

2009 Year in Review

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102 Final Inspections during 2009

	2008	2007
58 Const. Projects	71	79
38 New Subdivisions	15	65
6 Commercial Entrances	16	

2009 PROJECTS

A photograph of a newly paved road with yellow and white lane markings, curving into the distance under a clear blue sky. The road is flanked by trees and utility poles.

“Quality Counts”

















CLEARANCE
12 FEET

BLOW HORN



September 2003



POST
CONSTRUCTION
REVIEWS
for
2009

POST CONSTRUCTION REVIEWS IN 2009

- 22-124-06 US13 / DE404 INTERSECTION
REALIGNMENT & BRIDGEVILLE SERVICE ROAD
- 25-090-01 I-95 FIFTH LANE PROJECT
- 22-074-14 WOODDALE COVERED BRIDGE
- 28-062-04 PAVEMENT & REHABILITATION SOUTH
I – IV, 2008

POST CONSTRUCTION REVIEWS

2009

- NORTH PUBLIC WORKS SECTION
- CENTRAL PUBLIC WORKS SECTION
- SOUTH PUBLIC WORKS SECTION
- BRENFORD STATION SUBDIVISION

US13 / DE404 INTERSECTION REALIGNMENT, BRIDGEVILLE







PROBLEMS:

COLOR QUALITY

CRACKING

INCONSISTENT JOINTS

**POOR ALIGNMENT OF
CONCRETE POURS**





MAINTENANCE ???

STRIPING PROBLEMS





DRAINAGE ISSUES



I-95 FIFTH LANE WIDENING PROJECT



WETLANDS

- MINIMAL DISTURBANCE OF WETLANDS
 - USE OF VERTICAL SHEET PILING SAVED OVER 7 ACRES OF WETLAND FROM IMPACT!
 - LESS THAN 1/4 ACRE DISTURBED





COST SAVINGS

- 35% RAP IN THE BASE COURSE HOT MIX VS. THE CURRENT 20% LIMIT
 - SAVED ON AC COSTS
- USING MILLINGS FOR SUBBASE MATERIAL
 - SAVE EXPORT AND IMPORT COSTS
 - FEWER TRUCKS ON THE ROADS
 - FEWER EMISSIONS
 - LESS IMPACT TO PAVEMENT SURFACES

ROAMING TRAFFIC OFFICERS

- IN PLACE EARLY
- WORKED WELL
- 4,866 TICKETS ISSUED
 - 1,814 FOR SPEEDING





**Contract 28-062-04
Pave & Rehab South I**

Full-Depth Reclamation

FULL-DEPTH RECLAMATION

- **MORE COST EFFECTIVE - IF >15% PATCHING REQUIRED**
- **6" – 8" OF EXISTING HOT MIX PREFERRED**
- **MINIMUM OF 2" OF EXISTING HOT MIX SHOULD REMAIN**





**PLACE
TOPSOIL AT
6:1 TO ALLOW
FOR POSITIVE
DRAINAGE**



**GUARDRAIL
ADJUSTMENT NEEDED**

NORTH PUBLIC WORKS



12" PIPE INSTALLED

15" MINIMUM REQUIRED

CHAPTER 6 - ROAD DESIGN MANUAL

Figure 6-3
Design Criteria – Miscellaneous

Ditches	
Ditch flow line below edge of shoulder	≥2.5 ft preferred
Ditch water surface elevation below edge of shoulder	0.5 ft minimum; 1 foot preferred
Minimum ditch grade	0.003 ft/ft (preferred 0.005)
Pipes	
Minimum size - cross road pipe / culvert	18 in
Minimum size - storm drain	15 in
Minimum full flow velocity	3.0 ft/s
Maximum outlet velocity (determined by design parameters)	Based on scour, erosion, risk potential of discharge channel, and mitigating measures such as energy dissipators
Maximum continuous distance between storm drain structures (without clean-out access)	300 ft
Reinforced Concrete Pipe Bedding	Class C, unless specified otherwise

STRIPING CONCERNS

DOUBLE LEFT ARROWS, STACKING LINE



STRIPING CONCERNS

- PIANO KEYS WERE EPOXY, NOT THERMO
- TAPE ON PCC PAVEMENT
- DRC (DESIGN RESOURCE CENTER)
 - STRIPING ITEMS GUIDELINE

**NO ACCESS TO
THE SIDEWALK**





**DEPRESS
CORNERS**

**FLEXIBLE RUBBER
DELINEATORS MISSING**

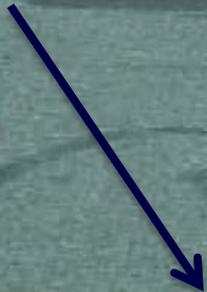




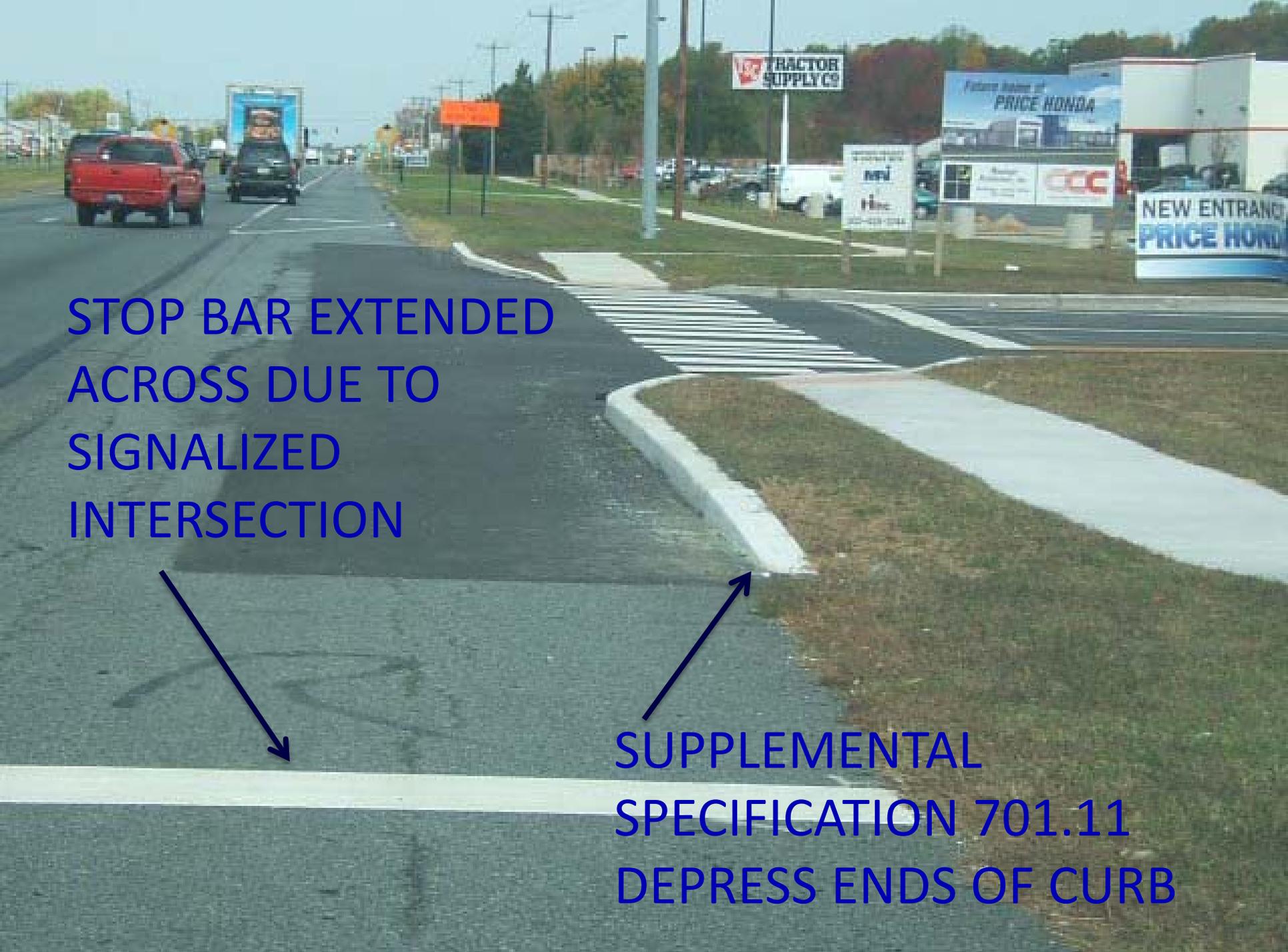
CENTRAL PUBLIC WORKS



STOP BAR EXTENDED
ACROSS DUE TO
SIGNALIZED
INTERSECTION



SUPPLEMENTAL
SPECIFICATION 701.11
DEPRESS ENDS OF CURB



BETTER PLAN REVIEW



- **IMPROPER STACKING LINE**
- **EDGE LINE MISSING**







94 1/4" MINIMUM

STANDARD CONST DETAIL D-5, Sht 3 of 9



FIRE HYDRANT CONNECTION HEIGHT



↑
18"
↓



4' MIN

DE MUTCD 3B-49



4'

**POLICY IMPLEMENT 0-02
5' WIDTH REQUIRED**



SOUTH PUBLIC WORKS PROJECTS



UTILITY POLE WITHIN CLEAR ZONE

UTILITY POLE WITHIN CLEAR ZONE

- REFERENCE:
 - AASHTO ROADSIDE DESIGN GUIDE, CHAPTER 3
- RECOMMENDATION:
 - TELEPHONE POLES SHOULD BE LOCATED OUTSIDE OF CLEAR ZONE
 - CHEVRONS WERE PLACED

GEORGE SPADAFINO WORKED WITH DELDOT UTILITY SECTION AND THE UTILITY PROVIDER TO HAVE THIS POLE RELOCATED!






BIKE LANE

ENDS

SHARE
THE
ROAD

ROAD DESIGN MANUAL SECTION 4



Front Slope **4:1 or 25%**

Desired **6:1 or 17%**



HANDRAILS



CURB OPENING INLET



CURB OPENING

BRENFORD STATION SUBDIVISION







A photograph showing a large, shallow pool of water in a grassy field. In the background, there are several houses and a white fence. The water is murky and reflects the sky. The text "GREEN TECHNOLOGY" is overlaid in yellow, bold, serif font.

**“GREEN
TECHNOLOGY”**

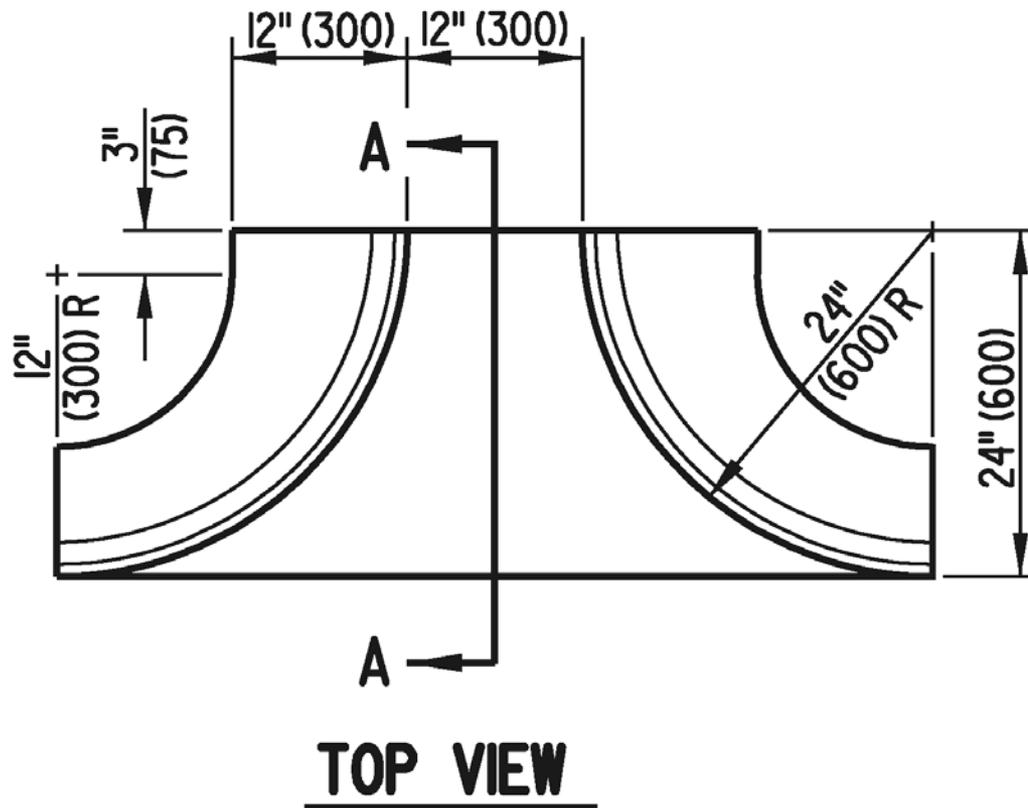






**“GREEN
TECHNOLOGY”**

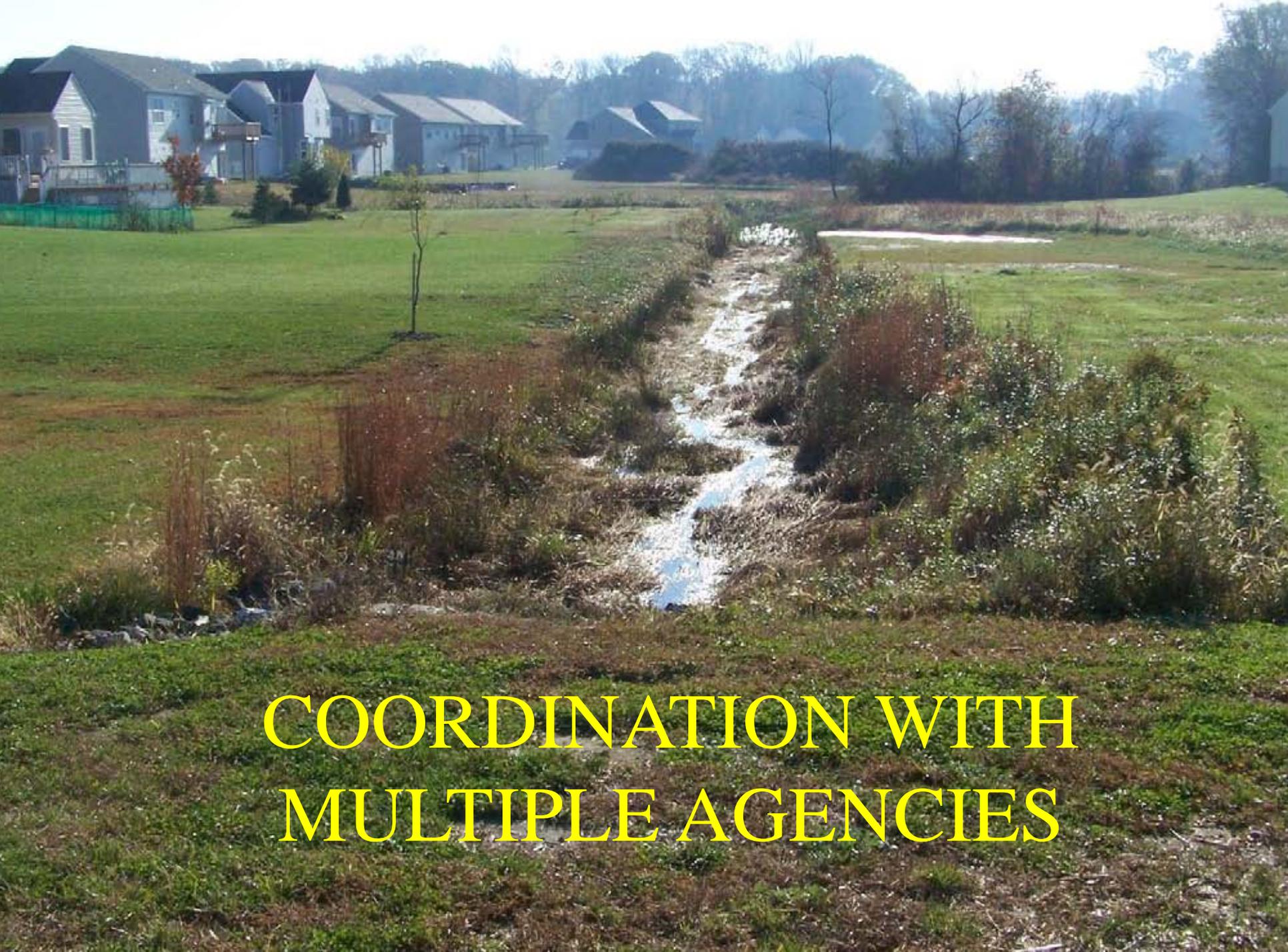
Curb Openings



Standard Const Detail C-4





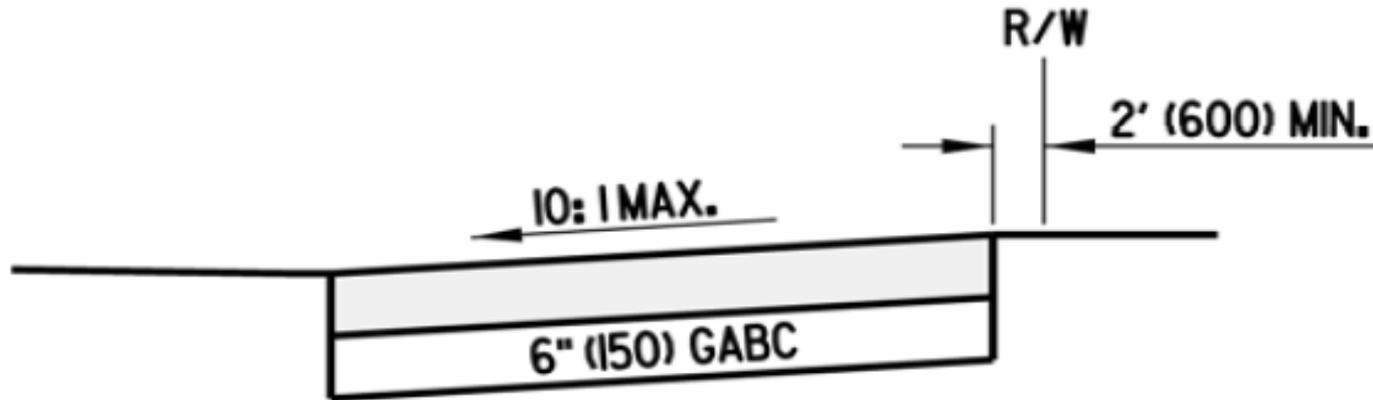


COORDINATION WITH MULTIPLE AGENCIES



**DRIVEWAY SLOPES IN
EXCESS OF 10%**

DRIVEWAY SLOPE

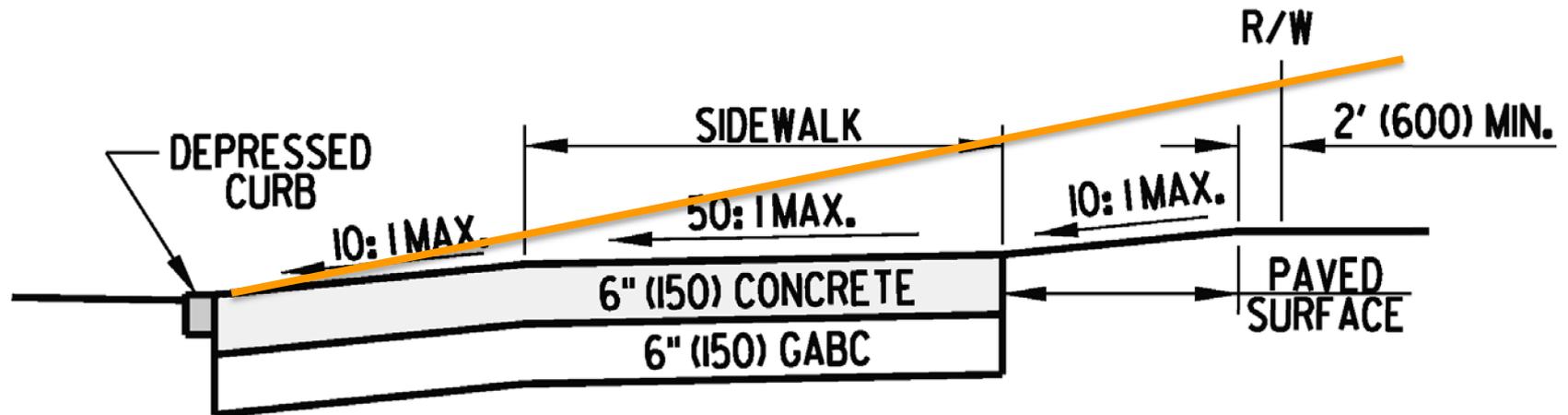


SECTION B-B

ENTRANCE WITHOUT SIDEWALK

Standard Const Detail C-3

Driveway Aprons



SECTION A-A

ENTRANCE WITH SIDEWALK

NOTE

Standard Const Detail C-3

SUPERELEVATED ROADWAY CROSS SLOPES

[http://deldot.gov/information/pubs_forms/
manuals/road_design/index.shtml](http://deldot.gov/information/pubs_forms/manuals/road_design/index.shtml)

See Chapter 5

Design Guidance Memorandums DGM's

http://www.deldot.gov/information/pubs_forms/manuals/dgm/index.shtml

Design Guidance Memorandums

- http://www.deldot.gov/information/pubs_forms/manuals/dgm/index.shtml

Design Guidance Memorandums

- 1-1 Brick and Concrete Sidewalk
- 1-2 Class C Pipe Bedding
- 1-3 Use of Guard Rail End Sections
- 1-4 Design Exception
- 1-5 Bid Analysis and Recommendation to Award Procedures
- 1-6 Concrete Pavement Rubblization
- 1-7 Contract Certification Requirements
- 1-8 Grass Shoulder

Design Guidance Memorandums

- 1-9 Defining Pavement Coring and Subsurface Investigation
- 1-10 Pavement Design Requirements
- 1-11 Subsurface Investigation for Consultant Designed Projects
- 1-12 Escrow Bid Documents
- 1-13 Construction Cost Estimate Procedure
- 1-14 Bus Shelter Setback Requirements
- 1-15 Personnel Grate for Pipe Inlet

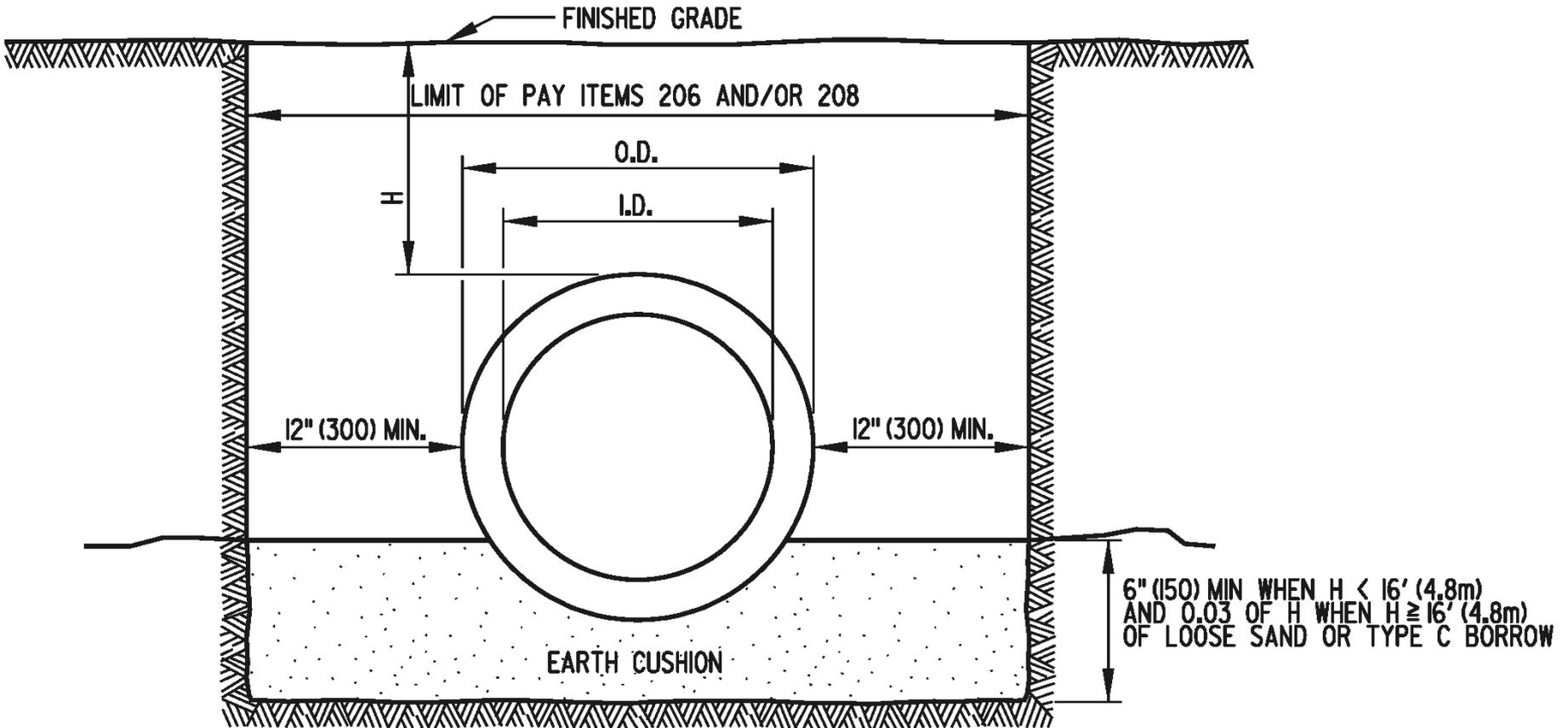
Design Guidance Memorandums

- 1-16 Curb Ramps
- 1-18 Continuous Longitudinal Rumble Strips
- 1-19 Machine Control
- 1-20R Pipe Materials
- 1-21 Use of Temporary Traffic Barrier in Work Zones
- 1-22 Triangular Channelizing Islands
- 1-23 Tax Ditches

Design Guidance Memorandums

- 2-1 Strip Seal Joint on Bridges
- 2-2 Cantilever Signs
- 2-3 Roadside Treatment Under Structure
- 2-4 Bridge Approach Slabs
- 2-5 Bridge Scuppers
- 2-6 Consultant Project Working Drawing Stamp and Process

DGM 1-2 Class C Pipe Bedding



CLASS C BEDDING

NOTE: USE CLASS C BEDDING UNLESS OTHERWISE INDICATED

Standard Const Detail D-8

DGM 1-16 Curb Ramps

Curb ramp construction is required during the following operations:

- Roadway construction
- Resurfacing projects
- Sidewalk construction



DGM 1-16 Curb Ramps

Detectable Warnings shall be installed at crosswalks (marked & unmarked)

- Signalized entrances;
- High volume entrances with ADT greater than about 400;
- Entrances with an operating speed of 25 m.p.h. or greater through the pedestrian area;
- *Locations deemed hazardous*
- Railroad crossings.







Bus Stops

Required Elements:

- Level Boarding/Alighting Pad – 5' wide x 8'
- Accessible Route from the bus stop to the street or sidewalk system – NO DESERTED ISLANDS
- If there is a bus shelter, an accessible route from the Boarding/Alighting Pad to the shelter and the sidewalk





Bus Stops

Correctly constructed, accessible bus stops save the state money if Paratransit users can be transitioned to the fixed bus routes.

Costs to the state:

- Paratransit Trip – \$ 40.00
- Fixed Route Bus Trip – \$ 4.00





24709





2 % Max



2 % max



DGM 1-22 Triangular Channelizing Islands

When in the area of the shoulder require:

- Positive drainage
- 5' bike lane
- Corners flush with the pavement
- Flexible delineators





- Positive drainage
- 5' bike lane
- Corners flush with the pavement
- Flexible delineators





DGM 1-20R Pipe Materials

The decision on what type of pipe to be used shall be based on:

- Economics
- Available cover
- Other factors that may affect pipe performance, such as:
 - soil pH
 - type of water exposure
 - susceptibility to abrasion or fire



DGM 1-20R Pipe Materials

Any type of pipe needs to be installed correctly.

- Use undamaged pipe
- Tight Joints
- Proper Bedding Material
- Proper Cover
- Compaction, Compaction, Compaction

DGM 1-20R Pipe Materials

- Look at the DGM for the types of pipes and the different service levels.
- There will be future revisions of this DGM.

Old Lancaster Pike – HDPE Pipe



Old Lancaster Pike – HDPE Pipe



Old Lancaster Pike – HDPE Pipe



DGM 1-23 Tax Ditches

- Tax Ditches - are private property owned jointly by the adjacent property owners who have formed an organization to construct and maintain the drainage system.
- Officers of these organizations are elected by the owners. (See Title 7, Chapter 41 of the Delaware Code.)
- **ATTENTION:** without an easement or other sort of agreement, performing work on a tax ditch is trespassing.

DGM 1-23 Tax Ditches

- Private property – In order for DelDOT to access a ditch on private property, there must be made an agreement with the property owner.
- – PE (permanent easement)
- TCE (temporary construction easement)
- Trespass agreement

DGM 1-23 Tax Ditches

- All agreements must be submitted to Team Support Section.
- Team Support and Real Estate sections can assist with process.
- Private property
 - Work must be contained within the limits of the easement.

PROJECT ACCEPTANCE

- Every project must follow the formal acceptance process in accordance with Section 105 of the Standard Specifications.
- Every project with plans must turn in As-Built Drawings. Forward them to Heather Jester of Quality Section for archiving.

*Thank
You*

