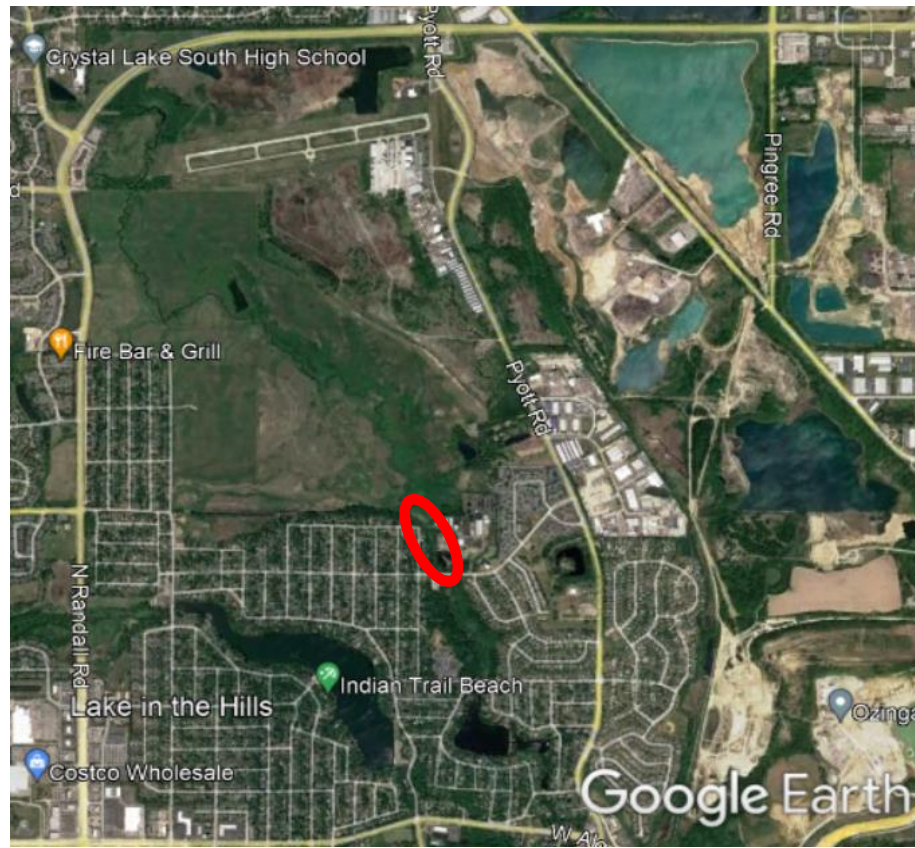


### SITE LOCATION MAP



### SHEET LIST

- SHEET 1: COVER
- SHEETS 2: TREE/SHRUB REMOVAL & PRESERVATION PLAN
- SHEETS 3: STREAMBANK & CHANNEL STABILIZATION PLAN
- SHEETS 4: NATIVE PLANTING PLAN
- SHEETS 5: EROSION CONTROL PLAN
- SHEET 6: NATIVE SEED MIXTURES & STREAM DETAILS
- SHEETS 7-8: EXAMPLE RES STREAM RESTORATION PROJECTS

## CONCEPTUAL DESIGN FOR CRYSTAL CREEK-REACH 7

LITHSD-LAKE IN THE HILLS, ILLINOIS

April 2022



RESOURCE  
ENVIRONMENTAL  
SOLUTIONS

120 W Main St  
West Dundee, IL 60118  
Office 847-844-9385

### LIST OF QUANTITIES

ITEM	DESCRIPTION	Qty	UNIT
<b>1 DESIGN &amp; PERMITTING</b>			
1.1	TOPOGRAPHIC SURVEY	1	LS
1.2	WETLAND DELINEATION	1	LS
1.3	TREE SURVEY	1	LS
1.4	PRELIMINARY & FINAL DESIGN & OPINION OF COST	1	LS
1.5	ENVIRONMENTAL PERMITTING (CORPS, IEPA, SWCD, IDNR, USFWS)	1	LS
1.6	IDNR-OWR FLOODWAY/FOODPLAIN PERMITTING	1	LS
<b>2 SITE PREPARATION</b>			
2.1	SURVEY/STAKING/LAYOUT	1	LS
2.2	MOBILIZATION/EQUIPMENT RENTAL	1	LS
2.3	HERBICIDE PREPARATION (2X)	5.82	AC
2.4	DISC/TILL PREPARATION (1X)	2.91	LS
2.5	INVASIVE TREE/SHRUB REMOVAL & GRUBBING (2.91 AC)	1	LS
2.6	REMOVE CONCRETE SLABS	1	LS
<b>3 EARTHWORK</b>			
3.1	BANK SLOPE RESHAPING & GRADING (1,765 LF/1.6 ACRES)	1	LS
3.2	SOIL HAUL OFF TO ADJACENT LITHSD FACILITY	1	LS
3.3	STONE TOE PROTECTION (12-24" NATURAL STONE)	400	CU YDS
3.4	CROSS VANE RIFFLES (24-36" NATURAL STONE)	2	EA
3.5	AGGREGATE BASE (IDOT CLASS A1 RIPRAP)	100	CU YDS
<b>4 EROSION AND SEDIMENT CONTROL</b>			
4.1	TEMPORARY CONSTRUCTION ENTRANCE/STAGING AREA	2	EA
4.2	EROSION CONTROL BLANKET - SC150 BN	4,985	SY
4.3	EROSION CONTROL BLANKET - DS75	6,389	SY
4.4	TEMPORARY STREAM CROSSING	2	LS
4.5	SUMP PIT, DEWATERING, SILT FENCE	1	LS
<b>5 ECOLOGICAL RESTORATION AND MANAGEMENT</b>			
5.1	WET-MESIC PRAIRIE SEEDING	0.77	AC
5.2	MESIC PRAIRIE SEEDING	1.31	AC
5.3	NATIVE TREE PLANTING (1.5-2" CALIPER)	18	LS
5.4	TURF GRASS SEEDING	0.27	AC
5.5	MANAGEMENT OF PLANTINGS, 2.91 TOTAL ACRES (3 YEAR)	3	YR

CRYSTAL CREEK REACH 7  
CONCEPT  
RESTORATION PLAN

LAKE IN THE HILLS, ILLINOIS

LAKE IN THE HILLS SANITARY DISTRICT

RES Proj. #: PRJ105829

Designed By: SRZ Mar2022 SRZ

Drawn By: Mar 2022 SRZ

Checked By: Mar 2022 SRZ

Coordinate System: N/A

Design Firm License: N/A

FILENAME

SHEET TITLE  
COVER SHEET

SHEET NUMBER

1





### Trees/Shrubs to Remove/Preservation

Scientific name	Common Name	% Remove
<i>Acer negundo</i>	Box Elder	100%
<i>Acer saccharinum</i>	Silver Maple	75%
<i>Amelanchier sp.</i>	Serviceberry	0%
<i>Celtis occidentalis</i>	Hackberry	50%
<i>Cornus stolonifera</i>	Red Osier Dogwood	50%
<i>Juglans nigra</i>	Black Walnut	0%
<i>Lonicera sp.</i>	Honeysuckle	100%
<i>Malus sp.</i>	Crabapple	100%
<i>Morus alba</i>	White Mulberry	100%
<i>Populus deltoides</i>	Cottonwood	50%
<i>Prunus serotina</i>	Black Cherry	100%
<i>Rhamnus cathartica</i>	Buckthorn	100%
<i>Salix interior</i>	Sandbar Willow	100%
<i>Salix nigra</i>	Black Willow	100%
<i>Sambucus canadensis</i>	Elderberry	50%
<i>Ulmus americana</i>	American Elm	100%
<i>Ulmus pumila</i>	Siberian Elm	100%
N/A	Dead Trees	100%
N/A	Dead Falls	100%



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## CRYSTAL CREEK REACH 7 CONCEPT RESTORATION PLAN

LAKE IN THE HILLS, ILLINOIS

LAKE IN THE HILLS SANITARY DISTRICT



RES Proj. #: PRJ105829  
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 Checked By: Mar2022 SRZ  
 Coordinate System: N/A  
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FILENAME  
 SHEET TITLE  
 TREE/SHRUB REMOVAL & PRESERVATION PLAN

SHEET NUMBER  
 2





**LEGEND**

-  Crystal Creek Reach 7 (1,400 Lf)
-  Natural Stone Toe Stabilization (1,035 Lf, 320 Cu Yds)
-  Bank Slope Reshaping & Grading (1,765 Lf/1.6 Acres)
-  Cross Vane Riffle Installation
-  Existing Riffle to Remain
-  Existing Rip Rap to Remain
-  Concrete Slabs to be Removed



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**CRYSTAL CREEK REACH 7  
CONCEPT  
RESTORATION PLAN**

LAKE IN THE HILLS, ILLINOIS

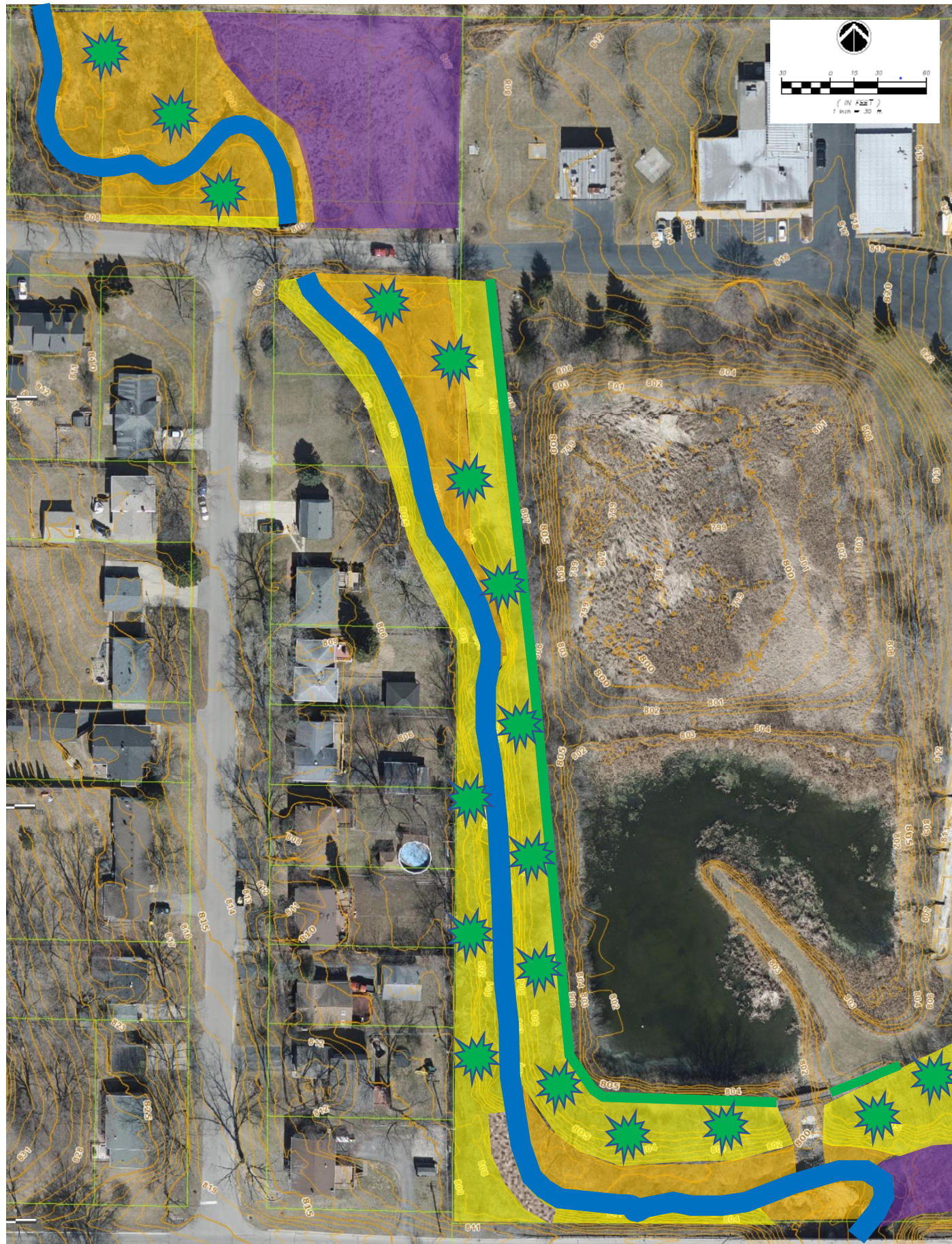
LAKE IN THE HILLS SANITARY DISTRICT

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 Drawn By: Mar2022 SRZ  
 Checked By: Mar2022 SRZ  
 Coordinate System: N/A  
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FILENAME  
 SHEET TITLE  
**STREAMBANK & CHANNEL  
 STABILIZATION PLAN**

SHEET NUMBER  
**3**





**LEGEND**

-  Crystal Creek Reach 7 (1,400 Lf)
-  Mesic Prairie Seeding (1.31 Acres)
-  Wet-Mesic Prairie Seeding (0.77 Acres)
-  Existing Emergent Wetland to Manage (0.56 Acres)
-  8' Wide Turf Grass Path (0.27 Acres)
-  Swamp White Oak, Hackberry, or Sycamore (18: 1.5-2" Cal.)



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**CRYSTAL CREEK REACH 7  
CONCEPT  
RESTORATION PLAN**

LAKE IN THE HILLS, ILLINOIS

LAKE IN THE HILLS SANITARY DISTRICT

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Checked By:	202Mar2 SRZ
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FILENAME  
SHEET TITLE  
NATIVE PLANTING PLAN


SHEET NUMBER  
4





**LEGEND**

-  Crystal Creek Reach 7 (1,400 Lf)
-  Erosion Control Blanket, NAG SC150 BN, Or Equivalent (1.32 Ac/6,389 Sq Yds)
-  Erosion Control Blanket, NAG DS75, Or Equivalent (1.03 Ac/4,985 Sq Yds)
-  Existing Emergent Wetland
-  Temporary Rock Construction Entrance/Staging Area
-  Temporary Stream Crossing

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**CRYSTAL CREEK REACH 7  
 CONCEPT  
 RESTORATION PLAN  
 LAKE IN THE HILLS, ILLINOIS**

LAKE IN THE HILLS SANITARY DISTRICT

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FILENAME	
SHEET TITLE	EROSION CONTROL PLAN

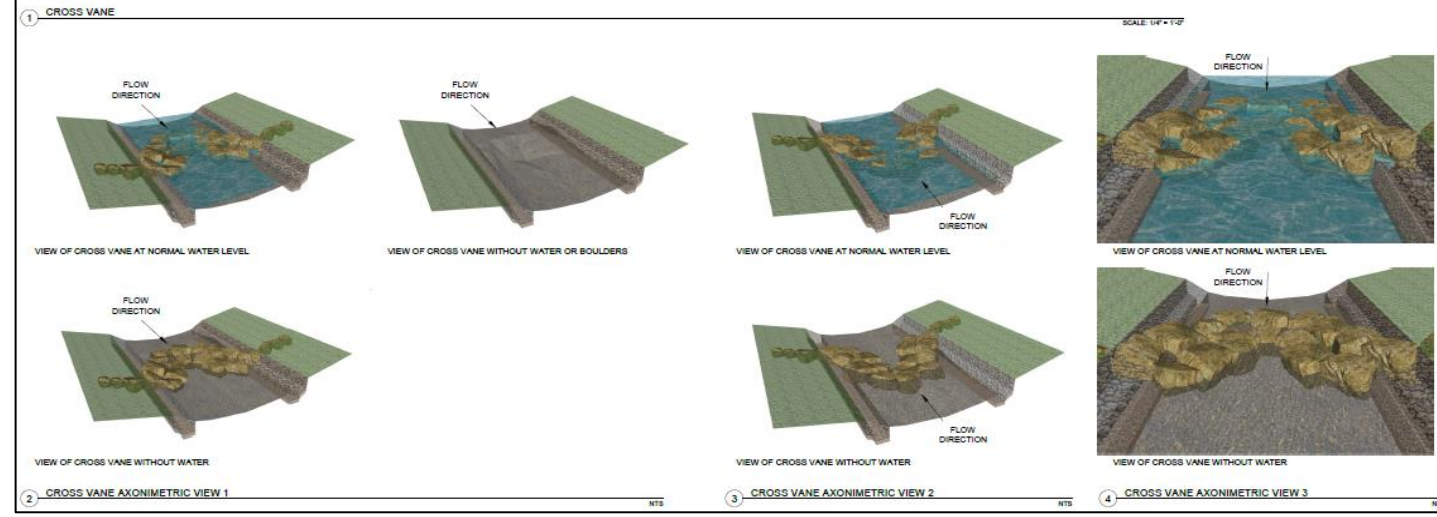
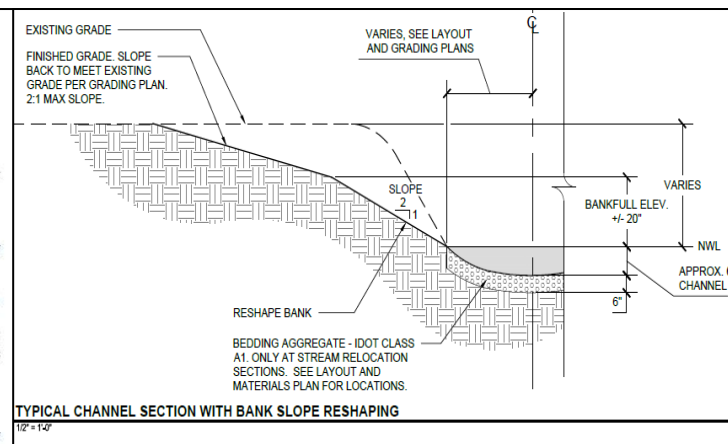
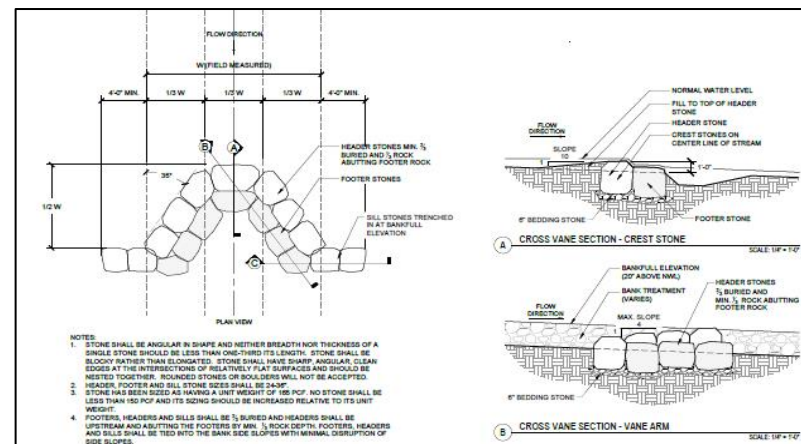
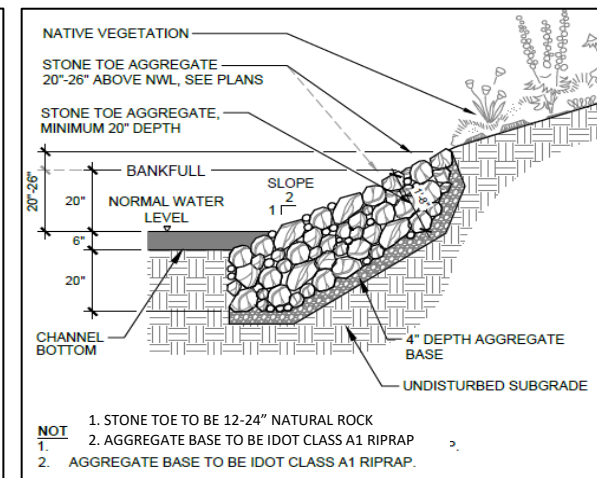
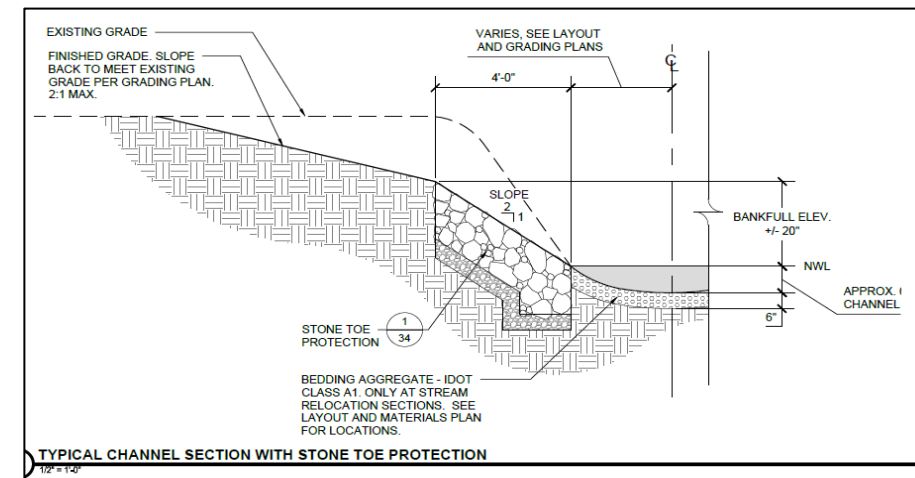
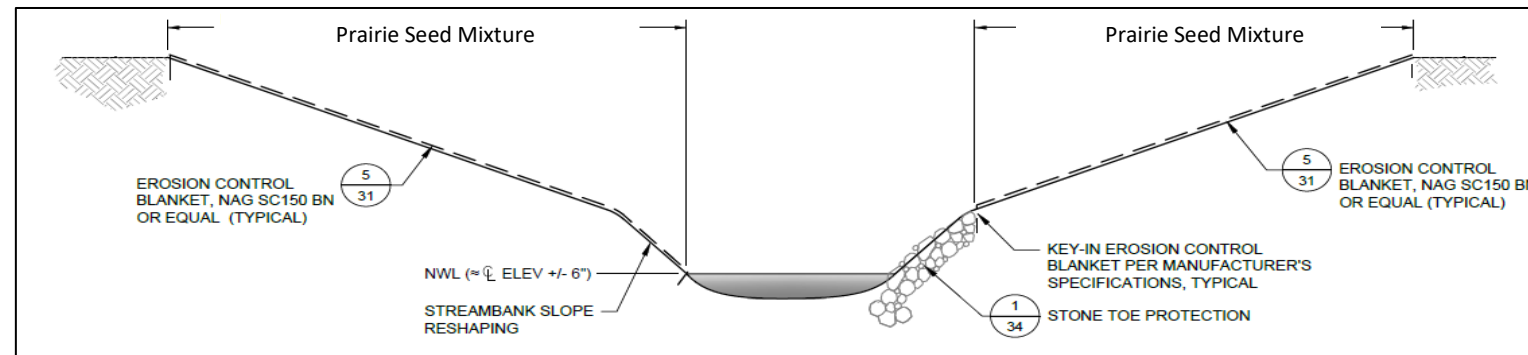


**MESIC PRAIRIE SEED MIXTURE**

Scientific name	Common Name	Oz./Acre	lbs./Acre
<b>Grasses &amp; Sedges:</b>			
<i>Andropogon scoparius</i>	Little bluestem	125.0	
<i>Andropogon gerardii</i>	Big bluestem	14.6	
<i>Bouteloua curtipendula</i>	Side oats grama	20.4	
<i>Carex bicknellii</i>	Copper-shouldered oval sedge	12.8	
<i>Panicum virgatum</i>	Switch grass	16.0	
<b>Total Grasses</b>		<b>188.8</b>	<b>11.8</b>
<b>Forbs:</b>			
<i>Asclepias tuberosa</i>	Butterfly weed	13.7	
<i>Echinacea purpurea</i>	Purple coneflower	14.5	
<i>Echinacea pallida</i>	Pale purple coneflower	18.4	
<i>Eryngium yuccifolium</i>	Rattlesnake master	12.8	
<i>Heliopsis helianthoides</i>	False sunflower	7.4	
<i>Monarda fistulosa</i>	Wild bergamot	0.6	
<i>Penstemon digitalis</i>	Foxglove beard tongue	1.0	
<i>Petalostemum purpureum</i>	Purple prairie clover	8.0	
<i>Ratibida pinnata</i>	Yellow coneflower	1.9	
<i>Rudbeckia hirta</i>	Black eyed Susan	0.9	
<i>Solidago rigida</i>	Stiff goldenrod	2.1	
<i>Symphotrichum novae-angliae</i>	New England aster	1.5	
<i>Tradescantia ohiensis</i>	Spiderwort	15.2	
<b>Total Forbs</b>		<b>97.9</b>	<b>6.1</b>
<b>Total All Species</b>		<b>286.8</b>	<b>17.9</b>
<b>Temporary Cover Crop:</b>			
<i>Elymus canadensis</i>	Canada wild rye	16.0	1.0
<i>Avena sativa</i>	Common oats	320.0	20.0

**WET-MESIC PRAIRIE SEED MIXTURE**

Scientific name	Common Name	Oz./Acre	lbs./Acre
<b>Grasses &amp; Sedges:</b>			
<i>Andropogon gerardii</i>	Big bluestem	16.0	
<i>Andropogon scoparius</i>	Little bluestem	100.0	
<i>Carex vulpinoidea</i>	Brown fox sedge	3.1	
<i>Juncus dudleyi</i>	Dudley's rush	0.2	
<i>Spartina pectinata</i>	Prairie cord grass	8.3	
<i>Panicum virgatum</i>	Switch grass	26.1	
<b>Total Grasses &amp; Sedges</b>		<b>153.7</b>	<b>9.6</b>
<b>Forbs:</b>			
<i>Asclepias incarnata</i>	Swamp milkweed	17.3	
<i>Echinacea purpurea</i>	Purple coneflower	15.8	
<i>Eryngium yuccifolium</i>	Rattlesnake master	13.1	
<i>Helenium autumnale</i>	Sneezeweed	0.9	
<i>Liatis spicata</i>	Marsh blazing star	11.9	
<i>Lobelia cardinalis</i>	Cardinal flower	0.5	
<i>Monarda fistulosa</i>	Wild bergamot	0.7	
<i>Oligoneuron riddellii</i>	Riddell's goldenrod	1.4	
<i>Penstemon digitalis</i>	Foxglove beard tongue	1.1	
<i>Rudbeckia hirta</i>	Black eyed Susan	1.0	
<i>Rudbeckia subtomentosa</i>	Sweet black-eyed Susan	2.3	
<i>Ratibida pinnata</i>	Yellow coneflower	2.1	
<i>Symphotrichum novae-angliae</i>	New England aster	1.7	
<b>Total Forbs</b>		<b>69.7</b>	<b>4.4</b>
<b>Total All Species</b>		<b>223.4</b>	<b>14.0</b>
<b>Temporary Cover Crop:</b>			
<i>Elymus canadensis</i>	Canada wild rye	16.0	1.0
<i>Avena sativa</i>	Common oats	320.0	20.0



**res**  
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**CRYSTAL CREEK REACH 7  
 CONCENT RESTORATION PLAN  
 LAKE IN THE HILLS, ILLINOIS  
 LAKE IN THE HILLS SANITARY DISTRICT**

RES Proj. #: PRJ105829  
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 Checked By: Mar2022 SRZ  
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 Design Firm License: N/A  
 FILENAME

SHEET TITLE  
**NATIVE SEED MIXTURES & DETAILS**  
 SHEET NUMBER  
**6**



**FETZNER PARK:  
WOODS CREEK  
TRIBUTARY REACH 2**

CRYSTAL LAKE, ILLINOIS



**RESOURCE  
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**FOX POINT:  
FLINT CREEK**

BARRINGTON, ILLINOIS



**CARPENTER PARK:  
WOODS CREEK REACH 10**

LAKE IN THE HILLS, ILLINOIS



**CRYSTAL CREEK REACH 7  
CONCEPT  
RESTORATION PLAN  
LAKE IN THE HILLS, ILLINOIS**

LAKE IN THE HILLS SANITARY DISTRICT

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FILENAME

SHEET TITLE  
EXAMPLE RES STREAM  
RESTORATION PROJECTS

SHEET NUMBER  
7



**SPELLA PARK:  
WOODS CREEK  
REACHES 2-4  
ALGONQUIN, ILLINOIS**



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**FLINT CREEK  
DREAMWAY  
BARRINGTON, ILLINOIS**



**CRYSTAL CREEK REACH 7  
CONCEPT  
RESTORATION PLAN  
LAKE IN THE HILLS, ILLINOIS**

**LAKE IN THE HILLS SANITARY DISTRICT**

**CREEKS CROSSING:  
DIXIE CREEK REACH 1-2  
ALGONQUIN, ILLINOIS**



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FILENAME  
SHEET TITLE  
EXAMPLE RES STREAM  
RESTORATION PROJECTS

SHEET NUMBER  
8