

Shallow Crosspipes

Dirt Gravel and Low
Volume Road Program

WEBINAR

3/23/23, 9am

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CDGRS

Dave Creamer

dmc159@psu.edu

Steve Bloser

smb201@psu.edu



Why Shallow Crosspipes?

- **Probably one of the most common recommendations on QAQCs:**
 - More and better crosspipes (angle, hw/ew)
 - Pipes are too deep
 - Utilize shallow crosspipes
 - Use grade breaks if possible



Pipe inlet too deep!



Pipe inlet too deep!

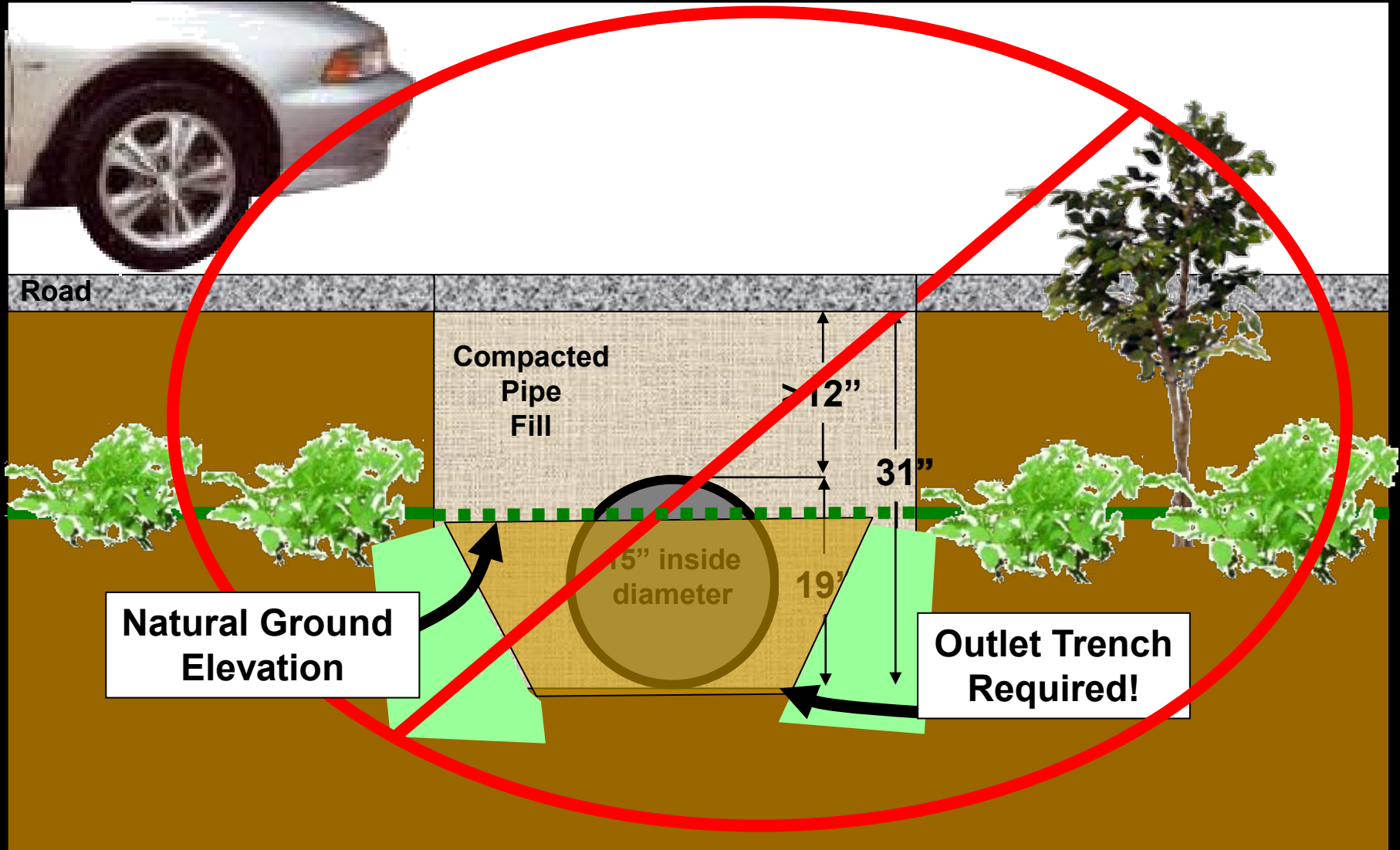


Shallow Pipe Installation: Installing a crosspipe to outlet at natural ground elevation. This typically involves a shallower trench and additional fill when compared to a traditional installation.

Let's compare...



Traditional "Deep" Installation



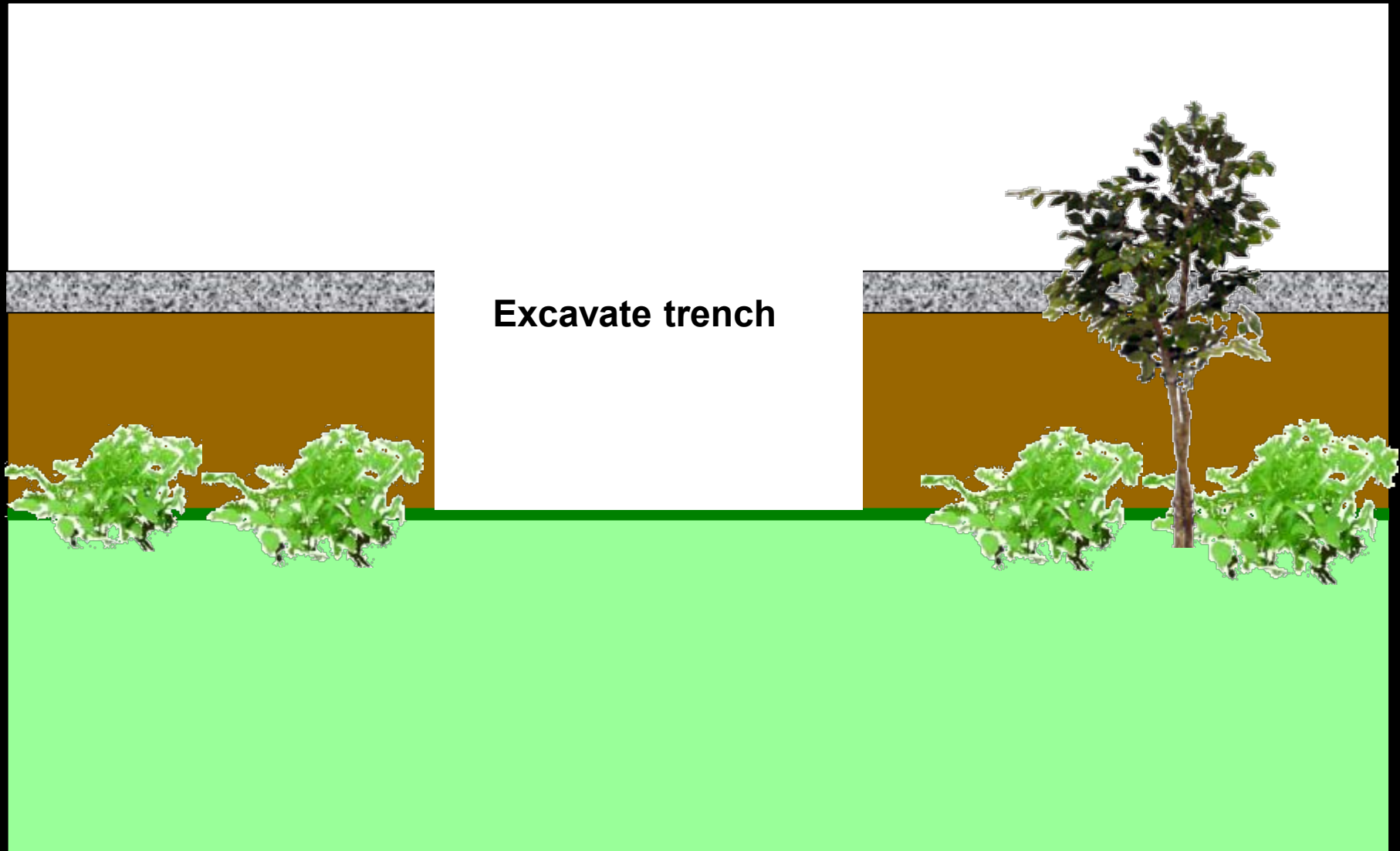
Traditional “Deep” Installation



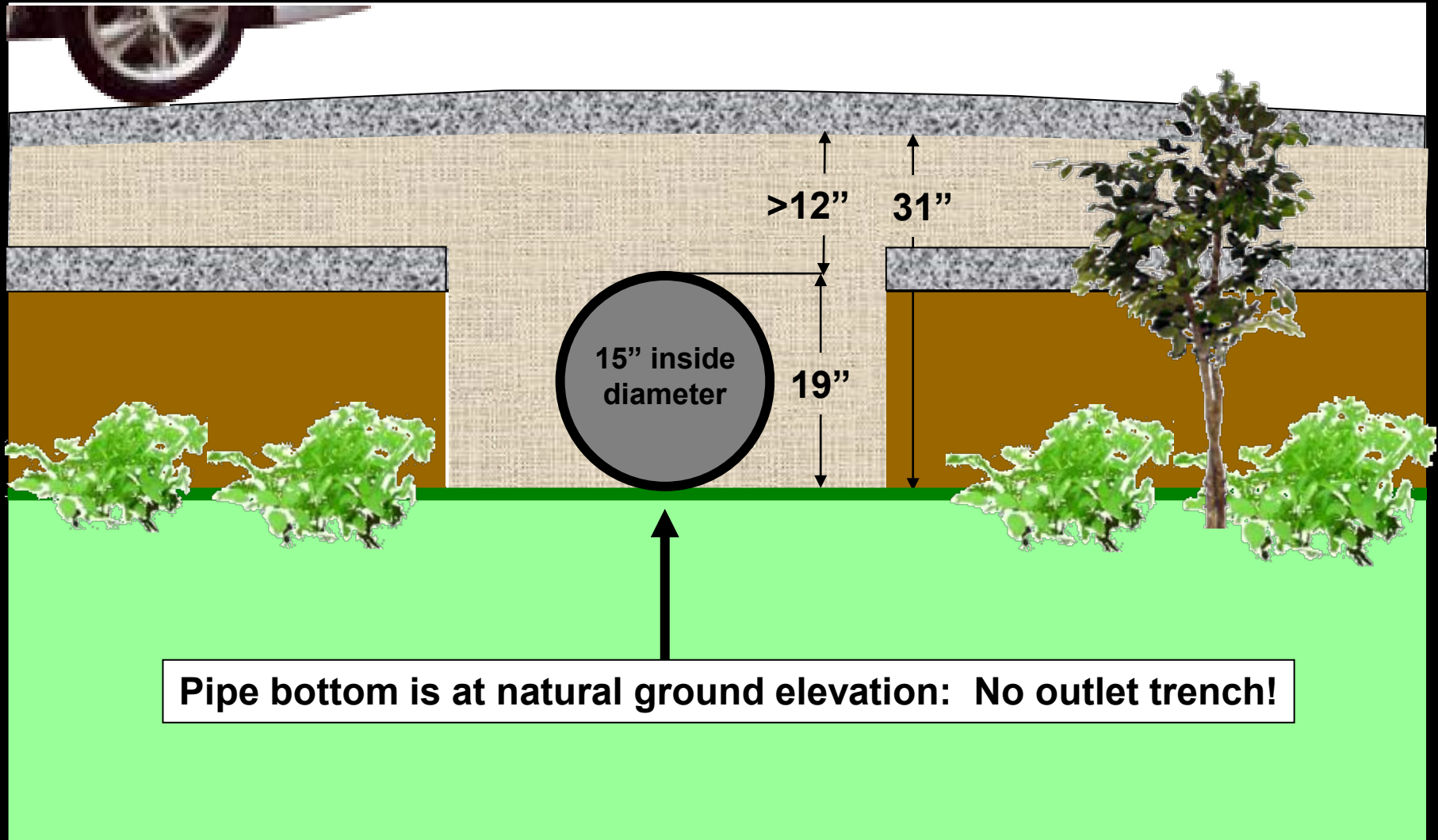
Natural Ground
Elevation

Outlet Trench
Required!

Shallow Pipe Installation

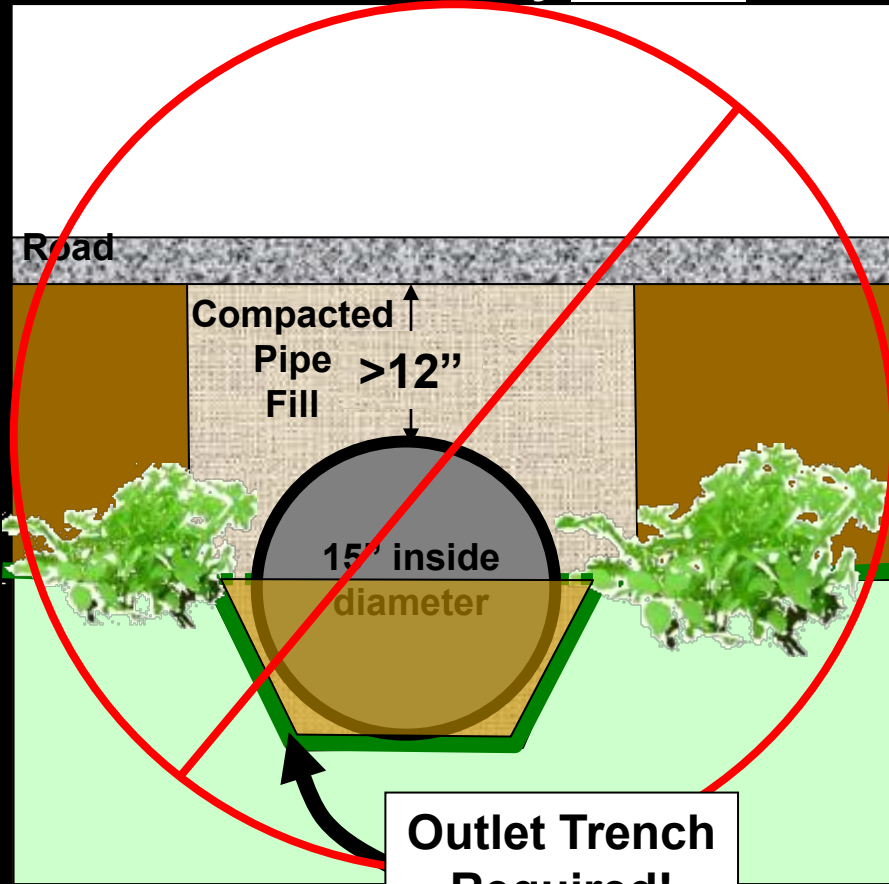


Shallow Pipe Installation



Traditional

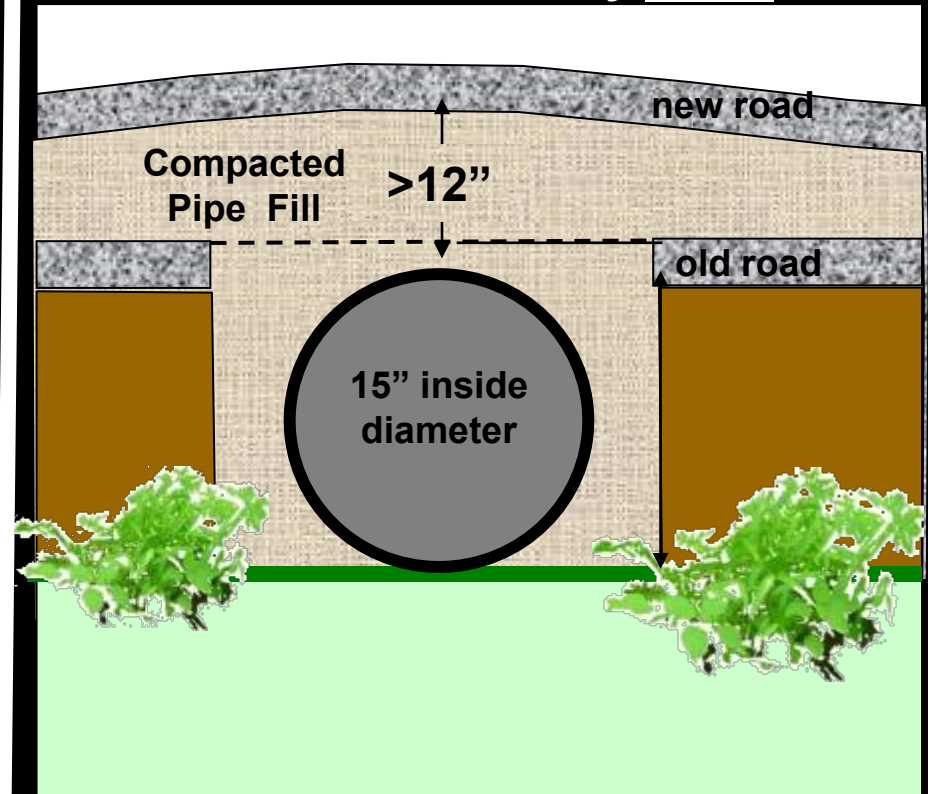
Cover obtained by digging



Outlet Trench Required!

Shallow

Cover obtained by filling



Pipe bottom is at natural ground elevation: No outlet trench!

Why Shallow Pipes?

Outlet water to natural ground instead of into a hole!

- Reduce maintenance
- Encourage infiltration and recharge
- Reduce problems associated with deep pipes



The Bottom Line:

Don't use road surface elevation to determine pipe elevation!
Use ground elevation at outlet to determine pipe elevation!



Why Shallow Crosspipes?

This program is all about outlets!



Shallow Crosspipes

- Some History
- Getting more of them
- What do you need in your applications
- Tips for a good Installation.



**Slide from the 2002
Workshop Orientation**



ENVIRONMENTALLY SENSITIVE MAINTENANCE PRACTICES

SHALLOW Crosspipe Installation



MAY 24 2005



Shallow Crosspipes

- Some History
- Getting more of them
- What do you need in your applications
- Tips for a good Installation.



Shallow Crosspipes

Give new outlets a lot of points in your ranking.

(Like A lot!)

Talk to landowners yourself.

(It will be insightful and rewarding.)

Project from 2015



AFTER



**DGR Project in Mercer County:
\$100K Spent, \$6K in kind**

TRADITIONAL ROAD MAINTENANCE PRACTICES

Pipes too Deep



Pipe outlet
too deep!



Shallow Crosspipes

- Some History
- Getting more of them
- What do you need in your applications
- Tips for a good Installation.



Shallow Crosspipes

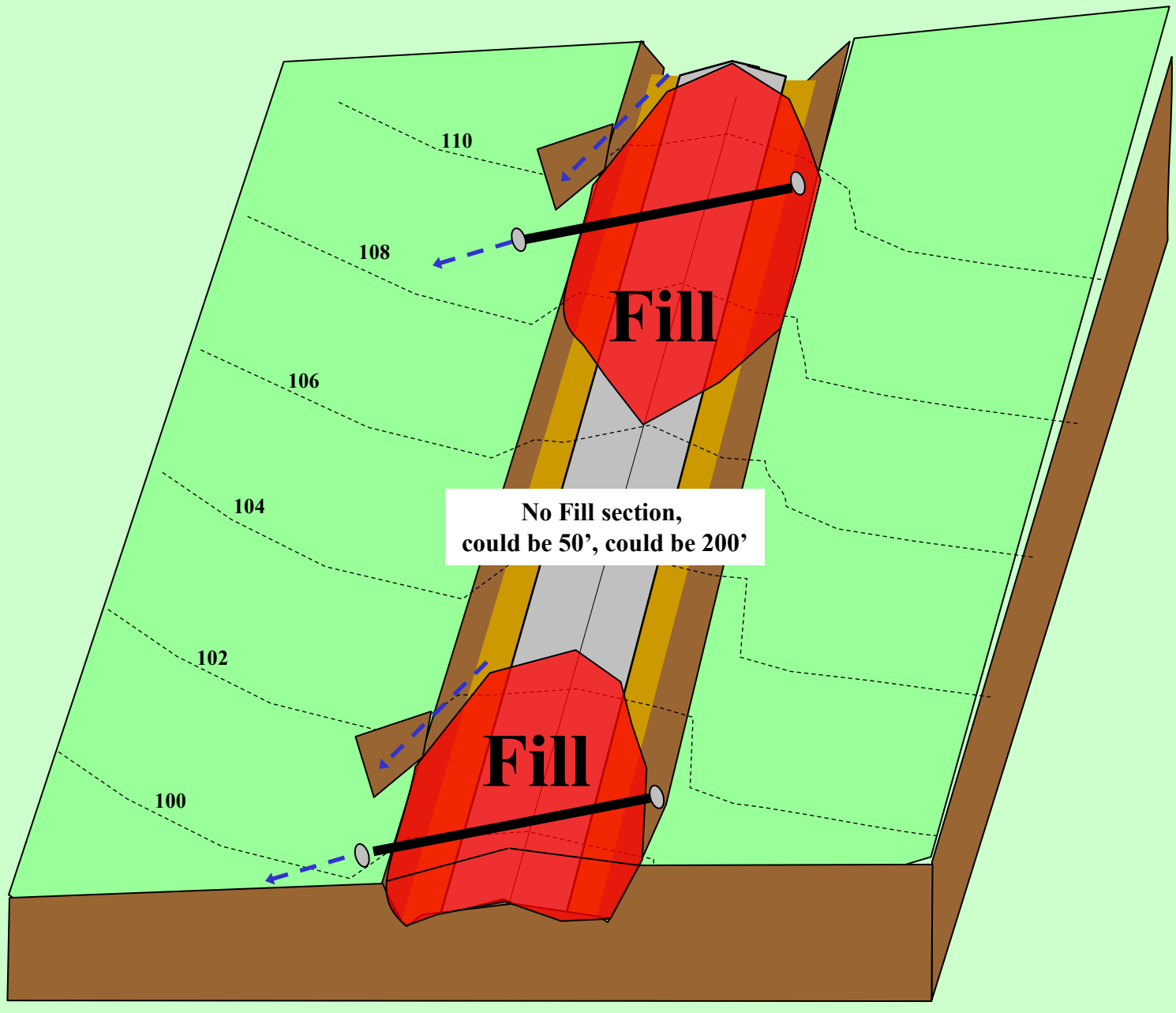
**The Shallow Pipe Requires
Cover!**

(Think Road Fill)

- Pipe outletted at natural ground elevation
- Material imported to provide cover



Sectional Fill



No Fill section,
could be 50', could be 200'

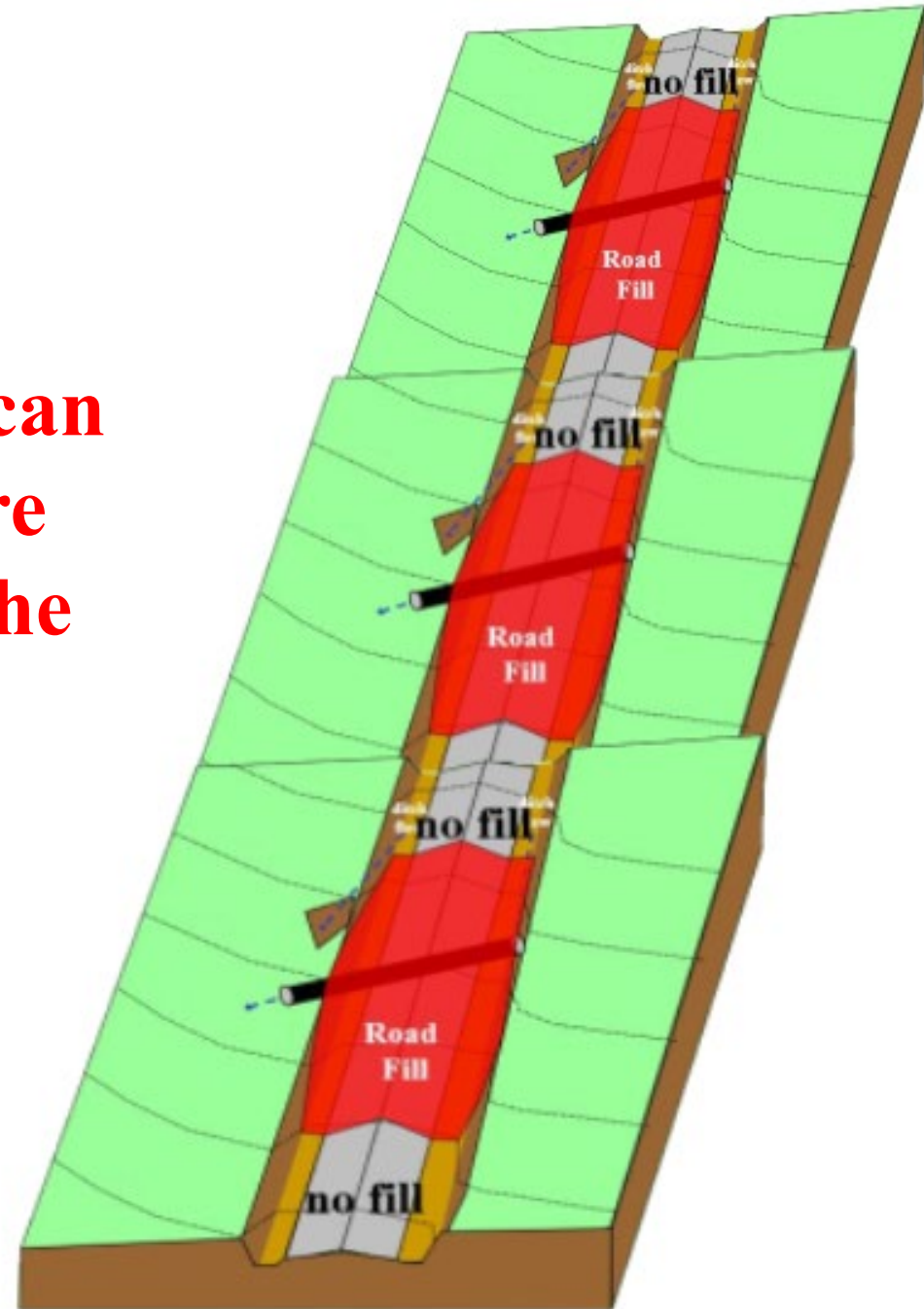
Fill

Fill

Entrenched Road sectional Fill

On hills, a series of sectional fill sections can be less costly and more effective than filling the full road length

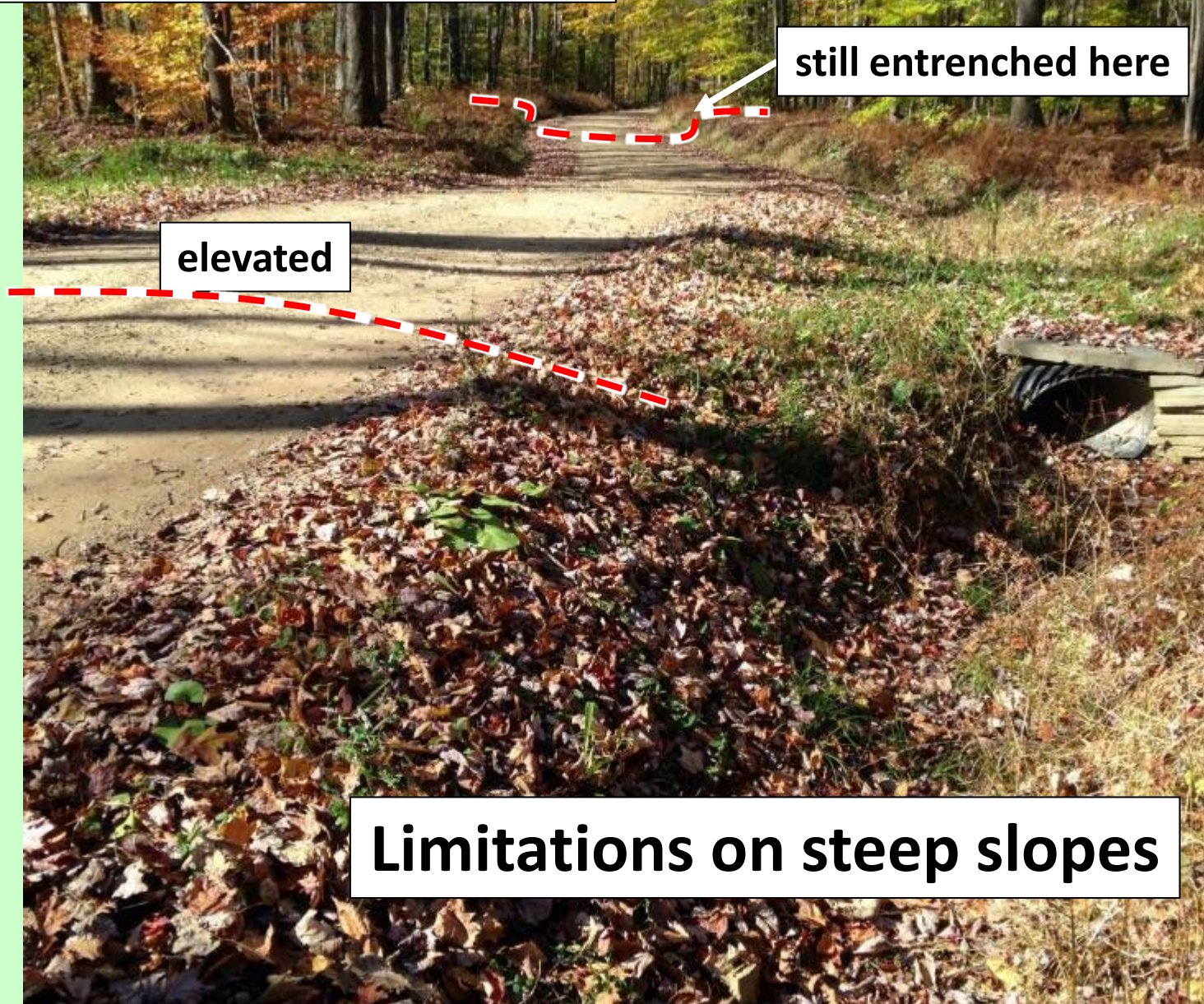
Limitations on steep slopes



Sectional Fill

A crosspipe and turn-out are installed in the elevated road section.

AFTER



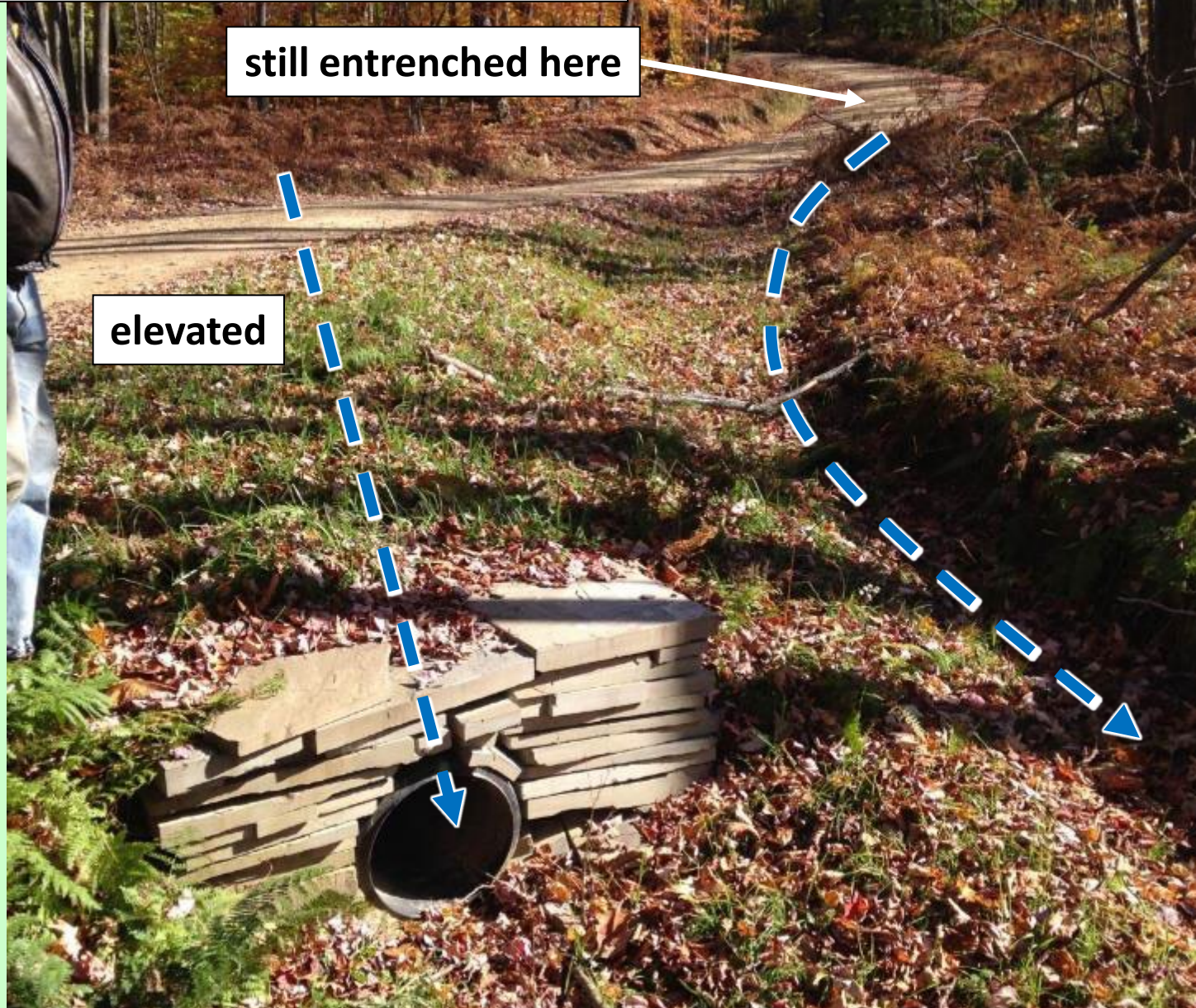
Sectional Fill

Elevated road and ditches relieves ditch flow volumes, reduces erosion and road problems.

AFTER

still entrenched here

elevated





Shallow Crosspipes

The Shallow Pipe Requires
Pipe!

ENVIRONMENTALLY SENSITIVE MAINTENANCE PRACTICES

12, 15, 18 inch ???

Should always be
longer than a
traditional pipe.





Shallow Crosspipes

All Pipes Require Head and
End Walls!



Inlet Protection

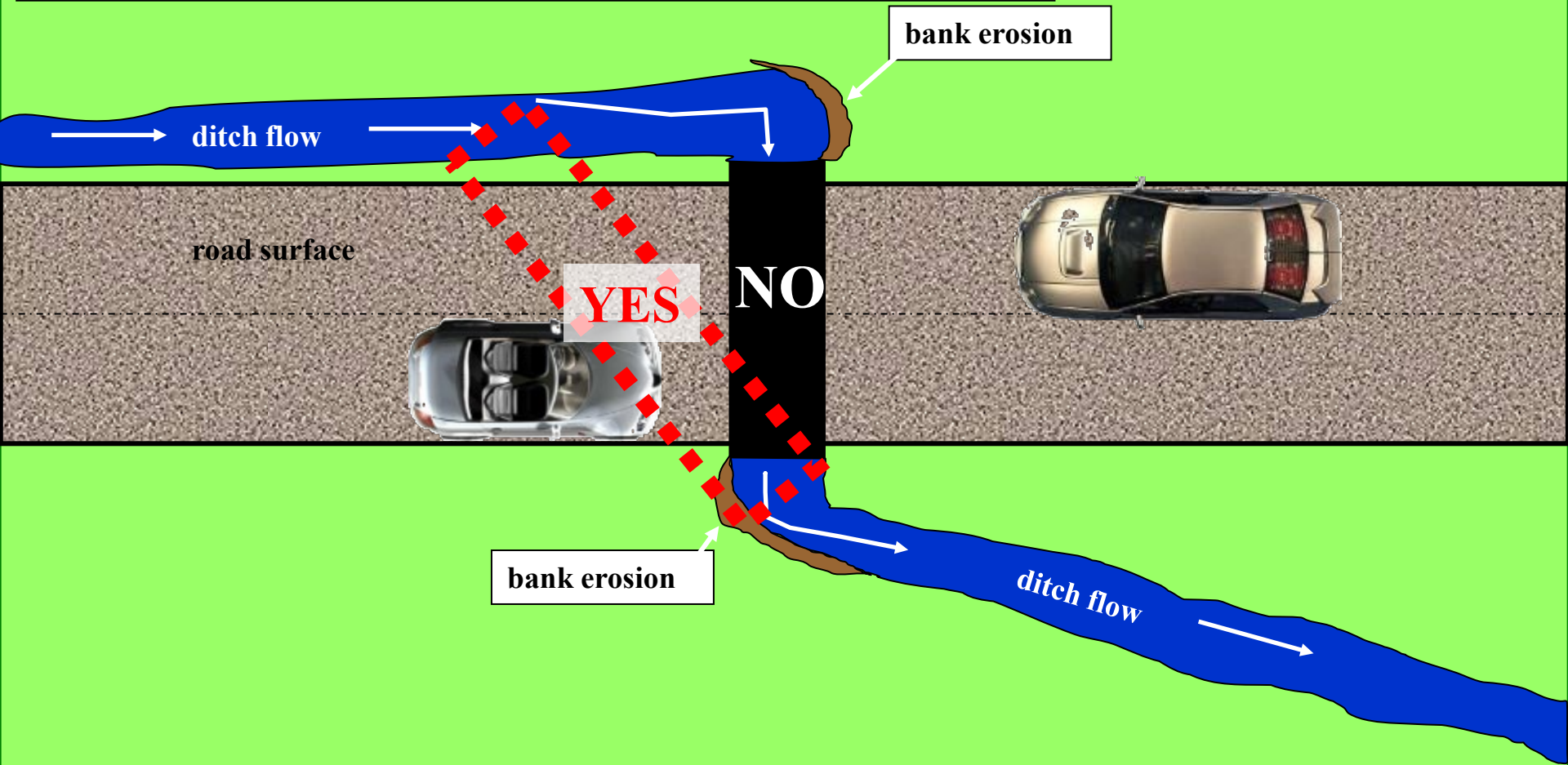




Shallow Crosspipes

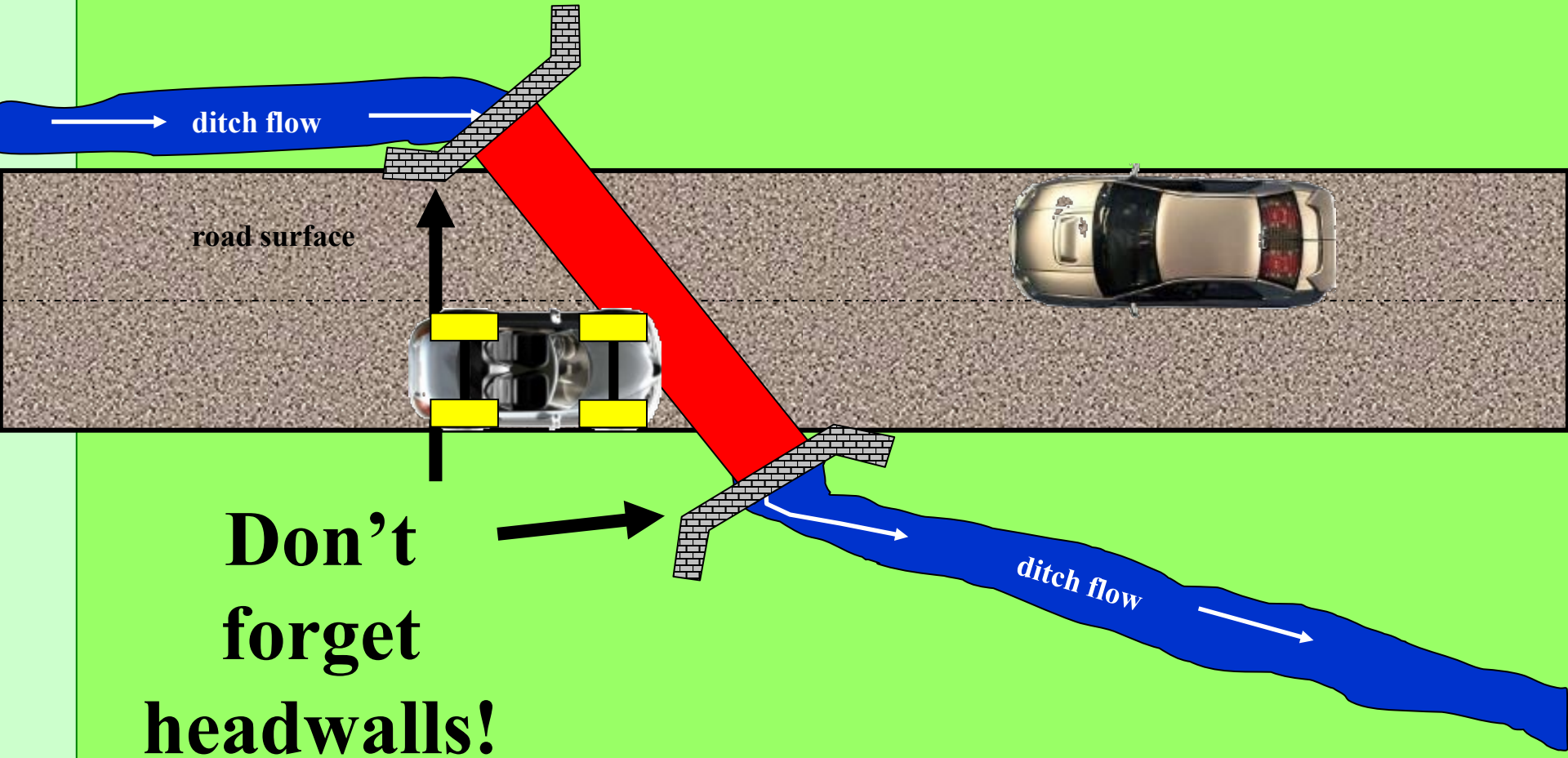
- Some History
- Getting more of them
- What do you need in your applications
- Tips for a good Installation.

Install pipes in direction of flow



ENVIRONMENTALLY SENSITIVE MAINTENANCE PRACTICES

Proper Pipe Alignment



Placement:

Inlet should be located in existing ditch line.



“Workshop-like” event sponsored by the Nature Conservancy in Arkansas





Shallow Crosspipes

- New Outlets and Road Fill Projects are all ways good Investments.
- New outlets need Landowner agreements.
- Longer pipes and extra pipe bedding/cover need to included in your grant apps.



Shallow Crosspipes

–Questions?