NDOR
Nebraska Department of Roads

Memorandum

Date: **December 10, 2015**

To: Tony Ringenberg, Roger Yerdon, Tony Kessler, Jacqueline Baird

From: Greg Christ

Thru: Jamie Reinke JLR

Subj: McCook - Indianola, 6-2 (120), CN 70879
Floodplain Certification

McCook - Indianola is a system preservation project along Highway 6 from 0.98 miles east of the east junction of Highway 6/Highway 34 and Highway 83 (R.P. 87.73) to the northeast corporate limits of Indianola (R.P. 98.63), in Red Willow County, Nebraska. The project will:

- From the western corporate limits of McCook (R.P. 87.73) to approximately 0.85 miles northeast of the intersection of Highway 6 with Road 388 (R.P. 90.04), repair underlying concrete as necessary, mill 3 inches of existing asphalt surface and place a 4 inch asphalt overlay resulting in a 1 inch grade raise.

- From approximately 0.85 miles northeast of the intersection of Highway 6 with Road 388 (R.P. 90.04) to the River Canyon Bridge (R.P. 93.65), repair underlying concrete as necessary, mill 4 inches of existing asphalt surface and place a 4 inch asphalt overlay resulting in a 0 inch grade raise.

- At the River Canyon Bridge (R.P. 92.05), remove pavement as necessary and build a 12 inch surface on a prepared subgrade. Replace the existing bridge with a concrete box culvert (see details below).

- From the western approach of the Red Willow Creek Bridge (R.P. 93.65) to just east of the Red Willow Creek Bridge (R.P. 93.73), repair concrete as necessary, on the east approach, mill approximately 1.5 inches of existing asphalt surface and place a 2 inch asphalt overlay resulting in a 0.5 inch grade raise. On the west side place 2 inch asphalt overlay and inlay into adjacent composite pavement.

- From just east of the Red Willow Creek Bridge (R.P. 93.73) to the western limits of Indianola (R.P. 97.70), repair underlying concrete as needed. Mill 4 inches of existing asphalt surface and place a 4 inch asphalt overlay resulting in a 0 inch grade raise.

- At the Coon Creek Bridge (R.P. 97.61), remove pavement as necessary and build a 12 inch surface on a prepared subgrade. The existing bridge will be replaced (see details below).

- From the western corporate limits of Indianola (R.P. 97.70) to the intersection of Highway 6 with 2nd Street (RP 98.27), repair underlying concrete and curb and gutter as

needed. Mill 3 inches of existing asphalt surface and place a 3 inch asphalt overlay resulting in a 0 inch grade raise.

- From the intersection of Highway 6 with 2nd Street (R.P. 98.27) to just northeast of the corporate limits of Indianola (R.P. 98.63), repair underlying concrete as necessary. Mill 3 inches of existing asphalt surface and place a 3 inch asphalt overlay resulting in a 0 inch grade raise.

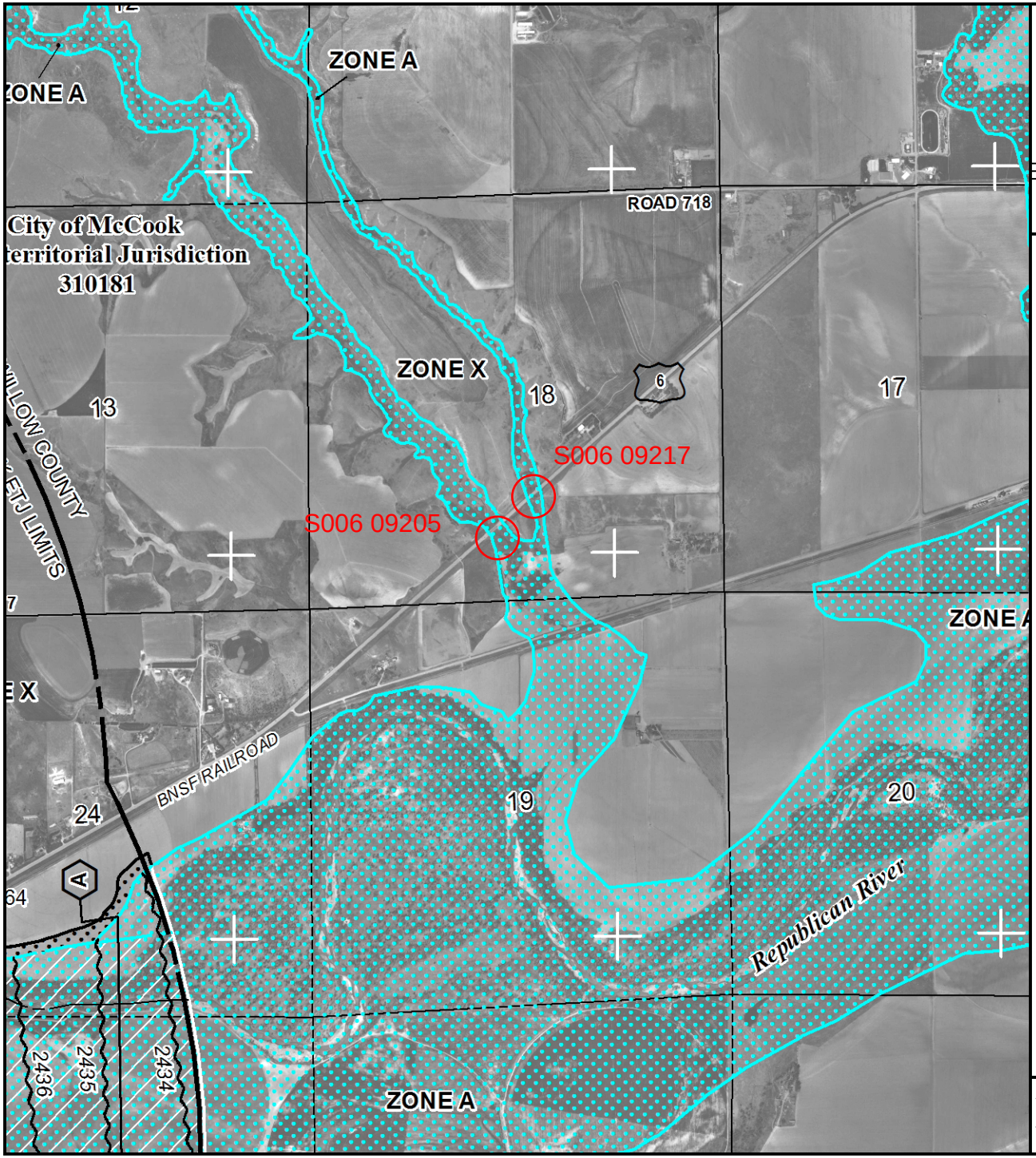
The project crosses a Zone A/AE Floodplain or Floodway at the following locations:

River Canyon, Red Willow County, Section 18 T3N R28W (S006 09205)
The base flood (100 year storm event) of 5,350 cubic feet per second (cfs) is conveyed by a three-span, 130 feet long deck steel girder bridge at an elevation of 2444.0 feet and does not overtop the highway. Bridge work will consist of replacing the existing bridge with a 5 barrel 11 foot by 11 foot by 108 foot long concrete box culvert. There will be no grade raise associated with the replacement. The replacement will cause the base flood elevation to increase approximately 0.3 ft to 2444.3 ft. This falls within the Zone A Floodplain regulations for changes in a floodplain.

Red Willow Creek, Red Willow County, Section 8/17 T3N R28W (S006 09369)
Bridge work will consist of milling to remove asphalt overlay on east approach, placing a 2 inch overlay with membrane, injecting epoxy in the cracks in the bridge rails, seal concrete rails and deck overhang, and replace expansion joints. The bridge work will result in a 2 inch grade raise. According to as-built plans the base flood (100 year storm) of 11,000 cfs does not overtop the bridge, therefore, the work will not cause the base flood elevation to increase. This falls within the Zone A Floodplain regulations for changes in a floodplain.

Republican River Tributary, City of Indianola, Section 11/14 T3N R28W (S006 09685)
The culvert will be used in place. The project does not affect the conveyance of the flow through the culvert or change the elevation of the highway, and therefore, will not cause the base flood elevation to change. This falls within the Zone A Floodplain regulations for changes in a floodplain.

Coon Creek, City of Indianola, Section 12/13 T3N R28W (S006 09761)
The base flood (100 year storm event) of 3,421 cfs is conveyed by a seven-span, 201 feet, 4 inch long deck steel girder bridge at an elevation of 2382.7 feet and does not overtop the highway. Bridge work will consist of replacing the existing bridge with a 3-span, 210 feet long bridge. There will be no grade raise associated with the replacement. The replacement will cause the base flood elevation to decrease approximately 0.2 feet to an elevation of 2382.5 feet upstream of the bridge. The base flood elevation will increase slightly to an elevation of 2382.4 feet downstream of the bridge. The bridge replacement will not cause the floodway elevations to increase. This meets the requirement of causing no-rise in the floodway elevations.



MAP SCALE 1" = 2000'

1000 0 1000 2000 4000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0225C

FIRM

FLOOD INSURANCE RATE MAP

RED WILLOW COUNTY, NEBRASKA

AND INCORPORATED AREAS

PANEL 225 OF 450

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MCCOOK, CITY OF	310181	0225	C
RED WILLOW COUNTY	310469	0225	C

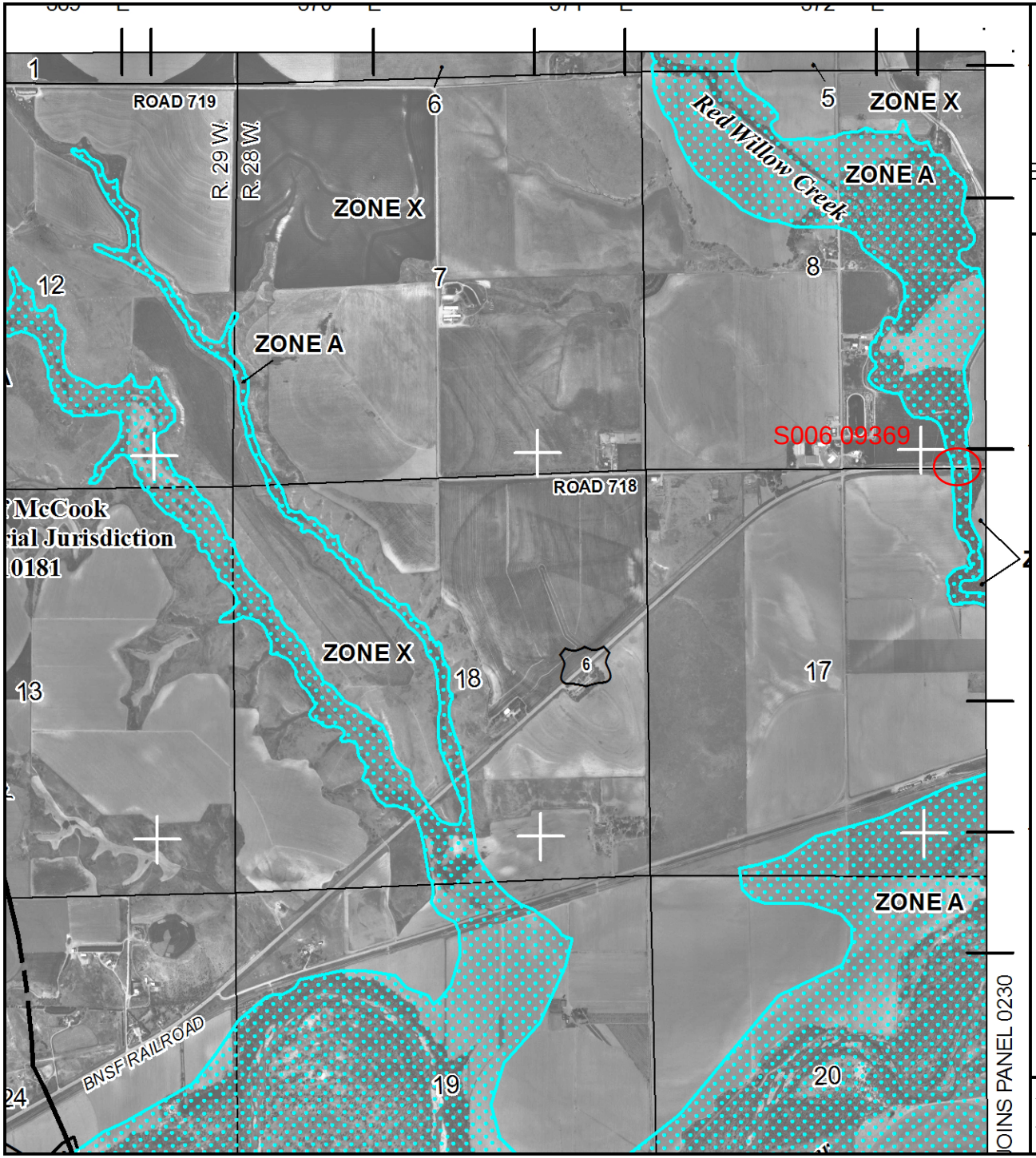
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
31145C0225C

EFFECTIVE DATE
FEBRUARY 4, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



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NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0225C

FIRM

FLOOD INSURANCE RATE MAP

RED WILLOW COUNTY, NEBRASKA

AND INCORPORATED AREAS

PANEL 225 OF 450

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

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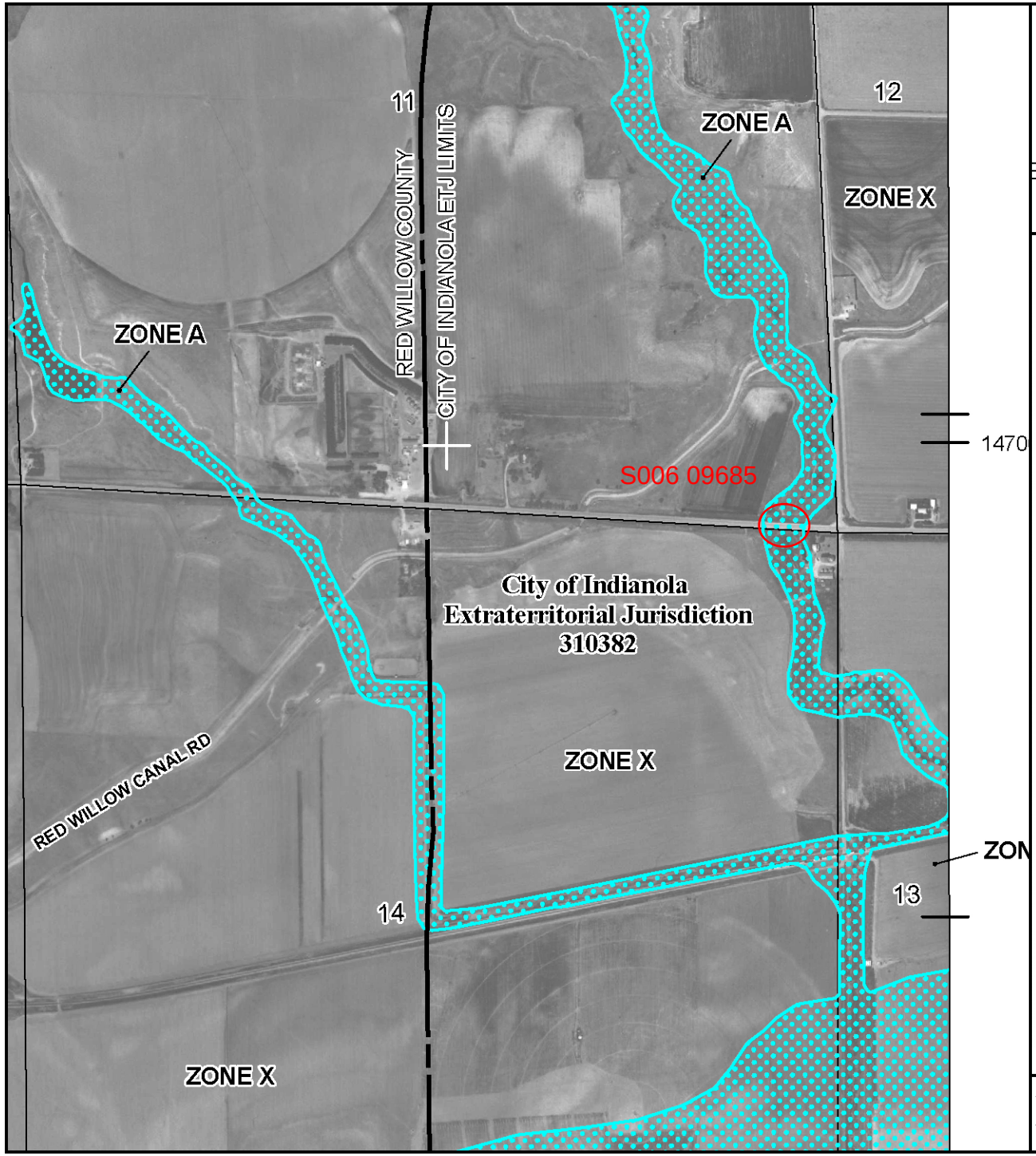

MAP SCALE 1" = 1000'

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NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0230C

FIRM

FLOOD INSURANCE RATE MAP

RED WILLOW COUNTY, NEBRASKA

AND INCORPORATED AREAS

PANEL 230 OF 450

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
INDIANOLA, CITY OF	310382	0230	C
RED WILLOW COUNTY	310469	0230	C

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EFFECTIVE DATE
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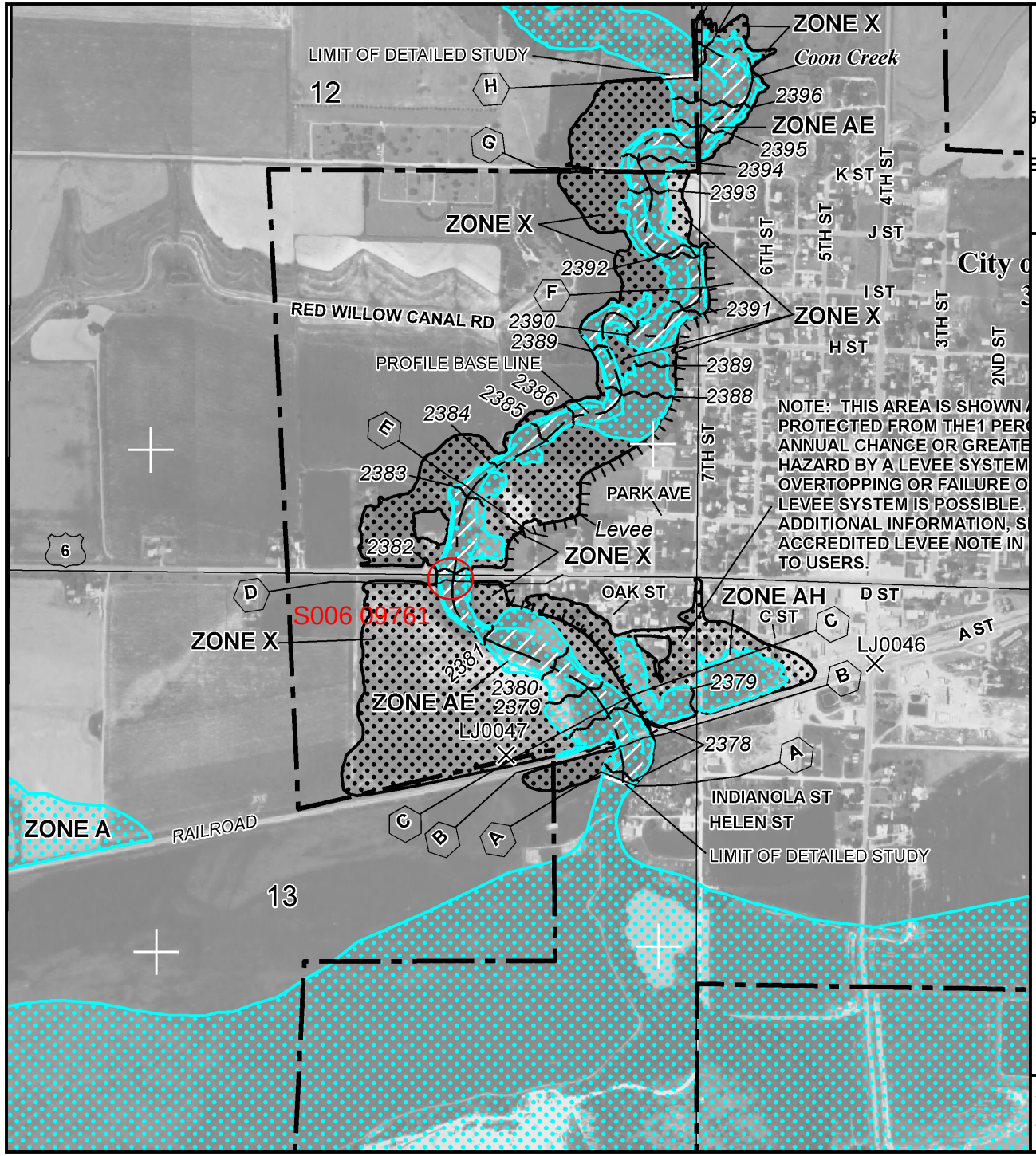

MAP SCALE 1" = 1000'

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METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0235D

FIRM

FLOOD INSURANCE RATE MAP

RED WILLOW COUNTY, NEBRASKA

AND INCORPORATED AREAS

PANEL 235 OF 450

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
INDIANOLA, CITY OF	310382	0235	D
RED WILLOW COUNTY	310469	0235	D

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MAP NUMBER
31145C0235D

MAP REVISED
NOVEMBER 16, 2011

Federal Emergency Management Agency

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McCook to Indianola

6-2 (120)

S006 09761

Coon Creek

FEMA CROSS SECTION	CROSS SECTION NUMBER	EXISTING FLOODWAY WIDTH	EXISTING FLOODWAY ELEVATIONS	PROPOSED FLOODWAY WIDTH	PROPOSED FLOODWAY ELEVATIONS	FLOODWAY WIDTH CHANGE	ELEVATION CHANGE
A	0.0	173.82	2378.93	173.82	2378.93	0	0.0
B	0.05(D.S. RR Bridge)	139.77	2379.24	139.77	2379.24	0	0.0
	0.055(RR Bridge)		N/A		N/A		N/A
	0.06(U.S. RR Bridge)	83.37	2379.18	83.37	2379.18	0	0.0
C	0.11	63.88	2379.40	63.88	2379.40	0	0.0
	0.25	250.00	2381.61	250.00	2381.61	0	0.0
D	0.38 (D.S. Hwy 6 Bridge)	250.00	2383.39	250.00	2383.36	0	-0.03
	0.39 (Hwy 6 Bridge)		N/A		N/A		N/A
	0.40 (U.S. Hwy 6 Bridge)	238.97	2383.48	238.97	2383.43	0	-0.05
E	0.50	125.00	2383.66	125.00	2383.53	0	-0.13
	0.64	100.00	2385.67	100.00	2385.67	0	0.0
F	1.02	101.17	2391.96	101.17	2391.96	0	0.0
G	1.24	27.16	2394.29	27.16	2394.29	0	0.0
H	1.57	105.00	2398.40	105.00	2398.40	0	0.0

NOTE: FEMA study incorrect. The road grade, low steel and bridge overbank n values were revised to reflect current conditions.

Q_{100}=3421 cfs (per FEMA report)

S006 09761: Existing 201’-4” bridge is being replaced with a 210’ girder bridge at the same road grade and location.

NDOR
Nebraska Department of Roads

Memorandum

Date: **August 10, 2015**

To: Tony Ringenberg, Nick Burnham, Tony Kessler, Jacqueline Baird

From: Tom Leikam

Thru: Kevin Donahoo

Subj: McCook to Indianola,6-2(120), CN 70879
Floodplain Certification

McCook to Indianola is a 3R Mill and Overlay project along U.S. Highway 6 starting 0.98 miles east of the east junction of US-6/US-34 and US-83 at the east side of McCook, reference post (R.P.) 87+73, and extending east to R.P. 98+63, the northeast corporate limits of Indianola, in Red Willow County, Nebraska. The first 2.31 miles of the project, beginning at the east side of McCook at R.P. 87+73, up to R.P. 90+04 will mill off three (3) inches of pavement and then apply a four (4) inch overlay. The project work in this first segment will result in a one (1) inch net rise of the highway grade. There is one crossing of a Zone A floodplain in this segment of the project.

Between R.P. 90+04 and R.P. 97+70, the existing roadway pavement will be milled four (4) inches and then a four (4) inch overlay will be applied. Between R.P. 97+70 and R.P. 98+63 the existing roadway pavement will be milled three (3) inches and then a three (3) inch overlay will be applied. The work on the project between R.P. 90+04 and 98+63 will result in no net rise of the highway grade with the exception of new pavement that will be constructed adjacent to the bridge structures at R.P. 92+05 and R.P. 97+61 which are to be replaced. Hydraulic analysis for the bridge replacements will be completed by NDOR Bridge Hydraulics Division.

Embankment work for the roadway work will be limited to bringing the ground adjacent to the shoulders up to the new pavement edge and minor grading at the embankment slopes to flatten slopes to meet current requirements. Minor grading shall also be completed to accommodate replacement of guardrail. Erosion control curb and flumes will be constructed as required to accommodate the resurfacing work. Several culverts will be extended as part of the project and new culvert and drop pipes will be constructed to convey storm water and control erosion. The existing structures at R.P 92+05 and R.P. 97+61 will be replaced and grading will be completed at the roadway approaches to the new structures to meet current standards. The existing structure at R.P. 93+69 will be repaired and overlaid as part of the project.

The McCook to Indianola project has perpendicular encroachments within Zone A Floodplains at the following locations:

Unnamed Drainage, Section 27 T3N R29W (Station 572+99);
Canyon River, Section 18 T3N R28W (S006 09205);
Unnamed Drainage, Section 18 T3N R28W (Station 735+36);
Unnamed Drainage, located between Section 11 T3N R28W and Section 14 T3N R28W (Station 982+41);

The McCook to Indianola project has a perpendicular crossing of a mapped floodplain and floodway at the following location:

Coon Creek, located between Section 12 T3N R28W and Section 13 T3N R28W (S006 09761);

Unnamed Drainage, Red Willow County, Section 27 T3N R29W (Station 572+99)
The project crosses the Zone A Floodplain for the Unnamed Drainage in Section 27 T3N R29W at a single 14 foot span by 14 foot rise concrete box culvert. This box culvert will be used in place and the grade at the highway will be raised one (1) inch. The base flood (100 year storm/flood event) of 4,400 cubic feet per second (cfs) is conveyed by the 14 foot by 14 foot concrete box culvert at an elevation of 2475.55 and does not overtop the highway. The one inch change in grade at the highway will not cause the elevation to increase. This falls within the Zone A Floodplain regulation's allowance of up to an one-foot (1 ft) cumulative increase in the 100-year Base Flood Elevations for changes in a floodplain.

Unnamed Drainage, Red Willow County, Section 18 T3N R28W (Station 735+36)
The project crosses the Zone A Floodplain for the Unnamed Drainage in Section 18 T3N R28W at a single 14 foot span by 12 foot rise concrete box culvert. This box culvert will be extended at the upstream and downstream end of the culvert. The base flood (100 year storm/flood event) of 3,700 cubic feet per second (cfs) is conveyed by the 14 foot by 12 foot concrete box culvert at an elevation of 2458.49. Beginning at an elevation of 2456.75, approximately 270 cfs of the total flow will be conveyed in the ditch along the north side of US-6, flowing west to the new quintuple box culvert at Station 728+84. The extension of the box will cause the elevation to increase approximately two (2) inches to an elevation of 2458.63. This falls within the Zone A Floodplain regulation's allowance of up to an one-foot (1 ft) cumulative increase in the 100-year Base Flood Elevations for changes in a floodplain.

Unnamed Drainage, Red Willow County, Sections 11/14 T3N R28W (Station 982+41)
The project does not affect the conveyance of the flow through the culvert or change the elevation of the highway at the Unnamed Drainage located in Section(s) 11/14 T3N R28W, and therefore will not cause the base flood elevation to change. This falls within the Zone A Floodplain regulation's allowance of up to an one-foot (1 ft) cumulative increase in the 100-year Base Flood Elevations for changes in a floodplain.

Floodplain certification for the new bridge structure at Canyon River, Section 18 T3N R28W (S006 09205) and at Coon Creek, Section 12 T3N R28W and Section 13 T3N R28W (S006 09761), will be provided by the NDOR Bridge Hydraulics Division.

Permit Information

Is the work Substantial Improvement?

Unnamed Drainage in Section 27	No
Canyon River (S006 09205)	Yes
Unnamed Drainage in Section 18	No
Unnamed Drainage in Sections 11/14	No
Coon Creek (S006 09761)	Yes

Is the work in an Identified Floodplain?

Unnamed Drainage in Section 27	Yes
Canyon River (S006 09205)	Yes
Unnamed Drainage in Section 18	Yes
Unnamed Drainage in Sections 11/14	Yes
Coon Creek (S006 09761)	Yes

Elevation of the Base Flood (100-Year flood/storm event)?

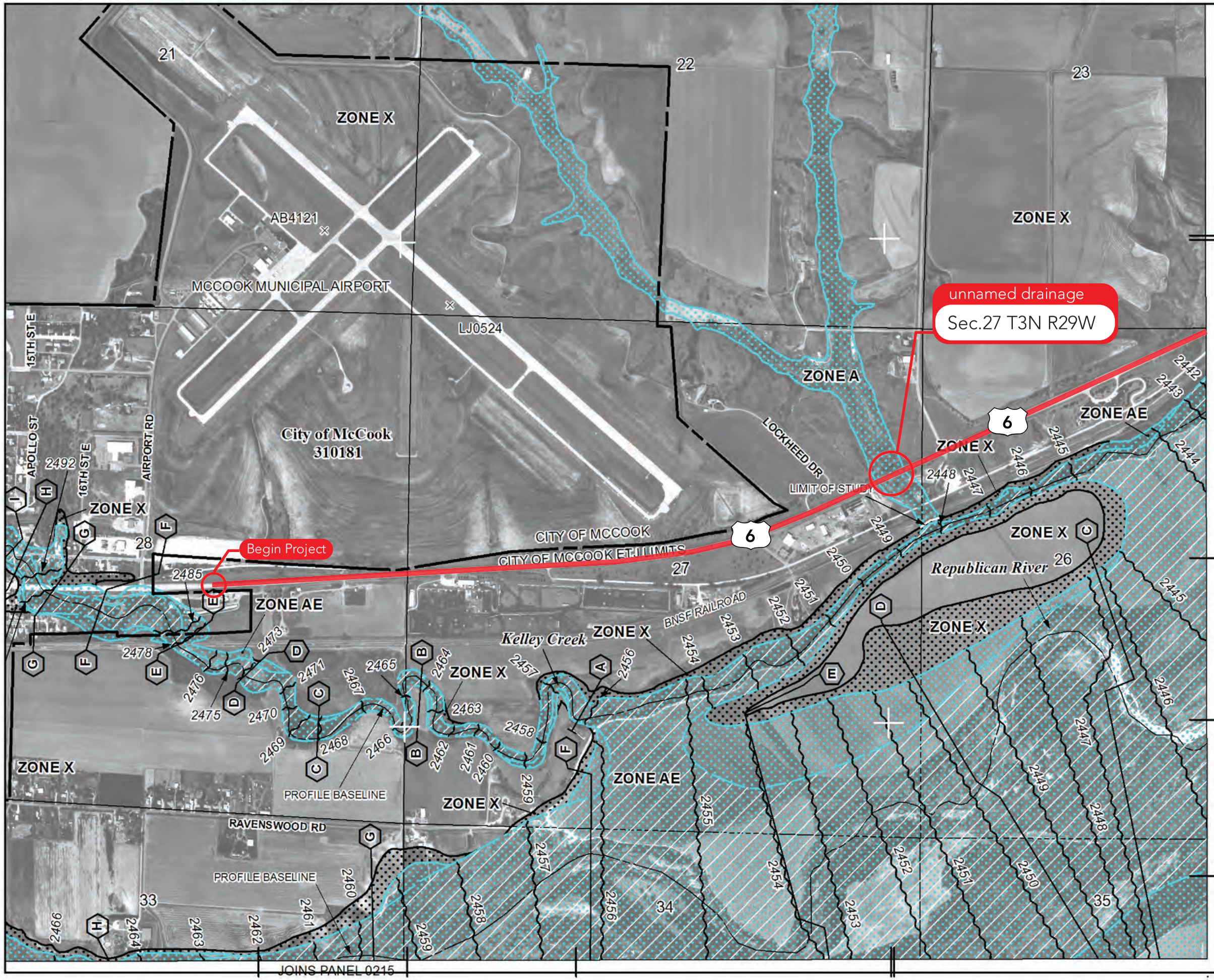
Unnamed Drainage in Section 27	2475.55 NAVD 88
Canyon River (S006 09205)	Bridge Hydraulics
Unnamed Drainage in Section 18	2458.63 NAVD 88
Unnamed Drainage in Sections 11/14	No Change
Coon Creek (S006 09761)	Bridge Hydraulics

Elevation/Floodproofing Requirement (if applicable)?

Unnamed Drainage in Section 27	NA
Canyon River (S006 09205)	NA
Unnamed Drainage in Section 18	NA
Unnamed Drainage in Sections 11/14	NA
Coon Creek (S006 09761)	NA

Is the work in a designated Floodway?

Unnamed Drainage in Section 27	No
Canyon River (S006 09205)	No
Unnamed Drainage in Section 18	No
Unnamed Drainage in Sections 11/14	No
Coon Creek (S006 09761)	Yes



MAP SCALE 1" = 1000'

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NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0205C

FIRM

FLOOD INSURANCE RATE MAP

RED WILLOW COUNTY, NEBRASKA

AND INCORPORATED AREAS

PANEL 205 OF 450

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MCCOOK, CITY OF	310181	0205	C
RED WILLOW COUNTY	310469	0205	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
31145C0205C

EFFECTIVE DATE
FEBRUARY 4, 2009

Federal Emergency Management Agency

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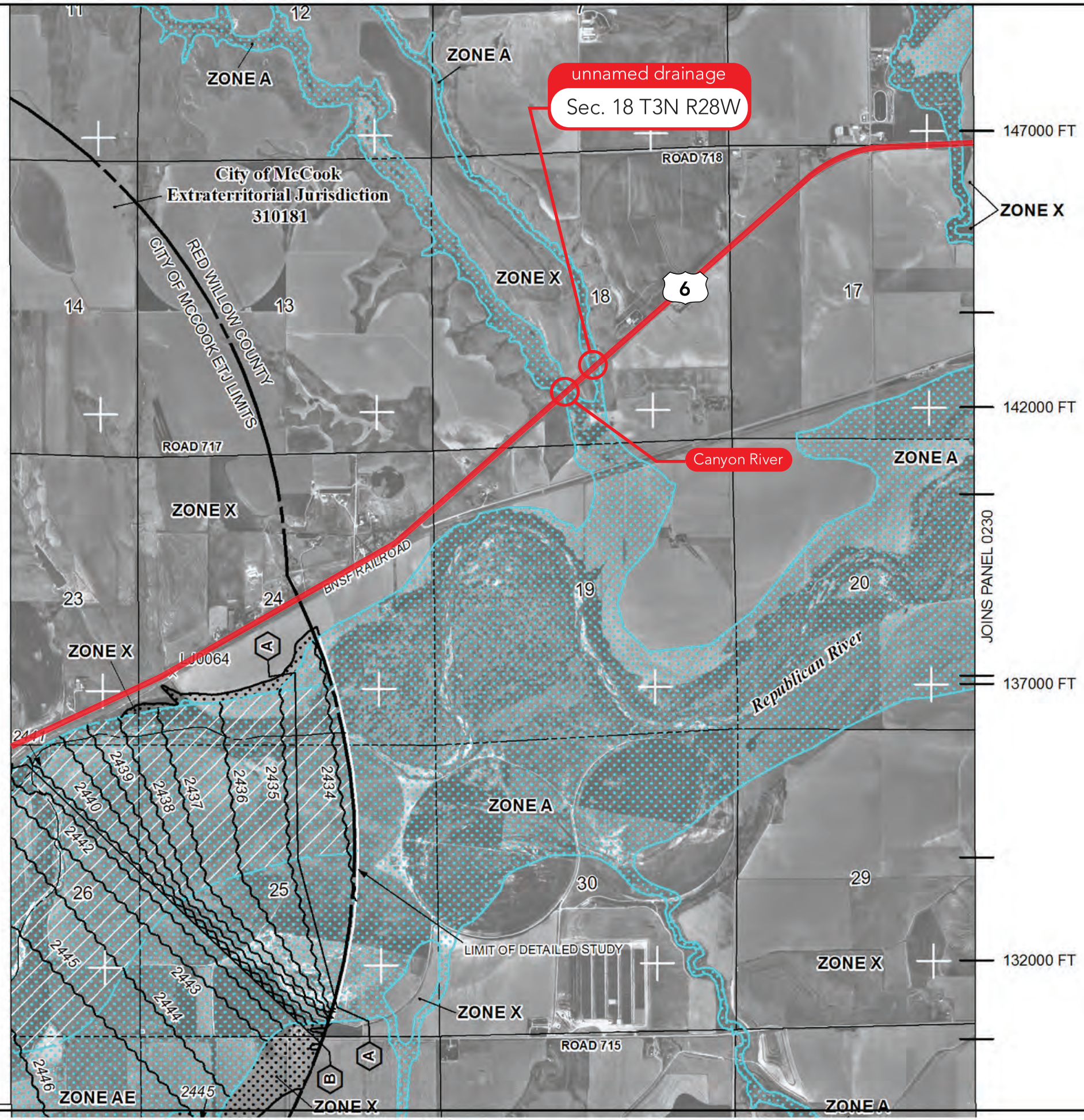

MAP SCALE 1" = 2000'

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NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0225C

FIRM

FLOOD INSURANCE RATE MAP

RED WILLOW COUNTY, NEBRASKA

AND INCORPORATED AREAS

PANEL 225 OF 450

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MCCOOK, CITY OF	310181	0225	C
RED WILLOW COUNTY	310489	0225	C

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MAP NUMBER
31145C0225C

EFFECTIVE DATE
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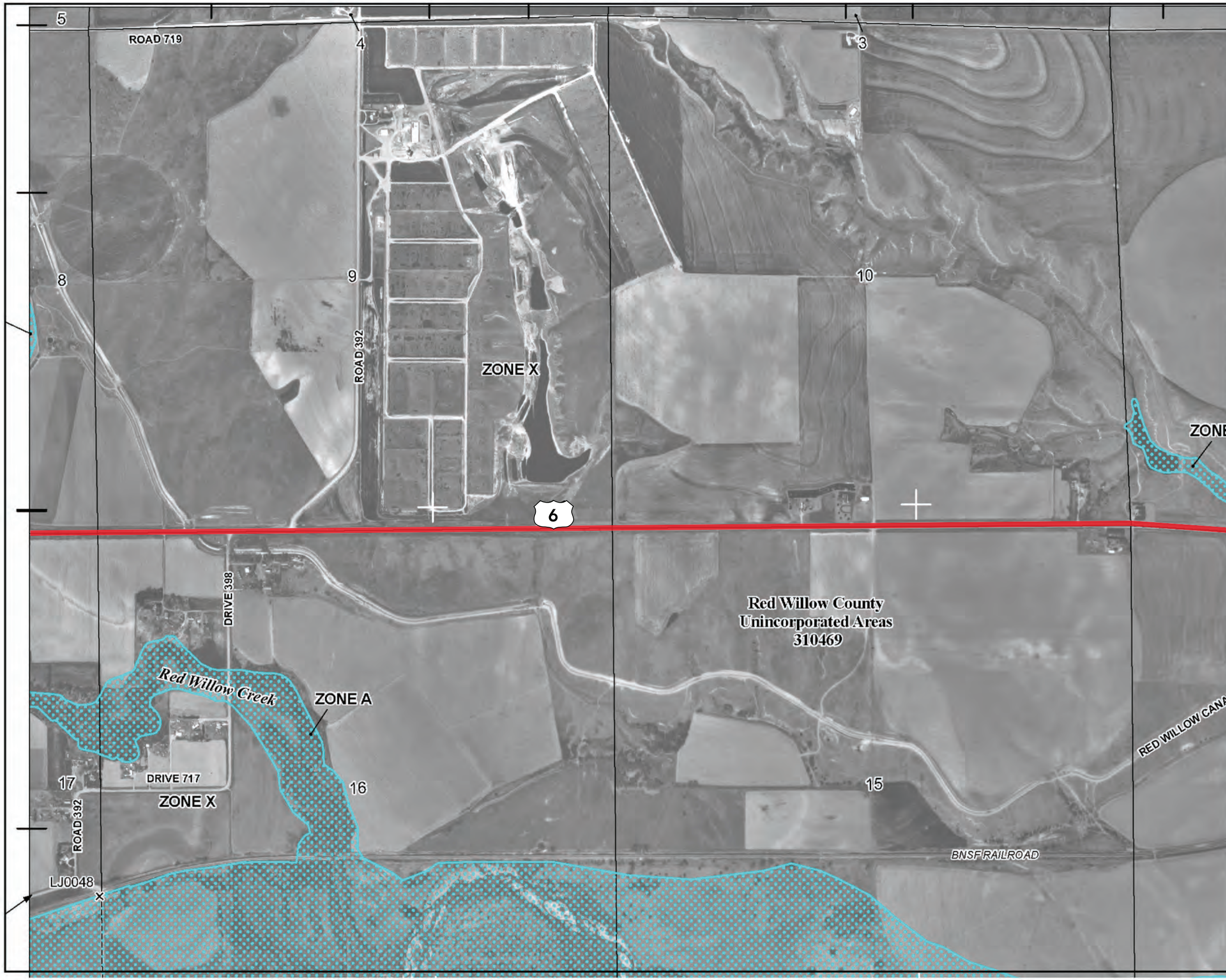

MAP SCALE 1" = 1000'

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NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0230C

FIRM

FLOOD INSURANCE RATE MAP

RED WILLOW COUNTY, NEBRASKA

AND INCORPORATED AREAS

PANEL 230 OF 450

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
INDIANOLA, CITY OF	310382	0230	C
RED WILLOW COUNTY	310469	0230	C

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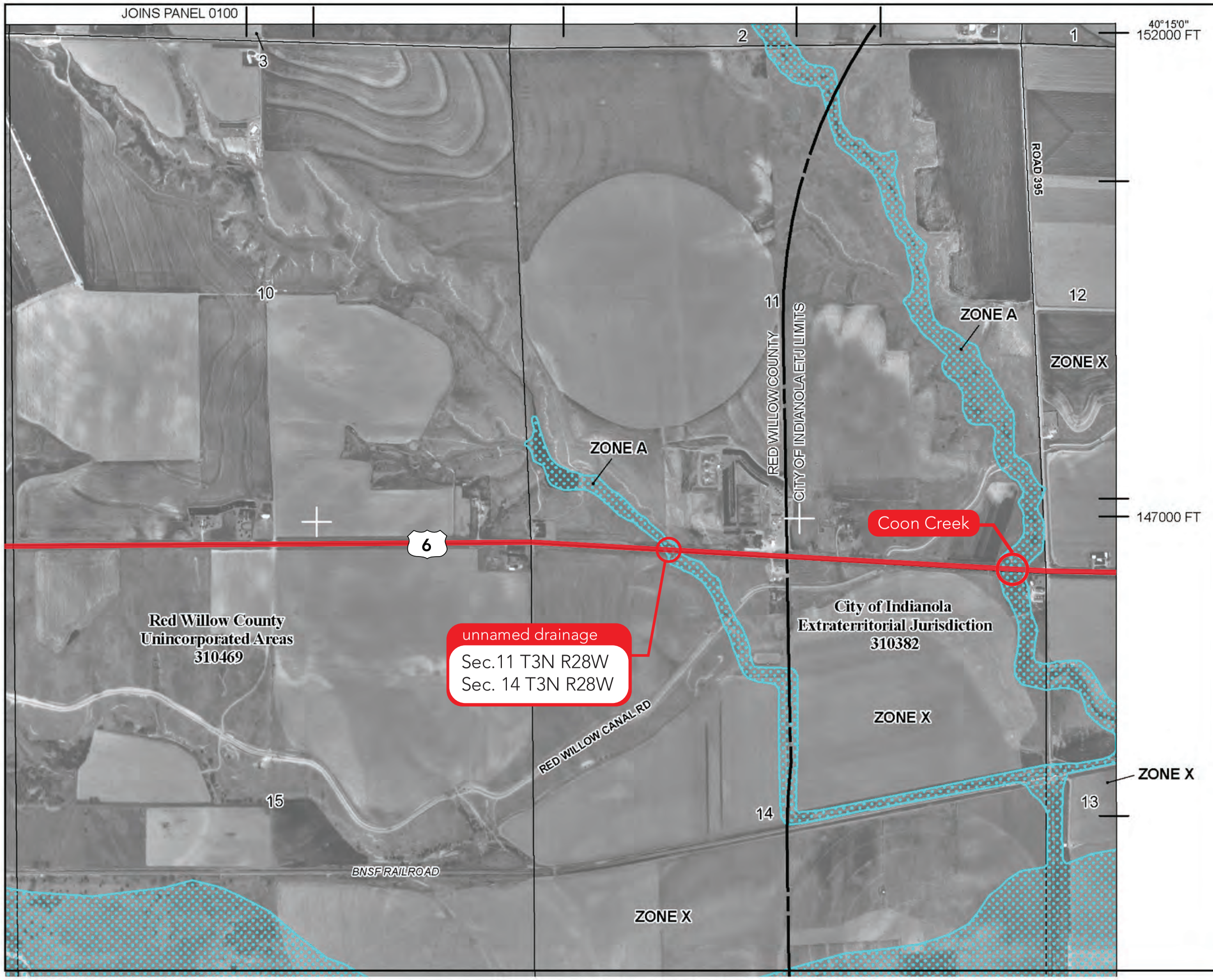

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NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0230C

FIRM

FLOOD INSURANCE RATE MAP

RED WILLOW COUNTY, NEBRASKA

AND INCORPORATED AREAS

PANEL 230 OF 450

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

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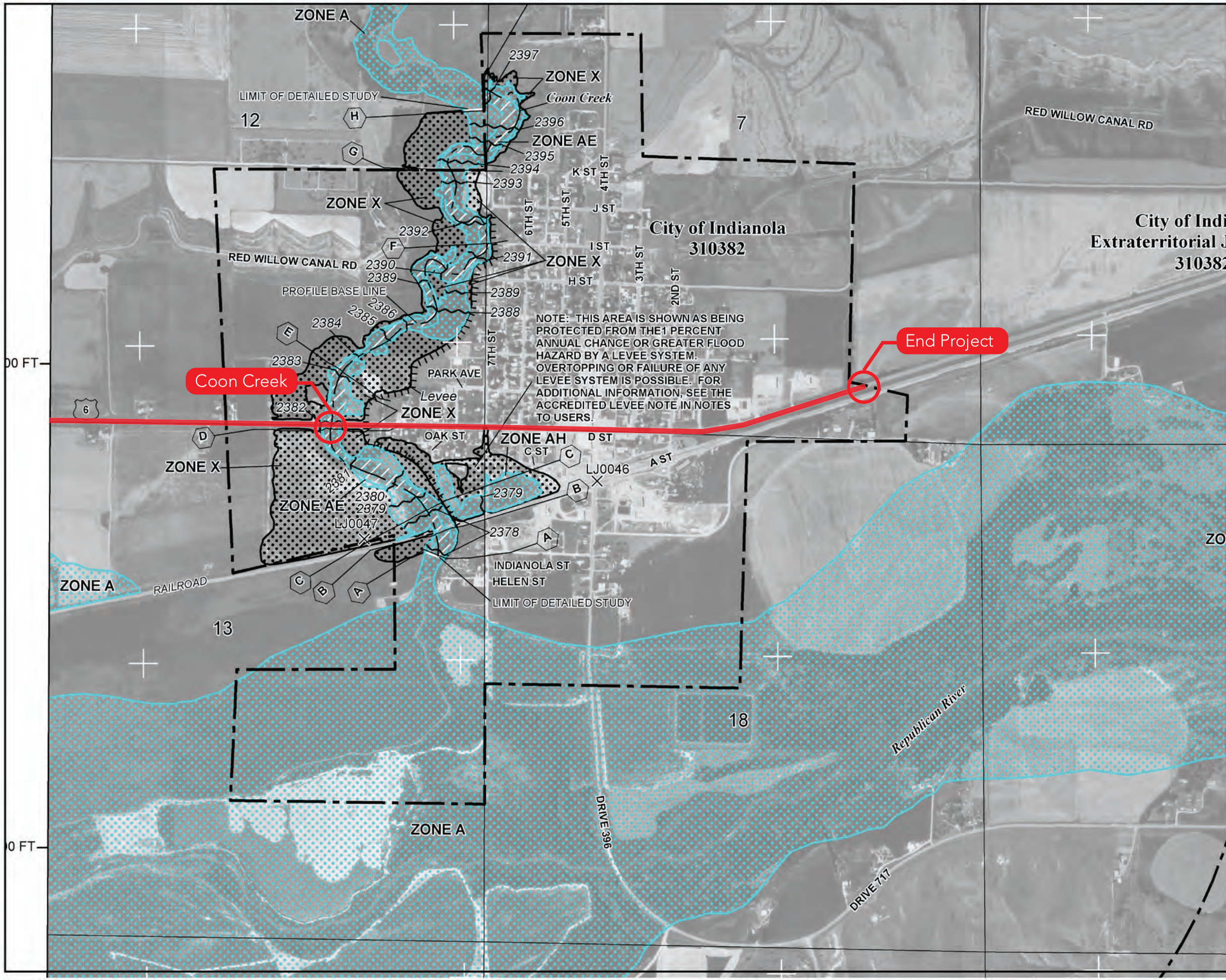

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0235D

FIRM

FLOOD INSURANCE RATE MAP

RED WILLOW COUNTY, NEBRASKA

AND INCORPORATED AREAS

PANEL 235 OF 450

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
INDIANOLA, CITY OF	310382	0235	D
RED WILLOW COUNTY	310469	0235	D

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MAP NUMBER
31145C0235D

MAP REVISED
NOVEMBER 16, 2011

Federal Emergency Management Agency

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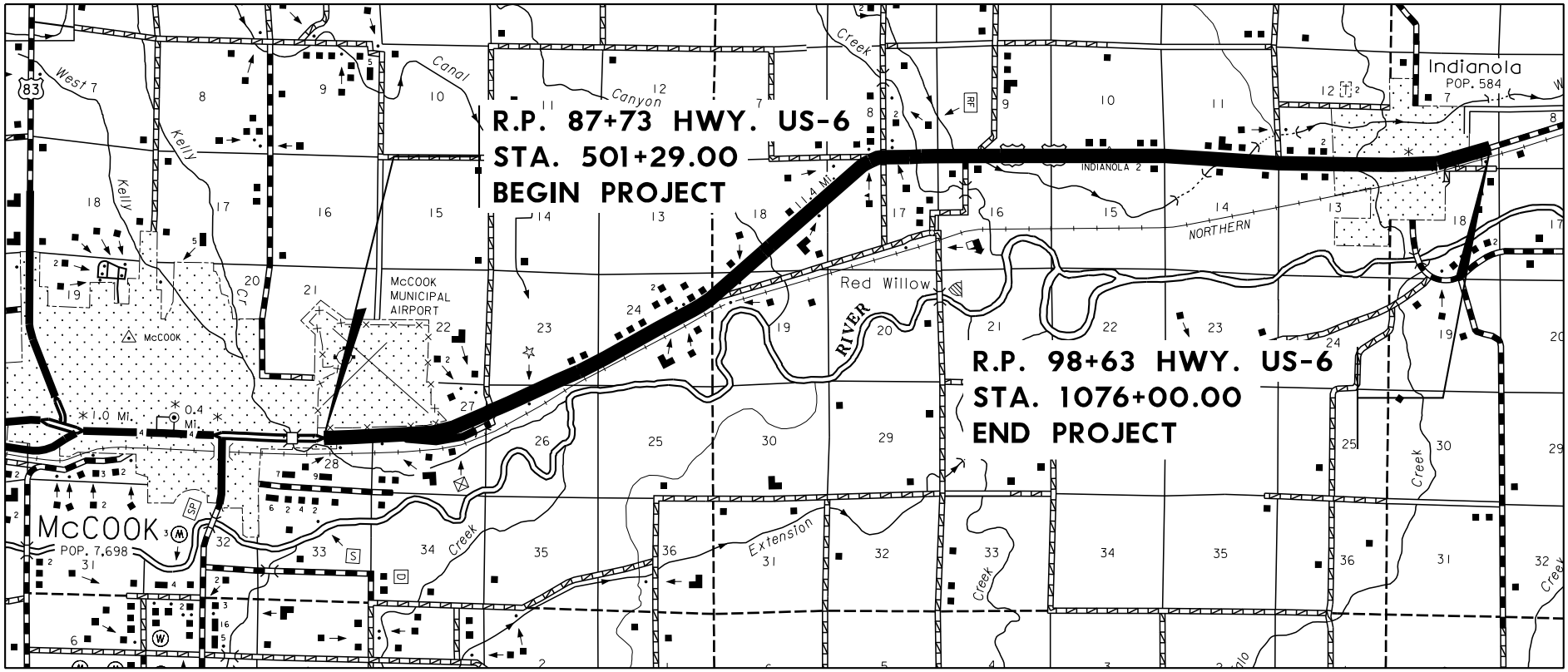
MCCOOK - INDIANOLA
6-2(120)
C.N. 70879
RED WILLOW COUNTY



Nebraska Department of Roads

Floodplain/Floodway Development Permit/Application

RECEIVED
FEB 04 2016
PROJECT DEVELOPMENT SECTION

Permit Application No.
2016-1

Date:
12/28/15

This form is used for any man-made change to improved or unimproved transportation facility, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation, drilling operations, or storage of equipment or materials.

Nebraska Department of Roads will obtain all other necessary federal, state, or local permits *(e.g., Corps of Engineers 404 Permit, Local Levee District, etc.)*

1.	Name of Applicant: Nebraska Department of Roads PO Box 94759 Lincoln NE 68509-4759		
2.	Type and Use of Development:	3.	Specific Location of Development: Hwy 6 from Mile Marker (M.M.) 87.73 to M.M. 98.63

The following section is provided by NDOR for the community official's monitoring/tracking purposes:

4. Is the Development Substantial Improvement? ☐ Yes ☒ No

Complete this section if the proposed development involves the improvement of a structure *(i.e., walled and roofed building).*

Pre-improvement Value of Structure: $ _____

Cost of Improvement: $ _____

5. Is the development in an identified floodplain? ☒ Yes ☐ No

Please see attached documentation.

If Yes, complete the following:

a. Elevation of the Base *(100-Year)* Flood * _____ Ft. MSL/NGVD 29 or NAVD 88

Or

Worst case impact _____ rise in the Base *(100-year)* Flood

* If project includes multiple floodplain crossings, this information is summarized in attached documentation.

b. Elevation/Floodproofing Requirement *(if applicable)* N/A Ft. MSL/NGVD 29 or NAVD 88

c. Is the development in a designated Floodway?

☒ Yes New structures for human habitation are prohibited. For any other Floodway development, the NDOR must provide certification by a registered professional engineer that the development would result in no increase along the floodway water surface profile.

☐ No If a floodway has not been designated, the NDOR may be required to submit hydraulic data demonstrating that the proposed development will not increase flood heights more than one foot at any location.

If the development is in a floodplain, the following shall apply:

If work includes a new or substantially improved nonresidential building, NDOR will provide certification by a Registered Engineer, Architect, or Land Surveyor that the building is elevated or flood proofed at least one foot above the base flood elevation.

By signing below, the local authorizing official acknowledges the above and any floodplain information submitted with this permit application.

All provisions of the Red Willow (County or City) Floodplain Management Resolution/Ordinance (Number 1268) shall be complied with.

Gary DiSenta
GARY DISENTA FLOOD PLAIN ADMIN — 2-1-16
Local Authorizing Official (Name & Title) — *Date*

Kathy Krajicek — 12-28-15
NDOR Environmental Permits Manager — *Date*
for Tony Ringenberg

Project Name: McCook - Indianola	
Project No.: 6-2(120)	
Control No.: 70879	Structure No.: Multiple

Nebraska Department of Roads

Floodplain/Floodway Development Permit/Application

RECEIVED
FEB 04 2016
ENVIRONMENTAL SECTION

Permit Application No.
2016-1
Date: 12/28/15

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By signing below, the local authorizing official acknowledges the above and any floodplain information submitted with this permit application.

All provisions of the Indianola *(County or City)* Floodplain Management Resolution/Ordinance (Number 485) shall be complied with.

GARY DICENTA
Gary Dicenta FLOOD PLAIN Admin 2-1-16
Local Authorizing Official (Name & Title) *Date*

Kathy Krajicek 12-28-15
NDOR Environmental Permits Manager *Date*
for Tony Ringenberg

Project Name: McCook - Indianola	
Project No.: 6-2(120)	
Control No.: 70879	Structure No.: Multiple