

**WETLAND COMPENSATION PLAN**  
**TR1000N AND TR41**  
**SECTIONS 99-00124-00-ES AND 96-09118-00-BR**  
**(SEQ. NO. 8925)**  
**COLES COUNTY, ILLINOIS**



**Prepared for:**

**Coles County  
Highway Department**

**Prepared by:**



**Hanson Professional Services Inc.**

**December 2004**

WETLAND COMPENSATION PLAN  
FOR  
TR1000N AND TR41  
SECTIONS 99-00124-00-ES AND 96-09118-00-BR (SEQ. NO. 8925)  
COLES COUNTY

U.S. 45 NORTH OF MATTOON TO IL 130 NORTH OF CHARLESTON  
AND  
NORTHEAST CORNER OF SECTION 2, TOWNSHIP 14 NORTH, RANGE 7 EAST  
THIRD PRINCIPAL MERIDIAN/2 MILES NORTHEAST OF COOKS MILLS  
JOB NO. P-95-025-97 AND BR-05-029(73)  
CONTRACT NO. UNKNOWN AND 91164

Prepared for:

COLES COUNTY HIGHWAY DEPARTMENT  
651 Jackson Street  
Courthouse Room 16  
Charleston, Illinois 61920

Prepared by:

HANSON PROFESSIONAL SERVICES INC.  
1525 South Sixth Street  
Springfield, Illinois 62703

DECEMBER 2004

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**WETLAND COMPENSATION PLAN  
FOR  
TR1000N AND TR41  
COLES COUNTY, ILLINOIS  
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SECTION 1.0  
INTRODUCTION

## **SECTION 1.0 INTRODUCTION**

This wetland compensation plan provides for the replacement of unavoidable wetland impacts associated with the TR1000N roadway and I-57 interchange project, and the TR41 new bridge construction project over the Kaskaskia River. Both of these projects are located in Coles County, Illinois and are under the jurisdiction of the Coles County Highway Department.

The wetlands impacted by the proposed construction cannot practicably be avoided. Federal and state policies include processes to minimize and mitigate adverse impacts to wetlands. When adverse wetland impacts occur, compensation includes consideration of restoration of wetlands of comparable functional type and size before creation of wetlands is considered. Wetland restoration is far easier and less costly than creation and is preferred. The proposed wetland compensation plan is in compliance with all federal and state acts, regulations, and policies unless otherwise indicated.

The Coles County Highway Department will compensate for wetland impacts with an in-kind, on-site replacement, meaning that the same wetland types impacted (i.e., emergent, forested, etc.) will be replaced within the same drainage basin as the impacted wetlands.

SECTION 2.0  
PROJECT-RELATED WETLAND IMPACTS

**SECTION 2.0  
PROJECT-RELATED WETLAND IMPACTS**

The TR1000N project will impact approximately 1.76 acres of unavoidable wetlands from eight sites, including a farmed wetland, with a permanent loss of 0.10 acres; a borrow pit pond with a cattail fringe, with a permanent loss of 0.19 acres; a vegetated ditch with a permanent loss of 0.21 acres; a farmed wetland with a permanent loss of 0.58 acres; a forested wetland dominated by black willow, rough-leaf dogwood and hackberry, with a permanent loss of 0.55 acres; a pasture dominated by reed canary grass, with a permanent loss of 0.02 acres; two drainage ditch channels dominated by reed canary grass, with a permanent loss of 0.07 and 0.04 acres, respectively. None of these sites have a Floristic Quality Index of over 7 (see Appendix A).

Since wetland mitigation is occurring on-site, has minimal impacts and is replacing emergent wetlands, a mitigation ratio of 1.5 to 1.0 is required for everything except the forested wetland and the farmed wetland greater than 0.5 acre. The forested wetland and the farmed wetland will require a 2.5 to 1.0 mitigation ratio. A total of 3.770 acres of wetland mitigation will be required for this project (see Table 2.1).

Table 2.1: Wetland Impacts and Compensation

Wetland Type Impacted	Wetland Impacted (acres)	Compensation Ratio	Compensation Acreage Required
<u>TR1000N</u>			
Farmed Wetland-Site S1	0.10	1.5:1	0.150
Farmed Wetland-Site S3A	0.58	2.5:1	1.450
Borrow Pond-Site S2	0.19	1.5:1	0.285
Vegetated Ditch-Sites S3, S6, S6A	0.32	1.5:1	0.480
Emergent Pasture-Site S4A	0.02	1.5:1	0.030
Forested Wetland-Site S4	0.55	2.5:1	1.375
Total	1.76	---	3.770
<u>TR41</u>			
Forested Wetland-Site 2	0.04	5.5:1	0.220
Forested Wetland-Site 3	0.11	5.5:1	0.605
Total	0.15	---	0.825
Grand Total	1.91	---	4.595

The TR41 project impacted an unavoidable floodplain forest/emergent wetland that is a narrow strip of land located on the west side of the Kaskaskia River. The site (Site 2) is between a small levee along a drainage channel and an upland slope leading to the road. A total of 0.04 acres are impacted by the project. The tree layer vegetation of this site is dominated by overhanging silver maple (*Acer saccharinum*) while the herb layer is dominated by lizard's tail (*Saururus cernuus*). This floodplain forest provides floodwater storage and wildlife habitat of

fair quality. The mean C value for the site is 3.0 and the FQI is 10.4. These values are indicative of fair natural quality. This site will be mitigated at a 5.5:1 replacement ratio.

In addition, the TR41 project impacts another unavoidable floodplain forest (Site 3) located along the Kaskaskia River on the north and south side of the 1600N bridge. A total of 0.11 acres of this wetland are impacted by the project. Silver maple (tree layer), green ash (*Fraxinus pensylvanica* var. *subintegerrima*) (shrub layer), panicled aster (*Aster simplex*) (herb layer) and Virginia wild rye (*Elymus virginicus*) (herb layer) dominated the vegetation at this site. This floodplain forest provides floodwater storage and wildlife habitat of good quality. The National Wetland Inventory codes this site as PFO1A (temporarily flooded, broad-leaved deciduous, forested, palustrine wetland). The mean C value for the site is 3.2 and the FQI is 20.2. These values are indicative of good natural quality and this site can be considered an environmental asset. This site is an early to mid-successional floodplain forest dominated by trees approximately 30 to 50 years old (see Appendix B). Due to the high quality of this wetland, the compensation ratio is 5.5:1. The forested wetland replacement for this project, including Site 2 and Site 3, will be 0.825 ac. (see Table 2.1).

A total of 4.595 acres of wetland are required as compensation for these two projects. An on-site wetland compensation site has been selected at the proposed interchange on I-57 at TR1000N in Coles County. This compensation location contains hydric soils and hydrology in the form of an existing borrow pond. The compensation site is discussed in more detail in Section 4.0 and 5.0 of this report.

SECTION 3.0  
WETLAND COMPENSATION GOALS AND OBJECTIVES

### **SECTION 3.0 WETLAND COMPENSATION GOALS AND OBJECTIVES**

The goals and objectives of wetland compensation for these county roadways were determined based on the functions and values of the wetlands impacted by the proposed roadway. The wetlands impacted, for both projects, consist of small unavoidable wetlands of a few acres or less in size. Due to their small size, the values that they serve for the functions they exhibit are extremely limited.

The goal of wetland compensation is to create a more functional wetland than those impacted by the proposed roadways. Specific objectives related to this goal include:

- Replace impacted wetland types (in-kind) at a ratio of 1:1 or greater with functional jurisdictional wetlands of similar function and type.
- Locate the wetlands within the same drainage basin as the impacted wetlands.
- Design the wetland to remove sediments and nutrients from surface water runoff. This mitigation area will be planted in emergent hydrophytic species which will trap and retain sediments and nutrients draining from the surrounding agricultural fields and the adjacent interstate. The goal is to prevent the accumulation of many of these sediments and nutrients, from this portion of the watershed, from entering the Riley Creek aquatic system.
- Plant the compensation site with native hydrophytic vegetation.

SECTION 4.0  
WETLAND COMPENSATION SITE LOCATION

## SECTION 4.0 WETLAND COMPENSATION SITE LOCATION

### 4.1 LOCATION

The proposed wetland compensation site is located about 2.5 miles northeast of Mattoon, Illinois at the proposed I-57 and TR1000N interchange (see Figure 4-1). The wetland compensation site consists of about 5.13 acres within the northeast infield of the proposed interchange. The legal description of the site is the West 400 ft of the South 800 ft of the Southwest Quarter of the Southeast Quarter of Section 33, Township 13 North, Range 8 East of the Third Principal Meridian, Coles County, Illinois. The distance from the proposed wetland compensation site to areas of impacted wetlands for which it provides compensation ranges from immediately adjacent (the I-57 borrow pond) to about seven miles (TR 41 at the Kaskaskia River). Due to the small acreage required for compensation for TR41, 0.705 ac., it was suggested that compensation for the two projects be combined to develop a larger, more functional wetland.

### 4.2 LAND USE

The existing land use of the proposed compensation site consists of agricultural land that is bordered on the west by a linear borrow pond and I-57. The National Wetlands Inventory (NWI) map does not depict existing wetlands on the site (see Figure 4-2). According to the Natural Resources Conservation Service Wetland Map for Coles County, this site is considered to be a Prior-converted wetland (see Figure 4-4).

### 4.3 SOILS

The *Soil Survey of Coles County, Illinois* (U.S. Department of Agriculture, 1993) depicts the area of the proposed wetland compensation site as predominantly Drummer silty clay loam (see Figure 4-3). Drummer silty clay loam is a nearly level, poorly drained soil on upland flats and in shallow depressions and drainageways on outwash plains and till plains. Typically, the surface layer is black, friable silty clay loam about 13 in. thick. The subsurface layer is very dark gray, friable silty clay loam about 5 in. thick. The subsoil is about 37 in. thick and is mottled and firm. The upper part is dark gray and gray silty clay loam, and the lower part is gray silt loam. The underlying material to a depth of 60 in. or more is yellowish brown, mottled fine sandy loam. Water and air move through the Drummer soil at a moderate rate. Surface runoff is slow to ponded in cultivated areas. The seasonal high water table ranges from 0.5 ft above the surface to 2.0 ft below the surface during the spring. Available water capacity is very high and the organic matter content is high. The hydric soil list for Coles County lists Drummer silty clay loam as hydric.

#### 4.4 HYDROLOGY

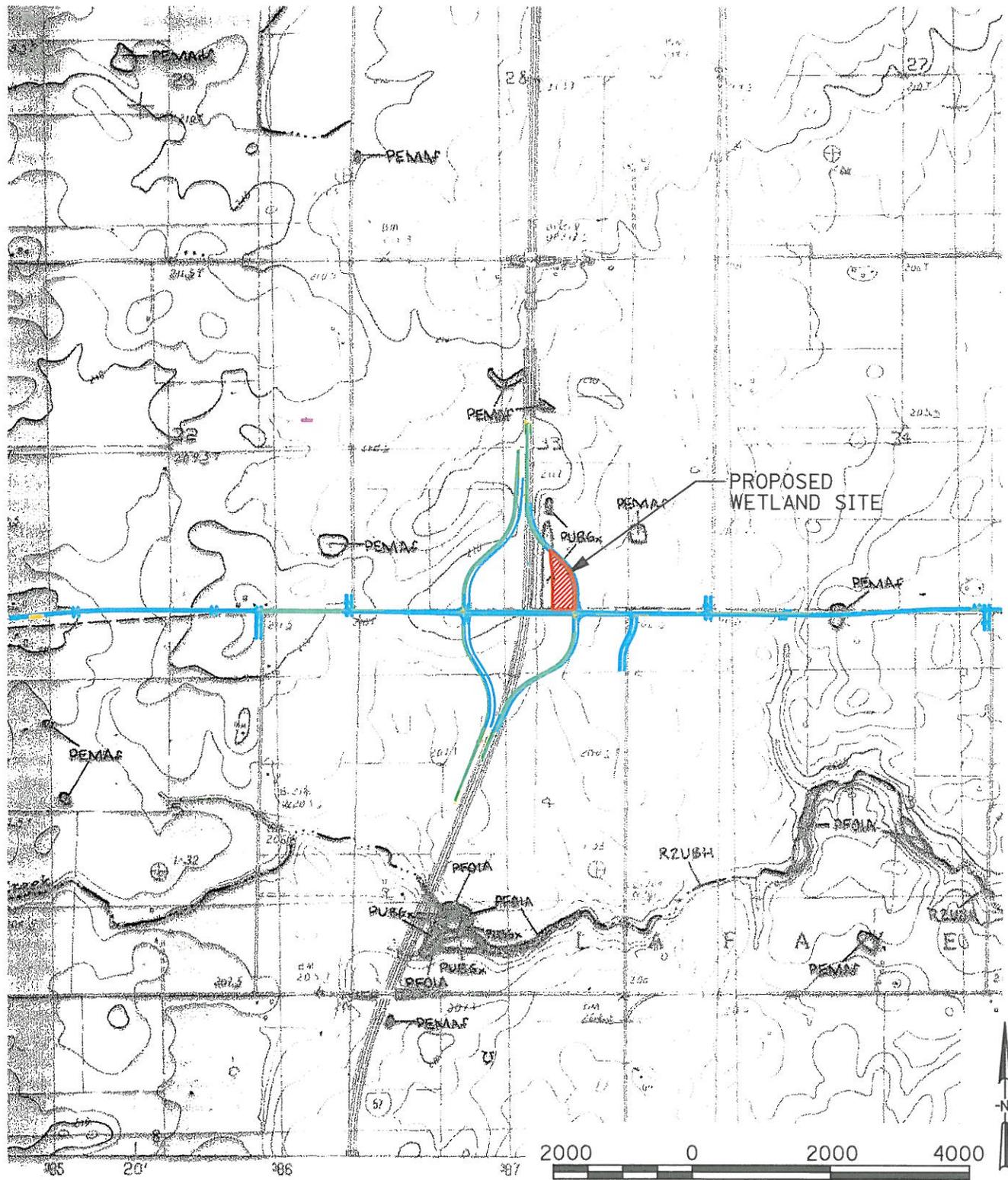
The proposed wetland compensation site is generally flat and not well drained. Direct precipitation and surface runoff are the major hydrologic inputs. Surface runoff flows to the southeast towards Riley Creek via an unnamed tributary. Drainage tile collects and transports excess water from the site to the unnamed tributary of Riley Creek.

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 Copyright Hanson Professional Services Inc. 2003	SITE LOCATION MAP	
	CONCEPTUAL WETLAND COMPENSATION PLAN F.A.I.-57, F.A.S. 642 SEC. NO. 15-23K, 99-00124-02-PV COLES COUNTY, ILLINOIS	
	JOB NO. 97S2028B	FIGURE 4-1

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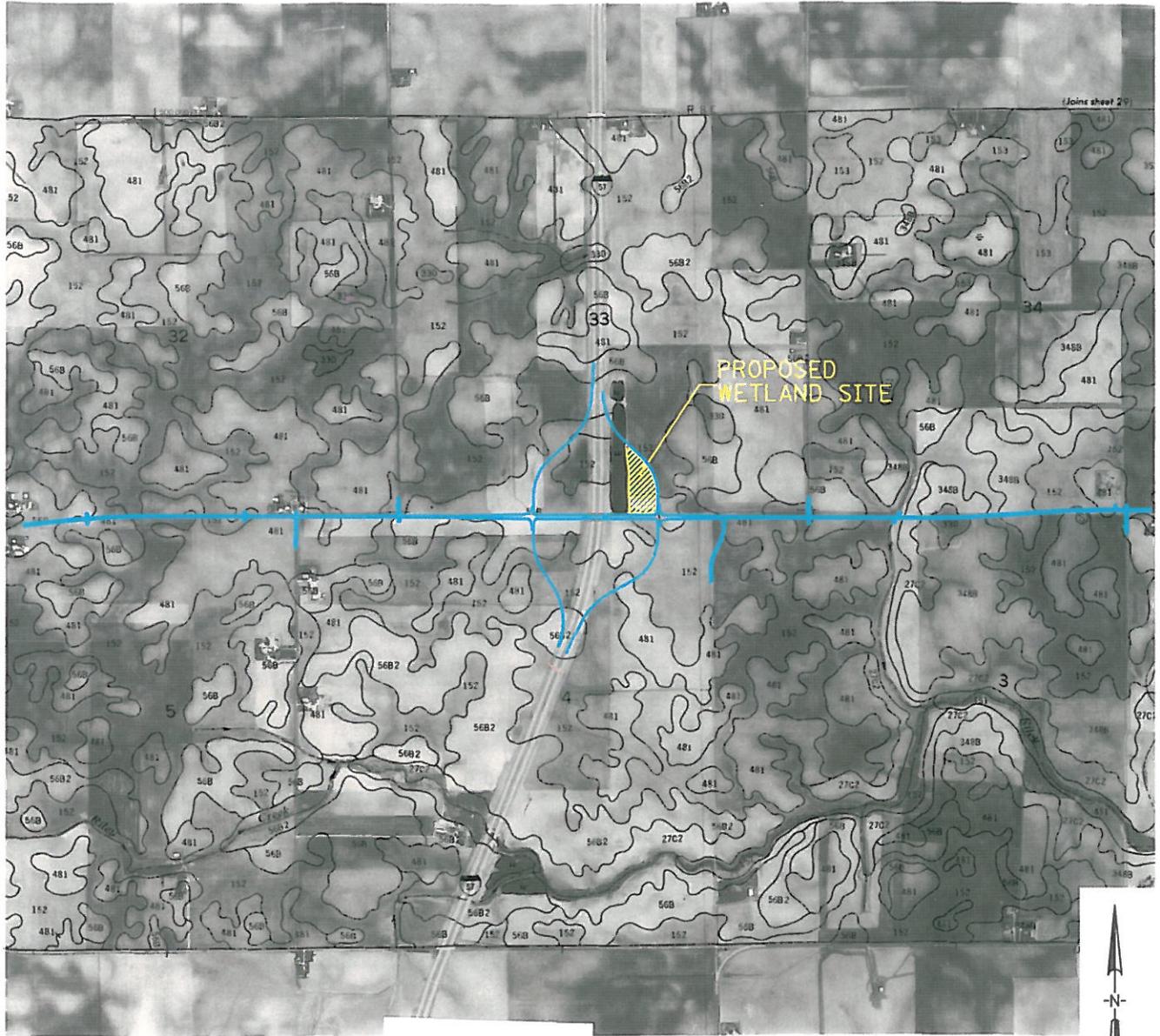


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N.W.I. WETLAND MAP  
CONCEPTUAL WETLAND COMPENSATION PLAN  
F.A.I.-57, F.A.S. 642  
SEC. NO. 15-23K, 99-00124-02-PV  
COLES COUNTY, ILLINOIS

JOB NO. 97S2028B

FIGURE 4-2.



**LEGEND**

#152 - DRUMMER SILTY CLAY LOAM



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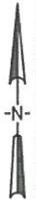
COLES COUNTY SOIL SURVEY  
 CONCEPTUAL WETLAND COMPENSATION PLAN  
 F.A.I.-57, F.A.S. 642  
 SEC. NO. 15-23K; 99-00124-02-PV  
 COLES COUNTY, ILLINOIS

JOB NO. 97S2028B FIGURE 4-3.



LEGEND

- W - WETLAND
- PC - PRIOR-CONVERTED
- FW - FARMED WETLAND



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N.R.C.S. WETLAND MAP  
 CONCEPTUAL WETLAND COMPENSATION PLAN  
 F.A.I.-57, F.A.S. 642  
 SEC. NO. 15-23K; 99-00124-02-PV  
 COLES COUNTY, ILLINOIS

JOB NO. 97S2028B FIGURE 4-4

SECTION 5.0  
WETLAND COMPENSATION DESIGN

## SECTION 5.0 WETLAND COMPENSATION DESIGN

### 5.1 EARTHWORK

The proposed wetland design is based on grading the site to create three zones of varying hydrologic regimes (Figure 5-1). About 62,935 cubic meters of soil will be removed to create the desired topography. This excavated soil will be used as fill for the proposed ramp embankment.

Zone A will include about 0.83 acres of open water habitat. This zone consists of a four ft deep meandering channel around the perimeter of the wetland area from elevation 679.0 to 675.0 MSL. This zone will be graded with 3:1 side slopes to deter any vegetation from colonizing this channel. This channel connects to the existing borrow pond on the north and south ends of the proposed wetland, and connects to the outfall on the southeast corner of the site. A riprap bridge will be placed within the channel, to within one ft of the maximum elevation (679.0 ft), to allow for a pedestrian crossing for wetland monitoring purposes. The riprap will be loosely piled to allow for water passage through and over the rock.

Zone B consists of about 0.60 acres of a vegetated mud flat. This zone is also a meandering channel through the center of the proposed wetland from elevation 679.0 to 677.0 MSL. This channel is shallower with only a depth of two ft and shallow banks graded at an 8:1 slope. A riprap bridge will also be placed across this channel, to within one ft of the maximum elevation (679.0 MSL), to allow for a pedestrian crossing.

Zone C consists of about 1.21 acres of emergent wetland. This zone will be graded to a relatively uniform elevation of 679.0 MSL. This zone occurs between the two excavated channels and will remain slightly inundated during average precipitation or normal pool conditions of the borrow pond.

Zone D consists of about 2.16 acres of forested wetland and is located around the periphery of the proposed wetland between the open water channel and the toe of the embankment for the ramp and TR1000. This zone will be graded to a relatively uniform elevation of 680.0 MSL and will remain saturated during average precipitation or normal pool conditions of the borrow pond.

Zone E consists of about 0.33 acres of the existing riparian forest area adjacent to the borrow pond. This zone, located between the excavated channels is to be protected from any grading or disturbance. The trees and other vegetation occurring within this zone are to remain unharmed.

All earthwork and erosion control measures will be in accordance with the Illinois Department of Transportation's Standard Specifications for Road and Bridge Construction (2002).

## 5.2 PLANTING PLAN

The wetland planting plan, as shown in Figure 5-2, includes specifications for each of the six zones of the proposed wetland compensation site. Zone A (below elevation 679.0) will remain as open water; therefore, no planting or seeding is specified. Zone A will connect into the existing borrow pond allowing for a permanent open water connection between the sinuous channel of Zone A and the borrow pond. The normal pool elevation of the pond is about 679.0. Zone A will be excavated to a relatively level elevation of 675.0. This will allow for an average water depth of about 4 ft. Side slopes of the Zone A channel will be cut at 3:1 which should remain steep enough to not allow emergent herbaceous vegetation from becoming established.

Zone B is designed as an open water/mud flat area and will incur varying water levels. Vegetation will naturally establish below elevation 679.0 according to various hydrologic regimes. Zone B will be excavated to elevation 677.0 so that during drier periods when the borrow pond water elevation drops over 2 ft, the channel of Zone B will become a mud flat allowing for a diverse assemblage of hydrophytic vegetation growth and habitat for numerous species of shorebirds. The side slopes of Zone B will be cut at 8:1 which should allow for natural vegetative establishment along the channel. A rip-rap walkway will also be placed at two locations approximately 1 ft below the normal pool elevation of the borrow pond to allow for pedestrian access to interior islands for the purpose of monitoring the wetland site.

Zone C is designed for the establishment of emergent wetland vegetation. This zone will be seeded with IDOT's Seed Mix Class 4B, fertilized, and mulched using Method 1, at specified rates. Zone D will be planted to establish areas of forested wetlands. Zone D<sub>1</sub> will be planted with bare root saplings of bald cypress (*Taxodium distichum*) on 20-foot centers. Zone D<sub>2</sub> will be planted with bare root saplings of red-osier dogwood (*Cornus sericea*) on 5-foot centers. It is estimated that 109 bald cypress saplings and 2,021 red-osier dogwood saplings will be needed to establish Zone D<sub>1</sub> and Zone D<sub>2</sub> respectively. The existing riparian forested buffer area of Zone E, located between the proposed site and the I-57 borrow pond, will be protected from disturbance.

## 5.3 DESIGN SPECIFICATIONS

Planting will include preparing planting beds to protect existing vegetation with a perimeter erosion barrier, and furnishing and planting herbaceous and woody wetland plants of the species specified, at the locations and the patterns designated on the plans. Shrubs, trees and wetland grasses/sedges and forbs will be planted in the area shown as Zone B. Native grasses will be planted in the area shown as Zone C. Revegetation of the project site will be carried out by the Contractor according to the Standard Specifications (where applicable) and the following Special Provisions.

Materials: Woody Plant Materials such as trees will meet the requirements described in Article 1081.01. Required sizes for wetland plant material are shown in Table 5.1.

The bracing and mulching, if necessary, of plant materials will meet the requirements described in 1081.13(a) and 1081.06(b), respectively.

Table 5.1: Wetland Compensation Plant Species  
 TR1000N and TR41  
 Coles County, Illinois

Zone/Acres	Common Name	Scientific Name	Size	Quantity
D <sub>1</sub> /1.00	Bald Cypress	<i>Taxodium distichum</i>	Bare Root Plants (36 in.)	109/20 ft o.c.
D <sub>2</sub> /1.16	Red-Osier Dogwood	<i>Cornus stolonifera</i>	Bare Root Plants (36 in.)	2021/5 ft o.c.
C/1.21	Wetland Grass and Sedge Mixture-Class 4B	(varies, refer to Article 250.07)	56 lbs./acre	67.76 lbs

The Perimeter Erosion Barrier (silt filter fence) to be placed around the perimeter of the on-site protected area adjacent to Zone A shown on the plans will meet the requirements of Article 1080.02 and 1081.15(b).

The wetland grass/sedge mix (4B) to be seeded in Zone C will conform to Article 1081.04. The mulch application will meet the requirements of Article 1081.06(a)(1). Fertilizer will meet the requirements of Article 250.04 and 1081.08 for a Nitrogen, Phosphorus, Potassium ratio of 10:10:10.

Substitution: Where evidence is submitted that a specified plant cannot be obtained, substitution may be made upon approval of the Engineer.

Plant Approval: All plant material shall be subject to the approval of the Engineer. Plants shall be true to name and conform to all other specifications. Plant material may be inspected at the grower's nursery and materials to be relocated may be observed at the project site. Approval of plants at the source does not alter the right of rejection at the project site.

All plant material shall be dug and handled with care and skill to prevent injuries, and shall be packed in an approved manner to ensure arrival at the project site in good condition. Such material shall be kept moist and cool and shall show no evidence of injury, molding, rotting or drying directly prior to planting.

All plants rejected at the project site shall be replaced with acceptable plants of the same species unless directed by the Engineer.

Transportation Delivery and Temporary Storage: Transportation and storage of trees will be in accordance with Article 253.05 and 253.06(a). The Contractor shall notify the Engineer at least five days prior to each delivery of plant material to the storage or project site.

Insofar as practicable, transplanting of plant materials shall occur on the day of delivery to the project site. In the event this is not possible, the plants shall be temporarily stored in a well-ventilated, cool storage place and shall be adequately protected against drying. This storage period shall not exceed 48 hours for any plant materials.

Any previously accepted plant material that has become damaged during on-site storage shall be replaced by the Contractor.

Planting Layout: The Contractor will layout trees as described in Article 253.07 and shown on the plans. Planting zone boundaries are shown on the plans and shall be marked in the field as directed by the Engineer. Zones will be delineated according to the elevations shown on the plans.

Planting (Installation) Time: Plant materials will be installed according to the following schedules as described in IDOT specifications:

Type of Material	Time Period	Reference
Trees (Zone D)	Refer to Reference	Article 253.03
Seeding-Grass/Sedge Mix 4B (Zone C)	May 15 – June 30 October 15 – December 1	Article 250.06

Trees shall be dug in accordance with Article 253.04. Any other planting time shall require the written permission of the Engineer.

Planting Method: Installation of trees will be in accordance with Article 253.08, 253.09 and 253.10. Trees will receive an application of mulch in accordance with Article 253.11.

The Contractor will seed the Zone B and C area with the specified quantity of grass/sedge seed and forbs (mix types 4, 4B and 5B) as described in Article 250.06 and mulched (Method 1) as described in Article 251.03(a).

A temporary erosion control barrier consisting of silt fence will be placed around the perimeter of the existing wetland area as shown on the plans and in accordance with Article 280.04(b).

Period of Establishment and Care: The Contractor shall maintain tree plant material in accordance with Article 253.14.

Freshly planted trees shall not be disturbed by subsequent activities that would cause uprooting, displacement or injury. During periods of intense heat or subnormal rainfall, supplemental watering may be required in accordance with the applicable requirements of Articles 253.15.

The Contractor shall maintain the temporary erosion control system as per Article 280.05.

Method of Measurement. The exact quantities for the class specified and location of seeding will be measured in the field. Materials will be measured as follows:

Plant Material:

<u>Item</u>	<u>Unit</u>	<u>Article</u>
Trees	per individual plants in place	253.16
Seeding (mix 4, 4B and 5B)	per acre	250.09
Fertilizer Nutrients	pound	250.09
Mulch (Method 1)	per acre	251.06
Perimeter Erosion Barrier	per lineal feet in place	280.06(c)

Basis of Payment:

<u>Item</u>	<u>Unit</u>	<u>Article</u>
Trees	per individual plants in place	253.17
Seeding (mix 4, 4B and 5B)	per acre	250.10
Fertilizer Nutrients	per pound	250.10
Mulch (Method 1)	per acre	251.07
Perimeter Erosion Barrier	per lineal feet in place	280.07(c)

**5.4 CONSTRUCTION**

All aspects of the wetland mitigation plan shall be completed within one year from the start of project construction activities. The County shall notify the St. Louis District of the U.S. Army Corps of Engineers and IDOT's BDE Wetlands Unit upon the start of project construction activities and upon completion of the wetland compensation.

Temporary erosion control for trees and seeded areas shall be according to Section 280 of the Standard Specifications for Road and Bridge Construction (IDOT 2002).

Soil compaction within the area of the planned wetland should be minimized. This can be accomplished by reducing passes across the site with heavy machinery and by using wide-track equipment to do the required earthwork. The substrate associated with the interior of the wetland site may need to be decompacted or ripped following construction. Compacted areas should be loosened to a depth of 12 in.

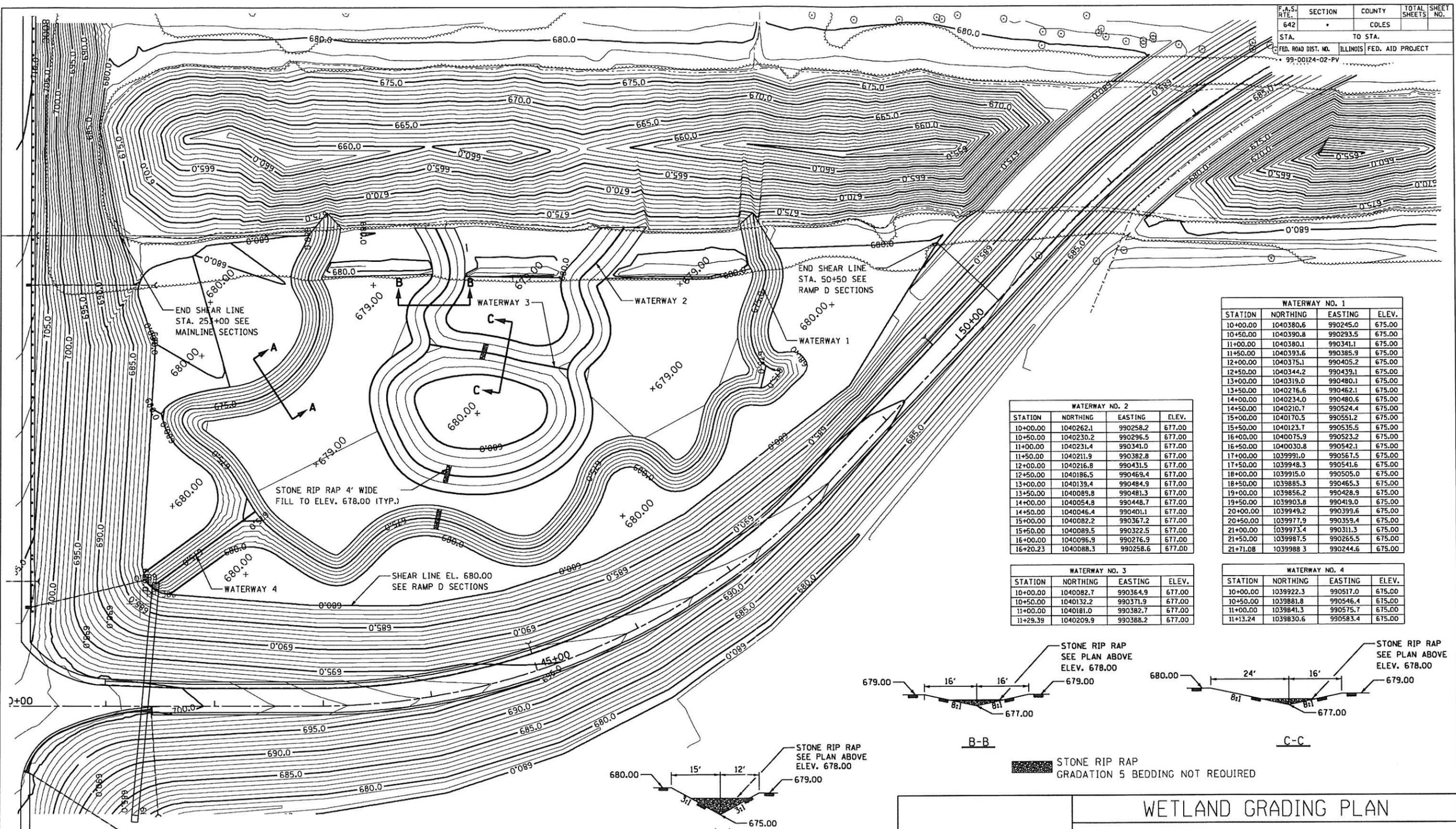
**5.4.1 As-Built Plans**

During construction of the wetland, information on as-built conditions shall be collected by the Contractor and submitted to the IDOT-BDE Wetlands Unit. The following as-built conditions shall be submitted:

1. Certified record drawings with bench marks, which depict final elevations in the planned wetland, including elevations of culverts, shall be drafted after grading is complete and before planting. The Contractor shall provide an explanation for any deviation from the plans.
2. Soil compaction data shall be gathered after grading is complete and before planting. Ten random cone penetrometer samples within the wetland area shall be measured. Half of the measurements shall be at a depth of 6 in. and the other half at 12 in. The average penetrometer reading shall not exceed 275 PSI at either depth over the extent of the planned wetland area. Penotrometer readings must be taken when the soil is moist.

3. A list of the actual species seeded and planted (botanical and common names) in the wetland and buffer areas including the quantities (i.e., number of seeds per square ft, dry weight/square yard), dates of seeding and planting, and the planting method shall be recorded by the Contractor. Seed and plant stock source should originate from within 150 miles of the mitigation site to maintain local genotypes. This information should be submitted to the IDOT-BDE Wetlands Unit within 15 days after the final day of planting.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEET NO.
642		COLES	
STA.	TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	
99-00124-02-PV			

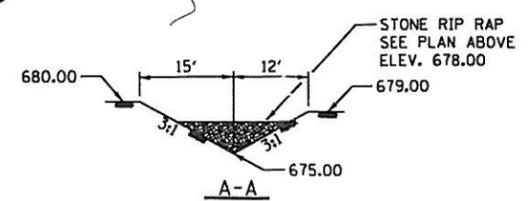
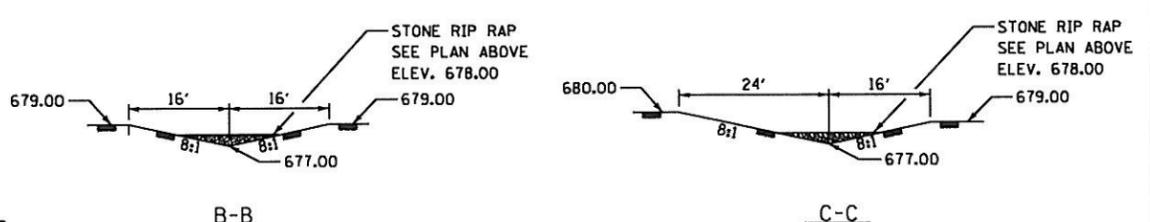


WATERWAY NO. 1			
STATION	NORTHING	EASTING	ELEV.
10+00.00	1040380.6	990245.0	675.00
10+50.00	1040390.8	990293.5	675.00
11+00.00	1040380.1	990341.1	675.00
11+50.00	1040393.6	990385.9	675.00
12+00.00	1040375.1	990405.2	675.00
12+50.00	1040344.2	990439.1	675.00
13+00.00	1040319.0	990480.1	675.00
13+50.00	1040276.6	990462.1	675.00
14+00.00	1040234.0	990480.6	675.00
14+50.00	1040210.7	990524.4	675.00
15+00.00	1040170.5	990551.2	675.00
15+50.00	1040123.7	990535.5	675.00
16+00.00	1040075.9	990523.2	675.00
16+50.00	1040030.8	990542.1	675.00
17+00.00	1039991.0	990567.5	675.00
17+50.00	1039948.3	990541.6	675.00
18+00.00	1039915.0	990505.0	675.00
18+50.00	1039885.3	990465.3	675.00
19+00.00	1039856.2	990428.9	675.00
19+50.00	1039803.8	990419.0	675.00
20+00.00	1039949.2	990399.6	675.00
20+50.00	1039977.9	990359.4	675.00
21+00.00	1039973.4	990311.3	675.00
21+50.00	1039987.5	990265.5	675.00
21+71.08	1039988.3	990244.6	675.00

WATERWAY NO. 2			
STATION	NORTHING	EASTING	ELEV.
10+00.00	1040262.1	990258.2	677.00
10+50.00	1040230.2	990296.5	677.00
11+00.00	1040231.4	990341.0	677.00
11+50.00	1040211.9	990382.8	677.00
12+00.00	1040216.8	990431.5	677.00
12+50.00	1040186.5	990469.4	677.00
13+00.00	1040139.4	990484.9	677.00
13+50.00	1040089.8	990481.3	677.00
14+00.00	1040054.8	990448.7	677.00
14+50.00	1040046.4	990401.1	677.00
15+00.00	1040082.2	990367.2	677.00
15+50.00	1040089.5	990322.5	677.00
16+00.00	1040096.9	990276.9	677.00
16+20.23	1040088.3	990258.6	677.00

WATERWAY NO. 3			
STATION	NORTHING	EASTING	ELEV.
10+00.00	1040082.7	990364.9	677.00
10+50.00	1040132.2	990371.9	677.00
11+00.00	1040181.0	990382.7	677.00
11+29.39	1040209.9	990388.2	677.00

WATERWAY NO. 4			
STATION	NORTHING	EASTING	ELEV.
10+00.00	1039922.3	990517.0	675.00
10+50.00	1039881.8	990546.4	675.00
11+00.00	1039841.3	990575.7	675.00
11+13.24	1039830.6	990583.4	675.00



STONE RIP RAP GRADATION 5 BEDDING NOT REQUIRED

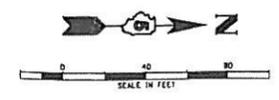
03/20/2004  
 10/20/05 97S2028B CHN/Sheel/c-520w/dp  
 LAYOUT 01/12/04  
 DRAWN D.P. 01/14/04  
 REVIEWED R.M.S. 01/15/04



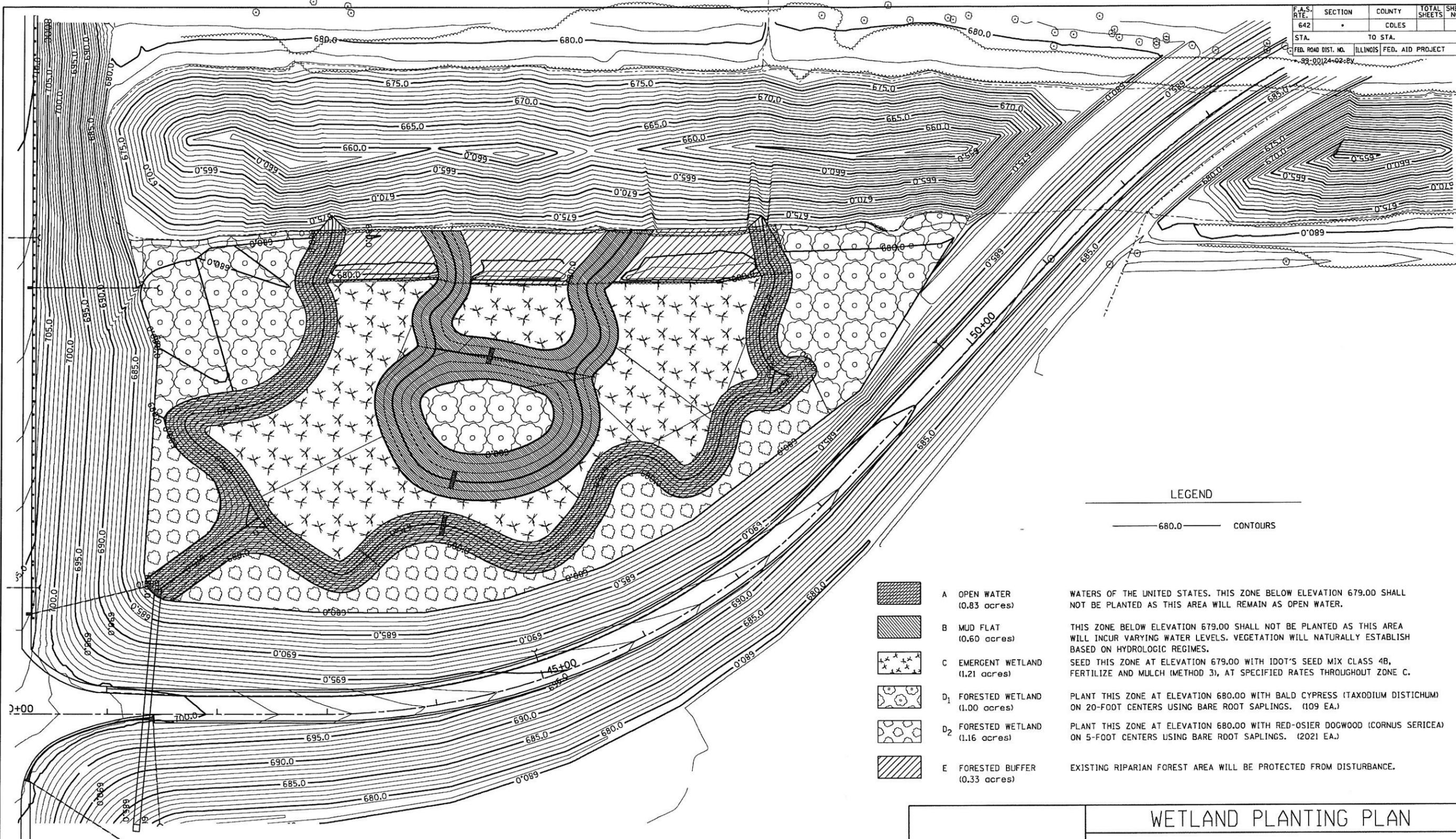
### WETLAND GRADING PLAN

FAI-57, FAS 642  
 SEC. NO. 15-23K, 99-00124-02-PV  
 COLES COUNTY, ILLINOIS

HANSON NO. 97S2028B FIGURE NO. 5-1



F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEET NO.
642	•	COLES	
STA.	TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	
99-00124-02-PV			

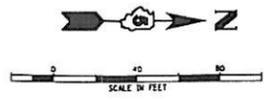


LEGEND

— 680.0 — CONTOURS

-  A OPEN WATER (0.83 acres) WATERS OF THE UNITED STATES. THIS ZONE BELOW ELEVATION 679.00 SHALL NOT BE PLANTED AS THIS AREA WILL REMAIN AS OPEN WATER.
-  B MUD FLAT (0.60 acres) THIS ZONE BELOW ELEVATION 679.00 SHALL NOT BE PLANTED AS THIS AREA WILL INCUR VARYING WATER LEVELS. VEGETATION WILL NATURALLY ESTABLISH BASED ON HYDROLOGIC REGIMES.
-  C EMERGENT WETLAND (1.21 acres) SEED THIS ZONE AT ELEVATION 679.00 WITH IDOT'S SEED MIX CLASS 4B, FERTILIZE AND MULCH (METHOD 3), AT SPECIFIED RATES THROUGHOUT ZONE C.
-  D<sub>1</sub> FORESTED WETLAND (1.00 acres) PLANT THIS ZONE AT ELEVATION 680.00 WITH BALD CYPRESS (TAXODIUM DISTICHUM) ON 20-FOOT CENTERS USING BARE ROOT SAPLINGS. (109 EA.)
-  D<sub>2</sub> FORESTED WETLAND (1.16 acres) PLANT THIS ZONE AT ELEVATION 680.00 WITH RED-OSIER DOGWOOD (CORNUS SERICEA) ON 5-FOOT CENTERS USING BARE ROOT SAPLINGS. (2021 EA.)
-  E FORESTED BUFFER (0.33 acres) EXISTING RIPARIAN FOREST AREA WILL BE PROTECTED FROM DISTURBANCE.

BENCHMARK 800C: STA. 250+81, 52' LT. ELEVATION 683.69 NAIL IN LONE FENCE POST NEAR S.W. CORNER OF WOODED AREA AROUND THE POND.



01/20/2004  
 I:\972028B\972028B\Civil\Drawn\c-52\wet.dgn  
 LAYOUT: MMS 01/22/04  
 DRAWN: D.P. 01/24/04  
 REVIEWED: MMS 01/25/04



WETLAND PLANTING PLAN

FAI-57, FAS 642  
 SEC. NO. 15-23K, 99-00124-02-PV  
 COLES COUNTY, ILLINOIS

HANSON NO. 97S2028B

FIGURE NO. 5-2

SECTION 6.0  
MONITORING AND MANAGEMENT PLAN

## SECTION 6.0 MONITORING AND MANAGEMENT PLAN

### 6.1 MONITORING

A monitoring program will be implemented upon completion of the wetland compensation site construction. The monitoring plan will ensure that project goals and Section 404 permit conditions are being met. Monitoring will also determine if the planting, seeding and hydrological components of the compensation plan are functioning as planned.

The monitoring program will continue annually for five years after project construction. An annual report will be prepared to document the condition of the compensation site. This report will be sent to all interested resource agencies (i.e., Illinois Department of Transportation, U.S. Army Corps of Engineers, and the Illinois Department of Natural Resources). The report will include photographs of the site taken at the same location and during the same time of year, ideally during the growing season. A quantitative survey of the planted species' survival rates will be determined. If required survival rates are not achieved, the probable cause of failure should be indicated (i.e., pests, predation, inadequate hydrology, disease, invasion of non-native plant species, etc.). The hydrologic conditions at the site, such as the extent and depth of inundation or saturation will be noted along with the rainfall recorded for the area for the preceding year. Direct sightings and indirect signs of wildlife use of the area (i.e., tracks, nests, etc.) will be noted. Any other observations relating to the compensation site will be noted in the annual report such as siltation, erosion, predation, etc.

Monitoring reports should include the following information:

1. Soils. Soil horizons should be identified and thickness, color, texture, structure, consistency, pH, and boundary should be described. In addition, any gleying, oxidized rhizospheres or other redoximorphic feature should be described.
2. Hydrology. Monitoring should include precipitation data for the current year including cumulative rainfall compared to the yearly average. This data should be obtained from the nearest weather station to the compensation site. All hydrologic wetland indicators should be noted.
3. Vegetation. The entire wetland compensation site should be monitored for vegetation. A plant list, with dominant species identified, should be compiled for each vegetation cover type. A map, at a scale of 1 in. = 200 ft, should identify the different habitat cover types. A visual estimate of the dominant species will be used for all but the final year.

In the last year of monitoring, a standard ecological method should be used to quantify dominant plant species in each of the cover types.

Quadrants 4 m by 4 m for the shrub/sapling layer and 1 m by 1 m for the herbaceous layer will be used.

The Natural Areas Rating Index (NARI), developed by Taft, Ladd, Wilhelm and Wetstein (Floristic Quality Assessment Database for the State of Illinois, unpublished data, 1994) will be used to determine the functional assessment of each cover type.

Live trees and shrubs within the created wetland will be counted. The height and diameter (at breast height) of all planted trees will be measured and then averaged by species. In tree plantings, shoot growth should be sampled and averaged by species.

4. Areas that meet the Federal definition of a wetland will be delineated.
5. Permanent photography stations will be established at the site. Photographs of each of the cover types will be taken at least once each year between July 1 and September 30. Photographs should be panoramic and taken from the same direction.

## **6.2 PERFORMANCE STANDARDS**

Annual performance standards are included in this plan and will be used to measure progress towards the project goals. The attainment or non-attainment of performance standards will be assessed by monitoring. Non-attainment will indicate the need for remediation. The Illinois Natural History Survey (INHS) will monitor the site and will submit reports to IDOT for review. IDOT will forward the monitoring reports to the U.S. Army Corps of Engineers and the Illinois Department of Natural Resources. The site should be monitored for five years after completion.

The following are performance standards will be implemented for determining the success of the created wetland:

1. Land cleared by site preparation and earthwork activities should be seeded with a temporary grass cover immediately following completion of work and within three weeks at least 75 percent of ground surface should be covered.
2. Following the period of establishment, 100 percent of the planted trees and shrubs should be alive and healthy. At the end of the five-year monitoring period 80 percent of the planted trees and 75 percent of the shrubs must be live and healthy.
3. At the end of the five year monitoring period, at least 75 percent of the wetland area should be covered by persistent hydrophytic vegetation (OBL, FACW, FAC+, or FAC). In addition, the wetland community must

achieve the following percent coverage in the following years: year 1, 15 percent; year 2, 30 percent, year 3, 45 percent; year 4, 60 percent.

4. At the end of five years, 50 percent of the species in the herbaceous layer should be native. The percentage of native plants that should be established in the following years are: year 1, 10 percent; year 2, 20 percent; year 3, 30 percent; year 4, 40 percent.
5. None of the three most dominant plant species in any stratum may be non-native.
6. Five years following construction, the site should be a jurisdictional wetland. The site should classify as a forested and emergent wetland.

### **6.3 MANAGEMENT**

IDOT will manage the site through the end of the five-year monitoring period or until the site is approved as wetland compensation by the U.S. Army Corps of Engineers.

Management of tree plantings through the end of the period of establishment will be the responsibility of the Contractor. Large colonies of noxious weeds should be controlled; especially around plantings. Mowing and herbicides may be used to control noxious and invasive vegetation.

When the wetland compensation is approved by the U.S. Army Corps of Engineers, IDOT will retain and manage the site in perpetuity. The site will be managed with the intent of achieving and maintaining the goals and objectives described in this plan.

SECTION 7.0  
CONTINGENCY PLAN

## SECTION 7.0 CONTINGENCY PLAN

A contingency plan will be initiated in the event of the failure of the compensation site to meet the goals and objectives of the project. IDOT will ensure that the wetland compensation site is functioning as stated in the goals and objectives of this wetland compensation plan.

Areas where performance standards are not attained, as described in the monitoring reports, will be remediated. The remedial measures for non-attainment of each performance standard is described below:

- If 75 percent of the ground surface is not covered by a temporary grass cover within three weeks following completion of the earthwork, then the Contractor will re-seed the site.
- If after one year of monitoring, the wetland hydrology is not present at the wetland site, then IDOT will fund remediation, provided the Contractor followed the plans and completed as-built (record) drawings. If the Contractor did not follow plans and complete record drawings, the Contractor will fund and conduct remediation.
- If 100 percent of the planted trees do not survive the period of establishment, then the Contractor will replace all dead plant material. If 80 percent of the planted trees are not alive at the end of the five year monitoring period, then IDOT will fund replacement of all dead plant material.
- If at the end of each monitoring year the targeted percent coverage of persistent hydrophytic vegetation is not attained, then IDOT may consider seeding the site with species of hydrophytic plants or may consider controlling weedy growth mechanically or chemically.
- If at the end of each monitoring year the targeted percent of native species is not attained, IDOT may consider seeding the site with native species or may consider controlling weedy growth mechanically or chemically. Controlled burns may also be prescribed in an attempt to achieve the desired species composition. Similar corrective activities may be conducted if one of the three most dominant plant species is non-native.
- If after the five year monitoring period wetland hydrology is not present at the compensation site, then IDOT will fund remediation. Earth excavation or filling may be necessary to achieve the desired hydrology.

SECTION 8.0  
REFERENCES

## SECTION 8.0 REFERENCES

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APPENDIX A  
WETLAND IMPACT EVALUATION  
TR1000N  
COLES COUNTY, ILLINOIS



# Illinois Department of Transportation

## Memorandum

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To: Darrell W. McMurray      Attention: Larry D. Houser  
From: Michael Hine              By: Charles H. Perino  
Subject: Wetland Impact Evaluation\*  
Date: January 23, 2001

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\*Interstate 57 Interchange Study  
US 45 to Illinois 130  
Section 99-00124-00-ES  
Coles County

We are responding to the Wetland Impact Evaluation Form dated October 17, 2000. The proposed project involves the construction of a new two-lane road extending east-west from U.S. 45 north of Matton to Illinois 130 south of Charleston. A new interchange with Interstate 57 will be constructed. Approximately 130 acres of new right-of-way will be required.

We have reviewed the wetland delineations prepared by Hanson Engineers (Biological Resource Review Memorandum dated June 22, 2000) and find them to be adequate. The delineations meet the policy and procedural requirements of the Illinois DOT.

The project will impact approximately 1.76 acres of wetlands from eight sites. **Site S1**, a farmed wetland, will have a permanent loss of 0.10 acres. **Site S2**, a borrow pit pond with a cattail fringe, will have a permanent loss of 0.19 acres. **Site S3**, a vegetated ditch, will have a permanent loss of 0.21 acres. **Site S3A**, a farmed wetland, will have a permanent loss of 0.58 acres. **Site S4**, a forested wetland dominated by black willow, rough-leaf dogwood and hackberry, will have a permanent loss of 0.55 acres. **Site S4A**, a pasture dominated by reed canary grass, will have a permanent loss of 0.02 acres. **Sites S6** and **S6A**, are drainage ditch channels dominated by reed canary grass, will have a permanent losses of 0.07 and 0.04 acres, respectively. None of these sites have a Floristic Quality Index of over 7.

Wetland mitigation is being proposed on-site. A mitigation ratio of 1.0 to 1.0 is required for Sites S1, S2, S3, S3A, S4A, S6 and S6A. Site S4 will require a 1.5 to 1.0 mitigation ratio. A total of 2.035 acres of wetland mitigation will be required. A Wetland Compensation Plan must be prepared. See Section VII

Darrell McMurray Attn: Larry Houser  
January 23, 2001  
Page 2

(Content of Wetland Compensation Plans) of the IDOT Wetlands Action Plan for the document content.

The project is being processed as a Standard Review Action. Coordination with the 'Illinois Department of Natural Resources Division of Natural Resource Review and Coordination' is required at this time. We are requesting that the IDNR concur with the delineations and the impact assessment. Coordination with the U.S. Fish and Wildlife Service is not required at this time. If you have any questions regarding this memorandum please contact me (217) 785-2130 or [Perinotch@nt.dot.state.il.us](mailto:Perinotch@nt.dot.state.il.us).

Attachment

CHP/99-00124-00-ES

cc: Steve Hamer, IDNR  
Lynn Forbes Attn: George Sherer

APPENDIX B  
WETLAND IMPACT EVALUATION  
TR41  
COLES COUNTY, ILLINOIS

Illinois Department of Transportation

Wetlands Impact Evaluation

Project Sponsor:  State  Local

Submittal Date:

Route: TR 41

District: 05

County: Coles

Section No.: 96-09118-00-BR

Project No.: BR-05-029 (73)

Contract No.: 91164

From-To (AI): N.E. Corner Sec. 2, T 14N, R 7E. 3rd P.M. / 2 mi. NE of Cooks Mills

Project Description: Construction of a new bridge over the Kaskaskia River on a slightly new alignment.

1. Does the project have wetland affects?  No  Yes:  Permanent  Temporary  Both

2. Identify the wetland site(s) being affected. Site 2, Site 3

3. Describe the work in each individual wetland (fill, excavation, drainage, vegetation removal, etc.).

Site 2 - (Fill Embankment); Site 3 - (Fill Embankment)

4. Total acres expected to be converted from wetland habitat to other use(s).

Site 2 - .04 acres, Site 3 - 0.11 acres = 0.15 acres

5. Summarize briefly why there are no practicable alternatives to the use of the wetland(s).

Due to minimum design policies, the existing bridge must be replaced due to hydraulic adequacy and substandard horizontal alignment.

6. Wetland mitigation is being proposed:

at site of the impact (on-site).

within the project limits (on-site). - Build a wetland bank adjacent to the project site immediately south on east side of the river.

off-site.

wetland bank site.

\*Site 3 has mitigation ratio 5.5 to 1.0

## Wetland Report for TR 41 (1600 N) in Coles County, Illinois

Paul Marcum & Mary Coopridger  
Illinois Natural History Survey  
Center for Wildlife Ecology  
607 East Peabody Drive  
Champaign, IL 61820  
(217) 333-8459, 333-6560

### Introduction and Project Summary

A wetland survey for proposed improvements along TR 41 (1600 N) in Coles County was conducted on 3 November 2000. The following sources were examined while surveying the project area to determine wetland locations and boundaries: United States Geological Survey topographic maps and National Wetland Inventory (NWI) maps (Cooks Mills Quadrangle, 7.5 Minute Series); an aerial photograph; *National List of Plant Species that Occur in Wetlands* (Reed 1988); *Soil Survey of Coles County, Illinois* (Hamilton 1993); *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987); and *Guide to the Vascular Flora of Illinois* (Mohlenbrock 1986). These materials were used during an on-site evaluation of vegetation, soils and hydrology.

All potential wetlands within the project corridor were examined. Five routine on-site wetland determinations were performed. Three sites had dominant hydrophytic vegetation, hydric soils, and wetland hydrology. One of these sites was classified as Prior Converted by the USDA National Resources Conservation Service; therefore, its wetland status is undetermined. The other two sites are wetlands. Results of these determinations are summarized below and are described in more detail on the accompanying forms. The wetland delineation sites are marked on the enclosed aerial photographs.

Included with the assessment of a site is its Floristic Quality Index (Swink and Wilhelm 1994, Taft *et al.* 1997). Although the Index is not a substitute for quantitative vegetation analysis in assessing plant communities, it provides a measure of the floristic integrity or level of disturbance of a site. Each plant species is assigned a rating between 0 and 10 (the Coefficient of Conservatism) that is a subjective indicator of how likely a plant may be found on an undisturbed site in a natural plant community. A plant species that has a low Coefficient of Conservatism (C) is common and is likely to tolerate disturbed conditions. A species with a high C is relatively rare and is likely to require specific undisturbed habitats. Species not identified to species level are not rated and are not included in the calculations.

To calculate the Floristic Quality Index (FQI), first compute the mean C value (also known as mean rated quality),  $mCv = \sum C/N$ , where  $\sum C$  represents the sum of the numerical ratings (C) for all species recorded for a site, and N represents the number of plants on the site. The C value for each species is shown in the species list for the site. Species not native to Illinois (indicated by \*\* in the species list for each site) are not included in calculations. The FQI of each site is determined by multiplying the mean C value times the square root of N [ $mCv (\sqrt{N})$ ]. An Index score below 10 suggests a site of low natural quality; below five, a highly disturbed site. An FQI value of 20 or more suggests that a site has evidence of native character and may be considered an environmental asset.

## Wetland Site Summaries

Site 1: This pond is located approximately 61.0 m (200 ft) east of the large curve in 1600 N on the west side of the Kaskaskia River and 182.9 m (600 ft) northwest of the bridge over the Kaskaskia River. This site extends out of the project corridor to the north. This pond appears to be a deepwater habitat (it is permanently inundated and does not support rooted emergent or woody plant species). Its substrate cannot be considered soil because it is not capable of supporting plant life. Therefore, hydric soils are absent. Hydrophytic vegetation is present in a narrow ring at the ponds edge. This site is not a wetland. This pond provides floodwater storage and wildlife habitat of fair quality. The site appears to be used as a drinking hole for horses. The National Wetland Inventory codes this site as PUBGh (diked or impounded, intermittently exposed, unconsolidated bottom, palustrine wetland). The mean C value for the site is 3.1 and the FQI is 9.8. These values are indicative of poor natural quality. This site is at the edge of an early to mid-successional floodplain forest (site 3) dominated by trees approximately thirty to fifty years old.

Site 2: This floodplain forest/emergent wetland occupies a narrow strip of land approximately 9.1 m (30 ft) northeast of 1600 N on the west side of the Kaskaskia River. The site is between a small levee along a drainage channel and an upland slope leading to the road. A total of 0.17 hectares (0.41 acres) are included within the project corridor. The tree layer vegetation of this site is dominated by overhanging *Acer saccharinum* while the herb layer is dominated by *Saururus cernuus*. Dominant hydrophytic vegetation, hydric soils and wetland hydrology are all present; therefore, this site is a wetland. This floodplain forest provides floodwater storage and wildlife habitat of fair quality. The National Wetland Inventory did not recognize this site. The mean C value for the site is 3.0 and the FQI is 10.4. These values are indicative of fair natural quality.

Site 3: This floodplain forest is located along the Kaskaskia River on the north and south side of the 1600 N bridge. The site extends out of the project corridor to the north and south. A total of 2.89 hectares (7.13 acres) are included within the project area. *Acer saccharinum* (tree layer), *Fraxinus pensylvanica* var. *subintegerrima* (shrub layer), *Aster simplex* (herb layer) and *Elymus virginicus* (herb layer) dominated the vegetation at this site. Dominant hydrophytic vegetation, hydric soils and wetland hydrology are all present; therefore, this site is a wetland. This floodplain forest provides floodwater storage and wildlife habitat of good quality. The National Wetland Inventory codes this site as PFO1A (temporarily flooded, broad-leaved deciduous, forested, palustrine wetland). The mean C value for the site is 3.2 and the FQI is 20.2. These values are indicative of good natural quality and this site can be considered an environmental asset. This site is an early to mid-successional floodplain forest dominated by trees approximately thirty to fifty years old.

Site 4: This wet forland site is located from 76.2 m (250 ft) to 137.2 m (450 ft) east of the 1600 N bridge over the Kaskaskia River. It is on the south side of 1600 N just east of the floodplain forest (site 3). *Polygonum pennsylvanicum*, *Amaranthus tuberculatus* and *Campsis radicans* dominated the vegetation at this site. Hydrophytic vegetation, hydric soils and wetland hydrology are all present at this site. The National Wetland Inventory did not recognize this site. The USDA National Resources Conservation Service codes this site as Prior Converted; therefore, this site is not a jurisdictional wetland and its wetland status is recorded as undetermined. The mean C value for the site is 1.5 and the FQI is 4.7. These values are indicative of very poor natural quality. This site was not farmed this year but it is probably farmed during drier years. This site is part of a larger field together with site 5.

Site 5: This cropland site is located from 137.2 m (450 ft) to 213.4 m (700 ft) east of the 1600 N bridge over the Kaskaskia River. It is on the south side of 1600 N just east of site 4. This area was dominated by *Glycine max* and very few agricultural weeds were present. Hydric

soils and wetland hydrology were present, but dominant hydrophytic vegetation was absent. The National Wetland Inventory did not recognize this site. The USDA National Resources Conservation Service codes this site as Prior Converted. The mean C value for the site is 0.8 and the FQI is 1.8. These values are indicative of very poor natural quality. This site drains faster than site 4 and is probably farmed every year.

### Stream Description and Characterization

TR 41 (1600 N) crosses the Kaskaskia River at the project site. The Kaskaskia River at this location is approximately 15.2 to 18.3 m (50 – 60 ft) wide and the water was over 1.2 m (4 ft) deep on the day of the field survey. The flow rate was slow to moderate and the water was very turbid. The banks of the Kaskaskia River are very gentle in this area. It grades very smoothly into an early to mid successional floodplain forest (trees approximately 30 to 50 years old). The watershed area of the Kaskaskia River at the project site is approximately 1165.5 km<sup>2</sup> (450 mi<sup>2</sup>) (Wicker et al. 1997). The USGS hydrologic unit code for this basin is 07140201 (Kaskaskia River – Upper).

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