

## Appendix B: Pipelines

Figure 5 - Detail for Boring Pit Location

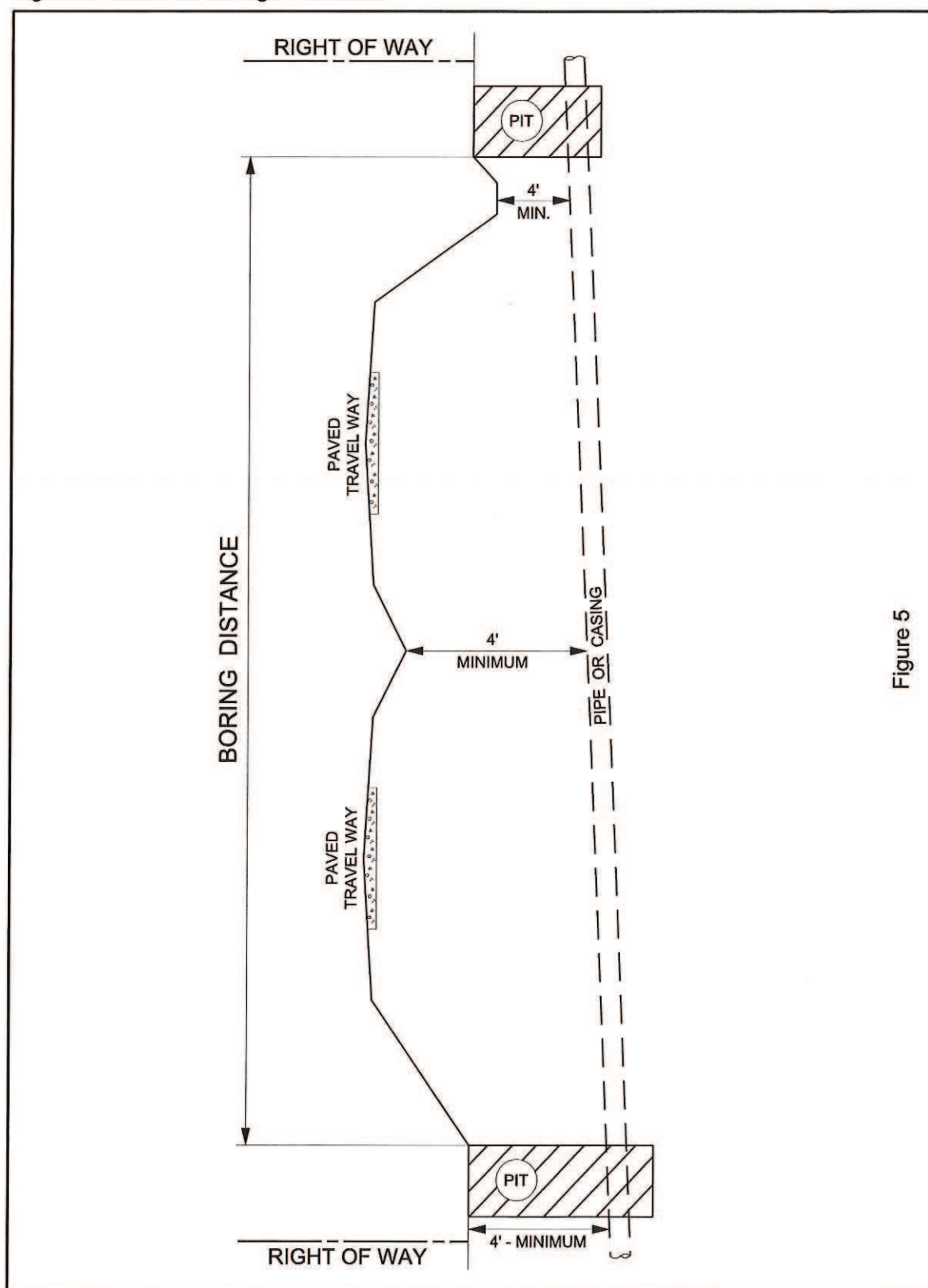
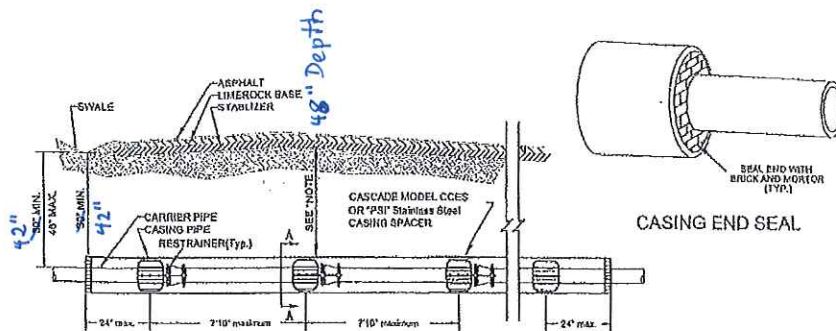
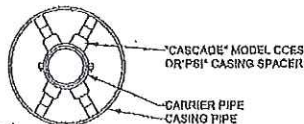


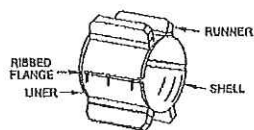
Figure 5



NOTE:  
UNDERGROUND CROSSINGS REQUIRE A MINIMUM VEHICLE CLEARANCE OF 48" BELOW PAVEMENT SURFACE FOR FREEWAYS, 36" FOR OTHER HIGHWAYS OR 30" BELOW UNPAVED GROUND INCLUDING DITCH GRADE PER F.D.O.T.



SECTION "A-A"



#### STAINLESS STEEL SPACERS

SPACERS SHALL BE BOLT-ON STYLE WITH A TWO PIECE SOLID SHELL OR A MINIMUM 14 GA. MILD STEEL THICKNESS. THE SHELL SHALL BE LINED WITH A RIBBED PVC SHEET OF 0.080" THICKNESS THAT OVERLAPS THE EDGES. RUNNERS MADE FROM UHMW POLYMER, SHALL BE ATTACHED TO RISERS AT APPROPRIATE POSITIONS TO PROPERLY LOCATE THE CARRIER WITHIN THE CASING AND TO EASE INSTALLATION. RISERS SHALL BE MADE FROM A MINIMUM 14GA MILD STEEL THICKNESS AND SHALL BE ATTACHED TO THE SHELL BY ELECT. WELDING. ALL WELDS SHALL BE FULLY PASSIVATED. ALL FASTENERS SHALL BE MADE FROM A MINIMUM 14GA. MILD STEEL. CASING SPACERS SHALL BE MODEL CCES AS MANUFACTURED BY "CASCADE" (Cascade Water Works Mfg. Company of Yorkville Ill.), or "PSI" (Pipeline Seal & Insulator, Inc., Houston, Texas.)

#### PLACEMENT OF SPACERS ON CARRIER PIPE

- 1) GENERAL- ONE SPACER SHALL BE PLACED NOT MORE THAN TWO FEET FROM EACH END OF CASING. SUBSEQUENT SPACERS SHALL BE PLACED AT 6'-10" INTERVALS WITHIN THE CASING, OR IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDATIONS.
- 2) PVC CARRIER- ONE SPACER SHALL BE PLACED ON THE SPIGOT END OF EACH SEGMENT AT THE LINE MARKING THE LIMIT OF INSERTION INTO THE BELL. WHEN THE JOINT IS COMPLETE, THE SPACER SHALL BE IN CONTACT WITH THE BELL OF THE JOINT SO THAT THE SPACER PUSHES THE JOINT AND RELIEVES COMPRESSION WITHIN THE JOINT. SUBSEQUENT SPACERS SHALL BE PLACED AT 6'-0" INTERVALS, OR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

#### STANDARD NO. OF RUNNER REQ'D.

UP TO 14" CARRIER PIPE - 4 REQ'D.  
OVER 14" THROUGH 36" CARRIER PIPE - 6 REQ'D.  
OVER 36" THROUGH 48" CARRIER PIPE - 7 REQ'D.

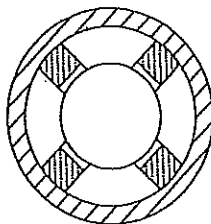
CARRIER PIPE DIA. (IN.)	MIN. CASING O.D. (IN.)	MIN. STDS. HIGHWAY THICKNESS (IN.)	INTERSTATE & RAILWAY THICKNESS (IN.)
2	4	3/16"	1/4"
4	14	1/4"	5/16"
6	16	1/4"	5/16"
8	18	1/4"	3/8"
10	20	1/4"	3/8"
12	24	1/4"	7/16"
14	30	5/16"	1/2"
16	36	5/16"	1/2"
18	36	3/8"	9/16"
20	36	3/8"	9/16"
24	42	1/2"	9/16"
30	42	1/2"	9/16"
36	48	1/2"	9/16"

#### CARRIER PIPE

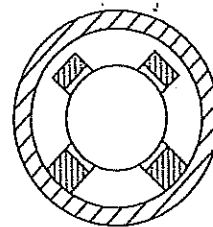
CARRIER PIPE SHALL BE CENTERED WITHIN CASING BY USE OF MODEL CCES STAINLESS STEEL CASING SPACERS AS MANUFACTURED BY CASCADE WATER WORKS MFG. COMPANY OR APPROVED EQUAL. SPACERS FOR PIPES OVER 48" MAY REQUIRE THREE PIECE SHELLS. SHELL CONNECTORS ABOVE 48" WILL BE RECEIVER BAR/ WASHER PLATE TYPE.

JACK AND BORE DETAIL  
NOT TO SCALE

CARRIER PIPE SIZE	CASING PIPE	
	SIZE	THICKNESS " ROADWAY
4"	10"	.25"
6"	12"	.25"
8"	14"	.25"
10"	16"	.312"
12"	18"	.312"
14"	20"	.312"
16"	24"	.375"
18"	26"	.375"
20"	28"	.375"
24"	32"	.375"

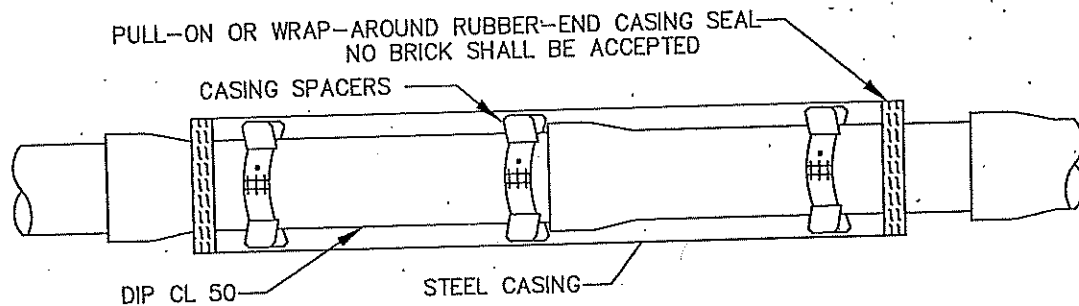


CENTERED/RESTRAINED POSITIONING FOR WATER MAINS  
MECHANICAL JOINT PIPE REQUIRED FOR WATER MAINS.



STANDARD POSITIONING  
FOR SANITARY SEWER

UTILIZE "FIELD LOK" GASKET RESTRAINTS  
AT ALL JOINTS IN CASING

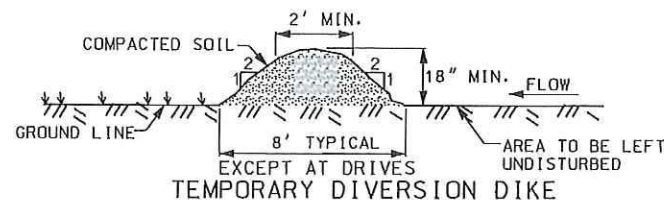
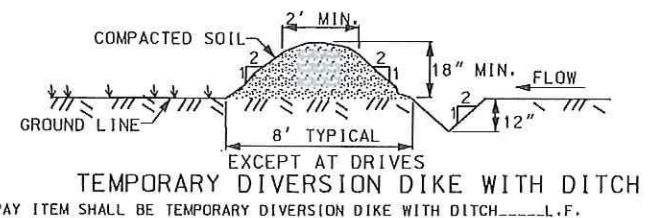


NOTES

1. SPACER OPTIONS: 8" OR 12" WIDE BAND
2. APPROVED TYPES ARE CASCADE OR PSI
3. INSTALLATION SHALL BE IAW THE MANUFACTURES STANDARDS

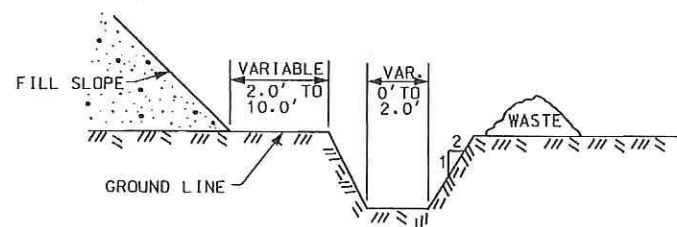
TYPICAL ROADWAY JACK AND BORE  
FOR WATER AND SANITARY SEWER MAINS





#### NOTES

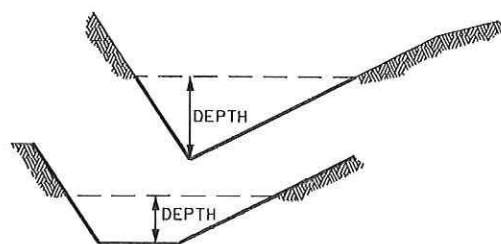
1. THIS ITEM IS FOR DIVERTING CLEAN WATER AROUND A CONSTRUCTION AREA.
2. CLEAR AND GRUB ALL TREES, BRUSH, STUMPS AND OTHER OBJECTIONABLE MATERIAL.
3. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DIMENSIONS SHOWN.
4. IMMEDIATELY AFTER CONSTRUCTION ESTABLISH VEGETATION, PLACING TEMPORARY EROSION CONTROL BLANKET ON THE DIKE. (AS APPLICABLE).
5. PAYMENT FOR TEMPORARY DIVERSION DIKE INCLUDES ALL MATERIALS IN PLACE, REMOVAL AND DISPOSAL OF MATERIALS AND RESHAPING DIKE TO DRAIN. SEEDING TO BE PAID FOR SEPARATELY.
6. THE PAY ITEM SHALL BE: TEMPORARY DIVERSION DIKE.....L.F.



#### NOTES

1. THIS ITEM IS TO MOVE SEDIMENT LADEN WATER FROM A CONSTRUCTION SITE TO A SEDIMENT CONTROL STRUCTURE.
2. SEED DITCH AND WASTE AREA WITH TEMPORARY SEEDING IMMEDIATELY AFTER CONSTRUCTION.
3. IMMEDIATELY AFTER CONSTRUCTION ESTABLISH VEGETATION, PLACING TEMPORARY EROSION CONTROL BLANKET ON THE DITCH (AS APPLICABLE).
4. THE PAY ITEM SHALL BE: SILT DITCHES.....C.Y.

#### ROLLED EROSION CONTROL PRODUCT



#### NOTES

1. THE DEPTH OF THE EROSION CONTROL PRODUCTS ARE TO BE DETERMINED BY DESIGN AND PLACED ON PLAN SHEETS.
2. INSTALL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
3. COST OF INSTALLATION AND MATERIALS SHALL BE INCLUDED IN THE PAY ITEM FOR ROLLED EROSION CONTROL PRODUCT.
4. PAY ITEMS:  
TEMPORARY EROSION CONTROL BLANKET.....SY  
PERMANENT TURF REINFORCEMENT MAT.....SY

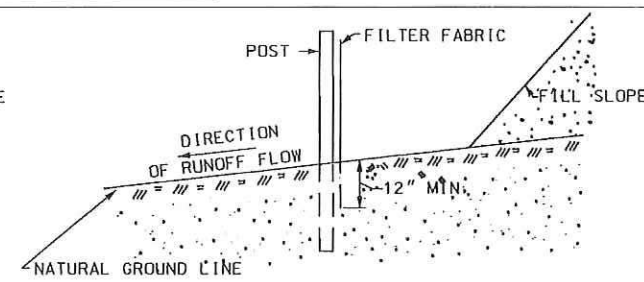
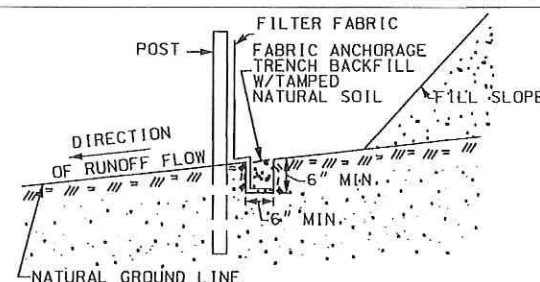
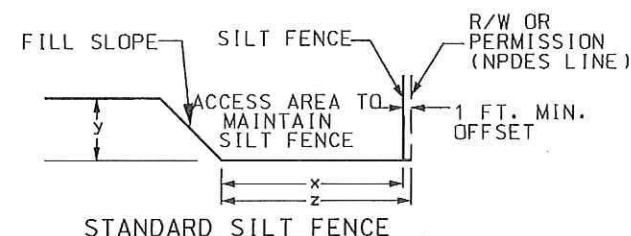
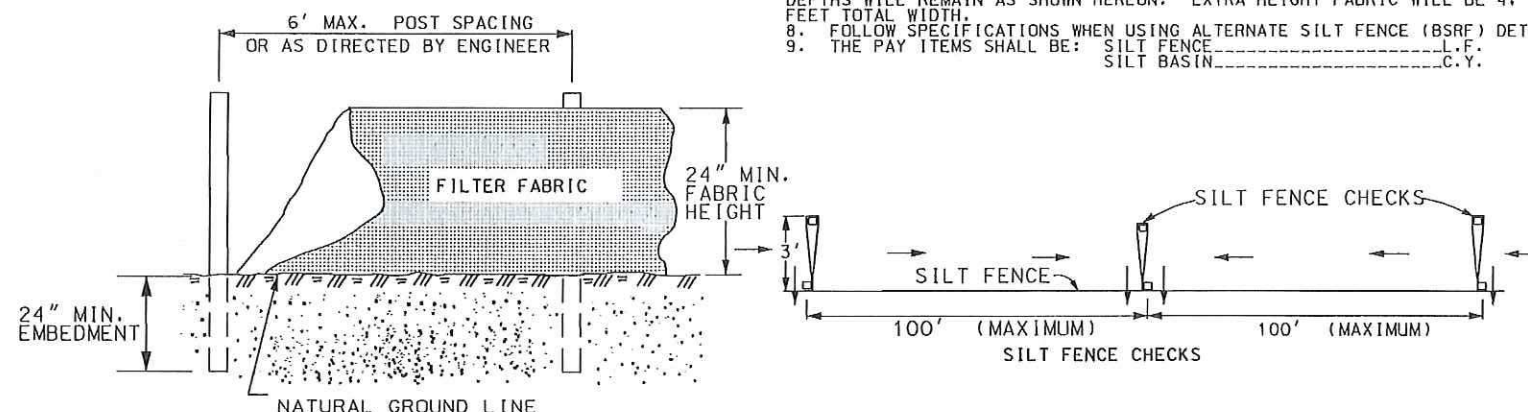
THIS DRAWING IS NOT TO SCALE

#### SILT FENCE

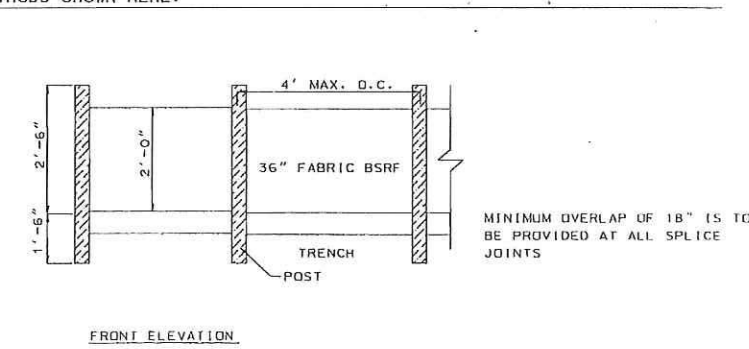
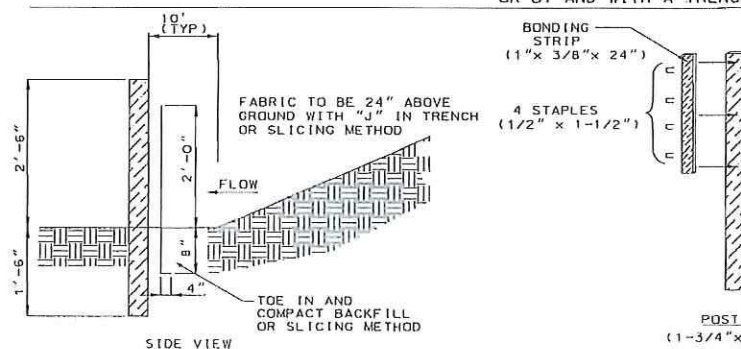
HEIGHT OF FILL (y) IN FEET	FILL SLOPE	MINIMUM SILT FENCE OFFSET FROM TOE OF SLOPE (x) IN FEET	MINIMUM RIGHT OF WAY OFFSET FROM TOE OF SLOPE (NPDES LINE) IN FEET	CHECK LENGTH IN FEET**
<6	2:1 4:1 6:1	2	3	2
6-10	2:1 4:1 6:1	12*	13*	5
>10	2:1 4:1 6:1	12*	13*	5

\*THESE MINIMUM OFFSETS MAY BE REDUCED WHEN CURB AND GUTTER OR SOME OTHER FEATURE REDUCES THE FLOW OF WATER DOWN THE SLOPE. THE SMALL OFFSETS OF EACH GROUP OF HEIGHT OF FILL CANNOT BE REDUCED.

\*\*SILT FENCE CHECKS WILL HAVE A MAXIMUM LENGTH OF FIVE (5) FEET OR UNTIL THEY TIE BACK INTO THE SLOPE.



12 INCHES OF THE FABRIC SHALL BE BURIED REGARDLESS, IF PLACED PNEUMATICALLY OR BY AND WITH A TRENCHER. BOTH METHODS SHOWN HERE.



ALTERNATE SILT FENCE - BELTED SILT RETENTION FENCE (BSRF)

#### NOTES

1. SILT FENCE CHECKS MUST BE LOCATED EVERY 100 FT. MAXIMUM AND AT LOW POINTS. FILTER FABRICS SHALL CONFORM TO SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION).
2. USE POSTS CONFORMING TO SCDOT STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS. POSTS SHALL BE A MINIMUM OF 5 FEET LONG AND INSTALLED TO A MINIMUM DEPTH OF 24 INCHES WITH NO MORE THAN 3 FEET OF THE POST ABOVE GROUND. AT LEAST 1 TO 2 INCHES OF THE POSTS SHALL EXTEND ABOVE THE TOP OF THE FABRIC. POST SPACING WILL BE A MAXIMUM OF 6 FEET ON CENTER.
3. POSTS SHALL HAVE PROJECTIONS FOR FASTENING THE FABRIC TO THE POST. POSTS SHALL ALSO HAVE A SOIL PLATE NEAR THE BOTTOM OF THE POST, EXCEPT WHEN HEAVY CLAY SOILS ARE PRESENT ON-SITE.
4. ATTACH FABRIC TO POSTS USING HEAVY-DUTY PLASTIC TIES THAT ARE EVENLY SPACED AND PLACED IN A MANNER TO PREVENT SAGGING OR TEARING OF THE FABRIC. IN ALL CASES, TIES SHOULD BE AFFIXED IN NO LESS THAN 4 PLACES.
5. SILT SHALL BE REMOVED AND DISPOSED OF WHEN SILT ACCUMULATES TO 1/3 THE HEIGHT OF THE FENCE. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON-SITE. MAINTENANCE OF SILT FENCE WILL BE MEASURED AND PAID FOR BY THE ITEM OF SILT BASIN.
6. TYPICAL SILT FENCE APPLICATIONS REQUIRE 24 INCHES OF THE FABRIC TO BE ABOVE GROUND. WHEN NEEDED, THE HEIGHT OF SILT FENCE FABRIC ABOVE THE GROUND MAY BE GREATER THAN 24". SEE PLANS FOR APPLICATION OF HIGHER SILT FENCE. PAY ITEMS AND INSTALLATION METHODS.
7. IN TIDAL AREAS, EXTRA SILT FENCE HEIGHT MAY BE REQUIRED. THE LENGTH OF POST WILL BE TWICE THE EXPOSED POST HEIGHT. POST SPACING AND BURIED DEPTHS WILL REMAIN AS SHOWN HEREON. EXTRA HEIGHT FABRIC WILL BE 4, 5 OR 6 FEET TOTAL WIDTH.
8. FOLLOW SPECIFICATIONS WHEN USING ALTERNATE SILT FENCE (BSRF) DETAILS.
9. THE PAY ITEMS SHALL BE: SILT FENCE.....L.F.  
SILT BASIN.....C.Y.

#### REFERENCES

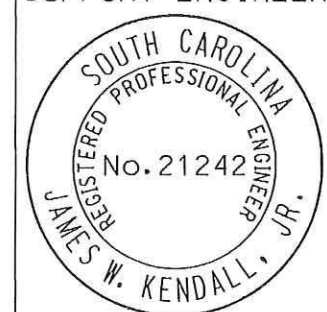
##### NATIONAL DOCUMENTS

##### SCDOT DOCUMENTS

SC-M-815-2, SC-M-815-9

##### RELATED DRAWINGS & KEYWORDS

#### PRECONSTRUCTION SUPPORT ENGINEER



James W. Kendall  
SIGNATURE

AUGUST 23, 2012  
DATE

4			
3			
2			
1	8/2012	KNB	ADDED SCDOT DOCUMENTS, REMOVED STEEL, CHANGED NOTES
0	3/2008	DSO	GENERAL REVISIONS
#	DATE	CHK	DESCRIPTION

**SCDOT**  
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DESIGN STANDARDS OFFICE  
955 PARK STREET  
ROOM 405  
COLUMBIA, SC 29201

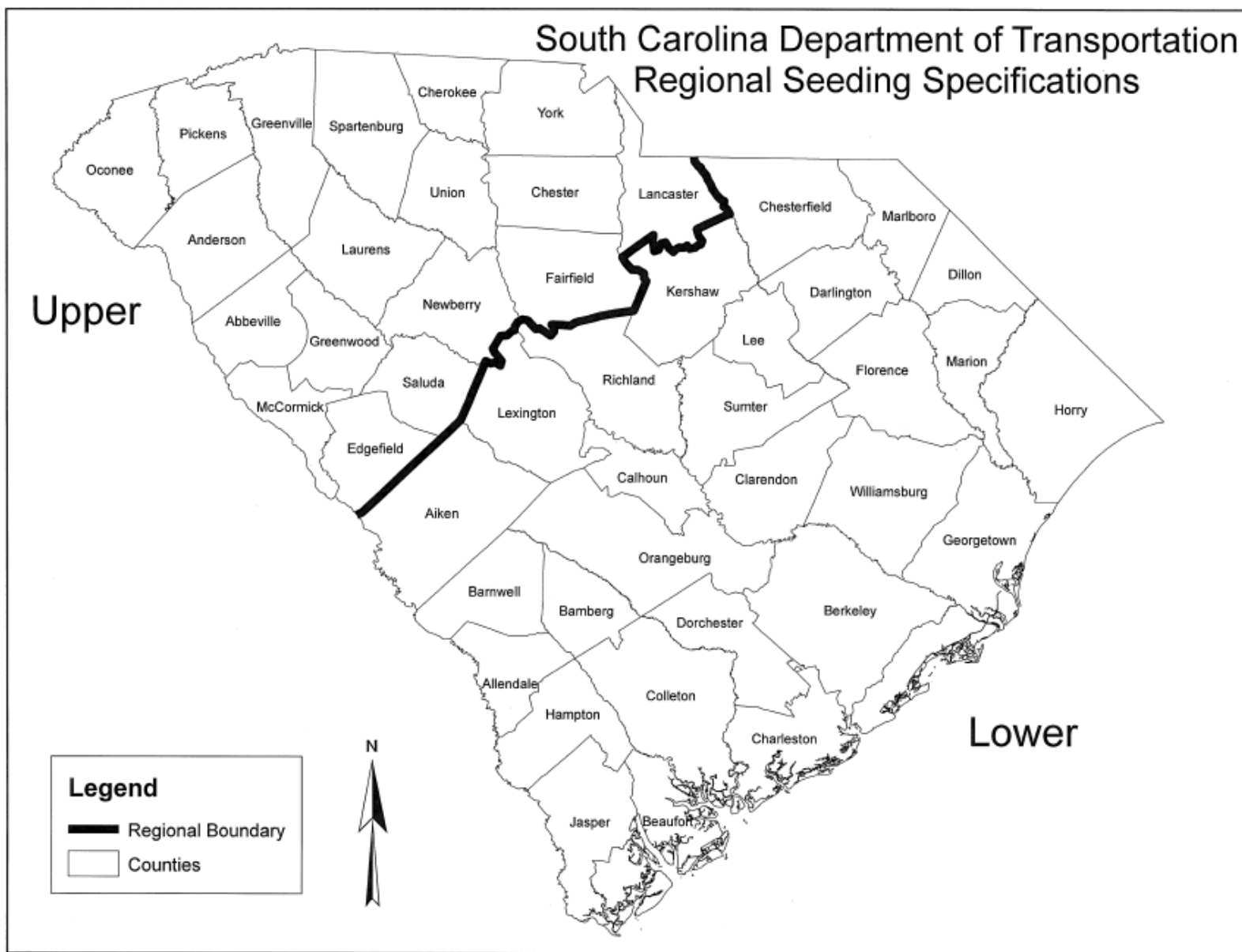
#### STANDARD DRAWING

TEMPORARY  
EROSION &  
SEDIMENTATION  
CONTROL

815-605-00

EFFECTIVE LETTING DATE JAN., 2013

FIGURE 1: UPPER AND LOWER STATE MAP



**TABLE 1: PERRENIALS** \* Months shaded in gray represent applicable planting dates.

COMMON NAME <sup>6</sup>	BOTANICAL NAME	APPROVED SITE(S)	PLANTING RATE (lbs/acre)	PLANTING LOCATION	Planting Dates*											
					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TURF-TYPE GRASSES (SELECT ONE)																
Bahia <sup>1</sup>	Paspalum notatum	Shoulders, Slopes, or Medians	30	Upper State												
				Lower State												
Common Bermudagrass <sup>2</sup> (hulled = hull absent)	Cynodon dactylon	Shoulders, Slopes, or Medians	50	Upper State												
				Lower State												
Common Bermudagrass <sup>2</sup> (unhulled = hull present)	Cynodon dactylon	Shoulders, Slopes, or Medians	60	Upper State												
				Lower State												
Carpet Grass / Centipedegrass Combo	Axonopus affinis Eremochloa ophiuroides	Shoulders, Slopes or Medians	15	Upper State												
			10	Lower State												
Tall Fescue (KY-31) <sup>3</sup>	Festuca arundinacea	Shoulders, Slopes, or Medians	75	Upper State												
				Lower State												
GRASSES																
Weeping Lovegrass	Erograstis curvula	Slopes	10	Upper State												
				Lower State												
Indiangrass	Sorghastrum nutans	Slopes	10	Upper State												
				Lower State												
Little Bluestem	Andropogon scoparius	Slopes	10	Upper State												
				Lower State												
Coastal Panicgrass	Panicum amarum	Slopes	20	Upper State												
				Lower State												
Switchgrass	Panicum virgatum	Slopes	10	Upper State												
				Lower State												
Perennial Rye Grass <sup>4</sup>	Lolium perrene	Shoulders, Slopes, or Medians	15	Upper State												
				Lower State												
Virginia Wild Rye	Elymus virginicus	Shoulders, Slopes, or Medians	6	Upper State												
				Lower State												
LEGUMES <sup>4</sup>																
White Clover	Trifolium repens	Shoulders, Slopes, or Medians	5	Upper State												
				Lower State												
Crownvetch	Coronilla varia	Slopes	25	Upper State												
				Lower State												
Sericea Lespedeza (Scarified seed)	Lespedeza cuneata	Slopes	50	Upper State												
				Lower State												
Sericea Lespedeza (Unscarified seed)	Lespedeza cuneata	Slopes	80	Upper State												
				Lower State												

<sup>1</sup>Bahia<sup>1</sup>: Use at discretion of RCE based on project location.

<sup>2</sup>Common Bermudagrass: *Do not use Giant Bermudagrass (NK-37).*

<sup>3</sup>Tall Fescue (KY-31): *Do not use Tall Fescue (Lolium arundinacea).*

<sup>4</sup>Perennial Rye Grass: *Do not use Annual Italian Rye grass (Lolium multiflorum).*

\* Months shaded in gray represent applicable planting dates.

<sup>5</sup>Only use pre-inoculated legumes or use an appropriate inoculant with the seed at plant

<sup>6</sup>If Common Name of seed is not available, use seed with the listed Botanical Name.



**TABLE 2: ANNUALS**

\* Months shaded in gray represent applicable planting dates.

COMMON NAME <sup>5</sup>	BOTANICAL NAME	APPROVED SITE(S)	NURSE CROP RATE (lbs/acre)	TEMP COVER RATE (lbs/acre)	PLANTING LOCATION	Planting Dates*											
						JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Crimson Clover <sup>1</sup>	Trifolium incarnatum	Shoulders, Slopes, or Medians	20	20	Upper State												
					Lower State												
Lespedeza <sup>1</sup> Kobe / Korean	Lespedeza striata / stipulacea	Shoulders, Slopes	15	60	Upper State												
					Lower State												
Browntop Millet <sup>2</sup>	Panicum ramosum	Shoulders, Slopes, or Medians	10	40	Upper State												
					Lower State												
German Millet <sup>2</sup> (Foxtail Millet)	Setaria italica	Shoulders, Slopes, or Medians	10	40	Upper State												
					Lower State												
Japanese Millet <sup>2</sup>	Echinochloa crusgalli	Slopes	10	50	Upper State												
					Lower State												
Oats	Avena sativa	Slopes	40	110	Upper State												
					Lower State												
Hairy Vetch <sup>1</sup>	Vicia villosa	Slopes	15	50	Upper State												
					Lower State												
Pearl Millet	Pennisetum glaucum	Slopes	15	50	Upper State												
					Lower State												
Sudangrass	Sorghum bicolor	Slopes, Buffers	20	60	Upper State												
					Lower State												
Barley	Hordeum vulgare	Slopes	55	110	Upper State												
					Lower State												
Wheat <sup>4</sup>	Triticum spp.	Slopes, Buffers	35	110	Upper State												
					Lower State												
Rye Grain <sup>3,4</sup>	Secale cereale	Shoulders, Slopes, or Medians	40	110	Upper State												
					Lower State												

<sup>1</sup> Only use pre-inoculated legumes or an appropriate inoculant with the seed at planting.

\* Months shaded in gray represent applicable planting dates.

<sup>2</sup> Mow Millet (no lower than 3 inches) once it reaches a height of 18 - 24 inches or at the discretion of the RCE to reduce competitiveness with permanent vegetation.

<sup>3</sup> Rye Grain: Do not use Annual Italian Rye Grass (Lolium multiflorum).

<sup>4</sup> Mow Wheat and Rye Grain (no lower than 3 inches) once they reach a height of 18 - 24 inches or at the discretion of the RCE to reduce competitiveness with permanent vegetation.

<sup>5</sup> If the Common Name of the seed listed is not available, use seed with the listed Botanical Name. Do not use Wild Bird, Wild Animal, or Domestic Feed Seed.