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**SHOULDER APPLICATION**

**GUARDRAIL SECTION**

**MEDIAN APPLICATION**

**GUARDRAIL SECTION**

**BEHIND CURB APPLICATION**

---

**TYPE** | **POST SPACING** | **CLEAR AREA BEHIND POST**
--- | --- | ---
1 | 6'-3" | 4'-0" MIN
2 | 3'-1½" | 3'-0" MIN

**NOTES:**
1. SEE STANDARD SPECIFICATIONS CONCERNING THE USE OF ALTERNATIVE OFFSET SLOTTED MATERIALS.
2. THE FACE OF GUARDRAIL SHALL BE INSTALLED EITHER FLUSH WITH THE CURB FACE OR OFFSET A DISTANCE GREATER THAN D.
3. D IS DEFINED AS THE MAXIMUM CURB HEIGHT FOR THE CURB/ GUARDRAIL APPLICATION.
4. ON 50 MPH AND GREATER ROADS, GUARDRAIL SHALL BE INSTALLED FLUSH TO THE CURB FACE.

**DESIGN SPEED** | **D (SEE NOTE 2)** | **H (SEE NOTE 3)**
--- | --- | ---
< 45 MPH | 8'-0" | 6'
45 TO 50 MPH | 13'-0" | 4'
> 50 MPH | SEE NOTE 4 | 4'

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**DELTA EAGLE**

**DEPARTMENT OF TRANSPORTATION**

**TYPES 1-3I, 2-3I, AND 3-3I GUARDRAIL APPLICATIONS**

**STANDAD NO.** B-I (2018) | **SHT.** 3 | **OF** 3 | **APPROVED** SIGNATURE ON FILE 1/04/2019 | **RECOMMENDED** SIGNATURE ON FILE 11/20/2018 | **1/7/2019**
NOTES:
1. FLARE THE END TREATMENT AT 25:1 BEGINNING 50'-0" FROM THE END OF THE IMPACT HEAD, UNLESS THE CONSTRUCTION PLANS OR SPECIFICATIONS SPECIFY A SMALLER FLARE.
2. THIS DETAIL WAS SOLELY CREATED TO SHOW THE GRADING REQUIRED FOR THIS TYPE OF ATTENUATOR AND IS APPLICABLE REGARDLESS OF THE HEIGHT OF THE GUARDRAIL SYSTEM.
3. THE GUARDRAIL END TREATMENT ATTENUATOR SHALL BE INSTALLED AS PER THE MANUFACTURER’S AND THE DEPARTMENT OF TRANSPORTATION’S SPECIFICATIONS.
4. IF CURB IS PRESENT, DEPRESS THE CURB TO A MAXIMUM HEIGHT OF 2" WITHIN THE LIMITS OF THE END TREATMENT AND THROUGHOUT THE LENGTH OF THE TAPER GRADING.

DELWARE
DEPARTMENT OF TRANSPORTATION

GRADING FOR GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1

STANDEAD NO. B-2 (2018) SHT. 1 OF 3

APPROVED SIGNATURE ON FILE 1/04/2019

RECOMMENDED SIGNATURE ON FILE 11/20/2018

1/7/2019
1. FLARE SHALL BE 4'-0" UNLESS THE CONSTRUCTION PLANS OR SPECIFICATIONS SPECIFY A SMALLER FLARE. FLARE MAY BE PARABOLIC OR STRAIGHT BASED ON MANUFACTURER’S SPECIFICATIONS.

2. THIS DETAIL WAS SOLELY CREATED TO SHOW THE GRADE REQUIREMENTS FOR "HS" TYPE OF ATTENUATOR AND IS APPLICABLE REGARDLESS OF THE HEIGHT OF THE GUARDRAIL SYSTEM.

3. THE GUARDRAIL END TREATMENT ATTENUATOR SHALL BE INSTALLED AS PER THE MANUFACTURER’S AND THE DEPARTMENT OF TRANSPORTATION’S SPECIFICATIONS.

4. IF CURB IS PRESENT, DEPRESS THE CURB TO A MAXIMUM HEIGHT OF 2" WITHIN THE LIMITS OF THE END TREATMENT AND THROUGHOUT THE LENGTH OF THE TAPER GRADING.

DELWARE DEPARTMENT OF TRANSPORTATION

GRADING FOR GUARDRAIL END TREATMENT ATTENUATOR, TYPE 2

STANDARD NO.  B-2 (2018)  SHT.  2  OF  3

APPROVED

SIGNATURE ON FILE  1/04/2019

RECOMMENDED

SIGNATURE ON FILE  11/20/2019

1/7/2019
W-BEAM STEEL POST AND OFFSET BLOCK

POST

SIDE

6" MIN.

WIDTH

FRONT

OFFSET BLOCK, TYPE 27

OFFSET BLOCK, TYPE 31

TRAFFIC FACE

TOP

NOTE:

1) ALL HOLES SHALL BE 5/8" DIA. BOLT HOLE PATTERN IS SYMMETRICAL WITH RESPECT TO THE VERTICAL AXIS OF THE POST.

2) WHERE CONDITIONS REQUIRE, ALTERNATE POST LENGTHS IN INCREMENTS OF 6" MAY BE USED.

3) THE RUB RAIL HOLE OFFSET DISTANCES 101/2" FOR GUARDRAIL TO BARRIER CONNECTION, TYPE 1-27 AND 1-31, 1 1/2" FOR GUARDRAIL TO BARRIER CONNECTION, TYPE 2-27, AND 7/8" FOR GUARDRAIL "D" BARRIER CONNECTION, TYPE 2-31.

DELWARE DEPARTMENT OF TRANSPORTATION

STANDARD NO. B-13 (2018)  SHT.  2  OF  10  RECOMMENDED
This detail is to be used only for the sections of curb & gutter that are directly in front of the pedestrian connections. Refer to detail C-1, sheet 2 for typical curb dimensions and for depressing curb at entrances.

INTEGRAL P.C.C. CURB AND GUTTER
Types 1.1 thru 1.8

INTEGRAL P.C.C. CURB AND GUTTER
Type 3

INTEGRAL P.C.C. CURB AND GUTTER
Types 3.2 thru 3.8

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 detail P-2, sheet 3. Use approved joint filler to seal. Work to be paid under respective curb and gutter item.
2. Depress curb flush with pavement (with no lip). Slope the top of the curb to match the running slope of the adjacent pedestrian connection. The maximum running slope is 8.3%. The maximum slope of the gutter pan at the pedestrian connection is 5%.
3. See typical curb section detail and note 6 on detail C-1, sheet 3 for placement of gable under curb and gutter.
4. Transition from standard gutter slope to slope shown on this detail over a distance of 5'-0".
NOTES:
A. ENTIRE DEPRESSED AREA OF CURB EXCLUDING THE TAPERED CURBS SHALL HAVE DETECTABLE WARNING TRUNCATED DOMES.
B. THE DETECTABLE WARNINGS SYSTEM SHALL EXTEND AT LEAST 2'-0" IN LENGTH, MEASURED IN THE DIRECTION OF TRAVEL, FROM THE BACK OF THE CURB ALONG THE PEDESTRIAN CONNECTION SURFACE.
C. SEE SPECIFICATION FOR ADDITIONAL INFORMATION.

SECTION A-A

NOTES:
1. FOR ALTERATIONS WHERE THE MAXIMUM ALLOWABLE 12:1 RUNNING SLOPE WILL NOT MEET THE EXISTING SIDEWALK GRADE WITHIN A LENGTH OF 15'-0", THE SLOPED SEGMENT OF THE PEDESTRIAN CONNECTION MAY BE LIMITED TO 15'-0" AT A CONSTANT SLOPE, AND ALLOWED TO EXCEED THE 2:1 MAXIMUM SLOPE.
2. PEDESTRIAN CONNECTION AND SIDEWALK CROSS SLOPE SHALL BE 50:1 (2%) MAXIMUM FOR REHABILITATION WORK, THE PEDESTRIAN CONNECTION CROSS SLOPE MAY MATCH THE SLOPS OF THE ADJACENT ROADWAY IN ACCORDANCE WITH THE LATEST VERSION OF THE PSM MANUAL.
3. A 6:1 GRADE IS REQUIRED FOR A MINIMUM OF 2'-0" IMMEDIATELY ADJACENT TO THE PEDESTRIAN CONNECTION.
4. THE MAXIMUM ALGEBRAIC DIFFERENCE IN GRADE BETWEEN THE PEDESTRIAN CONNECTION OR MODIFIED CURB AT THE FALL LINE AND THE PAVEMENT SHALL BE 11.3%, HOWEVER 11% IS PREFERRED.
5. LANDING AREA SHALL BE DELINEATED WITH JOINTS.
6. FOR REHABILITATION WORK, PLACE TRANSITION SLAB TO TRANSITION FROM THE NEW PEDESTRIAN CONNECTION TO THE EXISTING SIDEWALK WHEN THE EXISTING SIDEWALK HAS A NON-CONFORMING RUNNING SLOPE, CROSS SLOPE, OR WIDTH. ADJACENT CURB TAPER SHOULD MATCH THE SLOPE OF THE TRANSITION SLAB.
7. REFER TO THE DELAWARE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES FOR DETAILS REGARDING THE LOCATION OF PEDESTRIAN PUSH BUTTONS.
8. CONSTRUCTION JOINTS ARE REQUIRED ON RAMPS AT THE INTERVAL SPECIFIED IN NOTE 6 ON DETAIL M-3, SHEET 1 OF 1. HOWEVER, EXPANSION MATERIAL SHALL NOT BE USED IN THE PEDESTRIAN CONNECTION SECTION.
9. IF THE RUNNING SLOPES LESS THAN 20.1% THEN THE 50:1 (2%) LANDING CAN BE OMITTED. DETECTABLE WARNING SYSTEM MUST STILL BE PLACED.
NOTES:
1. FOR ALTERATIONS WHERE THE MAXIMUM ALLOWABLE 12.1 RUNNING SLOPE WILL NOT MEET THE EXISTING SIDEWALK GRADE WITHIN A LENGTH OF 15'-0", THE SLOPED SEGMENT OF THE PEDESTRIAN CONNECTION MAY BE LIMITED TO 15'-0" AT A CONSTANT SLOPE, AND ALLOWED TO EXCEED THE 12.1 MAXIMUM SLOPE.
2. PEDESTRIAN CONNECTION AND SIDEWALK CROSS SLOPE SHALL BE 50.1% MAXIMUM. FOR REHABILITATION WORK, THE PEDESTRIAN CONNECTION CROSS SLOPE MAY MATCH THE SLOPE OF THE ADJACENT ROADWAY IN ACCORDANCE WITH THE LATEST VERSION OF THE P&G MANUAL.
3. A 6.1% GRADE IS REQUIRED FOR A MINIMUM OF 2'-0" IMMEDIATELY ADJACENT TO THE PEDESTRIAN CONNECTION.
4. THE MAXIMUM ALGEBRAIC DIFFERENCE IN GRADE BETWEEN THE PEDESTRIAN CONNECTION OR CURB AND THE PAVEMENT SHALL BE 13.3%, HOWEVER 11% IS PREFERRED.
5. LANDIN AREA SHALL BE DELINEATED WITH JOINTS.
6. FOR REHABILITATION WORK, PLACE TRANSITION SLAB TO TRANSITION FROM THE NEW PEDESTRIAN CONNECTION TO THE EXISTING SIDEWALK WHEN THE EXISTING SIDEWALK HAS A NON-COMFORMING RUNNING SLOPE, CROSS SLOPE, OR WIDTH. ADJACENT CURB SHOULD MATCH THE SLOPE OF THE TRANSITION SLAB.
7. REFER TO DELAWARE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES FOR DETAILS REGARDING THE LOCATION OF PEDESTRIAN PUSH BUTTONS.
8. CONSTRUCTION JOINTS ARE REQUIRED AT THE INTERVALS SPECIFIED IN NOTE E ON DETAIL M-3, SHEET 1 OF 1. HOWEVER, EXPANSION MATERIAL SHALL NOT BE USED IN THE PEDESTRIAN CONNECTION SECTION.
9. ENTIRE DEPRESSED AREA OF CURB SHALL HAVE DETECTABLE WARNING TRUNCATED DOMES.

PEDESTRIAN CONNECTION, TYPE 3

SECTION D-0

PEDESTRIAN CONNECTION, TYPES 2, 3, & 4

APPROVED

DELAWARE DEPARTMENT OF TRANSPORTATION

STANDAED NO. C-2 (2018) SHT. 2 OF 3 RECOMMENDED
NOTES:

1. FOR ALTERATIONS WHERE THE MAXIMUM ALLOWABLE 12:1 RUNNING SLOPE WILL NOT MEET THE EXISTING SIDEWALK GRADE WITHIN A LENGTH OF 15'-0", THE SLOPED SEGMENT OF THE PEDESTRIAN CONNECTION MAY BE LIMITED TO 15'-0" AT A CONSTANT SLOPE, AND ALLOWED TO EXCEED THE 12:1 MAXIMUM SLOPE.

2. PEDESTRIAN CONNECTION AND SIDEWALK CROSS SLOPE SHALL BE 50:1 (2%) MAXIMUM. FOR REHABILITATION WORK, THE PEDESTRIAN CONNECTION CROSS SLOPE MAY MATCH THE SLOPE OF THE ADJACENT ROADWAY IN ACCORDANCE WITH THE LATEST VERSION OF THE PAS MANUAL.

3. THE MAXIMUM ALGEBRAIC DIFFERENCE IN GRADE BETWEEN THE PEDESTRIAN CONNECTION OR MODIFIED CURB AT THE FLOW LINE AND THE PAVEMENT SHALL BE 13.3%, HOWEVER 11% IS PREFERRED.

4. LANDING AREA SHALL BE CLEARLY DELINERATED WITH JOINTS.

5. REFER TO THE DELAWARE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES FOR DETAILS REGARDING THE LOCATION OF PEDESTRIAN PUSH BUTTONS.

6. CONSTRUCTION JOINTS ARE REQUIRED ON PEDESTRIAN CONNECTIONS AT THE INTERVAL SPECIFIED IN NOTE 6 ON DETAIL M-3 SHEET 1 OF 2. HOWEVER, EXPANSION MATERIAL SHALL NOT BE USED IN THE PEDESTRIAN CONNECTION SECTION.

7. IF THE RUNNING SLOPE IS LESS THAN 20:1(5%) THEN THE 50:1 (2%) LANDINGS CAN BE OMITTED. DETECTABLE WARNING SYSTEM MUST STILL BE PLACED.

8. IN ISLANDS AND MEDIAN, A CONTINUOUS PATH WITH A MAXIMUM RUNNING SLOPE OF 20:1 (5%) MUST BE PROVIDED BETWEEN PEDESTRIAN CONNECTIONS. AN INTERMEDIATE LANDING CONSISTING OF A 15'-0" BY 5'-0" WITH A MAXIMUM RUNNING SLOPE AND CROSS SLOPE OF 50:1 (2%) IS REQUIRED ONLY IN LOCATIONS WHERE THE PEDESTRIAN CONNECTIONS INTERSECT BEFORE REACHING FULL HEIGHT.

9. A (2'-0"-THROUGH-LEVEL), WITH THE STREETS THE PREFERRED TREATMENT FOR ISLANDS. RAMPS OR BLENDED TRANSITIONS CAN BE USED WHERE THE ISLAND IS OF SUFFICIENT SIZE TO ACCOMMODATE THEM. POSITIVE DRAINS MUST BE PROVIDED FOR EITHER TREATMENT. EITHER TREATMENT IS ACCEPTABLE.

10. WHERE THERE IS NO DEPRESSED CURB AT A CUT-THROUGH OR PEDESTRIAN CONNECTION, THE DETECTABLE WARNING SHALL BE INSTALLED 3'-0" FROM THE PAVEMENT EDGE. WHERE THERE IS DEPRESSED CURB, THE DETECTABLE WARNING SYSTEM SHALL BE INSTALLED DIRECTLY BEHIND THE FULL WIDTH OF THE DEPRESSED CURB.

11. DETECTABLE WARNING SHALL BE INSTALLED WHEN THE LENGTH W IN THE DIRECTION OF PEDESTRIAN TRAVEL IS 6'-0" OR GREATER.

PEDESTRIAN CONNECTION, TYPE 5 & SECTIONS

APPROVED

SIGNATURE ON FILE

1/4/2019

STANZAED NO. C-2 (2018)
SHT. 3 OF 3

RECOMMENDED

SIGNATURE ON FILE

11/20/2018

DELAWARE
DEPARTMENT OF TRANSPORTATION
PLAN VIEW
SHOWN WITHOUT GRATE

NOTE: 6.5 SAFETY END STRUCTURE TO BE PRECAST

SECTION A-A

FRONT VIEW
### Dimensions

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<th>C</th>
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<td>7'5&quot;</td>
<td>8'4&quot;</td>
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### Approximate Quantities

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<th>PIPE SIZE</th>
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<th>REIN. STEEL LBS.</th>
<th>NO. OF GRATES</th>
<th>LENGTH TO BE CUT FROM 1 GRATE</th>
<th>WEIGHT OF FULL SIZE GRATE LBS.</th>
<th>WEIGHT OF CUT GRATE LBS.</th>
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### Schedule of Reinforcing Steel

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<th>C-BARS</th>
<th>D-BARS</th>
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<td>8&quot;</td>
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**DELAWARE DEPARTMENT OF TRANSPORTATION**

**6.1 CONCRETE SAFETY END STRUCTURE**

**STANDARD NO.** D-1 (2018)  **SHT.** 2  **OF** 2  **RECOMMENDED**

**APPROVED**

**SIGNATURE ON FILE** 1/04/2019  **SIGNATURE ON FILE** 11/20/2018

1/7/2019
**DIMENSIONS**

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**APPROXIMATE QUANTITIES**

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<th>PIPE SIZE</th>
<th>CONCRETE FT³</th>
<th>REINF. STEEL LBS.</th>
<th>NO. OF GRATES</th>
<th>LENGTH TO BE CUT FROM 1 GRATE</th>
<th>WEIGHT OF FULL SIZE GRATE LBS.</th>
<th>WEIGHT OF CUT GRATE LBS.</th>
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**BENDING DIAGRAM**

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**SCHEDULE OF REINFORCING STEEL**

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<tr>
<th>PIPE SIZE</th>
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DELAWARE
DEPARTMENT OF TRANSPORTATION

10:1 CONCRETE SAFETY END STRUCTURE
STANDARD NO. D-2 (2018) SHT. 2 OF 2
APPROVED
SIGNATURE ON FILE
1/04/2019

SIGNATURE ON FILE
11/30/2018

RECOMMENDED
1/7/2019
SINGLE GRATE SETUP

TRANSITION FROM PCC CURB AND GUTTER TYPE 2 TO 8" PCC CURB TYPE 1 WITH CURB OPENING
(TYP.)

LIMITS OF PAYMENT 11'-6"

FLOWLINE

EDGE OF GUTTER

3¼"

COVER SLAB OPENING

64 REBAR

FLOWLINE

STEPS IN FRONT WALL

NORMAL GUTTER SLOPE

NORMAL ROADWAY CROSS SLOPE

84 REBAR @ 134" FOR SINGLE GRATE, 172" FOR DOUBLE GRATE (TYP.)
SEE NOTE 4

4" MIN

CONCRETE WIDTH

SUBDIVISION TOP & CONFIGURATION

TRANSITION FROM PCC CURB AND GUTTER TYPE 2 TO 8" PCC CURB TYPE 1 WITH CURB OPENING
(TYP.)

LIMITS OF PAYMENT 14'-6"

FLOWLINE

EDGE OF GUTTER

3¼"

COVER SLAB OPENING

64 REBAR

FLOWLINE

NORMAL GUTTER SLOPE

NORMAL ROADWAY CROSS SLOPE

84 REBAR @ 134" FOR SINGLE GRATE, 172" FOR DOUBLE GRATE (TYP.)
SEE NOTE 4

4" MIN

CONCRETE WIDTH

NOTES:
1. MINIMUM BOX SIZE TO BE 34" x 24".
2. PIPE OPENING IN THE FRONT WALL SHALL NOT INTERFERE WITH THE STEPS. THE PIPE SHALL BE SHIFTED HORIZONTALLY TO AVOID THE STEPS. IT MAY BE NECESSARY TO USE A LARGER BOX TO AVOID CONFLICT BETWEEN STEPS AND PIPE OPENING.
3. SEE DETAIL D-5, SHEET 3 OF 9, FOR 5501 BAR DIAGRAM.
4. THE REBAR IN THE HEAD IS PREFERRED TO BE 1 CONTINUOUS PIECE. HOWEVER, IF MULTIPLE PIECES ARE TO BE USED, EACH PIECE SHALL OVERLAP BY 12".

MINIMUM AND THE FINAL LENGTH OF THE SPACED REBAR SHALL BE AS NOTED ON THIS DETAIL.
NOTE:
1. USE CLASS C BEDDING UNLESS OTHERWISE INDICATED.
2. FOR CLASS A BEDDING, IMRED PIPE IN CONCRETE 6" FOR PIPES SMALLER THAN 24" I.D., 10" FOR PIPES 24" TO 60", AND FOR PIPES LARGER THAN 60" SEE PROJECT DETAILS.

DELAWARE
DEPARTMENT OF TRANSPORTATION
STANDARD NO. D-8 (2018)
SHT. 1 OF 1
1/7/2019
NOTES:
1. THE PERFORATED PIPE UNDERDRAIN SHALL BE LOCATED AS SHOWN ON THE TYPICAL SECTIONS OF THE CONSTRUCTION PLANS.
2. GEOTEXTILE FILTER FABRIC SHALL BE PLACED ENTIRELY OVER THE TOP OF UNDERDRAIN TRENCH AND LAPPED AS SHOWN.
3. SLOPE OF UNDERDRAINS SHALL MATCH ROADWAY GRADE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. OUTLET PIPE CONFIGURATIONS SHALL USE 45 DEGREE ELBOWS OR SHALL USE STRAIGHT PIPE WITH A MINIMUM RADIUS OF 3' TO DIRECT UNDERDRAIN PIPE INTO SIDE OF DRAINAGE INLET OR TO POSITIVE GRADE. PIPE SHALL ALSO BE NON-PERFORATED AND HAVE A SMOOTH INTERIOR.
5. RODENT SCREEN SHALL SNUGLY FIT THE PROVIDED SLOT WITH THE SCREEN UP FITTING TIGHT TO THE BOTTOM FLOW LINE.
6. A DELINEATOR SHALL BE INSTALLED ADJACENT TO THE CONCRETE APRON OF THE UNDERDRAIN OUTLET IN THE UPSTREAM DIRECTION OF VEHICULAR TRAVEL. THE DELINEATOR SHALL BE GALVANIZED TELESCOPING STEEL SIGN POST AND INSTALLED IN ACCORDANCE WITH STANDARD T-12 SHEET 5 OF 2. THE DELINEATOR SHALL EXTEND 6" ABOVE GROUND ELEVATION AND SHALL HAVE A 6" x 8" x 0.08" ALUMINUM RETROREFLECTIVE BLUE REFLECTOR EXIST TO BOTH SIDES OF THE POST WITH HARDWARE COMPATIBLE WITH THE SIGN POST.
7. WHEN TWO LINES OF PIPE UNDERDRAIN DRAIN TO A LOW POINT, EACH PIPE MUST HAVE ITS OWN OUTLET.
8. PERFORATED PIPE UNDERDRAIN SHALL NOT BE PLACED UNDER GUARDRAIL TO AVOID PUNCTURING.

DELTA AQM
DEPARTMENT OF TRANSPORTATION

PERFORATED PIPE UNDERDRAIN DETAIL

STANDARD No. D-9 (2018)
SHT. 1 OF 1

APPROVED
SIGNATURE ON FILE 1/04/2019

RECOMMENDED
SIGNATURE ON FILE 1/7/2019
**NOTES:**

1. This device is intended to control sheet flow only and is not to be used in areas of concentrated flow.
2. Turn ends of silt fence up slope to contain run off.
3. Reinforcing strip is to be one complete strip covering all geotextile fabric at post.

**SECTION A-A**

- Geotextile
- Wire mesh
- Post
- Fasten at 4 placings, equally spaced

**SECTION B-B**

- Geotextile
- Wire mesh
- Post
- Fasteners ("YP")

**WIRE MESH DETAIL**

(REINFORCED SILT FENCE ONLY)

- Secure with staples the entire length of the post
- 2" x 4", 14 gauge wire mesh

**ELEVATION**

- Geotextile
- Wire mesh
- Post
- Fastener ("YP")

**FLOW**

- Existing ground
- Embled approx. 12" of geotextile, backfill trench with soil, and compact thoroughly.

**ISOMETRIC VIEW**

- Construction area
- Flow
SEE NOTE 3

CHAIN LINK FENCE WITH
GEOTEXTILE FABRIC

FLOW

37" MIN.

10" MAX.

36" MIN.

8" MIN.

POST

CHAIN LINK FENCING

GEOTEXTILE FABRIC

BACKFILL TRENCH WITH SOIL AND
COMPACT THOROUGHLY

FLOW

EMBED FABRIC MIN. 8"
INTO EARTH

6" §

33" MIN. POST AND 2ND
LAYER GEOTEXTILE FABRIC

16" MIN. 1ST LAYER
GEOTEXTILE FABRIC

SECTION A-A

NOTES:
1. THIS DEVICE IS INTENDED TO CONTROL SHEET FLOW ONLY AND IS NOT TO BE USED IN AREAS OF CONCENTRATED FLOW.
2. TURN ENDS OF SILT FENCE UPSLOPE TO CONTAIN RUNOFF.
3. 2½” DIAMETER GALVANIZED OR ALUMINUM POSTS. POSTS DO NOT NEED TO BE SET IN CONCRETE.
4. FASTEN CHAIN LINK FENCE SECURELY TO FENCE POSTS WITH WIRE TIES.
5. FASTEN GEOTEXTILE FABRIC SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 34" AT THE TOP AND MID-SECTION.
6. WHEN TWO SECTIONS OF GEOTEXTILE FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOILED.
NOTES:
2. FOR ALTERATIONS WHERE THE MAXIMUM ALLOWABLE 12:1 RUNNING SLOPE WILL NOT MEET THE EXISTING SIDEWALK OR SHARED USE PATH GRADE WITHIN A LENGTH OF 15', THE SLOPED SEGMENT OF THE PEDESTRIAN CONNECTION MAY BE LIMITED TO 15'-0" AT A CONSTANT SLOPE, AND ALLOWED TO EXCEED THE 12:1 MAXIMUM SLOPE.
3. 4:1 MAX SLOPE IS REQUIRED FOR 2'-0" ON BOTH SIDES OF THE SHARED-USE PATH.
4. TOPSOIL, SEED, & MULCH ANY DISTURBED AREA ADJACENT TO THE SHARED-USE PATH UP TO A MAXIMUM OF 2'-0".
5. FOR SIDEWALKS AND CONCRETE SHARED-USE PATHS, CONSTRUCTION JOINTS SHALL BE PLACED EVERY 12'-0" AND EXPANSION MATERIAL EVERY 20'-0". HOWEVER, EXPANSION MATERIAL SHALL NOT BE USED IN THE SLOPED SECTION.
6. IF THE RUNNING SLOPE IS LESS THAN 20.1% THEN THE 50.1% (2%) LANDING CAN BE OMITTED.
7. SEE DETAIL C-2, SHEETS 1, 2 OR 3 FOR PEDESTRIAN CONNECTION TREATMENTS WHEN THE SIDEWALK OR SHARED-USE PATH INTERSECTS WITH A TRAVELWAY.
8. A 6:1 MAX SLOPE IS REQUIRED FOR 2'-0" ON BOTH SIDES OF THE SIDEWALK.
9. TOPSOIL, SEED, & MULCH ANY DISTURBED AREA ADJACENT TO THE SIDEWALK UP TO A MAXIMUM OF 2'-0".
10. ON REHABILITATION PROJECTS, WHEN EXISTING OBSTACLES (FIRE HYDRANT, UTILITY POUL, ETC...) ARE LOCATED IN THE SIDEWALK, THE SIDEWALK PATH SHALL NOT BE LESS THAN 34" WIDE FOR NO MORE THEN 24'.

SHARED-USE PATH & SIDEWALK DETAILS

DELAWARE DEPARTMENT OF TRANSPORTATION

STANDAD NO. M-3 (2018)
SHT. 1 OF 1

APPROVED
SIGNATURE ON FILE
1/04/2019

RECOMMENDED
SIGNATURE ON FILE
1/7/2019

1/20/2018
**BUS STOP PAD, TYPE 1**

* - TO BE USED WHEN THE PAD IS PLACED BEHIND CURB AND INCLUDES A SIDEWALK WITHOUT A GRASS STRIP

**BUS STOP PAD, TYPE 2**

* - TO BE USED WHEN THE PAD IS PLACED BEHIND CURB AND INCLUDES A SIDEWALK WITH A GRASS STRIP

**BUS STOP PAD, TYPE 3**

* - TO BE USED WHEN THE PAD IS PLACED FLUSH WITH THE TRAVELWAY AND NO CURB OR SIDEWALK IS INCLUDED

**NOTES:**

1. BUS STOP PAD LOCATIONS MUST BE APPROVED BY BOTHDAIR AND DELDOT PRIOR TO ANY CONSTRUCTION.
2. REFERENCE THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR GENERAL INFORMATION ON PLACEMENT OF SIGNS.
3. SEE CONSTRUCTION PLAN SIGNING AND STRIPPING SCHEDULES FOR SPECIFIC SIGN AND SIGN LOCATION DETAILS.
4. TYPICAL BUS STOP PADS MAY BE USED IN CONJUNCTION WITH BUS STOP SHELTER LOCATIONS IN THE EVENT OF LAND CONSTRAINTS AT THE SHELTER LOCATIONS. AN INTERCONNECTING PEDESTRIAN ACCESS PATH MUST EXIT THAT IS ACCESSIBLE TO BUS STOP ALIGHTING AREAS, SHELTERS, PEDESTRIAN CONNECTIONS, CROSSWALKS, AND SIDEWALKS.
5. A 6% MAX SLOPE IS REQUIRED FOR ALL SIDES OF THE BUS STOP PAD AND APPROACHING SIDEWALK.
6. CURB TYPE VARIES, SEE PLANS FOR CORRECT CURB TYPE.
7. SEE DETAIL M-3, SHEET 5 OF 1 FOR ADDITIONAL SIDEWALK DETAILS AND REQUIREMENTS.
8. THE MAXIMUM RUNNING SLOPE TO TRANSITION THE SIDEWALK TO MEET BUS STOP PAD ELEVATION IS 12:1 (8.3%). HOWEVER, 10:1 (5%) IS PREFERRED.
SECTION A-A
BUS STOP WITH SHELTER PAD, TYPE 1

SECTION B-B
BUS STOP WITH SHELTER PAD, TYPE 2

NOTES:
1. BUS STOP SHELTER PAD LOCATIONS MUST BE APPROVED BY DART AND DELDOT PRIOR TO ANY CONSTRUCTION.
2. REFERENCE THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR GENERAL INFORMATION ON
   PLACEMENT OF SIGNS.
3. SEE CONSTRUCTION PLANS SIGNING AND STRIPING SHEETS FOR SPECIFIC SIGN AND SIGN LOCATION DETAILS
4. BUS STOP CONFIGURATIONS MAY VARY DUE TO TOPOGRAPHIC OBSTRUCTIONS OR GRADES. CONSULT DART
   OR DELDOT FOR OPTIONAL PAD DETAILS.
5. A 6:1 MAX SLOPE IS REQUIRED FOR 2'-0" ON ALL SIDES OF THE BUS STOP PAD AND APPROACHING SLOWALKS.
6. CURB TYPE VARIES: SEE PLANS FOR CORRECT CURB TYPE.
7. "TRASH RECEPTACLE PAD CAN BE PLACED ON EITHER SIDE OF THE SHELTER PAD, AT THE DIRECTION OF THE
   ENGINEER IN THE FIELD.
8. "HE RUNNING SLOPE TO TRANSITION THE SLOWALK TO MEET BUS STOP ELEVATION IS 12:1 (8.3%), HOWEVER,
   20:1 (5%) IS PREFERRED.
9. SEE DETAIL M-9, SHEET 1 FOR ADDITIONAL SLOWALK DETAIL.

DELAWARE
DEPARTMENT OF TRANSPORTATION

BUS STOP PAD WITH SHELTER DETAILS

STANDARD NO. M-9 (2018) SHT. 2 OF 2

APPROVED

SIGNATURE ON FILE

1/04/2019

RECOMMENDED

SIGNATURE ON FILE

1/7/2019

SCALE: 1/5"
LONGITUDINAL SAW-CUT JOINT DETAIL

LONGITUDINAL CONSTRUCTION JOINT DETAIL

TRANSVERSE SAW-CUT JOINT DETAIL

TRANSVERSE CONSTRUCTION JOINT DETAIL

SEALANT DETAIL - TRANSVERSE AND LONGITUDINAL JOINT
* [0.37 (7/16" P.C.C. PAVEMENT)
0.47 (1/2" P.C.C. PAVEMENT)]

NOTES:
2. "T" Refers to the actual constructed slab thickness.
3. TOLERANCES ON ALL JOINT SEALANT DETAIL DIMENSIONS SHOWN WITHOUT RANGES SHALL BE PLUS 1/16", MINUS 0".
4. THE TOP EDGES OF THE CONTACT SURFACES OF THE SEALANT MATERIAL ON BOTH SIDES OF THE JOINT RESERVOIR SHALL BE AT THE SAME ELEVATION.
5. TRANSVERSE JOINT MATERIAL SHALL BE PLACED BEFORE LONGITUDINAL JOINT MATERIAL; THE TRANSVERSE JOINT MATERIAL SHALL BE CONTINUOUS FOR THE FULL WIDTH OF ALL ADJACENT P.C.C. PAVEMENT SLABS.
6. LONGITUDINAL JOINT MATERIAL SHALL BE PLACED WITHOUT GAPS WHENEVER INTERRUPTED BY THE TRANSVERSE JOINT MATERIAL.
7. TRANSVERSE JOINT SEAL TO BE RECESSED ½" TO ⅛" BELOW THE TOP OF THE SLAB.
8. A 45° CHAMFER SHALL BE CUT ½" TO ⅛" DEEP AT THE TOP OF THE SLAB ALONG BOTH SIDES OF THE TRANSVERSE SEALANT RESERVOIR.
9. USE KEYWAY WHEN HOGAN BOLT, TIE BAR, OR W BOLT IS NOT USED.
10. DIMENSION FOR TRANSVERSE JOINTS IS ½" AND DIMENSION FOR LONGITUDINAL JOINT IS ½".
CONTINUOUS EDGELINE RUMBLE STRIP

SHOULDER JOINT AND/OR STRIPING EDGE LINE, WHICHEVER IS FURTHER FROM TRAVEL LANE

OUTSIDE SHOULDER

TRAVEL LANE

12" MAX. RADIUS

1/2" MAX. DEPTH

UNIFORM DEPTH THROUGHOUT WIDTH OF CUT WITH 1/2" TOLERANCE BETWEEN PEAKS AND VALLEYS

CONTINUOUS SHALLOW DEPTH RUMBLE STRIP

SHOULDER JOINT AND/OR STRIPING EDGE LINE, WHICHEVER IS FURTHER FROM TRAVEL LANE

OUTSIDE SHOULDER

TRAVEL LANE

1/2" MAX. DEPTH

UNIFORM DEPTH THROUGHOUT WIDTH OF CUT WITH 1/2" TOLERANCE BETWEEN PEAKS AND VALLEYS

NOTES:
1. RUMBLE STRIPS SHALL BE PLACED ON SHOULDERS IN LOCATIONS DESCRIBED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
2. WHERE RUMBLE STRIPS ARE SHOWN ON THE PLANS TO BE ON BRIDGE DECKS, ONLY USE CONTINUOUS SHALLOW DEPTH RUMBLE STRIPS.
3. RUMBLE STRIPS ARE TO BE BROKEN FOR ALL INTERSECTIONS AND DRIVEWAY ENTRANCES WHERE THE EDGELINE PAVEMENT MARKINGS TIE INTO DRIVEWAY ENTRANCE OR WHERE THE EDGELINE PAVEMENT MARKINGS ARE BROKEN. THE INSTALLATION OF RUMBLE STRIPS SHOULD BE STOPPED 25' PRIOR TO THE POINT OF CURVATURE (PI) AND RESTARTED 25' AFTER THE POINT OF TANGENCY (PT).
4. RUMBLE STRIPS SHOULD NOT BE INSTALLED ON ACCELERATION, DECELERATION LANES, DECELERATION OR BYPASS LANES, OR TWO-WAY LEFT TURN LANES. INSTALLATION SHOULD STOP 150' PRIOR TO THE DIVERGE POINT OF A DECELERATION LANE AND SHOULD NOT COMMENCE UNTIL 150' DOWNSTREAM OF THE MERGE POINT FOR AN ACCELERATION LANE.

DELAWARE DEPARTMENT OF TRANSPORTATION

RUMBLE STRIPS

STANDAD NO. P-5 (2018) SHT. 1 OF 2

APPROVED

SIGNATURE ON FILE 1/04/2019

RECOMMENDED

SIGNATURE ON FILE 1/07/2019
BIKE-FRIENDLY EDGELINE RUMBLE STRIPS

NOTES:
1. RUMBLE STRIPS SHALL BE PLACED OR SHOULDERS IN LOCATIONS DESCRIBED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
2. RUMBLE STRIPS ARE TO BE BROKEN OR ALL INTERSECTIONS AND DRIVEWAY ENTRANCES WHERE THE EDGELINE PAVEMENT MARKINGS TIE INTO DRIVEWAY ENTRANCE OR WHERE THE EDGELINE PAVEMENT MARKINGS ARE BROKEN. THE INSTALLATION OF RUMBLE STRIPS SHOULD BE STOPPED 25' PRIOR TO THE POINT OF CURVATURE (PC) AND RESTARTED 25' AFTER THE POINT OF TANGENCY (PT).
3. RUMBLE STRIPS SHOULD NOT BE INSTALLED ON ACCELERATION, DECELERATION LANES, DECELERATION OR BYPASS LANES, OR TWO-WAY LEFT TURN LANES. INSTALLATION SHOULD STOP 150' PRIOR TO THE DIVIDE POINT OR DECELERATION LANES AND SHOULD NOT COMMENCE UNTIL 150' DOWNSTREAM OF THE HIGHWAY POINT FOR AN ACCELERATION LANE.
4. BIKE-FRIENDLY RUMBLE STRIPS SHOULD BE DISCONTINUED 5' BEFORE AND STARTED 5' AFTER WHEN ADJACENT TO GUARDRAIL WHERE THERE IS LESS THAN 5' BETWEEN THE OUTSIDE EDGE OF THE RUMBLE STRIP AND THE FACE OF THE GUARDRAIL.
5. IN AREAS WHERE THE CENTER LINE LEADS INTO A RAISED CONCRETE ISLAND, THE CENTERLINE RUMBLE STRIPS SHOULD BE DISCONTINUED 25' IN ADVANCE OF THESE ISLANDS.
6. IN AREAS WHERE THE CENTER LINE SLOTS TO CREATE, FOR EXAMPLE A TURN LANE, THE RUMBLE STRIPS SHOULD BE PLACED ONLY ALONG THE DOUBLE YELLOW CENTER LINE IF IT IS NOT FORMING THE LEFT TURN LANE.
7. ON ROADS WITH RUMBLE STRIPS INSTALLED (RPA), CENTERLINE RUMBLE STRIPS SHOULD BEGIN 1' DOWNSTREAM OF THE RPM HOUSING AND TERMINATE 1' UPSTREAM OF THE RPM HOUSING.
8. DO NOT INSTALL CENTERLINE RUMBLE STRIPS UNLESS THE DISTANCE BETWEEN THE EDGE OF THE PAVEMENT TO THE EDGE OF THE CENTER STRIPE IS GREATER THAN 10'.

DELWARE DEPARTMENT OF TRANSPORTATION

STANDARD NO. P-5 (2018)

SHT. 2 OF 2

APPROVED

SIGNATURE ON FILE

1/04/2019

RECOMMENDED

SIGNATURE ON FILE

1/7/2019
NOTES:

1. FOR ROADWAYS WHERE THE COMBINED TRAVEL LANE WIDTH AND SHOULDER WIDTH IS 11' OR LESS, THE SAFETY EDGE SHALL OVERLAP THE COMPACTED FILL OR IN-SITU MATERIAL, COMPACTED FILL OR IN-SITU MATERIAL SHALL BE LEVEL WITH THE ROADWAY PRIOR TO FINAL BITUMINOUS CONCRETE PAVING LIFT.

DELWARE DEPARTMENT OF TRANSPORTATION

STANDEAD NO. P-6 (2018)
SHT. 1 OF 1

APPROVED 1/4/2019

RECOMMENDED 11/20/2018