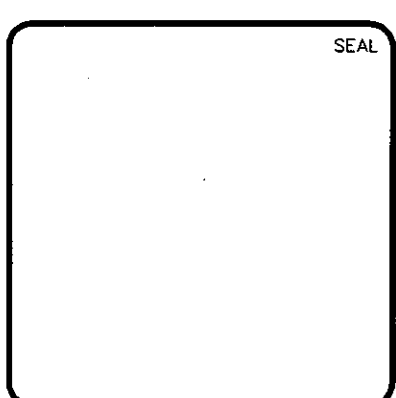
1. CASING PIPE SHALL BE 16\"/>
2. MAXIMUM SPAN SHALL BE 45'.
3. PIERS SHALL BE BACKFILLED FULL-HEIGHT ON ALL SIDES.
4. DESIGN BASED ON AN ASSUMED ALLOWABLE BEARING CAPACITY OF 2,000 PSI. BEARING CAPACITY SHALL BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. ENGINEER SHALL BE NOTIFIED IF ASSUMED BEARING CAPACITY IS NOT ACHIEVED.
5. ALL CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI MINIMUM.



CONCRETE PIER DETAIL
NOT TO SCALE



REV. NO.	DESCRIPTIONS	DATE
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1	SUBMITTAL TO CLIENT FOR REVIEW	08.13.2010



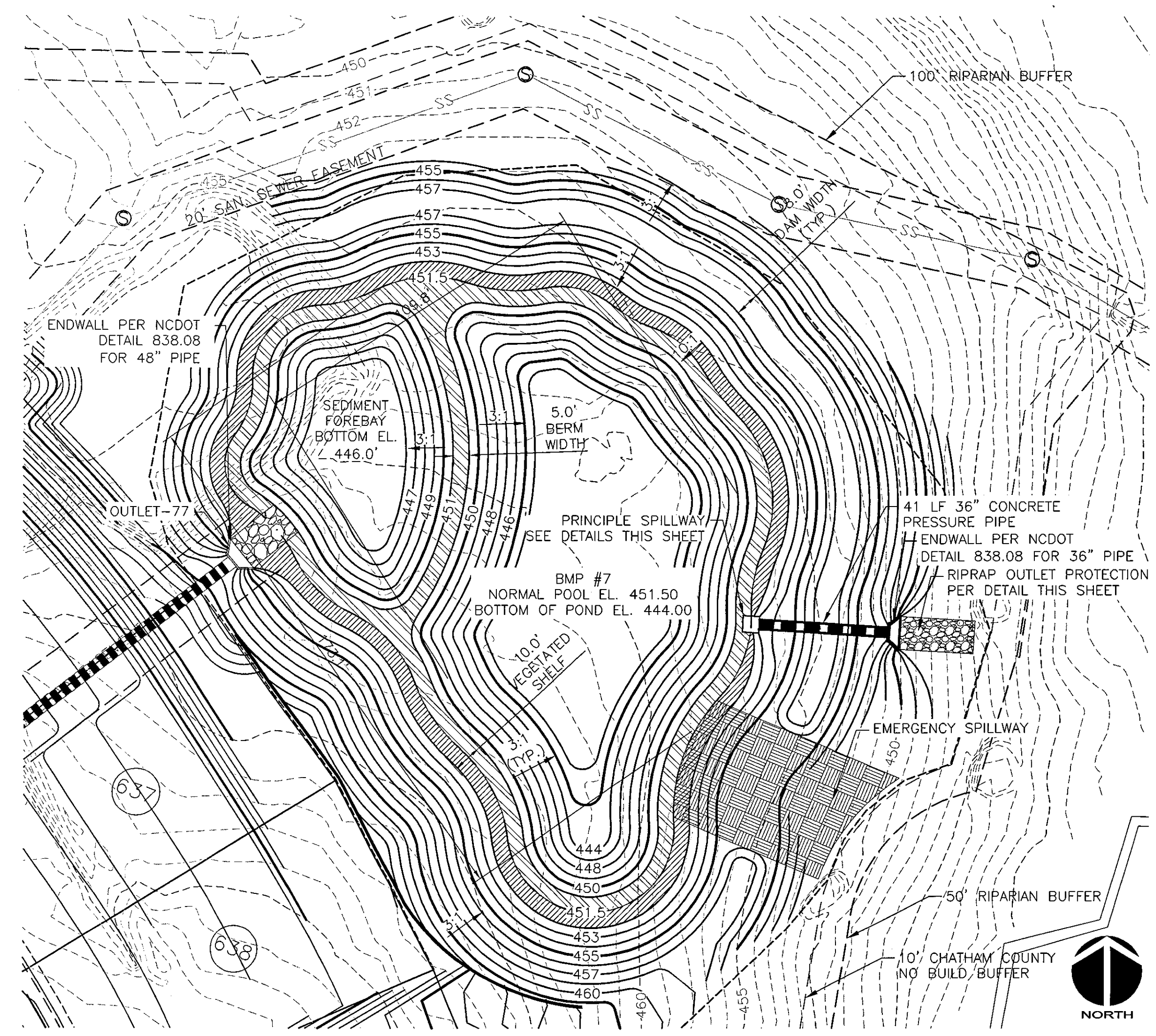
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SEWER DETAILS

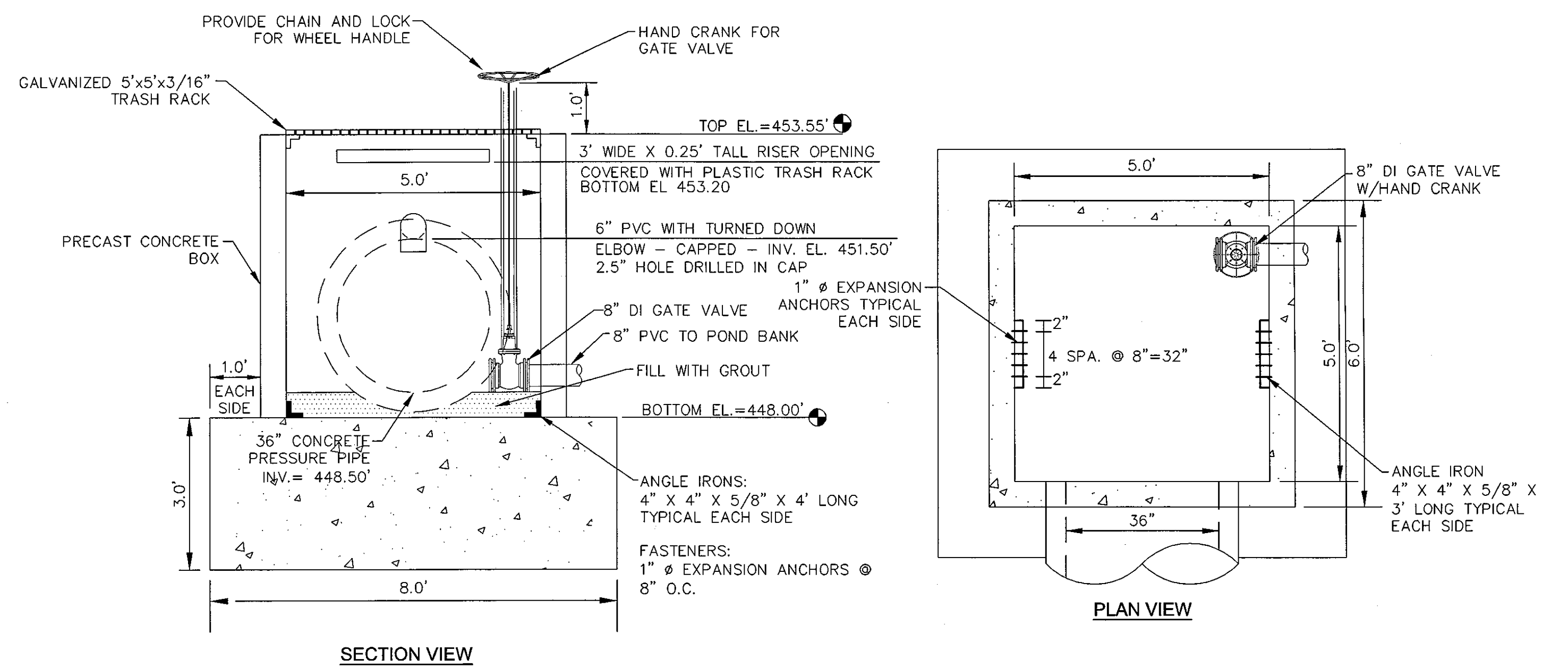
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CHECKED: GML	NA	
PROJ. MGR: GML		

STATUS: ISSUED FOR PERMIT	REVISION: 1
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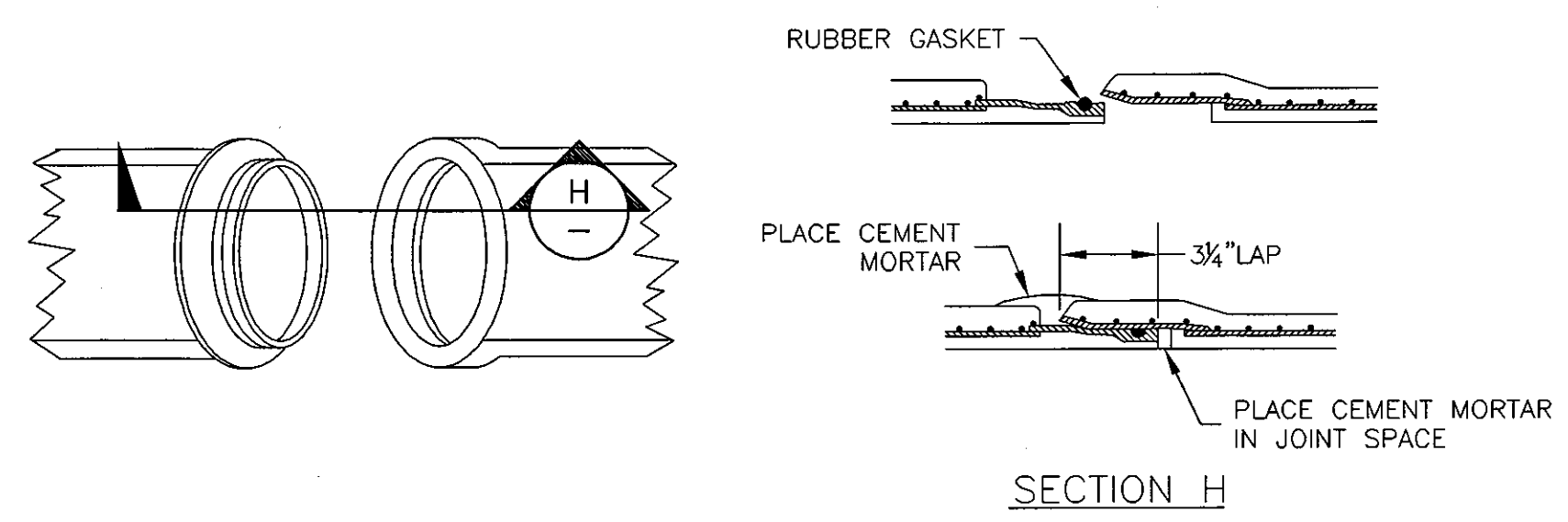
WET DETENTION POND #7 PLAN VIEW

SCALE = 1" = 30'



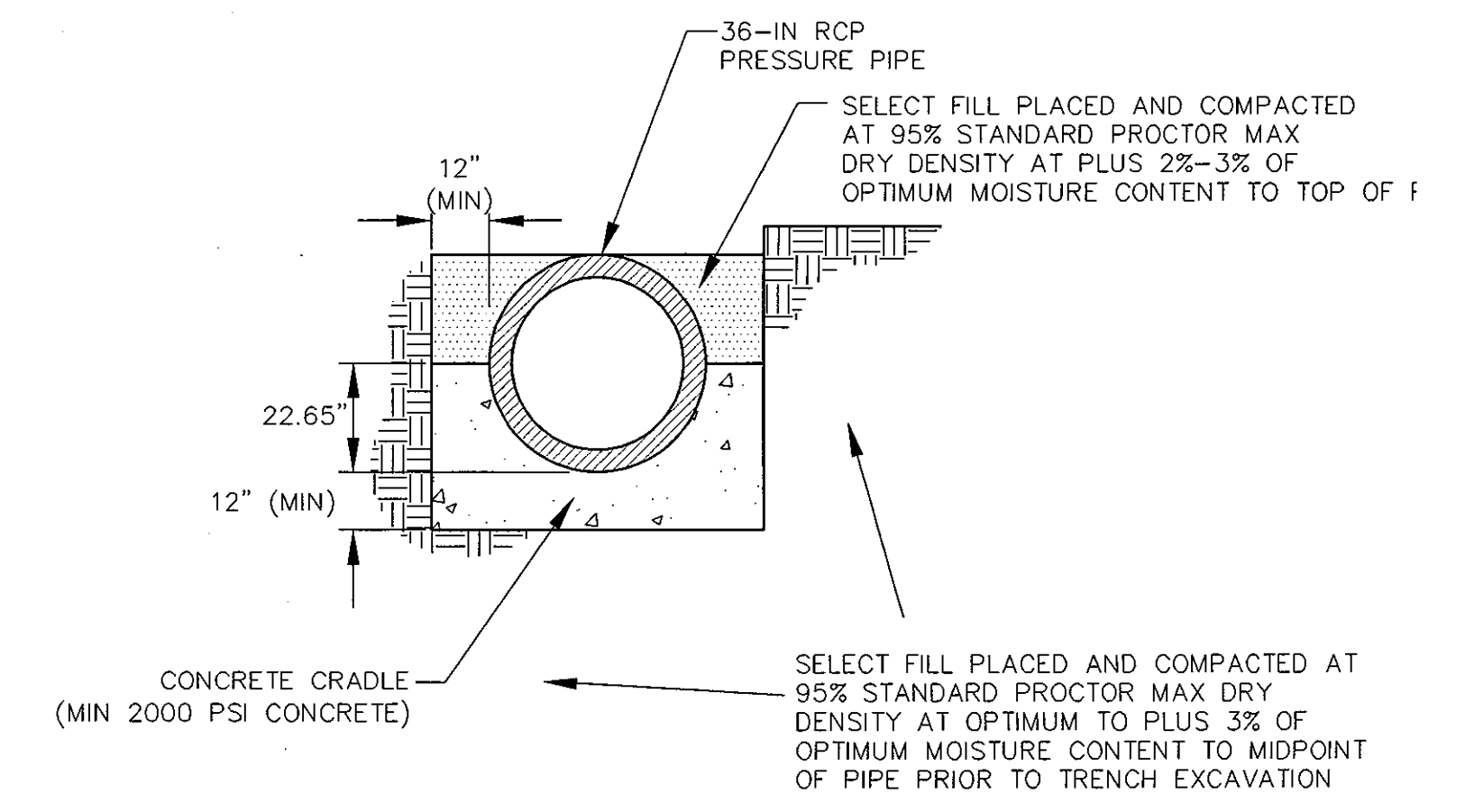
PRINCIPLE SPILLWAY

SCALE = 1" = 2'



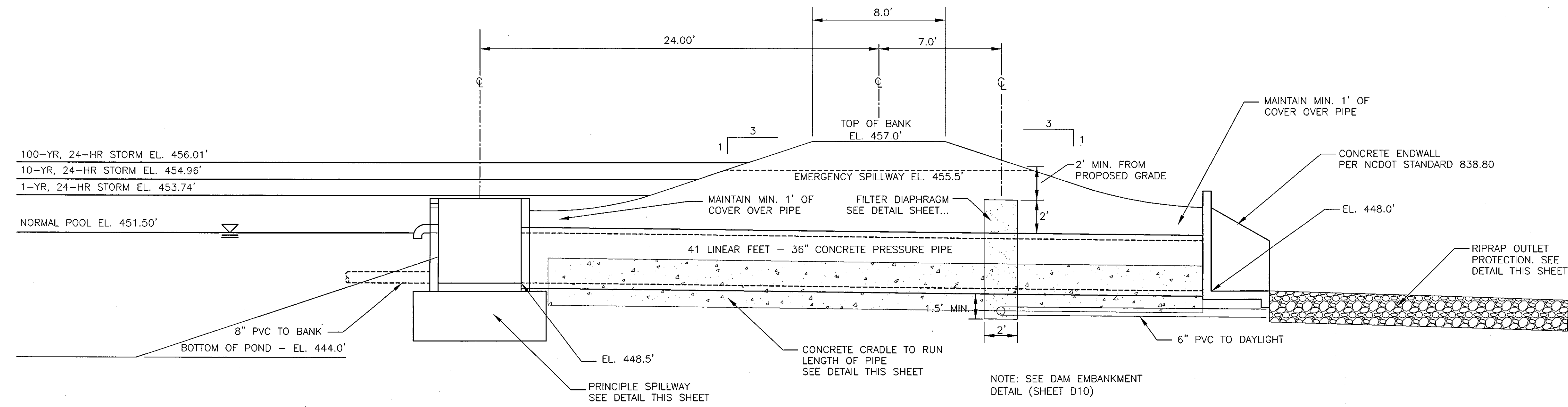
CONCRETE PRESSURE PIPE JOINT DETAIL

NTS



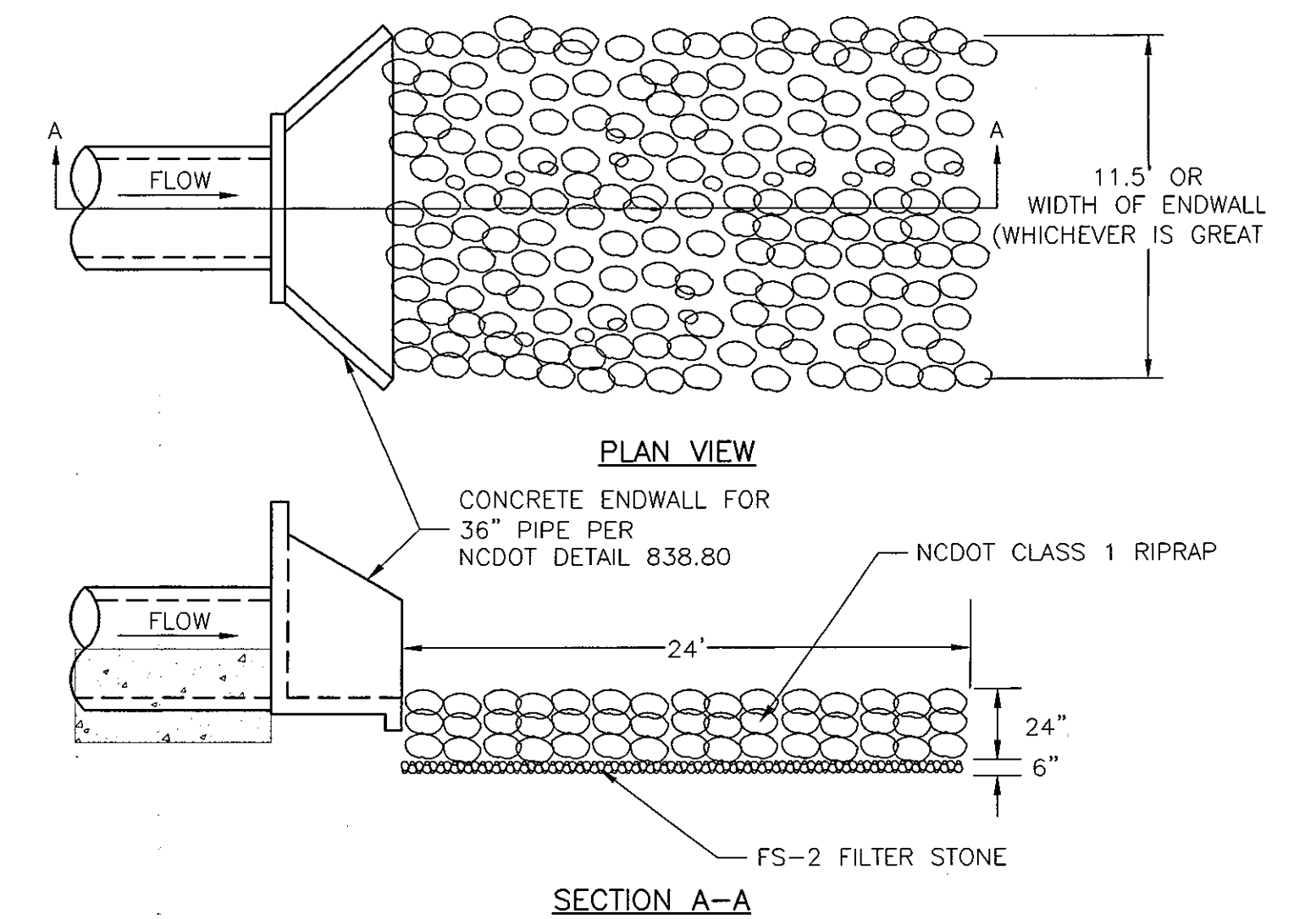
CONCRETE CRADLE DETAIL

NTS



SECTION AT PRINCIPLE SPILLWAY

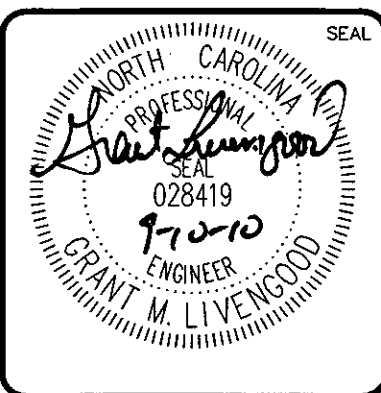
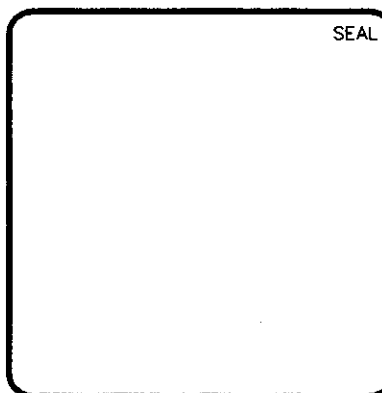
SCALE = 1" = 4'



RIPRAP OUTLET PROTECTION

NTS

REV. NO.	DESCRIPTIONS	DATE
3	PRELIMINARY PLAN SUBMITTAL TO CHATHAM COUNTY PLANNING	08.10.2010
2	REVISED PER CLIENT COMMENTS	08.17.2010
1	SUBMITTAL TO CLIENT FOR REVIEW	08.06.2010



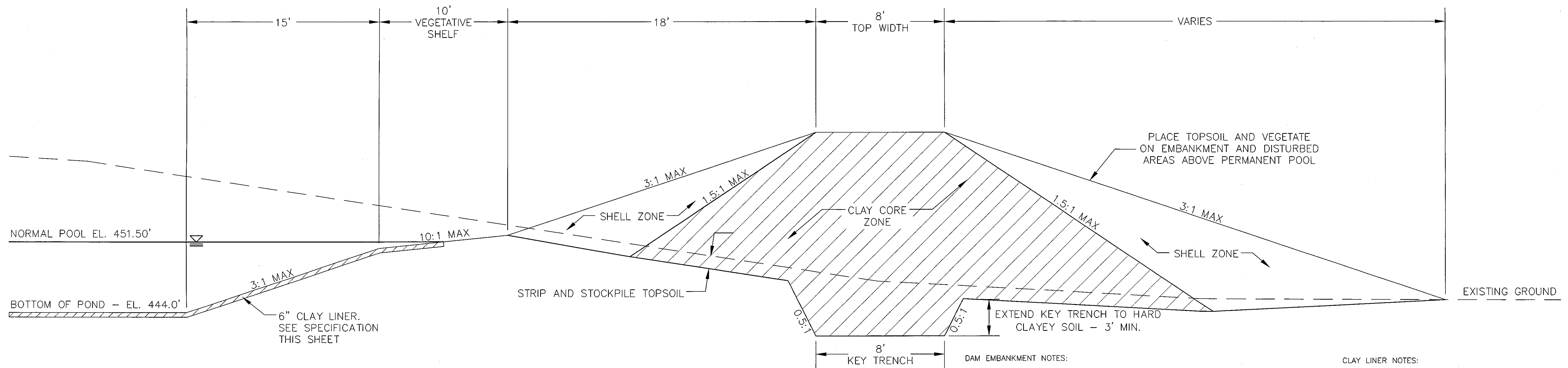
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**WET DETENTION POND #7
 DESIGN AND DETAILS**

DATE: AUGUST 6, 2010	SCALE: HORIZONTAL: 1" = 100'	VERTICAL: NA	M&C FILE NUMBER: CE201
M&C PROJ. # 02735-0069	DRAWN: GCA	DESIGNED: GCA	CHECKED: GML
PROJ. MGR: GML			DRAWING NUMBER: D-10
STATUS: ISSUED FOR PERMIT			REVISION: 3



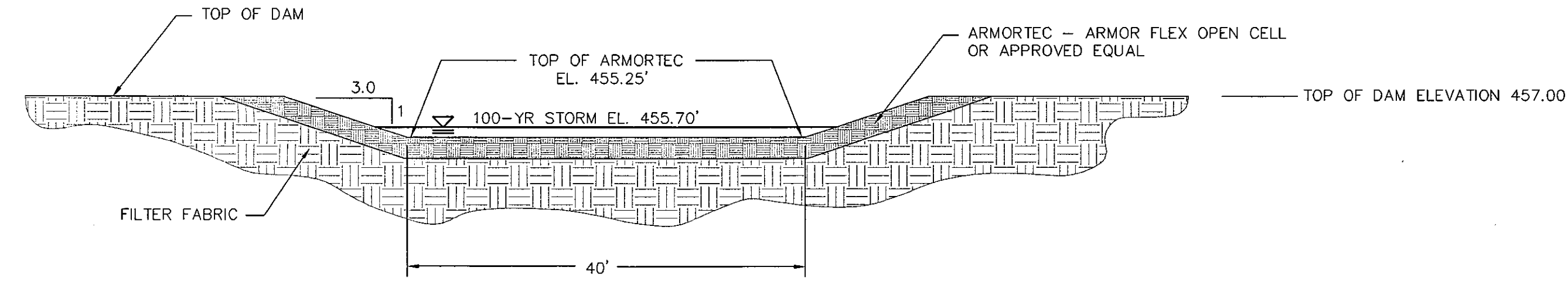
DAM EMBANKMENT NOTES:

- 1) TOPSOIL BENEATH THE EMBANKMENT SHALL BE REMOVED AND STOCKPILED. THE FOUNDATION WILL BE PROOF ROLLED AND ANY SOFT OR ORGANIC MATERIALS WILL BE REMOVED.
- 2) ALL MATERIAL SHALL BE COMPACTED IN 6-8 INCH LIFTS TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY OR HIGHER (ASTM D-698). THE CLAY CORE ZONE WILL HAVE A MOISTURE CONTENT OF OPTIMUM TO 4 PERCENT ABOVE OPTIMUM MOISTURE CONTENT. THE SHELL ZONE FILL WILL HAVE A MOISTURE CONTENT FROM 2 PERCENT BELOW OPTIMUM MOISTURE CONTENT TO 4 PERCENT ABOVE OPTIMUM.
- 3) EMBANKMENT FILL:
SHELL ZONE: SOILS WITH LESS THAN 30% PASSING THE NO. 200 SIEVE OR A PI OF LESS THAN 10 WHEN THE PERCENTAGE OF MATERIAL PASSING THE NO. 200 SIEVE IS GREATER THAN 30 PERCENT. SOILS WHICH ARE CLASSIFIED AS CLAYS (CH OR CL) SHOULD NOT BE USED AT THE FACE OF THE SHELL ZONES.
CLAY CORE ZONE: CH, CL OR SC MATERIAL WITH A PI RANGING BETWEEN 15 AND 60
- 4) NO FILL SHALL CONTAIN ROCKS OR GRAVEL LARGER THAN 4 INCHES IN DIAMETER.
- 5) A PROFESSIONAL GEOTECHNICAL ENGINEER SHALL APPROVE ALL MATERIALS USED FOR THE EMBANKMENT AND SUPERVISE CONSTRUCTION.
- 6) ALL DISTURBED AREAS ABOVE PERMANENT POOL SHALL BE SEEDED USING THE FOLLOWING GRASS SEED MIX MANUFACTURED BY ERNST SEED COMPANY: Carolina FACV Meadow Mix ERNMX-182

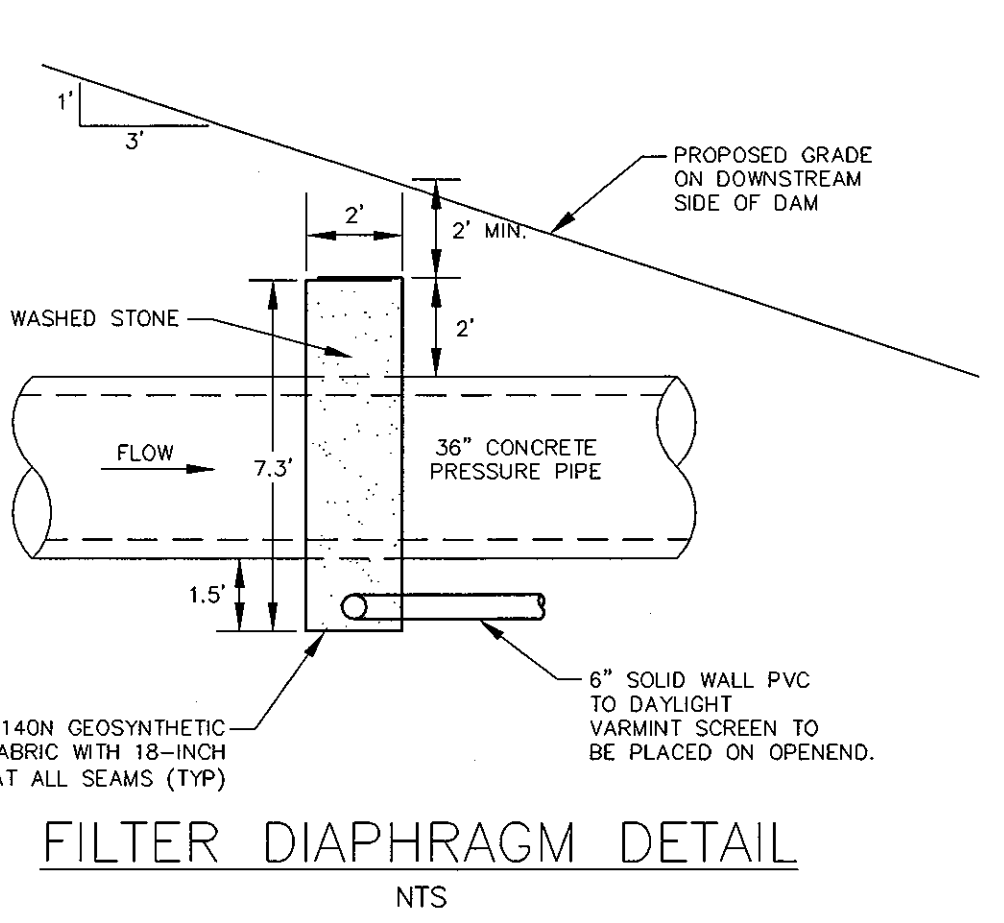
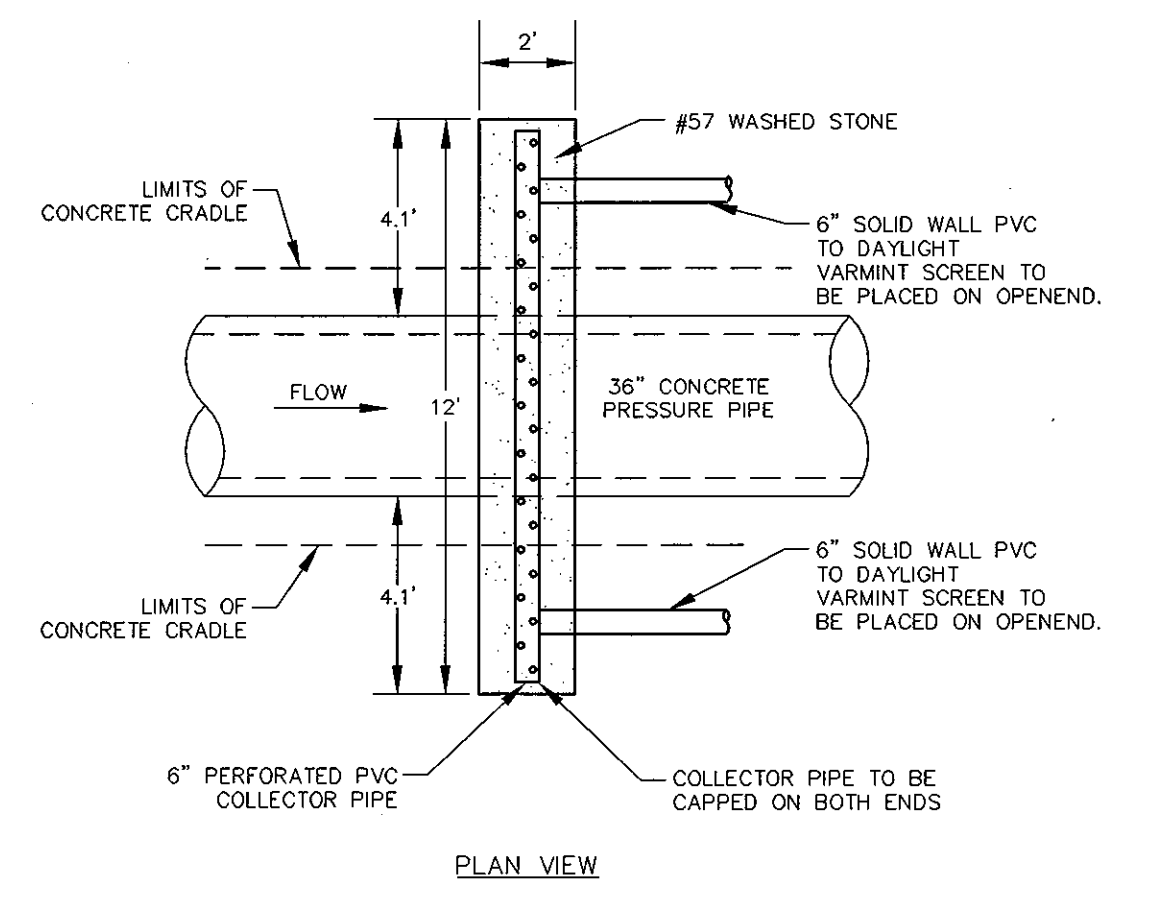
CLAY LINER NOTES:

IN ORDER TO HELP SUSTAIN THE PERMANENT POOL AND TO PREVENT WATER FROM INFILTRATING TOO QUICKLY INTO THE UNDERLYING SOIL, THE CONTRACTOR SHALL INSTALL A 6" THICK CLAY LINER ON THE BOTTOM OF THE WET DETENTION POND AREA UP TO ELEVATION 451.50. THE LINER CAN BE ACCOMPLISHED BY BLENDING EXISTING SITE SOILS WITH CLAY TO ACHIEVE A LOW PERMEABILITY MIXTURE OR BY INSTALLING A GEOSYNTHETIC LINER MADE OF A BENTONITE MIXTURE. IF THE CONTRACTOR CHOOSES TO BLEND THE EXISTING SITE SOILS WITH CLAY, THE ONSITE GEOTECHNICAL ENGINEER SHALL DETERMINE THE AMOUNT OF CLAY TO ADD, THE DEGREE OF COMPACTION, AND WILL OVERSEE THE INSTALLATION OF THE CLAY LINER. THE MAXIMUM PERMEABILITY RATE FOR THE LINER SHALL BE 0.72 CM/DAY. THE PROPOSED MATERIAL FOR THIS LINER SHALL BE TESTED BY THE ONSITE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. THE RESULTS OF THIS TESTING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR REVIEW PRIOR TO PLACEMENT. UPON COMPLETION OF LINER INSTALLATION, A LAYER OF TOPSOIL MAY BE ADDED OVER THE LINER TO PROVIDE A HEALTHY MEDIA FOR VEGETATION GROWTH.

DAM EMBANKMENT DETAIL
NTS



EMERGENCY SPILLWAY DETAIL
NTS



FILTER DIAPHRAGM DETAIL
NTS



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-208
ENGLISH STANDARD DRAWING FOR
PRECAST CONCRETE ENDWALL
FOR SINGLE 12" DIA. PIPE - 80' SEW

838.80

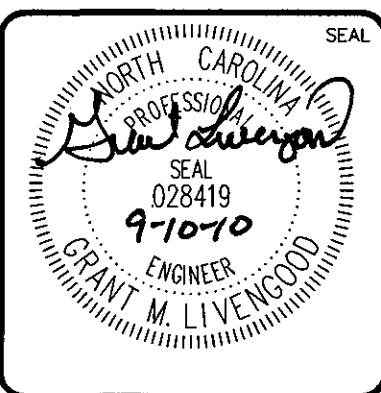
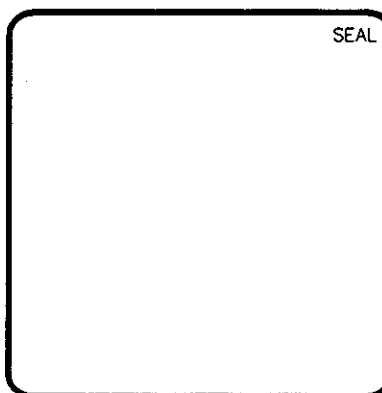
ENDWALL DIMENSIONS

PIPE DIA.	MINIMUM	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.
BAR SIZE	H (FT.)	D (FT.)	H (FT.)	D (FT.)	H (FT.)	D (FT.)
1.0	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75	5.00/6.00
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.50/3.75	6.50/6.75
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.50/3.75	6.50/6.75
2.0	#5 @ 8"	1.50/2.50	4.00/4.75	1.75/2.50	4.00/4.25	7.50/8.25
2.5	#5 @ 8"	2.50/3.50	4.00/6.00	2.00/3.00	4.50/5.50	10.00/11.50
3.0	#5 @ 8"	3.00/3.50	5.00/6.00	2.75/3.50	5.25/6.75	11.50/11.75
3.5	#5 @ 8"	3.25/4.50	6.00/6.75	3.25/3.50	6.00/6.75	12.00/13.25
4.0	#5 @ 8"	3.50/4.50	6.50/7.00	3.25/3.50	6.50/6.75	13.00/13.25
4.5	#5 @ 8"	4.00/5.00	6.50/8.50	3.25/4.00	7.00/9.25	13.50/16.75
5.0	#5 @ 8"	4.50/5.50	7.00/8.50	3.25/4.00	7.25/9.25	13.75/16.75
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/9.25	14.00/15.75
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/9.25	14.75/16.75

NOTES:
 • THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: R24.31, R24.37, R24.38 AND R24.39.
 • INSTALL PRECAST ENDWALLS WITH WINGS AND PAV FOR IN ACCORDANCE WITH SPECIFICATION SECTION 806.
 • USE 4000 PSI CONCRETE.
 • PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A108 WITH 2" MIN. CLEARANCE.
 • PLACE LIFT HOLES ON PIPE IN ACCORDANCE WITH OSHA STANDARD 1926.704.
 • PIPE TO BE INSTALLED INTO HEADWALL AT JOB SITE BY CONTRACTOR.
 • ALL ELEMENTS PRECAST TO MEET ASTM C913.
 • WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
 • CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

NOTE: THE MINIMUM BAR SIZE SHALL BE #5 BARS AT 8" CTS. THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

REV.	DESCRIPTION	DATE
3	PRELIMINARY PLAN SUBMITTAL TO CHATHAM COUNTY PLANNING	08.10.2010
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**WET DETENTION POND #7
 DESIGN AND DETAILS**

DATE: AUGUST 6, 2010
 MCE PROJ. # 02735-0069
 DRAWN: GCA
 DESIGNED: GCA
 CHECKED: GML
 PROJ. MGR: GML

SCALE
 HORIZONTAL: 1" = 100'
 VERTICAL: NA

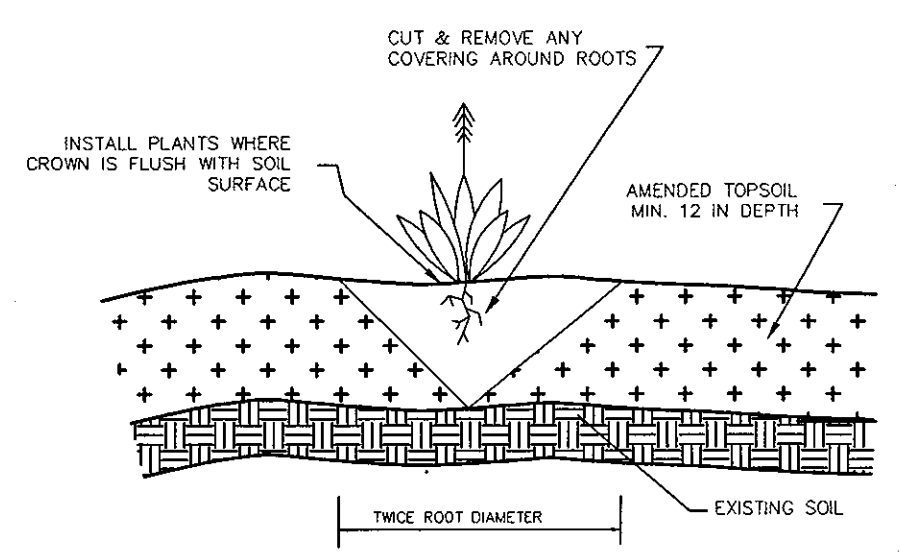
MAC FILE NUMBER
CE201
 DRAWING NUMBER
D-11

STATUS: ISSUED FOR PERMIT
 REVISION: 3



WET DETENTION POND #7 PLANTING PLAN
SCALE = 1" = 20'

PLANTING SCHEDULE						
SYM.	ABB.	COMMON NAME	BOTANICAL NAME	QUANTITY	SPACING	CONTAINER SIZE AT PLANTING
SHALLOW WATER PLANTINGS						
SF		SWEETFLAG	<i>Acorus subcordatum</i>	109	24"-30" O.C.	1 QT.
PW		PICKERELWEED	<i>Pontederia cordata</i>	107	24"-30" O.C.	1 QT.
BFI		BLUE FLAG IRIS	<i>Iris virginica</i>	111	24"-30" O.C.	1 QT.
SR		SOFT RUSH	<i>Juncus effusus var. pylaei or solutus</i>	115	24"-30" O.C.	1 QT.
TSB		THREE SQUIRE BULRUSH	<i>Schoenoplectus americanus</i>	97	24"-30" O.C.	1 QT.
SHALLOW LAND PLANTINGS						
SM		SWAMP MILKWEED	<i>Asclepias incarnata</i>	82	24"-30" O.C.	1 QT.
CF		CARDINAL FLOWER	<i>Loebelia cardinalis</i>	65	24"-30" O.C.	1 QT.
SRM		SCARLET ROSE MALLOW	<i>Hibiscus coccineus</i>	96	24"-30" O.C.	1 QT.
JPW		DWARF JOE PYE WEED	<i>Eupatoriadelphus dubius</i>	83	24"-30" O.C.	1 QT.
ST		SPOTTED TRUMPETWEED	<i>Eupatoriadelphus maculatus</i>	80	24"-30" O.C.	1 QT.

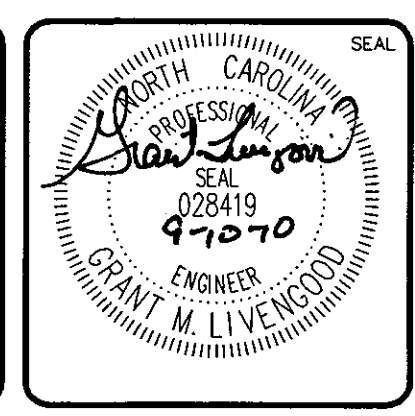
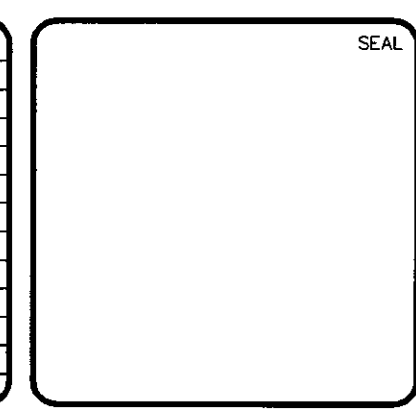


GENERAL PLANTING DETAIL
NTS

- GENERAL PLANTING NOTES:**
1. AVOID COMPACTING TOPSOIL TO PROMOTE HEALTHY ENVIRONMENTAL CONDITIONS FOR THE PLANTS.
 2. ALL PLANTS SHOULD BE PLANTED IN THE INDICATED RANGE TO ENSURE SURVIVAL.
 3. SHALLOW WATER AND SHALLOW LAND AREAS TO BE PLANTED WITH BARE ROOT, PLUGS, OR CONTAINER LIVE PLANTINGS AS SPECIFIED.
 4. EXCAVATE A HOLE TWICE THE DIAMETER OF ROOT BALL AND EQUAL TO THE ROOT DEPTH OF THE INDIVIDUAL PLANT. PLACE PLANT IN HOLE WITH CROWN FLUSH WITH SOIL SURFACE. BACKFILL WITH TOPSOIL AND LIGHTLY PLANT.
 5. BEGIN PLANTING DURING LOCAL GROWING SEASON IN ORDER TO ENSURE THAT PLANTS HAVE ADEQUATE TIME TO ESTABLISH BEFORE WINTER MONTHS.
 6. OBTAIN PLANTS FROM: COASTAL PLAIN CONSERVATION NURSERY (252-482-5707), MELLOW MARSH FARMS (919-742-1200), CURE NURSERY (919-542-6186) OR ENGINEER APPROVED SUBSTITUTE.
 7. REFER TO EROSION CONTROL DETAIL SHEET D-2 FOR SEEDBED PREPARATION AND SEEDING SCHEDULES FOR AREAS NOT SPECIFIED IN THIS PLAN.

- SHALLOW WATER PLANTING NOTES:**
1. 70% OF PICKERELWEED SHOULD BE PLANTED WITHIN 5-6 INCHES BELOW NORMAL POOL.
 2. 70% OF SWEETFLAG AND 70% OF SOUTHERN BLUE FLAG IRIS SHOULD BE PLANTED IN THE 2-3 INCHES BELOW NORMAL POOL.
 3. 70% OF SOFT RUSH SHOULD BE PLANTED AT THE NORMAL POOL ELEVATION.
- SHALLOW LAND PLANTING NOTES:**
1. PLANTS IN THIS GROUP SHOULD NOT BE PLANTED IN AREAS THAT ARE INUNDATED FOR EXTENDED PERIODS.

REVNO.	DESCRIPTIONS	DATE
2	PRELIMINARY PLAN SUBMITTAL TO CHATHAM COUNTY PLANNING	09.10.2010
1	SUBMITTAL TO HCDM-DRG FOR REVIEW	08.19.2010



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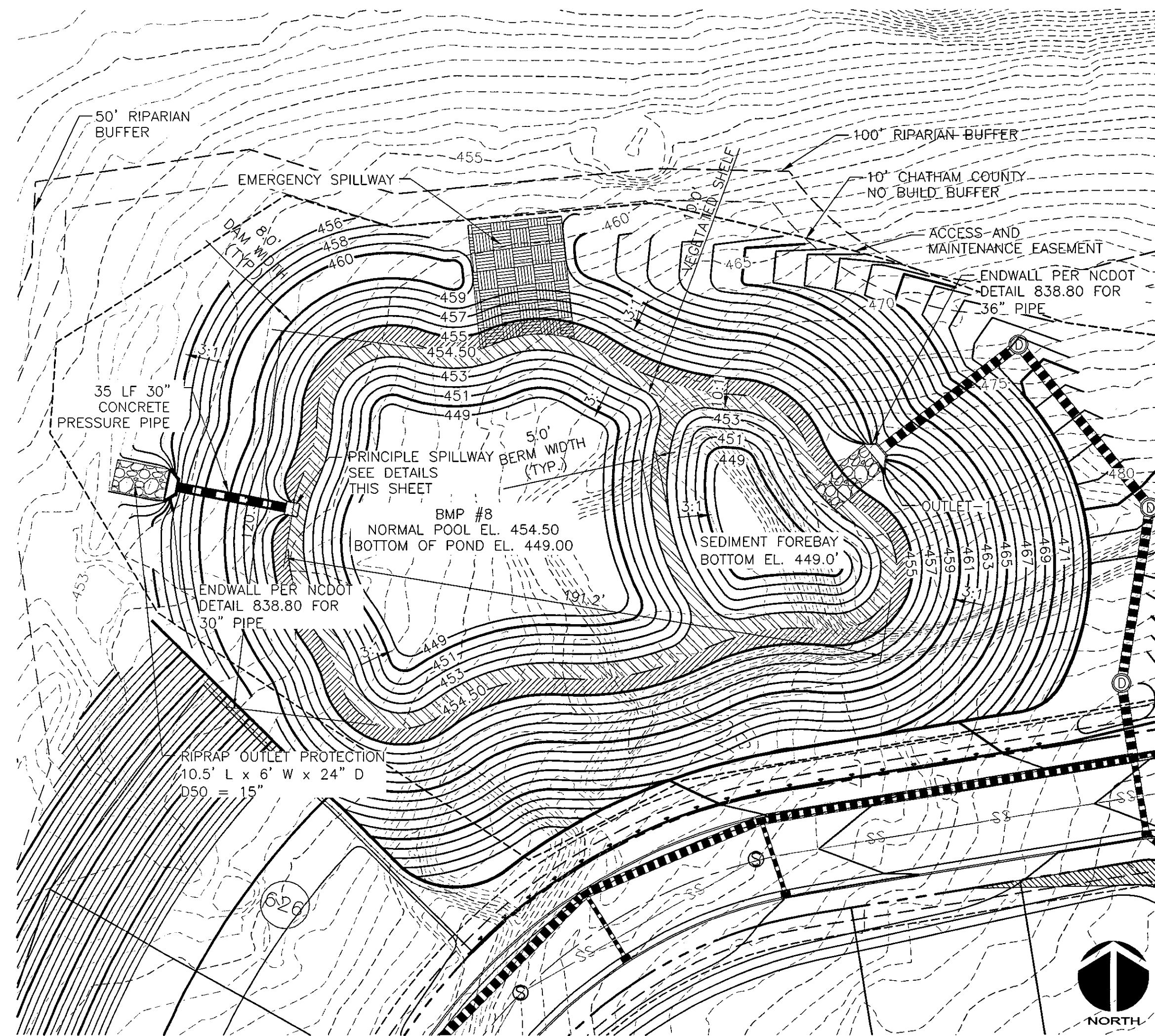
WET DETENTION POND #7
PLANTING PLAN

DATE: AUGUST 6, 2010
MCE PROJ. # 02735-0069
DRAWN: GCA
DESIGNED: GCA
CHECKED: GML
PROJ. MGR.: GML

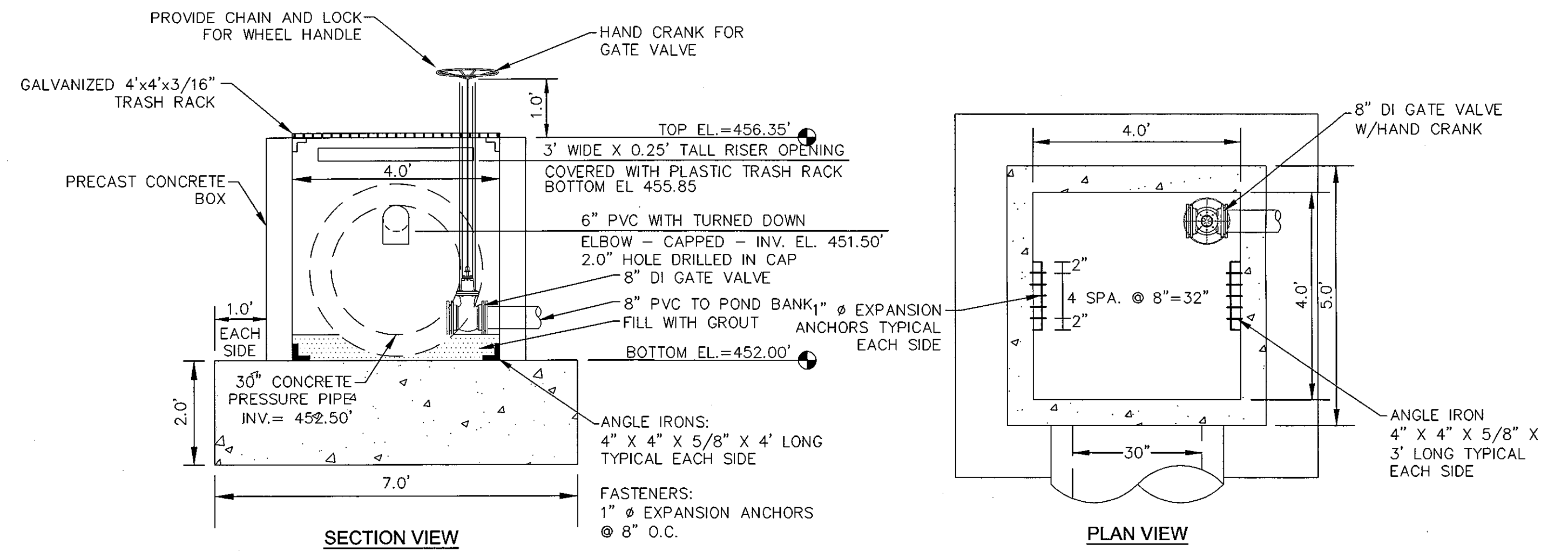
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MAC FILE NUMBER: CE201
DRAWING NUMBER: D-12

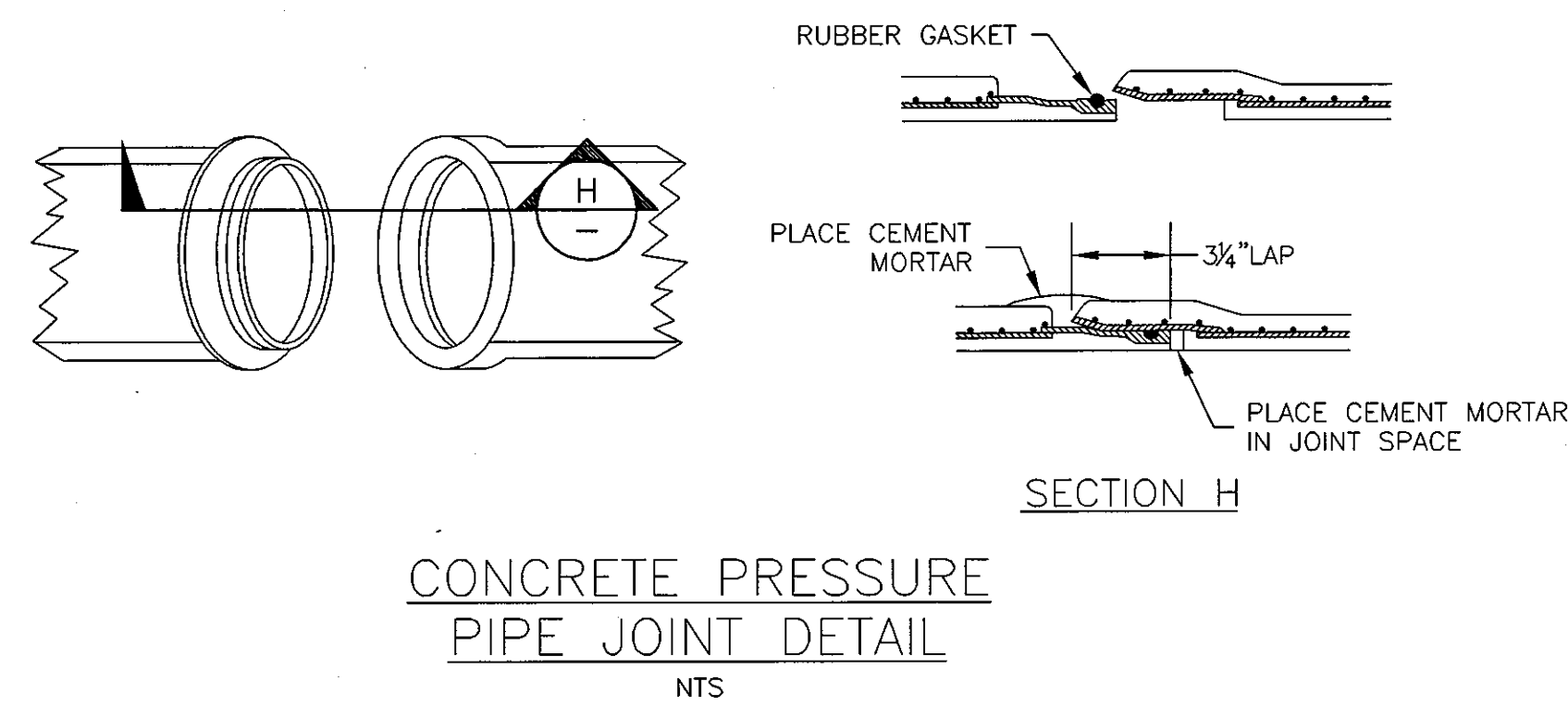
STATUS: ISSUED FOR PERMIT
REVISION: 2



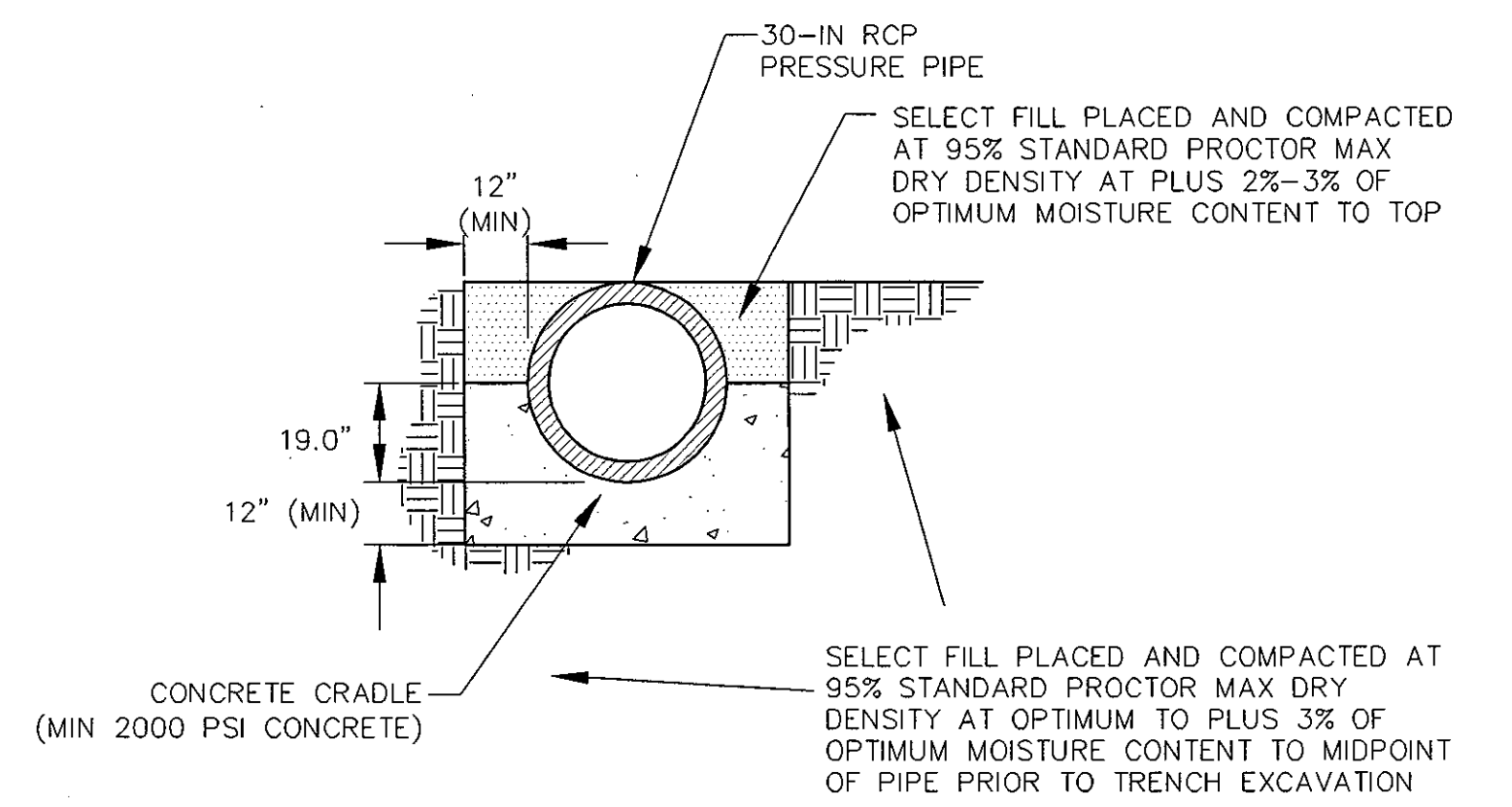
WET DETENTION POND #8 PLAN VIEW
SCALE = 1" = 30'



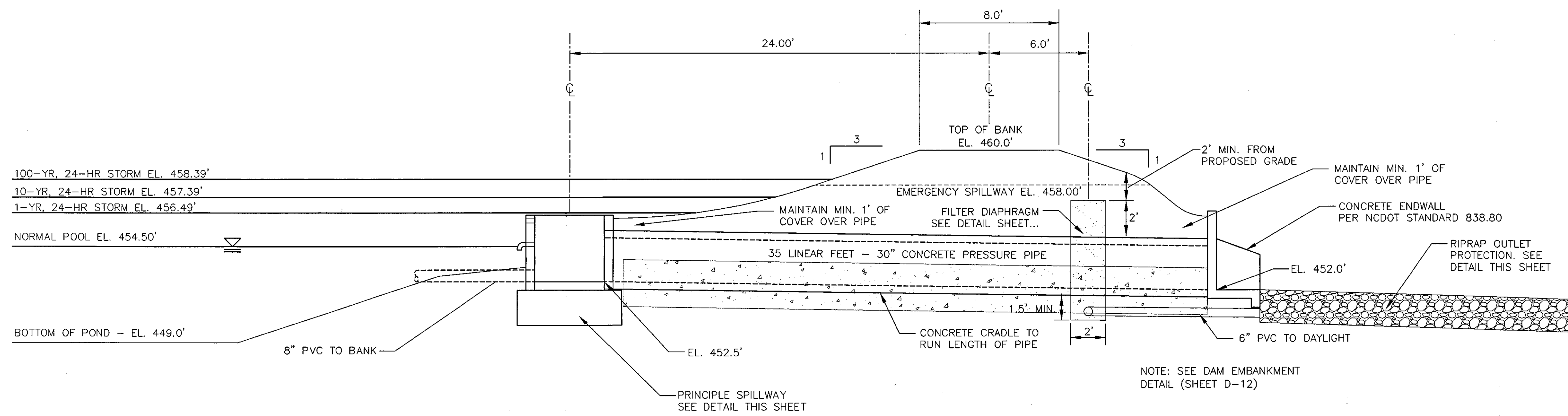
PRINCIPLE SPILLWAY
SCALE = 1" = 2'



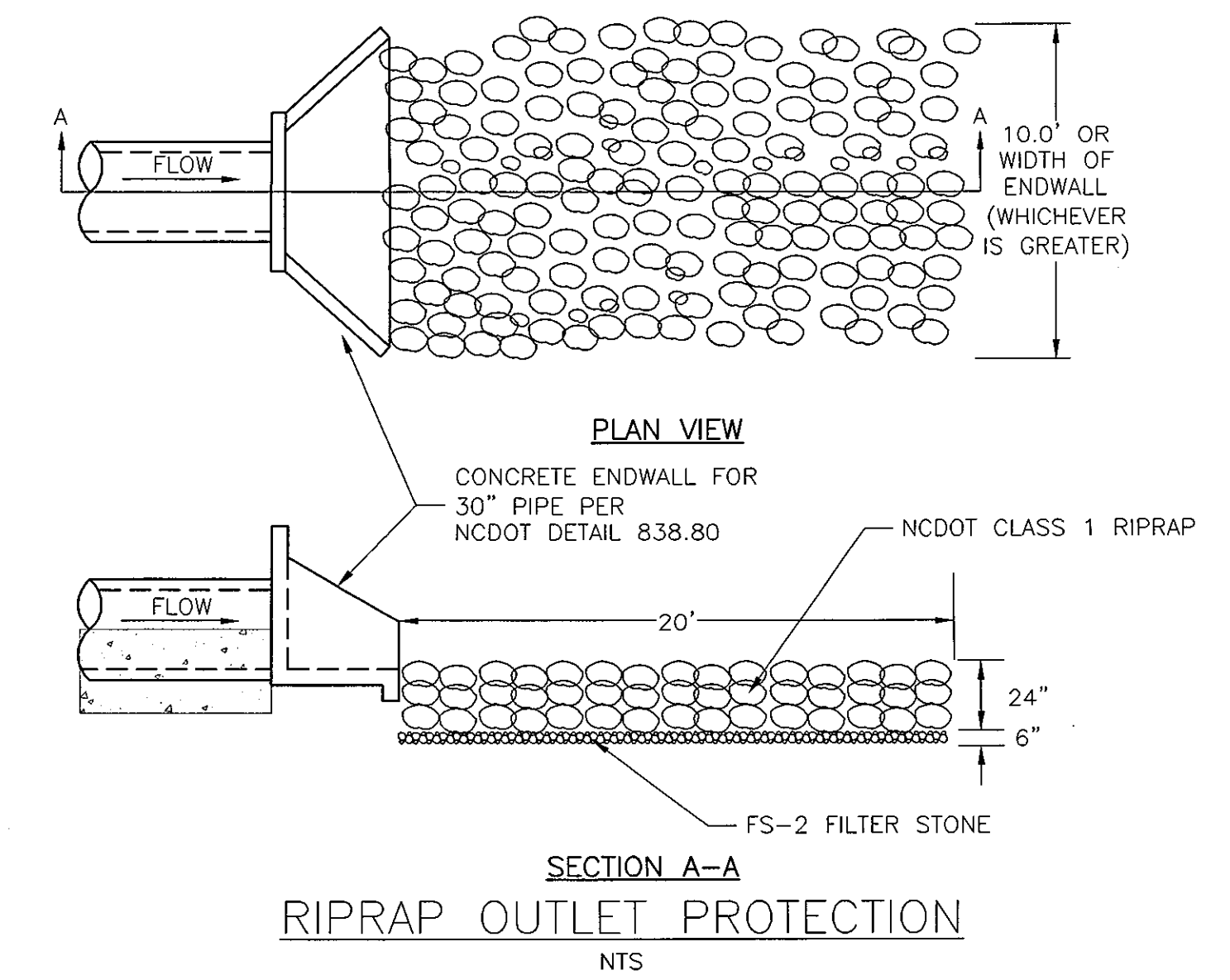
CONCRETE PRESSURE PIPE JOINT DETAIL
NTS



CONCRETE CRADLE DETAIL
NTS

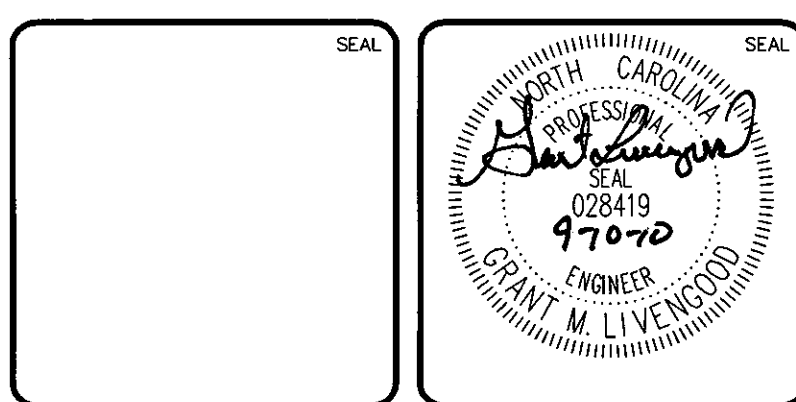


SECTION AT PRINCIPLE SPILLWAY
SCALE = 1" = 4'



SECTION A-A
RIPRAP OUTLET PROTECTION
NTS

REV.	DESCRIPTION	DATE
3	PRELIMINARY PLAN SUBMITTAL TO CHATHAM COUNTY PLANNING	09.10.2010
2	REVISED PER CHATHAM COUNTY SETBACK REQUIREMENTS/CLIENT COMMENTS	08.17.2010
1	SUBMITTAL TO CLIENT FOR REVIEW	08.06.2010



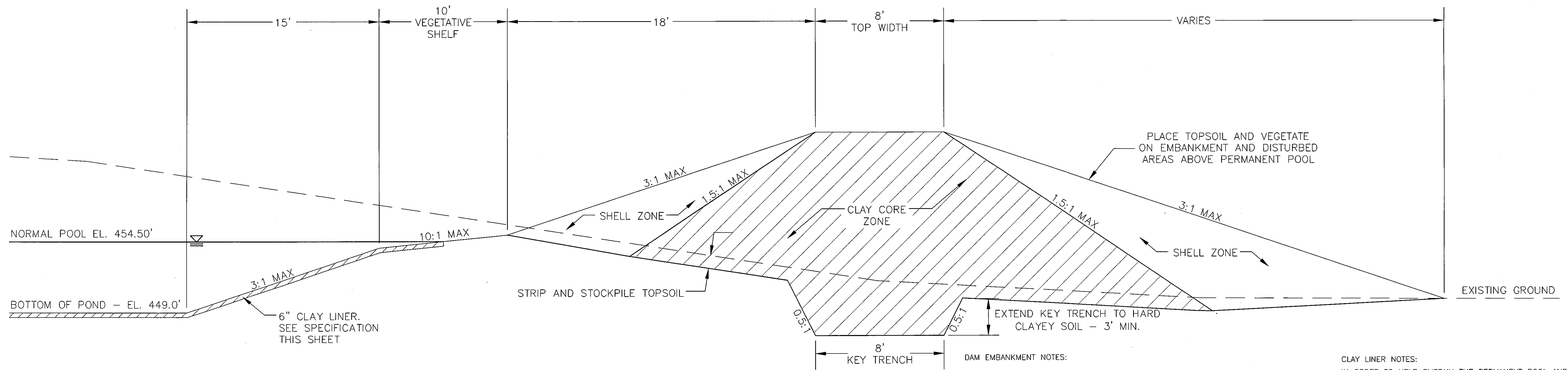
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**WET DETENTION POND #8
DESIGN AND DETAILS**

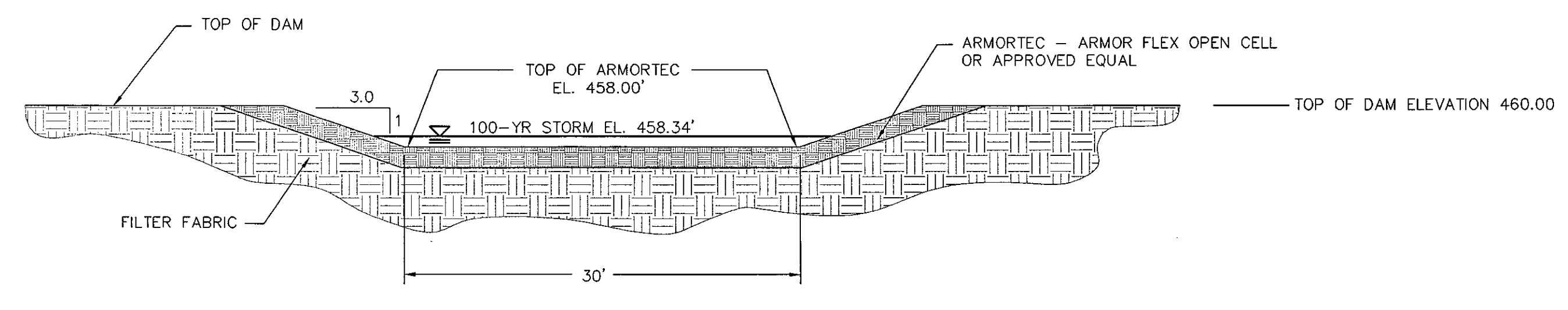
DATE: AUGUST 6, 2010	SCALE: 1" = 100'	MAC FILE NUMBER: CE201
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DRAWN: GCA	VERTICAL: NA	
DESIGNED: GCA		
CHECKED: GML		
PROJ. MGR: GML		
STATUS: ISSUED FOR PERMIT	REVISION: 3	



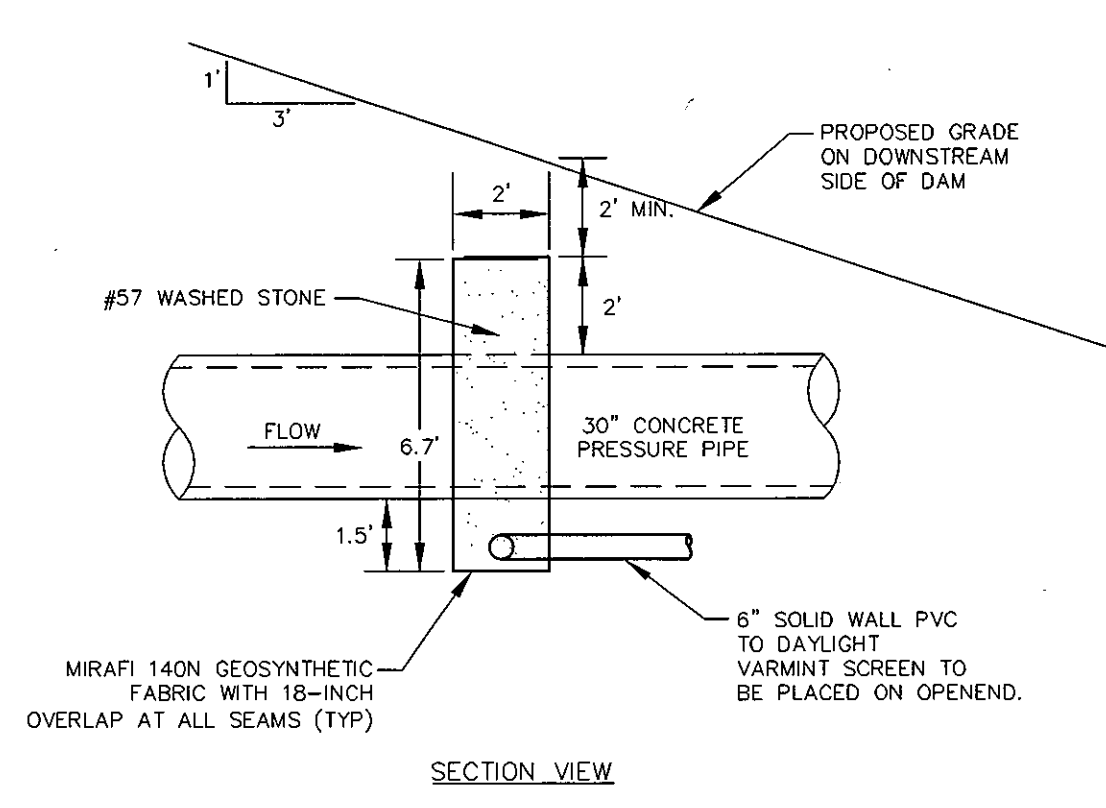
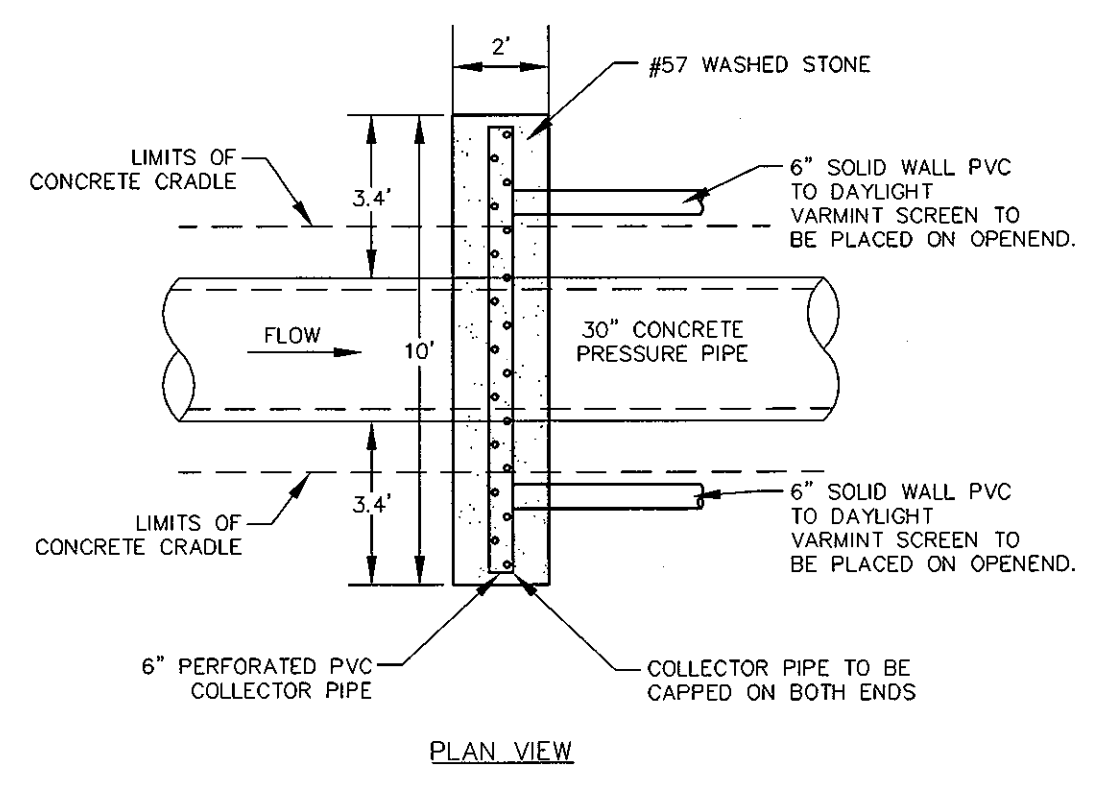
DAM EMBANKMENT DETAIL
NTS

- DAM EMBANKMENT NOTES:**
- 1) TOPSOIL BENEATH THE EMBANKMENT SHALL BE REMOVED AND STOCKPILED. THE FOUNDATION WILL BE PROOF ROLLED AND ANY SOFT OR ORGANIC MATERIALS WILL BE REMOVED.
 - 2) ALL MATERIAL SHALL BE COMPACTED IN 6-8 INCH LIFTS TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY OR HIGHER (ASTM D-698). THE CLAY CORE ZONE WILL HAVE A MOISTURE CONTENT OF OPTIMUM TO 4 PERCENT ABOVE OPTIMUM MOISTURE CONTENT. THE SHELL ZONE FILL WILL HAVE A MOISTURE CONTENT FROM 2 PERCENT BELOW OPTIMUM MOISTURE CONTENT TO 4 PERCENT ABOVE OPTIMUM.
 - 3) EMBANKMENT FILL:
SHELL ZONE: SOILS WITH LESS THAN 30% PASSING THE NO. 200 SIEVE OR A PI OF LESS THAN 10 WHEN THE PERCENTAGE OF MATERIAL PASSING THE NO. 200 SIEVE IS GREATER THAN 30 PERCENT. SOILS WHICH ARE CLASSIFIED AS CLAYS (CH OR CL) SHOULD NOT BE USED AT THE FACE OF THE SHELL ZONES.
CLAY CORE ZONE: CH, CL OR SC MATERIAL WITH A PI RANGING BETWEEN 15 AND 60
 - 4) NO FILL SHALL CONTAIN ROCKS OR GRAVEL LARGER THAN 4 INCHES IN DIAMETER.
 - 5) A PROFESSIONAL GEOTECHNICAL ENGINEER SHALL APPROVE ALL MATERIALS USED FOR THE EMBANKMENT AND SUPERVISE CONSTRUCTION.
 - 6) ALL DISTURBED AREAS ABOVE PERMANENT POOL SHALL BE SEEDED USING THE FOLLOWING GRASS SEED MIX MANUFACTURED BY ERNST SEED COMPANY: Carolina FACW Meadow Mix ERNM-182

- CLAY LINER NOTES:**
- IN ORDER TO HELP SUSTAIN THE PERMANENT POOL AND TO PREVENT WATER FROM INFILTRATING TOO QUICKLY INTO THE UNDERLYING SOIL, THE CONTRACTOR SHALL INSTALL A 6" THICK CLAY LINER ON THE BOTTOM OF THE WET DETENTION POND AREA UP TO ELEVATION 454.50. THE LINER CAN BE ACCOMPLISHED BY BLENDING EXISTING SITE SOILS WITH CLAY TO ACHIEVE A LOW PERMEABILITY MIXTURE OR BY INSTALLING A GEOSYNTHETIC LINER MADE OF A BENTONITE CL. IF THE CONTRACTOR CHOOSES TO BLEND THE EXISTING SITE SOILS WITH CLAY, THE ONSITE GEOTECHNICAL ENGINEER SHALL DETERMINE THE AMOUNT OF CLAY TO ADD, THE DEGREE OF COMPACTION, AND WILL OVERSEE THE INSTALLATION OF THE CLAY LINER. THE MAXIMUM PERMEABILITY RATE FOR THE LINER SHALL BE 0.72 CM/DAY. THE PROPOSED MATERIAL FOR THIS LINER SHALL BE TESTED BY THE ONSITE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. THE RESULTS OF THIS TESTING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR REVIEW PRIOR TO PLACEMENT. UPON COMPLETION OF LINER INSTALLATION, A LAYER OF TOPSOIL MAY BE ADDED OVER THE LINER TO PROVIDE A HEALTHY MEDIA FOR VEGETATION GROWTH.



EMERGENCY SPILLWAY DETAIL
NTS



FILTER DIAPHRAGM DETAIL
NTS

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

ENGLISH STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL FOR SINGLE 12" THRU 72" PIPE - 90° SEW

838.80

NOTES:

- THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: #8-21, #8-27, #8-33 AND #8-39.
- INSTALL PRECAST ENDWALLS WITH JOINTS AND JOINTS FOR IN ACCORDANCE WITH SPECIFICATION SECTION 808.
- USE 4000 PSI CONCRETE.
- PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A185 WITH 2" MIN. CLEARANCE.
- PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH CONCRETE STANDARD 1206.704.
- PINS TO BE GROUDED INTO HEADWALL AT JOB SITE BY CONTRACTOR.
- ALL ELEMENTS PRECAST TO MEET ASTM C913.
- WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

ENDWALL DIMENSIONS

FT.	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.
PIPE DIA.	BAR SIZE	W1 (FT.)	H1 (FT.)	D (FT.)	H2
1.0	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.00/3.75
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.00/3.75
2.0	#5 @ 8"	1.50/2.50	4.00/4.75	1.75/2.50	4.00/4.25
2.5	#5 @ 8"	2.50/3.50	4.00/6.00	2.00/3.00	4.50/5.50
3.0	#5 @ 8"	3.00/3.50	5.00/6.00	2.75/3.50	5.25/5.75
3.5	#5 @ 8"	3.25/4.50	6.00/6.75	3.25/3.50	6.00/6.75
4.0	#5 @ 8"	3.50/4.50	6.50/7.00	3.25/3.50	6.50/6.75
4.5	#5 @ 8"	4.00/5.00	6.50/8.50	3.25/4.00	7.00/8.25
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/8.25
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/8.25
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/8.25

838.80

REV. NO.	DESCRIPTION	DATE
3	PRELIMINARY PLAN SUBMITTAL TO CHATHAM COUNTY PLANNING	08.10.2010
2	REVISED PER CHATHAM COUNTY SETBACK REQUIREMENTS/CLIENT COMMENTS	08.16.2010
1	SUBMITTAL TO CLIENT FOR REVIEW	08.06.2010

SEAL

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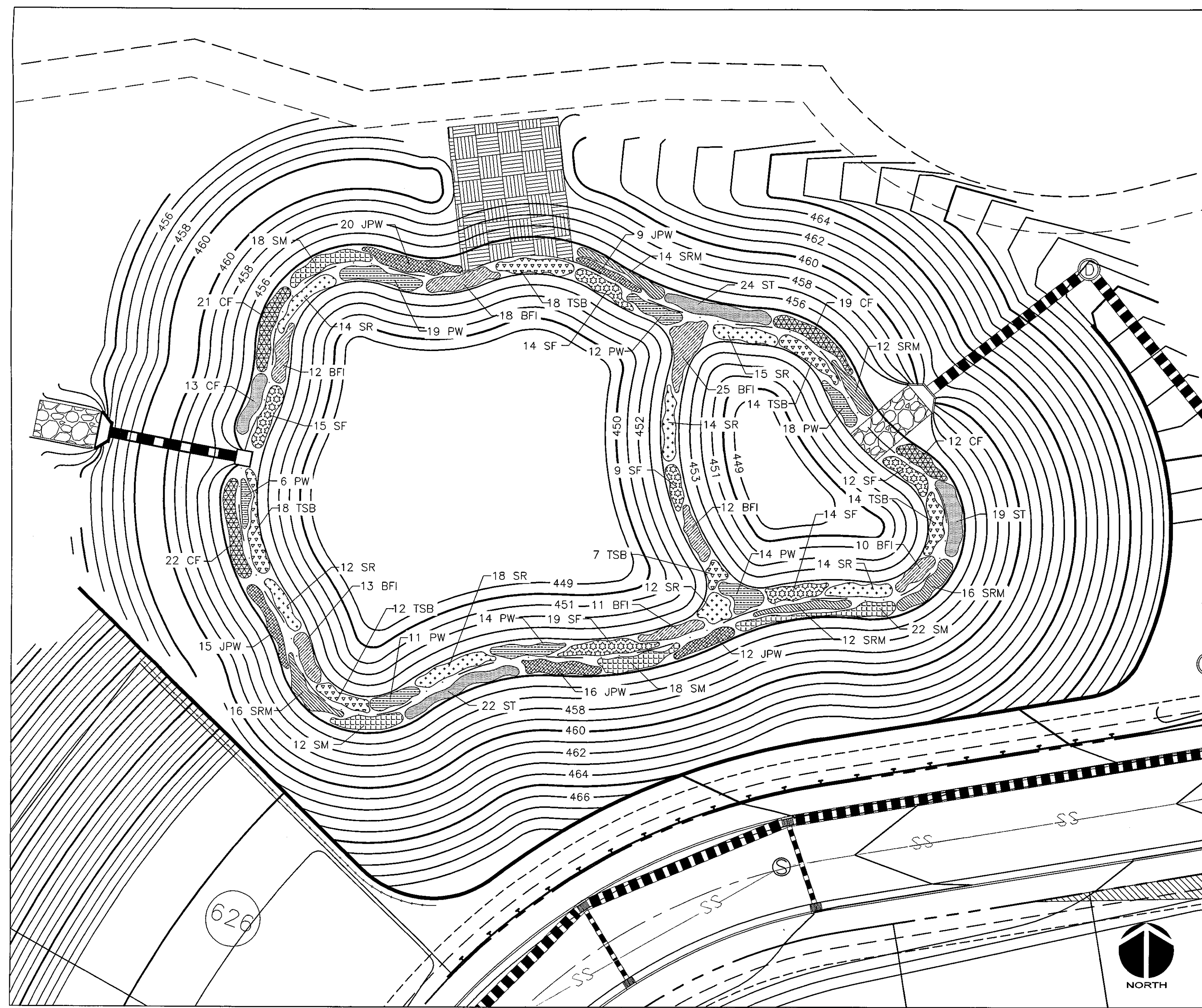
WET DETENTION POND #8
DESIGN AND DETAILS

DATE: AUGUST 6, 2010
MCE PROJ. # 02735-0069
DRAWN: GCA
DESIGNED: GCA
CHECKED: GML
PROJ. MGR: GML

SCALE
HORIZONTAL: 1" = 100'
VERTICAL: NA

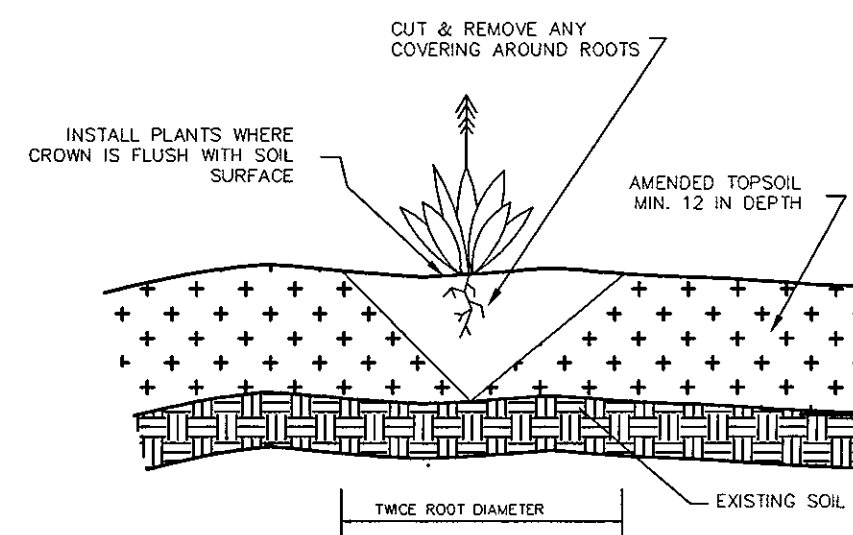
M&C FILE NUMBER
CE 201
DRAWING NUMBER
D-14

STATUS: ISSUED FOR PERMIT
REVISION: 3



WET DETENTION POND #8 PLANTING PLAN
SCALE = 1" = 20'

PLANTING SCHEDULE						
SYM.	ABB.	COMMON NAME	BOTANICAL NAME	QUANTITY	SPACING	CONTAINER SIZE AT PLANTING
SHALLOW WATER PLANTINGS						
SF		SWEETFLAG	<i>Acorus subcordatum</i>	83	24"-30" O.C.	1 QT.
PW		PICKERELWEED	<i>Pontederia cordata</i>	94	24"-30" O.C.	1 QT.
BFI		BLUE FLAG IRIS	<i>Iris virginica</i>	101	24"-30" O.C.	1 QT.
SR		SOFT RUSH	<i>Juncus effusus var. pyfaei or solutus</i>	99	24"-30" O.C.	1 QT.
TSB		THREE SQUIRE BULRUSH	<i>Schoenoplectus americanus</i>	83	24"-30" O.C.	1 QT.
SHALLOW LAND PLANTINGS						
SM		SWAMP MILKWEED	<i>Asclepias incarnata</i>	70	24"-30" O.C.	1 QT.
CF		CARDINAL FLOWER	<i>Lobelia cardinalis</i>	74	24"-30" O.C.	1 QT.
SRM		SCARLET ROSE MALLOW	<i>Hibiscus coccineus</i>	70	24"-30" O.C.	1 QT.
JPW		DWARF JOE PYE WEED	<i>Eupatoriadelphus dubius</i>	72	24"-30" O.C.	1 QT.
ST		SPOTTED TRUMPETWEED	<i>Eupatoriadelphus maculatus</i>	65	24"-30" O.C.	1 QT.



GENERAL PLANTING DETAIL
NTS

GENERAL PLANTING NOTES:

1. AVOID COMPACTING TOPSOIL TO PROMOTE HEALTHY ENVIRONMENTAL CONDITIONS FOR THE PLANTS.
2. ALL PLANTS SHOULD BE PLANTED IN THE INDICATED RANGE TO ENSURE SURVIVAL.
3. SHALLOW WATER AND SHALLOW LAND AREAS TO BE PLANTED WITH BARE ROOT, PLUGS, OR CONTAINER LIVE PLANTINGS AS SPECIFIED.
4. EXCAVATE A HOLE TWICE THE DIAMETER OF ROOT BALL AND EQUAL TO THE ROOT DEPTH OF THE INDIVIDUAL PLANT. PLACE PLANT IN HOLE WITH CROWN FLUSH WITH SOIL SURFACE. BACKFILL WITH TOPSOIL AND LIGHTLY PLANT.
5. BEGIN PLANTING DURING LOCAL GROWING SEASON IN ORDER TO ENSURE THAT PLANTS HAVE ADEQUATE TIME TO ESTABLISH BEFORE WINTER MONTHS.
6. OBTAIN PLANTS FROM: COASTAL PLAIN CONSERVATION NURSERY (252-482-5707), MELLOW MARSH FARMS (919-742-1200), CURE NURSERY (919-542-6186) OR ENGINEER APPROVED SUBSTITUTE.
7. REFER TO EROSION CONTROL DETAIL SHEET D-2 FOR SEEDBED PREPARATION AND SEEDING SCHEDULES FOR AREAS NOT SPECIFIED IN THIS PLAN.

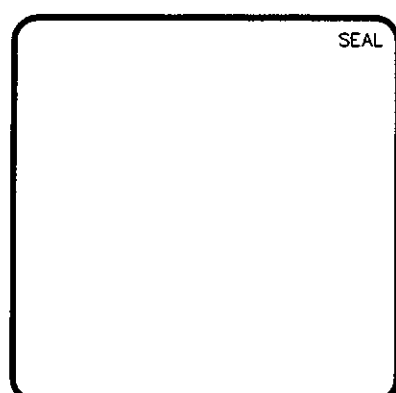
SHALLOW WATER PLANTING NOTES:

1. 70% OF PICKERELWEED SHOULD BE PLANTED WITHIN 5-6 INCHES BELOW NORMAL POOL.
2. 70% OF SWEETFLAG AND 70% OF SOUTHERN BLUE FLAG IRIS SHOULD BE PLANTED IN THE 2-3 INCHES BELOW NORMAL POOL.
3. 70% OF SOFT RUSH SHOULD BE PLANTED AT THE NORMAL POOL ELEVATION.

SHALLOW LAND PLANTING NOTES:

1. PLANTS IN THIS GROUP SHOULD NOT BE PLANTED IN AREAS THAT ARE INUNDATED FOR EXTENDED PERIODS.

REVNO.	DESCRIPTIONS	DATE
2	PRELIMINARY PLAT SUBMITTAL TO CHATHAM COUNTY PLANNING	08.10.2010
1	SUBMITTAL TO MCKIM-CREED FOR REVIEW	08.18.2010



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CHATHAM COUNTY, NORTH CAROLINA

WET DETENTION POND #8
PLANTING PLAN

DATE: AUGUST 6, 2010	SCALE: 1" = 100'	M&C FILE NUMBER: CE201
M&C PROJ # 02735-0089	HORIZONTAL: 1" = 100'	DRAWING NUMBER: D-15
DRAWN: GCA	VERTICAL: NA	
DESIGNED: GCA		
CHECKED: GML		
PROJ. MGR: GML		

STATUS: ISSUED FOR PERMIT	REVISION: 2
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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR CONCRETE JUNCTION BOX (WITH OPTIONAL MANHOLE) 12" THRU 66" PIPE

GENERAL NOTES:
 CHAMFER ALL EXPOSED CORNERS 1".
 USE CLASS "B" CONCRETE THROUGHOUT.
 OPTIONAL CONSTRUCTION - MONOLITHIC POOR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STD. NO. 840.06.
 PROVIDE ALL JUNCTION BOXES OVER 3' 6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.06.
 ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE POSITION OF THE MANHOLE (I.E.: DIAGONAL BARS SLOTTED AND SPACED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB).
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

SECTION C-C OR D-D

SECTION Y-Y

DOWEL

DIMENSIONS OF BOX AND PIPE		REINFORCEMENT BARS "A"										TOP SLAB DIMENSIONS		CONCRETE JUNCTION BOXES		TOTAL QUANTITIES FOR ONE PIPE		SECTIONS FOR ONE PIPE			
PIPE	SPAN	WIDTH	HEIGHT	NO.		LENGTH		E		F		TOP SLAB	BOTTOM SLAB	CU. YDS. CONC.	CU. YDS. REINFR.	C.S.	R.C.	NO.	LENGTH	NO.	LENGTH
12"	2'-0"	2'-0"	2'-0"	12	2'-0"	3'-0"	3'-0"	0.187	0.187	0.187	0.187	22	2.780	0.015	0.024	12	2'-0"	12	2'-0"	12	2'-0"
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.196	0.204	0.204	24	3.302	0.023	0.038	15	2'-3"	15	2'-3"	15	2'-3"
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.222	0.222	30	1.656	0.033	0.049	18	2'-6"	18	2'-6"	18	2'-6"
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.236	0.236	0.259	0.259	40	1.434	0.059	0.085	24	3'-0"	24	3'-0"	24	3'-0"
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.276	0.276	0.266	0.266	51	1.660	0.060	0.127	30	3'-6"	30	3'-6"	30	3'-6"
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.483	0.483	0.333	0.333	64	2.341	0.132	0.178	36	4'-0"	36	4'-0"	36	4'-0"
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.560	0.560	0.370	0.370	77	2.878	0.180	0.243	42	4'-6"	42	4'-6"	42	4'-6"
48"	5'-0"	5'-0"	5'-3"	28	6'-3"	6'-6"	6'-6"	0.743	0.743	0.407	0.407	111	3.623	0.235	0.317	48	5'-0"	48	5'-0"	48	5'-0"
54"	5'-6"	5'-6"	5'-9"	38	6'-9"	6'-12"	6'-12"	0.885	0.885	0.444	0.444	136	4.283	0.287	0.401	54	5'-6"	54	5'-6"	54	5'-6"
60"	6'-0"	6'-0"	6'-3"	30	7'-3"	7'-6"	7'-6"	1.042	1.042	0.481	0.481	146	5.020	0.367	0.495	60	6'-0"	60	6'-0"	60	6'-0"
66"	7'-1"	7'-1"	6'-9"	33	7'-10"	8'-1"	8'-1"	1.210	1.210	0.518	0.518	169	5.917	0.444	0.589	66	7'-1"	66	7'-1"	66	7'-1"

SHEET 1 OF 1
840.31

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR CONCRETE GRATED DROP INLET TYPE 'D' 12" THRU 36" PIPE

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS. USE STEPS WELDED TOGETHER WITH STD. DRAWING 840.06.
 OPTIONAL CONSTRUCTION - MONOLITHIC POOR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.06.
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.
 SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.

SECTION X-X

SECTION Y-Y

DOWEL "A"

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET		CONCRETE GRATED DROP INLET		SECTIONS FOR ONE PIPE			
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	NO.	LENGTH
12"	2'-0"	2'-0"	2'-0"	12	2'-0"	12	2'-0"
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	12	2'-3"
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	14	2'-6"
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	16	3'-0"
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	18	3'-6"
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	20	4'-0"

SHEET 1 OF 1
840.19

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS. USE STEPS WELDED TOGETHER WITH STD. DRAWING 840.06.
 OPTIONAL CONSTRUCTION - MONOLITHIC POOR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.06.
 USE TYPE "E", "F", and "G" GRATES UNLESS OTHERWISE INDICATED.
 FOR 6" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 6" TO 12" HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST GRATES WITH PIPE CHAINS MATCHING.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.

SECTION X-X

SECTION Y-Y

SECTION J-J

SECTION M-M

PLAN

PLAN

SHEET 1 OF 2
840.02

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR MANHOLE FRAME AND COVER

SOLID COVER SHOWN PERFORATED. PERFORATED AVAILABLE IF SPECIFIED.
 STATE USE OF SYSTEM ON COVER (I.E.: SEWER, STORM DRAIN, ELECTRICAL).

PLAN OF FRAME

PLAN OF COVER

SECTION A-A

SECTION B-B

MINIMUM WEIGHTS - LBS.
 FRAME - 180
 COVER - 100
 TOTAL - 300
 SPECIFICATION CLASS 30 IRON MEETING ASTM A-48

SHEET 1 OF 1
840.54

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR FRAMES AND WIDE SLOT SAG GRATES

PLAN

GRATE SECTION Y-Y

FRAME SECTION Y-Y

GRATE SECTION X-X

FRAME SECTION X-X

GRATE SECTION X-X

FRAME SECTION X-X

NOTE: SEE STD. DWG. 840.25 FOR FRAME ANCHORAGE.

SHEET 1 OF 1
840.22

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE

PLAN OF TOP SLAB

SECTION S-S

SECTION R-R

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

TYPE "G"

TYPE "E"

TYPE "F"

TYPE "F"

TYPE "E"

TYPE "G"

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER)		CONCRETE CATCH BASIN		SECTIONS FOR ONE PIPE			
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	NO.	LENGTH
12"	2'-0"	2'-0"	2'-0"	12	2'-0"	12	2'-0"
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	12	2'-3"
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	14	2'-6"
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	16	3'-0"
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	18	3'-6"
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	20	4'-0"
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	22	4'-6"
48"	5'-0"	5'-0"	5'-3"	28	6'-3"	28	5'-0"
54"	5'-6"	5'-6"	5'-9"	38	6'-9"	38	5'-6"

* RISER HAS .228 CU. YD. OF CONCRETE PER FOOT HEIGHT

SHEET 2 OF 2
840.02

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

PLAN

SECTION - AA

SECTION - BB

SECTION - NN

SECTION - PP

SECTION - HH

SECTION - JJ

SECTION - KK

SECTION - RR

NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

ALIGN FRAME WITH INSIDE EDGE OF WALL TO ALLOW FOR VERTICAL ADJUSTMENT WALL SECTION

SHEET 1 OF 2
840.03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

PLAN

SECTION - AA

SECTION - BB

SECTION - NN

SECTION - PP

SECTION - HH

SECTION - JJ

SECTION - KK

SECTION - RR

NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

ALIGN FRAME WITH INSIDE EDGE OF WALL TO ALLOW FOR VERTICAL ADJUSTMENT WALL SECTION

SHEET 1 OF 2
840.03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

7-086

ENGLISH STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

PLAN

SECTION - AA

SECTION - BB

SECTION - NN

SECTION - PP

SECTION - HH

SECTION - JJ

SECTION - KK

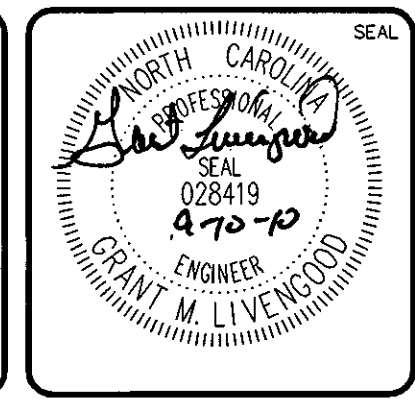
SECTION - RR

NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

ALIGN FRAME WITH INSIDE EDGE OF WALL TO ALLOW FOR VERTICAL ADJUSTMENT WALL SECTION

SHEET 2 OF 2
840.03

REV. NO.	DESCRIPTIONS	DATE
1	PRELIMINARY PLAT SUBMITTAL TO CHATHAM COUNTY PLANNING	09.10.2010
2	SUBMITTAL TO CLIENT FOR REVIEW	08.06.2010



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BRIAR CHAPEL
 PHASE 5 NORTH
 CHATHAM COUNTY, NORTH CAROLINA

NCDOT DRAINAGE DETAILS

DATE: AUGUST 6, 2010
 MCE PROJ. # 02735-0069
 DRAWN: OMB
 DESIGNED: OMB
 CHECKED: GML
 PROJ. MGR: GML

SCALE
 HORIZONTAL: NA
 VERTICAL: NA

MAC FILE NUMBER
CT501
 DRAWING NUMBER
D-3

STATUS: ISSUED FOR PERMIT

REVISION
 2

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE
 SPECIES RATE (lb/acre)
 TALL FESCUE 80
 KOBE LESPEDEZA 40

NURSE PLANTS:
 BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre GERMAN MILLET OR 15 lb/acre SUDAGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/ac RYE (GRAIN)

SEEDING DATES:
 BEST POSSIBLE
 FALL AUG. 15 - SEPT. 15 AUG. 20 - OCT. 25
 LATE WINTER FEB. 15 - MAR. 21 FEB. 1 - APR. 15

FALL IS BEST FOR TALL FESCUE AND LATER WINTER FOR LESPEDEZAS. OVERSEEDING OF DOBE LESPEDEZA OVER FALL-SEED TALL FESCUE IS VERY EFFECTIVE.

SOIL AMENDMENTS:
 FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
 APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
 REFERTILIZE IN THE SECOND YEAR UNLESS GROWTH IS FULLY ADEQUATE. MAY BE MOWED ONCE OR TWICE A YEAR, BUT MOWING IS NOT NECESSARY. RESEED, REFERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

RECOMMENDATIONS FOR GRASS-LINED CHANNELS

SEEDING MIXTURE
 SPECIES RATE (lb/acre)
 TALL FESCUE 200

NURSE PLANTS:
 BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre SUDAGRASS OR 15 lb/acre GERMAN MILLET. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/ac RYE (GRAIN)

SEEDING DATES:
 BEST: AUG. 25 - OCT.
 POSSIBLE: FEB. - APR. 15

AVOID SEEDING FROM NOV. TO JAN. IF SEEDING MUST BE DONE AT THIS TIME, ADD 40 lb/acre RYE GRAIN AND USE A CHANNEL LINING THAT OFFERS MAXIMUM PROTECTION

SOIL AMENDMENTS:
 FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 1,000 lb/acre 10-10-10 FERTILIZER

MULCH:
 USE ROLLED EROSION CONTROL PRODUCT TO COVER THE BOTTOM OF THE CHANNELS AND DITCHES, AND STAPLE SECURELY. THE LINING SHOULD EXTEND ABOVE THE HIGHEST CALCULATED DEPTH OF FLOW. ON CHANNEL SIDE SLOPES ABOVE THIS HEIGHT, AND IN DRAINAGES NOT REQUIRING TEMPORARY LININGS, APPLY 4,000 lb/acre GRAIN STRAW, AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

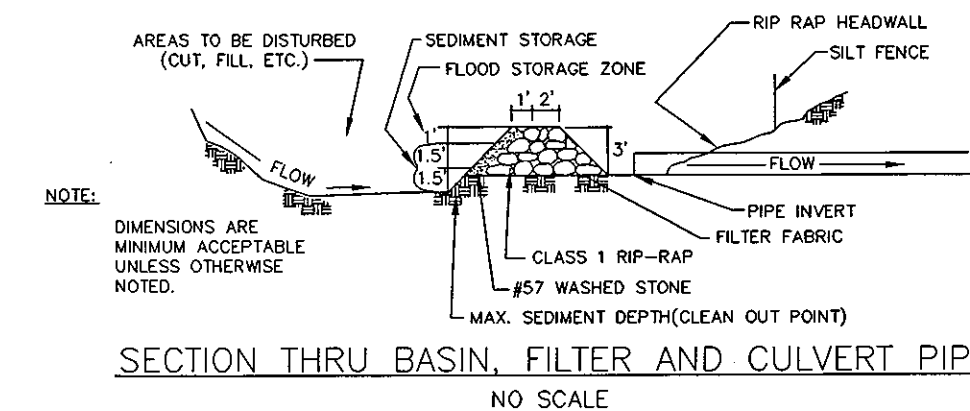
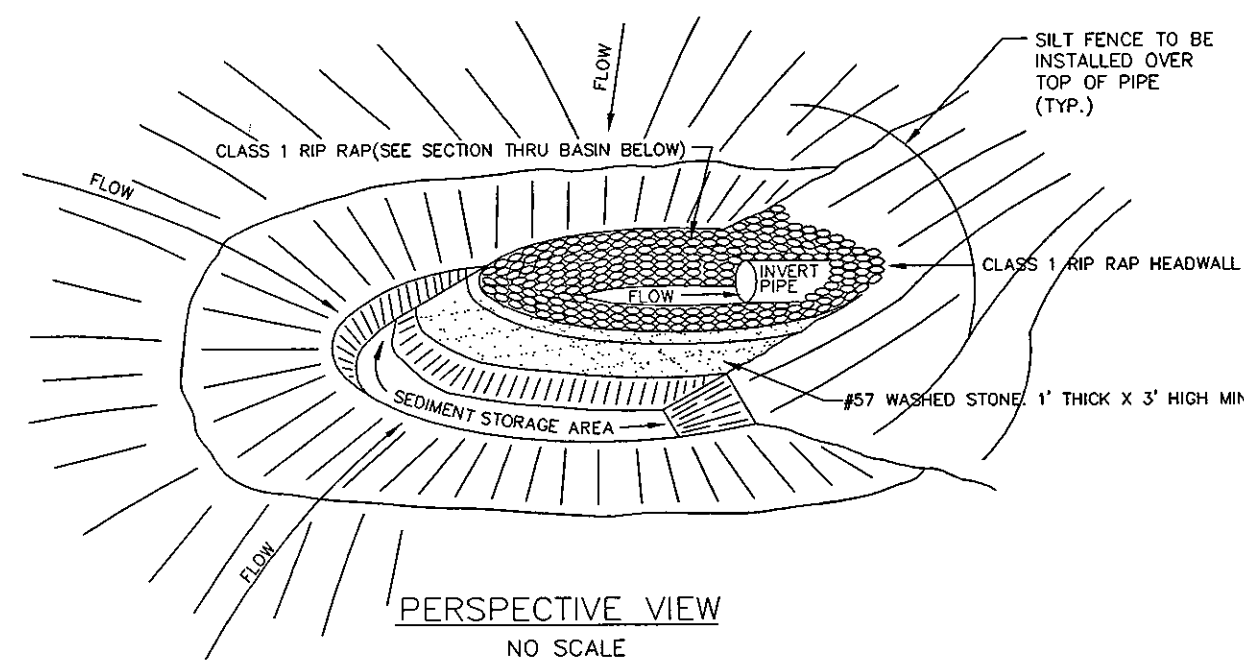
MULCH AND ANCHORING MATERIALS MUST NOT BE ALLOWED TO WASH DOWN SLOPES WHERE THEY CAN CLOG DRAINAGE DEVICES.

MAINTENANCE:
 INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR; USE SOIL TESTS OR APPLY 150 lb/acre 10-10-10. MOW REGULARLY TO A HEIGHT OF 2-4 INCHES.

NOTE:
 SEE NCDENR'S EROSION AND SEDIMENT CONTROL PLANNING DESIGN MANUAL SECTION 6.11 FOR ADDITIONAL PERMANENT SEEDING OPTIONS.

PERMANENT SEEDING SCHEDULE

NTS



ARC FILTER INLET PROTECTION

NTS

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE
 SPECIES RATE (lb/acre)
 RYE (GRAIN) 120
 ANNUAL LESPEDEZA (KOBE IN 50
 PIEDMONT & COASTAL PLAIN,
 KOREAN IN MOUNTAINS)

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE

SEEDING DATES:
 MOUNTAINS (ABOVE 2,500'): FEB. 15 - MAY 15
 (BELOW 2,500'): FEB. 1 - MAY 1
 PIEDMONT: JAN. 1 - MAY 1
 COASTAL PLAIN: DEC. 1 - APR. 15

SOIL AMENDMENTS:
 FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
 APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
 REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

RECOMMENDATIONS FOR SUMMER

SEEDING MIXTURE
 SPECIES RATE (lb/acre)
 GERMAN MILLET 40

IN THE PIEDMONT AND MOUNTAINS, A SMALL-STEMMED SUDAGRASS MAY BE SUBSTITUTED AT A RATE OF 50 lb/acre.

SEEDING DATES:
 MOUNTAINS MAY 15 - AUG. 15
 PIEDMONT: MAY 1 - AUG. 15
 COASTAL PLAIN: APR. 15 - AUG. 15

SOIL AMENDMENTS:
 FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
 APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
 REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

RECOMMENDATIONS FOR FALL

SEEDING MIXTURE
 SPECIES RATE (lb/acre)
 RYE (GRAIN) 120

SEEDING DATES:
 MOUNTAINS: AUG. 15 - DEC. 15
 COASTAL PLAIN AND PIEDMONT: AUG. 15 - DEC. 30

SOIL AMENDMENTS:
 FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
 APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
 REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOPDRESS WITH 50 lb/acre OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 lb/acre KOBE (PIEDMONT AND COASTAL PLAIN) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

TEMPORARY SEEDING SCHEDULE

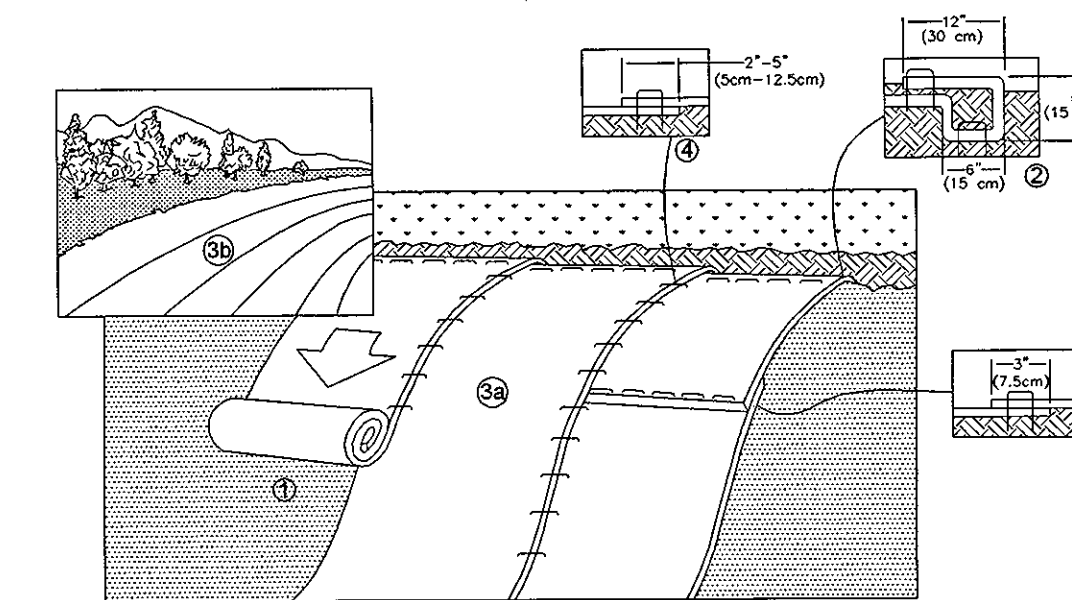
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1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW*).
5. CONTINUE TILLAGE UNTIL A WELL - PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

* APPLY: AGRICULTURAL LIMESTONE - 2 TONS/ACRE OR 3 TONS/ACRE IN CLAY SOILS
 FERTILIZER - 1000 LBS/ACRE (10-10-10)
 SUPERPHOSPHATE - 500 LBS/ACRE (20%)
 MULCH - 2 TONS/ACRE (SMALL GRAIN STRAW)ANCHOR - ASPHALT EMULSION AT 450 GAL./ACRE

SEEDBED PREPARATION

NTS

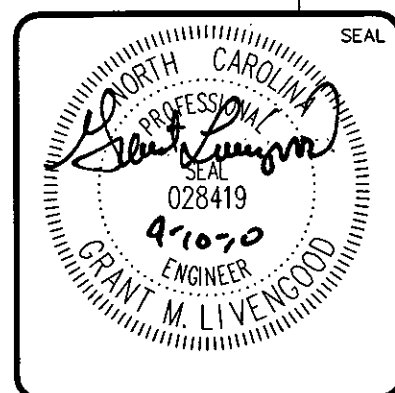
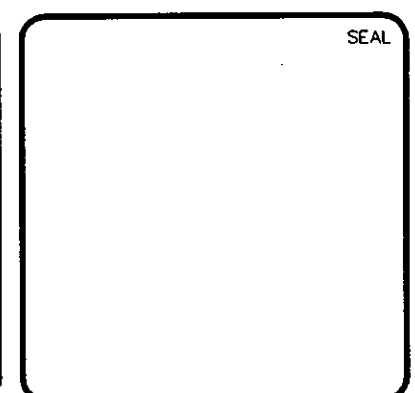


1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPs), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPs IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECPs EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPs WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECPs BACK OVER SEED AND COMPACTED SOIL. SECURE RECPs OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECPs.
 3. ROLL THE RECPs (A.) DOWN (FOR SLOPES 3:1 OR GREATER) OR (B.) HORIZONTALLY (FOR SLOPES LESS THAN 3:1) ACROSS THE SLOPE. RECPs WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPs MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
 4. THE EDGES OF PARALLEL RECPs MUST BE STAPLED WITH APPROXIMATELY 2" -5" (5 CM -12.5 CM) OVERLAP DEPENDING ON RECPs TYPE.
 5. CONSECUTIVE RECPs SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECPs WIDTH.
- NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECPs.

TEMPORARY STABILIZATION FOR SLOPES GREATER THAN 10 FEET

NTS

NO.	DESCRIPTION	DATE
1	SUBMITTAL TO CLIENT FOR REVIEW	08.09.2009
2	PRELIMINARY PLAT SUBMITTAL TO CHATHAM COUNTY PLANNING	09.10.2010



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 CHATHAM COUNTY, NORTH CAROLINA**

**EROSION AND SEDIMENTATION CONTROL
 DETAILS**

DATE: AUGUST 6, 2010
 MCE PROJ. # 02735-0069
 DRAWN: CMB
 DESIGNED: CMB
 CHECKED: GML
 PROJ. MGR.: GML

SCALE
 HORIZONTAL: NA
 VERTICAL: NA

MAC FILE NUMBER
CE501
 DRAWING NUMBER
D-2

STATUS: ISSUED FOR PERMIT
 REVISION: 2