



ENVIRONMENTAL CONSULTATION & REMEDIATION

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**KPRG and Associates, Inc.**

**CCR COMPLIANCE  
ANNUAL GROUNDWATER MONITORING and  
CORRECTIVE ACTION REPORT - 2017**

**Midwest Generation, LLC  
Joliet #9 Generating Station  
1601 South Patterson Road  
Joliet, Illinois**

Prepared By: **KPRG and Associates, Inc.  
14665 West Lisbon Road, Suite 2B  
Brookfield, WI 53005**

January 24, 2018

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## 1.0 INTRODUCTION

The Detection Monitoring requirements in accordance with the Federal Register, Environmental Protection Agency, 40 CFR Parts 257.94, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule dated April 17, 2015 (CCR Rule) have been completed for the ash pond (Lincoln Stone Quarry [LSQ]) monitoring wells located at the Midwest Generation, LLC (Midwest Generation) Joliet #9 Generating Station. The wells sampled were selected by Midwest Generation to meet the monitoring requirements of the CCR Rule. The CCR monitoring well network consists of ten monitoring wells (R08S, G20S, G30S, R32S, G44S, G45S, G46S, G47S, G48S and T03S) as shown on Figure 1. Wells T03S and G45S are upgradient monitoring wells. It is noted that Figure 1 also includes twelve extraction wells (X101 through X112) along the south side of the LSQ which are part of an interim corrective action which intercepts southward migration of groundwater from the LSQ.

This annual report covers the work performed relative to CCR groundwater monitoring through the end of 2017. It is prepared in accordance with Section 257.90(e)(1-5) and summarizes the sampling procedures used, provides an evaluation of groundwater flow conditions, summarizes the analytical data generated and provides a discussion of the statistical evaluations in the process of being completed as a basis for determining the appropriate next phase of compliance activities.

## 2.0 FIELD PROCEDURES AND GROUNDWATER FLOW EVALUATION

### 2.1 Field Procedures

As previously noted, the CCR groundwater monitoring network around the LSQ at the Joliet #9 facility consists of ten monitoring wells (R08S, G20S, G30S, R32S, G44S, G45S, G46S, G47S, G48S and T03S) as shown on Figure 1. As part of sampling procedures, the integrity of all monitoring wells was inspected and water levels obtained using an electronic water level meter (see summary of water level discussion below). All wells were found in good condition with locked protector casings and intact concrete surface seals.

All groundwater samples were collected using the low-flow sampling technique from dedicated pumps. The samples were not filtered prior to analysis to provide for total metals concentrations as opposed to dissolved metals concentrations. One duplicate sample was collected from a randomly selected monitoring well per sampling event for quality assurance purposes. To fulfill detection monitoring requirements under Section 257.94(b), the first eight rounds of groundwater sampling included the analysis of all compounds listed in the CCR Rule, Part 257, Appendices III and IV to facilitate development of statistical background water quality. A ninth round and subsequent resample event were also completed for subsequent use in statistical comparisons.

### 2.2 Groundwater Flow Evaluation

Water level data measurements were obtained from each well during each round of groundwater monitoring. A complete round of water levels was collected prior to initiating sampling, and the water level data are summarized in Table 1. The water levels were used to generate a groundwater flow maps for each sampling event. These maps are provided as Figures 2 through 11. A review of the maps indicates groundwater flow to the north and west from the LSQ. Groundwater moving to the south due to dewatering operations at the nearby Vulcan Quarry is captured by the extraction well system along the southern perimeter of the LSQ and discharged back into the LSQ. In accordance with general groundwater sampling requirements under Section 257.93(c), Table 2 provides a summary of the flow direction and an estimated rate of groundwater flow for each sampling event. The flow rate was calculated using the following equation:

$$V_s = \frac{Kdh}{n_e dl}, \text{ where}$$

$V_s$  is seepage velocity (distance/time)

$K$  is hydraulic conductivity (distance/time)

$dh/dl$  is hydraulic gradient (unitless)  
 $n_e$  is effective porosity (unitless)

The average hydraulic conductivity of  $1.38 \times 10^{-5}$  ft/sec used in Table 2 was obtained from the Revised Groundwater Impact Assessment Lincoln Stone Quarry Landfill – Addendum to IEPA Application Logs 2004-052 and 2009-213 dated March 13, 2013. The estimated effective porosity of the aquifer materials (0.05) was also obtained from the above noted document.

### 3.0 ANALYTICAL DATA AND STATUS OF EVALUATIONS

The analytical data from the detection monitoring groundwater sampling for Appendix III and IV parameters are provided in Tables 3 and 4, respectively. As previously noted, all of this initial data was collected as part of detection monitoring requirements under 257.94(b). Table 3 (Appendix III) also includes a ninth round and a resample event (dates in italics in table) which is the first formal round of detection monitoring after obtaining the required number of samples for development of statistical background. Both tables include the sample dates and whether the specific well is considered upgradient or downgradient relative to groundwater flow and the regulated unit.

The first eight rounds of Appendix III detection monitoring data from established upgradient wells T03S and G45S are in the process of being statistically evaluated to establish background water quality in accordance with procedures defined in CCR Compliance Statistical Approach for Groundwater Data Evaluation, Midwest Generation Joliet #9 Generating Station dated October 10, 2017. This includes outlier testing, spatial/temporal variability testing, distributional testing, and the establishment of Prediction Limits for all Appendix III compounds to which the ninth round of groundwater detection monitoring data will be compared to determine whether there may be a statistically significant increase (SSI) for a specific compound at each well location. The evaluations are being performed with the assistance of the Sanitas<sup>TM</sup> statistical software package.

#### 4.0 SUMMARY/CONCLUSIONS AND RECOMMENDATIONS

The Detection Monitoring requirements in accordance with the CCR Rule have been successfully met. An initial eight rounds of groundwater data have been generated for all upgradient and downgradient monitoring wells for Appendix III and Appendix IV parameters. In addition, a ninth round and resample event has also been collected for subsequent use in statistical comparisons.

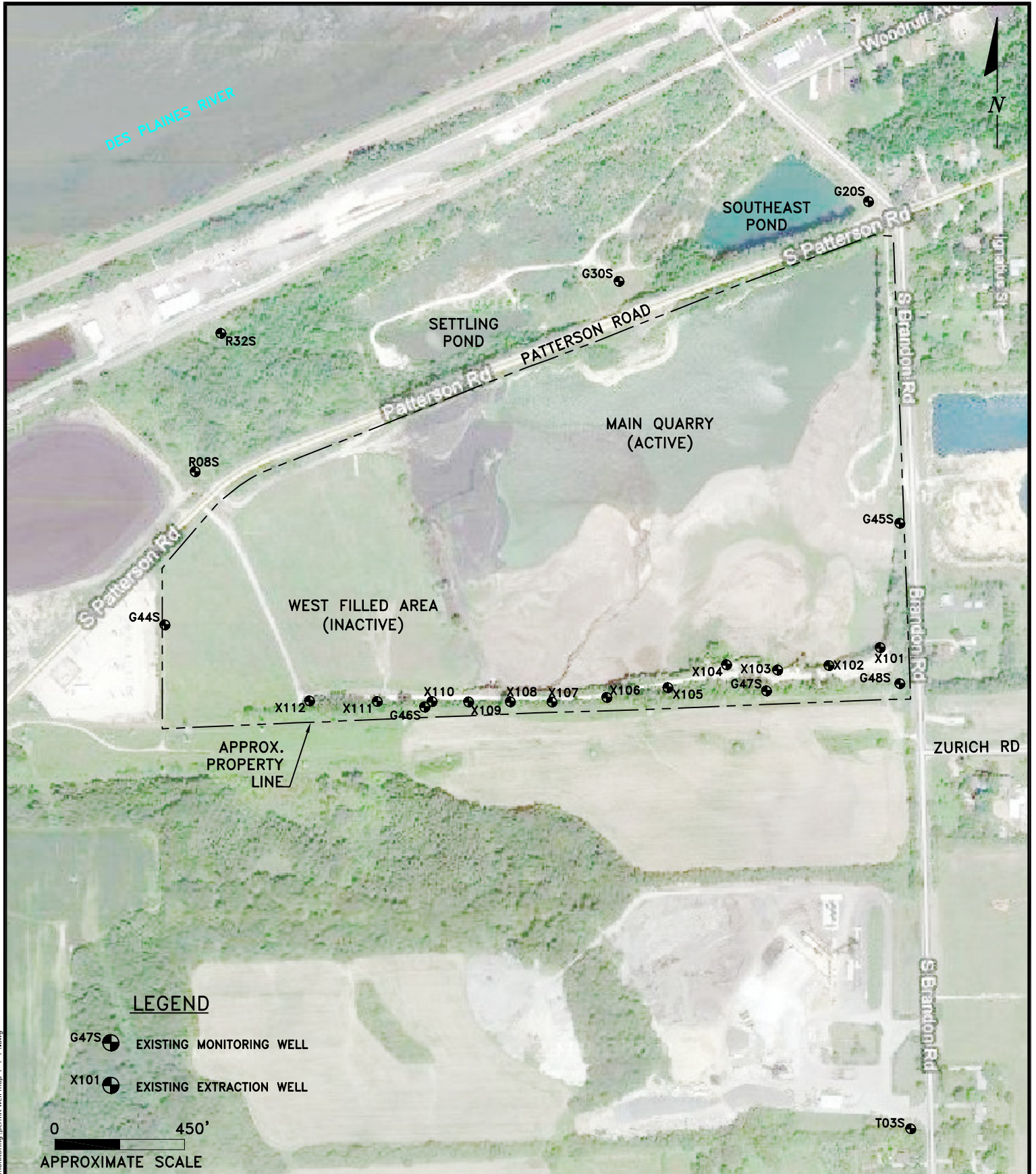
Based on an evaluation of groundwater flow conditions over the reporting period shows that the flow system has been consistent over time between sampling events. The existing monitoring well network appears to be sufficient for the intended purposes of CCR Rule groundwater monitoring of the regulated units. No additional monitoring well installations are proposed at this time based on the groundwater flow evaluation.

Development of statistical background for upgradient wells T03S and G45S is in the process of being completed. Once this evaluation is completed a determination will be made whether there may be SSIs in downgradient monitoring wells in accordance with procedures defined in CCR Compliance Statistical Approach for Groundwater Data Evaluation, Midwest Generation Joliet #9 Generating Station dated October 10, 2017. Appropriate recommendations will be made once the statistical evaluation is completed regarding whether the site should continue with routine detection monitoring, proceed with an alternate source demonstration or to transition to an assessment monitoring program.

## 5.0 REFERENCES

- Federal Register, Environmental Protection Agency, 40 CFR Parts 257 and 261, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule. Vol. 80, No. 74, Friday April 17, 2015.
- KPRG and Associates, Inc. and Geo-Hydro, Inc., Revised Groundwater Impact Assessment Lincoln Stone Quarry Landfill – Addendum to IEPA Application Logs 2004-052 and 2009-213. March 13, 2013.
- KPRG and Associates, Inc., CCR Compliance Monitoring, Sampling and Analysis Plan, Midwest Generation, LLC Joliet #9 Generating Station. October 10, 2017.
- KPRG and Associates, Inc., CCR Compliance Statistical Approach for Groundwater Data Evaluation, Midwest Generation, LLC Joliet #9 Generating Station. October 10, 2017.

## **FIGURES**



**LEGEND**

- G47S ● EXISTING MONITORING WELL
- X101 ● EXISTING EXTRACTION WELL



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**CCR MONITORING WELL SITE MAP**

LINCOLN STONE QUARRY  
JOLIET, ILLINOIS

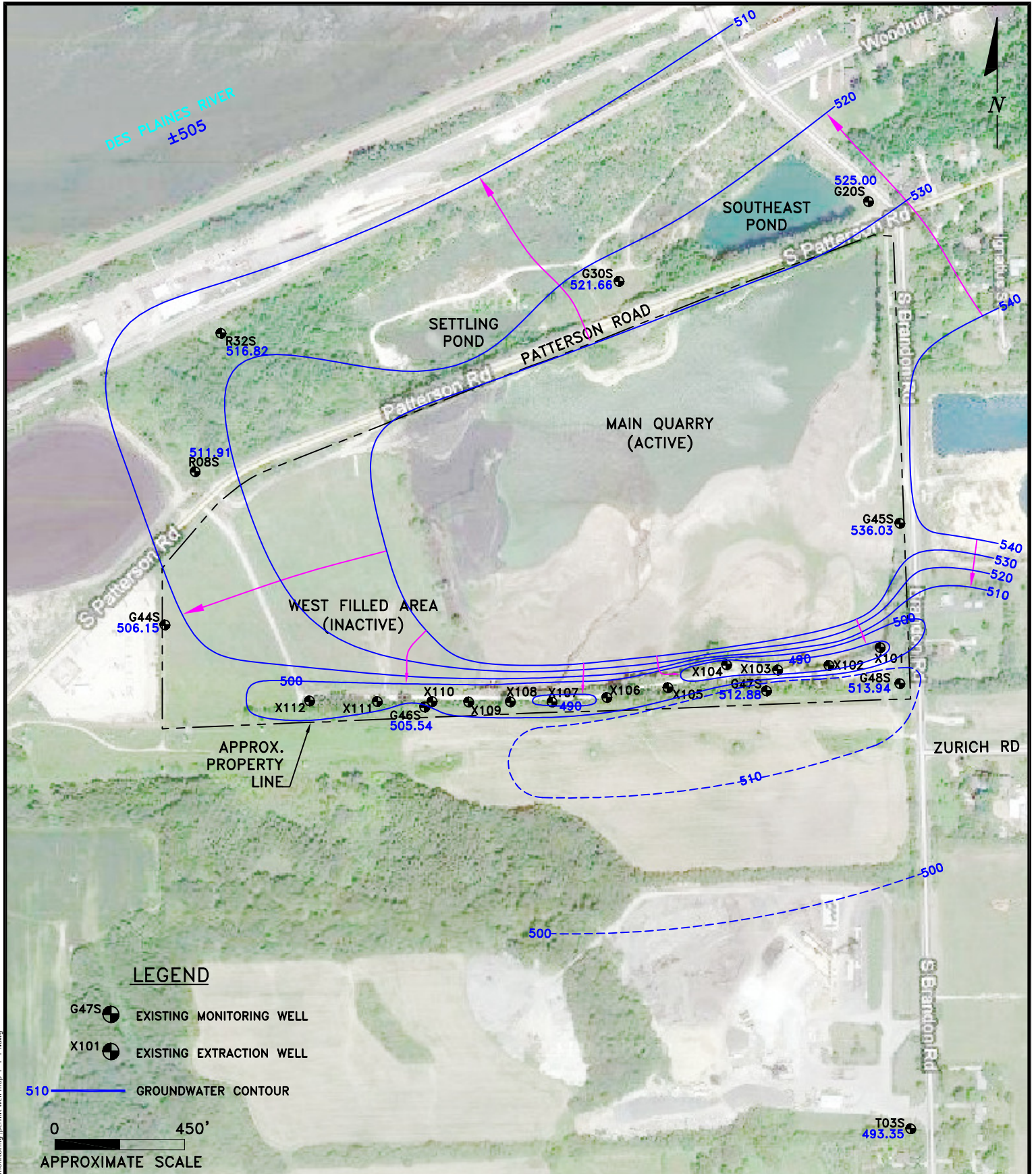
14665 West Lisbon Road, Suite 2B Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

Scale: 1" = 450' Date: January 2, 2018

414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

KPRG Project No. 21406.12

FIGURE 1



**LEGEND**

- G47S ● EXISTING MONITORING WELL
- X101 ● EXISTING EXTRACTION WELL

510 — GROUNDWATER CONTOUR



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**CCR GROUNDWATER CONTOUR  
NOVEMBER 2015**

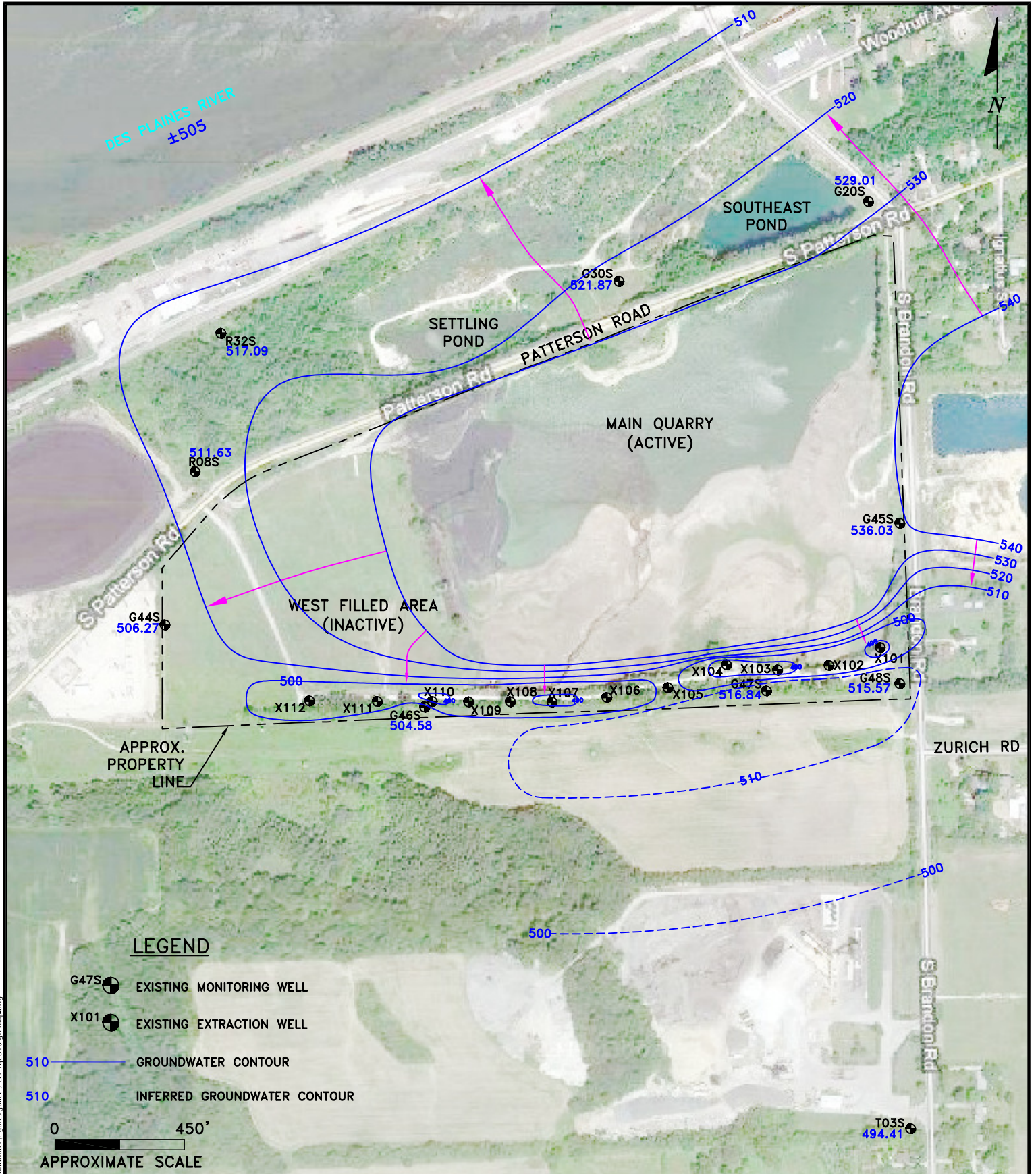
LINCOLN STONE QUARRY  
JOLIET, ILLINOIS

Scale: 1" = 450'

Date: October 20, 2016

KPRG Project No. 21406.12

FIGURE 2



**LEGEND**

- G47S ● EXISTING MONITORING WELL
- X101 ● EXISTING EXTRACTION WELL
- 510 ——— GROUNDWATER CONTOUR
- 510 - - - - INFERRED GROUNDWATER CONTOUR

0 450'  
 APPROXIMATE SCALE

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**CCR GROUNDWATER CONTOUR  
 MAY 2016**

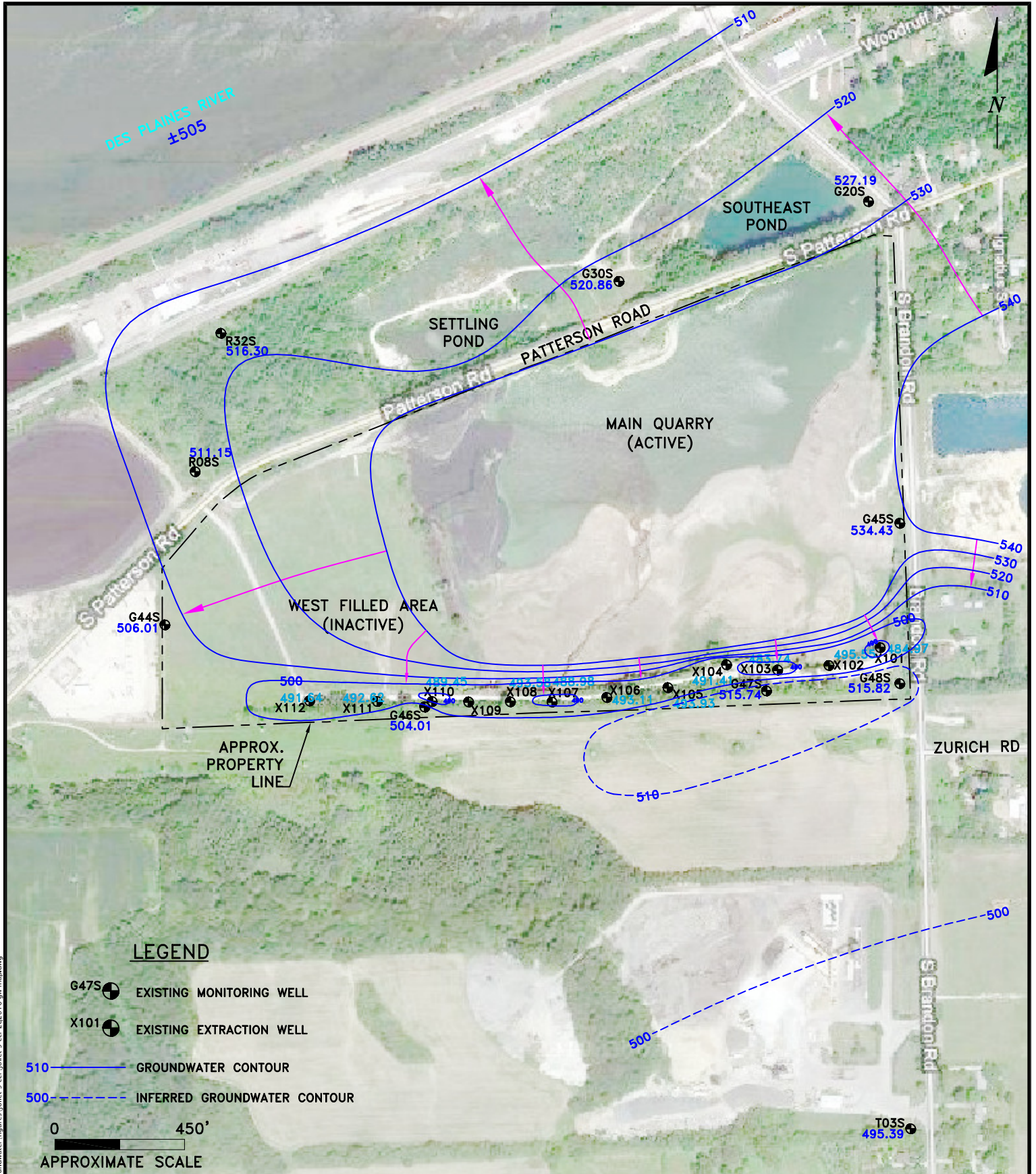
LINCOLN STONE QUARRY  
 JOLIET, ILLINOIS

Scale: 1" = 450'

Date: October 20, 2016

KPRG Project No. 21406.12

FIGURE 3



**LEGEND**

- G47S ● EXISTING MONITORING WELL
- X101 ● EXISTING EXTRACTION WELL
- 510 — GROUNDWATER CONTOUR
- 500 - - - INFERRED GROUNDWATER CONTOUR

0 450'  
 APPROXIMATE SCALE

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**CCR GROUNDWATER CONTOUR  
 JUNE/JULY 2016**

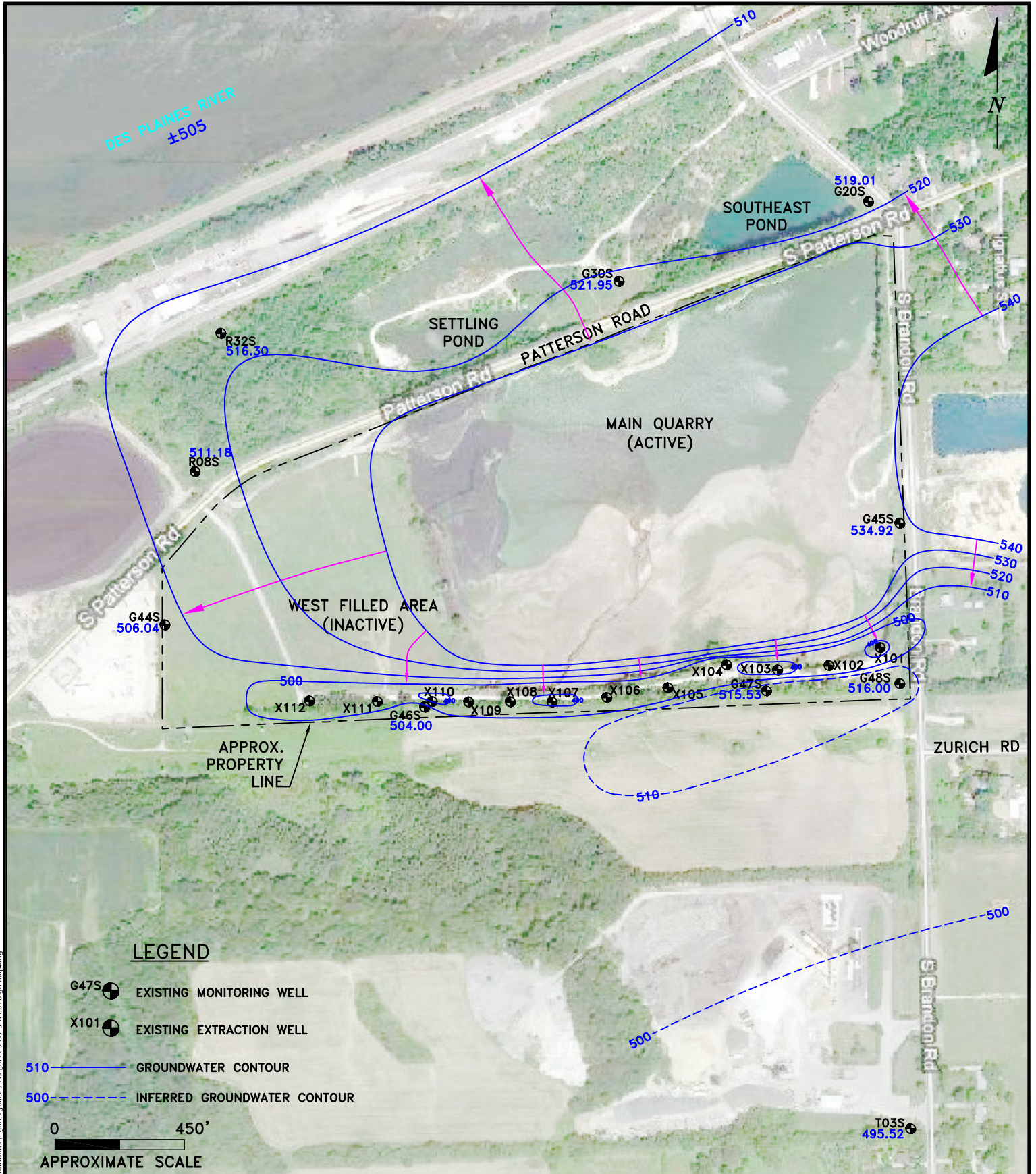
LINCOLN STONE QUARRY  
 JOLIET, ILLINOIS

Scale: 1" = 450'

Date: October 20, 2016

KPRG Project No. 21406.12

FIGURE 4



**LEGEND**

- G47S ● EXISTING MONITORING WELL
- X101 ● EXISTING EXTRACTION WELL
- 510 ——— GROUNDWATER CONTOUR
- 500 - - - - INFERRED GROUNDWATER CONTOUR

0 450'  
 APPROXIMATE SCALE

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**CCR GROUNDWATER CONTOUR  
 AUGUST 2016**

LINCOLN STONE QUARRY  
 JOLIET, ILLINOIS

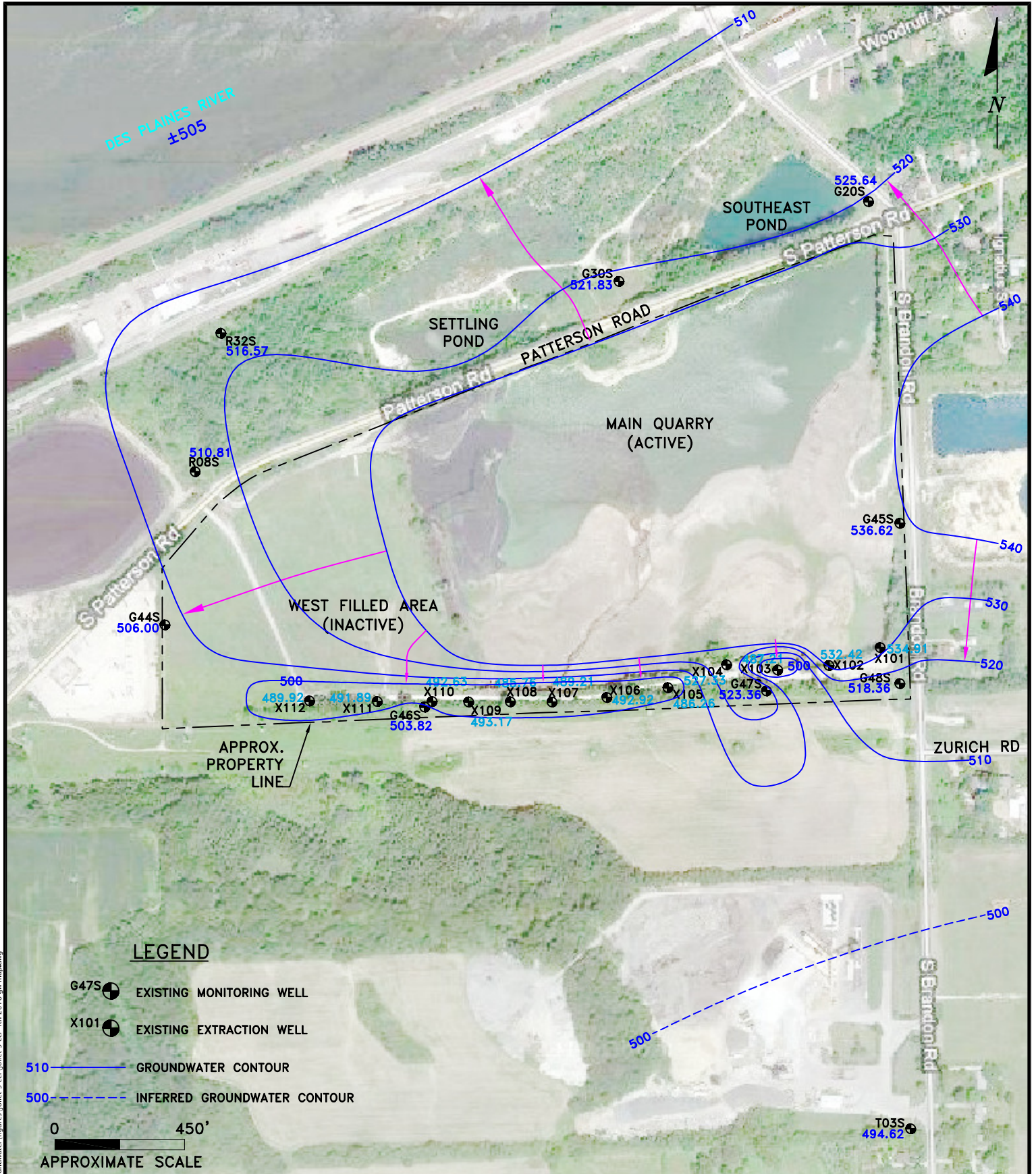
Scale: 1" = 450'

Date: October 20, 2016

KPRG Project No. 21406.12

FIGURE 5

T:\projects\midwest\generation\12313\_ash\_pond\_groundwater\_figures\joliet\_9\_ccr\joliet\_9\_ccr\_3rd\_2016\_gw\_map.dwg



**LEGEND**

- G47S ● EXISTING MONITORING WELL
- X101 ● EXISTING EXTRACTION WELL
- 510 — GROUNDWATER CONTOUR
- 500 - - - INFERRED GROUNDWATER CONTOUR

0 450'  
 APPROXIMATE SCALE

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**CCR GROUNDWATER CONTOUR  
 NOVEMBER 2016**

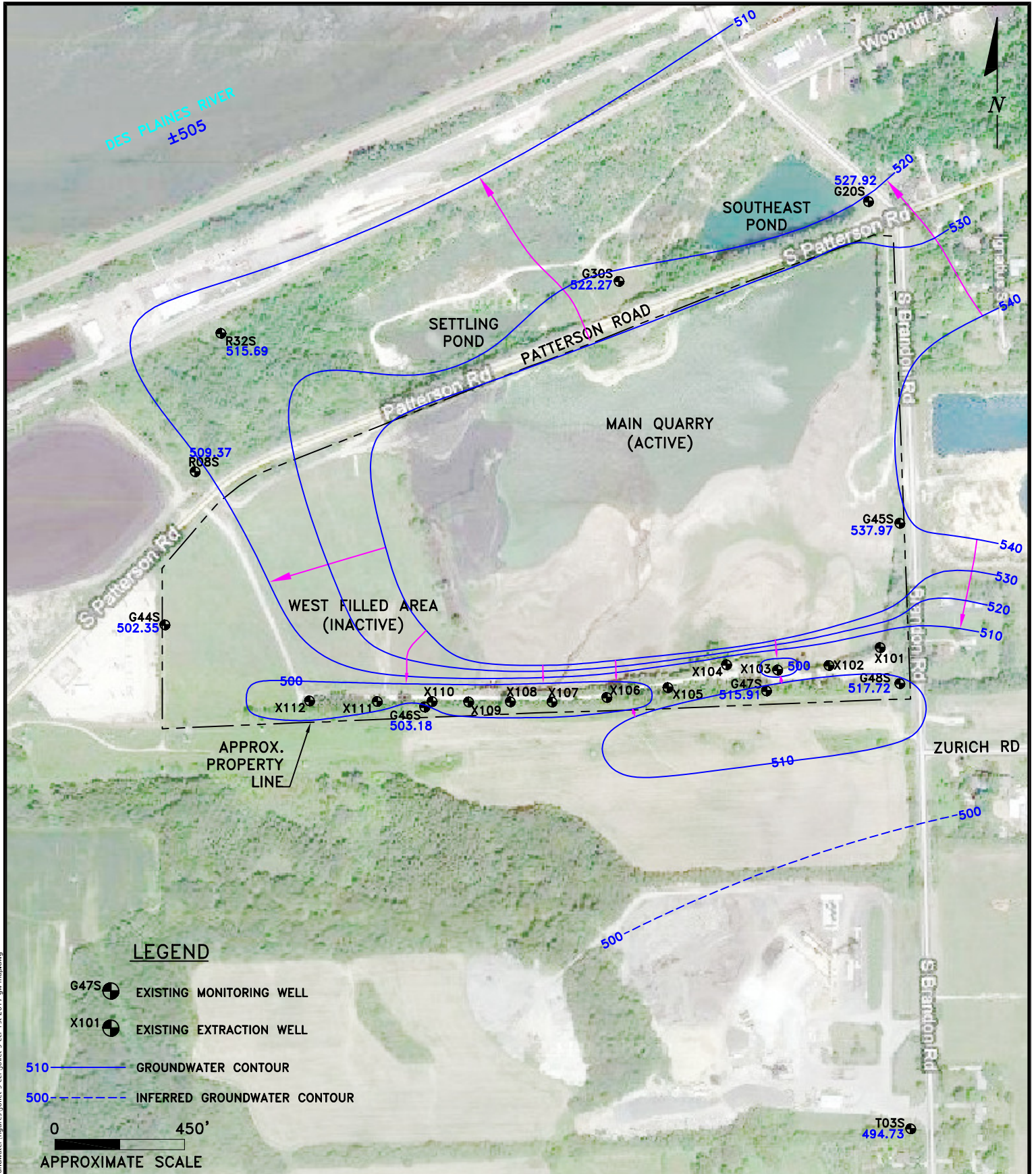
LINCOLN STONE QUARRY  
 JOLIET, ILLINOIS

Scale: 1" = 450'

Date: January 5, 2016

KPRG Project No. 21406.12

FIGURE 6



**LEGEND**

G47S ● EXISTING MONITORING WELL

X101 ● EXISTING EXTRACTION WELL

510 ——— GROUNDWATER CONTOUR

500 - - - - INFERRED GROUNDWATER CONTOUR



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**CCR GROUNDWATER CONTOUR  
FEBRUARY 2017**

LINCOLN STONE QUARRY  
JOLIET, ILLINOIS

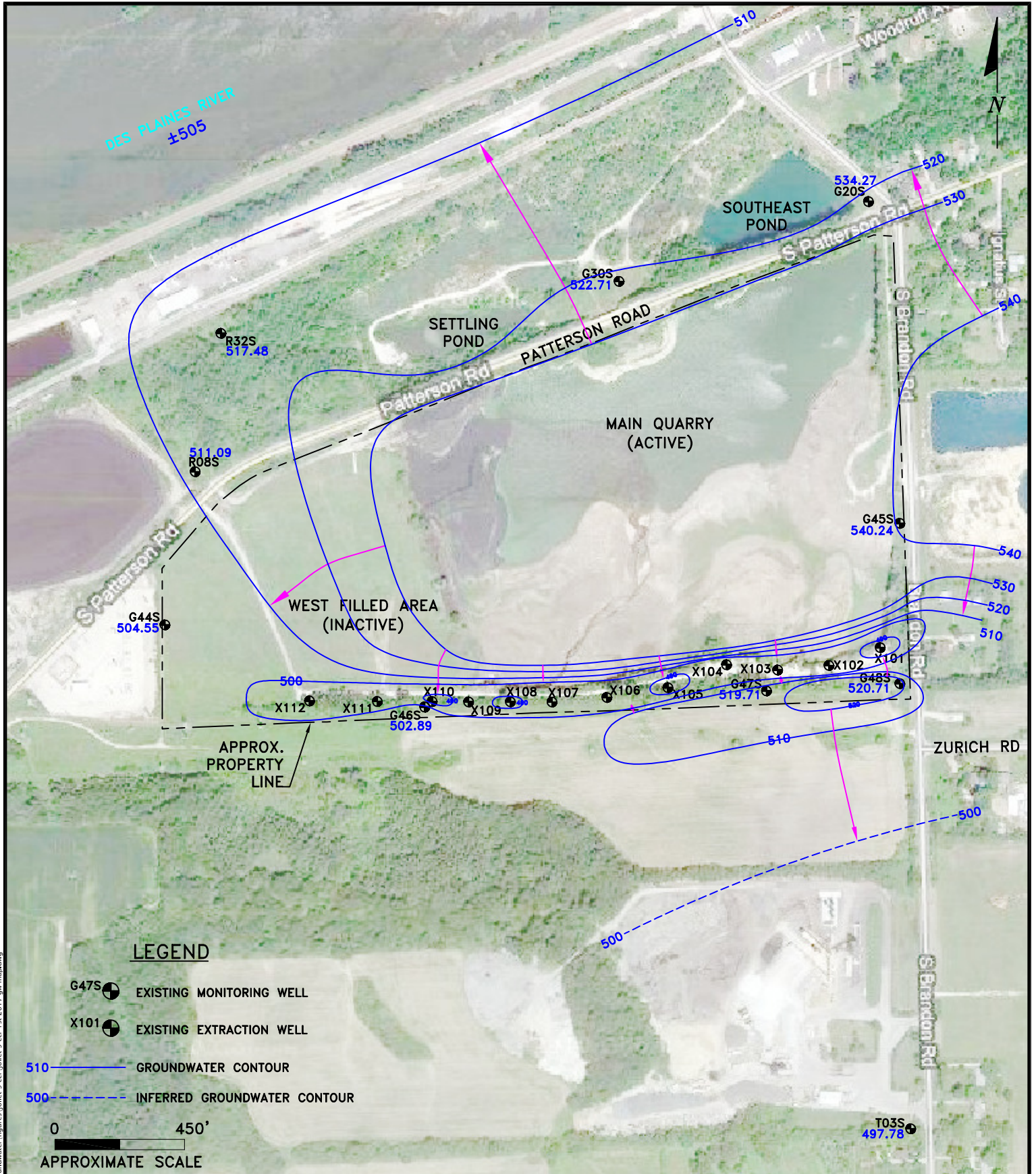
Scale: 1" = 450'

Date: April 5, 2017

KPRG Project No. 21406.12

FIGURE 7

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**CCR GROUNDWATER CONTOUR  
MAY 2017**

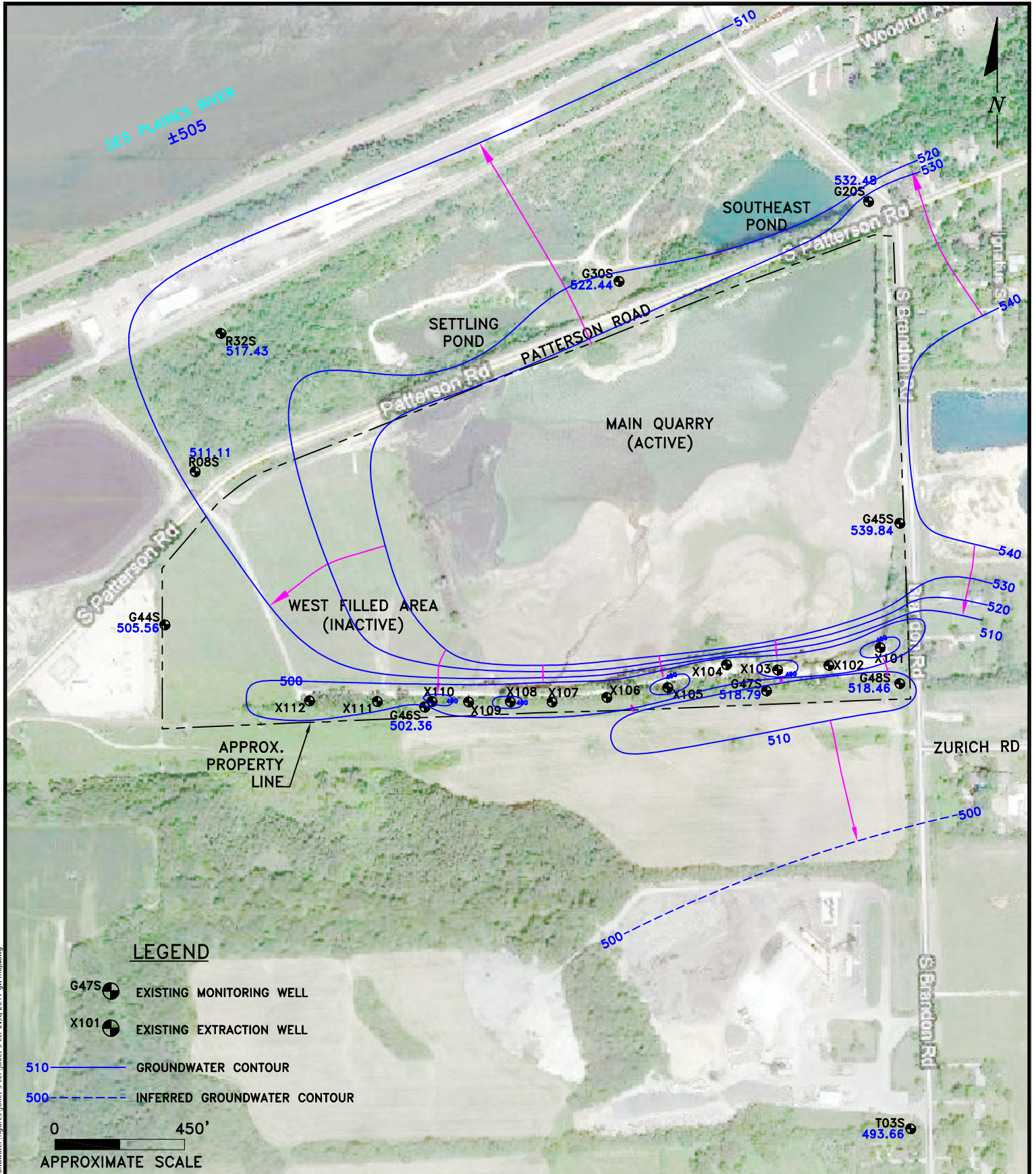
LINCOLN STONE QUARRY  
JOLIET, ILLINOIS

Scale: 1" = 450'

Date: June 22, 2017

KPRG Project No. 21406.12

FIGURE 8



**LEGEND**

G47S ● EXISTING MONITORING WELL

X101 ● EXISTING EXTRACTION WELL

510 — GROUNDWATER CONTOUR

500 - - - INFERRED GROUNDWATER CONTOUR

0 450'  
 APPROXIMATE SCALE

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414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

**CCR GROUNDWATER CONTOUR  
 JULY 2017**

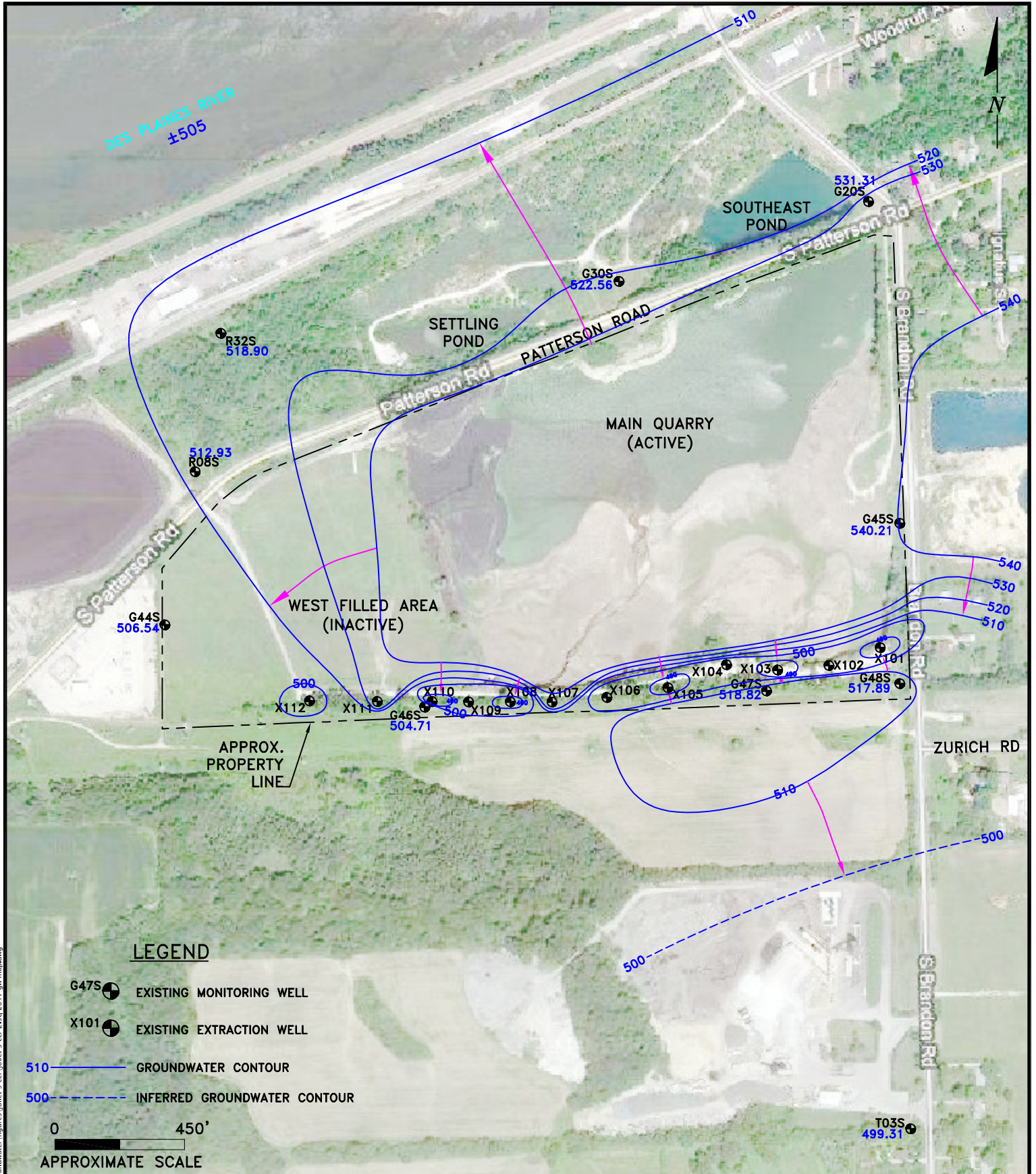
LINCOLN STONE QUARRY  
 JOLIET, ILLINOIS

Scale: 1" = 450'

Date: August 11, 2017

KPRG Project No. 21406.12

FIGURE 9



**LEGEND**

- G47S ● EXISTING MONITORING WELL
- X101 ● EXISTING EXTRACTION WELL
- 510 ——— GROUNDWATER CONTOUR
- 500 - - - - INFERRED GROUNDWATER CONTOUR

0 450'  
 APPROXIMATE SCALE

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**CCR GROUNDWATER CONTOUR  
 AUGUST 2017**

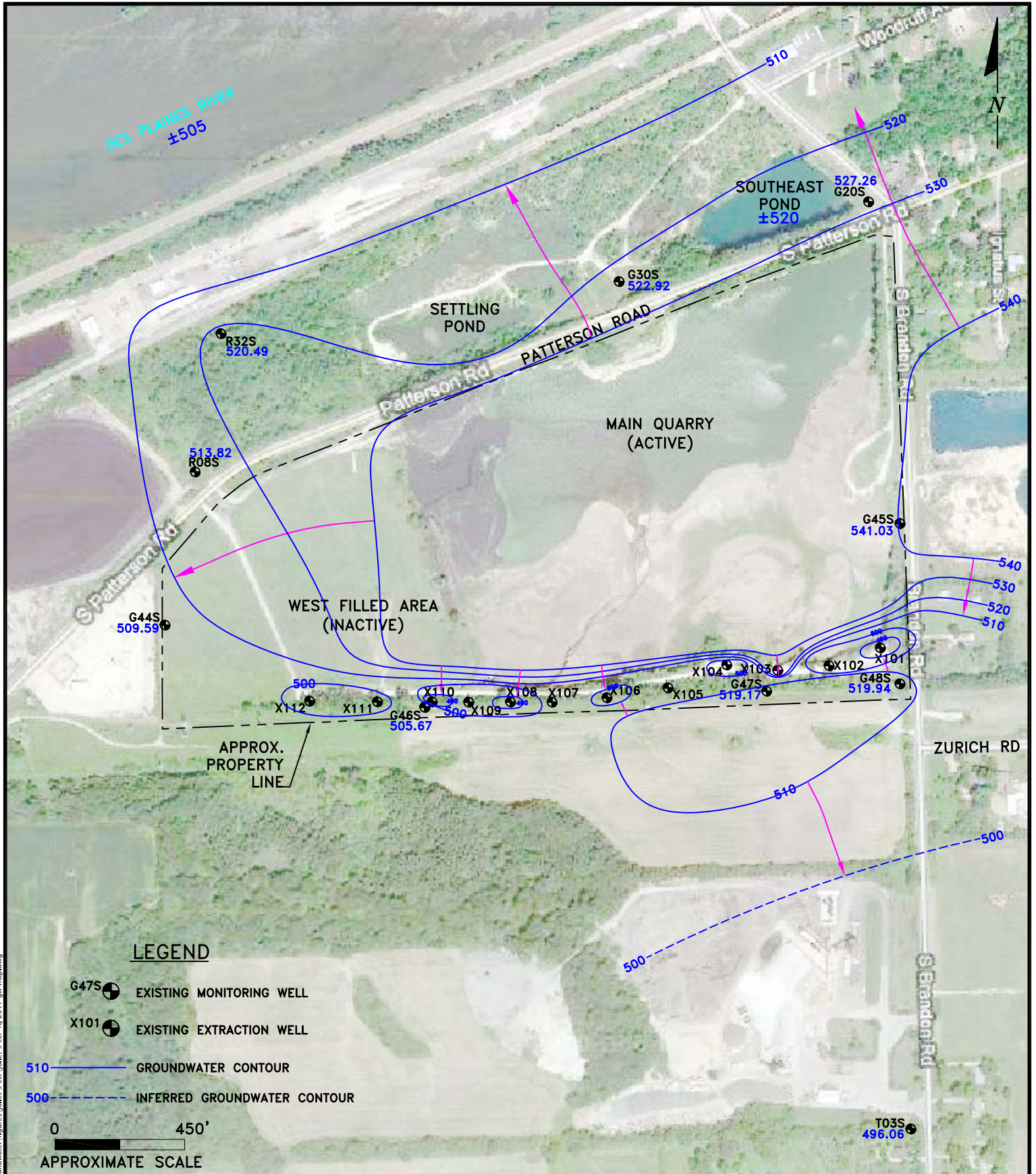
LINCOLN STONE QUARRY  
 JOLIET, ILLINOIS

Scale: 1" = 450'

Date: November 7, 2017

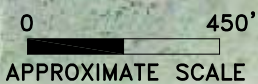
KPRG Project No. 21406.12

FIGURE 10



**LEGEND**

- G47S ● EXISTING MONITORING WELL
- X101 ● EXISTING EXTRACTION WELL
- 510 ——— GROUNDWATER CONTOUR
- 500 - - - - INFERRED GROUNDWATER CONTOUR



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414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

**CCR GROUNDWATER CONTOUR  
NOVEMBER 2017**

LINCOLN STONE QUARRY  
JOLIET, ILLINOIS

Scale: 1" = 450'

Date: January 11, 2018

KPRG Project No. 21406.12

FIGURE 11

## **TABLES**

Table 1. Groundwater Elevations, Midwest Generation, LLC, Joliet Station #9

Well ID	Date	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
R08S	Nov-2015	578.65	66.74	511.91
	May-2016	578.65	67.02	511.63
	Jun-2016	578.65	67.50	511.15
	Aug-2016	578.65	67.47	511.18
	Nov-2016	578.65	67.84	510.81
	Feb-2017	578.65	69.28	509.37
	May-2017	578.65	67.56	511.09
	Jul-2017	578.65	67.54	511.11
	Sep-2017	578.65	65.72	512.93
	Nov-2017	578.65	64.83	513.82
G20S	Nov-2015	580.33	55.33	525.00
	May-2016	580.33	51.32	529.01
	Jun-2016	580.33	53.14	527.19
	Aug-2016	580.33	61.32	519.01
	Nov-2016	580.33	54.69	525.64
	Feb-2017	580.33	52.41	527.92
	May-2017	580.33	46.06	534.27
	Jul-2017	580.33	47.85	532.48
	Sep-2017	580.33	49.02	531.31
	Nov-2017	580.33	52.57	527.76
G30S	Nov-2015	524.40	2.74	521.66
	May-2016	524.40	2.53	521.87
	Jun-2016	524.40	3.54	520.86
	Aug-2016	524.40	2.45	521.95
	Nov-2016	524.40	2.57	521.83
	Feb-2017	524.40	2.13	522.27
	May-2017	524.40	1.69	522.71
	Jul-2017	524.40	1.96	522.44
	Sep-2017	524.40	1.84	522.56
	Nov-2017	524.40	1.48	522.92
R32S	Nov-2015	536.81	19.99	516.82
	May-2016	536.81	19.72	517.09
	Jun-2016	536.81	20.51	516.30
	Aug-2016	536.81	20.51	516.30
	Nov-2016	536.81	20.24	516.57
	Feb-2017	536.81	21.12	515.69
	May-2017	536.81	19.33	517.48
	Jul-2017	536.81	19.38	517.43
	Sep-2017	536.81	17.91	518.90
	Nov-2017	536.81	16.32	520.49
G44S	Nov-2015	586.69	80.54	506.15
	May-2016	586.69	80.42	506.27
	Jun-2016	586.69	80.68	506.01
	Aug-2016	586.69	80.65	506.04
	Nov-2016	586.69	80.69	506.00
	Feb-2017	586.69	84.34	502.35
	May-2017	586.69	82.14	504.55
	Jul-2017	586.69	81.13	505.56
	Sep-2017	586.69	80.15	506.54
	Nov-2017	586.69	77.10	509.59
G45S	Nov-2015	603.31	68.90	534.41
	May-2016	603.31	67.28	536.03
	Jun-2016	603.31	68.88	534.43
	Aug-2016	603.31	68.39	534.92
	Nov-2016	603.31	66.69	536.62
	Feb-2017	603.31	65.34	537.97
	May-2017	603.31	63.07	540.24
	Jul-2017	603.31	63.44	539.87
	Sep-2017	603.31	63.10	540.21
	Nov-2017	603.31	62.28	541.03
G46S	Nov-2015	601.32	95.78	505.54
	May-2016	601.32	96.74	504.58
	Jun-2016	601.32	97.31	504.01
	Aug-2016	601.32	97.32	504.00
	Nov-2016	601.32	97.50	503.82
	Feb-2017	601.32	98.14	503.18
	May-2017	601.32	98.43	502.89
	Jul-2017	601.32	98.96	502.36
	Sep-2017	601.32	96.61	504.71
	Nov-2017	601.32	95.65	505.67
G47S	Nov-2015	612.32	99.44	512.88
	May-2016	612.32	95.48	516.84
	Jun-2016	612.32	96.58	515.74
	Aug-2016	612.32	96.79	515.53
	Nov-2016	612.32	88.96	523.36
	Feb-2017	612.32	96.41	515.91
	May-2017	612.32	92.61	519.71
	Jul-2017	612.32	93.53	518.79
	Sep-2017	612.32	93.50	518.82
	Nov-2017	612.32	92.57	519.75
G48S	Nov-2015	620.77	106.83	513.94
	May-2016	620.77	105.20	515.57
	Jun-2016	620.77	104.95	515.82
	Aug-2016	620.77	104.77	516.00
	Nov-2016	620.77	102.41	518.36
	Feb-2017	620.77	103.05	517.72
	May-2017	620.77	100.06	520.71
	Jul-2017	620.77	102.31	518.46
	Sep-2017	620.77	102.88	517.89
	Nov-2017	620.77	100.83	519.94
T03S	Nov-2015	629.65	136.30	493.35
	May-2016	629.65	135.24	494.41
	Jun-2016	629.65	134.26	495.39
	Aug-2016	629.65	134.13	495.52
	Nov-2016	629.65	135.03	494.62
	Feb-2017	629.65	134.92	494.73
	May-2017	629.65	131.87	497.78
	Jul-2017	629.65	135.99	493.66
	Sep-2017	629.65	136.40	493.25
	Nov-2017	629.65	133.61	496.04

MSL - Mean Sea Level  
TOC - Top of Casing

Table 2. Groundwater Flow Direction and Estimated Seepage Velocity/Flow Rate - Joliet #9 Generation Station (Lincoln Stone Quarry).

DATE	Groundwater Flow Direction	K <sub>avg</sub> (ft/sec)*	Average Hydraulic Gradient (ft/ft)	Porosity (unitless)**	Estimated Seepage Velocity (ft/day)
11/2015	Northerly and Westerly	1.38E-05	0.0293	0.05	0.70
5/2016	Northerly and Westerly	1.38E-05	0.0289	0.05	0.69
6/2016	Northerly and Westerly	1.38E-05	0.0287	0.05	0.68
8/2016	Northerly and Westerly	1.38E-05	0.0293	0.05	0.70
11/2016	Northerly and Westerly	1.38E-05	0.0301	0.05	0.72
2/2017	Northerly and Westerly	1.38E-05	0.0431	0.05	1.03
5/2017	Northerly and Westerly	1.38E-05	0.0364	0.05	0.87
7/2017	Northerly and Westerly	1.38E-05	0.0378	0.05	0.90
8/2017	Northerly and Westerly	1.38E-05	0.0364	0.05	0.87
11/2017	Northerly and Westerly	1.38E-05	0.0319	0.05	0.76

\* K<sub>avg</sub> - Average hydraulic conductivity (feet/second) from Revised Groundwater Impacts assessment Lincoln Stone Quarry, 3/13/2013.

\*\* - Porosity estimate from Revised Groundwater Impacts assessment Lincoln Stone Quarry, 3/13/2013.

Table 3. Detection Monitoring - Appendix III Groundwater Analytical Results through 2017 - Midwest Generation, LLC, Joliet Station #9, Joliet, IL.

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
G45S up-gradient	11/20/2015	0.81	120	180	0.35	7.20	360	810
	5/12/2016	0.68	110	140	0.34	7.37	230	860
	6/30/2016	0.48	87	110	0.34	7.50	170	670
	8/25/2016	0.47	94	100	0.35	7.28	170	790
	11/16/2016	0.41	91	90	0.33	7.34	170	620
	2/14/2017	0.43	97	97	0.32	7.36	160	620
	5/23/2017	0.36	85	110	0.35	7.30	150	660
	7/7/2017	0.42	94	120	< 0.1	7.21	150	600
	9/26/2017	0.43	110	130	0.3	7.21	160	790
11/21/2017	0.34	96	130	0.33	7.29	180	700	
T03S up-gradient	11/19/2015	0.5	110	75	0.22	7.07	250	710
	5/5/2016	0.84	100	100	0.21	7.16	190	820
	6/28/2016	0.98	100	94	0.19	7.30	180	910
	8/25/2016	1.1	110	99	0.20	7.32	180	880
	11/17/2016	1.3	120	100	0.19	7.14	150	860
	2/15/2017	1.0	98	110	0.19	7.36	230	810
	5/22/2017	1.4	110	78	0.23	7.25	160	740
	7/7/2017	1.1	100	F1 71	< 0.1	7.32	180	710
	9/26/2017	1.3	110	80	0.21	7.19	240	790
	11/20/2017	1.7	98	90	0.24	7.13	230	770
R08S down-gradient	11/23/2015	6.9	130	77	0.19	7.80	520	740
	5/6/2016	6.1	120	80	0.19	7.70	380	820
	6/28/2016	6.8	130	89	0.18	7.49	320	960
	8/25/2016	6.3	120	84	0.19	7.54	350	890
	11/21/2016	6.4	120	86	0.17	7.53	280	790
	2/14/2017	5.4	150	220	0.17	7.60	280	1000
	5/25/2017	12	250	90	0.17	7.56	340	830
	7/6/2017	6.3	140	87	0.17	7.62	350	830
	9/25/2017	7.3	140	81	0.15	7.57	390	840
	11/21/2017	7.3	130	89	0.15	8.05	380	800
G20S down-gradient	11/19/2015	1.2	59	12	0.82	7.73	110	410
	5/11/2016	1.2	53	12	0.81	7.52	77	410
	6/29/2016	1.2	54	12	0.82	7.38	69	460
	8/23/2016	1.3	56	13	0.81	7.41	67	420
	11/17/2016	1.3	59	11	0.74	7.44	55	420
	2/13/2017	1.2	54	13	0.69	7.30	93	400
	5/24/2017	1.3	55	12	0.81	7.45	66	430
	7/5/2017	1.3	61	12	0.76	7.37	70	400
	9/25/2017	1.3	60	12	0.78	7.30	76	440
	11/20/2017	1.3	59	13	0.78	7.06	85	390
G30S down-gradient	11/20/2015	5.80	63	190	1.3	7.46	580	1000
	5/10/2016	5.4	53	190	1.30	7.68	390	1100
	6/30/2016	5.2	60	F1 180	1.30	7.73	410	990
	8/25/2016	5.7	59	F1 180	1.30	7.70	390	1100
	11/18/2016	6.4	57	170	1.2	8.04	320	1100
	2/14/2017	5.4	62	190	1.2	7.70	450	1000
	5/25/2017	11	110	180	1.4	7.67	430	1100
	7/7/2017	6.6	54	190	1.3	7.48	410	1100
	9/26/2017	6.7	62	190	1.3	8.07	460	1100
	11/20/2017	6.1	52	210	1.3	7.77	440	1100
R32S down-gradient	11/19/2015	1.3	99	88	0.28	7.32	210	640
	5/5/2016	1.9	100	140	0.32	7.38	210	810
	6/29/2016	2.5	110	110	0.35	7.53	280	860
	8/26/2016	3.0	120	100	0.4	7.30	330	850
	11/18/2016	3.3	120	99	0.34	7.38	270	830
	2/16/2017	F1 4.0	120	99	0.34	7.39	340	830
	5/25/2017	8.3	240	88	0.42	7.54	320	850
	7/7/2017	6.2	120	96	0.42	7.61	360	830
	9/28/2017	4.8	140	78	0.36	7.29	290	870
	11/21/2017	5.7	120	97	0.38	7.50	390	900

Notes:

All units are in mg/l except pH is in standard units.

F1 - MS and/or MSD Recovery outside of limits.

*Italics Dates* - Data that will be compared against established statistical background.

Table 3. Detection Monitoring - Appendix III Groundwater Analytical Results through 2017 - Midwest Generation, LLC, Joliet Station #9, Joliet, IL.

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
G44S down-gradient	11/20/2015	1.0	120	43	0.21	7.11	220	640
	5/9/2016	0.91	110	37	0.18	7.39	120	690
	6/30/2016	0.69	100	32	0.18	7.59	99	620
	8/26/2016	0.9	120	36	0.19	7.12	110	710
	11/16/2016	0.82	120	26	0.17	7.15	88	530
	2/16/2017	0.86	120	30	0.15	7.38	120	620
	5/24/2017	0.83	120	31	0.19	7.08	95	600
	7/10/2017	0.83	110	30	< 0.1	7.00	110	700
	9/28/2017	0.99	130	30	0.19	7.13	100	730
	11/21/2017	0.79	110	35	0.18	7.06	120	640
G46S down-gradient	11/23/2015	6.0	110	80	0.27	7.32	430	780
	5/9/2016	7.7	100	100	0.28	7.77	360	940
	6/30/2016	7.9	100	99	0.29	8.26	290	880
	8/26/2016	7.2	100	120	0.35	7.48	350	1000
	11/18/2016	6.5	110	120	0.39	7.56	330	1000
	2/16/2017	6.1	100	150	0.41	7.94	410	1000
	5/22/2017	6.8	100	130	0.44	7.37	350	970
	7/6/2017	4.9	100	150	0.41	7.33	290	880
	9/27/2017	4.9	88	160	0.4	7.28	270	890
	11/21/2017	5.3	78	170	0.43	7.73	270	800
G47S down-gradient	11/23/2015	4.6	11	160	0.45	9.22	480	700
	5/6/2016	5.0	7.8	140	0.72	9.86	410	910
	7/1/2016	6.4	8.4	150	0.68	9.32	340	860
	8/24/2016	9.3	9.2	140	0.67	9.19	300	830
	11/16/2016	15	1.3	F1 150	1.8	10.08	620	1700
	2/15/2017	7.6	4.4	160	1.1	9.26	540	1200
	5/23/2017	18	0.93	160	2.2	10.03	720	1800
	7/10/2017	18	1.2	150	2.1	10.06	780	1800
	9/27/2017	18	1.1	150	2.0	10.15	750	1900
	11/22/2017	21	1.1	150	2.1	10.56	710	1800
G48S down-gradient	11/20/2015	11.00	6.9	120	1.5	9.08	760	1100
	5/5/2016	9.30	5.9	120	1.5	9.53	560	1200
	7/1/2016	9.50	4.2	120	1.4	9.60	480	1100
	8/24/2016	10.00	5.5	120	1.4	9.31	420	1100
	11/16/2016	9.80	10	110	1.4	9.61	340	1100
	2/15/2017	8.40	8.3	120	1.2	9.63	490	1100
	5/23/2017	9.20	8.1	120	1.3	9.49	470	1100
	7/10/2017	7.80	11	110	1.2	8.77	460	1000
	9/27/2017	7.60	18	100	1.1	8.94	480	1100
	11/22/2017	8.60	12	120	1.2	9.42	450	1000

Notes:

All units are in mg/l except pH is in standard units.  
*Italics Dates* - Data that will be compared against established statistical background.

F1 - MS and/or MSD Recovery outside of limits.

Table 4. Detection Monitoring - Appendix IV Groundwater Analytical Results through 2017 - Midwest Generation, LLC, Joliet Station #9, Joliet, IL

Well	Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Fluoride	Lead	Lithium	Mercury	Molybdenum	Radium 226 + 228 Combined	Selenium	Thallium
G45S up-gradient	11/20/2015	< 0.003	0.0081	0.044	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.35	< 0.0005	0.036	< 0.0002	0.0120	1.76	< 0.0025	< 0.002
	5/12/2016	< 0.003	0.0076	0.041	< 0.001	< 0.0005	< 0.005	< 0.001	0.34	< 0.0005	0.036	< 0.0002	0.0100	3.01	< 0.0025	< 0.002
	6/30/2016	< 0.003	0.0075	0.031	< 0.001	< 0.0005	< 0.005	< 0.001	0.34	< 0.0005	0.034	< 0.0002	0.008	2.05	< 0.0025	< 0.002
	8/25/2016	< 0.003	0.0076	0.036	< 0.001	< 0.0005	< 0.005	< 0.001	0.35	< 0.0005	0.031	< 0.0002	0.0086	1.91	< 0.0025	< 0.002
	11/16/2016	< 0.003	0.0079	0.033	< 0.001	< 0.0005	< 0.005	< 0.001	0.33	< 0.0005	0.028	< 0.0002	0.0094	2.04	< 0.0025	< 0.002
	2/14/2017	< 0.003	0.0093	0.037	< 0.001	< 0.0005	< 0.005	< 0.001	0.32	< 0.0005	0.029	< 0.0002	0.0083	1.85	< 0.0025	< 0.002
	5/23/2017	< 0.003	0.0082	0.033	< 0.001	< 0.0005	< 0.005	< 0.001	0.35	< 0.0005	0.027	< 0.0002	0.0093	1.4	< 0.0025	< 0.002
	7/7/2017	< 0.003	0.0086	0.035	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.1	< 0.0005	0.030	< 0.0002	0.007	1.88	< 0.0025	< 0.002
	9/26/2017	< 0.003	0.0096	0.04	< 0.001	< 0.0005	< 0.005	< 0.001	0.3	< 0.0005	0.029	< 0.0002	0.0079	2.14	< 0.0025	< 0.002
11/21/2017	< 0.003	0.0094	0.038	< 0.001	< 0.0005	< 0.005	< 0.001	0.33	< 0.0005	0.028	< 0.0002	0.0072	8.45	< 0.0025	< 0.002	
T03S up-gradient	11/19/2015	< 0.003	0.0019	0.063	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.22	< 0.0005	0.019	< 0.0002	0.0260	1.101	< 0.0025	< 0.002
	5/5/2016	< 0.003	0.0013	0.081	< 0.001	< 0.0005	< 0.005	< 0.001	0.21	< 0.0005	0.018	< 0.0002	0.03	1.43	< 0.0025	< 0.002
	6/28/2016	< 0.003	0.0011	0.086	< 0.001	< 0.0005	< 0.005	0.0011	0.19	< 0.0005	0.017	< 0.0002	0.037	1.18	< 0.0025	< 0.002
	8/25/2016	< 0.003	< 0.001	0.086	< 0.001	< 0.0005	< 0.005	< 0.001	0.2	< 0.0005	0.016	< 0.0002	0.043	1.54	< 0.0025	< 0.002
	11/17/2016	< 0.003	0.0012	0.096	< 0.001	< 0.0005	< 0.005	0.0012	0.19	< 0.0005	0.022	< 0.0002	0.14	1.61	< 0.0025	< 0.002
	2/15/2017	< 0.003	0.0011	0.086	< 0.001	< 0.0005	< 0.005	0.0013	0.19	< 0.0005	< 0.05	< 0.0002	0.12	0.938	< 0.0025	< 0.002
	5/22/2017	< 0.003	0.0017	B 0.088	^ < 0.001	< 0.0005	< 0.005	0.0015	0.23	0.0023	0.019	< 0.0002	0.13	1.21	< 0.0025	< 0.002
	7/7/2017	< 0.003	< 0.001	0.078	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.1	< 0.0005	0.019	< 0.0002	0.099	1.11	< 0.0025	< 0.002
	9/26/2017	< 0.003	0.0011	0.086	< 0.001	< 0.0005	< 0.005	0.0013	0.21	< 0.0005	0.018	< 0.0002	0.14	1.33	< 0.0025	< 0.002
11/20/2017	< 0.003	0.0014	0.087	< 0.001	< 0.0005	< 0.005	< 0.001	0.24	< 0.0005	0.02	< 0.0002	0.2	1.59	< 0.0025	< 0.002	
R08S down-gradient	11/23/2015	< 0.003	0.0019	0.052	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.19	< 0.0005	0.14	< 0.0002	0.410	1.608	0.0061	< 0.002
	5/6/2016	< 0.003	0.0013	0.052	< 0.001	< 0.0005	< 0.005	< 0.001	0.19	< 0.0005	0.14	< 0.0002	0.390	1.08	0.0079	< 0.002
	6/28/2016	< 0.003	0.0019	0.056	< 0.001	< 0.0005	< 0.005	< 0.001	0.18	< 0.0005	0.14	< 0.0002	0.37	1.87	F1 0.0074	< 0.002
	8/25/2016	< 0.003	0.0015	0.053	< 0.001	< 0.0005	< 0.005	< 0.001	0.19	< 0.0005	0.13	< 0.0002	0.33	1.5	0.0032	< 0.002
	11/21/2016	< 0.003	0.0016	0.052	< 0.001	< 0.0005	< 0.005	< 0.001	0.17	< 0.0005	0.140	< 0.0002	0.36	2.13	0.0037	< 0.002
	2/14/2017	< 0.003	0.002	0.081	< 0.001	< 0.0005	< 0.005	< 0.001	0.17	< 0.0005	0.120	< 0.0002	0.3	2.71	0.0029	< 0.002
	5/25/2017	< 0.006	0.0028	0.092	^ < 0.002	< 0.001	< 0.01	< 0.002	0.17	< 0.001	0.250	< 0.0002	0.64	0.821	0.021	< 0.004
	7/6/2017	< 0.003	0.002	0.052	< 0.001	< 0.0005	< 0.005	< 0.001	0.17	^ < 0.0005	0.140	< 0.0002	0.35	1.15	0.0054	^ < 0.002
	9/25/2017	< 0.003	0.002	0.048	< 0.001	< 0.0005	< 0.005	< 0.001	0.15	0.00067	0.130	< 0.0002	0.38	1.27	0.0079	< 0.002
11/21/2017	< 0.003	0.0017	0.046	< 0.001	< 0.0005	< 0.005	< 0.001	0.15	< 0.0005	0.140	< 0.0002	0.34	1.09	0.015	< 0.002	
G20S down-gradient	11/19/2015	< 0.003	< 0.001	0.049	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.82	< 0.0005	0.036	< 0.0002	0.0068	2.078	< 0.0025	< 0.002
	5/11/2016	< 0.003	< 0.001	0.049	< 0.001	< 0.0005	< 0.005	< 0.001	0.81	< 0.0005	0.037	0.00027	0.011	2.52	< 0.0025	< 0.002
	6/29/2016	< 0.003	< 0.001	0.051	< 0.001	< 0.0005	< 0.005	0.0011	0.82	< 0.0005	0.04	< 0.0002	0.014	2.79	< 0.0025	< 0.002
	8/23/2016	< 0.003	< 0.001	0.047	< 0.001	< 0.0005	< 0.005	< 0.001	0.81	< 0.0005	0.039	< 0.0002	0.017	3.67	< 0.0025	< 0.002
	11/17/2016	< 0.003	< 0.001	0.056	< 0.001	< 0.0005	< 0.005	0.0018	0.74	< 0.0005	0.042	< 0.0002	0.019	1.98	< 0.0025	< 0.002
	2/13/2017	< 0.003	< 0.001	0.046	< 0.001	< 0.0005	< 0.005	< 0.0010	0.69	< 0.0005	0.04	< 0.0002	0.018	2.44	< 0.0025	< 0.002
	5/24/2017	< 0.003	< 0.001	0.046	^ < 0.001	< 0.0005	< 0.005	< 0.0010	0.81	< 0.0005	0.038	< 0.0002	0.017	2.15	< 0.0025	< 0.002
	7/5/2017	< 0.003	< 0.001	0.054	< 0.001	< 0.0005	< 0.005	0.0021	0.76	^ < 0.0005	0.04	< 0.0002	0.019	1.83	< 0.0025	^ < 0.002
	9/25/2017	< 0.003	< 0.001	0.051	< 0.001	< 0.0005	< 0.005	0.0015	0.78	< 0.0005	0.036	< 0.0002	0.022	2.19	< 0.0025	< 0.002
11/20/2017	< 0.003	< 0.001	0.051	< 0.001	< 0.0005	< 0.005	0.0022	0.78	< 0.0005	0.041	< 0.0002	0.021	2.5	< 0.0025	< 0.002	
G30S down-gradient	11/20/2015	< 0.003	0.014	0.041	^ < 0.001	< 0.0005	< 0.005	< 0.001	1.3	< 0.0005	0.022	< 0.0002	0.33	1.484	< 0.0025	< 0.002
	5/10/2016	< 0.003	0.017	0.039	< 0.001	< 0.0005	< 0.005	< 0.001	1.3	< 0.0005	0.021	< 0.0002	0.3	1.41	< 0.0025	< 0.002
	6/30/2016	< 0.003	0.013	0.04	< 0.001	< 0.0005	< 0.005	< 0.001	1.3	< 0.0005	0.023	< 0.0002	0.3	1.17	< 0.0025	< 0.002
	8/25/2016	< 0.003	0.015	0.039	< 0.001	< 0.0005	< 0.005	< 0.001	1.3	< 0.0005	0.02	< 0.0002	0.31	1.87	< 0.0025	< 0.002
	11/18/2016	< 0.003	0.016	0.043	< 0.001	< 0.0005	< 0.005	< 0.001	1.2	< 0.0005	0.023	< 0.0002	0.33	2.36	< 0.0025	< 0.002
	2/14/2017	< 0.003	0.011	0.042	< 0.001	< 0.0005	< 0.005	< 0.001	1.2	< 0.0005	0.021	< 0.0002	0.24	1.84	< 0.0025	< 0.002
	5/25/2017	< 0.006	0.019	0.078	^ < 0.002	< 0.001	< 0.01	< 0.002	1.4	< 0.001	0.04	< 0.0002	0.45	1.76	< 0.005	< 0.004
	7/7/2017	< 0.003	0.011	0.039	< 0.001	< 0.0005	< 0.005	< 0.001	1.3	< 0.0005	0.021	< 0.0002	0.26	1.59	< 0.0025	< 0.002
	9/26/2017	< 0.003	0.011	0.041	< 0.001	< 0.0005	< 0.005	< 0.001	1.3	< 0.0005	0.021	< 0.0002	0.2	1.41	< 0.0025	< 0.002
11/20/2017	< 0.003	0.01	0.04	< 0.001	< 0.0005	< 0.005	< 0.001	1.3	< 0.0005	0.019	< 0.0002	0.19	1.73	< 0.0025	< 0.002	
R32S down-gradient	11/19/2015	< 0.003	0.0018	0.033	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.28	< 0.0005	0.04	< 0.0002	0.16	1.928	< 0.0025	< 0.002
	5/5/2016	< 0.003	0.0034	0.039	< 0.001	< 0.0005	< 0.005	< 0.001	0.32	0.0005	0.069	< 0.0002	0.29	2.26	< 0.0025	< 0.002
	6/29/2016	< 0.003	0.0021	0.042	< 0.001	< 0.0005	< 0.005	< 0.001	0.35	< 0.0005	0.065	< 0.0002	0.43	2.12	< 0.0025	< 0.002
	8/26/2016	< 0.003	0.0014	0.043	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.4	< 0.0005	0.056	< 0.0002	0.48	2.39	< 0.0025	< 0.002
	11/18/2016	< 0.003	0.0016	0.042	< 0.001	< 0.0005	< 0.005	< 0.001	0.34	< 0.0005	0.063	< 0.0002	0.55	3.17	< 0.0025	< 0.002
	2/16/2017	< 0.003	0.002	0.039	< 0.001	< 0.0005	< 0.005	< 0.001	0.34	< 0.0005	0.064	< 0.0002	0.57	1.76	F1 < 0.0025	< 0.002
	5/25/2017	< 0.006	0.0042	0.075	^ < 0.002	< 0.001	< 0.01	< 0.002	0.42	< 0.001	0.14	< 0.0002	1.4	1.82	< 0.005	< 0.004
	7/7/2017	< 0.003	0.0043	0.04	< 0.001	< 0.0005	< 0.005	< 0.001	0.42	< 0.0005	0.1	< 0.0002	0.87	2.08	< 0.0025	< 0.002
	9/28/2017	< 0.003	0.003	0.044	< 0.001	< 0.0005	< 0.005	< 0.001	0.36	< 0.0005	0.086	< 0.0002	0.57	1.79	< 0.0025	< 0.002
11/21/2017	< 0.003	0.0037	0.041	< 0.001	< 0.0005	< 0.005	< 0.001	0.38	< 0.0005	0.11	< 0.0002	0.74	1.82	< 0.0025	< 0.002	

Notes:  
All units are in mg/l except Radium is in pCi/L as noted.

F1 - MS and/or MSD Recovery outside of limits.  
^ - Denotes instrument related QC exceeds the control limits  
B - Compound was found in the blank and sample.

Table 4. Detection Monitoring - Appendix IV Groundwater Analytical Results through 2017 - Midwest Generation, LLC, Joliet Station #9, Joliet, IL

Well	Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Fluoride	Lead	Lithium	Mercury	Molybdenum	Radium 226 + 228 Combined	Selenium	Thallium
G44S down-gradient	11/20/2015	< 0.003	0.0012	0.053	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.21	< 0.0005	0.017	< 0.0002	0.1000	1.161	< 0.0025	< 0.002
	5/9/2016	< 0.003	< 0.001	0.049	< 0.001	< 0.0005	< 0.005	< 0.001	0.18	< 0.0005	0.015	< 0.0002	0.046	< 0.415	< 0.0025	< 0.002
	6/30/2016	< 0.003	< 0.001	0.044	< 0.001	< 0.0005	< 0.005	< 0.001	0.18	< 0.0005	0.014	< 0.0002	0.025	0.879	< 0.0025	< 0.002
	8/26/2016	< 0.003	< 0.001	0.053	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.19	< 0.0005	0.014	< 0.0002	0.047	0.816	< 0.0025	< 0.002
	11/16/2016	< 0.003	< 0.001	0.048	< 0.001	< 0.0005	< 0.005	< 0.001	0.17	< 0.0005	0.011	< 0.0002	0.041	0.475	< 0.0025	< 0.002
	2/16/2017	< 0.003	< 0.001	0.051	< 0.001	< 0.0005	< 0.005	< 0.001	0.15	< 0.0005	0.014	< 0.0002	0.044	0.729	< 0.0025	< 0.002
	5/24/2017	< 0.003	< 0.001	0.048	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.19	< 0.0005	0.011	< 0.0002	0.031	1.02	< 0.0025	< 0.002
	7/10/2017	< 0.003	< 0.001	0.049	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.1	< 0.0005	0.012	< 0.0002	0.061	0.667	< 0.0025	< 0.002
	9/28/2017	< 0.003	< 0.001	0.048	< 0.001	< 0.0005	< 0.005	< 0.001	0.19	< 0.0005	0.014	< 0.0002	0.081	0.614	< 0.0025	< 0.002
11/21/2017	< 0.003	< 0.001	0.051	< 0.001	< 0.0005	< 0.005	< 0.001	0.18	< 0.0005	0.016	< 0.0002	0.055	0.913	< 0.0025	< 0.002	
G46S down-gradient	11/23/2015	< 0.003	0.0033	0.064	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.27	< 0.0005	0.073	< 0.0002	0.5	1.468	< 0.0025	< 0.002
	5/9/2016	< 0.003	0.0018	0.099	< 0.001	< 0.0005	< 0.005	< 0.001	0.28	0.0005	0.11	< 0.0002	0.7	1.85	< 0.0025	< 0.002
	6/30/2016	< 0.003	0.0014	0.098	< 0.001	< 0.0005	< 0.005	< 0.001	0.29	< 0.0005	0.13	< 0.0002	0.71	1.94	< 0.0025	< 0.002
	8/26/2016	< 0.003	0.0027	0.054	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.35	< 0.0005	0.12	< 0.0002	1.2	1.17	< 0.0025	< 0.002
	11/18/2016	< 0.003	0.0025	0.051	< 0.001	< 0.0005	< 0.005	< 0.0010	0.39	< 0.0005	0.13	< 0.0002	1.8	< 0.601	< 0.0025	< 0.002
	2/16/2017	< 0.003	0.0024	0.053	< 0.001	< 0.0005	< 0.005	< 0.0010	0.41	< 0.0005	0.091	< 0.0002	1.4	1.07	< 0.0025	< 0.002
	5/22/2017	< 0.003	0.0033	B 0.046	^ < 0.001	< 0.0005	< 0.005	< 0.0010	0.44	< 0.0005	0.11	< 0.0002	1.4	0.683	< 0.0025	< 0.002
	7/6/2017	< 0.003	0.0034	0.044	< 0.001	< 0.0005	< 0.005	0.0010	0.41	^ < 0.0005	0.076	< 0.0002	0.92	0.709	< 0.0025	^ < 0.002
	9/27/2017	< 0.003	0.0043	0.031	< 0.001	< 0.0005	< 0.005	< 0.0010	0.4	< 0.0005	0.091	< 0.0002	0.63	0.754	< 0.0025	< 0.002
11/21/2017	< 0.003	0.0055	0.032	< 0.001	< 0.0005	< 0.005	< 0.0010	0.43	< 0.0005	0.11	< 0.0002	0.68	0.776	< 0.0025	< 0.002	
G47S down-gradient	11/23/2015	< 0.003	0.018	0.018	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.45	< 0.0005	0.036	< 0.0002	0.32	0.898	0.003	< 0.002
	5/6/2016	< 0.003	0.034	0.017	< 0.001	< 0.0005	< 0.005	< 0.001	0.72	< 0.0005	0.033	< 0.0002	0.41	0.736	0.0033	< 0.002
	7/1/2016	< 0.003	0.022	0.019	< 0.001	^ < 0.0005	< 0.005	< 0.001	0.68	< 0.0005	0.038	< 0.0002	0.53	1.01	< 0.0025	< 0.002
	8/24/2016	< 0.003	0.017	0.023	< 0.001	< 0.0005	< 0.005	< 0.001	0.67	< 0.0005	0.028	< 0.0002	0.41	1.06	< 0.0025	< 0.002
	11/16/2016	< 0.003	0.14	0.0091	< 0.001	< 0.0005	< 0.005	< 0.001	1.8	< 0.0005	0.015	< 0.0002	1.4	< 1.38	0.0038	< 0.002
	2/15/2017	< 0.003	0.059	0.016	< 0.001	< 0.0005	< 0.005	< 0.001	1.1	< 0.0005	< 0.05	< 0.0002	0.57	0.716	0.0035	< 0.002
	5/23/2017	< 0.003	0.18	0.0081	^ < 0.001	< 0.0005	< 0.005	< 0.001	2.2	< 0.0005	0.013	< 0.0002	1.3	< 0.361	0.0025	< 0.002
	7/10/2017	< 0.003	0.17	0.0085	< 0.001	< 0.0005	< 0.005	< 0.001	2.1	< 0.0005	0.013	< 0.0002	1.2	0.733	< 0.0025	< 0.002
	9/27/2017	< 0.003	0.21	0.0085	< 0.001	< 0.0005	< 0.005	< 0.001	2	< 0.0005	0.014	< 0.0002	1.3	0.836	0.0027	< 0.002
11/22/2017	< 0.003	0.23	0.009	< 0.001	< 0.0005	< 0.005	< 0.001	2.1	< 0.0005	0.012	< 0.0002	1.5	0.692	0.0044	< 0.002	
G48S down-gradient	11/20/2015	< 0.003	0.03	0.015	^ < 0.001	< 0.0005	< 0.005	< 0.001	1.5	< 0.0005	0.015	< 0.0002	1.4	0.8512	< 0.0025	< 0.002
	5/5/2016	< 0.003	0.046	0.014	< 0.001	< 0.0005	< 0.005	< 0.001	1.5	< 0.0005	0.016	< 0.0002	1.2	0.80	< 0.0025	< 0.002
	7/1/2016	< 0.003	0.038	0.011	< 0.001	^ < 0.0005	< 0.005	< 0.001	1.4	< 0.0005	0.013	< 0.0002	1.2	1.01	< 0.0025	< 0.002
	8/24/2016	< 0.003	0.032	0.014	< 0.001	< 0.0005	< 0.005	< 0.001	1.4	< 0.0005	0.012	< 0.0002	1.1	1.16	< 0.0025	< 0.002
	11/16/2016	< 0.003	0.03	0.018	< 0.001	< 0.0005	< 0.005	< 0.001	1.4	< 0.0005	0.016	< 0.0002	1.1	1.65	< 0.0025	< 0.002
	2/15/2017	< 0.003	0.038	0.015	< 0.001	< 0.0005	< 0.005	< 0.001	1.2	< 0.0005	0.014	< 0.0002	0.79	0.824	< 0.0025	< 0.002
	5/23/2017	< 0.003	0.03	0.014	^ < 0.001	< 0.0005	< 0.005	< 0.001	1.3	< 0.0005	0.016	< 0.0002	0.95	0.661	< 0.0025	< 0.002
	7/10/2017	< 0.003	0.022	0.017	< 0.001	< 0.0005	< 0.005	< 0.001	1.2	< 0.0005	0.016	< 0.0002	0.84	1.39	< 0.0025	< 0.002
	9/27/2017	< 0.003	0.024	0.019	< 0.001	< 0.0005	< 0.005	< 0.001	1.1	< 0.0005	0.019	< 0.0002	0.72	1.32	< 0.0025	< 0.002
11/22/2017	< 0.003	0.027	0.015	< 0.001	< 0.0005	< 0.005	< 0.001	1.2	< 0.0005	0.016	< 0.0002	0.77	1.27	< 0.0025	< 0.002	

Notes:  
All units are in mg/l except Radium is in pCi/L as noted.

F1 - MS and/or MSD Recovery outside of limits.  
^ - Denotes instrument related QC exceeds the control limits  
B - Compound was found in the blank and sample.