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   02002 - CURVE SECTION - DETAIL DELETED - SEE SPECIFICATIONS
   02003 - TAPERED END SECTION - DETAIL DELETED - SEE SPECIFICATIONS
   02004 - TYPICAL REINFORCEMENT DETAILS - DETAIL DELETED - SEE SPECIFICATIONS
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      02004 - 1 TYPE 1
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      02004 - 4 TYPE S
   C-3 20050 - ENTRANCES
      02000 - 1 TYPES A, B, & C
      02000 - 2 TYPES D & E
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      02005 - 2 PERSONNEL SAFETY GRATE FOR PIPE INLET DETAIL
   D-5 DRAINAGE INLET DETAILS
      02002 - 1 DRAINAGE INLET ASSEMBLY
      02002 - 2 DRAINAGE INLET FRAME AND GRATES
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  0200 - 1 ELEVATION
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E-10 (2005) - RIPRAP BULKHEAD
E-11 (2005) - TEMPORARY SWALE
E-12 (2005) - PERIMETER Dike/SWALE
E-13 (2005) - EARTH Dike
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  0200-1 | SLAB PLAN WITH DOWEL AND TIE LOCATION
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--- | ---
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  0200-2 | TYPICAL SECTION BASES 2, 3, 1, 3A, 1A, AND 1
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T-8 (2005) | LOOP DETECTOR TO CONDUIT JUNCTION WELL CONNECTION
T-9 (2005) | TYPE 1 LOOP DETECTOR
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DELAWARE DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS (2005)
SHT. 4 OF 5

1/23/2005
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</tr>
<tr>
<td>12000-1</td>
<td>INTERMEDIATE MESSENGER WIRE ATTACHMENT ON WOOD POLES</td>
</tr>
<tr>
<td>12000-2</td>
<td>ANGULAR INTERMEDIATE MESSENGER WIRE ATTACHMENT</td>
</tr>
<tr>
<td>T-2</td>
<td>MESSENGER WIRE ATTACHMENT</td>
</tr>
<tr>
<td>12001-1</td>
<td>SPAN WIRE ATTACHMENT BETWEEN POLES</td>
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<tr>
<td>12001-2</td>
<td>DEAD END MESSENGER WIRE ATTACHMENT</td>
</tr>
<tr>
<td>T-3</td>
<td>CONDUIT JUNCTION WELLS</td>
</tr>
<tr>
<td>12002-1</td>
<td>TYPE 0</td>
</tr>
<tr>
<td>12002-2</td>
<td>TYPE T</td>
</tr>
<tr>
<td>12002-3</td>
<td>TYPES B &amp; ID</td>
</tr>
<tr>
<td>T-4</td>
<td>EMERGENCY PREEMPTION RECEIVER</td>
</tr>
<tr>
<td>12004-1</td>
<td>UPRIGHT MOUNT</td>
</tr>
<tr>
<td>12004-2</td>
<td>INVERTED MOUNT</td>
</tr>
</tbody>
</table>
NOTES:

0. CURB SHALL NOT BE USED AT THE FACE OF RAIL WITHIN THE LIMITS OF THIS INSTALLATION.
1. POSTS 1, 2, 3, 4, AND 6 REQUIRE AN ADDITIONAL HOLE TO ATTACH WOOD BLOCKS AND/OR BENT RAIL.
2. DO NOT ATTACH RAILS TO POSTS 1, 2, 3, 5, OR 6.
3. POSTS 1 AND 2 ARE W8x3 (W200x83), ALL OTHER POSTS IN TRANSITION ARE W6x9 (W50x35).
4. ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.
5. BENT RAIL MAY BE SHOP BENT TO FACILITATE INSTALLATION OR MAY BE FIELD BENT USING HEAT.

TL. APPROVED CONCRETE INSERTS MAY BE USED IN NEW CONSTRUCTION TO ATTACH TERMINAL CONNECTORS TO PARAPET.
2L. PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.
3L. FOR INSTALLATIONS WHERE CURB EXISTS, IF THE EXISTING CURB IS 8" (200) OR HIGHER AND CANT
   BE REMOVED, THE BOTTOM RAIL CAN BE ELIMINATED.

DELAWARE
DEPARTMENT OF TRANSPORTATION

GUARDRAIL TO BARRER CONNECTION, APPROACH TYPE 2

STANDARD NO. B-8 (2005)  SHT. 1 OF 2

APPROVED

GUARDRAIL TO BARRER CONNECTION, APPROACH TYPE 2

STANDARD NO. B-8 (2005)  SHT. 1 OF 2

APPROVED

10/1/2005

10/11/2005
REAR VIEW WITH START & END SECTION

SIDE VIEW

SECTION A-A AT RAIL SPLICE

NOTES:
1. RAIL SHALL BE MOUNTED ON GUARDRAIL ADJACENT TO A BIKEWAY OR SIDEWALK.
2. ALL COMPONENTS OF THE RAIL SHALL BE SHOP FABRICATED. ALL CUTTING AND DRILLING SHALL BE DONE IN THE SHOP.
3. ALL EXPOSED THREADED HARDWARE SHALL BE BURIED.
4. GUARDRAIL POSTS UPON WHICH RAIL IS TO BE INSTALLED SHALL BE SHOP DRILLED FOR THE RAIL BRACKETS DURING FABRICATION.
5. ALL RAIL SPLICES WILL BE AT RAIL SUPPORT BRACKETS. THE SAME BOLT USED TO ATTACH THE RAIL TO THE BRACKET WILL BE USED TO SECURE THE SPLICE TUBE.
6. RAILS SHALL BE INSTALLED ONLY ON STANDARD W-BEAM SECTIONS AND AT LEAST ONE POST AWAY FROM THE PAYMENT LIMITS OF THE END TREATMENT.

ISOMETRIC VIEW WITH START & END SECTION

DELAWARE DEPARTMENT OF TRANSPORTATION

GUARDRAIL MOUNTED RAIL


APPROVED

RECOMMENDED

12/5/05
11/6/06

01/9/2006
**NOTES:**

1. WHEN P.C.C. CURB OR INTEGRAL P.C.C. CURB AND GUTTER IS PLACED ADJACENT TO PORTLAND CEMENT CONCRETE PAVEMENT, CONSTRUCT THE JOINT AS PER THE LONGITUDINAL JOINT SEALANT DETAIL ON STANDARD P-2, SHEET 3 OF 5. USE APPROVED JOINT FILLER TO SEAL. WORK TO BE PAID UNDER RESPECTIVE CURB AND GUTTER ITEM.

2. DEPRESS CURB AT ENTRANCES AS DETAILED ON THIS SHEET.

3. DEPRESS CURB Flush WITH PAVEMENT AT CURB RAMPS. MAXIMUM SLOPE OF CURB AT CURB RAMPS IS 2% IN THE DIRECTION OF PEDESTRIAN TRAVEL. SEE STANDARD No C-2, OF 4.
GRATE DETAIL

FRAME & GRATE ASSEMBLY DETAIL

DELAWARE
DEPARTMENT OF TRANSPORTATION

SAFETY GRATES

STANDARD NO. D-3 (2005)
SHT. 1 OF 2
RECOMMENDED

APPROVED

1/23/2005

12/5/05
Notes:
1. Personnel safety grates (PSG) shall only be installed on storm water pipe inlets.
2. The grate shall be made to fit the outside perimeter of the flared end section (FES) of the PSG.
3. All bolt holes are to be drilled in the field.
4. A stiffener is to be installed where two or more bars are used.
5. Bottom bar shall be 6"(150) above invert of FES.
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, SEWER DewaterING DEVICES, OR DRAINAGE PILETS MAY BE USED. SEE APPROPRIATE STANDARD SHEET FOR ADDITIONAL INSTRUCTIONS.

4. FOR SIZING, LOCATION, ETC. OF SEDIMENT TRAP, SEE CONSTRUCTION PHASING, M.O.T., AND EROSION CONTROL PLANS.

5. ALL E Lift SLOPES SHALL BE 2:1.

6. A 2:1 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 TIME.
NOTES:
1. THE WORK SHALL CONSIST OF THE CONSTRUCTION OF A SEDIMENT TRAP AROUND A DRAINAGE INLET TO ALLOW SEGMENTATION 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 8" (200 mm) spacing.
2. Topsoil under erosion control blanket is to be tracked 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 tracked and seeded.
SECTION A-A

SECTION B-B

PLAN

NOTES:
1. Securing pins are to be placed at locations shown and at 24" (600 mm) 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.

DELWARE
DEPARTMENT OF TRANSPORTATION

RIPRAP DITCH

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

RECOMMENDED

APPROVED

08/10/2005
**CHART A - STABILIZATION**

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>SWALE GRADE</th>
<th>TYPE OF TREATMENT</th>
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<tbody>
<tr>
<td>1</td>
<td>0.5-2.0X</td>
<td>SEED USED WITH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EROSION CONTROL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BLANKET</td>
</tr>
<tr>
<td>2</td>
<td>2.5-8.0X</td>
<td>R-4 RRAP</td>
</tr>
<tr>
<td>3</td>
<td>8.1-20.0X</td>
<td>ENGINEERED DESIGN</td>
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</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 (5000 MIN.)</td>
<td>F (5000 MIN.)</td>
</tr>
<tr>
<td>D</td>
<td>4&quot; (10000 MIN.)</td>
<td>6&quot; (12000 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 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>2.0-4.0%</td>
<td>Lined R-4 Riprap</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)

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### 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 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 Diversion".

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**Delaware Department of Transportation**

Standard No.: E-12 (2006)  SHT. 1  OF 1  Approved: 12/5/05  Recommended: 11/05/05  Date 09/02/2005
STABILIZE IN ACCORDANCE WITH CHART A
PRIOR TO BECOMING OPERATIONAL.
EXCAVATE TO PROVIDE REQUIRED FLOW
WIDTH AT FLOW DEPTH IN ACCORDANCE
WITH CHART B.

CHART A - FLOW CHANNEL STABILIZATION

<table>
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<tr>
<th>TYPE</th>
<th>CHANNEL GRADE</th>
<th>TYPE OF TREATMENT</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>0.5-2.0%</td>
<td>SEED AND EROSION</td>
</tr>
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<td></td>
<td></td>
<td>CONTROL BLANKET</td>
</tr>
<tr>
<td>2</td>
<td>2.1-6.0%</td>
<td>R-4 RIPRIP</td>
</tr>
<tr>
<td>3</td>
<td>8.1-20%</td>
<td>ENGINEERED DESIGN</td>
</tr>
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SECTION A-A

CHART B - EARTH DIKE DIMENSIONS

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>DIKE A (5-10c (2 ft) or less)</th>
<th>DIKE B (5-10c(2-4 ft))</th>
</tr>
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<tbody>
<tr>
<td>a-DIKE HEIGHT</td>
<td>12&quot; (300)</td>
<td>18&quot; (450)</td>
</tr>
<tr>
<td>b-DIKE WIDTH</td>
<td>2&quot; (50)</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>44&quot; (1100)</td>
<td>27&quot; (680)</td>
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</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 OUTFALL.
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. All 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.
NOTES:

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.
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" (900) CMP SHALL BE REPLACED WHEN CLOGGED WITH SEDIMENT.
3. 1/8" x 1/16" x E D.B. GAGE 0.8 WIRE MESH SHALL BE PLACED AROUND THE REMOVABLE 36" (900) CMP BEFORE ATTACHING THE GEOTEXTILE TO INCREASE FLOW THROUGH THE GEOTEXTILE.
4. ALL PERFORATIONS SHALL BE 1" (25) IN DIAMETER AND 2" (50) ON CENTER IN ALL DIRECTIONS.
5. TYPE I SUMP PIT SHALL BE USED ONLY WHEN PUMPING IS NEEDED FOR LESS THAN 7 DAYS.

DELTA PUMP CHART

<table>
<thead>
<tr>
<th>TYPE</th>
<th>PIPE 1</th>
<th>PIPE 2</th>
<th>A</th>
<th>B</th>
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<tbody>
<tr>
<td>1</td>
<td>PERFORATED 24&quot; (600) CMP WITH PERFORATED CAP WELDED ON BOTTOM AND COMPLETELY WRAPPED WITH GEOTEXTILE</td>
<td>N/A</td>
<td>4&quot; (1000) MIN.</td>
<td>12&quot; (3000)</td>
</tr>
<tr>
<td>2</td>
<td>PERFORATED 48&quot; (1200) CMP WITH PERFORATED CAP WELDED ON BOTTOM</td>
<td>REMOVABLE PERFORATED 36&quot; (900) CMP WITH PERFORATED CAP WELDED ON BOTTOM AND COMPLETELY WRAPPED WITH GEOTEXTILE</td>
<td>8&quot; (2000) MIN.</td>
<td>24&quot; (6000)</td>
</tr>
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</table>

APPROVED

Delaware Department of Transportation
SUMP PIT TYPE 1 & 2
STANDARD NO. E-16 (2005)  SHT. 1 OF 1
RECOMMENDED

12/5/05

9/7/05
NOTES:
1) A DEWATERING BASIN (DWB) IS USED TO REMOVE SEDIMENT FROM SEGMENT-LADEN WATER PUMPED FROM A CONSTRUCTION SITE BEFORE THE WATER RE-ENTERS THE WATERWAY. THE DBW SHALL HAVE A MINIMUM TOP WIDTH OF 0'0" (4500) AND A MINIMUM DEPTH OF 3'0" (3600). THE MINIMUM TOP LENGTH 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' + .21 x Y
METRIC: TOP LENGTH (MM) = 7900 + 48300 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 DBW SHALL CEASE WHEN THE EFFLUENT FROM THE BASIN BECOMES SEGMENT-LADEN.

3) A SUMP PIT OR STILLING WELL SEE STANDARD SHEETS SHALL BE USED IN CONJUNCTION WITH A DWB. THE BASIN MAY BE BYPASSED INTO THE STABILIZED OUTFALL. IF THE WATER BEING PUMPED IS NON-SEGMENT-LADEN DIRECT DISCHARGE TO THE RECEIVING WATERS SHALL CEASE AND BE REJECTED TO THE DWB WHEN EFFLUENT FROM THE PUMP BECOMES SEGMENT-LADEN.

4) MAINTENANCE MUST BE PERFORMED IN ORDER FOR THE DWB TO FUNCTION PROPERLY. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED DISPOSAL AREA WHEN THE BASIN IS FILLED TO WITHIN 12'0" (1300) FROM THE CREST.

5) WHEN USED IN CONJUNCTION WITH A COFFERDAM, DEWATERING SHALL BEGIN NOT SOONER THAN 12 HOURS AFTER COFFERDAM INSTALLATION IN ORDER TO ALLOW SEDIMENT PRODUCED DURING INSTALLATION TO SETTLE COMPLETELY.
STONE TRENCHES

FLOW

FLOW

STONE TRENCHES

GEOTEXTILE

TEMPORARY DIVERSION CHANNEL

EXISTING CHANNEL

WORK AREA

SANDBAG DIKE
(SEE STANDARD SHEET)

SECTION A-A

NOTE: SEE PLANS FOR LOCATION, DIMENSIONS, GRADES, ETC.

DEL. NO. 3 STONE

GEOTEXTILE

2' (600)

FLOW

6" (150) DIA. WASHER

30° C

1' (300)

STONE TRENCH

GEOTEXTILE

27' TYP.

STONE TRENCH

22' TYP.

21' TYP.

DELAWARE

DEPARTMENT OF TRANSPORTATION

GEOTEXTILE-LINED CHANNEL DIVERSION

STANDARD NO. E-18 (2005)

SHT. 1 OF 1

APPROVED

RECOMMENDED
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 1.5 (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.
2. CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS BANK STABILIZATION OR BRIDGE ABUTMENT CONSTRUCTION.
3. THE SANDBAG DIKE SHALL BE INSTALLED AT THE UPSTREAM LOCATION FIRST.
4. THE HEIGHT OF THE SANDBAG DIKE SHALL BE P.I.(300) ABOVE THE PEAK ELEVATION OF THE ONE YEAR STORM, OR EQUAL WITH THE TOP OF BANK, WHICHEVER IS LESS, SEE PLANS FOR INFORMATION.
5. THE SANDBAG DIKE SHALL BE SIZED TO PASS A 1/1 ONE YEAR STORM EVENT PEAK FLOW, SEE PLANS.
6. THE PIPE, WHEN UTILIZED, SHALL BE SIZED TO PASS THE STREAM BASE FLOW.

DELAWARE DEPARTMENT OF TRANSPORTATION

SANDBAG DIKE

STANDARD NO. E-30 (2005)
SHT. 1 OF 1
APPROVED
RECOMMENDED

09/08/2005
1. All surface water flowing or diverted toward construction entrances shall be piped under the entrance, if necessary. A mountable berm with 5:1 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 deletion 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' (600) of stone shall be removed and replaced with 2' (600) 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: 12/5/05

RECOMMENDED: 11/6/05

09/08/2005
FLOATING TURBIDITY CURTAIN

1) ADDITIONAL PANEL REQUIRED FOR DEPTHS GREATER THAN 5' (5000).
2) FLOATING TURBIDITY CURTAIN SHALL REACH BOTTOM UP TO DEPTHS OF 10' (3000) BY USING TWO PANELS. DEPTHS GREATER THAN 10' (3000) SHALL REQUIRE SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
SECTION

ELEVATION

PLAN VIEW

SHALLOW WATER/MARSH APPLICATION

STAKED TURBIDITY CURTAIN

DELAWARE

DEPARTMENT OF TRANSPORTATION

TURBIDITY CURTAIN

STANDARD NO. E-23 (2006) SHT. 2 OF 2

APPROVED

RECOMMENDED

12/5/05

11/07/05

09/08/2005
NOTES:

1. THE PORTABLE SEDIMENT TANK SHOWN MAY BE USED IN SITES WHERE SPACE IS LIMITED TO CONSTRUCT A DewaterING BASIN.

2. THE MAXIMUM PUMP DISCHARGE INTO THIS TYPICAL PORTABLE SEDIMENT TANK SHALL BE 405 GALLONS PER MINUTE 216 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 DEWATER THE JOB.

4. OTHER DESIGNS MAY BE USED PROVIDED THE HYDRAULIC DESIGN IS SUBMITTED TO AND APPROVED BY THE STORMWATER ENGINEER.

SECTION B-B

SECTION A-A
**INITIAL TRENCH ANCHOR DETAIL**
APPLIED AT THE DOWNSTREAM END OF DITCH

**TERMINAL TRENCH ANCHOR DETAIL**
APPLIED AT THE UPSTREAM END OF DITCH

**LONGITUDINAL TRENCH ANCHOR DETAIL**

**OVERLAP DETAIL**

**STABILIZATION OF DITCHES**

**PLAN**

**STAPLES (TYPJ)**

**STAPLE DETAIL**

**STABILIZATION OF DITCHES**

**SECTION A-A**

**TURF REINFORCEMENT MAT APPLICATIONS**

**NOTES:**
1. ADDITIONAL STAPLES NOT SHOWN ARE REQUIRED AT OVERLAPS, ENDS, CHECK SLOTS AND EDGES. SEE APPROPRIATE DETAILS FOR STAPLE PLACEMENT.
2. STAPLES ARE TO BE STAGGERED.
3. TOPSOIL UNDER TURF REINFORCEMENT MAT IS TO BE TRACED AND SEEDED.

**DELAWARE DEPARTMENT OF TRANSPORTATION**

**TURF REINFORCEMENT MAT APPLICATIONS**

**STANDARD NO.** E-25 (2006)

**SHT.** 1 OF 1

**APPROVED**

**RECOMMENDED**

**12/15/05**

**11/20/06**

**09/08/2005**
The 4" x 400 depth concrete shared-use path shall be finished to include a textured warning surface by using a joint strike to produce a 1/4" x 1/2" deep V joint at 4" x 400.00. Payment for installing the grooved finish shall be incidental to the sidewalk construction.

2. If the shared-use path ends at a roadway or railroad crossing, then detectable warning truncated domes 24" x 400.00 long and the full width of the path shall be installed, see sheet E-2.

3. Steel tube to extend 1/2" x 1/2" above ground with concrete to slope away from tube to keep water and sediment from draining into tube.

4. Bollards are not required for a shared-use path less than 4" (1050) wide.

5. Shave the post as necessary so that it will fit in the steel tube.
NOTES:

II. TYPE I CONDUIT JUNCTION WELL SHALL BE PRECAST CONCRETE. AT LEAST ONE HOLE IN PRECAST WELLS WILL BE OF A 5" 1/2 DIAMETER COMPLETELY THROUGH THE WALL. Unused Holes Shall Be Plugged.

III. TYPE 2 AND TYPE 3 CONDUIT JUNCTION WELLS SHALL BE BRICK AND WILL CONFORM TO STANDARD SPECIFICATIONS FOR BRICK MASONRY. JOINTS SHALL BE CONCCEAL TYPE. TYPE 2 WALLS WILL BE A NOMINAL 4" 1/2 THICK, TYPE 3 WALL WILL BE A NOMINAL 8" 1/2 THICK.

IV. TYPE 2 AND TYPE 3 CONDUIT JUNCTION WELLS SHALL NOT BE PLACED UNDER ANY TYPE OF PAVEMENT.

V. ALL CONDUIT JUNCTION WELLS CONSTRUCTED WITHIN PAVEMENT, SIDEWALKS, ETC. WILL BE CONSTRUCTED FFLUSH WITH THE SURFACE OF THE SAME. INSTALLATION IN UNPAVED AREAS WILL BE CONSTRUCTED ABOVE GRADE AND GRADED TO DRAIN AWAY FROM CONDUIT JUNCTION WELLS.
NOTES:

1. TYPE 4 CONDUIT JUNCTION WELL SHALL BE PRECAST CONCRETE, AT LEAST ONE HOLE IN PRECAST WELLS WILL BE OF A 5/8" DIAMETER COMPLETELY THROUGH THE WALL. UNSEEN HOLES SHALL BE PLUGGED.

2. ALL CONDUIT JUNCTION WELLS CONSTRUCTED WITHIN PAVEMENT, SIDEWALKS, ETC. WILL BE CONSTRUCTED FLUSH WITH THE SURFACE OF THE SAME. INSTALLATION IN UNPAVED AREAS WILL BE CONSTRUCTED ABOVE GRADE AND GRADED TO DRAIN AWAY FROM CONDUIT JUNCTION WELL.
NOTES:
II. TYPE 5 CONDUIT JUNCTION WELL SHALL BE PRECAST CONCRETE. AT LEAST ONE HOLE IN PRECAST WELLS WILL BE OF A 5" (125) DIAMETER COMPLETELY THROUGH THE WALL. UNUSED HOLES SHALL BE PLUGGED.

25. ALL CONDUIT JUNCTION WELLS CONSTRUCTED WITHIN PAVEMENT, SIDEWALKS, ETC. WILL BE CONSTRUCTED FLUSH WITH THE SURFACE OF THE PAVEMENT. INSTALLATION IN UNPAVED AREAS WILL BE CONSTRUCTED ABOVE GRADE AND GRADED TO DRAIN AWAY FROM CONDUIT JUNCTION WELL.

DEL. 57 STONE
30" (750) X 38" (950)

SECTION A-A

CONDUIT JUNCTION WELL, TYPE 5

DEPARTMENT OF TRANSPORTATION

STANDARD NO. T-5 (2005)

SHT. 1 OF 1

APPROVED

RECOMMENDED
UNDERGROUND CONDUIT ENDS SHALL BE CAPPED WITH A GALVANIZED THREADED CONDUIT PLUG UNLESS CONNECTED TO AN EXISTING CONDUIT.

8 EQUALLY SPACED #8 (M25) REINFORCING BARS

EQUALLY SPACED #4 (M10) REINFORCING BARS

ROUND BASE

2 1/2" (64) CONDUIT SWEEPS

BOLT CIRCLE DIAMETER TO BE AS DIRECTED BY THE ENGINEER

GROUND FOR POLE TO BE ATTACHED TO GROUND ROOKS/4"(101) X 4" (101) X 16" (406)

EQUALLY SPACED #4 (M10) REINFORCING BARS

SQUARE BASE

2 1/2" (64) CONDUIT SWEEPS

NOTE: BASE DEPENDENT ON POLE AND EQUIPMENT TO BE ATTACHED.
NOTES:
1. UNDERGROUND CONDUIT ENDS SHALL BE CAPPED WITH A GALVANIZED THREADED CONDUIT PLUG UNLESS CONNECTED TO AN EXISTING CONDUIT.
2. PLACE 2 EACH 6" x 500 x 5/8" x 3/8" R.V.C., SCHEDULE 40 (TYP) VENTS IN THE GROUT AS DIRECTED IN THE FIELD BY THE ENGINEER.
1 - #3 (M0) SPIRAL BAR, 504.0 (12800) LONG AT 8" (203) PITCH

8 - #5 (M6) BARS, 4" (100) LONG

NOTES:  
A. STUB POST TO BE SUPPLIED BY THE DEPARTMENTS TRAFFIC, ENGINEERING, AND MANAGEMENT SECTION.

SECTION A-A

STUB POST

#3 (M0) SPIRAL BAR

8 - #5 (M6) BARS
NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE CONDUIT AGAINST ANY POSSIBLE DAMAGE IN PAVING OPERATIONS.
2. THE WEATHERPROOF FITTING SHALL CONSIST OF A GALVANIZED 1/2" (13mm) COUPLING CONTAINING A STEEL THREADED REDUCING BUSHING 1/2" (13mm) TO 1/4" (6mm) AND A 1/4" (6mm) WATER-TIGHT CONNECTOR FOR SERVICE ENTRANCE CABLE.
3. THE LEAD-IN WIRE SHALL BE RUN THROUGH THE RUBBER OF THE WEATHERPROOF FITTING.

DETAIL A - TYPICAL INSTALLATION UNDER INTEGRAL CURB AND GUTTER

DETAIL B - TYPICAL INSTALLATION UNDER CURBING

DETAIL C - TYPICAL INSTALLATION WITHOUT CURBING
WIRE SLOT CONSTRUCTION

NOTES:

1. SAW CUTS FOR WIRE SLOT CONSTRUCTION SHALL BE EXTENDED BEYOND THE CORNERS SO THAT THE SLOT IS FULL DEPTH AT TURN POINTS. A FORTY-FIVE (45) DEGREE ANGLE SHALL BE CUT 12" CIRCULAR BACK FROM THE POINT OF THE EXTENDED CORNER.

2. THE LONGITUDINAL / TRANSVERSE CUT SHALL BE STOPPED APPROXIMATELY 2' ISO FROM THE CORNER TO PREVENT THE TRIANGULAR PORTION OF THE PAVEMENT FROM BREAKING.

3. A MAXIMUM OF TWO LOOP DETECTORS CAN BE SPLICED TO ONE LEAD-IN CABLE. THE DETAIL ILLUSTRATES THE METHOD OF SPLICING TWO LOOP DETECTORS 0 LOOP #1 AND LOOP #2 TO A LEAD-IN CABLE.

4. LOOP DETECTOR SHALL BE CENTERED IN TRAVEL LANE.

SECTION A - A

SECTION B - B

DELWARE DEPARTMENT OF TRANSPORTATION

TYPE #1 LOOP DETECTOR

STANDARD NO. T-9 (2006) SHRT. 1 OF 1 RECOMMENDED

APPROVED 12/5/05

Designed

1/8/2006
WIRE SLOT CONSTRUCTION

NOTES:
0. SAW CUTS FOR WIRE SLOT CONSTRUCTION SHALL BE EXTENDED BEYOND THE CORNERS SO THAT THE SLOT IS FULL DEPTH AT TURN POINTS. A FORTY-FIVE (45) DEGREE ANGLE SHALL BE CUT 1' (0.3m) BACK FROM THE POINT OF THE EXTENDED CORNER.
2. THE LONGITUDINAL / TRANSVERSE CUT SHALL BE STOPPED APPROXIMATELY 2' (0.6m) FROM THE CORNER TO PREVENT THE TRIANGULAR PORTION OF THE PAVEMENT FROM BREAKING.
3. A MAXIMUM OF TWO LOOP DETECTORS CAN BE SPICED TO ONE LEAD-IN CABLE. THE DETAIL ILLUSTRATES THE METHOD OF SPICING TWO LOOP DETECTORS LOOP #1 AND LOOP #2 TO A LEAD-IN CABLE.
4. LOOP DETECTOR SHALL BE CENTERED IN TRAVEL LANE.

SECTION A - A

SECTION B - B

4/8" SHIELDED LOOP DETECTOR WIRE

DEPARTMENT OF TRANSPORTATION

STANDARD NO. T-10 (2006) SH. 1 OF 1

APPROVED

RECOMMENDED
NOTE: SPAN WIRE ATTACHMENT BETWEEN METAL POLES IS THE SAME AS SHOWN FOR WOOD POLES EXCEPT THAT THE STRAN PLATES AND GUY HOOKS ARE NOT USED. FOR DETAIL SEE T-14 SHEET 2 - "DEAD END MESSENGER WIRE ATTACHMENT, METAL POLES ".

DELAWARE DEPARTMENT OF TRANSPORTATION

SPAN WIRE ATTACHMENT BETWEEN POLES

STANDARD NO. T-12 (2005)  SHT. 1 OF 2  APPROVED  RECOMMENDED

12/5/05  11/10/05

09/09/2005
**WOOD POLES**

- **Service Wedge Clamp**
- **Messenger Wire**
- **Messenger Clamp**
- **Lashing Wire**
- **Cable Spacer**
- **Electrical Cable**

- **Galvanized 1/4" x 1 3/4" x 3" (TSI x 3" (TSI)**
- **Washer with 1/8" GB Hole**
- **Galvanized 1/4"-19 Nuts (2 required)**
- **Galvanized 1/4"-19 Eyebolt**

**WOOD POLE**

**NOTES:**
- Installation method shown for dead end messenger wire attachment to metal poles shall be used for span wire attachment between metal poles.

**METAL POLES**

- **Service Sleeve**
- **Galvanized 3 Bolt 1/4"-19**
- **Guy Clamps (2 required)**
- **Galvanized 3/4" x 3" (TSI x 3" (TSI)**
- **Washer with 1/8" GB Hole**

- **Messenger Wire (1/2 wraps around pole)**

**DELTA DEPARTMENT OF TRANSPORTATION**

**DEAD END MESSENGER WIRE ATTACHMENT**

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09/09/2005
NOTES:
1. TYPE 6 CONDUIT JUNCTION WELL SHALL BE PRECAST POLYMER CONCRETE.
2. ALL CONDUIT JUNCTION WELLS CONSTRUCTED WITHIN PAVEMENT, SIDEWALKS, ETC. WILL BE CONSTRUCTED FLUSH WITH THE SURFACE OF THE SAME. INSTALLATION IN UNPAVED AREAS WILL BE CONSTRUCTED ABOVE GRADE AND GRADED TO DRAIN AWAY FROM THE CONDUIT JUNCTION WELL.
3. POLYMER CONCRETE COVERS SHALL BE THE HEAVY-DUTY TYPE WITH A DESIGN LOAD OF 15,000 LBS (6600 kg) OVER A 10” (255) SQUARE.

SECTION A-A

DELAWARE DEPARTMENT OF TRANSPORTATION

CONDUIT JUNCTION WELL, TYPE 6


APPROVED 12/15/05

RECOMMENDED 11/05/05

01/05/06
NOTES:
0. INVERTED CONFIGURATION SHALL BE USED FOR SPAN MOUNT.
1. SPAN WIRE MOUNTING HARDWARE SHALL BE SUPPLIED BY THE DEPARTMENT.
2. TEFLOM TAPE SHALL BE APPLIED TO THREADS BEFORE MOUNTING.
3. ROUTE THE LEAD-IN CABLE THROUGH THE METAL CAP AND THE RUBBER PLUG.
   REPLACE THE METAL CAP, SEALING THE CABLE ENTRY PORT. TIGHTEN THE METAL CAP SO THE CABLE WILL NOT SLIDE THROUGH THE RUBBER PLUG.