ROUND MANHOLE ASSEMBLY

NOTE: ROUND MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M 199.
NOTE: TOP UNIT IS TO BE CAST IN PLACE TO GRADE AS SPECIFIED ON PLAN SHEETS OR AS DIRECTED BY ENGINEER.
48" (1220) x 30" (760) JUNCTION BOX

48" (1220) x 48" (1220) JUNCTION BOX

66" (1675) x 30" (760) JUNCTION BOX

66" (1675) x 48" (1220) JUNCTION BOX

NOTES:
1. COVER SLABS ARE TO BE PRE-CAST.
2. ALL BARS ARE TO BE #5 (16mm) SPACED
   6" (152mm) UNLESS NOTED OTHERWISE.
3. MINIMUM BAR COVER = 15/8" (16mm).
   * DIMENSIONS TO WATCH OUTSIDE TO OUTSIDE DIMENSIONS OF BOX

SECTION A-A

SECTION B-B

JUNCTION BOX COVER SLAB DETAILS

DELAWARE DEPARTMENT OF TRANSPORTATION

JUNCTION BOX DETAILS

STANDARD NO. D-7 (2002)  SHT. 2 OF 2

APPROVED

RECOMMENDED

04/24/2002
LIMIT OF PAY FOR
EXCAVATION OF PIPE TRENCHES = O.D. + 24" (60)

CLASS A BEDDING

CONCRETE 2000 P.S.I. 15 MPa (MIN.)

CLASS C BEDDING

NOTE: USE CLASS C BEDDING UNLESS OTHERWISE INDICATED

DELTADE OF TRANSPORTATION

PIPE BEDDING

STANDARD NO. D-8 (2000) SHT. 1 OF 1

APPROVED

RECOMMENDED
NOT TO SCALE

GEOTEXTILE FILTER FABRIC SHALL BE PLACED ENTIRELY OVER THE TOP OF UNDERDRAIN TRENCH AND LAPPED AS SHOWN.

SLOPE OF UNDERDRAINS SHALL MATCH ROADWAY GRADE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

OUTLET PIPE CONFIGURATIONS SHALL USE 45 DEGREE ELBOWS OR SHALL USE STRAIGHT PIPE WITH A MINIMUM RADIUS OF 3' (900) TO DIRECT UNDERDRAIN PIPE INTO SIDE OF DRAINAGE INLET OR TO POSITIVE GRADE. PIPE SHALL ALSO BE NON-PERFORATED AND HAVE A SMOOTH INTERIOR.

RODENT SCREEN SHALL SNUGLY FIT THE PROVIDED SLOT WITH THE SCREEN LIP FITTING TIGHT TO THE BOTTOM FLOW LINE.

A 4' (1200) FLEXIBLE DELINEATOR SHALL BE FURNISHED AND INSTALLED AT THE DIRECTION OF THE ENGINEER TO MARK THE LOCATION OF THE CONCRETE HEADWALL. COST INCIDENTAL TO DOWNSPOUT SPLASH APRONS ITEM.

WHEN TWO LINES OF PIPE UNDERDRAIN DRAIN TO A LOW POINT, EACH PIPE MUST HAVE ITS OWN OUTLET.

DELTA ENGINEER
DESIGN ENGINEER
RECOMMENDED
APPROVED

PERFORATED PIPE UNDERDRAIN DETAIL
NOT TO SCALE

PERFORATED PIPE UNDERDRAIN DETAIL
STANDARD NO. D-9 (2004) SHT. 1 OF 1 RECOMMENDED

DELTA ENGINEER
DESIGN ENGINEER
RECOMMENDED
APPROVED

PERFORATED PIPE UNDERDRAIN DETAIL
STANDARD NO. D-9 (2004) SHT. 1 OF 1 RECOMMENDED
CUT SECTION

- LIMIT OF CONSTRUCTION
- EXISTING GROUND
- PHASE I EXCAVATION
- INTERMEDIATE PHASE I EXCAVATION
- FINAL PHASE EXCAVATION
- PERIMETER/ZONE SWALE USED AS A CLEAN WATER DIVERSION, SEE STANDARD SHEET

BREAK IN CROSS SLOPE MAY BE ELIMINATED TO DIRECT SURFACE FLOW LEFT OR RIGHT OR AS DIRECTED BY THE ENGINEER.

FILL SECTION

- FINAL PHASE EMBANKMENT
- INTERMEDIATE PHASE I EMBANKMENT
- PHASE I EMBANKMENT
- EXISTING GROUND
- TEMPORARY SWALE, SEE STANDARD SHEET
- Silt fences, see standard sheet

NOTES:
1) EDGE BURNS AND TEMPORARY SLOPE DRAINS SHALL BE CONSTRUCTED ALONG THE TOP OF ALL SLOPES TO INTERCEPT RUNOFF AND CONVEY IT DOWN THE SLOPE FACES WITHOUT CREATING GULLIES OR WASHOUTS.

2) SLOPE FACES SHALL BE TRAILED WITH CLEATED EQUIPMENT SUCH THAT THE CLEAT MARKS ARE ORIENTED HORIZONTALLY.

3) ALL CUT AND FILL SLOPES OF THE HIGHWAY EMBANKMENT SHALL BE PERMANENTLY STABILIZED AS THE WORK PROGRESSES IN INCREMENTS NOT TO EXCEED 10' (3000) MEASURED ALONG THE SLOPE.

4) CROSS SLOPES SHALL BE 2% MINIMUM, 6% MAXIMUM.
ISOMETRIC VIEW

SECTION B-B

WIRE MESH DETAIL
(REINFORCED SILT FENCE ONLY)

NOTE: THIS DEVICE IS INTENDED TO CONTROL SHEET FLOW ONLY. IT SHALL NOT BE USED IN AREAS OF CONCENTRATED FLOW.

SECTION A-A

CONNECTON DETAIL
FOR USE WITH JOINING TWO ADJACENT SILT FENCE SECTIONS

PLAN SYMBOL

DELAWARE DEPARTMENT OF TRANSPORTATION

STANDARD NO. E-2 (2001) SHT. 1 OF 1

APPROVED

05/2/2001
ISOMETRIC VIEW

SECTION A-A

IF THE INLET IS NOT AT A LOW POINT, INSTALL SEDIMENT CONTROL EARTH GROOVE DOWNSTREAM FROM INLET.

2" X 4" (50 X 100) NOMINAL FRAME, NAILED AT JOINTS

WIRE MESH

1/2" X 2" X 1/8" X 3/8" CASE (JO)

EXISTING GROUND

EXCAVATE AND RE-COMPACT SOIL

POST DRIVEN INTO GROUND

EXCAVATE AND RE-COMPACT SOIL

GEOTEXTILE
NOTES:
8. STONE CHECK DAMS ARE INTENDED FOR USE IN EXISTING, PROPOSED, AND TEMPORARY DITCHES OF ALL TYPES AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.
9. FOR DITCHES LESS THAN 30'²/7501 IN DEPTH, PLACE DAM AS DIRECTED.
NOTES:
1. SEDIMENT TRAPS ARE INTENDED FOR USE IN EXISTING, PROPOSED, AND
   TEMPORARY DITCHES OF ALL TYPES WITH A MAXIMUM DRAINAGE AREA OF
   15 ACRES (6 HECTARES), AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.
2. SIDE SLOPES SHALL BE STABILIZED WITH "TEMPORARY GRASS SEEDING, DRY GROUND"
   AND STRAW MULCH.
3. AN OUTLET STRUCTURE IS REQUIRED, STONE CHECK DAMS, PERFORATED RISER
   PIPES, SEWAGE Dewatering DEVICES, OR DRAINAGE INLETS MAY BE USED. SEE
   APPROPRIATE STANDARD SHEET FOR ADDITIONAL INFORMATION.
4. FOR SIZE, Location, ETC. OF SEDIMENT TRAP, SEE CONSTRUCTION PHASING,
   M.O.T., AND Erosion CONTROL PLANS.
5. ALL FALL SLOPES SHALL BE 2:1.
6. A 2:D LENGTH TO WIDTH RATIO SHOULD BE ACHIEVED WHERE POSSIBLE, IF THIS IS
   NOT POSSIBLE THE USE OF BAFFLES OR OTHER SPECIAL DESIGNS SHOULD BE
   INCORPORATED TO INCREASE FLOW TAME.
NOTES:
1. THE WORK SHALL CONSIST OF THE CONSTRUCTION OF A SEDIMENT TRAP AROUND A DRAINAGE INLET TO ALLOW SEGMNENTATION TO OCCUR BEFORE RUNOFF ENTERS THE DRAINAGE INLET.
2. DRAINAGE INLET SEDIMENT TRAPS SHALL BE LIMITED TO A THREE (3) ACRE (0.2 HECTARE) MAXIMUM DRAINAGE AREA.
3. THE DIMENSIONS OF THE DRAINAGE INLET SEDIMENT TRAP ARE TO BE AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
STABILIZATION OF EMBANKMENTS

NOTES:
1. STAPLES TO BE STAGGERED AT 18" (450) SPACING.
2. TOPSOIL UNDER EROSION CONTROL BLANKET IS TO BE TRACED AND SEEDED.
3. WHEN OFFSITE RUNOFF OCCURS, ADDITIONAL MEASURES AS DIRECTED BY THE ENGINEER SHALL BE USED TO ENSURE STABILITY OF EMBANKMENT.

STABILIZATION OF DITCHES

PLAN

NOTES:
1. ADDITIONAL STAPLES NOT SHOWN ARE REQUIRED AT OVERLAPS.
2. SEE OVERLAP DETAIL FOR STAPLE PLACEMENT.
3. TOPSOIL UNDER EROSION CONTROL BLANKET IS TO BE TRACED AND SEEDED.

EROSION CONTROL BLANKET APPLICATIONS

DELaware DEPARTMENT OF TRANSPORTATION

STANDARD NO. E-9 (2006) SHT. 1 OF 1

APPROVED: 12/5/05

RECOMMENDED: 8/30/05

08/30/2005
SECTION A-A

SECTION B-B

SECTION DETAILS

PLAN

NOTES:
1. SECURING PINS ARE TO BE PLACED AT LOCATIONS SHOWN AND AT 24" (600) LONGITUDINAL AND LATERAL SPACING.
2. SEE PLANS FOR LOCATION, DIMENSIONS, GRADES, ETC.
3. USE OF R-7 RIPRAP WILL REQUIRE A SEPARATE PROFESSIONAL ENGINEERING DESIGN FOR SPECIFIC CONDITIONS.

DELAWARE
DEPARTMENT OF TRANSPORTATION

RIPRAP DITCH

STANDARD NO. E-10 (2005) SHT. 1 OF 1

APPROVED

RECOMMENDED

08/10/2005
# Chart A - Stabilization

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>Swale Grade</th>
<th>Type of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.5-2.0%</td>
<td>Drainage Area A (5 AC or less) - Seed used with erosion control blanket</td>
</tr>
<tr>
<td>2</td>
<td>2.1-8.0%</td>
<td>Drainage Area B (5 AC - 10 AC) - R-4 RRAP</td>
</tr>
<tr>
<td>3</td>
<td>8.1-20%</td>
<td>Engineered design</td>
</tr>
</tbody>
</table>

# Chart B - Swale Dimensions

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>Swale A</th>
<th>Swale B</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>f (3000 min)</td>
<td>f (3000 min)</td>
</tr>
<tr>
<td>D</td>
<td>4&quot; x 2000 min</td>
<td>6&quot; x 8000 min</td>
</tr>
</tbody>
</table>

**Notes:**

1. Diverted runoff from a disturbed area shall be conveyed to a sediment trapping device.

2. Diverted runoff from an undisturbed area shall outlet directly into an undisturbed stabilized area at non-erosive velocity.

3. If temporary swales or clean water diversions are to be operational for more than 14 days, they shall be stabilized in accordance with Chart A prior to becoming operational.

4. If temporary swales or clean water diversions are to be operational for less than 14 days, they shall be stabilized with geotextile in accordance with the standard detail "Geotextile-lined Channel Diverison."
SEED AND MULCH
DOES NOT NEED TO BE COMPACTED
STABILIZE IN ACCORDANCE WITH NOTES 3 AND 4
FLOW

SECTION A-A

OUTLET AS REQUIRED
SEE NOTES 1 & 2.

PLAN

DELAWARE
DEPARTMENT OF TRANSPORTATION

PERIMETER DIKE / SWALE

STANDARD NO. E-12 (2008)  SHT. 1 OF 1

APPROVED

RECOMMENDED

12/5/05
11/6/06

09/02/2005

NOTES:

1. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.

2. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.

3. IF PERIMETER DIKE SWALES ARE TO BE OPERATIONAL FOR MORE THAN 90 DAYS, THEY SHALL BE STABILIZED IN ACCORDANCE WITH CHART A PRIOR TO BECOMING OPERATIONAL.

4. IF TEMPORARY SWALES OR CLEAN WATER DIVERSIONS ARE TO BE OPERATIONAL FOR LESS THAN 90 DAYS, THEY SHALL BE STABILIZED WITH GEOTEXTILE IN ACCORDANCE WITH THE STANDARD DETAIL "GEOTEXTILE-LINED CHANNEL DIVERSION".

CHART A - SWALE STABILIZATION

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>SWALE GRADE</th>
<th>TYPE OF TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td>0.5-2.0%</td>
<td>SEED AND EROSION CONTROL BLANKET</td>
</tr>
<tr>
<td>A-2</td>
<td>2.0-8.0%</td>
<td>LINED R-4 RRRAP</td>
</tr>
<tr>
<td>A-3</td>
<td>8.0-20%</td>
<td>ENGINEERED DESIGN</td>
</tr>
</tbody>
</table>

MAXIMUM DRAINAGE AREA: 2 ACRES (0.8 ha)
STABILIZE IN ACCORDANCE WITH CHART A PRIOR TO BECOMING OPERATIONAL. EXCAVATE TO PROVIDE REQUIRED FLOW WIDTH AT FLOW DEPTH IN ACCORDANCE WITH CHART B.

SECTION A-A

PLAN

CHART A - FLOW CHANNEL STABILIZATION

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CHANNEL GRADE</th>
<th>TYPE OF TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.5-2.0%</td>
<td>SEED AND EROSION CONTROL BLANKET</td>
</tr>
<tr>
<td>2</td>
<td>2.1-3.0%</td>
<td>R-4 RIPRIP</td>
</tr>
<tr>
<td>3</td>
<td>8.1-20%</td>
<td>ENGINEERED DESIGN</td>
</tr>
</tbody>
</table>

CHART B - EARTH DIKE DIMENSIONS

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>DIKE A (5 oc to 2.0 ft or less)</th>
<th>DIKE B (5.00 to 2.0 ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>c-dike height</td>
<td>2&quot;(500)</td>
<td>18&quot;(450)</td>
</tr>
<tr>
<td>b-dike width</td>
<td>2&quot;(500)</td>
<td>24&quot;(600)</td>
</tr>
<tr>
<td>c-flow width</td>
<td>48&quot;(1200)</td>
<td>72&quot;(1800)</td>
</tr>
<tr>
<td>c-flow depth</td>
<td>4&quot;(100)</td>
<td>27&quot;(680)</td>
</tr>
</tbody>
</table>

NOTES:
1. IF DESIRED, TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
2. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO INSURE A STABILIZED CUTOFF.

DELAWARE DEPARTMENT OF TRANSPORTATION

STANDARD NO. E-15 (2006) SHRT. 1 OF 1 APPROVED 12/5/05 RECOMMENDED 11/9/05

09/02/2005
SLOPE DRAIN PROFILE

INTERCEPTOR BERM 36" (900) MIN.
HEIGHT, LENGTH AS REQUIRED TO CONTAIN SURFACE DRAINAGE AND DIRECT INTO TEMP SLOPE DRAIN.

CORRUGATED PIPE - SEE PLANS FOR LOCATIONS OR AS DIRECTED BY THE ENGINEER.

TOE OF SLOPE

FLOW

EDGE BERM AT TOP OF FILL SLOPE

R-4 REINFORCED
(3 ST (3 m³) MIN)

TOP OF FILL SLOPE AS EMBANKMENT IS CONSTRUCTED

PLAN

ANTI-SEEP COLLAR

ELEVATION

NOTES:
1. ALL TEMPORARY SLOPE DRAINS SHALL DISCHARGE INTO THE BACK OF SEDIMENT TRAPS INTO SEDIMENT BASINS OR DITCHES DISCHARGING INTO TRAPS OR BASINS.
2. TEMPORARY SLOPE DRAINS SHALL BE USED AT THE TOP OF FILL SLOPES AS EMBANKMENT IS CONSTRUCTED TO PREVENT EXCESSIVE EROSION UNTIL SHOULDERS ARE CONSTRUCTED AND THE SLOPES ARE SEEDED AND MULCHED.

DELAAWRE
DEPARTMENT OF TRANSPORTATION

TEMPORARY SLOPE DRAIN


APPROVED

SHT. 1 OF 1

RECOMMENDED

09/02/2005

Caudle Wirth

11/05/05

09/02/2005
1. THE WORK SHALL CONSIST OF CONSTRUCTING A STILLING WELL FOR THE PURPOSE OF PUMPING CLEAN WATER AROUND A DISTURBED CONSTRUCTION AREA TO A STABILIZED OUTFALL.

2. THE DIMENSIONS OF THE STILLING WELL SHALL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
### SUMP PIT CHART

<table>
<thead>
<tr>
<th>TYPE</th>
<th>PIPE 1</th>
<th>PIPE 2</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PERFORATED 24&quot;x1000 CMP WITH PERFORATED CAP WELDED ON BOTTOM AND COMPLETELY WRAPPED WITH GEOTEXTILE.</td>
<td>N/A</td>
<td>4' (1200) MIN.</td>
<td>12&quot; (3000)</td>
</tr>
<tr>
<td>2</td>
<td>PERFORATED 48&quot;x1200 CMP WITH PERFORATED CAP WELDED ON BOTTOM</td>
<td>REMOVABLE PERFORATED 36&quot;x1000 CMP WITH PERFORATED CAP WELDED ON BOTTOM AND COMPLETELY WRAPPED WITH GEOTEXTILE.</td>
<td>8' (2400) MIN.</td>
<td>24&quot; (6000)</td>
</tr>
</tbody>
</table>

### NOTES:
1. THE WORK SHALL CONSIST OF CONSTRUCTING A SUMP PIT FOR THE PURPOSE OF FILTERING AND PUMPING WATER TO A STABILIZED OUTFALL.
2. GEOTEXTILE FOR THE 36"x1000 CMP SHALL BE REPLACED WHEN CLOGGED WITH SEDIMENT.
3. 1/4" x 1/8" x 10" 10 GAUGE O.D. WIRE MESH SHALL BE PLACED AROUND THE REMOVABLE 36"x1000 CMP BEFORE ATTACHING THE GEOTEXTILE TO INCREASE FLOW THROUGH THE GEOTEXTILE.
4. ALL PERFORATIONS SHALL BE 1" (25) IN DIAMETER AND 12" (3000) ON CENTER IN ALL DIRECTIONS.
5. TYPE I SUMP PIT SHALL BE USED ONLY WHEN PUMPING IS NEEDED FOR LESS THAN 7 DAYS.
NOTES:

1) A DEWATERING BASIN (DBB) IS USED TO REMOVE SEDIMENT FROM SEGMENT-LAID WATER PUMPED FROM A CONSTRUCTION SITE BEFORE THE WATER RE-ENTERS THE WATERWAY. THE DBB SHALL HAVE A MINIMUM TOP WIDTH OF 12' (3600 MM) AND A MINIMUM DEPTH OF 3.5' (1066 MM). THE MINIMUM TOP WIDTH SHOWN IN THE PLAN IS USED ONLY FOR QUANTITY CALCULATIONS BY THE ENGINEER. THE ACTUAL TOP LENGTH IN THE FIELD SHALL BE CALCULATED BY THE EQUATION:

   US CUSTOMARY: TOP LENGTH (FEET) = 26" + .01 x Y
   METRIC: TOP LENGTH (M) = 7900 + 48000 x Y

   WHERE Y IS THE MAXIMUM CAPACITY IN GALLONS PER MINUTE (CUBIC METERS PER SECOND) OF THE DEWATERING PUMP.

2) THE OUTFALL FROM THE BASIN TO THE RECEIVING WATERS SHALL BE STABILIZED. PUMPING INTO THE DBB SHALL CEASE WHEN THE EFFLUENT FROM THE BASIN BECOMES SEDIMENT-LAIDEN.

3) A SUMP PIT OR STILLING WELL (SEE STANDARD SHEETS) SHALL BE USED IN CONJUNCTION WITH A DBB. THE BASIN MAY BE BY-PASSED INTO THE STABILIZED OUTFALL. IF THE WATER BEING PUMPED IS NON-SEGMENT-LAIDEN, DIRECT DISCHARGE TO THE RECEIVING WATERS SHALL CEASE AND BE REDIRECTED TO THE DBB. WHEN EFFLUENT FROM THE PUMP BECOMES SEDIMENT-LAIDEN.

4) MAINTENANCE MUST BE PERFORMED IN ORDER FOR THE DBB TO FUNCTION PROPERLY. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED DISPOSAL AREA WHEN THE BASIN IS FILLED TO WITHIN 12" (300 MM) FROM THE CREST.

5) WHEN USED IN CONJUNCTION WITH A COFFERDAM, DEWATERING SHALL BEGIN NO SOONER THAN 12 HOURS AFTER COFFERDAM INSTALLATION IN ORDER TO ALLOW SEDIMENT PRODUCED DURING INSTALLATION TO SETTLE COMPLETELY.
NOTES:
1. THE WORK SHALL CONSIST OF INSTALLING FLOW DIVERSIONS FOR THE PURPOSE OF EROSION CONTROL, WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS BANK STABILIZATION OR BRIDGE ABUTMENT CONSTRUCTION.
2. THE DIVERSION STRUCTURE SHALL BE INSTALLED FROM UPSTREAM TO DOWNSTREAM.
3. THE EFFECTIVE CHANNEL WIDTH SHALL BE SIZED TO PASS A ONE YEAR STORM EVENT PEAK FLOW, OR 1/3 OF STREAM WIDTH, WHICHEVER IS GREATER.
4. THE SANDBAG DIVERSION HEIGHT (H) SHALL BE 1' (300) ABOVE THE PEAK ELEVATION OF THE ONE YEAR STORM.
NOTES:
1. THE WORK SHALL CONSIST OF INSTALLING A SANDBAG DIKE FOR THE PURPOSE OF EROSION CONTROL.
   WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS BANK STABILIZATION OR BRIDGE ABUTMENT CONSTRUCTION.
2. THE SANDBAG DIKE SHALL BE INSTALLED AT THE UPSTREAM LOCATION FIRST.
3. THE HEIGHT OF THE SANDBAG DIKE SHALL BE 1.5 TIMES ABOVE THE PEAK ELEVATION OF THE ONE YEAR STORM OR EQUAL TO THE TOP OF BANK, WHICHER IS LESS, SEE PLANS FOR INFORMATION.
4. THE SPILLWAY SHALL BE SIZED TO PASS A 1/1 ONE YEAR STORM EVENT PEAK FLOW, SEE PLANS.
5. THE PIPE, WHEN UTILIZED, SHALL BE SIZED TO PASS THE STREAM BASE FLOW.

DELAWARE DEPARTMENT OF TRANSPORTATION

SANDBAG DIKE

STANDARD NO. E-20 (2005) SH. 1 OF 1

APPROVED

RECOMMENDED
NOTES:
1. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED UNDER THE ENTRANCE. IF NECESSARY, A MOUNTABLE BERM WITH 5% SLOPES SHALL BE ALLOWED TO FACILITATE PLACEMENT OF PIPES IN SHALLOW CONDITIONS.

2. THE LOCATION AND NUMBER OF STABILIZED CONSTRUCTION ENTRANCES SHALL BE AS INDICATED ON THE PLANS. ANY CHANGE IN LOCATION, ADDITION, OR ELIMINATION OF AN ENTRANCE SHALL BE APPROVED IN ADVANCE BY THE ENGINEER.

3. DRAINAGE PIPE, IF UTILIZED, SHALL BE PAID FOR SEPARATELY UNDER THE APPROPRIATE BID ITEM.

4. THE TOP 2" (50) OF STONE SHALL BE REMOVED AND REPLACED WITH 2" (50) OF CLEAN STONE WHEN voids are filled or as directed by the engineer.

DELAWARE
DEPARTMENT OF TRANSPORTATION

STABILIZED CONSTRUCTION ENTRANCE

STANDARD NO. E-21 (2006)
SHT. 1 OF 1

APPROVED

09/05/05

RECOMMENDED

09/09/05
NOTES:
1. All P.V.C. pipes are to be 4" x 1000 LD, Schedule 40.
2. All joints of the floatation section shall be solvent welded. Joints of skimmer section need not be water-tight.
3. 4" x 1000 LD PE flexible drain pipe is to be attached to the pond outlet structure with water-tight connections.
4. Orifice is to be sized according to storage volume and to slowly release 1" (25) runoff for at least 24 hours.
PLAN VIEW
OPEN WATER APPLICATION

50' (15000) OR 100' (30000) PANEL (TYP.)
ANCHOR (TYP.)
MOORING LINE WITH FLOATATION (TYP.)
TURBID WATER
DREDGE, FILL AREA, OR BRIDGE PIER
CLEAR WATER

PLAN VIEW
SHORELINE APPLICATION

AREA OF CONSTRUCTION
SHORELINE
TURBID WATER
MOORING LINE WITH FLOATATION (TYP.)
ANCHOR (TYP.)
FLOW
CLEAR WATER

ELEVATION

FLOATING TURBIDITY CURTAIN

NOTE:
1. ADDITIONAL PANEL REQUIRED FOR DEPTHS GREATER THAN 5' (15000).
2. FLOATING TURBIDITY CURTAIN SHALL REACH BOTTOM UP TO DEPTHS OF 12' (36000) BY USING TWO PANELS. DEPTHS GREATER THAN 12' (36000) SHALL REQUIRE SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
1. The portable sediment tank shown may be used in sites where space is limited to construct a de-watering basin.

2. The maximum pump discharge into this typical portable sediment tank shall be 425 gallons per minute 256 liters per second. The filter fabric shall be replaced when the portable sediment tank can no longer allow this flow rate, when there is a tear, or when directed by the engineer.

3. Several un-connected or connected in parallel portable sediment tanks may be used when a higher flow rate is needed to de-water the job.

4. Other designs may be used provided the hydraulic design is submitted to and approved by the stormwater engineer.

DELAWARE
DEPARTMENT OF TRANSPORTATION

PORTABLE SEDIMENT TANK

STANDARD NO. E-24 (2005)
SHT. 1 OF 1

APPROVED:

RECOMMENDED:

09/08/2005
**TURF REINFORCEMENT MAT APPLICATIONS**

**STABILIZATION OF DITCHES**

**PLAN**

- Additional staples not shown are required at overlaps.
- Ends, check slots and edges. See appropriate details for staple placement.
- Staples are to be staggered.
- Topsoil under turf reinforcement mat is to be tracked and seeded.

**STAPLE DETAIL**

- Gage (0.145) to 0.145 (max).

**DELTAWIRE**

- 1.020 (max.)

**DEPARTMENT OF TRANSPORTATION**

- Sh. 1 of 1

**APPROVED**

- 12/5/05

**RECOMMENDED**

- 11/22/05

- 09/27/05