

SECTION 02525

CEMENT CONCRETE CURB & SIDEWALK

PART 1 - GENERAL

1.01 DESCRIPTION

A. The work of this section includes, but is not limited to:

1. Subgrade preparation
2. Construction of cement concrete curb and sidewalk
3. Construction of handicap ramps
4. Construction of stamped (patterned) and colored concrete sidewalk

B. Applicable Standard Details:

DT 02525-1 Concrete Sidewalk Detail
DT 02525-2 Slant Concrete Curb Detail
DT 02525-3 Standard Concrete Curb Detail
DT 02525-4 Handicap Ramp Detail
DT 02525-5 Handicap Ramp Detail (Radius)
DT 02525-6 Roof Leader Under Sidewalk Detail
DT 02525-7 Stamped Sidewalk Detail

1.02 QUALITY ASSURANCE

A. Reference Standards:

1. Pennsylvania Department of Transportation (PennDOT), latest revision:

Publication 408, Specifications
Publication 203, Work Zone Traffic Control

2. American Society for Testing and Materials (ASTM):

A185 Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement
A615 Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
C94 Specification for Ready-Mixed Concrete
C143 Test Method for Slump of Hydraulic Cement Concrete
C231 Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
C309 Specification for Liquid Membrane-Forming Compounds for Curing Concrete
D994 Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)
E329 Specification for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction

~~*~~ B. Inspections:

1. Inspection by the Municipality will at a minimum be made of the subgrade, formwork, and any steel prior to placement of the concrete.

1.03 JOB CONDITIONS

A. Control of traffic:

1. Take measures to control traffic during all operations. Do not allow traffic on newly placed concrete until adequate strength has been attained.
2. Employ traffic control measures in accordance with Publication 203, Work Zone Traffic Control.

B. Coordination with utilities:

1. Coordinate all necessary adjustments of existing utilities to accommodate this work.
2. Provide access to the site for utility work.

PART 2 PRODUCTS

2.01 CONCRETE

- ~~*~~ A. Portland cement concrete shall be air-entrained and have a minimum 28 day compressive strength shall be 3,300 psi.

B. Cement Concrete criteria for curbs and sidewalks:

Slump:	1" minimum, 4" maximum
Air Content:	4.5% minimum, 7.5% maximum
Temperature:	60°F minimum, 100°F maximum

- C. For slip formed curb, same as above except with a maximum slump of 1-1/2".
- D. For replacement of curb and sidewalk at existing driveways, use air-entrained, PennDOT Class HES (High Early Strength).

2.02 FORMS

A. General requirements:

1. Forms shall be coated with a form release agent just prior to placement of concrete.

B. Straight curbing (or radius greater than 40 feet):

1. Approved metal forms.
2. Wood forms, not less than 2 inch nominal thickness, planed on finish side.

C. Radius curbing:

1. Approved metal forms.
2. Fabricated plywood or hardboard forms.

D. Curbing repairs (less than 10 feet):

1. Approved metal forms.
2. Adjust to match existing conditions (vertical 6" x 8" x 22" or rolled 24" x 10 $\frac{3}{4}$ ").

E. Machine-placed curbing:

1. Straight or radius curbing may be placed with a self-propelled machine approved by the Municipality.

2.03 REINFORCEMENT

****Glass Fiber Reinforced Concrete (GFRC) can be used instead of wire fabric****

- A. Welded Wire Fabric - ASTM A185. Size and spacing as shown on Standard Details.
- B. Reinforcing Bars - ASTM A615, Grade 60 billet steel. Size and spacing as shown on Standard Details.

2.04 JOINT MATERIAL

- A. Joint Filler - Premolded expansion joint material shall be fiber joint filler conforming to ASTM D994.

2.05 FORM COATING MATERIALS

- A. Form release agents shall be non-staining, liquid chemical coatings free of kerosene, oil and wax which effectively prevent absorption of moisture into the forms and bonding of the concrete to the forms.

2.06 CONCRETE CURING COMPOUNDS

- A. Curing compounds shall be clear, non-staining liquid coatings containing no oil or wax and conforming to ASTM C309, such as Safe-Cure, Sealtight 1100, Klear Seal R-75 or Enviocure Clear 500, or similar material.

2.07 STAMPED COLORED CONCRETE

- A. Concrete, reinforcement, joint material and forms - see above paragraphs
- B. Template Pattern - "old brick runningboard" by Matcrete (1-800-777-7063), or equal.
- C. Pigment - Brick Red #10160 by David Colors, Beltsville, MD, or equal
- D. Clear Sealer - Sonneborn #800 as manufactured by Sonneborn, or equal
- E. Template release agent - dry blend powder

PART 3 EXECUTION

3.01 CURB CONSTRUCTION

- A. Excavate to required depth, remove and dispose of material, including existing curbs, and compact the subgrade material to a firm, even surface.
- B. Saw cut existing pavement a minimum of 12" from face of new curb. Exposed edges of existing work shall be smooth and square.
- C. Forms shall be placed as appropriate to the type of curbing on 2 sides (front and back). Forms shall be securely braced to limit deflection during placement of concrete.
- D. Provide openings through curb for drainage pipes. Install one, 2'-0" long, #4 reinforcing bar in the middle of curb centered above the pipe as per Standard Detail.
- E. Form or saw contraction joints 3/16" wide and 2" deep at 10-foot maximum intervals on 2 sides (front and top). Saw as soon as possible after the concrete has set sufficiently to preclude raveling during the sawing and before any shrinkage cracking occurs in the concrete, but in no case later than 24 hours following completion of the curb placement.
- F. Provide 1/2" expansion joints at 60-foot intervals, at the end of each pour, and at the beginning and end of all radii. 1/2" expansion joint material shall also separate curb from adjacent sidewalks, poles, hydrants, walls and other permanent structures, except that 3/4" thick expansion joint material shall be provided at storm inlets.
- G. The last three feet of curb shall be tapered to a 1-1/2" reveal with expansion joint at the beginning of taper.
- H. Finish top surface with wood floats. Provide depressions for drainage, driveways, and ramps for the handicapped as directed by the Municipality. Tool all exposed edges to the specified radius.
- I. Do not remove forms until concrete has set. Begin proper curing immediately after placement.
- J. For slip formed curb, uniformly feed the concrete to the machine so the concrete maintains the shape of the section, without slumping after extrusion. Voids or honeycomb on the surface of the finished curb will not be allowed. Immediately after extrusion, perform any additional surface finishing required.

3.02 SIDEWALK CONSTRUCTION ****Sidewalks shall be a minimum of 4' in width****

- A. Excavate to required depth and width, remove and dispose of material, including any existing sidewalks, and compact the subgrade material to a firm, even surface.
- B. Exposed edges of existing work shall be smooth and square.
- C. Construct ramps for handicapped persons at all street crossings (as required by ADA regulations) as directed by the Municipality. Handicap ramps shall be 6" thick concrete.
- D. Sidewalks across sanitary sewer or storm sewer easements shall be 8" thick.

- E. Spread AASHTO No. 57 aggregate and compact to the thickness shown on the Standard Details.
- F. Score contraction joints at 5-foot intervals to sufficient depth to insure cracking at the joint. Do not saw cut the contraction joints without prior approval from the Municipality. Also score sidewalks over each drainage pipe placed underneath.
- G. Provide 1/4" expansion joint at 30-foot intervals and at the end of each pour. Place 1/2" expansion joint material at adjacent curb, poles, hydrants, walls, and other permanent structures.
- H. Apply light broom finish immediately after float finish.
- I. Provide depressions for driveways, downspouts, and drainage as directed by the Municipality or shown on the drawings. Wherever possible roof leaders shall be placed under the sidewalks in lieu of depressions.
- J. Begin proper curing immediately following placement.
- K. Monolithic sidewalk and curb will not be allowed at a radius handicap ramp.

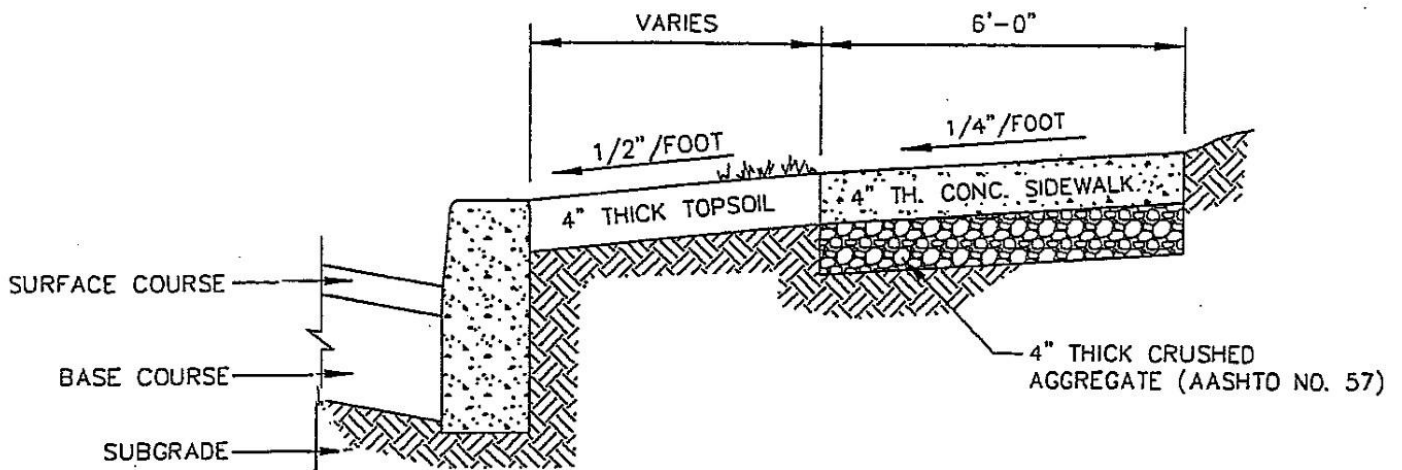
3.03 STAMPED AND COLORED CONCRETE SIDEWALKS

- A. Excavate, place stone base and place expansion joints and reinforcing similarly to plain concrete sidewalks.
- B. Pigment must be thoroughly mixed throughout concrete using ratios consistent with manufacturer's recommendations. Apply float finish and edge.
- C. Sprinkle release agent onto fresh concrete prior to stamping with template.
- D. Remove release agent by power washing approximately 24 hours after stamping is complete, or as recommended by the manufacturer.
- E. Apply clear sealer to all concrete surfaces.
- F. Release agent, pigment and sealer must be from same manufacturer or proven to be compatible with each other.

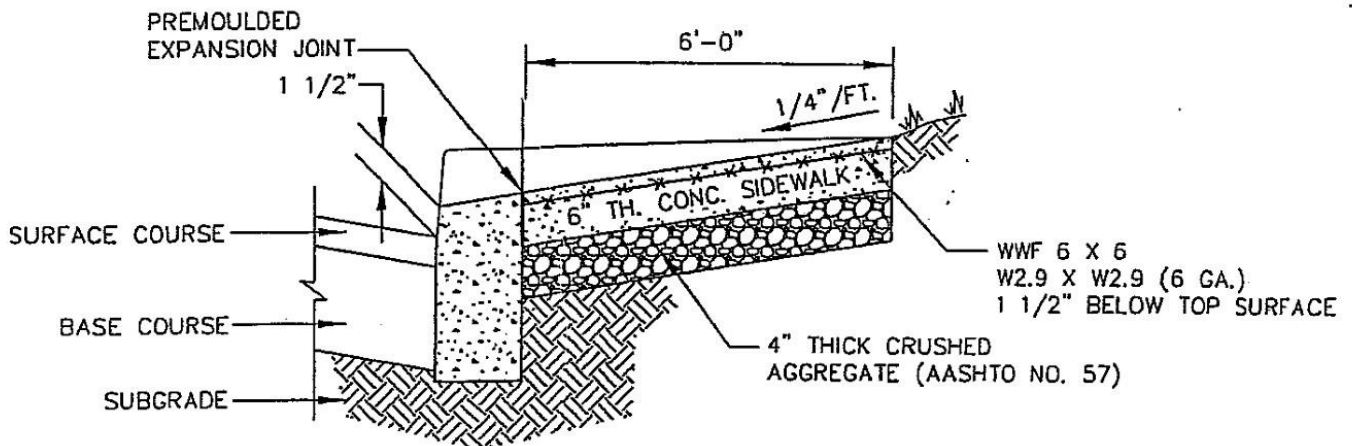
3.04 BACKFILLING AND RESTORATION

- A. Temporary backfill at curbs shall consist of select granular material front and back, to within 8" of top of curb.
- B. Restore adjacent areas in kind.

END OF SECTION



TYPICAL SECTION THROUGH
CONCRETE CURB & SIDEWALK



TYPICAL SECTION THROUGH
CONCRETE CURB & SIDEWALK
AT DRIVEWAY DEPRESSION

NOTE: NOT TO SCALE

DALLASTOWN BOROUGH CONSTRUCTION & MATERIALS SPECIFICATIONS



Excellence in Civil Engineering

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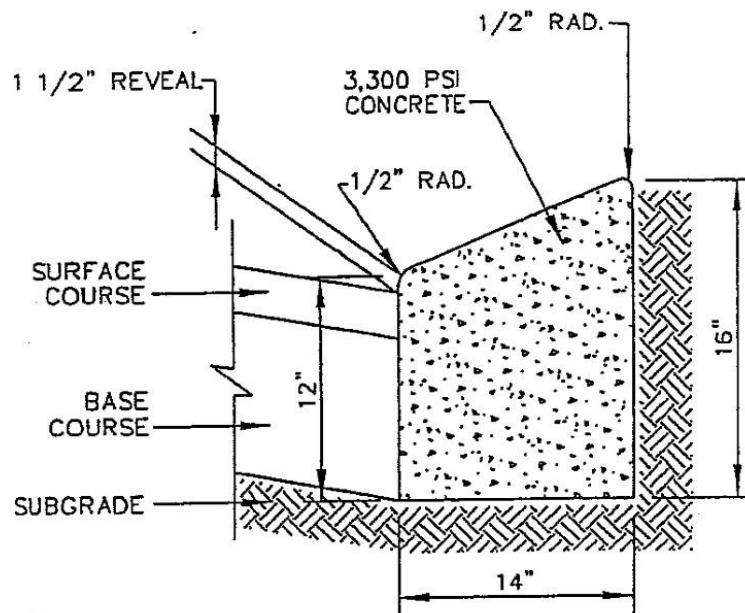
CONCRETE SIDEWALK DETAIL

DATE: 7/18/03

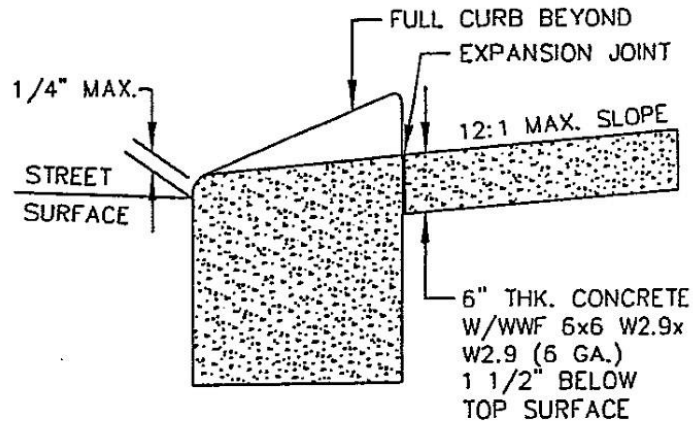
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CHK. BY: *SVL*

NO. DT 02525-1



TYPICAL CROSS SECTION



CROSS SECTION AT HANDICAP RAMPS

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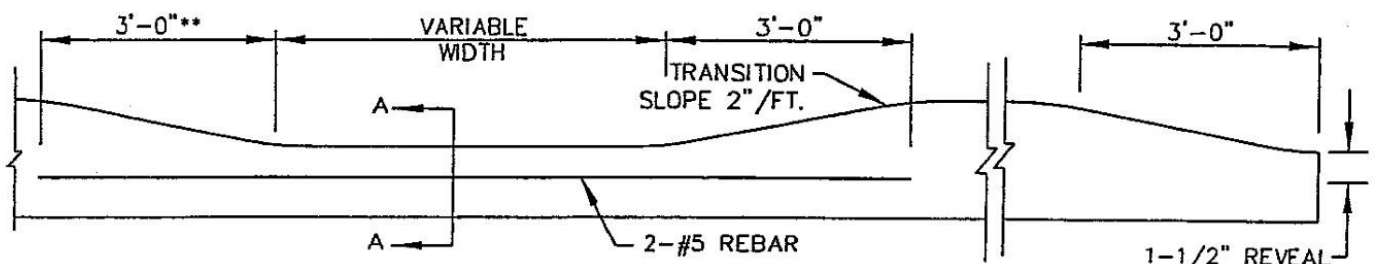
SLANT
CONCRETE CURB
DETAILS

DATE: 3/31/03
DRAWN BY: APS
CHK. BY: SLS
NO. DT 02525-2

TYPICAL CROSS SECTION
(RC-64 STD.)

CONTRACTION JOINT

SECTION A-A



DEPRESSED CURBS FOR DRIVES

TERMINAL SECTION

NOTES:

- * 6" REVEAL MAY BE CONSTRUCTED IF APPROVED BY BOROUGH.
 ** 2'-0" FOR CURB WITH 6" REVEAL.

NOTE: NOT TO SCALE

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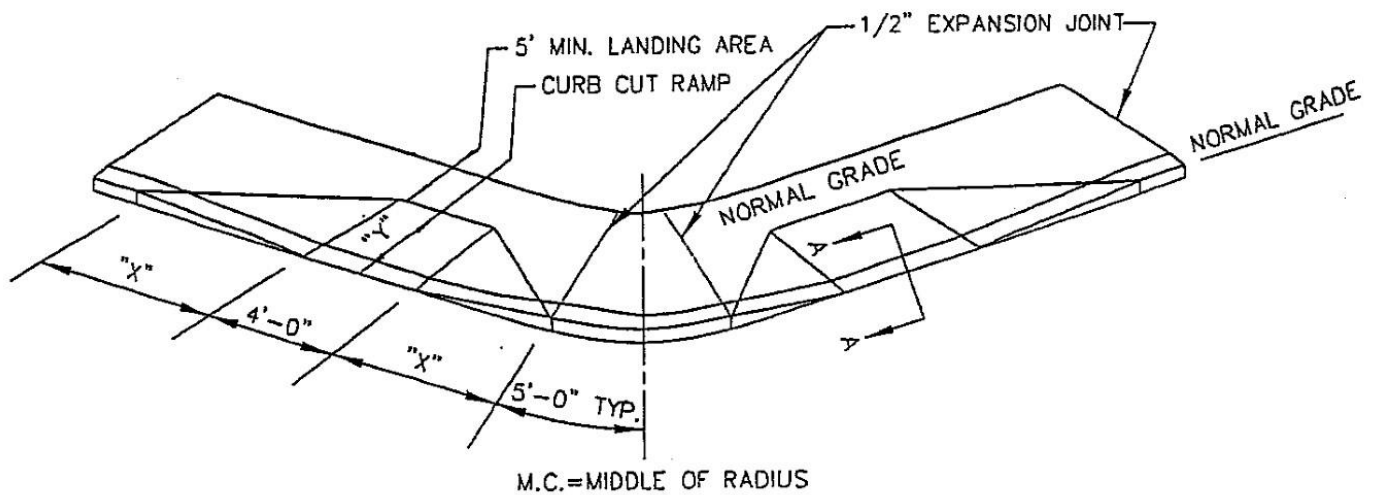
STANDARD CONCRETE CURB DETAIL

DATE: 3/31/03

DRAWN BY: APS

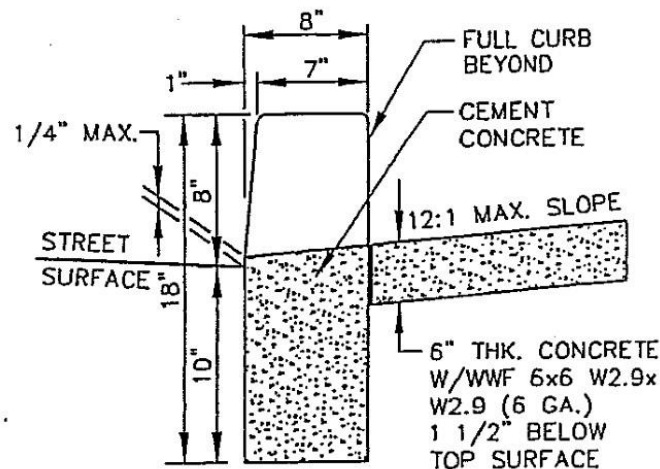
CHK. BY: SKS

NO. DT 02525-3



"X" - LENGTH NEEDED TO MAINTAIN A MAXIMUM 12:1 SLOPE
ALONG THE FACE OF THE CURB.

"Y" - LENGTH NEEDED TO MAINTAIN A MAXIMUM 12:1 SLOPE
FROM THE CURB LINE TO THE TOP OF THE RAMP.



VERTICAL CONCRETE CURB
SECTION A-A

NOTE: SEE DETAIL DT 02525-2 FOR
SLANT CONCRETE CURB DETAILS

NOTE: NOT TO SCALE

DALLASTOWN BOROUGH CONSTRUCTION & MATERIALS SPECIFICATIONS

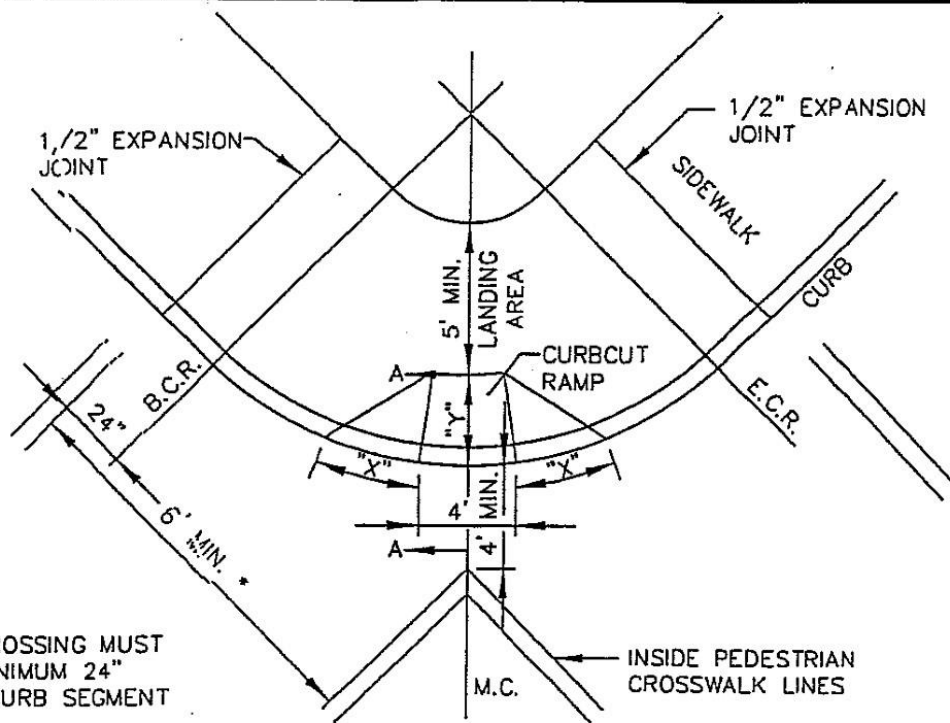


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HANDICAP RAMP DETAIL

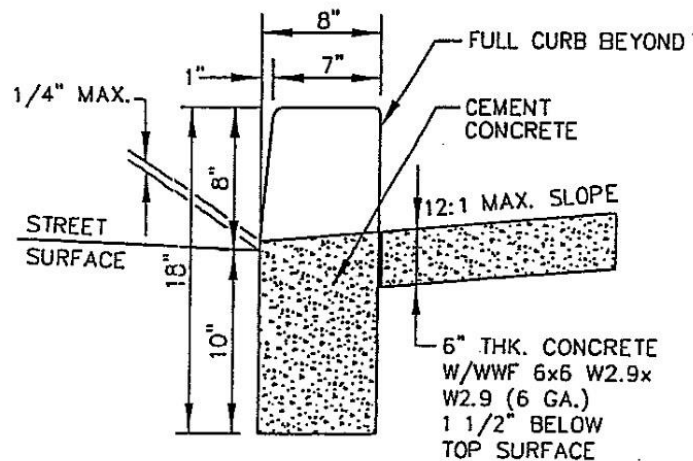
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CHK. BY:	SPS
NO.	DT 02525-4



* MARKED CROSSING MUST INCLUDE MINIMUM 24" STRAIGHT CURB SEGMENT

"X" - LENGTH NEEDED TO MAINTAIN A MAXIMUM 12:1 SLOPE ALONG THE FACE OF THE CURB.

"Y" - LENGTH NEEDED TO MAINTAIN A MAXIMUM 12:1 SLOPE FROM THE CURB LINE TO THE TOP OF THE RAMP.



VERTICAL CONCRETE CURB
SECTION A-A

NOTE: SEE DETAIL DT 02525-2 FOR SLANT CONCRETE CURB DETAILS

NOTE: NOT TO SCALE

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HANDICAP RAMP DETAIL (RADIUS)

DATE:	3/31/03
DRAWN BY:	APS
CHK. BY:	Sigs
NO.	DT 02525-5

#4 BAR 24"
LONG CENTER
OVER PIPE

SCORE ALONG
PIPE @ (3/16" x 1/2" DEEP)

MIN. 2" CONCRETE
COVER

4" THK. CONCRETE
SIDEWALK

1" - 1 1/2"
REVEAL

4" Ø PVC ROOF
LEADER--MAINTAIN
POSITIVE DRAINAGE
FROM HOUSE TO
STREET

NOTE: USE ROOF LEADER WITH STANDARD
VERTICAL CURBS ONLY

NOTE: NOT TO SCALE

DALLASTOWN BOROUGH CONSTRUCTION & MATERIALS SPECIFICATIONS

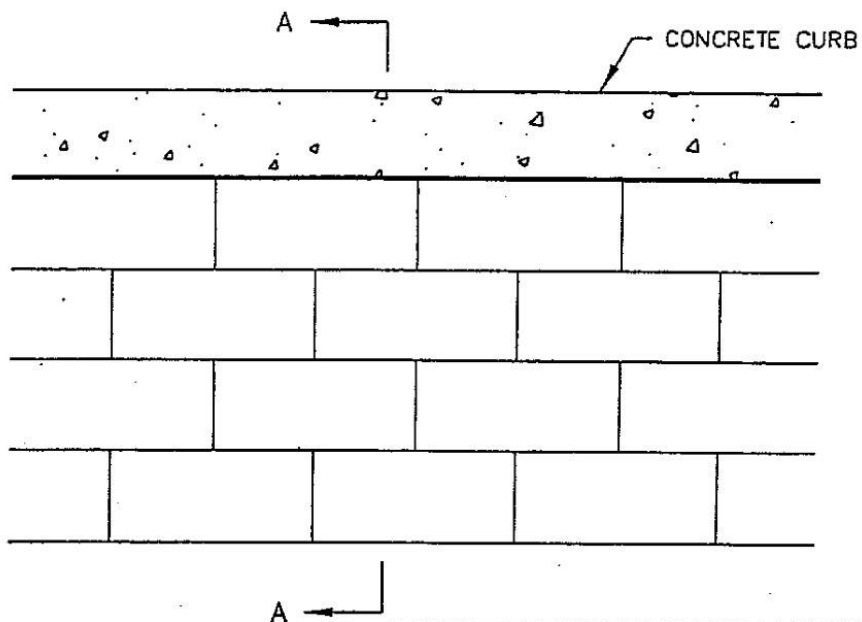


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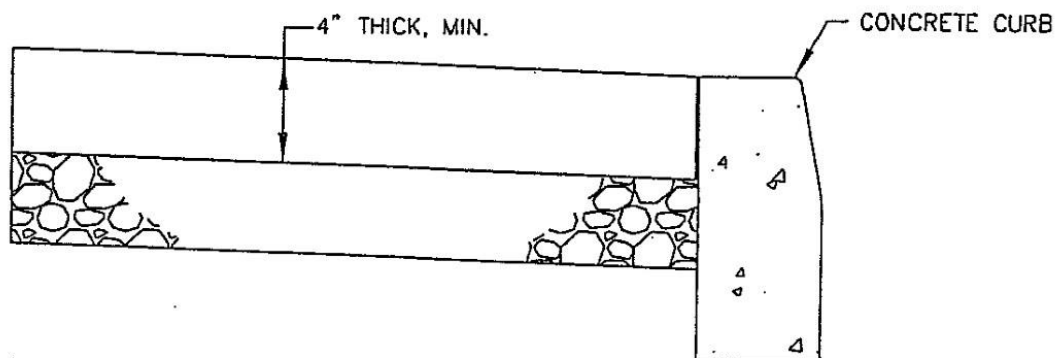
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ROOF LEADER UNDER SIDEWALK DETAIL

DATE:	3/31/03
DRAWN BY:	APS
CHK. BY:	SKS
NO.	DT 02525-6



"OLD BRICK RUNNINGBOND" PATTERN



SECTION A-A

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STAMPED SIDEWALK
DETAIL

DATE: 3/31/03

DRAWN BY: APS

CHK. BY: *SKS*

NO. DT 02525-7