

NRCS *Natural Resources Conservation Service*

Minnesota

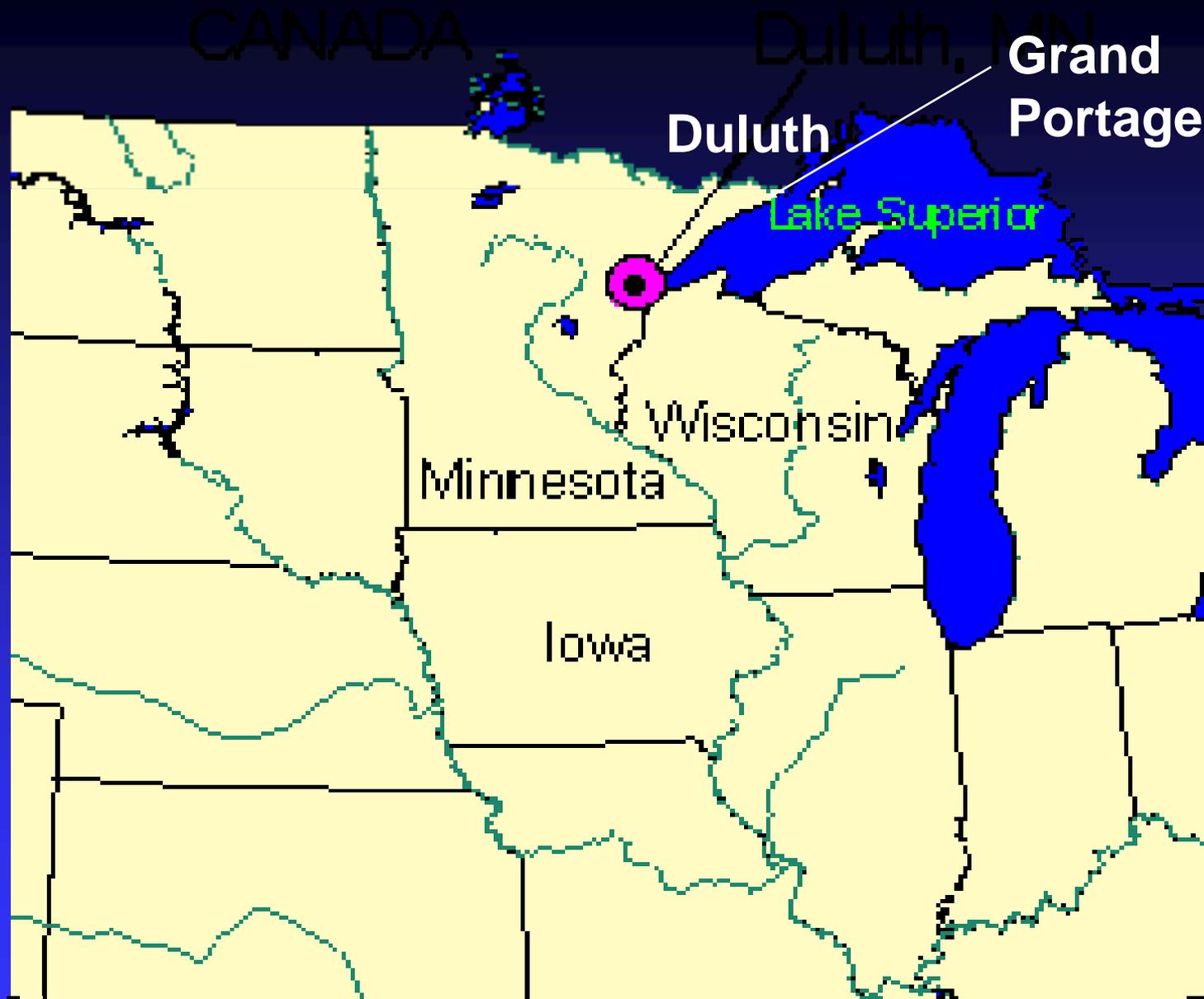
*The NRCS is committed
to protecting and
conserving
natural
resources
on
America's
private
lands*



NRCS Programs Tribal Success Stories

Grand Portage – Rain Gardens

**Ryan Nelson, NPSP Coordinator
Paul Sandstrom, NRCS**





Grand Portage Reservation

Grand Portage Reservation Tribal Council (RTC),
Governing Body

Trust Lands and Natural Resources Division

**Land Use
Natural Resources
Environmental Department
Conservation
Emergency Management
(Includes many Departments
and other Agencies)**





2-03 F152.49 1:8,000 GRAND PORTAGE, MN 7-20

Grand Portage Reservation

Problems in Grand Portage Bay

- Shallow Bay / Little Mixing
- Commercial Development
- Water Quality Issues
 - High Coli form Bacteria After Significant Rain Events
 - Fine Sediments
 - Aquatic Plants
 - Changes In Aquatic Insects

Grand Portage Reservation

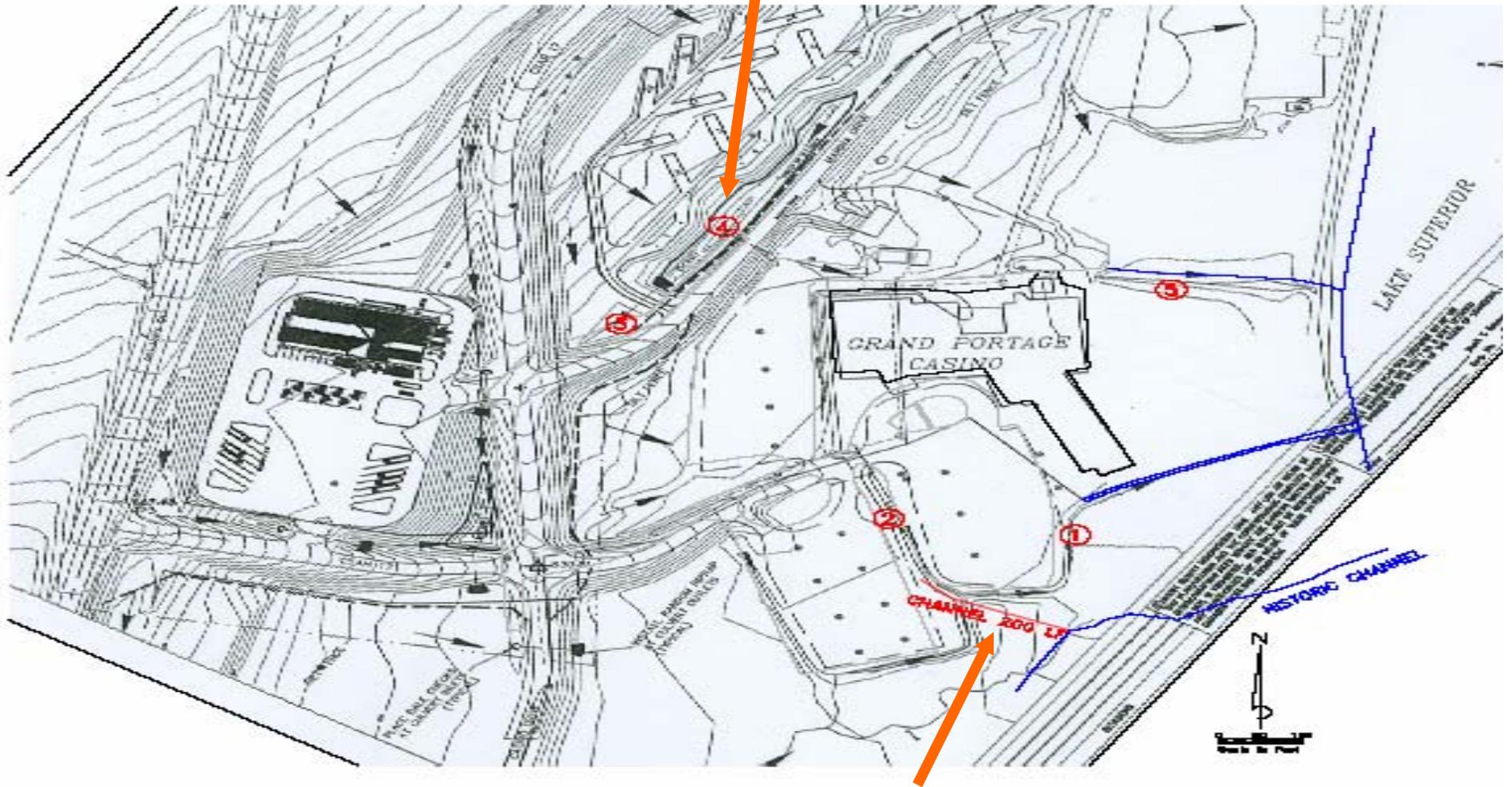
-Wrote a letter to the NRCS requesting technical and financial assistance to treat stormwater run-off and water quality problems we have identified.



What Do We Do???



Bioretention Basins (raingardens)



Channel Restoration

Environmental Quality Incentive Program (EQIP)

- **Financial Assistance**
- 50% cost share match for conservation practice installation

- **Technical Assistance**
- Technical Assistance can be provided by NRCS or a Technical Service Provider (Consultant)

EQIP Plan Map 2006

Date: 6/19/2006

Customer(s):
District: Cook
Approximate Acres: 94
Legal Description: 9-53-6

Field Office: DULUTH SERVICE CENTER
Agency: NRCS
Assisted By: Paul V Sandstrom
State and County: MN, ST LOUIS
Land Units:



Legend

- Item #1-Structure for Water Control-587 (Rain Gardens)-2006
- Item #2- Streambank Protection 580-2006
- EQIP06
- Townships
- Sections



Image: 2003 Ortho Imagery

Scale- 1 Inch = 660 feet



January 06
EQIP
Application

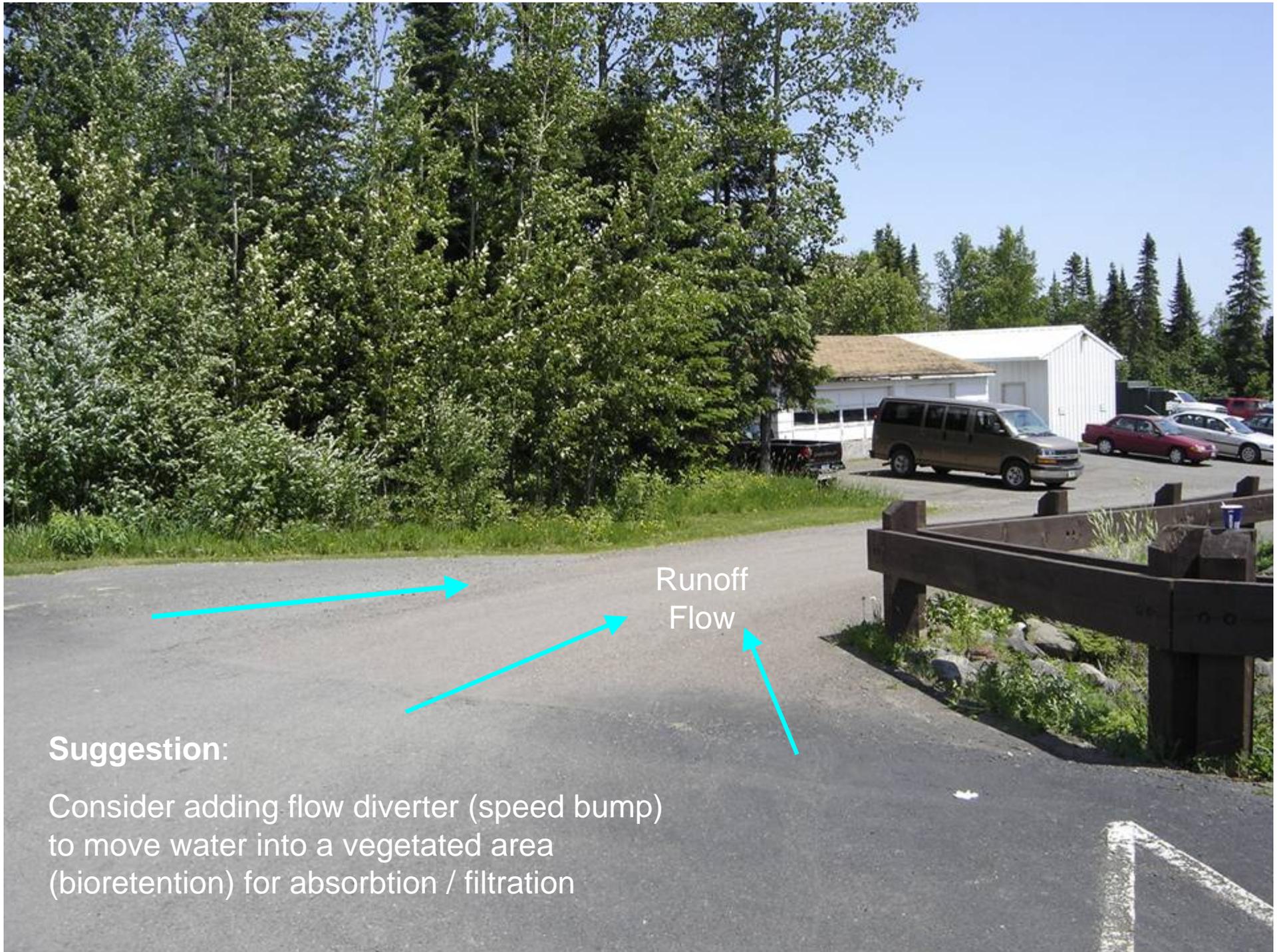
March 06
EQIP
Approval

Technical Expert - Gregg Thompson

Landscape Rehabilitation Specialist

**NRCS/Association of Metropolitan
Soil and Water
Conservation Districts**





Runoff
Flow

Suggestion:

Consider adding flow diverter (speed bump)
to move water into a vegetated area
(bioretention) for absorption / filtration

Project Example

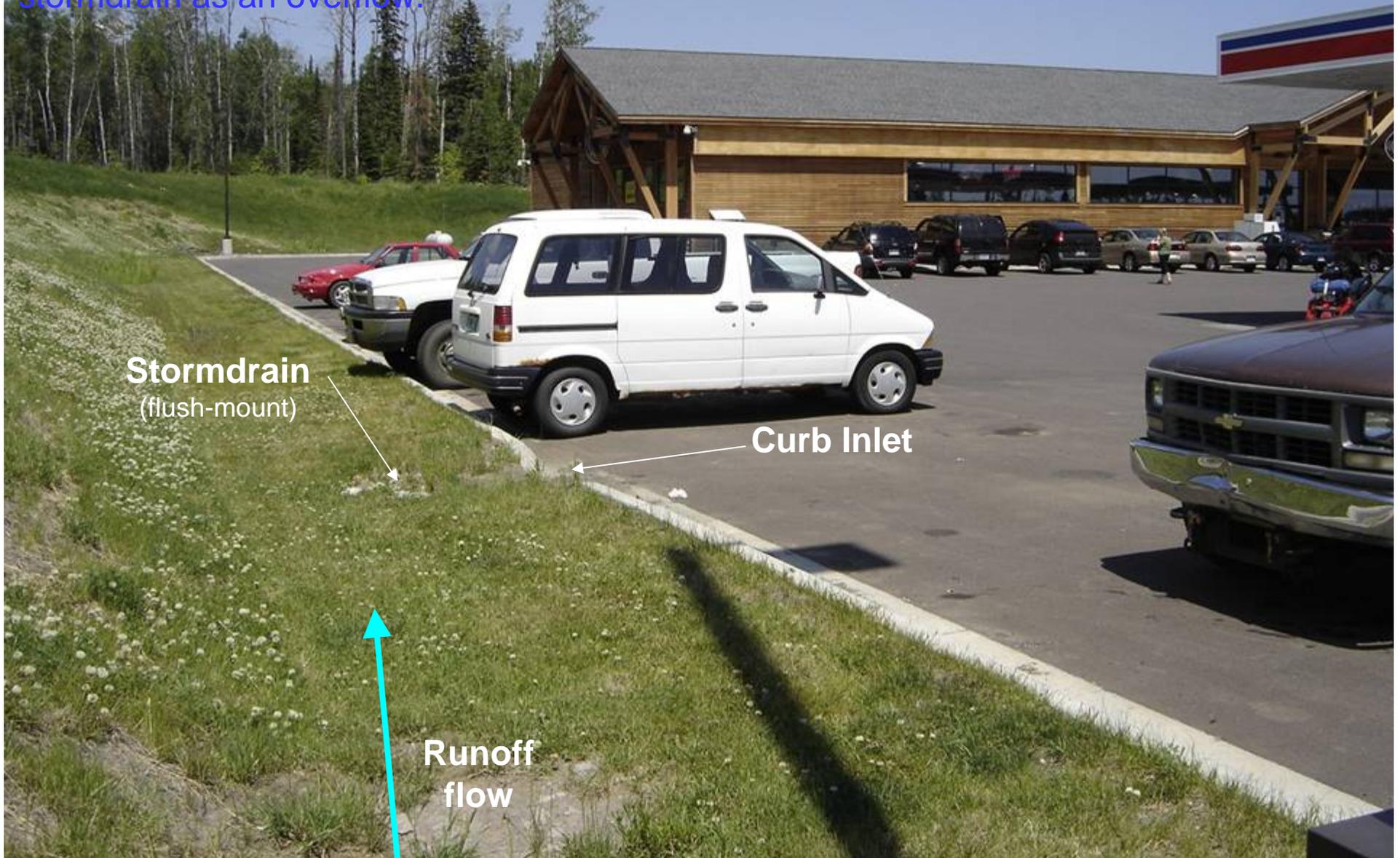
Runoff
Flow

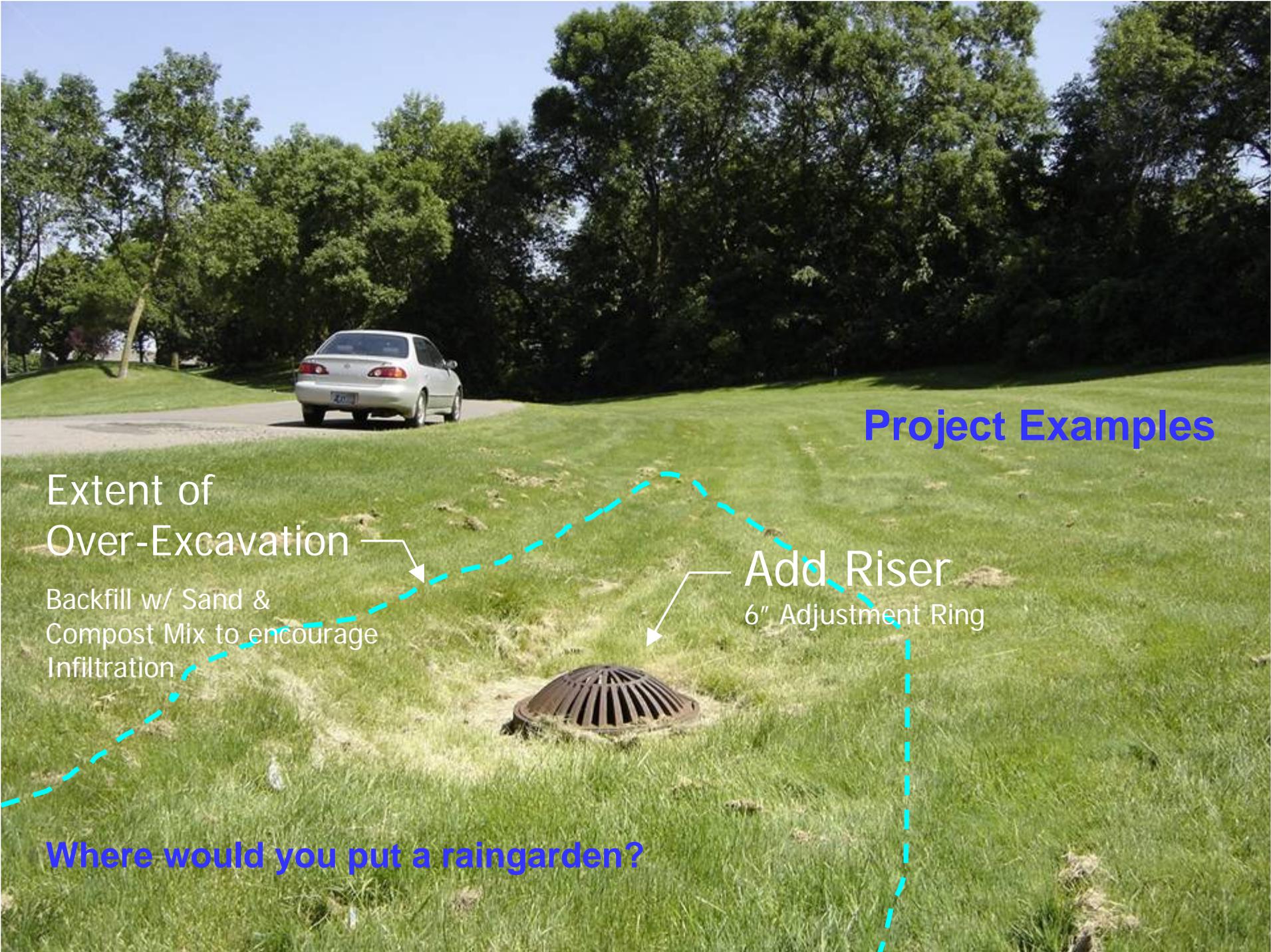
**Flow Diverter
(Speed Bump)**



Suggestion:

Consider developing bioretention behind curb to take on parking lot runoff, with stormdrain as an overflow.





Project Examples

Extent of Over-Excavation

Backfill w/ Sand & Compost Mix to encourage Infiltration

Add Riser
6" Adjustment Ring

Where would you put a rain garden?

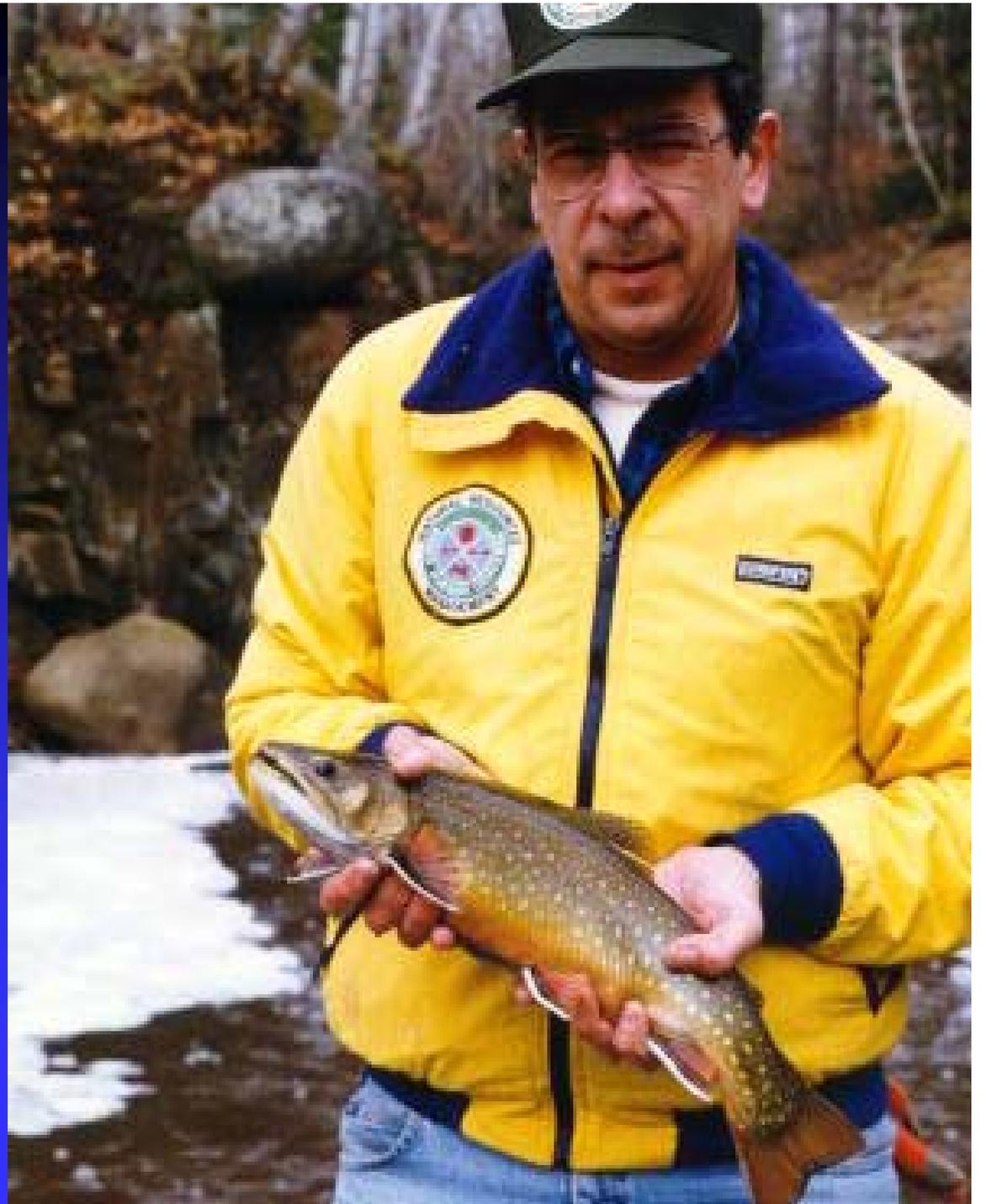
THE 9 STEPS OF PLANNING

- 1. Identify Problems and Opportunities
- 2. Determine Objectives
- 3. Inventory Resources
- 4. Analyze Resource Data
- 5. Formulate Alternatives
- 6. Evaluate Alternatives

- 7. Make Decisions (Here We Are Today)

- 8. Implement the Plan
- 9. Evaluate the Plan

A Special Resource





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