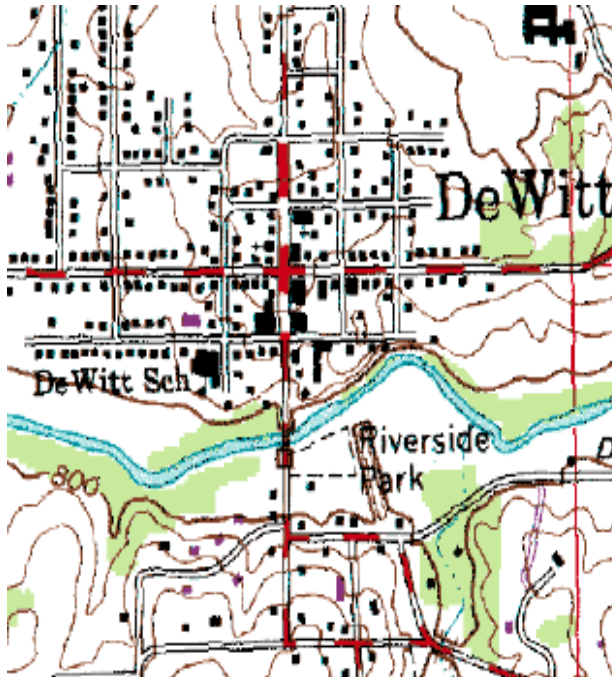
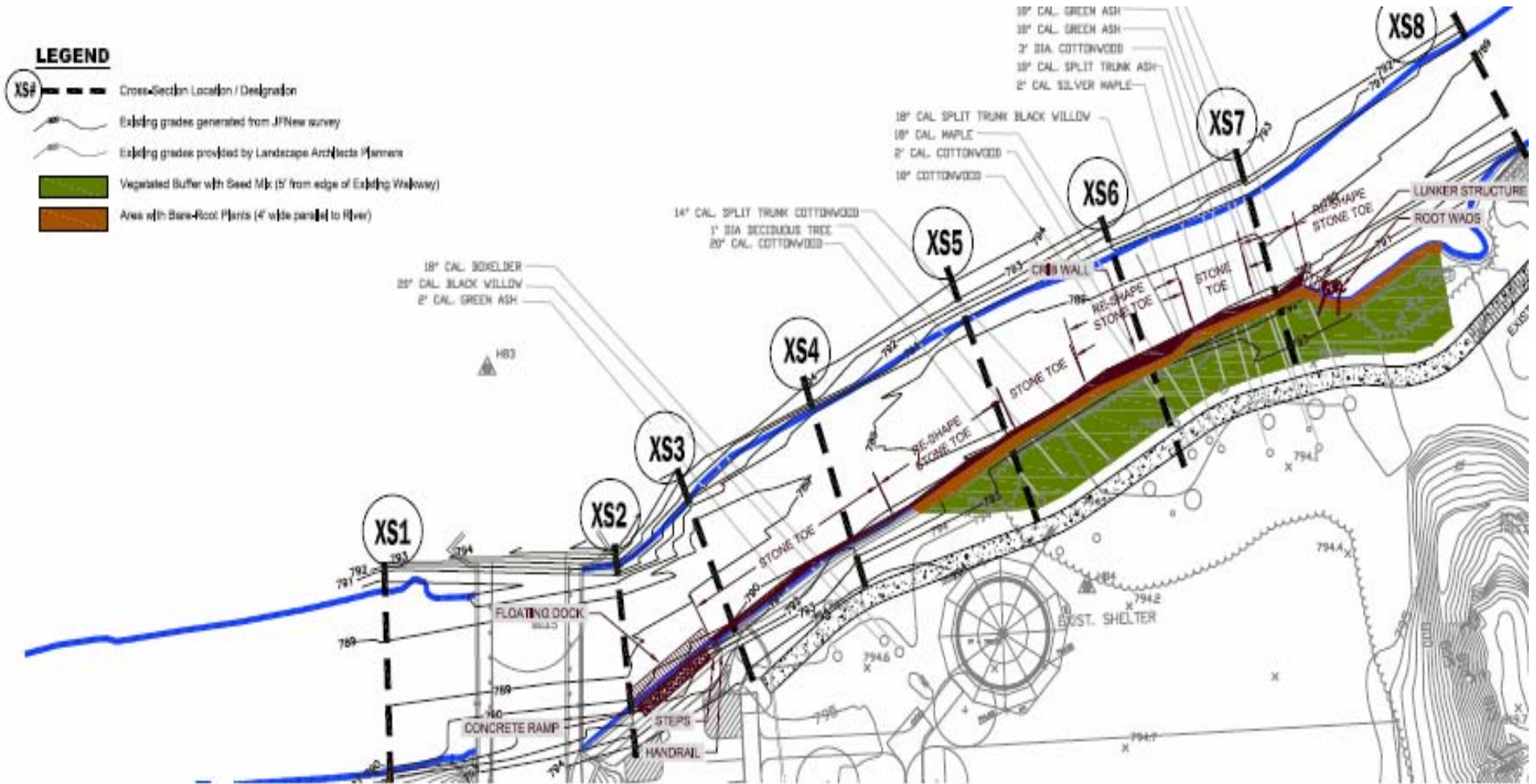


# Riverside Park Stream Restoration Alternatives City of DeWitt



April 22, 2008  
Scott Dierks, PE  
JF New

# Alternative One

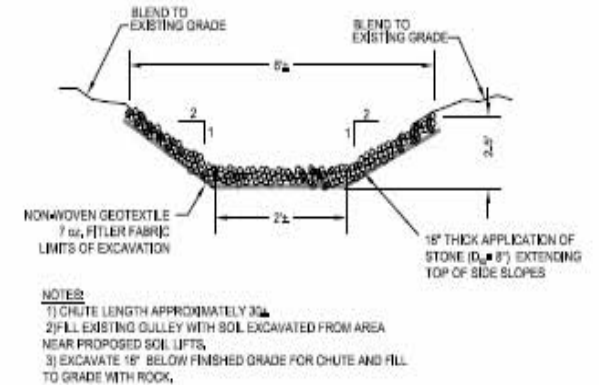
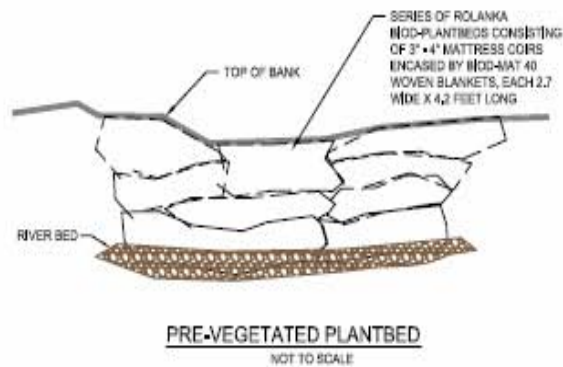
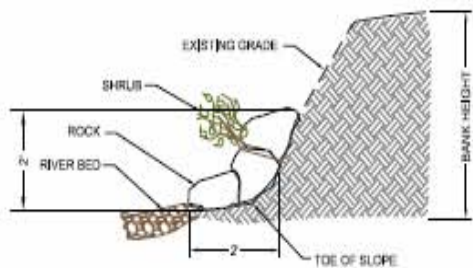
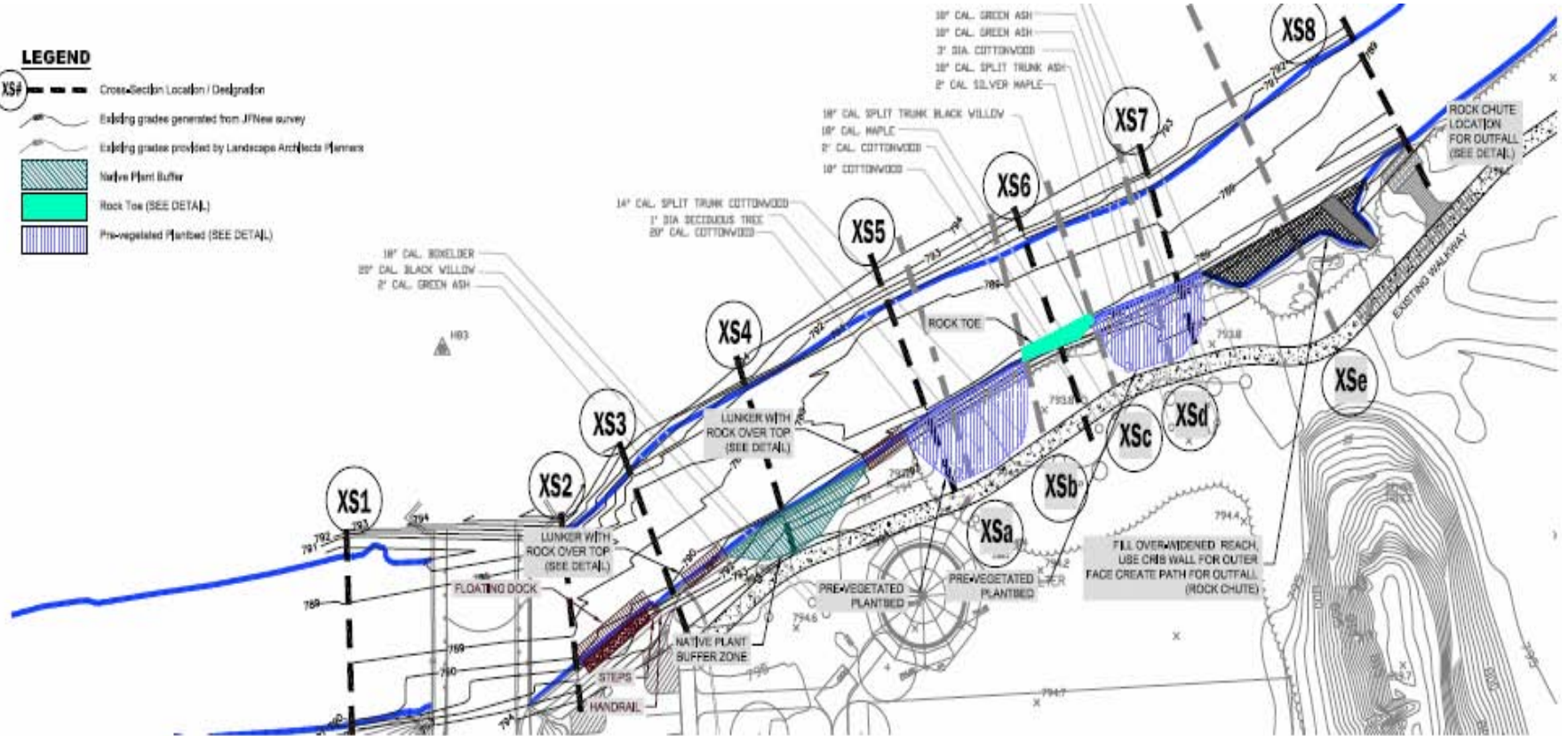




# Alternative Three

## LEGEND

- XS#** --- Cross-Section Location / Designation
- Existing grades generated from J/News survey
- Existing grades provided by Landscape Architects/Harman
- Native Plant Buffer
- Rock Toe (SEE DETAIL)
- Pre-vegetated Plantbed (SEE DETAIL)



- NOTES:**
- 1) CHUTE LENGTH APPROXIMATELY 30'
  - 2) FILL EXISTING GULLEY WITH SOIL EXCAVATED FROM AREA NEAR PROPOSED SOIL LIFTS.
  - 3) EXCAVATE 18" BELOW FINISHED GRADE FOR CHUTE AND FILL TO GRADE WITH ROCK.

# Cost Estimates

ALTERNATIVE ONE				
Description	Unit	Cost/Unit	No. of units	Subtotal
Root wads	Ea.	\$300	3	\$900
Crib wall	LF	\$200	40	\$8,000
Stone	CY	\$30	140	\$4,200
Seeding	Ac	\$1,500	0.35	\$525
Plants	Ea.	\$2	2000	\$4,000
Misc Earthwork	LS	\$3,000	1	\$3,000
Lunker Structure	Ea.	\$1,000	1	\$1,000
			<b>TOTAL ALT 1:</b>	<b>\$21,625</b>
ALTERNATIVE TWO				
	Unit	Cost	No. of units	Subtotal
Fill	CY	\$30	100	\$3,000
Stone	CY	\$30	100	\$3,000
Flagstone Steps	LS	\$2,500	1	\$2,500
Seeding	Ac	\$1,500	0.35	\$525
Plantings	Ea.	\$2	1000	\$2,000
Fabric encapsulated soil lifts	LF	\$120	100	\$12,000
			<b>TOTAL ALT 2:</b>	<b>\$23,025</b>
ALTERNATIVE THREE				
	Unit	Cost	No. of units	Subtotal
Fill	CY	\$30	150	\$4,500
Stone	CY	\$30	100	\$3,000
Lunkers	LS	\$2,000	2	\$4,000
BioD Pre-Planted Beds	Ea.	\$600	25	\$15,000
Seeding	Ac	\$1,500	0.1	\$150
Plantings	Ea.	\$2	1000	\$2,000
			<b>TOTAL ALT 3:</b>	<b>\$28,650</b>

## Floating dock pricing

### Jet Dock

20" x 20" cubes = \$95 / each

drive-on cubes for canoe launch -

XL PWC dock - \$2500 to \$2900 for 5' x 15'

### Tiger Boat Docks

kit: includes wood, frame, floats, etc

6' x 26' - \$1700

6' x 20' - \$1300

about \$11/ sf

Assume installation cost = materials cost

Jet Dock = \$5,000

Wooden Dock on Floats = \$3,500

# Proposed Plant List

Scientific	Common		
Andropogon gerardii	<i>Big bluestem grass</i>	Heliopsis helianthoides	<i>False sunflower</i>
Aquilegia canadensis	<i>Wild columbine</i>	Hibiscus moscheutos	Swamp rose mallow
Asclepias incarnata	Swamp milkweed	Iris virginica shrevei	Blue flag iris
Asclepias tuberosa	<i>Butterfly weed</i>	Juncus effusus	Common rush
Aster laevis	Smooth blue aster	Liatris spicata	Marsh blazing star
Aster lateriflorus	Side-flowering aster	Lobelia cardinalis	<i>Cardinal flower</i>
Aster novae-angliae	New England aster	Lobelia siphilitica	Great blue lobelia
Avena sativa	Seed Oats	Lolium multiflorum	Annual rye
Blephilia hirsuta	Wood mint	Mimulus ringens	Monkey flower
Bouteloua curtipendula	Side-oats grama	Monarda fistulosa	Wild bergamot
Calamagrostis canadensis	Blue joint grass	Panicum virgatum	<i>Switch grass</i>
Carex grayi	Common bur sedge	Papaver rhoeas	Corn poppy
Carex normalis	Spreading oval sedge	Penstemon digitalis	Foxglove beard tongue
Carex vulpinoidea	Brown fox sedge	Penthorum sedoides	Ditch stonecrop
Chamaecrista fasciculata	Partridge pea	Ratibida pinnata	Yellow coneflower
Cinna arundinacea	Common wood reed	Rudbeckia hirta	Black-eyed susan
Coreopsis lanceolata	Sand coreopsis	Rudbeckia laciniata	Wild golden glow
Cosmos bipinnatus	Common cosmos	Schizachyrium scoparium	<i>Little bluestem grass</i>
Cyperus esculentus	Field nut sedge	Scirpus atrovirens	Dark green rush
Echinacea purpurea	Broad-leaved purple coneflower	Scirpus validus creber	Great bulrush
Elymus canadensis	Canada wild rye	Solidago rugosa	Rough goldenrod
Elymus riparius	Riverbank wild rye	Sorghastrum nutans	<i>Indian grass</i>
Elymus virginicus	Virginia wild rye	Spartina pectinata	Prairie cord grass
Eupatorium maculatum	Spotted joe-pye weed	Verbena hastata	Blue vervain
Geranium maculatum	<i>Wild geranium</i>	Vernonia fasciculata	<i>Common ironweed</i>



Wild Columbine



Cardinal Flower



Ironweed



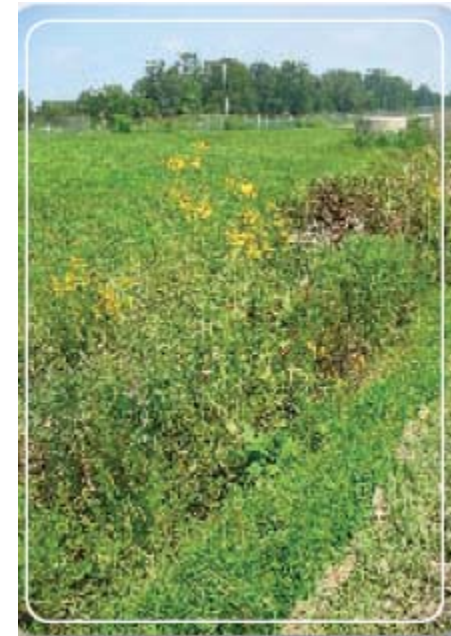
False Sunflower



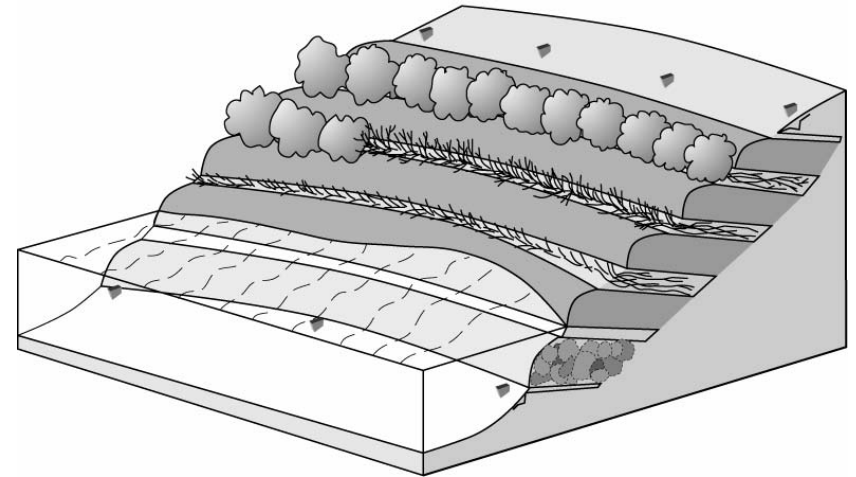
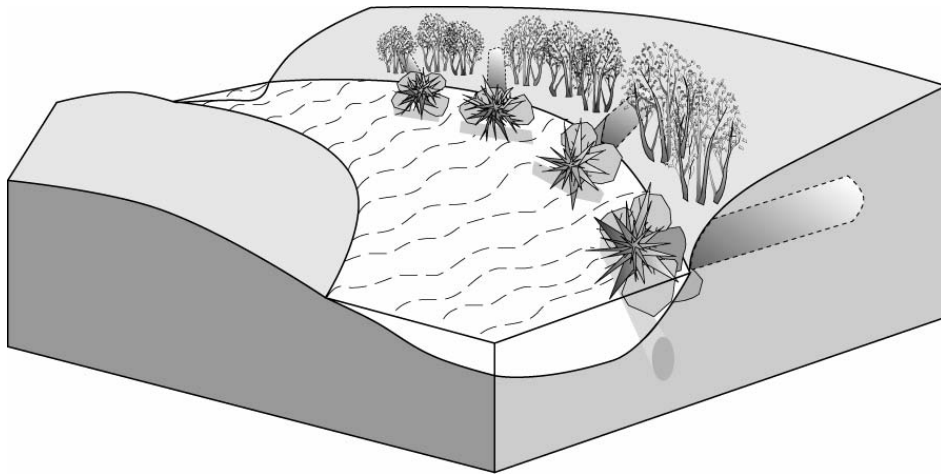
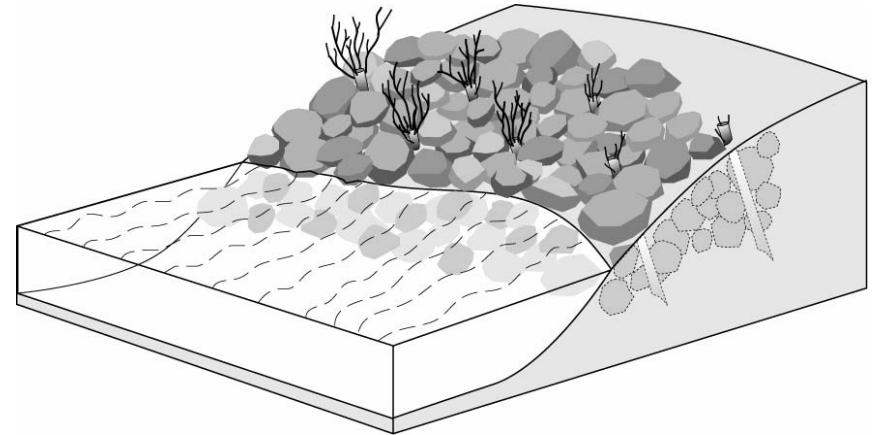
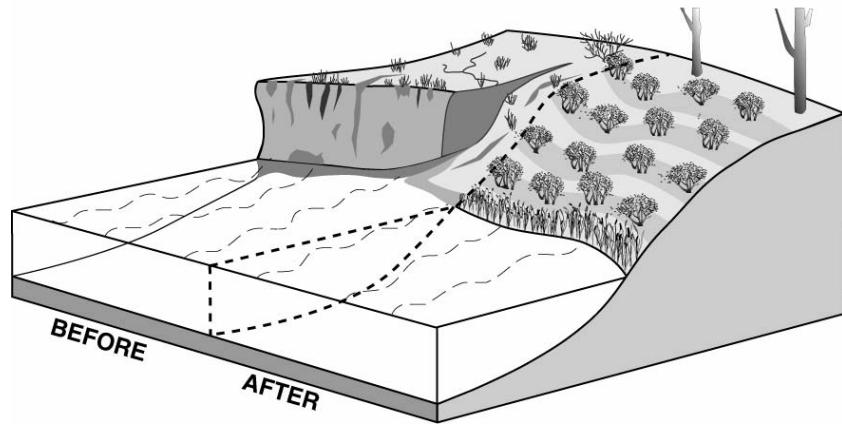
Foxglove



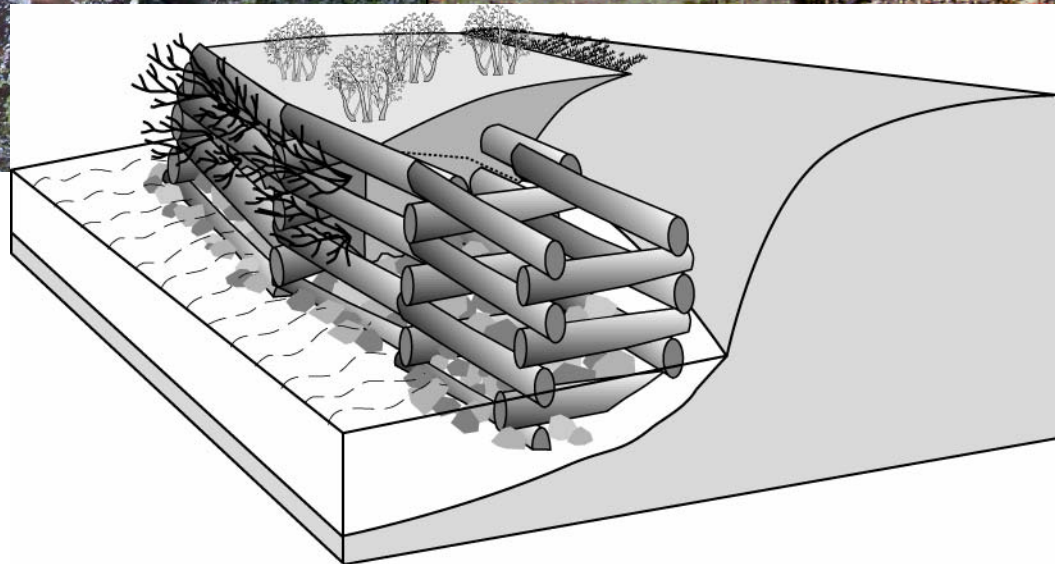
Butterfly Weed



# Bank Stabilization Options



# Cribwalls



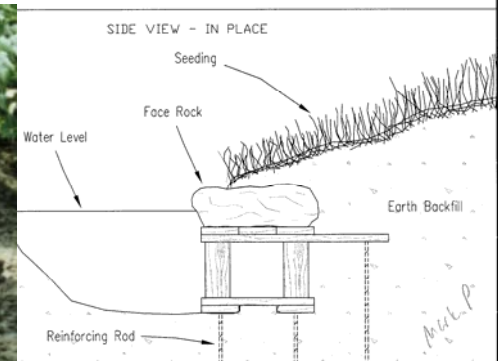
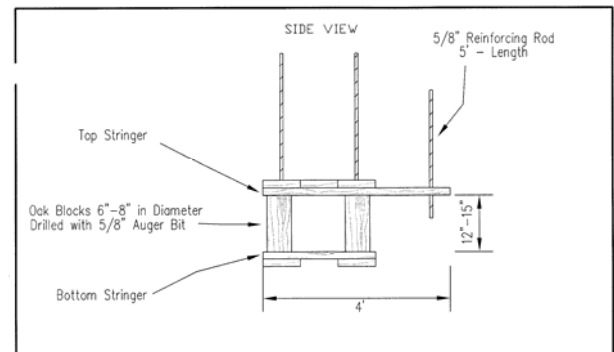
# Lunker Structure Examples



Two year old lunker structure.  
Trail Creek, Michigan City, Indiana



Lunker structure installation in progress.  
Trail Creek at I-94, Michigan City, Indiana



**NRCS**  
Natural Resources Conservation Service  
United States Department of Agriculture

**TURTLE LUNKER (DETAILS)**  
Page 2 of 3

CLIENT: _____	Designed by: _____	Date: _____
COUNTY: _____	Drawn by: _____	10/2006
	Checked by: _____	Sheet _____
	Approved by: _____	OF _____

*Mick P.*

# Canoe Launch Recommendations, from National Park Service

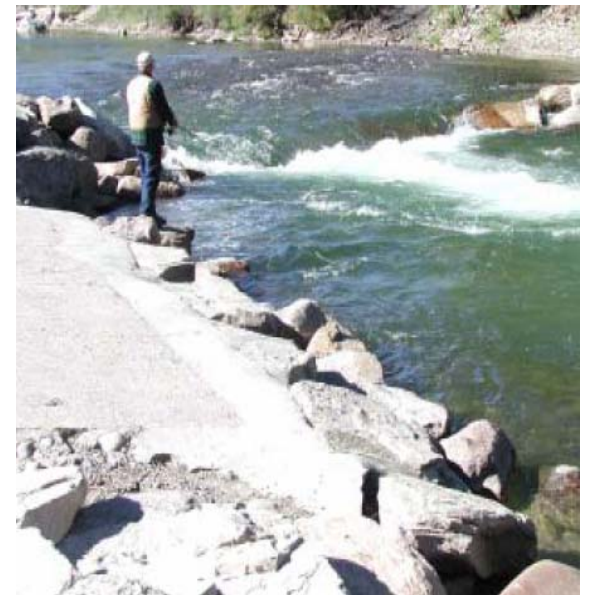
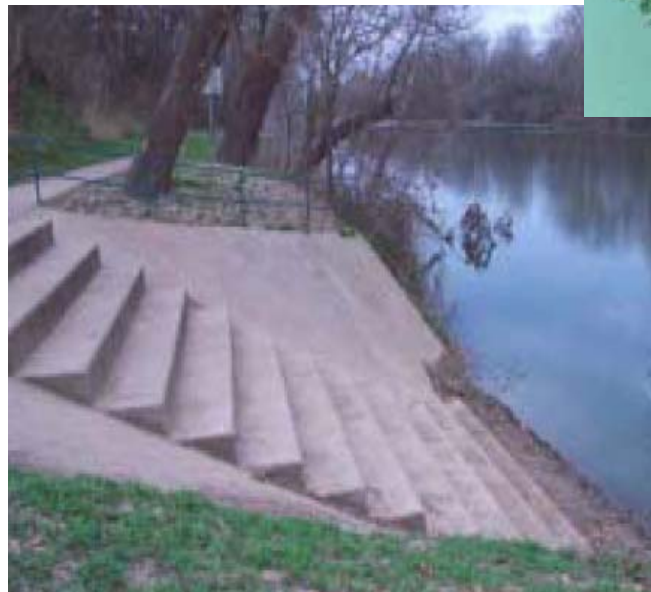
## General recommendations for designing an accessible launch

- **Height above water:** Between 9" and 2' from highest expected water level
- **Width:** At least 5' wide, preferably 6' to 12'
- **Length:** At least 25' to allow paddlers "dry" access to entire length of their boats
- **Slope:** ADA Accessibility Guidelines require that slopes not exceed 8.33% whenever possible; A slope exceeding 15% will make transition from land to water difficult for any paddler
- **Support:** Handrails or other support structures, including step-down designs or ropes, help paddlers balance their weight during put-in and take-out
- **Location:** Ideally in areas without heavy flow, erosion, exposure to elements, heavy boat traffic, or fragile riparian habitats



**Canoe Launch Area**

# Launch Alternatives



# Wooden Dock Examples



# Projected Schedule

- Finalize design elements
  - Reach consensus
- Submit for permits
  - Two weeks following consensus
- Package suitable for bid
  - Approximately four weeks following consensus
- Approximate construction date
  - May/June or September