

RETROFITTING A BASIN TO FUNCTION MORE EFFECTIVELY

2021 ENGINEERS WORKSHOP



POLL QUESTION

HAVE YOU EVER HAD ANY INVOLVEMENT WITH
CONSTRUCTING A *NEW* STORMWATER BASIN?

- Yes (planning, designing, permitting, constructing, inspecting, etc.....)
- No

TRADITIONAL STORMWATER CONTROLS INCLUDED

- Basins
- Basins
- And sometimes basins

These started generally from 1980 following Act 167

NEW STORMWATER CONTROLS

- Green roofs
- Infiltration parking lots (pavers, concrete, asphalt, etc...)
- Rain gardens
- Dry wells
- Underground storage (pits, pipes, tanks, gravel, etc...)

These started generally in 2000 following changes to NPDES.

WHICH IS THE BEST?

“Beauty is in the eye of the beholder”

Generally, which ever is quickest, cheapest, and easiest.

Basin have a lot of advantages.

Their beauty is in the fact the beholder can see them working.

BASINS

You can tell nearly instantly if they are working or not. This can't be said for most other stormwater controls. Other controls are under something. Under parking lots, under vegetation, under ground.....

Their life expectancy tends to be longer than other BMPs and require less maintenance.

POLL QUESTION

HAVE YOU EVER HAD ANY INVOLVEMENT WITH
RETROFITTING AN EXISTING STORMWATER BASIN?

- Yes (planning, designing, permitting, constructing, inspecting, etc.....)
- No

SO YOU HAVE A BASIN.....IS IT WORKING?

INDICATORS:

When it is raining very hard, is there water in it?

Talk to the neighbors

Is the vegetation in the bottom species that prefer wet or dry environments?

Look for debris lines on the riser or embankments

Common sense

SO YOU HAVE A BASIN.....IS IT WORKING? WHEN IT RAINS, GO LOOK!

Basin forebay



SO YOU HAVE A BASIN.....IS IT WORKING?
WHEN IT RAINS, GO LOOK!



Basin



SO YOU HAVE A BASIN.....IS IT WORKING?
WHEN IT RAINS (OR IMMEDIATELY AFTER), GO LOOK!



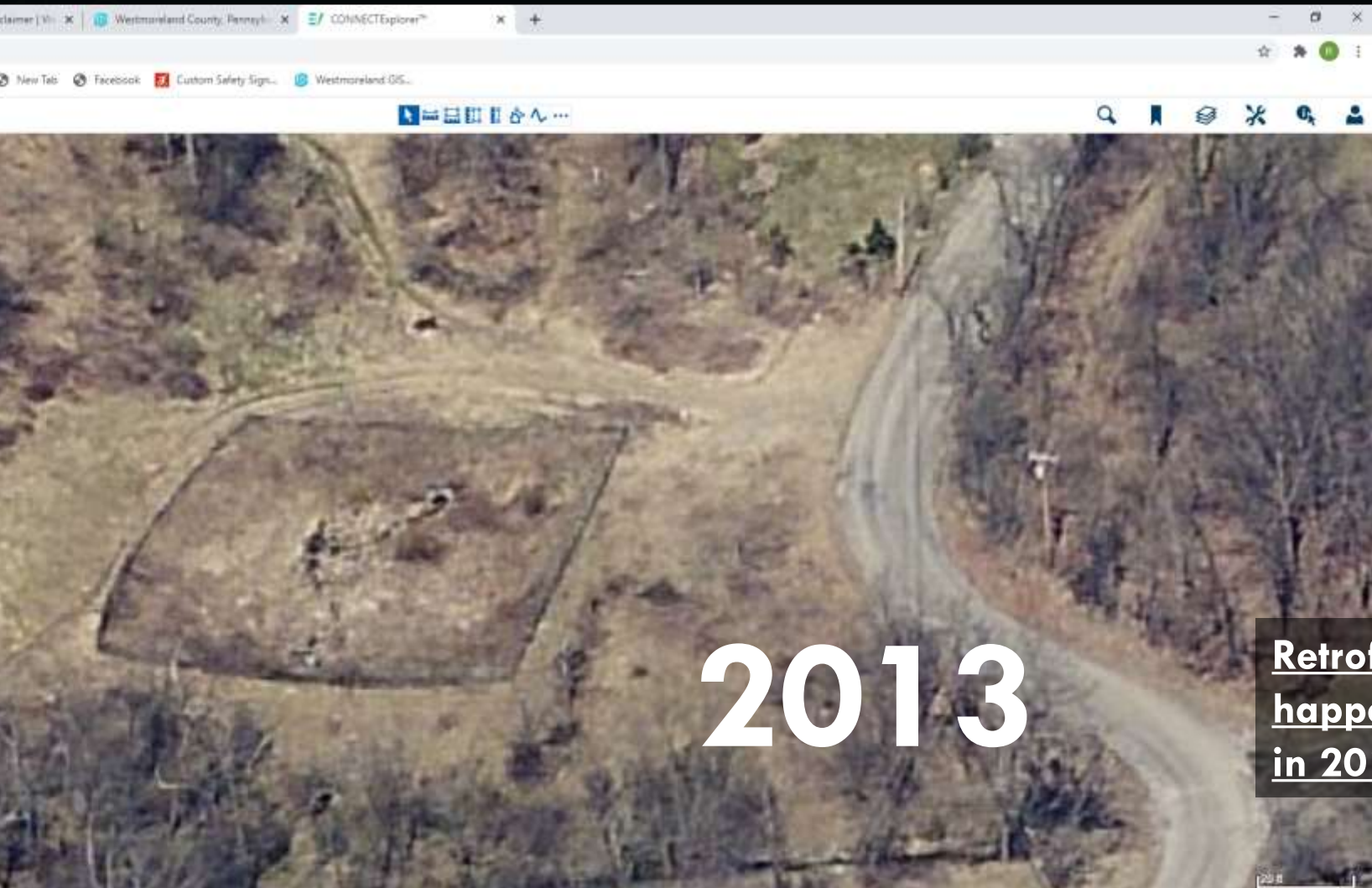
SO YOU HAVE A BASIN.....IS IT WORKING? TALK WITH THE NEIGHBORS

The leading
expert in the
world on this
basin lives in
that house

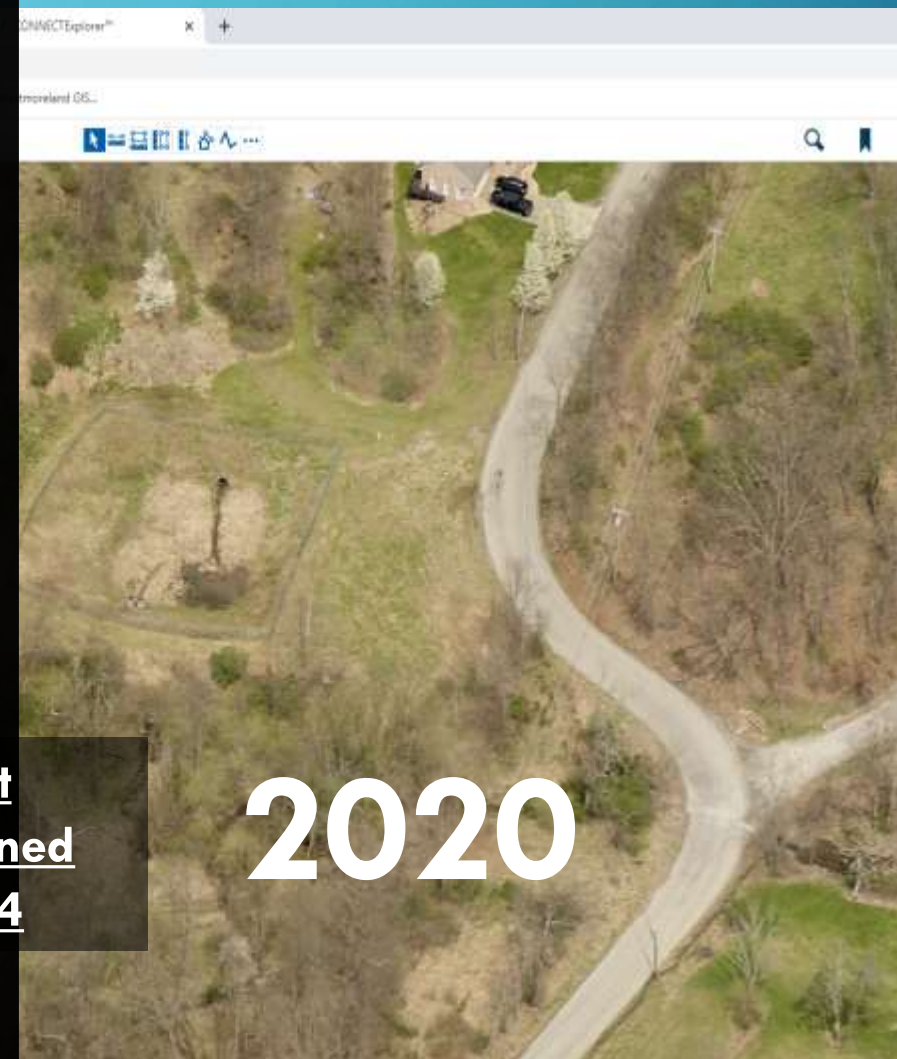


SO YOU HAVE A BASIN.....IS IT WORKING?

LOOK AT VEGETATION, IS THERE A DIFFERENCE BETWEEN THE TOP VS. THE BOTTOM. DRY VS. WET. OFTEN YOU CAN TELL IF A BASIN IS FUNCTIONING FROM YOUR DESK

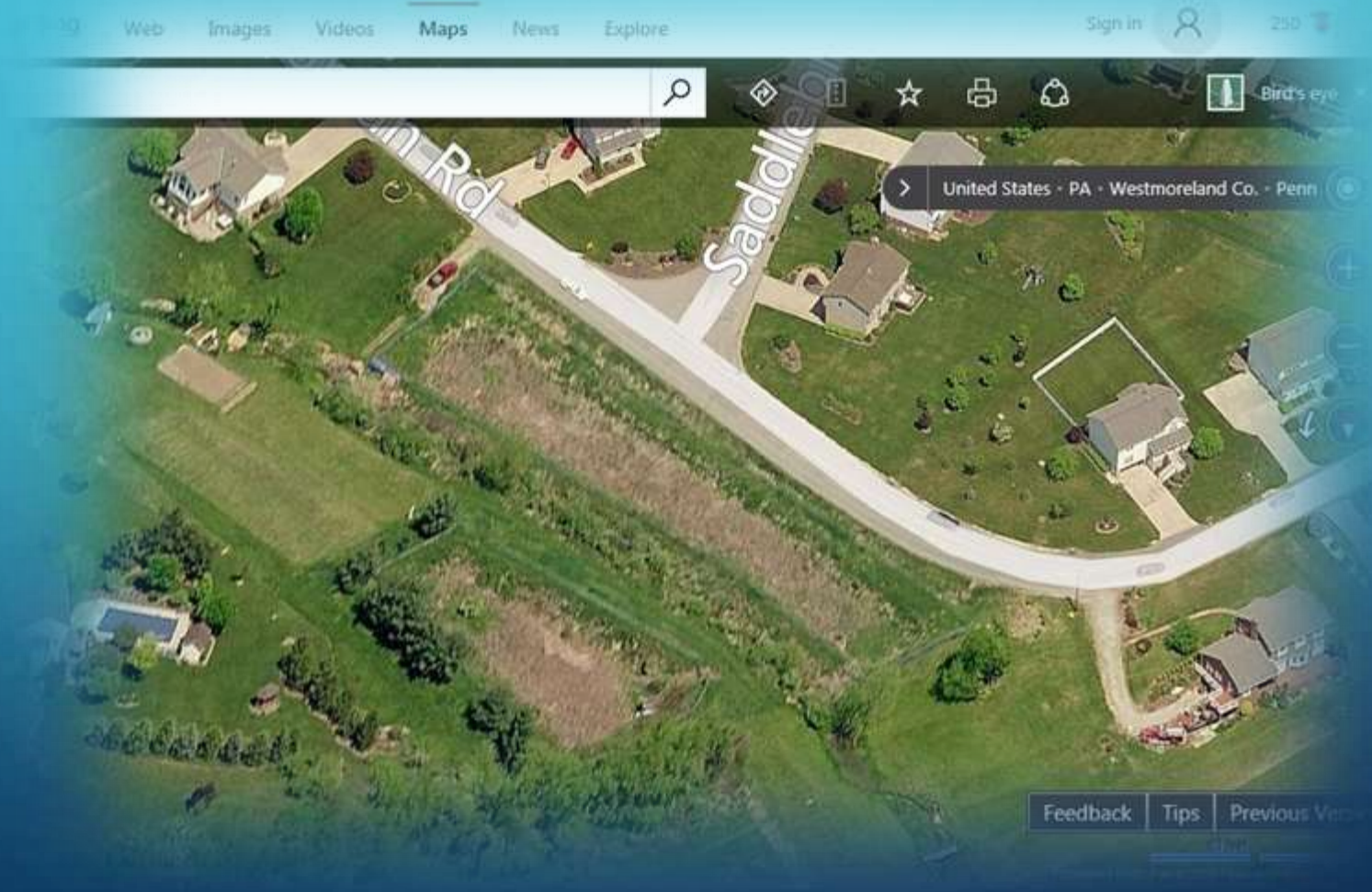


Retrofit
happened
in 2014



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SO YOU HAVE A BASIN.....IS IT WORKING?
LOOK FOR DEBRIS LINES. IF YOU CAN'T SEE DEBRIS LINES
IT LIKELY ISN'T WORKING



SO YOU HAVE A BASIN.....IS IT WORKING? COMMON SENSE

This riser also
had a 12 inch
hole on both
sides (at basin
bottom).



SO YOU HAVE A BASIN.....IS IT WORKING?

- Yes.....walk away, no need to retrofit
- No. Maybe it is time for a retrofit. Likely needs to hold back more water.

WAYS TO INCREASE BASIN EFFICIENCY

- Fix/replace a failed riser
- Almost always, reduce outlet orifice size
- Create an easy to maintain basin
- Dredge out accumulated sediment

WAYS TO INCREASE BASIN EFFICIENCY

Replace failed risers

This riser connection also failed. Plastic to metal doesn't work well.

This failed because of lack of seal between the outlet barrel and riser.



WAYS TO INCREASE BASIN EFFICIENCY

Almost always, reduce orifice size



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WAYS TO INCREASE BASIN EFFICIENCY

Create an easy to maintain basin

Create mowable slopes (3:1) and remove fence when possible



WAYS TO INCREASE BASIN EFFICIENCY

Create an easy to maintain basin

- Allow outlet orifice to be easily cleaned and modified. A trash rack reduces clogging. The orifice plate sized smaller than the concrete orifice allows for immediate upsizing should the need arise



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Dredge debris

Almost never a reason to truck off-site. Leaving material on-site cuts cost tremendously and avoids other issues (mud on road, problems a dump site, etc....)



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Often material left onsite can make future maintenance easier and ensure the longevity of the basin. Making basin embankments thicker (less chance of breach), supporting risers, and softening steep slopes for ease of mowing/weed whacking.



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THIS STUFF WORKS!

THIS SEQUENCE
OF THE SAME BASIN



THIS STUFF WORKS!

THIS SEQUENCE
OF THE SAME BASIN



10.20.2016



SAME BASIN



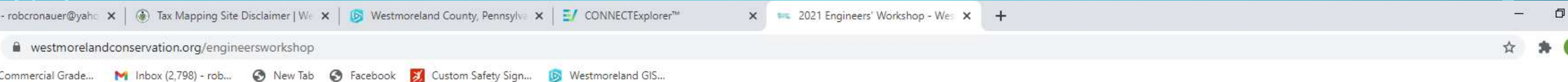
IF PROPERLY BUILT AND MAINTAINED STORM BASIN CAN BE A COMMUNITY ASSET

Retrofits provide:

- #1 Ease of maintenance
- #2 Maximum efficiency
- #3 Safety for community and maintenance
- #4 MS-4 credits
- #5 Reduce flooding



WANT TO KNOW MORE? CHECK OUT THE VIDEO ON BASIN RETROFITS



Contact

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(724) 837-5271

Office Hours:
Monday – Friday
8:00 a.m. – 4:00 p.m.

Closed for Lunch
Noon – 1:00 p.m.



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