

Alberta Lake Management Society St. Albert (Big Lake) Workshop 2022

Equipping Albertans to build vibrant, ecologically functional landscapes within the built environment, through comprehensive stormwater management

Quarry Park Bioswale Calgary Leta van Duin leta@alidp.org





- Sharing about some low impact development practices implemented in new development in the City of Edmonton south of Big Lake
- 2. Announcement on a new project to support the Clean Runoff Action Guide
- 3. Update on P soil-amendment research findings
- 4. Call to Action





Don't ponds handle pollutants?

- difficult, disruptive and expensive to clean out
- possible source of vectors
- do not reduce runoff volume
- can result in temperature contamination
- can become source of nutrients in the fall
- deposited contaminants may remobilize in anaerobic conditions under ice, especially when chlorides are present
- finer deposited sediments may scour out under ice

TRUMPETER SUBDIVISION 131 Ave. and Drafting Snakans Pet Treats 🗳 Kiwi Productions 130 Ave NW 200 STAR 199 St NW RAIN GARDENS White Rabbit Creative Sarah Mavro Photography 130 Ave memperer way new 199 St NW LINEAR BIORETENTION 128a Ave NW rrumpeter way inw 207 St 128 Ave NW

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RAIN GARDENS



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201 St NW

LINEAR BIORETENTION

Trumpeter Way NW

Trumpeter Way NW

Trumpeter Way NW

Trumpeter Way NW

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201 St NW

Mixed Woody Bioswale, Naturalistic





Flowery Bioretention Area (Basin Type)





Grassy Bioretention Area (Basin Type)





Bioretention Areas in Series Replacing Storm Sewer





STARLING SUBDIVISION





STREETSIDE BIORETENTION

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BIOSWALE

Blue Jay GLAN

Kristy Ann Photography



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Photo courtesy ALMS

Mixed Woody Bioswale, Native?



Cobble takes the 'bio' out of bioswale





Bioretention or Bioswale?





What makes it a bioswale?







Stormwater Treatment Train



PREVENT > REDUCE THE AMOUNT AND SPEED > TREAT > DISCHARGE



Green Stormwater Infrastructure Calculator for Sites

- Online tool to evaluate sites and solutions to provide runoff volume control
- Provides freedom in choice of practices rather than being prescriptive
- Answers the questions of how much and where
- For our climate
- For use with approvals, especially in infill, for additions and site redevelopment
- Green roofs
- Rainwater harvesting for irrigation or toilet flushing
- Resilient landscaping practices
 - Deeper topsoil
 - Absorbent landscaping
 - Rain gardens
 - Permeable pavement



Okotoks Bioretention Research – P Sorbing Amendments

	Product	Active Ingredient
	Eggshells	Calcium
	Drywall	Calcium
	Water Treatment Residuals	Alum
	PAC	Polyaluminum Chloride (liquid)
1	SorbtiveMEDIA (Imbrium)	Al/Fe? proprietary granule
2	Ultra-Phos Filter	From Iron Oxide Recovery -proprietary
3	Delta Adsorbents AA400G	Aluminum proprietary granule







Update of P Amendment Research

- Success of waste products:
 - Spent alum (water treatment residuals)
 - Gypsum (drywall)
 - Eggshells
- How long are they effective? How expensive?
- New Alberta Innovates funding
- Still effective for all other contaminants
- Loadings may still be reduced even if concentrations increase





- Big Lake employs bioretention, rain gardens and bioswales (in addition to stormwater ponds) for the protection of Big Lake
- These are related practices, but there are differences in whether they are about quantity reduction, quality improvement, or enhanced conveyance

 A new tool is being developed to calculate impacts and benefits of various GSI practices that should be used as part of development approvals in support of achieving runoff volume control targets (and quality as a derivative)

 A new phase of P-sorbing amendment investigation has been funded



- Support the ALIDP by becoming a partner and sharing your expertise and needs, so we can continue to advance knowledge and action about upland practices in urbanizing catchments to support the health of receiving water bodies
- Get runoff volume control targets into your watershed management plans
- Talk! Act! Evaluate! Repeat! It took 100 years before Paris got its sewers right, we're on a journey.)





Thank you for your time, attention and interest!!

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This presentation was prepared for general informational purposes only.