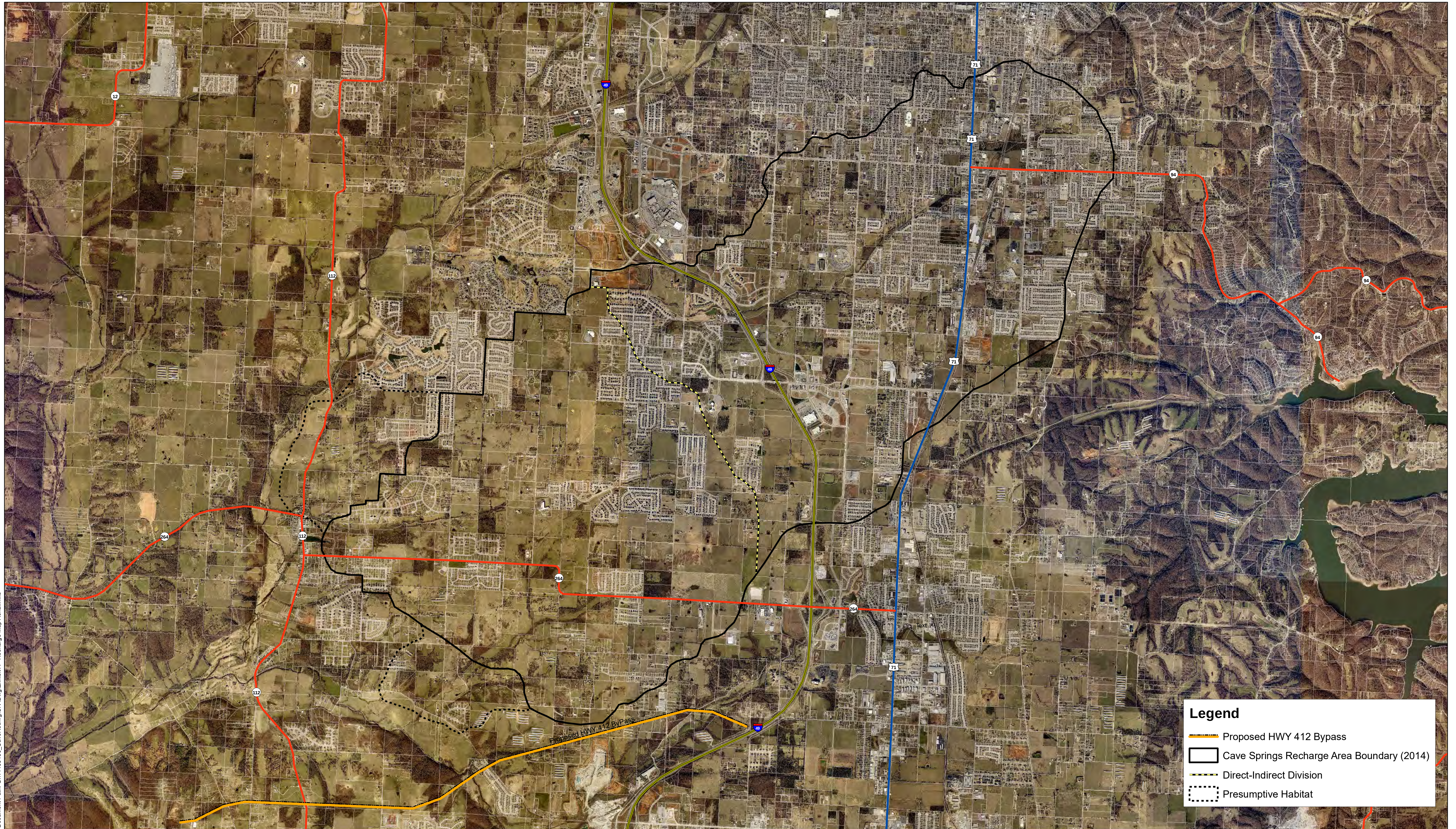


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Legend

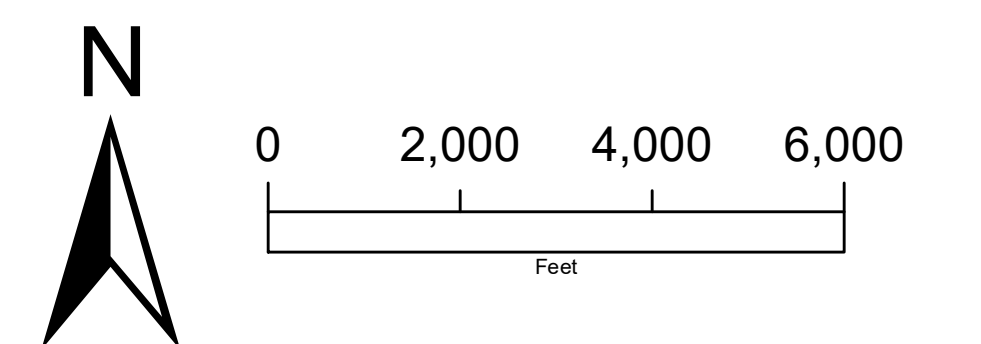
- Proposed HWY 412 Bypass
- Cave Springs Recharge Area Boundary (2014)
- Direct-Indirect Division
- Presumptive Habitat

Cave Springs Area Karst Resource Conservation Study

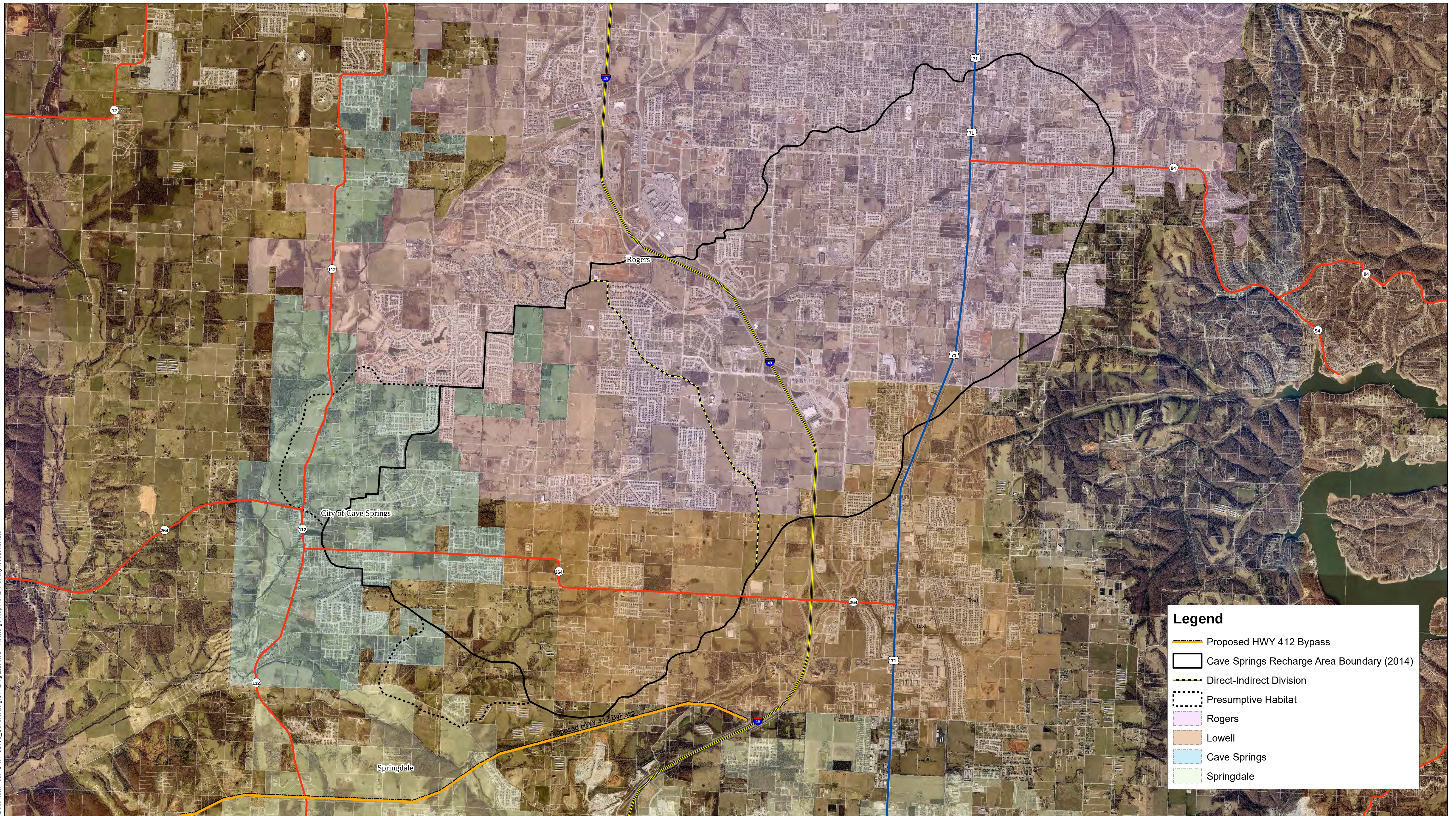
Direct & Indirect Recharge Area

Exhibit "A"

DRAFT - 3/6/15



Map Revised: 3/6/2015 12:49:26 PM
Document Path: G:\14103100_CaveRecharge\CIVDwg\Exhibit B - Recharge Map Aerial with city locations.mxd



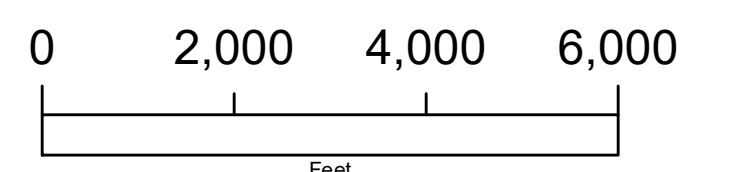
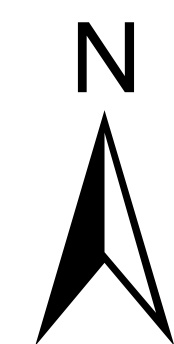
Cave Springs Area Karst Resource Conservation Study

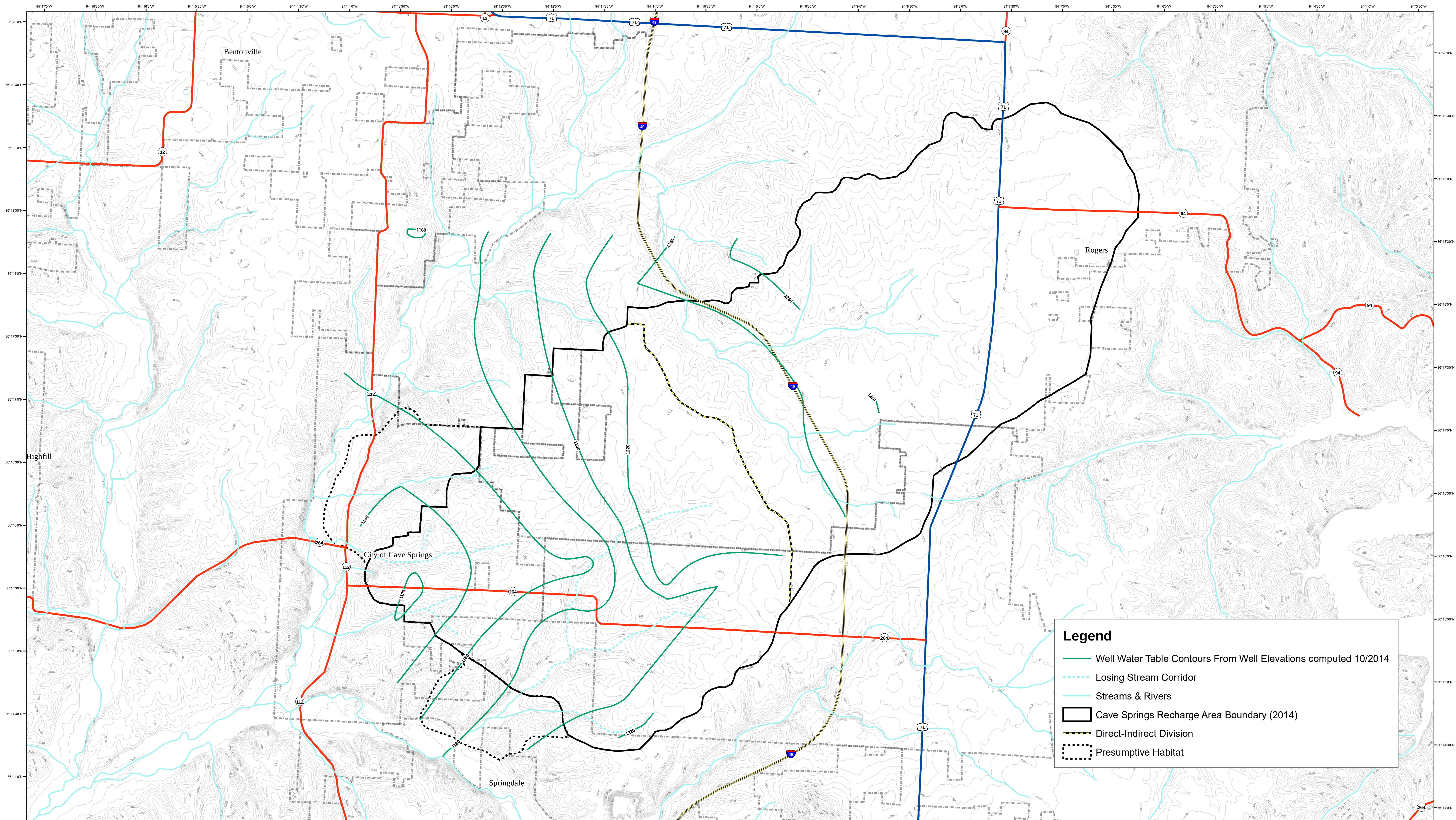
Rogers, Lowell, Cave Springs, Springdale

Direct & Indirect Recharge Area Location

Exhibit "B"

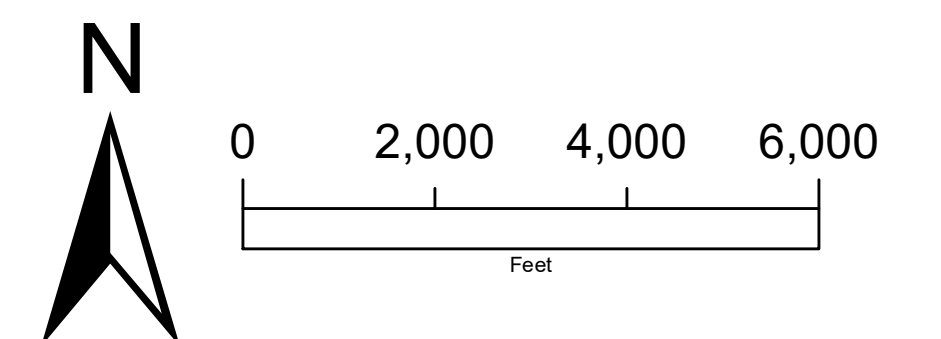
DRAFT - 3/6/15





Cave Springs Direct & Indirect Recharge Area Map With Topographic Features Exhibit "C"

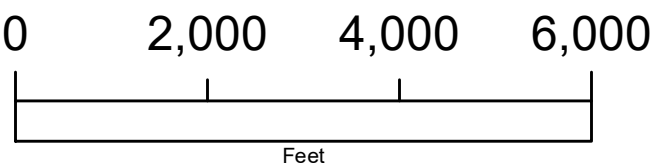
DRAFT - 3/6/15



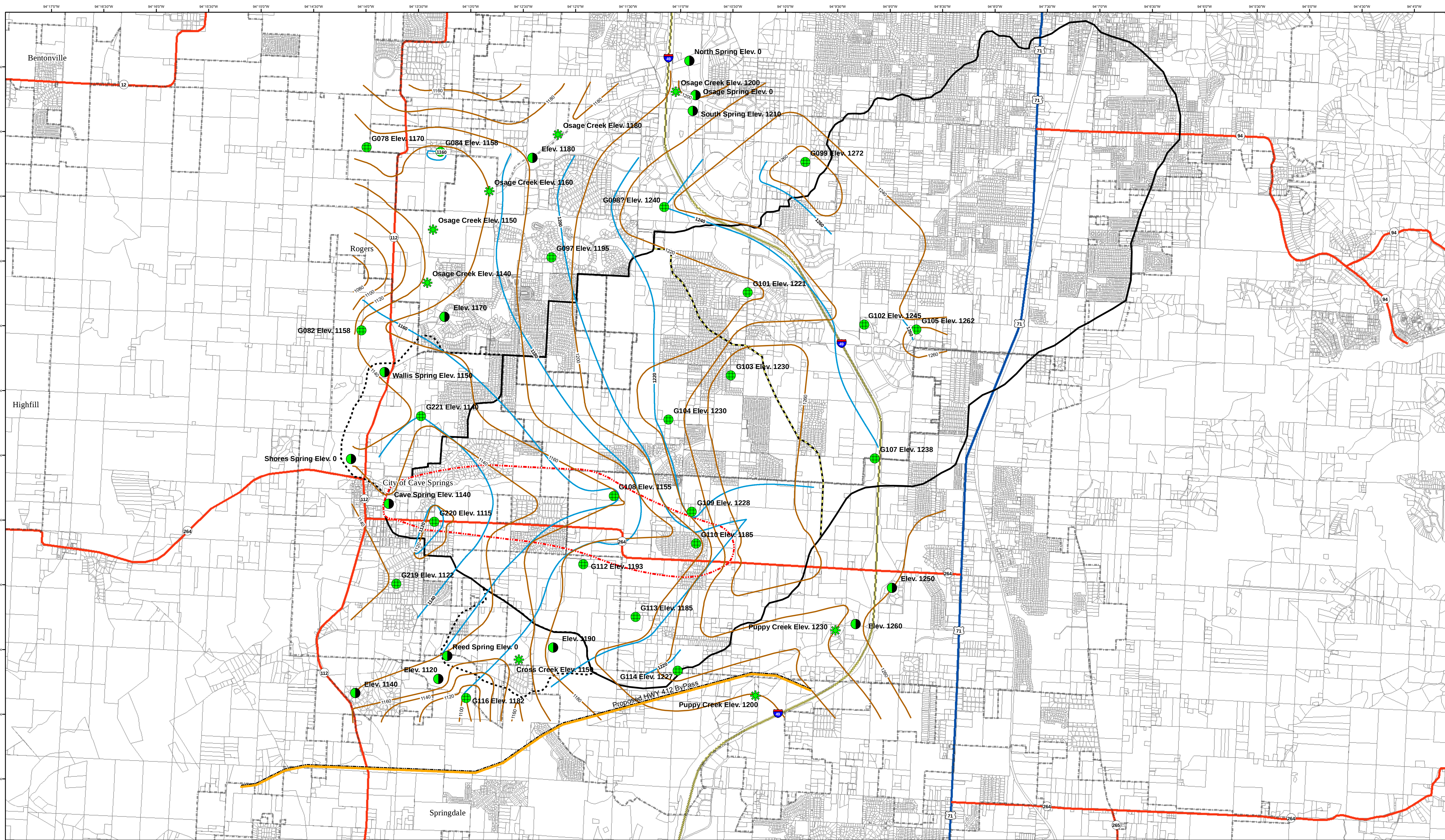
DRAFT - 3/6/15

Cave Springs Recharge Area Dye Introduction & Sampling Stations Exhibit "D"

Station No.	Station Name	Coordinates	Approx. Elevation (feet msl)
101	Cave Spring	N36.26127 W94.22725	1150
102	Cave Spring - North Pipe	N36.26136 W94.22746	1140
103	Cave Spring - NW Culvert	N36.26143 W94.22732	1140
104	Cave Spring - NE Culvert	N36.26133 W94.22735	1140
105	Cave Spring - South Pipes	N36.26128 W94.22739	1140
106	Cave Spring - South Valve	N36.26121 W94.22749	1140
107	Boat Ramp Spring - East	N36.26161 W94.23077	1135
108	Boat Ramp Spring - Center	N36.26155 W94.23076	1135
109	Boat Ramp Spring - West	N36.26155 W94.23085	1135
110	Unnamed Tributary at 112	N36.26524 W94.23177	1140
111	Shores Spring	N36.26722 W94.23388	1130
112	Wallis Spring	N36.27852 W94.22935	1150
113	Osage Creek upstream of SVGC Spring Branch	N36.28334 W94.22710	1135
114	Shadow Valley Golf Course (SVGC) Spring Branch	N36.28339 W94.22747	1135
115	Osage Creek at Rainbow Road	N36.30638 W94.20757	1180
116	Osage Creek d/s Cross Church	N36.31364 W94.19254	1190
117	Village Pond Outfall	N36.31436 W94.19265	1195
118	Osage Creek u/s Blossom Way	N36.31646 W94.18667	1200
119	Osage West Spring	N36.31545 W94.18421	1210
120	Osage Spring	N36.31525 W94.18267	1210
121	Osage Spring - Culvert 1	N36.31521 W94.18253	1210
122	Osage Spring - Culvert 2	N36.31497 W94.18225	1210
123	Osage Spring - Culvert 3	N36.31493 W94.18219	1210
124	Blossom Way downstream of South Spring	N36.31495 W94.18272	1210
125	Blossom Way upstream of South Spring	N36.31256 W94.18089	1215
126	North Spring	N36.31590 W94.18204	1210
127	Osage Creek upstream of North Spring	N36.32021 W94.17957	1215
128	Spring Creek upstream of 112	N36.24385 W94.23866	1100
129	Johnson Spring 1	N36.23973 W94.23233	1125
130	Johnson Spring 2	N36.23977 W94.23071	1125
131	Johnson Spring 3	N36.23980 W94.23023	1125
132	Spring Creek at Wagon Wheel Road	N36.24067 W94.22579	1110
133	Reed Spring Branch at Wagon Wheel Road	N36.24088 W94.22559	1112
134	Reed Spring	N36.24217 W94.21809	1140
135	Cross Creek upstream of Wagon Wheel Road	N36.24011 W94.21191	1140
136	Cross Creek upstream of Brown Road	N36.24362 W94.20522	1158
137	Spring Creek at 56th Street	N36.22407 W94.19215	1148
138	Puppy Creek upstream of Spring Creek	N36.22430 W94.19193	1148
139	Puppy Creek at Puppy Creek Road	N36.23422 W94.17506	1195
140	Puppy Creek at Goad Springs Road	N36.24725 W94.15502	1240
141	Goad Springs Branch	N36.24705 W94.15504	1240
142	Puppy Creek at 6th Street	N36.25088 W94.14978	1165
143	Pinnacle Valley Tributary	N36.29927 W94.21171	1180
144	Unnamed Tributary at Bright Road	N36.26300 W94.22449	1170

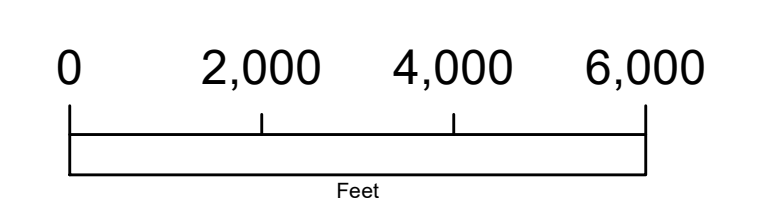
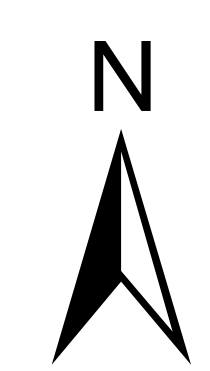


- Legend**
- Historical Dye Intro (Date-Dye Introduction Number)
 - 2014 Dye Intro (Date-Dye Introduction Number)
 - Dye Sampling Stations
 - Cave Springs Recharge Area Boundary (2014)
 - Direct-Indirect Division
 - Presumptive Habitat

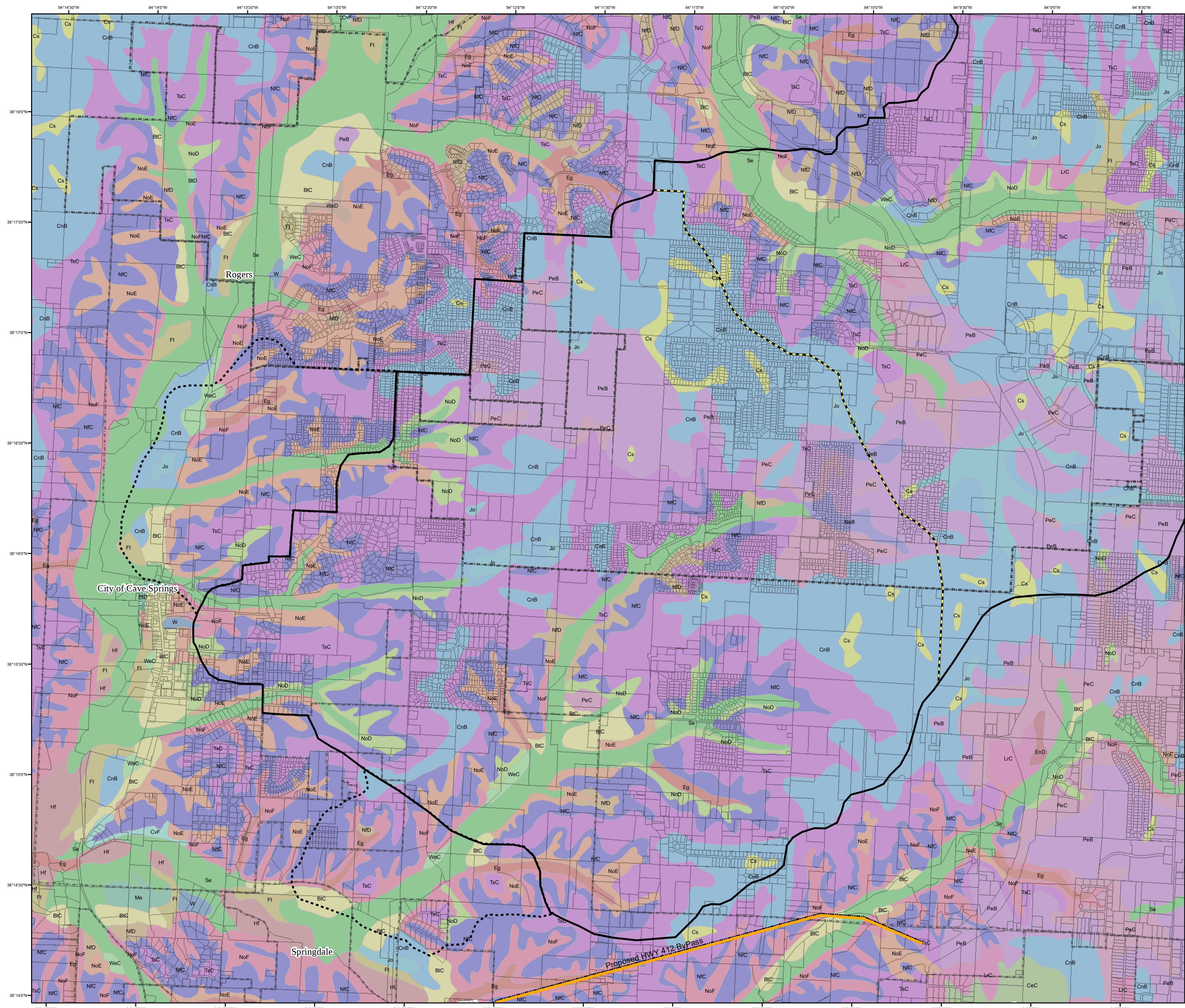


Cave Springs Recharge Area Potentiometric Contour Map Exhibit "E"

DRAFT - 3/6/15

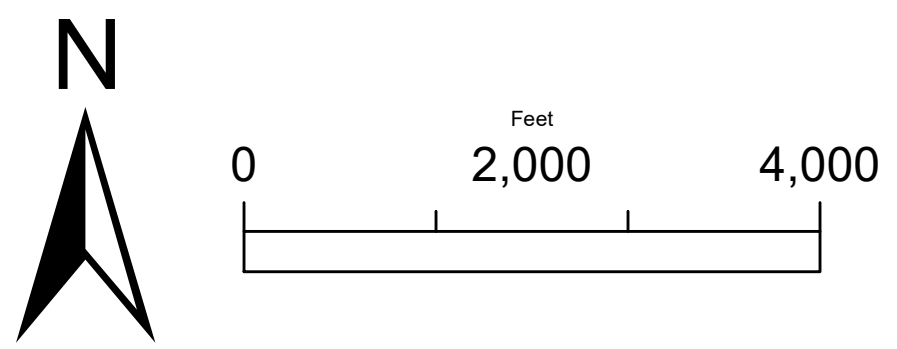


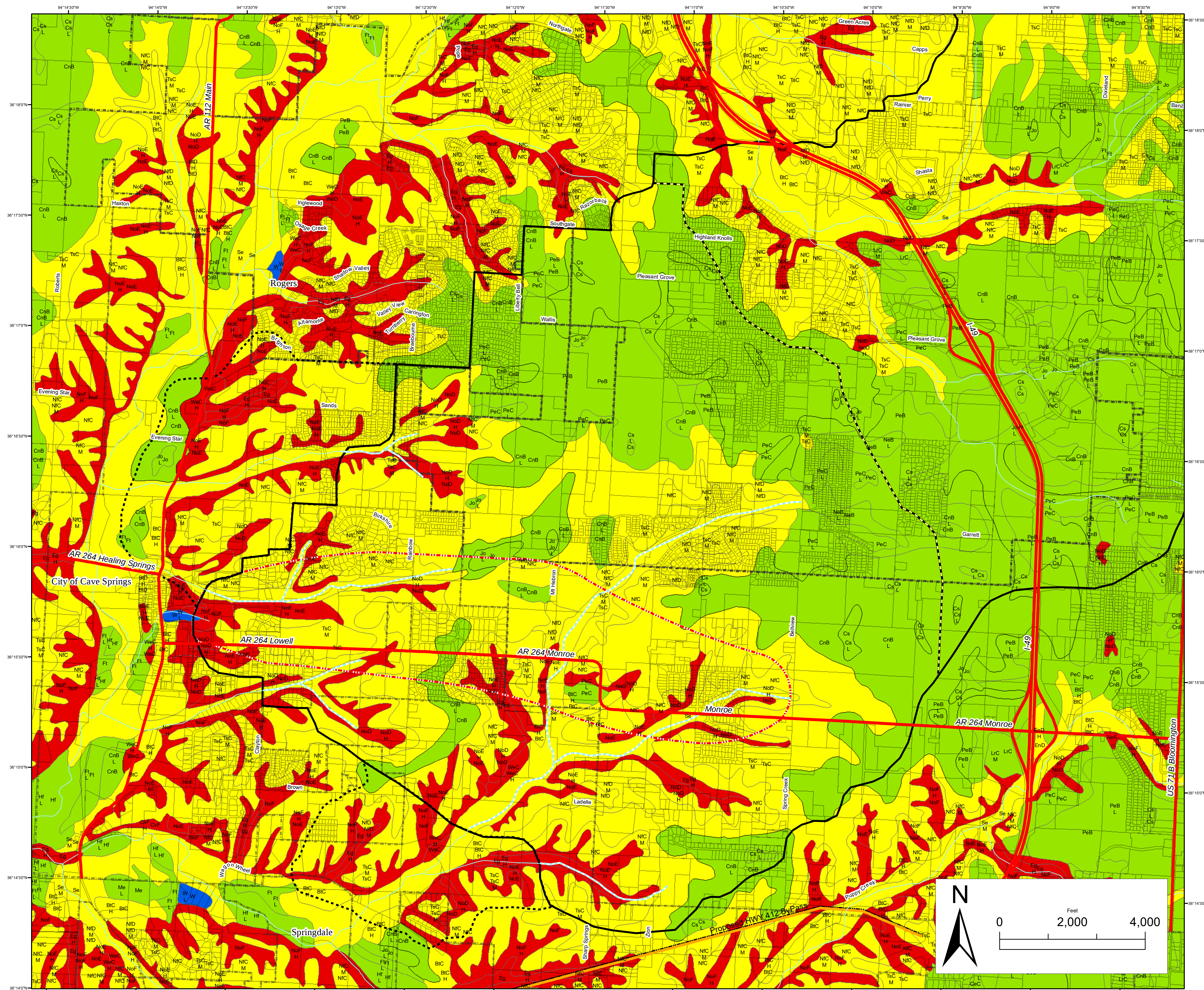
- Legend**
-  Creeks
 -  Springs - Williams (1991)
 -  Wells - Well Water Elevations per Williams (1991, Page 29)
 -  Well Water Table Contours per Williams (1991, Page 29)
 -  Well Water Table Contours From Well Elevations computed 10/2014
 -  Cave Springs Recharge Area Boundary (2014)
 -  Direct-Indirect Division
 -  Presumptive Habitat
 - Cave Springs Groundwater Trough



Soil Type

- CnB - Captina silt loam, 1 to 3 percent slopes
- JaB - Jay silt loam, 1 to 3 percent slopes
- NeB - Newtonia silt loam, 1 to 3 percent slopes
- PeB - Peridge silt loam, 1 to 3 percent slopes
- Ft - Fatima silt loam, occasionally flooded
- Hf - Healing silt loam, occasionally flooded
- Me - Mayes silty clay loam
- Se - Secesh gravelly silt loam, occasionally flooded
- BtC - Britwater gravelly silt loam, 3 to 8 percent slopes
- CeC - Cane loam, 3 to 8 percent slopes
- LrC - Linker fine sandy loam, 3 to 8 percent slopes
- NfC - Nixa very gravelly silt loam, 3 to 8 percent slopes
- NfD - Nixa very gravelly silt loam, 8 to 12 percent slopes
- PeC - Peridge silt loam, 3 to 8 percent slopes
- TsC - Tonti gravelly silt loam, 3 to 8 percent slopes
- Eg - Elsah soils, occasionally and frequently flooded
- Cs - Cherokee silt loam
- Jo - Johnsburg silt loam
- BtD - Britwater gravelly silt loam, 8 to 12 percent slopes
- EnD - Enders very gravelly loam, 3 to 12 percent slopes
- NoD - Noark very gravelly silt loam, 8 to 12 percent slopes
- WeC - Waben very gravelly silt loam, 3 to 8 percent slopes
- WeD - Waben very gravelly silt loam, 8 to 12 percent slopes
- NoE - Noark very gravelly silt loam, 12 to 20 percent slopes
- NoF - Noark very gravelly silt loam, 20 to 45 percent slopes
- CvF - Clarksville extremely gravelly silt loam, 12 to 50 percent slopes
- W - Water





Soil Type (National Resource Conservation Service)

- CnB - Captina silt loam, 1 to 3 percent slopes
- JaB - Jay silt loam, 1 to 3 percent slopes
- NeB - Newtonia silt loam, 1 to 3 percent slopes
- PeB - Peridge silt loam, 1 to 3 percent slopes
- Ft - Fatima silt loam, occasionally flooded
- Hf - Healing silt loam, occasionally flooded
- Me - Mayes silty clay loam
- Se - Secesh gravelly silt loam, occasionally flooded
- BtC - Britwater gravelly silt loam, 3 to 8 percent slopes
- CeC - Cane loam, 3 to 8 percent slopes
- LrC - Linker fine sandy loam, 3 to 8 percent slopes
- NfC - Nixa very gravelly silt loam, 3 to 8 percent slopes
- NfD - Nixa very gravelly silt loam, 8 to 12 percent slopes
- PeC - Peridge silt loam, 3 to 8 percent slopes
- TsC - Tonti gravelly silt loam, 3 to 8 percent slopes
- Eg - Elsay soils, occasionally and frequently flooded
- Cs - Cherokee silt loam
- Jo - Johnsborg silt loam
- BtD - Britwater gravelly silt loam, 8 to 12 percent slopes
- EnD - Enders very gravelly loam, 3 to 12 percent slopes
- NoD - Noark very gravelly silt loam, 8 to 12 percent slopes
- WeC - Waben very gravelly silt loam, 3 to 8 percent slopes
- WeD - Waben very gravelly silt loam, 8 to 12 percent slopes
- NoE - Noark very gravelly silt loam, 12 to 20 percent slopes
- NoF - Noark very gravelly silt loam, 20 to 45 percent slopes
- CvF - Clarksville extremely gravelly silt loam, 12 to 50 percent slopes
- W - Water

Natural Soil Treatment Capability

- Good
- Fair
- Poor

Legend

- Highways
- Losing Stream Corridor
- Streams & Rivers
- Cave Springs Recharge Area Boundary (2014)
- Direct-Indirect Division
- Presumptive Habitat
- Cave Springs Groundwater Trough



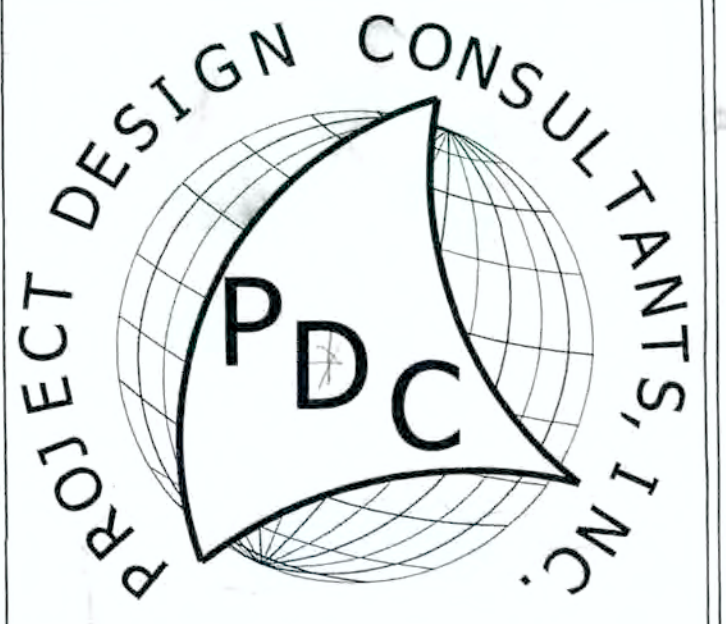
WASTEWATER DISTRICT SUMMARY			
DEVELOPMENT	EQ. #LOTS	AVG. DAILY WASTEWATER (G/DAY)	ENGINEER
MARBELLA	225	58,500	EDA
HYDE PARK	292	75,920	MORRISON SHIPLEY
OTTER CREEK ESTATES	193	50,180	CEI
MANDALEA	144	37,440	EDA
OTTER CREEK COMMERCIAL	12	3,120	—
BRENTWOOD	200	57,200	MORRISON SHIPLEY
DOWNTOWN CAVE SPRINGS	45	11,700	—
FAIRWAY VALLEY	133	34,580	ESI
SAND SPRINGS	183	47,580	—
MOUNTAIN VIEW	40	10,400	—
DUFFERS RIDGE	8	2,080	(COMPLETE)
CREEKSIDE PHASE 2	15	3,900	(COMPLETE)
TOTAL	1490	387,400	

SUMMARY OF WASTEWATER COMPONENT CAPACITIES		
COMPONENT	NO. LOTS	AVERAGE DAILY FLOW (G/DAY)
TREATMENT PLANT NO. 1	350	91,000
FORCE MAIN LINE	2600	676,000
EXPANDED DRIPFIELD	250	66,000
TREATMENT PLANT #2	1231	320,000
TREATMENT PLANT #2 FIELD	1231	320,000
TOTAL SYSTEM CAPACITY	1584	412,000

DRAFT - 1/13/15

This drawing is "PRELIMINARY - NOT FOR CONSTRUCTION" until above seal holder acknowledges the Cancellation of this disclaimer below:

DATE



4285 N. SHILOH DRIVE
SUITE 104
FAYETTEVILLE, AR 72703
Ph: 479.521.5405
Fx: 479.521.0919

PROJECT NO:	2006040	DRAWN BY:	----
CHECKED BY:	☐	SUBMITTAL DATE:	01-25-2007
INITIALS			
DRAWING NAME:	20733overall2.dwg		

NO	REVISIONS:	DATE:
		BY:
		BY:
		BY:
		BY:
		BY:
		BY:

PROJECT:
THE CAVE SPRINGS
WASTEWATER TRANSFER
AND TREATMENT
SYSTEM
BENTONVILLE, AR

SHEET TITLE:

OVERALL LAYOUT
Exhibit "H"

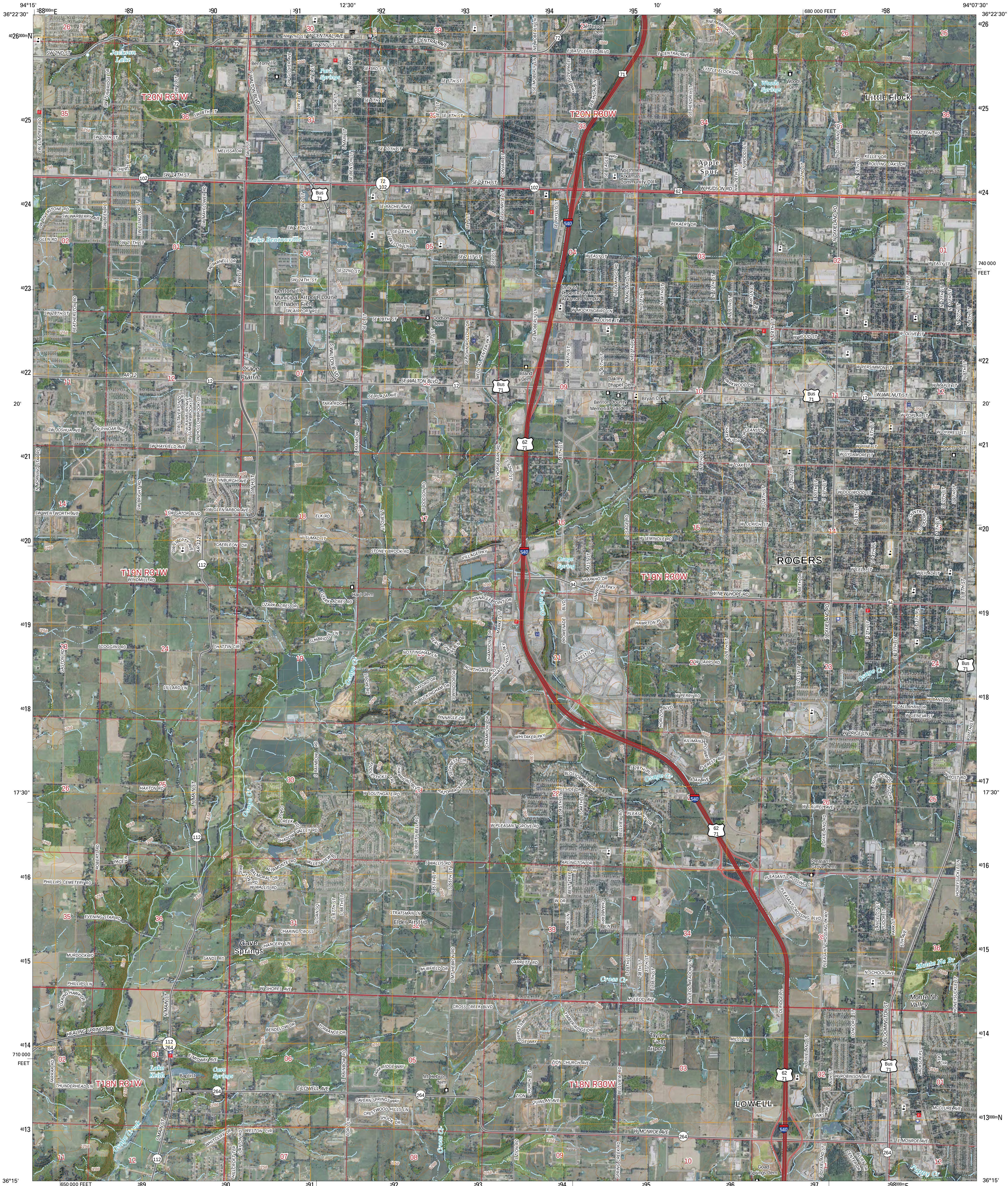
SHEET NO:
1.0



U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



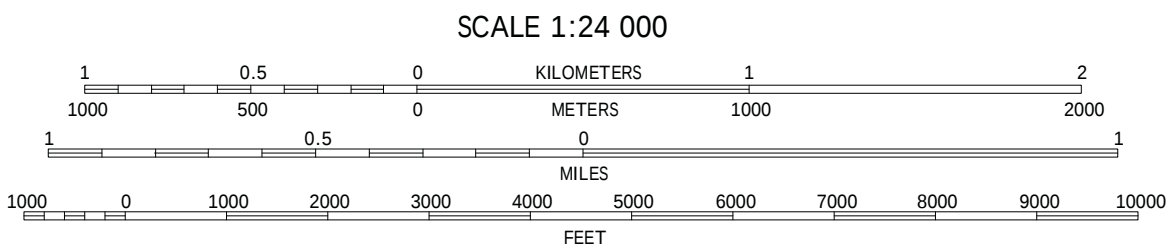
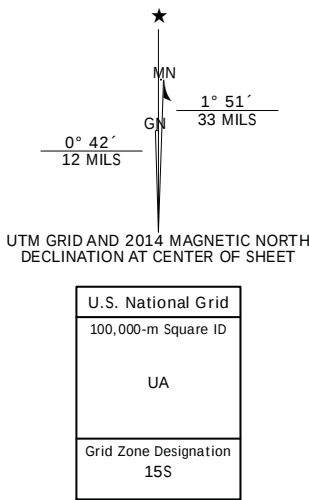
BENTONVILLE SOUTH QUADRANGLE
ARKANSAS-BENTON CO.
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 15S
1 000-foot ticks: Arkansas Coordinate System of 1983 (north
zone)

This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery.....NAIP, June 2010
Roads.....HERE, ©2013
Names.....GNS, 2013
Hydrography.....National Hydrography Dataset, 2010
Contours.....National Hydrography Dataset, 2006
Boundaries.....Multiple sources; see metadata file 1972 - 2013
Public Land Survey System.....BLM, 2011

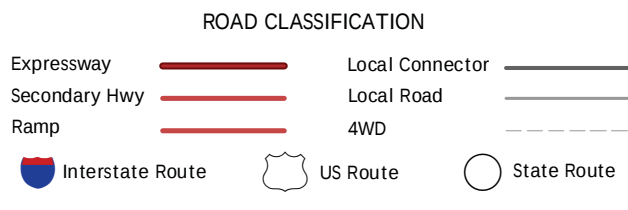


CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.16



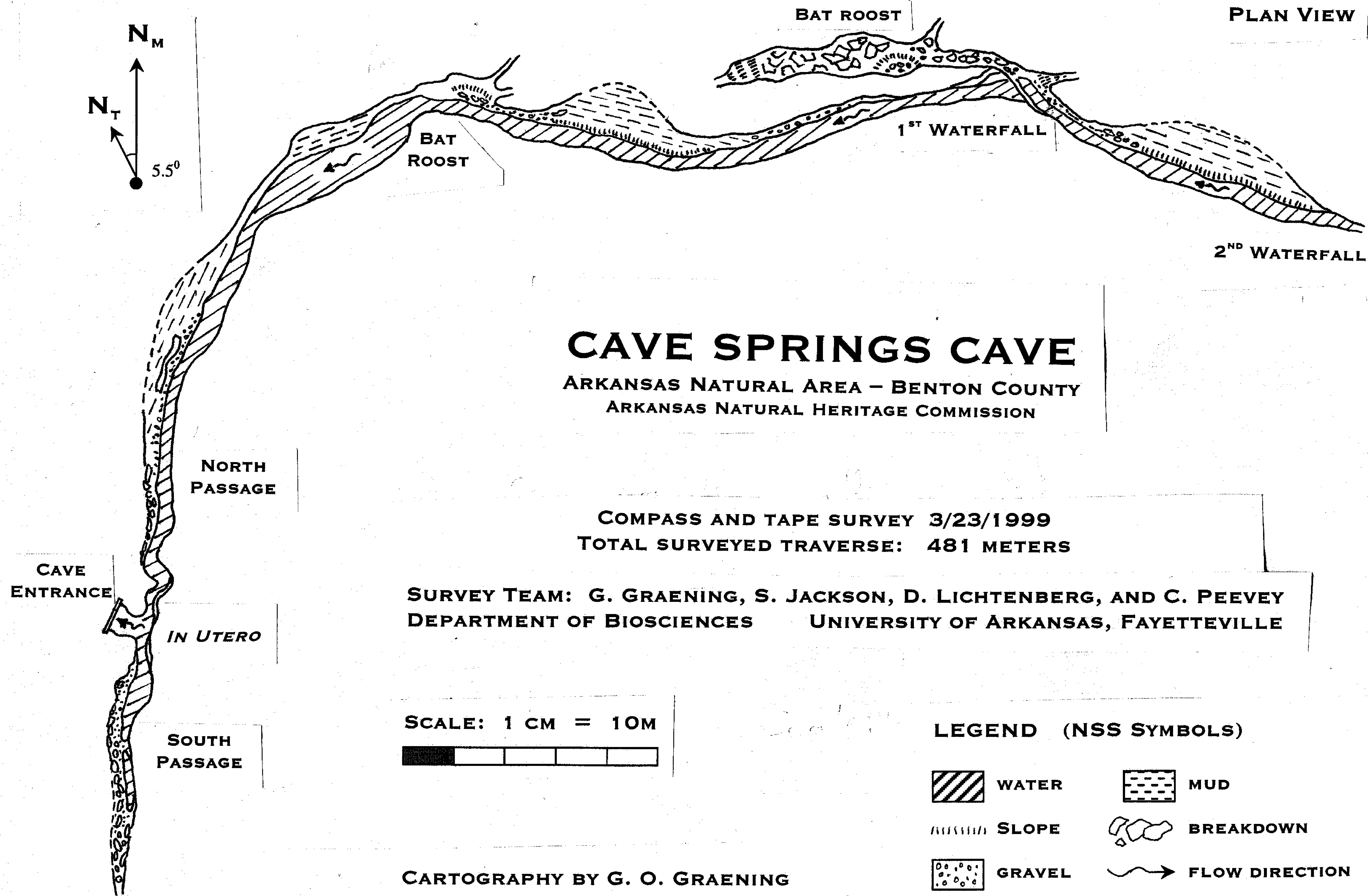
1	2	3	1 Hiwassee
4	5	6	2 Bentonville North
7	8	9	3 Pea Ridge
			4 Centerton
			5 Rogers
			6 Robinson
			7 Springdale
			8 Sonoma



BENTONVILLE SOUTH, AR
2014

Exhibit "I"

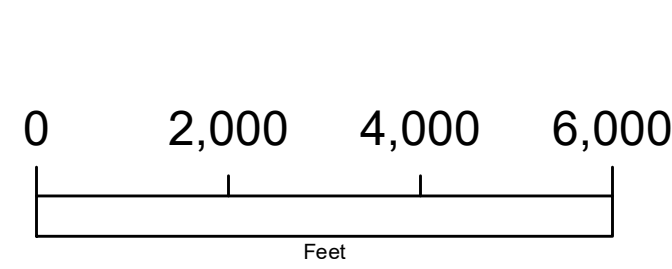
DRAFT - 1/13/15



Cave Springs Recharge Area Delineation Exhibit "K"

DRAFT - 3/6/15

Station No.	Station Name	Coordinates	Approx. Elevation (feet msl)
101	Cave Spring	N36.26127 W94.22725	1150
102	Cave Spring - North Pipe	N36.26136 W94.22746	1140
103	Cave Spring - NW Culvert	N36.26143 W94.22732	1140
104	Cave Spring - NE Culvert	N36.26133 W94.22735	1140
105	Cave Spring - South Pipes	N36.26128 W94.22739	1140
106	Cave Spring - South Valve	N36.26121 W94.22749	1140
107	Boat Ramp Spring - East	N36.26161 W94.23077	1135
108	Boat Ramp Spring - Center	N36.26155 W94.23076	1135
109	Boat Ramp Spring - West	N36.26155 W94.23085	1135
110	Unnamed Tributary at 112	N36.26524 W94.23177	1140
111	Shores Spring	N36.26722 W94.23388	1130
112	Wallis Spring	N36.27852 W94.22935	1150
113	Osage Creek upstream of SVGC Spring Branch	N36.28334 W94.22710	1135
114	Shadow Valley Golf Course (SVGSC) Spring Branch	N36.28339 W94.22747	1135
115	Osage Creek at Rainbow Road	N36.30038 W94.22757	1180
116	Osage Creek d/s Cross Church	N36.31364 W94.19254	1190
117	Village Pond Outfall	N36.31436 W94.19265	1195
118	Osage Creek u/s Blossom Way	N36.31646 W94.18667	1200
119	Osage West Spring	N36.31545 W94.18421	1210
120	Osage Spring	N36.31525 W94.18267	1210
121	Osage Spring - Culvert 1	N36.31521 W94.18253	1210
122	Osage Spring - Culvert 2	N36.31497 W94.18225	1210
123	Osage Spring - Culvert 3	N36.31493 W94.18219	1210
124	Blossom Way downstream of South Spring	N36.31495 W94.18272	1210
125	Blossom Way upstream of South Spring	N36.31256 W94.18889	1215
126	North Spring	N36.31950 W94.18204	1210
127	Osage Creek upstream of North Spring	N36.32021 W94.17957	1215
128	Spring Creek upstream of 112	N36.24385 W94.23866	1100
129	Johnson Spring 1	N36.23973 W94.23233	1125
130	Johnson Spring 2	N36.23977 W94.23071	1125
131	Johnson Spring 3	N36.23980 W94.23023	1125
132	Spring Creek at Wagon Wheel Road	N36.24067 W94.22579	1110
133	Reed Spring Branch at Wagon Wheel Road	N36.24088 W94.22559	1112
134	Reed Spring	N36.24217 W94.21809	1140
135	Cross Creek upstream of Wagon Wheel Road	N36.24011 W94.21191	1140
136	Cross Creek upstream of Brown Road	N36.24362 W94.20522	1158
137	Spring Creek at 56th Street	N36.22407 W94.19215	1148
138	Puppy Creek upstream of Spring Creek	N36.22430 W94.19193	1148
139	Puppy Creek at Puppy Creek Road	N36.23422 W94.17506	1195
140	Puppy Creek at Goad Springs Road	N36.24735 W94.15502	1240
141	Goad Springs Branch	N36.24705 W94.15504	1240
142	Puppy Creek at 6th Street	N36.25088 W94.14978	1165
143	Pinacle Valley Tributary	N36.25927 W94.21171	1180
144	Unnamed Tributary at Bright Road	N36.26300 W94.22449	1170

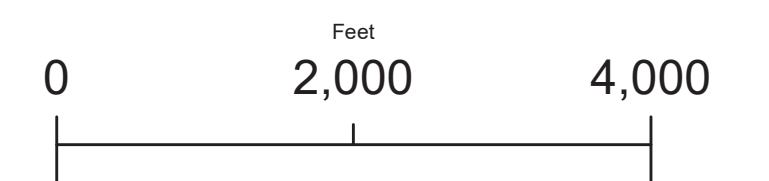


- Legend
- Historical Dye Intro (Date-Dye Introduction Number)
 - Historical Dye Trace
 - 2014 Dye Intro (Date-Dye Introduction Number)
 - 2014 Dye Trace
 - Dye Sampling Stations
 - Cave Springs Recharge Area Boundary (2014)
 - Direct-Indirect Division
 - Presumptive Habitat

Cave Springs Direct Recharge Area Vulnerability Zone Map Exhibit "L"

Draft

03/16/2015 1:52:42 PM

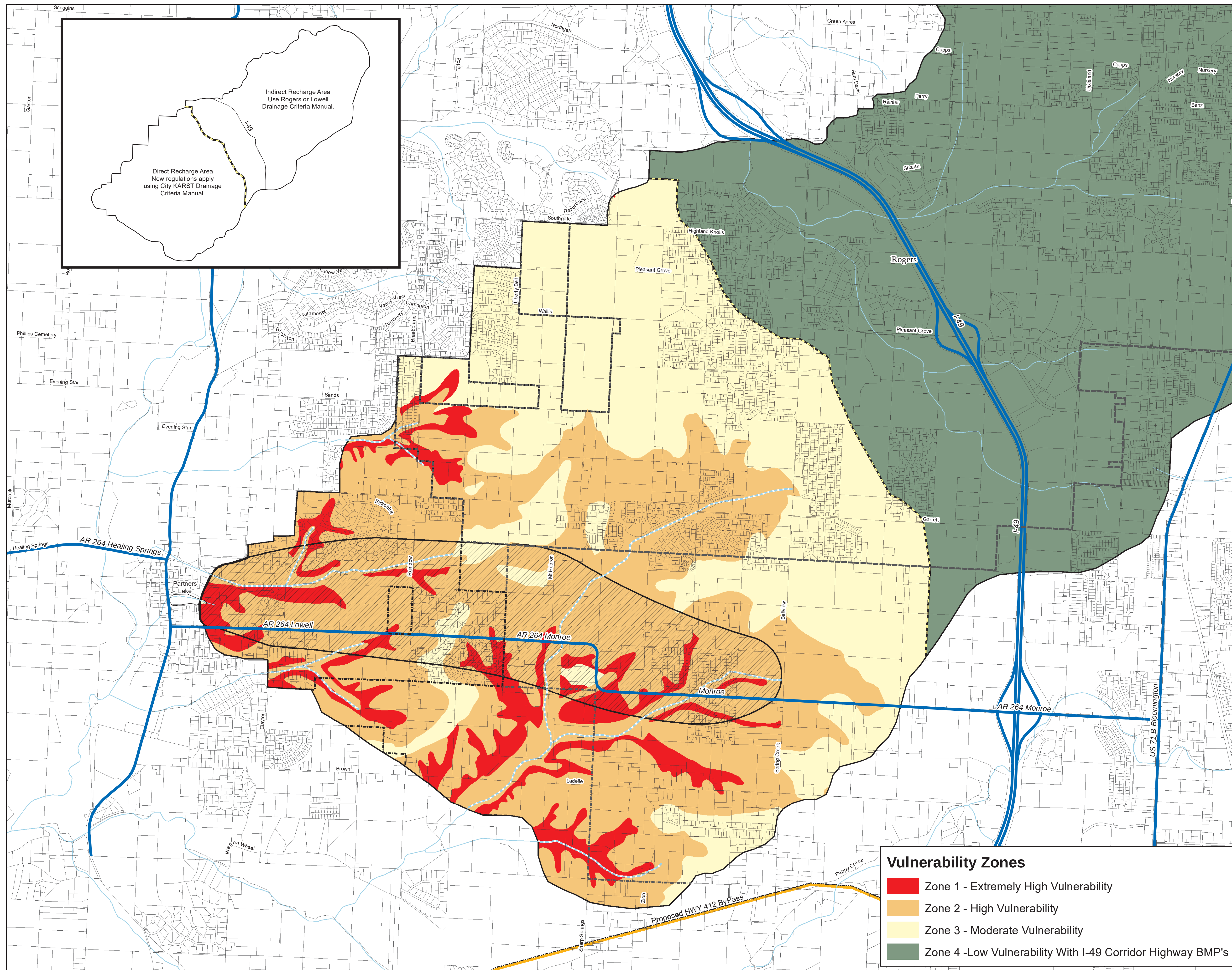


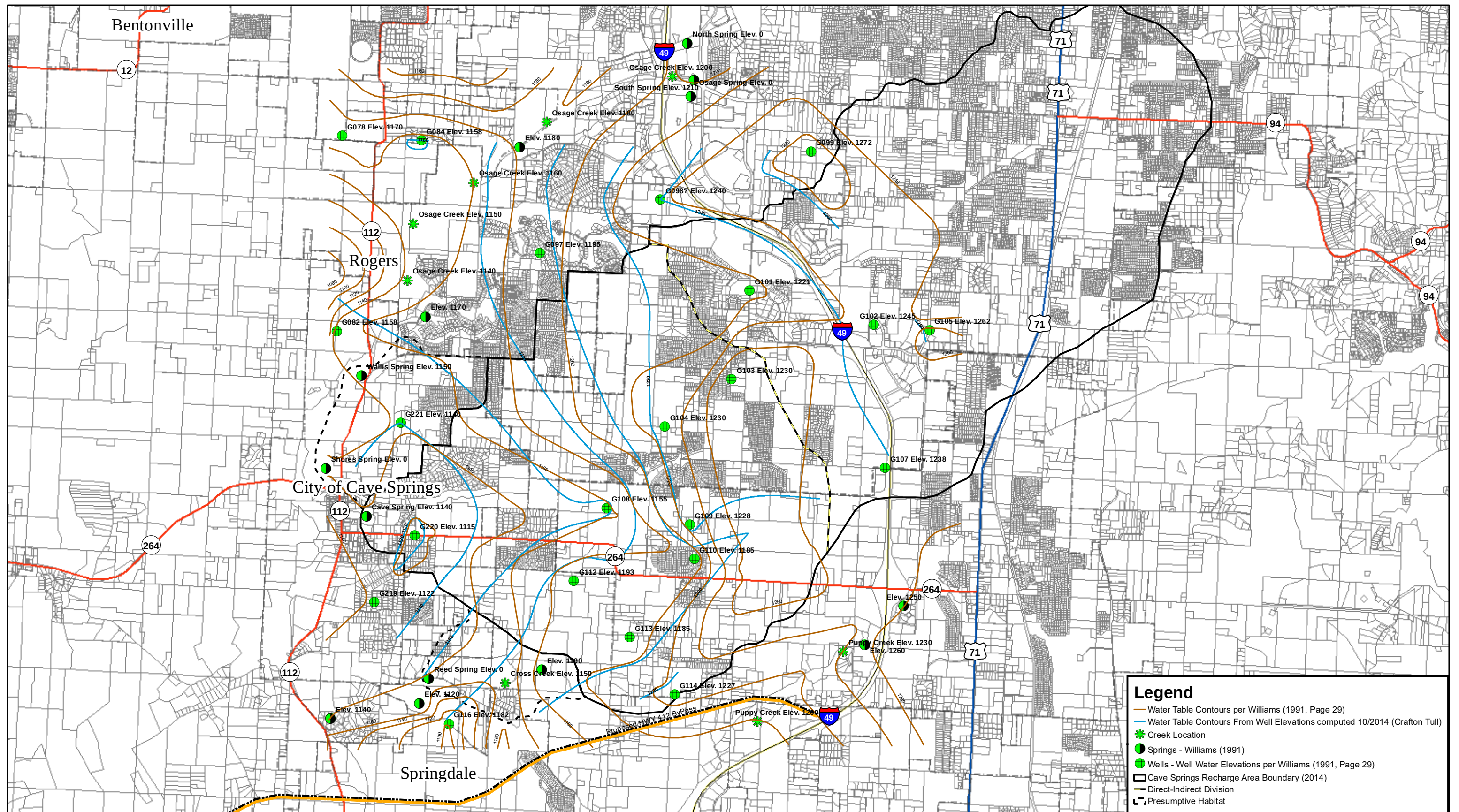
Legend

- Losing Stream Corridor
- Streams & Rivers
- Cave Springs Recharge Area Boundary (2014)
- Direct-Indirect Division
- Cave Springs Groundwater Trough
- 2015 City Limits

Vulnerability Zones

- Zone 1 - Extremely High Vulnerability
- Zone 2 - High Vulnerability
- Zone 3 - Moderate Vulnerability
- Zone 4 -Low Vulnerability With I-49 Corridor Highway BMP's





Cave Springs Area Potentiometric Contour Map
Figure 10