



Living Shorelines To Power Ecological Filtration in Van Cortlandt Lake

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Van Cortlandt Park - 242 St

Van Cortlandt Lake



Site Location



Overview Landscape Design:

**Recycled Glass
Aggregate** trenches
provide **50% void space**

400 ft of RGA run +
4 ft average depth +
5 ft average width =
8,000 cu ft

Divided by **50%** =
4,000 cu ft water
captured

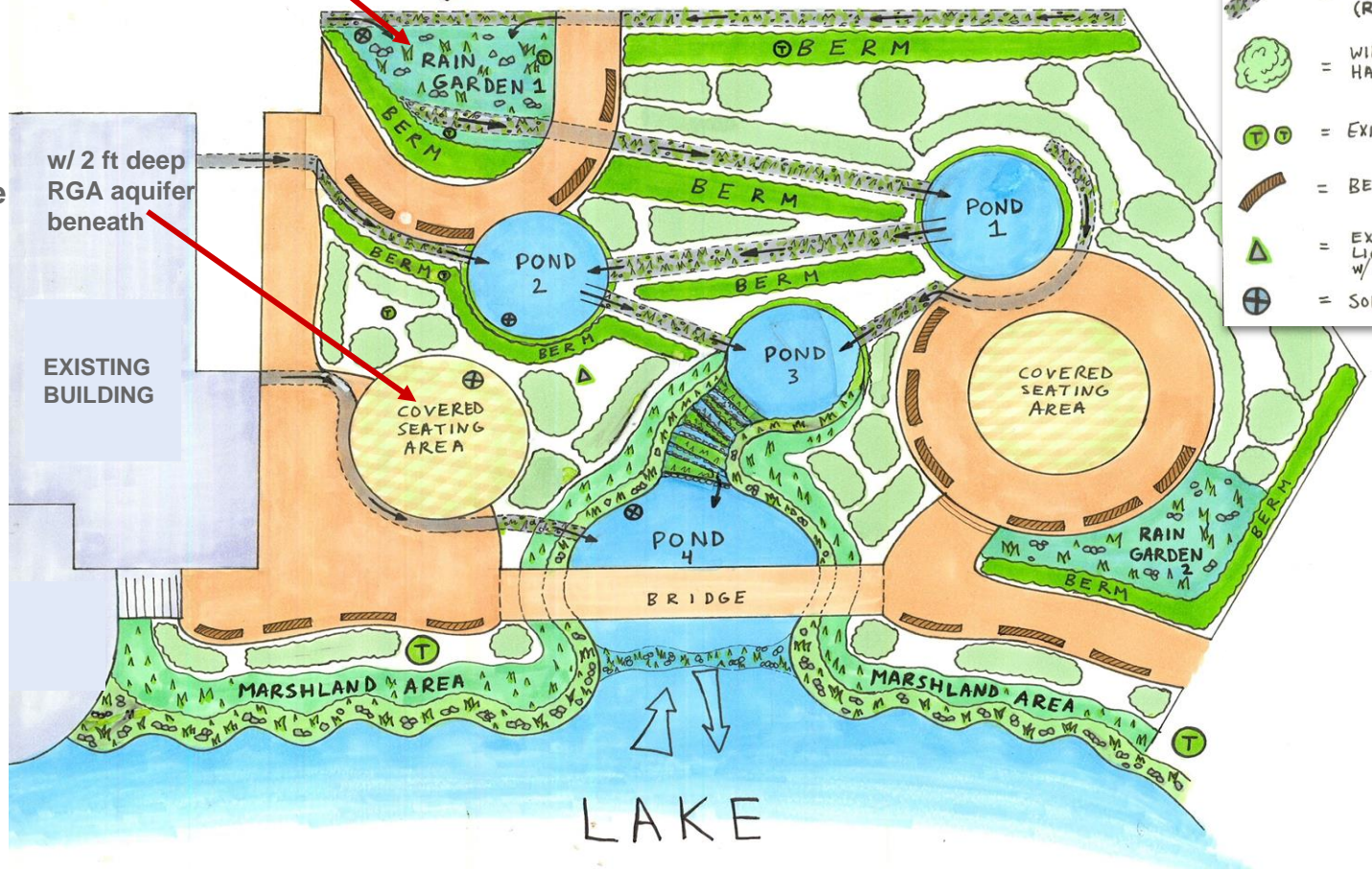
4" rainstorm =
4,000 cu ft water
generated

(This is **JUST** the
trenches' capacity!)

with a 6 ft deep
RGA underlayer

STREET &
PARKING LOT
AREA
RUN-OFF

Area: ~120 ft X 60 ft



- PERVIOUS PATHWAY
- STONES
- GRAVEL/GLASS = WATER TRENCH (RGA)
- WILDLIFE HABITAT
- EXISTING TREE
- BENCH
- EXISTING LIGHT POST W/ VINE
- SOLAR PUMP

Rainfall & water capture

	W	D	L	volume			
1	6	6	100	3,600		Area; sq.ft.	
2	6	6	80	2,880		25,000	rainfall, in
3	4	4	40	640		2,083	1
4	4	2	20	160		4,167	2
5	3	4	50	600		6,250	3
6	3	6	40	720		8,333	3
7	3	2	40	240			
				8,840			

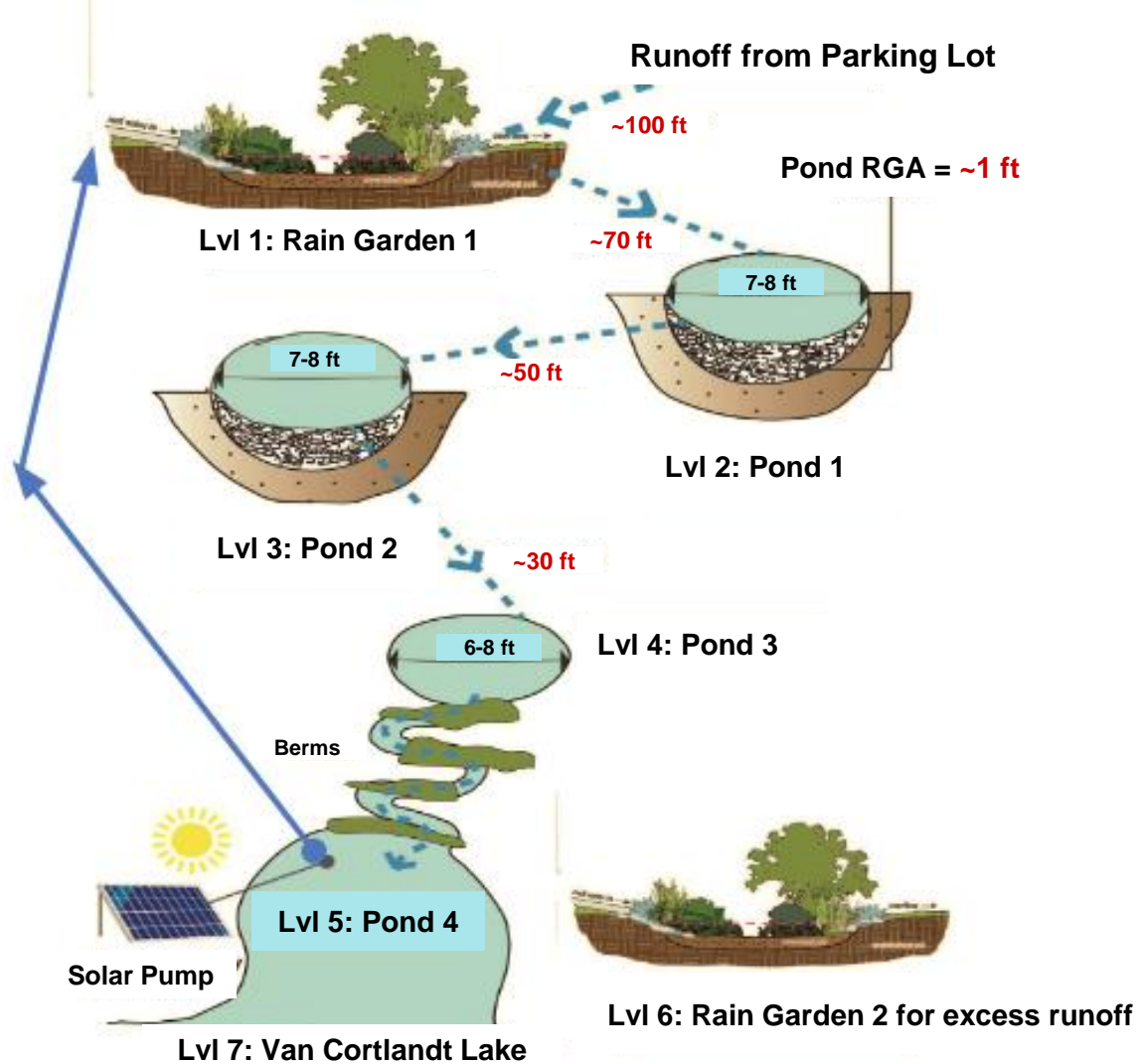
Sequential Flow of Water through Ponds, Stepping down slope:

Recycled glass conduits move water on an undulating path through plantings in an RGA medium.

Water filters through a series of berms and rhizosphere zones to Pond 3.

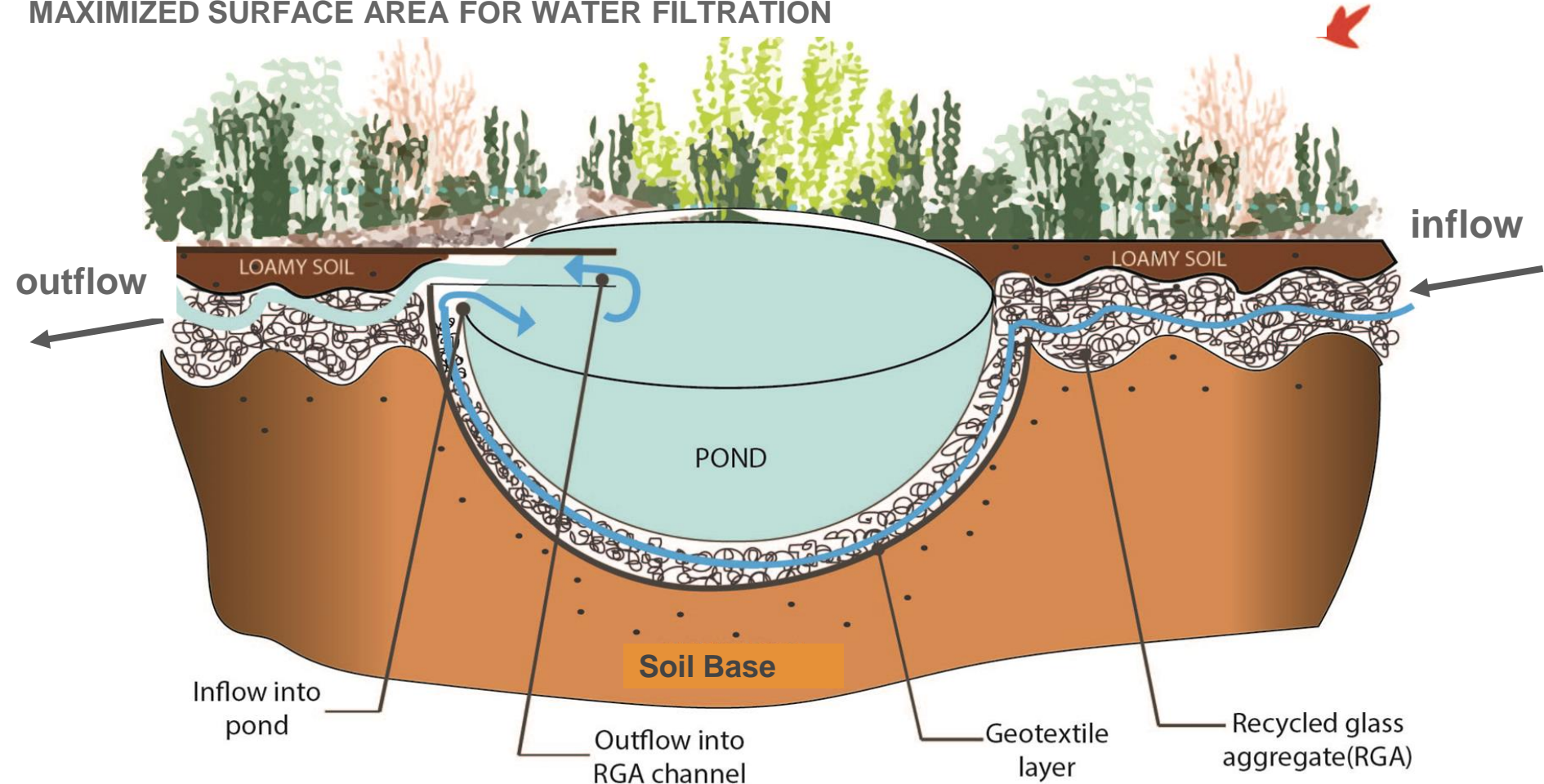
Gravity flow then moves water through an additional series of smaller berms on the path to Pond 4.

A solar pump then cycles the water back to Rain Garden 1, creating a filtration cycle with the sun's power.



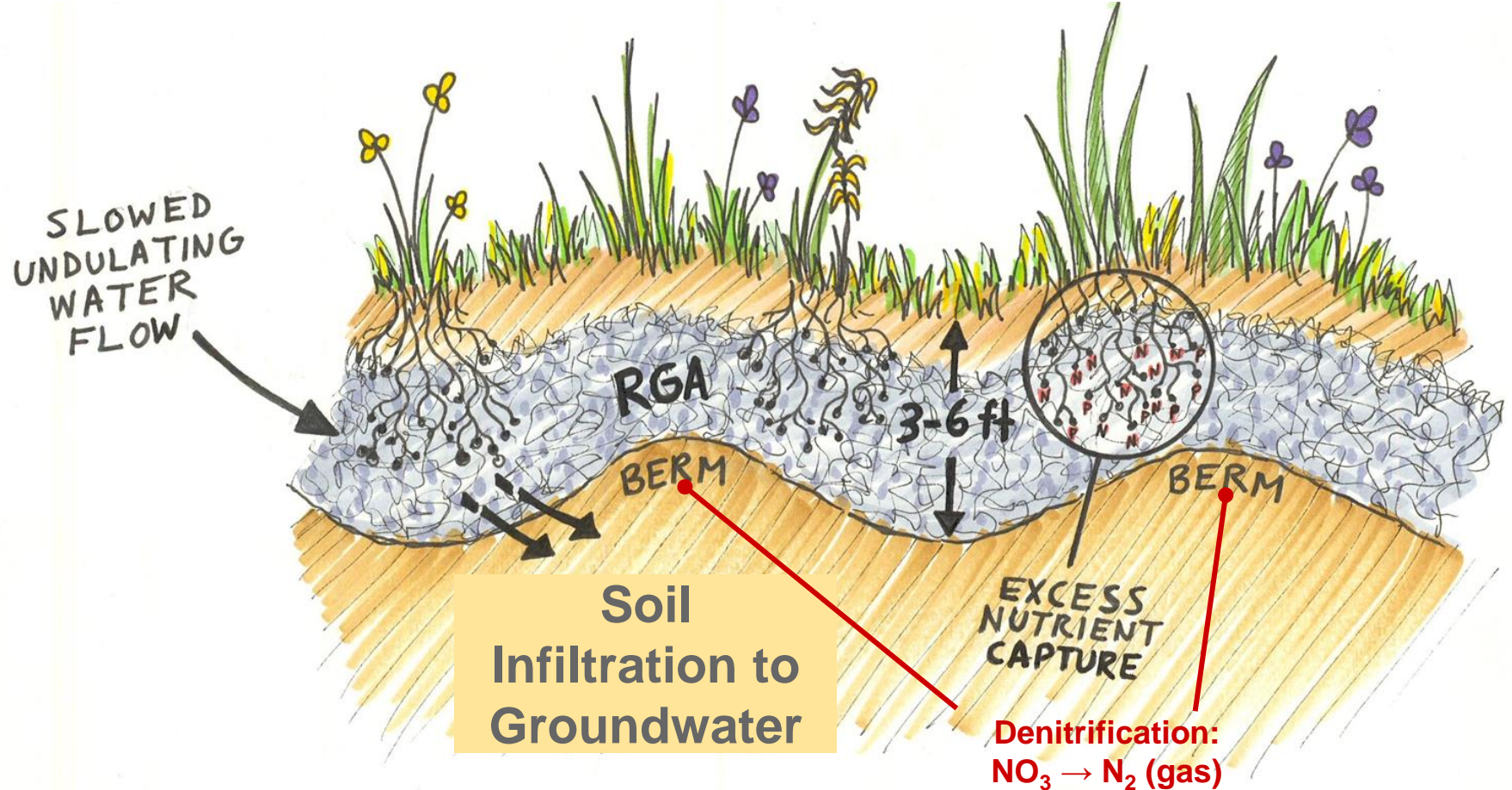
Pond System: Water Flow Detail

MAXIMIZED SURFACE AREA FOR WATER FILTRATION



Trench System: Water Purification Detail

MAXIMIZED SURFACE AREA FOR WATER INFILTRATION & EXCESS NUTRIENT REMOVAL



Lake Edge Marsh & Meadow Detail:

Goal:

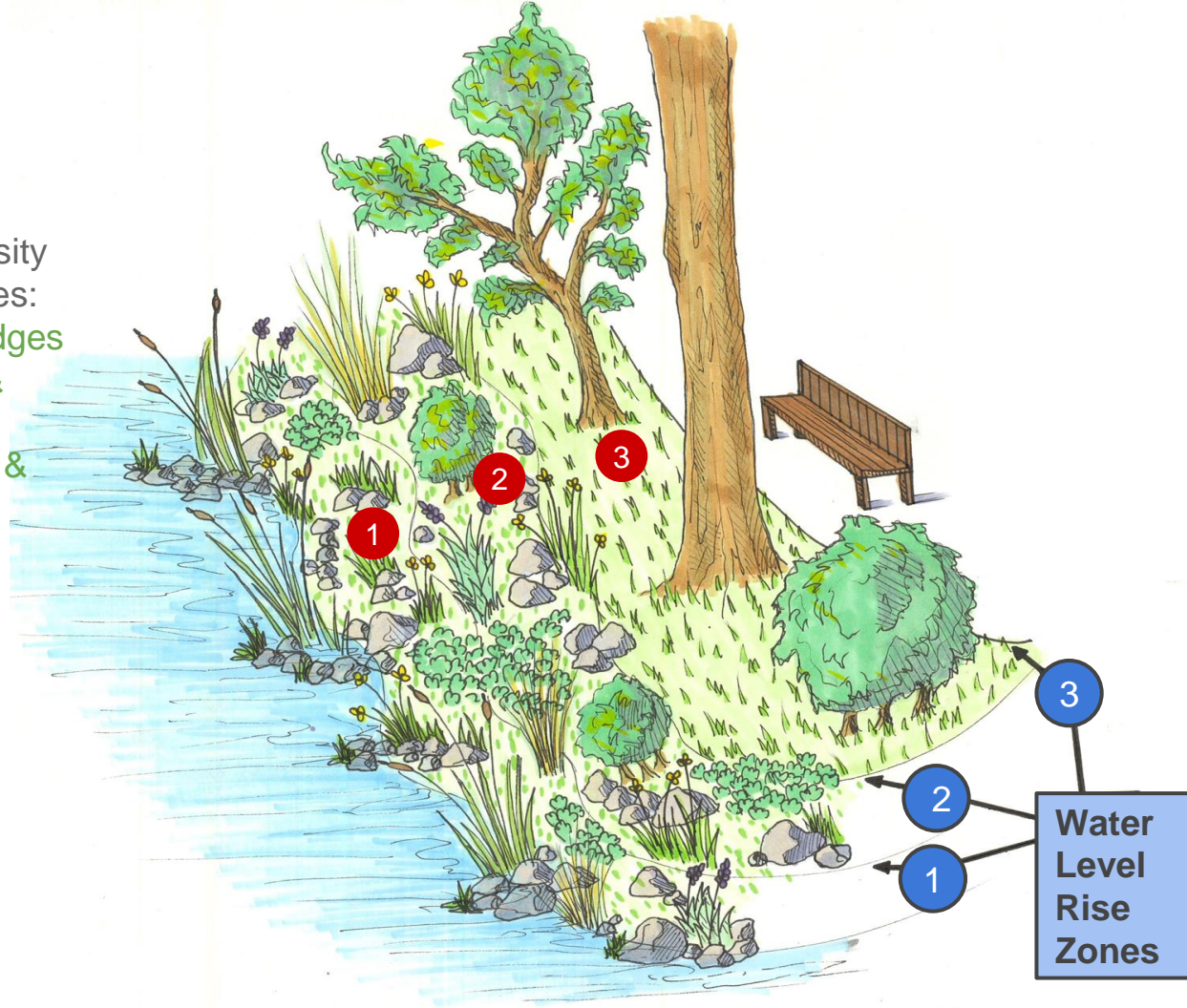
Create a living shoreline with a diversity of marsh to wet meadow plant species:
Yellow Iris ; Blue Flag ; Cattails ; Sedges ;
Rushes ; Button Rush ; Red stem &
Red Osier Dogwood ; Elderberry ;
Arrowhead ; Pickerel Weed ; Ferns ; &
Varying-sized stones

3 Zones: Widths

1. Water Edge = 2 ft
2. Lower Marshland = 2 ft
3. Lower Inland = 3-4 ft

Water Level Rise:

End of Zone 1 = 8 in
End of Zone 2 = 1.5 ft
End of Zone 3 = 2 ft



Wildlife Habitat Haven:

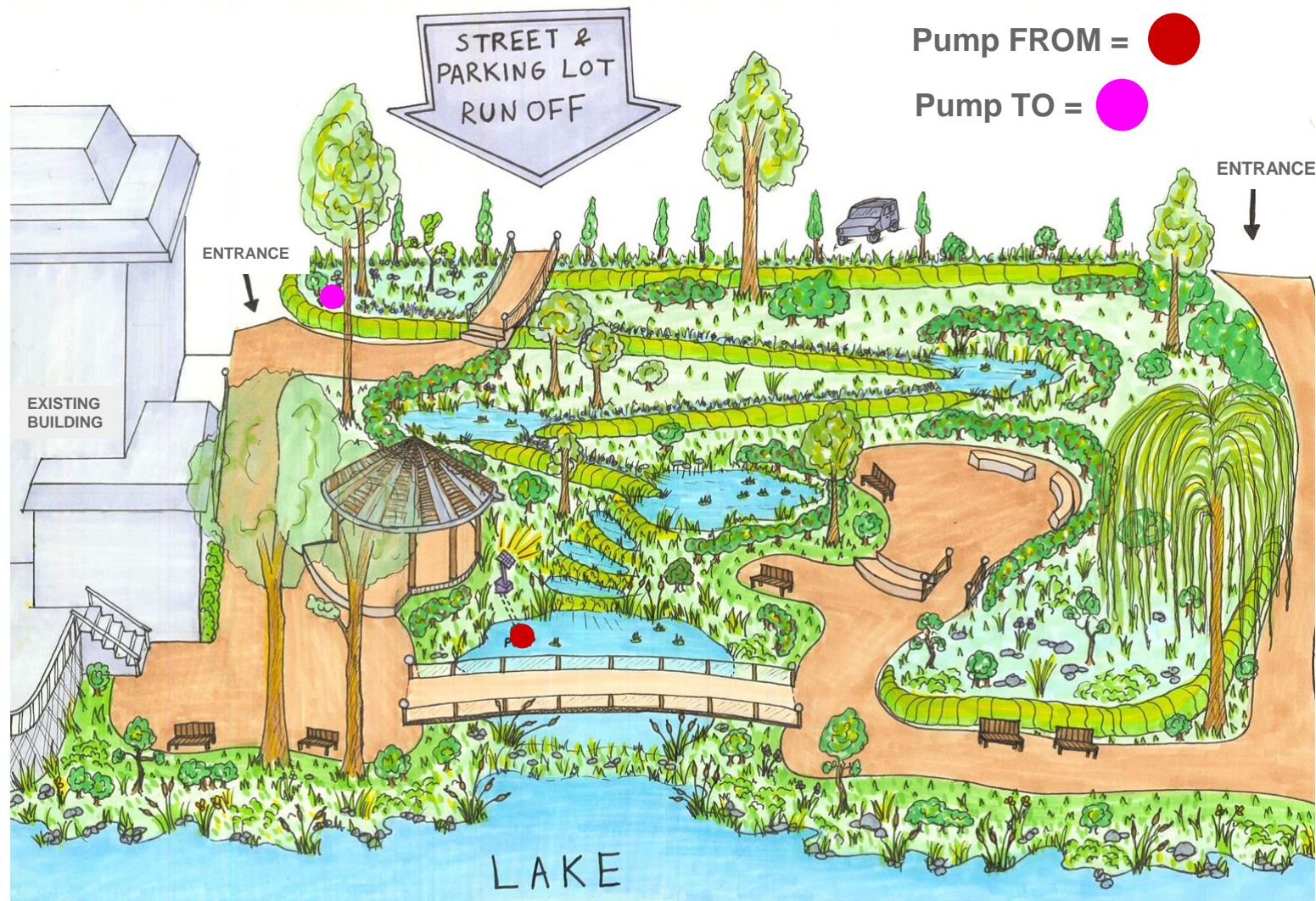
Ponds:

Refugia: frogs, fish,
freshwater mussels, -
~web of aquatic life

Marsh:

Refugia: native
wetland plant species,
arthropods, frogs,
salamanders, &co

Terrestrial Upland:
Haven & habitat for
birds, butterflies &
other pollinators,
arthropods, annelids,
and all of us land
dwellers!



Van Cortlandt Lake Living Water Machine:

Zero Discharge \approx
99% Water Catchment

This coupling of roadway and parking lot with catchment and habitat is capable of capturing at least 4" of rain and also filtering particulates and nutrients, then slowly discharging clean water to the Lake.

This water catchment/biogeochemical filter design model is written in Nature's style, and could make a home along any body of water.

Our vision is to show how, even with a small working area, by creating void space (w/ RGA) and increasing, maximizing the distance water travels through soil, RGA, and root systems, a powerful, sustainable living water purification machine can come to life .



**GREENING THE CITY BY WORKING
WITH ONE ANOTHER,
WITH THE POWER OF SOIL,
& WITH ONE OF THE RICHEST
TEMPERATE ECOSYSEMS ON EARTH**

Thank You