# Spire STL Pipeline Project

Draft Resource Report 8
Land Use, Recreation and Aesthetics

FERC Docket No. PF16-9-000

Pre-filing draft
October 2016

Public

| RESOURCE REPORT 8 - LAND USE, RECREATION AND AESTHETICS | |
|---|---|
| **SUMMARY OF FILING INFORMATION** | |
| **Information** | **Found in** |
| 1. Classify and quantify land use affected by: Title 18 Code of Federal Regulations (CFR) part (§) 380.12 (j) (1) a. Pipeline construction and permanent rights-of-way; b. Extra work/staging areas; c. Access roads; d. Pipe and contractor yards; and aboveground facilities. | Sections 8.1 and 8.1.2; Tables 8.1-1, 8.1-2, 8.1-5, and 8.1-6. |
| 2. Identify by milepost all locations where the pipeline right-of-way would at least partially coincide with existing right-of-way, where it would be adjacent to existing rights-of-way, and where it would be outside of existing right-of-way - 18 CFR § 380.12 (j) (1) | Section 8.1.1.2 and Table 8.1-3. |
| 3. Provide detailed typical construction right-of-way cross section diagrams showing information such as widths and relative locations of existing rights-of-way, new permanent right-of-way and temporary construction right-of-way - 18 CFR - § 380.12 (j) (1) | Appendix 8-A. |
| 4. Summarize the total acreage of land affected by construction and operation of the project - 18 CFR § 380.12 (j) (1) | Section 8.1 and Tables 8.1-1 and 8.1-2. |
| 5. Identify by milepost all planned residential or commercial/business development and the timeframe for construction - 19 CFR § 380.12 (j) (4) | Section 8.2. |
| 6. Identify by milepost special land uses (e.g., maple sugar stands, specialty crops, natural areas, national and state forests, conservation land, etc.) - 18 CFR § 380.12 (j) (4) | Section 8.3. |
| 7. Identify by beginning milepost and length of crossing all land administered by federal, state, or local agencies, or private conservation organizations - 18 CFR § 380.12 (j) (4) | Section 8.3. |
| 8. Identify by milepost all natural, recreational, or scenic areas, and all registered natural landmarks crossed by the project - 18 CFR § 380.12 (j) (4 & 6) | Section 8.3.2. |

| RESOURCE REPORT 8 - LAND USE, RECREATION AND AESTHETICS | |
|---|---|
| **SUMMARY OF FILING INFORMATION** | |
| **Information** | **Found in** |
| 9. Identify all facilities that would be within designated coastal zone management areas - 18 CFR § 380.12 (j) (4)) | Section 8.5. |
| 10. Identify by milepost all residences that would be within 50 feet of the construction right-of-way or extra work area - 18 CFR § 380.12 (j) (5) | Table 8.2-1. |
| 11. Identify all designated or proposed candidate National or State Wild and Scenic Rivers crossed by the project - 18 CFR - § 380.12 (j) (6) | Section 8.3.2. |
| 12. Describe any measures to visually screen aboveground facilities, such as compressor stations - 18 CFR § 380.12 (j) (11) | Section 8.6. |
| 13. Demonstrate that applications for rights-of-way or other proposed land use have been or soon will be filed with federal land-managing agencies with jurisdiction over land that would be affected by the project - 18 CFR § 380.12 (j) (12) | Section 8.7. |
| **INFORMATION RECOMMENDED OR OFTEN MISSING** | |
| 1. Identify all buildings within 50 feet of the construction right-of-way or extra work areas. | Table 8.2-1. |
| 2. Describe the management and use of all public lands that would be crossed. | Section 8.3. |
| 3 Provide a list of landowners by milepost or tract number that corresponds to information on alignment sheets. | Submitted concurrently to FERC at the time of this filing. |
| 4. Provide a site-specific construction plan for residences within 25 feet of construction or as requested by Federal Energy Regulatory Commission staff. | Appendix 8-C. |

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Appendices

# Acronyms and Abbreviations

| | |
|---|---|
| AIMA | Agricultural Impact Mitigation Agreement |
| ATWS | additional temporary workspace |
| CFR | Code of Federal Regulations |
| CREP | Conservation Reserve Enhancement Program |
| CRP | Conservation Reserve Program |
| EPA | Environmental Protection Agency |
| FERC | Federal Energy Regulatory Commission |
| FSA | Farm Service Agency |
| FUSRAP | Formerly Utilized Sites Remedial Action Program |
| HDD | horizontal directional drill |
| IDNR | Illinois Department of Natural Resources |
| IHPA | Illinois Historic Preservation Agency |
| M&R | metering and regulating |
| MDOC | Missouri Department of Conservation |
| MLV | mainline valve |
| MP | milepost |
| NRCS | Natural Resources Conservation Service |
| PAR | permanent access road |
| Plan | FERC's Upland Erosion Control, Revegetation, and Maintenance Plan |
| Procedures | FERC's Wetland and Waterbody Construction and Mitigation Procedures |
| Project | Spire STL Pipeline Project |
| REX | Rockies Express Pipeline LLC |
| Spire | Spire STL Pipeline LLC |
| TAR | temporary access road |
| TWS | temporary workspace |
| USACE | United States Army Corps of Engineers |
| USDA | United States Department of Agriculture |
| USFWS | United States Fish and Wildlife Service |

# Land Use, Recreation, and Aesthetics

This resource report addresses the land that will be affected by the construction and operation of the Spire STL Pipeline LLC ("Spire") Spire STL Pipeline Project ("Project"), including temporary construction right-of-way, permanent easement, additional temporary workspace ("ATWS"), temporary and permanent access roads, contractor yards and aboveground facilities. In addition to quantifying and summarizing affected land, this report identifies public lands and designated recreation or other special use areas affected by the Project. It also provides summaries of consultations with federal and state agencies regarding land uses, and discusses specialized construction techniques and mitigation that will be utilized to minimize impact during construction and operation.

## 8.1 Land Use

Land use within the Project area was based on interpretation of aerial photography supplemented with field reconnaissance during the environmental resources investigations in September 2016. Land use information will be updated in Spire's Federal Energy Regulatory Commission ("FERC") application based on recently flown aerial imagery in August 2016 and additional field reconnaissance conducted in the fall 2016. Resource Report 3 provided detailed descriptions of the vegetation cover types crossed by the Project.

The Project will cross land use categories including agricultural lands, forest, open land, developed, and open water. Descriptions of each type of land use category traversed by the Project is provided below. Emergent wetlands and waterbodies (less than 10 feet wide) were classified within the land use categories which surrounded them (agriculture and open land). Linear mileages and percentages of cover types crossed in each type of land use identified is summarized in Table 8.1-1.

In the Project area, these land use types are characterized as:

- Agricultural Land - Cultivated or rotated cropland, or hay fields and emergent wetlands (if the surrounding land use was agricultural);
- Forest/Woodland - Tracts of upland or wetland forest or woodland that would be removed for the construction right-of-way or ATWS;
- Open Land - Non-forested lands and scrub-shrub wetlands used for open space and emergent wetlands (if the surrounding land use was open land);
- Developed Land-Industrial areas (include roads, railroads, and associated easements), residential yards, and residential subdivisions; and
- Open Water - Water crossings greater than 10 feet.

**Table 8.1-1 Land Crossed by the Pipelines**

| County, State | Agriculture | | Open Land | | Forest | | Developed | | Open Water | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Miles | Percent | Miles | Percent | Miles | Percent | Miles | Percent | Miles | Percent | Miles | Percent |
| **24-inch Pipeline** | | | | | | | | | | | | |
| Scott County, Illinois | 2.9 | 83.9% | 0.1 | 1.8% | 0.5 | 13.6% | 0.0 | 0.6% | 0.0 | 0.0% | 3.5 | 5.4% |
| Greene County, Illinois | 24.6 | 96.5% | 0.0 | 0.0% | 0.7 | 2.7% | 0.1 | 0.6% | 0.0 | 0.1% | 25.5 | 39.2% |
| Jersey County, Illinois | 14.0 | 88.0% | 0.3 | 1.7% | 0.9 | 5.8% | 0.4 | 2.7% | 0.3 | 1.7% | 15.9 | 24.4% |
| St. Charles County, Missouri | 11.3 | 90.6% | 0.0 | 0.0% | 0.4 | 3.1% | 0.1 | 0.9% | 0.7 | 5.4% | 12.5 | 19.2% |
| St. Louis County, Missouri | 0.0 | 0.0% | 0.0 | 0.0% | 0.2 | 40.7% | 0.2 | 35.0% | 0.1 | 24.3% | 0.6 | 0.9% |
| **Subtotals[2]** | 52.8 | 81.2% | 0.3 | 0.5% | 2.7 | 4.2% | 0.9 | 1.4% | 1.1 | 1.7% | 57.9 | 89.1% |
| **Line 880[3]** | | | | | | | | | | | | |
| St. Louis County, Missouri | 0.5 | 0.7% | 1.4 | 2.1% | 1.0 | 1.6% | 4.2 | 6.5% | 0.0 | 0.0% | 7.1 | 10.9% |
| **Totals[2]** | 53.3 | 81.9% | 1.7 | 2.6% | 3.8 | 5.8% | 5.1 | 7.9% | 1.2 | 1.8% | 65.0 | 100.0% |

Notes:

1 Developed land is characterized as existing rights-of-ways, commercial/industrial and residential land.

2 May not equal the sum of the column due to rounding.

3 Mileage and percentage along Line 880 is provided for the entire route length. Only portions of the existing 7.1-mile pipeline will be modified or relocated.

**Agricultural Land**

The majority of the Project route traverses agricultural land, including areas that are regularly cultivated and used to grow row crops. The primary crops observed in the environmental survey area were corn (*Zea mays*) and soybeans (*Glycine max*). The Project is anticipated to impact 818.35 acres of agricultural land during construction of the Project, and 321.91 acres of land during operation of the Project. With the exception of areas where permanent aboveground facilities will be constructed, all agricultural land affected by the Project will be restored to its original use, including the permanent pipeline easement. Spire proposes five feet of cover in agricultural lands.

Spire will minimize adverse impacts on agricultural land by completing work in accordance with FERC's Upland Erosion Control, Revegetation and Maintenance Plan ("Plan") and the Agricultural Impact Mitigation Agreement ("AIMA") which is being developed in coordination with the Illinois Department of Agriculture for the portion of the Project in Illinois. Spire anticipates providing an executed copy of the AIMA to FERC with the final application (Resource Report 7, Appendix 7-C).

In order to avoid and minimize affects to topsoil, Spire proposes to perform topsoil segregation in active croplands across the entire length of the construction right-of-way. Spire has included 25 feet of ATWS in agricultural lands in order to complete topsoil segregation activities. A minimum of 12 inches of topsoil will be segregated in deep soils; and the entire topsoil layer, where possible, will be segregated in soils with less than 12 inches of topsoil. It is anticipated that Spire will encounter greater than 12 inches of topsoil in Illinois, which will be determined during construction by a qualified soil scientist per the AIMA. The topsoil and subsoil will be temporarily stockpiled in separate windrows on the construction right-of-way.

During the course of easement negotiations, Spire will work with landowners to locate areas known to have existing drain tiles or irrigation systems. If drain tiles or irrigation systems are damaged by construction of the pipeline, Spire will work with the landowner to repair or replace those damaged sections in accordance with the FERC Plan and the AIMA for Illinois portions of the Project. Agricultural land will be returned to its original contour to maintain pre-construction hydrology. Should construction result in any new draining or ponding issues, Spire will work directly with the landowners to address the issues.

Within agricultural lands crossed by the Project, Spire will negotiate with and reimburse landowners for any damages or loss to their productivity as a result of the construction of the proposed Project. The reimbursement to these landowners will be based on the market prices for the specific crops at the time of easement negotiations with each affected landowner.

**Forest/Woodland**

Forest accounts for approximately 5.8% of the area crossed by the Project. The forested habitat observed included bottomland forest (riparian forested areas bordering waterbodies) and forested wetlands with dominant species such as hickory species (*Carya spp*.), eastern black walnut (*Juglans nigra*), black locust (*Robinia pseudoacacia*), American elm (*Ulmus americana*), American sycamore (*Platanus occidentalis***)** and box elder (*Acer negundo*). The largest span of forested tracts along the north and south sides of the Mississippi River will be colocated with an

existing pipeline corridor. Temporary workspace ("TWS") will be cleared in the locations of the horizontal directional drill ("HDD") entry/exit pits however, minimal ground disturbance will occur between these points of crossing.

Temporary areas that are cleared for construction within the workspace boundaries will be restored and allowed to revert back to forest after construction is complete. Uplands within the permanent easement that are currently forested will be maintained in an herbaceous state without trees to facilitate the operation of the Project facilities.

**Open Land**

Open land is defined as land that is actively maintained in scrub-shrub herbaceous vegetation and is mainly associated with existing right-of-ways and pasture. The Project is anticipated to impact 13.24 acres of open land during construction of the Project and 3.39 acres of land during operation of the Project. The Project crosses areas of open land, primarily for use as pasture. To minimize impacts to land used as pasture, Spire will utilize topsoil conservation measures as further discussed in Resource Report 7.

**Developed Land**

Developed land includes industrial/commercial lands, roadways, railroads and residential lands. Disturbed areas such as these are typically devoid of undisturbed vegetation or consist of impervious surfaces.

Impact minimization measures used in commercial/industrial areas will include timing of construction to avoid peak use periods, maintaining access to businesses at all times, and expediting construction through these areas. Spire will coordinate directly with affected commercial/industrial landowners on an individual basis to further reduce potential adverse impacts.

Roads crossed by the Project range from maintained gravel municipal roads to state highways. A completed list of roadways crossed by the Project is provided in Table 1.3-2 in Resource Report 1. Potential temporary impacts associated with roadway crossings include disruption of traffic flows, disturbance of existing underground utilities, and hindrance of emergency vehicle access. The majority of the roads will be crossed by open cut methodologies which the exception of large county and state roadways which will be crossed via conventional bore. Spire will ensure that construction activities will not pose a traffic concern and will create temporary travel lanes during construction.

The proposed 24-inch pipeline crosses the Kansas City Southern Railroad and crosses the Burlington Northern Santa Fe Railroad. Line 880 crosses the Burlington Northern Santa Fe Railroad. Each railroad will be crossed via conventional bore. The use of conventional bore will avoid impacts on the normal operation of the active railroads during construction and operation of the proposed Project. For safety purposes, Spire will consider the specific requirements of each railroad company when designing and constructing each railroad crossing.

Residential land is developed land that includes both single and multiple family dwellings, and may contain developed subdivisions. Vegetation cover in residential lands generally consists of mowed lawns and landscaped areas. Impacts on residential areas and a discussion of the mitigation measures that will be implemented during construction to minimize these impacts is discussed in Section 8.2, Residential Areas.

**Open Water**

Open water includes lakes, ponds and waterbodies greater than 10 feet. Open water accounts for less than 2 percent of the land use cover types crossed by the Project.

Spire intends to implement the FERC's Wetland and Waterbody Construction and Mitigation Procedures ("Procedures") as a minimum standard for crossing and restoring waterbodies affected by the Project. Spire proposes to limit waterbody impacts by reducing the crossing width to 75 feet in these areas. The major rivers (such as the Mississippi and Missouri Rivers) and associated wetlands will be crossed via HDD and will not result in adverse impacts on waterbodies and wetlands. Open water impacted during operation will not result in a change of land use designation.

During construction Spire will implement best management practices and adhere to the FERC Procedures to minimize impacts on open water resources and minimize erosion and sediment run off. Following the completion of construction activities, all open water areas will be restored to pre-construction conditions. Additional information regarding waterbody crossing methods and impacts is provided in Resource Report 2.

Four perennial waterbodies crossed by the 24-inch pipeline were identified as greater than 100 feet wide. The Mississippi River and Missouri River are proposed to be crossed using HDD. Other streams crossed by the Project include an unnamed tributary to the Mississippi River and Macoupin Creek (Feature ID: SMO-WJW-001 and SIL-TMA-039). The unnamed tributary to the Mississippi River will also be crossed using HDD. The HDDs will allow for trenchless construction across the waterbodies and will eliminate planned impacts from construction activities within the waterbodies. Macoupin Creek is currently proposed as an open cut crossing and is discussed further in Resource Report 2.

The acreages of land affected by construction and operation of the 24-inch pipeline and the Line 880 workspaces by land use category is provided in Table 8.1-2. Construction impacts include all areas of disturbance, including TWS, permanent easement, ATWS, access roads, and contractor yards. Typical construction right-of-way cross-section diagrams are provided in Appendix 8-A.

## Table 8.1-2 Acreage Affected by Construction and Operation of the Project

| Facility ID (County, State)[1] | Agriculture | | Open Land | | Forest | | Developed | | Open Water | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Const. | Oper. | Const. | Oper. | Const. | Oper. | Const. | Oper. | Const. | Oper. | Const.[2] | Oper.[3] |
| **24-Inch Pipeline** | | | | | | | | | | | | |
| Scott County, Illinois | 31.78 | 17.54 | 0.55 | 0.34 | 4.96 | 3.00 | 0.25 | 0.14 | 0.00 | 0.00 | 37.54 | 21.01 |
| Greene County, Illinois | 267.37 | 148.79 | 0.05 | 0.04 | 7.21 | 4.41 | 1.71 | 0.99 | 0.31 | 0.22 | 276.66 | 154.45 |
| Jersey County, Illinois | 151.90 | 84.64 | 3.94 | 1.55 | 9.08 | 5.66 | 4.59 | 2.58 | 1.67 | 1.65 | 171.17 | 96.08 |
| St. Charles County, Missouri | 122.91 | 68.60 | 0.00 | 0.00 | 2.38 | 2.38 | 1.27 | 0.71 | 4.16 | 4.08 | 130.71 | 75.77 |
| St. Louis County, Missouri | 0.00 | 0.00 | 0.00 | 0.00 | 2.47 | 1.42 | 1.96 | 1.32 | 0.88 | 0.88 | 5.32 | 3.62 |
| **Subtotals** | 573.95 | 319.56 | 4.55 | 1.93 | 26.10 | 16.87 | 9.78 | 5.74 | 7.02 | 6.82 | 621.41 | 350.93 |
| **Line 880** | | | | | | | | | | | | |
| St. Louis County, Missouri | 0.46 | 0.01 | 2.98 | 0.05 | 1.99 | 0.04 | 1.90 | 0.07 | 0.09 | 0.00 | 7.43 | 0.17 |
| **Subtotals** | 0.46 | 0.01 | 2.98 | 0.05 | 1.99 | 0.04 | 1.90 | 0.07 | 0.09 | 0.00 | 7.43 | 0.17 |
| **Aboveground Facilities** | | | | | | | | | | | | |
| **Rex Receipt Station** | | | | | | | | | | | | |
| Scott County, Illinois | 2.94 | 2.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.94 | 2.18 |
| **Laclede/Lange Delivery Station** | | | | | | | | | | | | |
| St. Louis County, Missouri | 0.00 | 0.00 | 0.02 | 0.02 | 2.36 | 1.66 | 0.00 | 0.00 | 0.00 | 0.00 | 2.39 | 1.68 |
| **Redman Delivery Station** | | | | | | | | | | | | |
| St. Louis County, Missouri | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.07 | 0.71 | 0.00 | 0.00 | 1.07 | 0.71 |
| **MRT Bi-directional Station** | | | | | | | | | | | | |
| St. Louis County, Missouri | 0.00 | 0.00 | 1.54 | 1.38 | 1.01 | 0.17 | 1.76 | 1.70 | 0.00 | 0.00 | 4.31 | 3.24 |
| **Subtotals** | 2.94 | 2.18 | 1.57 | 1.40 | 3.37 | 1.83 | 2.83 | 2.41 | 0.00 | 0.00 | 10.71 | 7.82 |
| **Cathodic Protection** | | | | | | | | | | | | |
| TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | 2.87 | 2.87 |

## Table 8.1-2 Acreage Affected by Construction and Operation of the Project (Continued)

| Facility ID/ County, State[1] | Agriculture[2] | | Open Land[2] | | Forest[2] | | Developed | | Open Water | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Const. | Oper. | Const. | Oper. | Const. | Oper. | Const. | Oper. | Const. | Oper. | Const.[3] | Oper.[4] |
| **Access Roads** | | | | | | | | | | | | |
| Scott County, Illinois | 0.89 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.89 | 0.15 |
| Greene County, Illinois | 4.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 4.65 | 0.00 |
| Jersey County, Illinois | 2.31 | 0.00 | 2.02 | 0.00 | 0.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.86 | 0.00 |
| St. Charles County, Missouri | 3.47 | 0.00 | 0.07 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 3.60 | 0.00 |
| St. Louis County, Missouri | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.73 | 0.00 | 0.00 | 0.00 | 2.73 | 0.00 |
| **Subtotals** | 11.23 | 0.15 | 2.09 | 0.00 | 0.55 | 0.00 | 2.85 | 0.00 | 0.00 | 0.00 | 16.72 | 0.15 |
| **ATWS** | | | | | | | | | | | | |
| Scott County, Illinois | 10.64 | 0.00 | 0.10 | 0.00 | 0.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11.60 | 0.00 |
| Greene County, Illinois | 77.65 | 0.00 | 0.00 | 0.00 | 0.53 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 78.26 | 0.00 |
| Jersey County, Illinois | 42.01 | 0.00 | 0.56 | 0.00 | 3.13 | 0.00 | 0.95 | 0.00 | 0.00 | 0.00 | 46.65 | 0.00 |
| St. Charles County, Missouri | 54.80 | 0.00 | 0.11 | 0.00 | 0.12 | 0.00 | 0.36 | 0.00 | 0.00 | 0.00 | 55.40 | 0.00 |
| St. Louis County, Missouri | 0.00 | 0.00 | 1.27 | 0.00 | 0.42 | 0.00 | 2.93 | 0.00 | 0.00 | 0.00 | 4.61 | 0.00 |
| **Subtotals** | 185.10 | 0.00 | 2.05 | 0.00 | 5.05 | 0.00 | 4.32 | 0.00 | 0.00 | 0.00 | 196.52 | 0.00 |
| **Contractor Yards** | | | | | | | | | | | | |
| St. Charles County, Missouri | 6.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.53 | 0.00 |
| Madison County, Illinois | 38.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 38.14 | 0.00 |
| **Subtotals[5]** | 44.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 44.67 | 0.00 |
| **Totals[5,6]** | 818.35 | 321.91 | 13.24 | 3.39 | 37.07 | 18.74 | 21.69 | 8.21 | 7.11 | 6.82 | 900.33 | 361.95 |

**Table 8.1-2 Acreage Affected by Construction and Operation of the Project (Continued)**

Notes:

1 Impacts associated with mainline valves ("MLVs") are included in the pipeline facility impacts. Impacts associated with the pig launcher and pig receiver are included in the aboveground facility impacts.

2 Wetlands are included with the adjacent land use (emergent wetlands may be included with agriculture or open land; forested wetlands may be included with forest).

3 Land affected during construction for the pipeline facilities is comprised of the 50-foot permanent easement, 40 feet of TWS and ATWS where applicable.

4 Land affected during operation of the pipeline includes only the 50-foot permanent easement.

5 May not equal the sum of the column due to rounding.

6 Acreages associated with the area between the HDD sites include the 50-foot operational acreage only.

## 8.1.1 Pipeline Facilities

### 8.1.1.1 Construction and Permanent Rights-of-Way

Construction of the Project will require the acquisition of new permanent easements necessary for operation of the pipeline, as well as TWS and ATWS necessary for construction of the pipeline. Land uses were tabulated for the Project's pipeline facilities by calculating each land use category crossed by the 24-inch pipeline and the Line 880 workspaces. A summary table showing the mileages by land use category is provided in Table 8.1-1. The typical construction right-of-way width for the 24-inch pipeline in non-agricultural upland areas will be 90 feet and will consist of 50 feet of permanent easement and 40 feet of TWS. Spire proposes to increase its typical construction workspace configuration by 25 feet to a total of 115 feet in agricultural areas to allow for full right-of-way topsoil segregation. Workspace in waterbodies and wetlands will be generally reduced to 75 feet to minimize impacts.

The existing permanent easement along Line 880 varies from five feet to 30 feet in certain locations. Spire does not propose to clear the entire length of the existing Line 880 but is proposing modifications in approximately 34 locations along the 7.1 miles. The modifications will include (a) the removal of syphon drips and MLVs and replacement with line pipe, and (b) the relocation of a portion of the existing pipeline. Once the modifications have been completed, the existing line will be hydrostatically tested. Each location will require an average of 0.10 acres of TWS (with the exception of the portion of the existing pipeline which will be relocated and will require approximately 6.5 acres of TWS). Other existing permanent easement and TWS will be required along Line 880 to account for construction access to each modification site and for the relocation of a portion of the existing pipeline.

Vegetation within the entire width of the permanent easement will be maintained in a herbaceous state, except in wetlands and adjacent perennial waterbodies, where maintenance clearing of woody vegetation will be limited to a 10-foot-wide strip centered directly over the pipeline (with selective removal of trees within 15 feet of the pipeline with roots that could compromise the integrity of the pipeline coating). Tree clearing and vegetation maintenance within the permanent easement will result in the conversion of forested upland to open land within forested upland portions of the permanent easement, and the permanent conversion of forested wetlands to emergent/scrub-shrub wetland where the permanent easement crosses forested wetlands. Agricultural areas and growing of crops will be allowed to continue in agricultural areas; therefore permanent conversion of existing agricultural lands to another type of land use is not anticipated.

Typical right-of-way workspace configurations and dimensions are shown in Appendix 8-A.

### 8.1.1.2 Existing Right-of-Way

The Project was routed to utilize existing utility and road right-of-way to the maximum extent practicable. Existing rights-of-way paralleled by the Project is provided in Table 8.1-3. For the purposes of this discussion, colocation includes areas where the Project's construction right-of-way is located immediately abutting existing rights-of-way. Correspondence with applicable electric transmission companies and transportation authorities is in progress; the results of these discussions including final design plans will be provided in the FERC application.

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**Table 8.1-3. Existing Rights-of-Way Adjacent to the Pipelines**

| Milepost ("MP") Begin | MP End | County, State | Type of Right-of-Way[1,2] | Position related to proposed pipeline | Width of Existing Right-of-Way (feet)[3] | Width Used for Construction Right-of-Way (feet)[3] | Width Used for Permanent Right-of-Way (feet)[3] |
|---|---|---|---|---|---|---|---|
| **24-inch Pipeline** | | | | | | | |
| 2.1 | 2.7 | Scott, Illinois | Powerline/Road | East | TBD[2] | TBD | TBD |
| 5.0 | 5.5 | Greene, Illinois | Powerline/Road | East | TBD | TBD | TBD |
| 5.7 | 6.0 | Greene, Illinois | Powerline/Road | East | TBD | TBD | TBD |
| 6.6 | 7.8 | Greene, Illinois | Powerline/Road | East | TBD | TBD | TBD |
| 7.8 | 8.6 | Greene, Illinois | Road | East | TBD | TBD | TBD |
| 10.1 | 11.3 | Greene, Illinois | Powerline | West | TBD | TBD | TBD |
| 11.3 | 12.0 | Greene, Illinois | Road | West | TBD | TBD | TBD |
| 15.6 | 15.7 | Greene, Illinois | Road | West | TBD | TBD | TBD |
| 16.8 | 16.9 | Greene, Illinois | Powerline | West | TBD | TBD | TBD |
| 16.9 | 17.0 | Greene, Illinois | Powerline/Road | West | TBD | TBD | TBD |
| 17.0 | 17.9 | Greene, Illinois | Powerline | West | TBD | TBD | TBD |
| 26.4 | 27.0 | Greene, Illinois | Powerline/Road | West | TBD | TBD | TBD |
| 28.0 | 28.9 | Greene, Illinois | Powerline/Road | West | TBD | TBD | TBD |
| 30.8 | 31.5 | Jersey, Illinois | Road | West | TBD | TBD | TBD |
| 32.0 | 32.5 | Jersey, Illinois | Road | West | TBD | TBD | TBD |
| 32.5 | 33.0 | Jersey, Illinois | Powerline/Road | West | TBD | TBD | TBD |
| 33.0 | 34.5 | Jersey, Illinois | Road | West | TBD | TBD | TBD |
| 41.9 | 42.1 | Jersey, Illinois | Road | East | TBD | TBD | TBD |
| 42.8 | 43.4 | Jersey, Illinois | Road | East | TBD | TBD | TBD |

**Table 8.1-3. Existing Rights-of-Way Adjacent to the Pipelines (Continued)**

| MP Begin | MP End | County, State | Type of Right-of-Way[1,2] | Position related to proposed pipeline | Width of Existing Right-of-Way (feet)[3] | Width Used for Construction Right-of-Way (feet)[3] | Width Used for Permanent Right-of-Way (feet)[3] |
|---|---|---|---|---|---|---|---|
| **24-inch Pipeline** | | | | | | | |
| 43.4 | 44.9 | Jersey, Illinois | Pipeline | West | TBD | TBD | TBD |
| 44.9 | 45.7 | St. Charles, Missouri | Pipeline | West | TBD | TBD | TBD |
| **Line 880** | | | | | | | |
| 2.2 | 2.4 | St. Louis, Missouri | Road | East | TBD | TBD | TBD |

Notes:

1 Powerline/Road indicates that both features run parallel to the pipeline, along the same side of the road. Further investigation is required to determine which existing right-of-way will be impacted.

2 Voltages for each identified powerline utility will be provided in the FERC application based on further discussion with each utility operator.

3 TBD-To Be Determined. Spire is in process of determining the operators and widths of existing right-of-ways. Additional information will be provided in the FERC application.

#### 8.1.1.3 Additional Temporary Workspace

ATWS will be generally located at specialized pipeline construction areas (e.g., agricultural, road, waterbody, wetland, and railroad crossings, etc.). These work areas vary in size depending on the space needs and the geographic conditions at that specific location. The acreage and associated land use affected by ATWS that occur outside of the typical construction right-of-way is summarized in Appendix 8-F. ATWS is shown on the Construction Alignment Sheets provided in Resource Report 1, Appendix 1-B.

Except as otherwise requested due to site-specific constraints, ATWS will be set back at least 50 feet from the edges of waterbodies and wetlands. In certain locations, ATWS may be required within 50 feet of a waterbody or wetland. A list of these exceptions is provided in Resource Report 1, Appendix 1-F. Spire is currently reviewing these areas as some resources have only been identified through desktop data and not field delineated. Spire will provide an updated list of exceptions to the FERC Plan and Procedures in the FERC application. These ATWS are temporary in nature and are not anticipated to be utilized during Project operation. All areas utilized as ATWS will be allowed to revert back to pre-construction conditions following construction.

#### 8.1.1.4 Access Roads

Spire proposes to use and/or modify existing access roads as well as develop new access roads to access the Project during construction and operation. Public roads will be used to access the right-of-way wherever possible. Access roads proposed to be utilized for the Project as well as the widths and lengths, proposed modifications, and acreage requirements are provided in Table 8.1-4. Several of the existing roads will require modifications and improvements to allow for the safe passage of construction equipment and vehicles. New access roads may require temporary modification of existing land use associated with the identified access roads during construction and operation. Details regarding the improvements that will be required for each proposed temporary access road will be provided in the FERC application. Following construction, temporary access roads (“TARs”) will be restored to their preconstruction condition or allowed to remain in place in accordance with individual landowner agreements. The one permanent access road (“PAR”) associated with the proposed metering and regulating (“M&R”) station (REX Receipt Station) is required to provide access to the new aboveground facility, which will result in a permanent land use change from agricultural land to developed. Access roads are shown on the Construction Alignment Sheets provided in Resource Report 1, Appendix 1-B. Details regarding the access roads that will be utilized for the Project are provided in Table 8.1-4 and include the location, proposed use, approximate length and widths, improvement requirements, and acreages. No new temporary or permanent access roads are proposed as part of the construction activities planned on Line 880. Vehicle access to the modification sites will be from public roads or along TWS proposed along the existing permanent easements.

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**Table 8.1-4. Access Roads Required for the Project**

| Facility/County, State/MP | Access Road ID | County | Type | Dimensions (Feet) | | Proposed Improvements | Temporary Acreage Requirements (acres) | Permanent Acreage Requirements (acres) | Existing Land Use |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Length | Width | | | | |
| **24-Inch Pipeline** | | | | | | | | | |
| *Illinois* | | | | | | | | | |
| 0.2 | TAR-002 | Scott | Temporary | 173 | 25 | TBD | 0.10 | 0.00 | Agriculture |
| 1.0 | TAR-003 | Scott | Temporary | 1,103 | 25 | TBD | 0.63 | 0.00 | Agriculture |
| 5.2 | TAR-004 | Greene | Temporary | 20 | 25 | TBD | 0.01 | 0.00 | Agriculture |
| 5.6 | TAR-005 | Greene | Temporary | 87 | 25 | TBD | 0.05 | 0.00 | Agriculture |
| 6.2 | TAR-006 | Greene | Temporary | 181 | 25 | TBD | 0.11 | 0.00 | Agriculture |
| | | | | 143 | | | 0.08 | 0.00 | Developed |
| 6.8 | TAR-007 | Greene | Temporary | 31 | 25 | TBD | 0.02 | 0.00 | Agriculture |
| 8.6 | TAR-008 | Greene | Temporary | 75 | 25 | TBD | 0.04 | 0.00 | Agriculture |
| 14.4 | TAR-009 | Greene | Temporary | 902 | 25 | TBD | 0.52 | 0.00 | Agriculture |
| 15.1 | TAR-010 | Greene | Temporary | 521 | 25 | TBD | 0.30 | 0.00 | Agriculture |
| 22.9 | TAR-011 | Greene | Temporary | 1,899 | 25 | TBD | 1.09 | 0.00 | Agriculture |
| 24.6 | TAR-012 | Greene | Temporary | 2,127 | 25 | TBD | 1.22 | 0.00 | Agriculture |
| 25.6 | TAR-013 | Greene | Temporary | 1,387 | 25 | TBD | 0.80 | 0.00 | Agriculture |
| 25.8 | TAR-014 | Greene | Temporary | 723 | 25 | TBD | 0.41 | 0.00 | Agriculture |
| 36.2 | TAR-015 | Jersey | Temporary | 1,699 | 25 | TBD | 0.97 | 0.00 | Agriculture |
| 40.3 | TAR-016 | Jersey | Temporary | 1,646 | 25 | TBD | 0.94 | 0.00 | Agriculture |
| 44.2 | TAR-017 | Jersey | Temporary | 809 | 25 | TBD | 0.39 | 0.00 | Agriculture |
| | | | | 636 | | | 0.53 | 0.00 | Forest |
| | | | | 3,679 | | | 2.02 | 0.00 | Open Land |

**Table 8.1-4. Access Roads Required for the Project (Continued)**

| Facility/County, State/MP | Access Road ID | County | Type | Dimensions (Feet) | | Proposed Improvements[1] | Temporary Acreage Requirements (acres) | Permanent Acreage Requirements (acres) | Existing Land Use |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Length | Width | | | | |
| **24-Inch Pipeline** | | | | | | | | | |
| *Missouri* | | | | | | | | | |
| 45.6 | TAR-018 | St. Charles | Temporary | 3,956 | 25 | TBD | 2.27 | 0.00 | Agricultural |
| 51.6 | TAR-019 | St. Charles | Temporary | 527 | 25 | TBD | 0.30 | 0.00 | Agriculture |
| | | | | 62 | | | 0.04 | 0.00 | Developed |
| | | | | 114 | | | 0.07 | 0.00 | Open Land |
| 56.9 | TAR-020 | St. Charles | Temporary | 1,608 | 25 | TBD | 0.92 | 0.00 | Agricultural |
| 57.7 | TAR-021 | St. Louis | Temporary | 4,598 | 25 | TBD | 2.73 | 0.00 | Developed |
| | | | | | | **Pipeline Subtotal[2]** | 16.57 | 0.00 | - |
| **Rex Receipt Station** | | | | | | | | | |
| *Illinois* | | | | | | | | | |
| N/A | PAR-001 | Scott | Permanent | 259 | 25 | TBD | 0.00 | 0.15 | Agriculture |
| | | | | | | **Project Totals[2]** | 16.57 | 0.15 | - |

Notes:

1 TBD – to be determined. Spire is evaluating the modifications that may be required to utilize the access roads and will provide in further information in the FERC application.

2 May not equal the sum of the column due to rounding.

#### 8.1.1.5 Contractor Yards

Spire will utilize temporary contractor yards in the vicinity of the Project for equipment and material storage, as well as temporary field offices. The locations, name, and current use of each contractor yard is listed in Table 8.1-5 and shown on the Construction Alignment Sheets provided in Appendix 1-B. Spire anticipates modifying the existing land use (agriculture) at each of the proposed yards temporarily during construction. Upon completion of the Project, these areas will be restored and allowed to revert to prior uses. Following the completion of construction in an area, the contractor yards will be returned to pre-construction conditions. Site selection and acquisition will continue throughout the planning and permitting stages of the Project. Spire is currently in discussion with landowners to gain survey access and approval to utilize these areas during construction. Additional information regarding the use of these proposed contractor yards will be provided in the FERC application.

**Table 8.1-5 Contractor Yards**

| Facility ID | County, State | Nearest MP | Total Land Affected During Construction (acres) | Existing Land Use |
|---|---|---|---|---|
| CY-01 | Madison County, Illinois | 55.6 | 38.14 | Agriculture |
| CY-02 | St. Charles County, Missouri | 56.7 | 2.92 | Agriculture |
| CY-03 | St. Charles County, Missouri | 56.8 | 3.61 | Agriculture |
| | | **Total** | 44.67 | - |

### 8.1.2 Aboveground Facilities

One new M&R station will be constructed along the 24-inch pipeline, and two new M&R stations will be constructed along Line 880. Additionally, modifications at an existing facility will occur along Line 880. These stations will require approximately 10.7 acres for construction and 7.8 acres for operation. Current land use at these stations includes agricultural, open land, forest, and developed. The current land use within the operational footprint of the new M&R stations will be permanently converted to developed use following construction.

A total of three MLVs will be constructed along the 24-inch pipeline, and two MLVs will be installed along the existing Line 880. The MLVs will be constructed within the new permanent easement, with the exception of one MLV on Line 880 which is located within Redman Delivery Station. Temporary construction workspace associated with the installation of the MLVs is captured within the pipeline construction right-of-way calculations. Land uses associated with the MLVs include agricultural land or developed land. The acreages associated with each MLV site will be permanently converted from their existing land use to developed during operation of the pipeline.

Aboveground facilities are included on the Construction Alignment Sheets provided in Resource Report 1, Appendix 1-B. Table 8.1-2 provides the estimated acreage affected by aboveground facilities broken down by land use type.

### 8.1.3 Facility Abandonment/Replacement

At present, Spire has no firm or immediate plans to expand upon the current Project. A portion of Line 880 will be relocated and replaced at the crossing of Coldwater Creek. The existing aboveground pipe will be removed, and the pipe below ground approaching Coldwater Creek will be cut, capped, and abandoned in place. Spire has no current or future plans to abandon other facilities as a result of this Project.

## 8.2 Residential Areas

The proposed Project crosses through existing or planned residential areas, as further described below.

### 8.2.1 Planned Residential and Commercial Areas

Information on in-progress or planned residential or commercial/business developments and subdivisions within a one-mile buffer of the 24-inch pipeline and Line 880 was requested from the counties crossed by the Project.

To date, Spire has not been advised of planned residential or commercial development within one mile of the Project. Correspondence from the Scott County Assessor's Office and Jersey County Planning and Zoning department indicated that no residential or commercial developments are planned within one mile of the Project areas (Koch, 2016 and McGraw, 2016). Consultation with the Greene County Clerk indicated that there is no planning or zoning department for Greene County (Banghart, 2016), therefore, Spire contacted the political townships crossed by the Project. Roodhouse, Carrollton, and White Hall townships indicated that no residential or commercial developments are planned within one mile of the Project areas (Plahn, 2016; Snyder, 2016; and McMillan, 2016). Spire could not locate a contact for Kane Township. Additionally, correspondence from St. Louis County, Missouri Department of Planning and St. Charles County, Missouri Planning and Zoning Division has been received stating that they are not aware of any planned commercial, residential, or other development within the Project vicinity (Choate, 2016 and Myers, 2016). The City of West Alton Planning and Zoning Commission was contacted and indicated that no residential or commercial developments are planned within one mile of the Project area (Farley, 2016). Copies of current correspondence received are included in Resource Report 1, Appendix 1-C. Updated correspondence will be provided in the FERC application.

### 8.2.2 Existing Residences and Buildings

Table 8.2-1 provides a list of residences and/or structures within 50 feet (distances approximate) of the edge of the construction work area (i.e., construction right-of-way, ATWS, access road). The distance in feet between the residence and the construction work area, as well as the distance between the residence and the pipeline centerline is also provided in Table 8.2-1. This information is currently based on aerial imagery interpretation from aerial flights conducted in August and September 2016.

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**Table 8.2-1. Residences and Structures Within 50 Feet of Construction Work Area and Proposed Mitigation**

| Facility/ State/ MP | County | Building Type | Distance from Work Area (feet) | Distance from Pipeline Centerline (feet)[1] | Proposed Mitigation[2] |
|---|---|---|---|---|---|
| **24-inch Pipeline** | | | | | |
| *Illinois* | | | | | |
| 6.1 | Greene | Residence[3] | 4 | 286 | See Section 8.2.2 and Appendix 8-C |
| 24.4 | Greene | Residence | 34 | 1,603 | See Section 8.2.2 |
| 29.3 | Jersey | Residence | 35 | 100 | See Section 8.2.2 |
| 43.4 | Jersey | Commercial | 3 | 106 | See Section 8.2.2 and Appendix 8-C |
| *Missouri* | | | | | |
| 45.8 | St. Charles | Residence | 39 | 1,391 | See Section 8.2.2 |
| 46.1 | St. Charles | Residence | 49 | 713 | See Section 8.2.2 |
| 57.6 | St. Louis | Commercial | 6 | 64 | See Section 8.2.2 and Appendix 8-C |
| **Line 880** | | | | | |
| *Missouri* | | | | | |
| 0.2 | St. Louis | Residence | 26 | 21 | See Section 8.2.2 |
| 0.9 | St. Louis | Residence | 11 | 50 | See Section 8.2.2 and Appendix 8-C |
| 1.1 | St. Louis | Residence | 10 | 43 | See Section 8.2.2 and Appendix 8-C |
| 1.3 | St. Louis | Residence | 45 | 121 | See Section 8.2.2 |
| 1.4 | St. Louis | Residence | 11 | 55 | See Section 8.2.2 and Appendix 8-C |
| 1.5 | St. Louis | Residence | 11 | 55 | See Section 8.2.2 and Appendix 8-C |
| 1.5 | St. Louis | Residence | 11 | 68 | See Section 8.2.2 and Appendix 8-C |
| 1.8 | St. Louis | Residence | 9 | 38 | See Section 8.2.2 and Appendix 8-C |

**Table 8.2-1. Residences and Structures Within 50 Feet of Construction Work Area and Proposed Mitigation (Continued)**

| Facility/ State/ MP | County | Building Type | Distance from Work Area (feet) | Distance from Pipeline Centerline (feet)[1] | Proposed Mitigation[2] |
|---|---|---|---|---|---|
| 2.5 | St. Louis | School | 22 | 96 | See Section 8.2.2 and Appendix 8-C |
| 2.6 | St. Louis | Residence | 5 | 31 | See Section 8.2.2 and Appendix 8-C |
| 2.7 | St. Louis | Commercial | 11 | 44 | See Section 8.2.2 and Appendix 8-C |
| 2.7 | St. Louis | Commercial | 17 | 82 | See Section 8.2.2 and Appendix 8-C |
| 2.7 | St. Louis | Residence | 44 | 47 | See Section 8.2.2 |
| 2.7 | St. Louis | Residence | 4 | 50 | See Section 8.2.2 and Appendix 8-C |
| 5.4 | St. Louis | Residence | 32 | 22 | See Section 8.2.2 |
| 5.4 | St. Louis | Residence | 26 | 80 | See Section 8.2.2 |
| 5.5 | St. Louis | Residence | 28 | 19 | See Section 8.2.2 |
| 5.5 | St. Louis | Residence | 43 | 56 | See Section 8.2.2 |
| 5.5 | St. Louis | Residence | 7 | 29 | See Section 8.2.2 and Appendix 8-C |
| 7.0 | St. Louis | Commercial | 37 | 78 | See Section 8.2.2 |
| 7.1 | St. Louis | Commercial | 41 | 93 | See Section 8.2.2 |

Notes:

1 Distances are approximate and derived from aerial photography.

2 See Residential Construction Drawings for Mitigation information.

3 This residence is located along an access road.

Construction along the 24-inch pipeline is primarily located in agricultural areas and will affect residences temporarily during construction activities. Construction along Line 880 would result in short-term impacts on the adjacent residential areas, including the removal of existing vegetation and landscaping from the workspaces and access areas. Additionally, the residences along Line 880 may experience construction related traffic on local roads, as well as dust and noise generated during construction. Spire will minimize these impacts through implementation of the following mitigation measures:

- construction activities will generally occur during daytime hours wherever feasible;
- landowners would be notified of construction activities by Spire and would be given a general timeframe when work would begin;
- access and traffic flow maintenance during construction activities would be site-specific and would conform to local needs and/or agency specific roadway permits;
- the hazard of open trenches would be minimized in residential areas when construction activities are not in progress by erecting safety fence around the open ditch;
- topsoil will be segregated where appropriate or at the request of the landowner;
- fugitive dust would be controlled to the extent possible by applying water if sustained visible dust plumes occur. Additional information regarding fugitive dust measures is discussed within the Fugitive Dust Control Plan located in Resource Report 9, Appendix 9-C.

Additionally, for residences within 50 feet of the construction work area, the following mitigation measures would be adopted:

- mature trees and landscaping would not be removed from within the edge of the construction work area unless necessary for safe operation of the construction equipment or as specified in landowner agreements;
- lawn areas and landscaping would be restored in a sequential manner in accordance with FERC's Plan;
- the edge of the construction work area adjacent to the residence will have safety fence installed for a distance of 100 feet on either side of the residence to ensure that construction equipment and materials, including the spoil pile, remain within the construction work area;
- at the end of each workday, end caps will be placed on the open sections of pipeline;
- fencing should be maintained, at minimum, throughout the active construction phases; and where feasible, a minimum of 25 feet will be maintained between the construction work area for a distance of 100 feet on either side of the residence.

Site-specific plans for residences that are within 25 feet of the construction work area are included in Appendix 8-C.

# 8.3 Public Land, Recreation, and Other Designated Areas

## 8.3.1 Public or Conservation Land

Public land, recreation, and other designated areas throughout the Project area were evaluated by utilizing publicly available information; consultations with federal, state, and local agencies and landowners; and field reconnaissance surveys. Based on a review of these data sets, no National Parks, National Wild and Scenic Rivers, or National Wildlife Refuges are crossed by the Project (NPS, 2014, USFWS, 2014a, USFWS, 2016). Additionally, the Project does not cross and is not located within 0.25 mile of Indian reservations, National Wilderness Areas, state parks, or registered landmarks. The Project is within 0.25 miles of churches, schools and historic cemeteries. Based on desktop review of these areas, some did not appear visible from aerial mapping. Therefore, Spire will review these areas and provide an update in the FERC application. Public lands crossed and/or within 0.25 mile of the Project are provided in Table 8.3-2. Public lands crossed by the Project are discussed below.

#### 8.3.1.1 24-inch Pipeline

**Illinois**

Land owned by Principia College is crossed by the 24-inch pipeline at MP 43.5. Approximately 15 acres is anticipated to be impacted during construction, and approximately 6.5 acres is anticipated to be impacted by operation of the Project. The portion of the Project that traverses the Principia property crosses the Principia Hill Prairie Natural Area, which is crossed by the 24-inch pipeline between MP 43.4 and MP 44.6. This area supports a high quality loess hill natural community, a natural heritage landmark, and a population of Groundplum milkvetch (*Astragalus crassicarpus* var. *trichocalyx*), an Illinois state endangered species. Consultations with the Illinois Department of Natural Resources ("IDNR") regarding the Principia Hill Prairie Natural Area are ongoing and further correspondence will be provided in the FERC application. Copies of correspondence are included in Resource Report 1, Appendix 1-C.

Additionally the Project crosses the Sam Vadalabene Great River Road Bike Trail along Great River Road along the north side of the Mississippi River. This trail will be crossed as part of Spire's HDD of the Mississippi River.

**Missouri**

The south side of the Mississippi River at the Project's crossing location is designated by the Missouri Department of Conservation ("MDOC") as the Upper Mississippi Conservation Area and is crossed by the 24-inch pipeline between MP 45.1 and MP 45.6. The area contains wildlife and habitat diversity and stretches from the Melvin Price Lock and Dam at Alton, Illinois, to LaGrange, Missouri. It is composed of 87 tracts of federal lands totaling over 11,000 acres and managed under a cooperative agreement between the United States Fish and Wildlife ("USFWS") and the United States Army Corps of Engineers ("USACE").

This property is held in USACE fee title by the USACE St. Louis District. Crossing of this property will require right-of-way easement (Standard Form 299-Transportation and Utility Systems and Facilities on Federal Lands) with the USACE. Spire is proposing to HDD this property as part of its HDD of the Mississippi River. HDD entry/exit pits will be located outside the boundaries of this property. Trenchless crossing of this property would avoid direct

impacts from construction of the Project as Spire does not intend to clear vegetation in between the HDD entry/exit pits. Consultations and coordination with the USACE and MDOC regarding the Upper Mississippi Conservation Area are ongoing. Spire anticipates submitting its easement application in January 2017 concurrently with its FERC application. Additionally, other permits including a Section 408 permit from the USACE will also be required for the crossing of the Mississippi River and this associated federal property. A list of all permits required for the Project is provided in Resource Report 1, Table 1.6-1. Copies of correspondence are included in Resource Report 1, Appendix 1-C.

The Project is currently proposed to cross the Consolidated North County Levee District levee on the north side of the Missouri River. It is anticipated that a Section 408 permit will be needed from the USACE which will involve the USACE reviewing and approving the proposed HDD design on this levee. In addition, the Consolidated North County Levee Board will review Spire's design plans to ensure the integrity of the levee will not be compromised by the proposed crossing. Spire initiated consultation with the USACE and Consolidated North County Levee Board in June 2016. Spire anticipates submitting its federal application for this crossing in January 2017, concurrently with its FERC application.

#### 8.3.1.2 Line 880

Line 880 is located along Spanish Lake Park, which is owned and maintained by the St. Louis County Department of Parks and Recreation. This area contains both Spanish Lake (34 acres) and Sunfish Lake (31 acres). The area contains boat ramps, boat docks, picnic areas, pavilions and fishing docks. The lake maintains populations of bass, catfish, crappie, and sunfish (MDOC, 2016). An existing road to be utilized for access for the Project is located on the perimeter of the park. Temporary right-of-way associated with Line 880 crosses Spanish Lake Park at MP 4.3. The Project is anticipated to cross the park for approximately 0.80 mile, and acreage affected by construction is anticipated to be 0.17 acre. Spire will implement the following safety measures to minimize adverse impacts to the park: install safety fence, cover open excavations at the end of the work day, and initiate restoration as soon as feasible following construction.

Line 880 and associated TWS in St. Louis County are located adjacent to two schools – Arrowpoint Elementary School and Hazelwood Southeast Middle School. Spire will coordinate with the school district officials regarding the construction schedule to determine appropriate mitigation and safety measures, which may include but are not limited to, construction outside of the school year, installation of safety fence, and covering open excavations or capping exposed pipe after each work day.

#### 8.3.1.3 Conservation Land

Illinois and Missouri have several conservation programs that may exist when crossing agricultural property including the Conservation Reserve Program ("CRP") with the United States Department of Agriculture ("USDA") Farm Service Agency ("FSA"), Environmental Quality Incentive Program or Conservation Stewardship Program contract with the USDA Natural Resources Conservation Service ("NRCS"), or Wetland Reserve Program Easement/Wetland Reserve Easement with the Natural Resources Conservation Service. Additionally, IDNR manages the Conservation Reserve Enhancement Program ("CREP") lands.

These programs and easements may have specific vegetation requirements that the landowner has agreed to implement and maintain.

Spire consulted with the USDA-NRCS and USDA-FSA in Illinois and Missouri in September 2016; the agencies recommended that Spire initiate consultation with landowners regarding their participation in any conservation easements (Diebal, 2016 and Cook, 2016a). Spire's team is working with the landowners to determine if any properties crossed by the Project contain these easements. The USDA-FSA has identified 17 CRP contracts will be crossed by the 24-inch pipeline in Illinois (Diebal, 2016b). Spire is continuing to consult with the agencies to identify the affected tracts and will provide an update with the FERC application. Table 8.3-1 will include conservation program lands crossed by the Project in the FERC application.

Spire consulted with the IDNR in September 2016 regarding the potential for the Project to cross any CREP lands. The IDNR determined that no CREP lands will be crossed by the Project (Garver, 2016). Coordination regarding CREP lands is provided in Resource Report 1, Appendix 1-C.

**Table 8.3-1. Potential Lands Enrolled in Conservation Programs**

| Facility/ Program | County, State | Tract Number | Approximate MP | Acre Affected by Construction (acres) | Area Affected by Operation (acres) |
|---|---|---|---|---|---|
| **24-Inch Pipeline** | | | | | |
| CRP | TBD | TBD | TBD | TBD | TBD |
| **Line 880** | | | | | |
| TBD | TBD | TBD | TBD | TBD | TBD |

## 8.3.2 Natural, Recreational, or Scenic Areas

Table 8.3-2 lists public land and designated recreation areas, scenic areas, or other special use areas either located within 0.25 mile of the Project and/or are crossed by the construction right-of-way.

The Project does not cross any national forests, national parks, national historic trails or sites (USDA 2016; and United States Department of the Interior, 2014). The Project does not cross Wild or Scenic Rivers or federally designated wilderness areas (USFWS, 2014). Refer to Section 8.3.1, Public or Conservation Land, above for a discussion on trails in the vicinity of the Project area.

The Project is within 0.25 miles of churches, schools, and historic cemeteries. Based on desktop review of these areas, some did not appear visible from aerial mapping. Therefore, Spire will review these areas and provide an update in the FERC application. Locations of potential cemeteries will be reviewed as part of Spire's archeological resource surveys.

**Table 8.3-2 Public Land and Designated Recreation Areas, Scenic Areas, or Other Special Use Areas within 0.25 mile of the Project**

| Approximate Milepost/ County, State | Name | Crossing Length (Feet) | Area Affected by Construction (acres) [1] | Area Affected by Operation (acres)[2] | Approximate Distance from Pipeline (Feet) | Comment |
|---|---|---|---|---|---|---|
| **24-inch Pipeline** | | | | | | |
| *Scott County, Illinois* | | | | | | |
| 2 | Wilson Historic Cemetery | 0 | 0 | 0 | 726 | - |
| 2.2 | Pleasant Hill Church | 0 | 0 | 0 | 212 | - |
| 2.5 | Pleasant Hill School (historical) | 0 | 0 | 0 | 1,297 | Not visible in aerial |
| *Greene County, Illinois* | | | | | | |
| 5 | Liberty School (historical) | 0 | 0 | 0 | 956 | Not visible in aerial |
| 13.7 | Belltown Historic Cemetery | 0 | 0 | 0 | 221 | - |
| 17.9 | Bridges Historic Cemetery | 0 | 0 | 0 | 848 | Not visible in aerial |
| 18 | Bradley Historic Cemetery | 0 | 0 | 0 | 1,036 | Not visible in aerial |
| 25.6 | Parker Historic Cemetery | 0 | 0 | 0 | 1,387 | - |
| 27.6 | Cameron Historic Cemetery | 0 | 0 | 0 | 1,293 | Not visible in aerial |
| *Jersey County, Illinois* | | | | | | |
| 31 | Shakerag School (historical) | 0 | 0 | 0 | 208 | Not visible in aerial |
| 33.4 | Buena Vista School (historical) | 0 | 0 | 0 | 228 | Not visible in aerial |
| 33.5 | Brown Historic Cemetery | 0 | 0 | 0 | 1,086 | - |
| 34.9 | Falkner Historic Cemetery | 0 | 0 | 0 | 916 | - |
| 40.8 | Salem Historic Cemetery | 0 | 0 | 0 | 434 | - |
| 43.5 | Principia College | 5,617 | 15.05 | 6.45 | 0 | - |
| 44.6 | Sam Vadalabene Great River Road Bike Trail | 10 | 0.01 | 0.01 | 0 | Within Road ROW |
| *St. Charles County, Missouri* | | | | | | |
| 45.2 | Upper Mississippi Conservation Area | 2,557 | 2.94 | 2.94 | 0 | Permanent easement only |
| 47.4 | Wunsch School (historical) | 0 | 0 | 0 | 930 | Not visible in aerial |
| 51 | River View School (historical) | 0 | 0.002 | 0.002 | 213 | Not visible in aerial |
| 57.1 | Consolidated North Levee | 786 | 0.09 | 0.09 | 0 | Aerial Imagery 2016 |

**Table 8.3-2 Public Land and Designated Recreation Areas, Scenic Areas, or Other Special Use Areas within 0.25 mile of the Project (Continued)**

| Approximate Milepost/ County, State | Name | Crossing Length (Feet) | Area Affected by Construction (acres) [1] | Area Affected by Operation (acres)[2] | Approximate Distance from Pipeline (Feet) | Comment |
|---|---|---|---|---|---|---|
| **Line 880[3]** | | | | | | |
| *St. Louis County, Missouri* | | | | | | |
| 2.0 | The Valley (Senior Community) | 0 | 0 | 0 | 1,320 | - |
| 2.1 | Fort Bellefontaine County Park | 0 | 0 | 0 | 867 | - |
| 2.5 | Arrowpoint Elementary School (Hazlewood School Dist.) | 0 | 0 | 0 | 73 | - |
| 3.1 | New Jamestown Road Baptist Church | 0 | 0 | 0 | 62 | - |
| 4.4 | Spanish Lake Park | 4,249 | 0.17 | 0 | 0 | - |
| 6.2 | Hazlewood Southeast Middle School | 0 | 0.05 | 0 | 19 | - |
| 6.2 | Larimore Park | 0 | 0 | 0 | 365 | - |
| 6.9 | Applied Scholastics International | 787 | 0 | 0 | 167 | - |
| 6.9 | Green Valley Nursing and Rehab | 0 | 0 | 0 | 608 | - |
| 7.0 | Grace Baptist Church | 0 | 0 | 0 | 505 | - |
| **Access Roads** | | | | | | |
| *Jersey County, Illinois* | | | | | | |
| 43.5 | Principia College | 4,925 | 2.83 | 0 | 0 | - |

Notes:

Facilities not listed in this table were not within 0.25 miles of any public land or designated natural areas.

[1] Land affected during construction is inclusive of operational impacts (permanent).

[2] Impacts were calculated along the 50-foot wide permanent easement only.

[3] Public lands were identified within 0.25-mile of Line 880 (7.1-miles). Crossing lengths associated with these areas represent the crossing of the existing Line 880 pipeline. Areas affected by construction indicate those areas where workspaces for the modifications sites overlap the special use areas.

### 8.3.3 Agency and Landowner Consultation

Spire has initiated consultation with a variety of federal and state agencies to identify potential constraints in the Project area. Agency consultation was initiated in June 2016. Spire has also conducted various agency meetings with agencies with permitting authority on the Project, and other agencies with interest in the Project area. A record of these consultations is provided in Resource Report 1, Appendix 1-C. Further details on agency consultation is provided in Resource Report 1, Section 1.7.3. A Project-specific list of permits/consults and their status, including agency and landowner contacts can be found as Table 1.6-1.

Spire initiated landowner contact in July 2016. Landowners were informed about the Project and a request for survey permission on each landowner's property within 300 feet of the 24-inch line and 200 feet of Line 880 was requested. Environmental field surveys are currently ongoing. Additionally, open houses for the Project were held in August 2016 in all five of the counties crossed by the Project. Further details on landowner notification is provided in Resource Report 1, Section 1.7.

### 8.3.4 Impact and Mitigation

The Project crosses public and privately owned lands. The 24-inch pipeline crosses the property owned by the Principia College located in Jersey County, Illinois for approximately one mile at approximate MP 43.5. Approximately 15.0 acres of this special use area will be temporarily affected by construction. The 24-inch pipeline crosses the Upper Mississippi Conservation Area located in St. Charles County, Missouri for approximately 0.5 mile at approximate MP 45.4. Approximately three acres of this special use area will be affected by construction. In order to reduce impacts in this location, Spire has colocated its route along an existing pipeline right-of-way. In addition, Spire proposes to HDD the Mississippi River and the Upper Mississippi River Conservation Area. The area between each entry and exit location would not be cleared or maintained, thus reducing the amount of vegetation removal at this site.

The Line 880 modifications are primarily located within existing easement or maintained residential areas. Construction along Line 880 will not require the acquisition of any new permanent easement; therefore impacts will be temporary and consist of only the work performed during construction. The portion of the Line 880 which will impact Spanish Lake Park will be near an existing roadway and will cause short-term visual impacts during construction activities. This area will be restored back to pre-existing conditions to the extent practicable.

## 8.4 Contaminated or Hazardous Waste Sites

The Project is located in a designated metropolitan no-discharge stream, as found in 10CSR 20-7.031, Table F (MDNR, 2014). The Project crosses Coldwater Creek within the metropolitan no-discharge stream reach. Spire has coordinated with the USACE Formerly Utilized Sites Remedial Action Program ("FUSRAP") about crossing Coldwater Creek with open cut techniques. The USACE FUSRAP indicated that their current sampling efforts are revealing the sources of contaminants have been removed upstream and there is an unlikely possibility for contaminants to migrate. The USACE FUSRAP reviewed Spire's current crossing plan and proposed soil disturbance

areas and determined that there is no contamination or a pathway for future contamination at the crossing location (USACE, 2016a, USACE, 2016b).

The Environmental Protection Agency ("EPA") National Priority List Superfund Sites list was searched for sites near the Project area (USEPA, 2016c). The closest site is located approximately 7.6 miles away from the Project (USEPA, 2016b). The Chemetco Superfund Site located in Hartford, Illinois is a 41-acre site where site cleanup is ongoing. Contaminants of concern include elevated levels of cadmium, copper, lead, and zinc oxide. The site is currently fenced and access is restricted. The Project is located approximately 7.6 miles to the west of this site, therefore no issues of contamination are expected during construction (USEPA, 2016b).

The West Lake Landfill Superfund Site is an EPA Superfund Site located in Bridgeton, Missouri, consisting of several inactive landfills, including the West Lake Landfill and Bridgeton Landfill (USEPA, 2016a). The Project is located approximately 11.5 miles northeast of these landfills and therefore no issues of contamination are expected during construction (USEPA, 2016a).

## 8.5 Coastal Zone Management Areas

The Project is not located within a designated coastal zone management area, therefore, this section is not applicable (NOAA, 2012).

## 8.6 Visual Resources

Impacts on visual and/or aesthetic resources will primarily occur during construction as a result of vegetation clearing and the presence of construction equipment. Along the 24-inch pipeline, visual impacts will be reduced by the HDD of the Mississippi River Conservation area and the minimization of vegetation clearing between the HDD entry/exits.

The majority of impacts on visual resources will be temporary; however, the creation of new permanent pipeline easement through the Principia College property will result in some minor permanent impacts on visual resources. Further mitigation measures to reduce the long-term loss of vegetation on this property will be based on landowner negotiation.

The impacts on visual resources along Line 880 will be temporary along existing right-of-way; therefore no impacts on visual resources is anticipated.

## 8.7 Applications for Rights-of-Way and Other Land Use

Applications for the easement across the Upper Mississippi River Conservation Area, which is owned in fee title by the USACE, will be filed with the USACE in January 2017, concurrently with Spire's FERC application.

## 8.8 References


Banghart, D. 2016. Telephone call from Debbie Banghart to Andrea Halfhill, GAI on October 12, 2016.

Choate, G. 2016. Telephone call from St. Louis County Department of Planning to Andrea Halfhill, GAI on October 6, 2016.

Cook, R. 2016. Email from Natural Resources Conservation Service to Andrea Halfhill, GAI on October 11, 2016.

Diebal, J. 2016a. Email from Farm Service Agency to Andrea Halfhill, GAI on October 12, 2016.

Diebal, J. 2016b. Email from Farm Service Agency to Andrea Halfhill, GAI on October 17, 2016.

Farley, J. 2016. Telephone call from City of West Alton Planning and Zoning Commission to Andrea Halfhill, GAI on October 12, 2016.

Garver, L. 2016. Email from Illinois Department of Natural Resources to Lori Ferry, GAI on September 9, 2016.

Koch, L. 2016. Telephone call from Lorrie Koch, Scott County Assessor's Office to Andrea Halfhill, GAI on October 6, 2016.

McGraw, C. 2016. Email from Craig McGraw, Jersey County Code Administration to Andrea Halfhill, GAI on October 6, 2016.

McMillan, M. 2016. Telephone call from White Hall City Clerk to Andrea Halfhill, GAI on October 12, 2016.

Missouri Department of Conservation. *Upper Mississippi Conservation Area.* Accessed September 2016 from http://mdc7.mdc.mo.gov/applications/moatlas/AreaSummaryPage.aspx?txtAreaID=6131&txtAreaNm=&txtCounty=SAINT%20CHARLES&txtRegion=&txtUserID=&txtDivision=.

Missouri Department of Natural Resources. 2014. *Water Quality*. Accessed September 2016 from https://dnr.mo.gov/env/wpp/wqstandards/index.html.

Myers, R. 2016. Email from St. Charles Community Development Department to Andrea Halfhill, GAI on September 26, 2016.

National Oceanic and Atmospheric Administration - Office for Coastal Management. 2012. *State Coastal Zone Boundaries*. Accessed October 2016 from https://coast.noaa.gov/czm/media/StateCZBoundaries.pdf.

Plahn, P. 2016. Telephone call from Patty Plahn, Roodhouse City Clerk to Andrea Halfhill, GAI on October 12, 2016.

Snyder, M. 2016. Telephone call from Carrollton Township Director of Public Works to Andrea Halfhill, GAI on October 17, 2016.

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United States Army Corps of Engineers. 2016a. Emails from Jacob Prebianca, Formerly Utilized Sites Remedial Action Program to Jayme Fuller, GAI on September 28, 2016.

United States Army Corps of Engineers. 2016b. Email from Jonathan Rankins, Radiation Safety Officer to Lori Ferry, GAI on October 12, 2016.

United States Department of Agriculture. *United States Forest Service*. Accessed October 2016 from http://www.fs.fed.us/.

United States Department of the Interior. 2014. *National Park Service*. Accessed October 2016 from http://www.nps.gov/index.htm.

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United States Fish and Wildlife Service. *National Wildlife Refuge System – Middle Mississippi River*. Accessed October 2016 from https://www.fws.gov/refuge/Middle_Mississippi_River/map.html.

United States Environmental Protection Agency. *Cleanups in My Community (Interactive Map)*. Accessed October 2016 from https://ofmpub.epa.gov/apex/cimc/f?p=CIMC:73:::NO::P71_IDSEARCH:SF_SITE_ID%7C0701205.

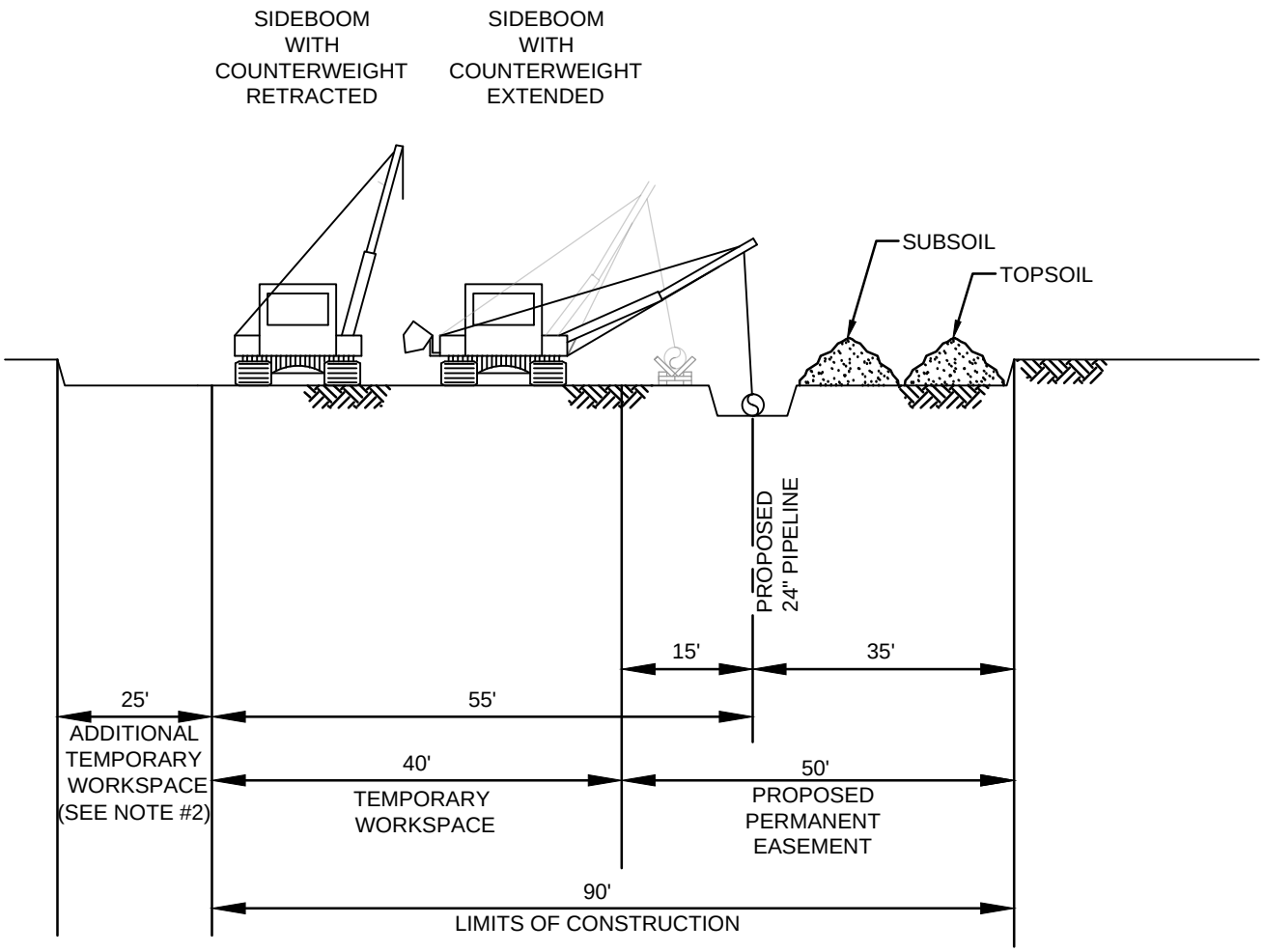
United States Environmental Protection Agency. 2016a. *EPA in Missouri – West Lake Landfill.* Accessed October 2016 from https://www.epa.gov/mo/west-lake-landfill.

United States Environmental Protection Agency. 2016b. *EPA Superfund Program: Chemetco, Hartford, IL.* Accessed October 2016 from https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0500342..

United States Environmental Protection Agency. 2016c. *Superfund*. Accessed October 2016 from https://www.epa.gov/superfund/search-superfund-sites-where-you-live.

# Appendix 8-A

## Typical Right-of-Way Cross-Section Drawings




PROFILE
(NOT TO SCALE)

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 90 FEET WIDE CONSISTING OF 50 FEET OF PROPOSED PERMANENT EASEMENT AND 40 FEET OF TEMPORARY WORKSPACE. ADDITIONAL TEMPORARY WORKSPACE (ATWS) WILL BE NECESSARY AT MAJOR ROADS, RAILROADS, RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
2. ADD 25 FEET OF ATWS ON WORKING SIDE (TYPICALLY) FOR TOPSOIL STORAGE IN AGRICULTURAL FIELDS, RESIDENTIAL YARDS, AND AS PER LANDOWNER AGREEMENTS.
3. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO STREAMS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING TOPSOIL AND SPOIL PILES.
4. MINIMUM DEPTH OF COVER FOR PIPE IS 3 FEET.

DRAFT FERC FILING
10/2016

| NO | DATE | BY | DESCRIPTION | PROJ. ID | APPR. |
|---|---|---|---|---|---|
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REVISIONS

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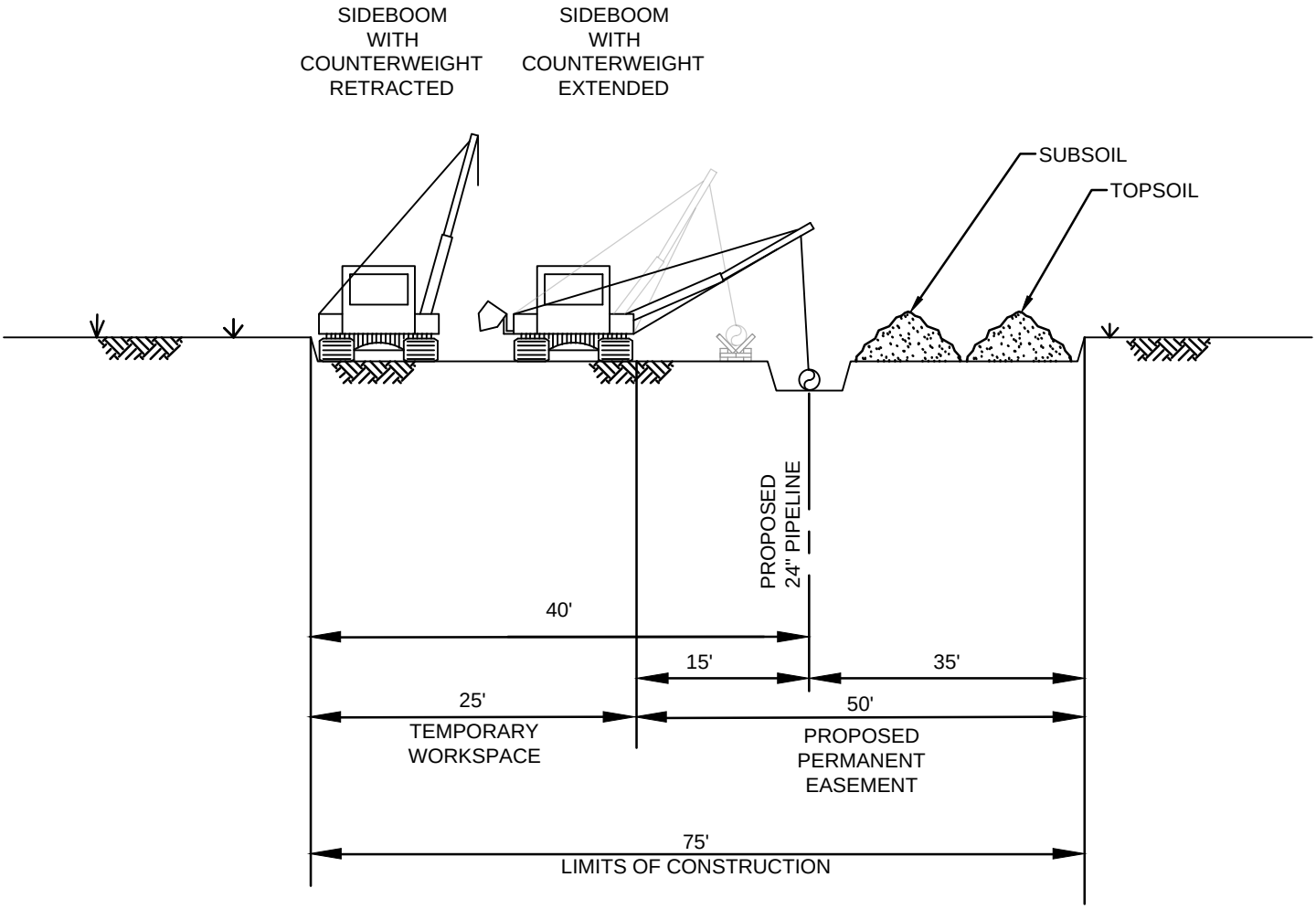
| DRAWN BY: | MM | 09/2016 |
| DRAWING APPROVAL | | |
| PROJECT APPROVAL | | |
| SURVEY DATE: | | |
| SCALE: N.T.S. | | |
| PROJECT ID: | | |
| FILE NAME: | | |

# TYPICAL 90' CONSTRUCTION RIGHT-OF-WAY (UPLAND) FOR PROPOSED 24-INCH DIAMETER PIPELINE

DWG. NO. ROW-CONFIG_01




PROFILE
(NOT TO SCALE)

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY THROUGH STREAMS AND WETLANDS WILL TYPICALLY BE REDUCED TO 75 FEET WIDE CONSISTING OF 50 FEET OF PROPOSED PERMANENT EASEMENT AND 25 FEET OF TEMPORARY WORKSPACE.
2. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO STREAMS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING TOPSOIL AND SPOIL PILES.
3. MINIMUM DEPTH OF COVER IN AGRICULTURAL FIELD IS 5 FEET.
4. MINIMUM DEPTH OF COVER AT STREAM CROSSINGS IS 5 FEET, EXCEPT IN CONSOLIDATED ROCK, WHERE THE DEPTH OF COVER WILL BE 2 FEET MINIMUM.
5. TOPSOIL STORAGE WILL NOT TAKE PLACE IN THE WETLAND.

DRAFT FERC FILING
10/2016

| NO | DATE | BY | DESCRIPTION | PROJ. ID | APPR. |
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REVISIONS

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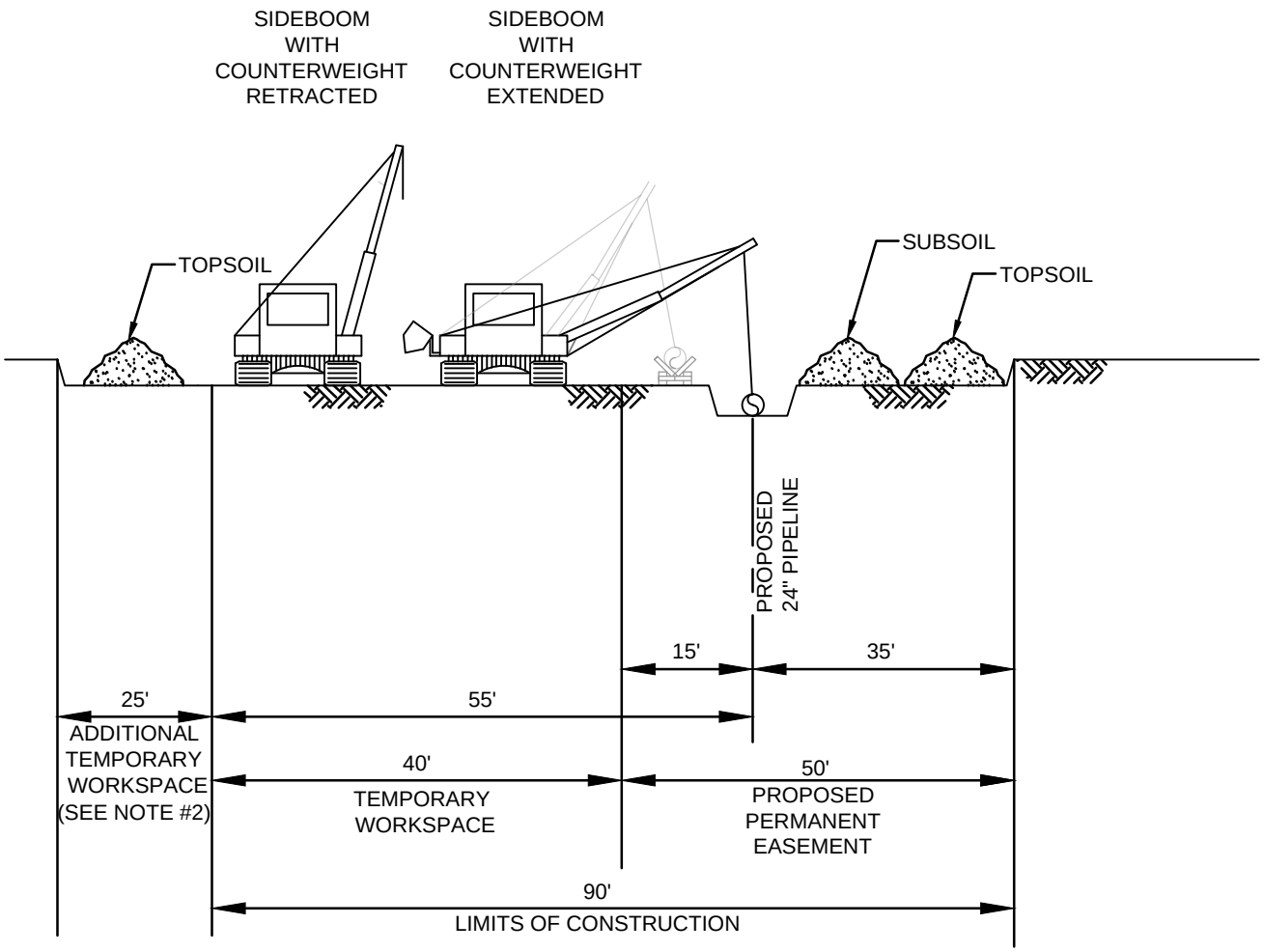
| DRAWN BY: | MM | 09/2016 |
| DRAWING APPROVAL | | |
| PROJECT APPROVAL | | |
| SURVEY DATE: | | |
| SCALE: N.T.S. | | |
| PROJECT ID: | | |
| FILE NAME: | | |

# TYPICAL 75' CONSTRUCTION RIGHT-OF-WAY (STREAMS AND WETLANDS) FOR PROPOSED 24-INCH DIAMETER PIPELINE

DWG. NO. ROW-CONFIG_02




PROFILE
(NOT TO SCALE)

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 90 FEET WIDE CONSISTING OF 50 FEET OF PROPOSED PERMANENT EASEMENT AND 40 FEET OF TEMPORARY WORKSPACE. ADDITIONAL TEMPORARY WORKSPACE (ATWS) WILL BE NECESSARY AT MAJOR ROADS, RAILROADS, RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
2. ADD 25 FEET OF ATWS ON WORKING SIDE (TYPICALLY) FOR TOPSOIL STORAGE IN AGRICULTURAL FIELDS, RESIDENTIAL YARDS, AND AS PER LANDOWNER AGREEMENTS.
3. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH AGRICULTURAL SOILS INTO STREAMS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING TOPSOIL AND SPOIL PILES.
4. MINIMUM DEPTH OF COVER IN AGRICULTURAL FIELD IS 5 FEET.

DRAFT FERC FILING
10/2016

| NO | DATE | BY | DESCRIPTION | PROJ. ID | APPR. |
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REVISIONS

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| PROJECT APPROVAL | | |
| SURVEY DATE: | | |
| SCALE: N.T.S. | | |
| PROJECT ID: | | |
| FILE NAME: | | |

# TYPICAL 90' CONSTRUCTION RIGHT-OF-WAY (AGRICULTURE FIELD) FOR PROPOSED 24-INCH DIAMETER PIPELINE

DWG. NO. ROW-CONFIG_03

# Appendix 8-B

## Federal Property Crossing Plan

# Spire STL Pipeline Project

Federal Property Crossing Plan

FERC Docket No.PF16-9-000

Draft
October 2016

Public

# Table of Contents



Tables

# Acronyms and Abbreviations

| | |
|---|---|
| ATWS | Additional Temporary Workspace |
| Enable MRT | Enable Mississippi River Transmission, LLC |
| FERC | Federal Energy Regulatory Commission |
| HDD | horizontal directional drill |
| LGC | Laclede Gas Company |
| MP | milepost |
| NEPA | National Environmental Policy Act |
| NWI | National Wetlands Inventory |
| Project | Spire STL Pipeline Project |
| REX | Rockies Express Pipeline LLC |
| Spire | Spire STL Pipeline LLC |
| USACE | United States Army Corps of Engineers |
| USFWS | United States Fish and Wildlife Service |

# Federal Property Crossing Plan

## 1.1 Introduction

Spire STL Pipeline LLC ("Spire"), a wholly owned subsidiary of Spire Inc., is proposing to construct and operate the Spire STL Pipeline Project ("Project") located in Scott, Greene, and Jersey Counties, Illinois; and St. Charles and St. Louis Counties, Missouri. The proposed Project would cross land in St. Charles County, Missouri that is owned in fee by the United States Army Corps of Engineers ("USACE") St. Louis District (Upper Mississippi River Conservation Area). This Federal Crossing Plan discusses the crossing of this property and the avoidance and minimization measures that will be implemented during construction at this property. Spire continues to coordinate with the USACE and will revise this Plan as necessary throughout the Project's planning process.

### 1.1.1 Project Location

The Project as proposed will consist of approximately 58 miles of new, greenfield, 24-inch-diameter steel pipeline (referred to as the "24-inch pipeline" portion of the Project) originating at an interconnection with the Rockies Express Pipeline LLC ("REX") pipeline in Scott County, Illinois; extending down through Greene and Jersey Counties in Illinois before crossing the Mississippi River and extending east in St. Charles County, Missouri. The 24-inch pipeline then crosses the Missouri River and ties into an existing pipeline in St. Louis County, Missouri that is currently owned and operated by Laclede Gas Company ("LGC") (referred to as "Line 880"). As part of the proposed Project and subject to LGC's receipt of approval from the Missouri Public Service Commission ("MPSC"), Spire is proposing to purchase Line 880, including its appurtenant and ancillary facilities, from LGC and modify the pipeline before placing it into interstate service. Line 880 consists of approximately seven miles of existing 20-inch-diameter steel natural gas pipeline located in St. Louis County, Missouri that will connect the 24-inch pipeline part of the Project to the Enable Mississippi River Transmission, LLC ("Enable MRT") pipeline along the western bank of the Mississippi River in St. Louis County, Missouri. The total length of the Project pipelines will be approximately 65.0 miles. The overall design capacity of the Project pipeline is expected to be 400,000 dekatherms per day. No compression will be required. The Project will also include the construction of three metering and regulating station interconnects with REX in Illinois, LGC and Enable MRT in Missouri, and the modification of an existing facility along Line 880.

The crossing of the property owned by the USACE is located adjacent to the Mississippi River in St. Charles County, Missouri, and is described in greater detail below.

### 1.1.2 Federal Lands Crossing

Federal lands are proposed to be crossed by the 24-inch pipeline at the western bank of the Mississippi River from approximate Milepost ("MP") 45.1 to MP 45.6. Spire's proposed route is collocated with an existing pipeline through this location. As currently proposed, the USACE property (near Mississippi River mile marker 215) would be crossed by the Project via horizontal directional drill ("HDD") as part of the 24-inch pipeline's crossing of the

Mississippi River. Spire initiated its geotechnical assessment of this river crossing in October 2016 to determine the final placement of the pipeline and associated HDD entry/exits pits; therefore the exact length of the crossing across this property is still to be determined. Spire does not anticipate land disturbance at the USACE federal land as described in Sections 1.2 through 1.4. Current Project mapping is not indicative of the final placement of construction workspace. Workspace required for the crossing will be located outside of the USACE property boundary.

## 1.2 Construction Methods and Impacts

Spire will cross the Mississippi River, including the USACE federal land, using HDD techniques. This trenchless method avoids land surface and water disturbances, including those to wetlands, waterbodies, vegetation, or any special land uses. Section 1.2.1 describes the crossing method, and Sections 1.2.2 through 1.2.4 discuss the land requirements for a permanent pipeline right-of-way easement on the USACE property and the resources avoided by use of the trenchless crossing of the property.

### 1.2.1 Crossing Method

HDD is an advanced, controllable trenchless boring method of installing underground pipes along a predetermined bore path. This method allows for trenchless construction across an area by pre-drilling a hole well below the depth of a conventional pipeline lay and then pulling the pipeline through the pre-drilled borehole. The process consists of drilling a pilot hole with a cutting head along the predetermined path and then enlarging the pilot hole with a larger cutting tool (back reamer) to the diameter required to install the casing, pipe or conduit. The process is done with of viscous fluid (e.g. drilling fluid). The fluid generally consists of a mixture of water and usually bentonite or polymer. The fluid is pumped through holes in the cutting heads to facilitate the removal of cuttings, stabilize the bore hole and cool the cutting heads, and lubricate the passage of the pipe. The fluid is recycled throughout the drilling process. This method of installation will require additional temporary workspace ("ATWS"). The amount of ATWS is directly related to the required drilling fluid pits and the pipe stringing corridor (pull-back). The pipe stringing corridor is required to pre-connect the pipe so that it can be pulled through the bore hole in one piece.

Construction workspaces required to conduct the trenchless crossing include the following:

- the HDD entry/exit pit at approximate MP 44.5 at the north side of the Mississippi River (270 feet north of the river);
- the HDD entry/exit pit at approximate MP 45.1 at the south side of the Mississippi River and south of the USACE property (620 feet south of the river); and
- the HDD pull-back (typically the length of the drill for stringing pipe) located south of the USACE property).

These construction workspaces will be located outside of the USACE property boundary. Only subsurface drilling will occur across the property, avoiding impacts to the Mississippi River and the associated federal land.

As discussed in Resource Report 2, the trenchless crossing will extend to a minimum depth of 25 feet below the river bed. No aboveground disturbance is planned between the HDD entry and exit locations during construction, other than minimal vegetation clearing with hand tools (e.g., selective branch trimming within a single walking path) necessary for line of slight along the guidance system. No trees will be removed. The footpath will be used to set guidance system wires for the process and monitor for inadvertent releases of drilling mud. The proposed Site-Specific crossing drawings of the Mississippi River and associated federal property are provided in Resource Report 2.

### 1.2.2 Land Requirements

A 50-foot-wide permanent easement is proposed by Spire for the entirety of the proposed 24-inch pipeline. The permanent easement allows access to Spire personnel for any future operational needs. Table 1.2-1 displays the acreage of this easement across the USACE property. As stated above, Spire does not propose to maintain the portion of its permanent easement across the USACE land.

**Table 1.2-1. Land Requirements on Federal Land**

| Facility | Construction Footprint (acres) | Operational Easement (acres) 1, 2 |
|---|---|---|
| 24-inch Pipeline | TBD | TBD |

Notes:

1 TBD - to be determined.

2 50-foot wide permanent easement only.

### 1.2.3 Resources Crossed

The USACE property contains sensitive resources including wetlands and waterbodies. As previously mentioned, disturbances to these resources will be avoided by implementing the HDD crossing method. The United States Fish and Wildlife Service's ("USFWS") National Wetlands Inventory ("NWI") identifies wetlands and waterbodies at the USACE property, as described below in Table 1.2-2. Spire initiated environmental surveys in September 2016. Upon the completion of field surveys and the final design of the proposed route through this area, Spire will provide the USACE with final data.

**Table 1.2-2. Resources on Federal Land**

| Resource and ID | Type | Source [2] | Operational Easement (acres) [3] |
|---|---|---|---|
| **Wetlands** | | | |
| NWI-105[1] | PFO1Ah | NWI | TBD |
| WMO-WJW-001 | PFO | FD | TBD |
| | | **Subtotal** | **TBD** |
| **Waterbodies** | | | |
| NWI-505[1] | L1UBHh (Luesse Lake) | NWI | TBD |
| | | **Subtotal** | **TBD** |
| | | **Total** | **TBD** |

Notes:

1 These features are based on publically available NWI data. These features are located within areas of open water and cannot be accessed or field delineated on foot.

2 NWI – National Wetland Inventory. FD – Field Delineation.

3 Acreages are calculated based on the 50-foot wide permanent easement only.

Spire does not anticipate clearing land between the HDD entry and exit pits for the proposed crossing of the Mississippi River and USACE property, and no impacts to wetlands or waterbodies are anticipated.

### 1.2.4 Land Use Crossed

Land use within the Project area was determined based on field reconnaissance during environmental resources investigations as well as review of existing aerial mapping. Land use classifications were reviewed for the USACE property; those results are displayed in Table 1.2-3. As previously mentioned, impacts will be avoided by implementing a trenchless crossing method, therefore, permanent conversions of land use are not anticipated.

**Table 1.2-3. Land Use at Crossing of Federal Land**

| Land Use Type | Construction Footprint (acres) | Operational Easement (acres) [1] |
|---|---|---|
| Forest | TBD | TBD |
| Agricultural | TBD | TBD |
| Open Water | TBD | TBD |
| **Totals** | **TBD** | **TBD** |

Notes:

[1] Acreages are calculated based on the 50-foot wide permanent easement only. No proposed tree clearing or earth disturbance.

# 1.3 Permitting and Mitigation

## 1.3.1 Permitting

As part of the easement agreement with the USACE, Spire intends to submit Standard Form 299, Application for Transportation and Utility Systems and Facilities on Federal Lands. Additionally, the USACE requires that projects that propose to make alternations to, or temporarily or permanent occupy or use, any USACE federally authorized civil works project, apply for a Section 408 permit. Spire will submit a permit for a Section 408 in January 2017.Both the USACE easement and Section 408 request are federal actions, and therefore subject to the National Environmental Policy Act ("NEPA"). The Federal Energy Regulatory Commission ("FERC") will act as the lead federal agency under NEPA for the environmental review and the development of the environmental document for the Spire STL Pipeline Project.

## 1.3.2 Easement

Spire requests a 50-foot wide permanent right-of-way easement. No direct impacts are anticipated during or after construction within the operational easement.

## 1.3.3 Mitigation

Appropriate mitigation measures will be coordinated with the USACE and provided within the FERC's environmental document which is anticipated to be issued in 2017. This document will satisfy the requirements of NEPA.

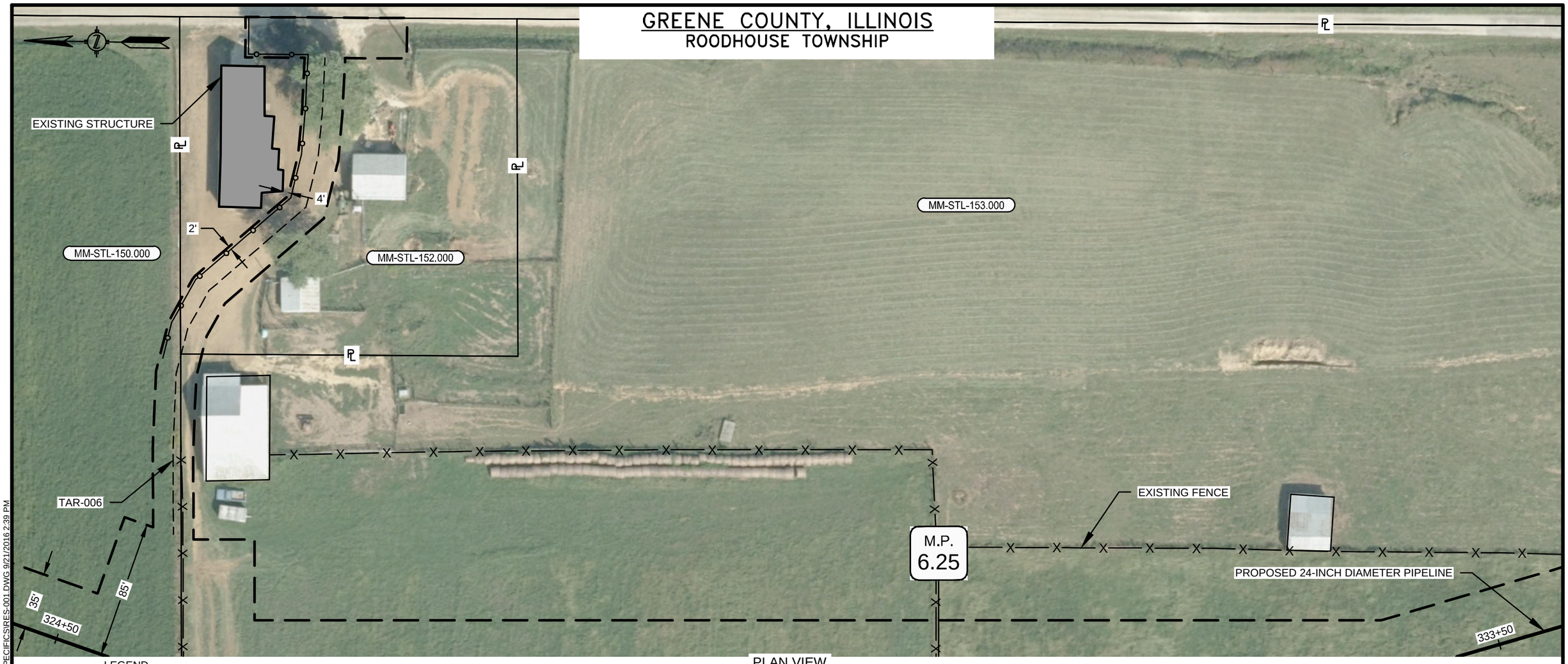
# 1.4 References

United States Fish and Wildlife Service. 2015. *National Wetlands Inventory*.

# Appendix 8-C

## Site-Specific Residential Construction Details

# GREENE COUNTY, ILLINOIS
## ROODHOUSE TOWNSHIP




PLAN VIEW
1" = 60'

LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- OH — OVERHEAD UTILITY LINES
- EXISTING FOREIGN PIPELINE
- CONSTRUCTION LIMITS
- PROPERTY LINE
- PROPOSED ACCESS ROAD
- MM-STL-000.000 — LINE LIST NUMBER
- RESIDENTIAL OR BUSINESS ESTABLISHMENT
- UTILITY POLE

DRAFT FERC FILING
10/2016

GRAPHIC SCALE
60' 30' 0 60'

NOTES:

1. SAFETY FENCE WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (L.O.D.) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR BUSINESS ESTABLISHMENT. AT MINIMUM, FENCING WILL BE MAINTAINED THROUGHOUT ACTIVE CONSTRUCTION IN THE AREA.
2. STRUCTURES WITHIN L.O.D. WILL BE REMOVED, RELOCATED OR PROTECTED PER LAND OWNER AGREEMENT.
3. THE STRUCTURES ARE BASED ON AERIAL DATA SERVICE IMAGERY FLOWN IN AUGUST AND SEPTEMBER 2016. STRUCTURE TYPES WILL BE CONFIRMED PRIOR TO FERC APPLICATION.
4. PROPERTY LINES DEPICTED ON THIS PLAN ARE BASED ON GIS TAX MAP DATA AND/OR FIELD LOCATED PROPERTY EVIDENCE. THEY SHOULD NOT BE RELIED ON AS AN ACCURATE DEPICTION OF THE ACTUAL PROPERTY LINE LOCATIONS. THEY DO NOT REPRESENT THE RESULTS OF A BOUNDARY SURVEY.

## CONSTRUCTION TECHNIQUES

1. THE STOVE PIPE TECHNIQUE IS A LESS EFFICIENT ALTERNATIVE TO THE MAINLINE METHOD OF CONSTRUCTION. IT IS TYPICALLY USED WHEN THE PIPELINE IS TO BE INSTALLED IN VERY CLOSE PROXIMITY TO AN EXISTING STRUCTURE OR WHEN AN OPEN DITCH WOULD ADVERSELY IMPACT A COMMERCIAL/RESIDENTIAL ESTABLISHMENT. THE TECHNIQUE INVOLVES INSTALLING PIPE ONE JOINT AT A TIME WHEREBY THE WELDING, X-RAY AND COATING ACTIVITIES ARE ALL PERFORMED IN THE OPEN TRENCH. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED OR THE OPEN TRENCH IS COVERED WITH STEEL PLATES OR TIMBER MATS.
2. THE DRAG SECTION CONSTRUCTION TECHNIQUE, WHILE LESS EFFICIENT THAN MAINLINE METHODS, IS NORMALLY PREFERRED OVER THE STOVE PIPE ALTERNATIVE. THIS TECHNIQUE INVOLVES THE TRENCHING, INSTALLATION AND BACKFILL OF A PREFABRICATED LENGTH OF PIPE CONTAINING SEVERAL SEGMENTS ALL IN ONE DAY. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED AND/OR COVERED WITH STEEL PLATES OR TIMBER MATS.

| NO. | DATE | BY | DESCRIPTION | PROJ. ID | APPR. |
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| REVISIONS | | | | | |

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| Division: | | Op. Area: | |
| State: ILLINOIS | | Co./Par.: GREENE | |
| Section: | Township: | Range: | |
| Dft: HM | Date: 10/11/16 | Scale: 1" = 60' | |
| Chk: JC | Date: 10/11/16 | | |
| Appr: | Date: | Filename: RES-001.DWG | |

SPIRE STL PIPELINE PROJECT
PROPOSED 24-INCH DIAMETER PIPELINE
RESIDENTIAL SITE SPECIFIC
GREENE COUNTY, ILLINOIS

PREPARED FOR
Spire STL Pipeline

PREPARED BY
MOTT MACDONALD

RES-001

Sheet: 1 of 1
Type: ACAD

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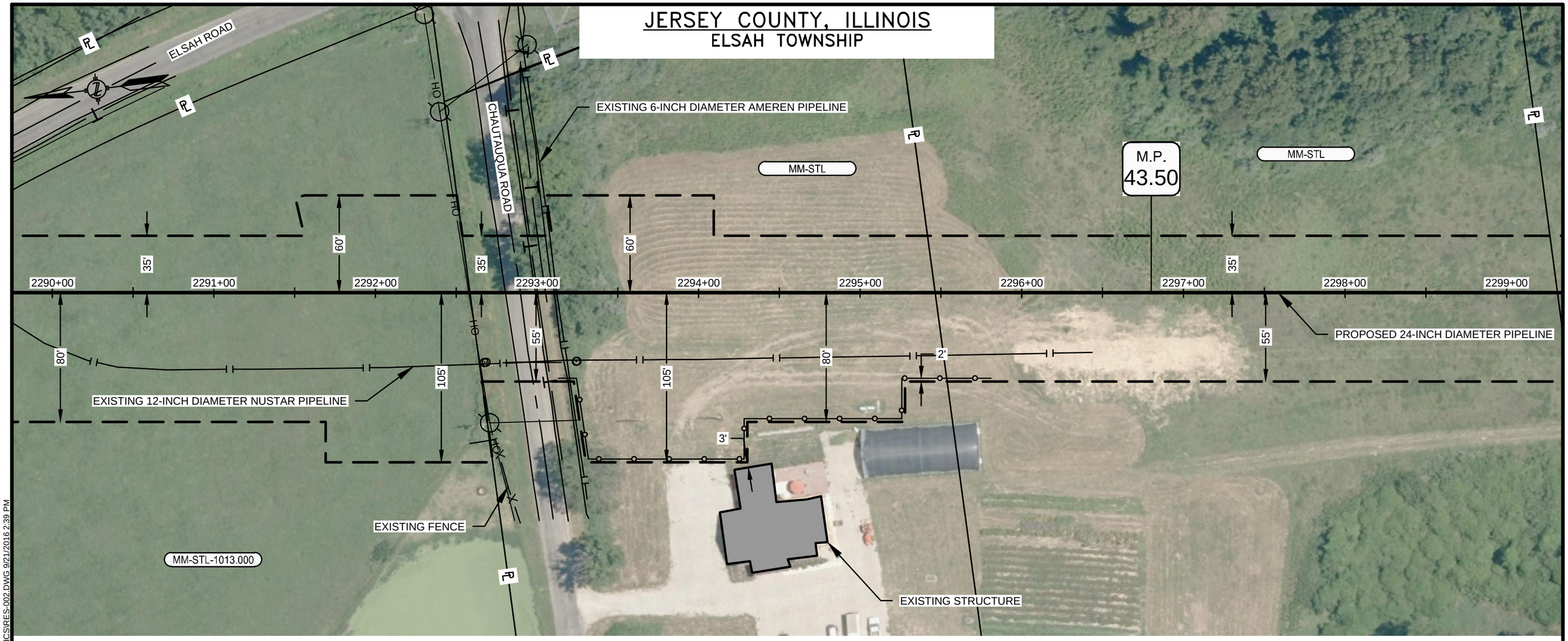
# JERSEY COUNTY, ILLINOIS
## ELSAH TOWNSHIP

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LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- OH — OVERHEAD UTILITY LINES
- EXISTING FOREIGN PIPELINE
- CONSTRUCTION LIMITS
- PROPERTY LINE
- PROPOSED ACCESS ROAD
- MM-STL-000.000 — LINE LIST NUMBER
- RESIDENTIAL OR BUSINESS ESTABLISHMENT
- UTILITY POLE

DRAFT FERC FILING
10/2016

GRAPHIC SCALE

60' 30' 0 60'

PLAN VIEW
1" = 60'

NOTES:

1. SAFETY FENCE WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (L.O.D.) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR BUSINESS ESTABLISHMENT. AT MINIMUM, FENCING WILL BE MAINTAINED THROUGHOUT ACTIVE CONSTRUCTION IN THE AREA.
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## CONSTRUCTION TECHNIQUES

1. THE STOVE PIPE TECHNIQUE IS A LESS EFFICIENT ALTERNATIVE TO THE MAINLINE METHOD OF CONSTRUCTION. IT IS TYPICALLY USED WHEN THE PIPELINE IS TO BE INSTALLED IN VERY CLOSE PROXIMITY TO AN EXISTING STRUCTURE OR WHEN AN OPEN DITCH WOULD ADVERSELY IMPACT A COMMERCIAL/RESIDENTIAL ESTABLISHMENT. THE TECHNIQUE INVOLVES INSTALLING PIPE ONE JOINT AT A TIME WHEREBY THE WELDING, X-RAY AND COATING ACTIVITIES ARE ALL PERFORMED IN THE OPEN TRENCH. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED OR THE OPEN TRENCH IS COVERED WITH STEEL PLATES OR TIMBER MATS.
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| State: ILLINOIS | | Co./Par.: JERSEY | |
| Section: | Township: | Range: | |
| Dft: HM | Date: 10/11/16 | Scale: 1" = 60' | |
| Chk: SB | Date: 10/11/16 | | |
| Appr: | Date: | Filename: RES-002.DWG | |

SPIRE STL PIPELINE PROJECT
PROPOSED 24-INCH DIAMETER PIPELINE
RESIDENTIAL SITE SPECIFIC
JERSEY COUNTY, ILLINOIS

PREPARED FOR
Spire STL Pipeline

PREPARED BY
MOTT MACDONALD

RES-002

Sheet: 1 of 1
Type: ACAD

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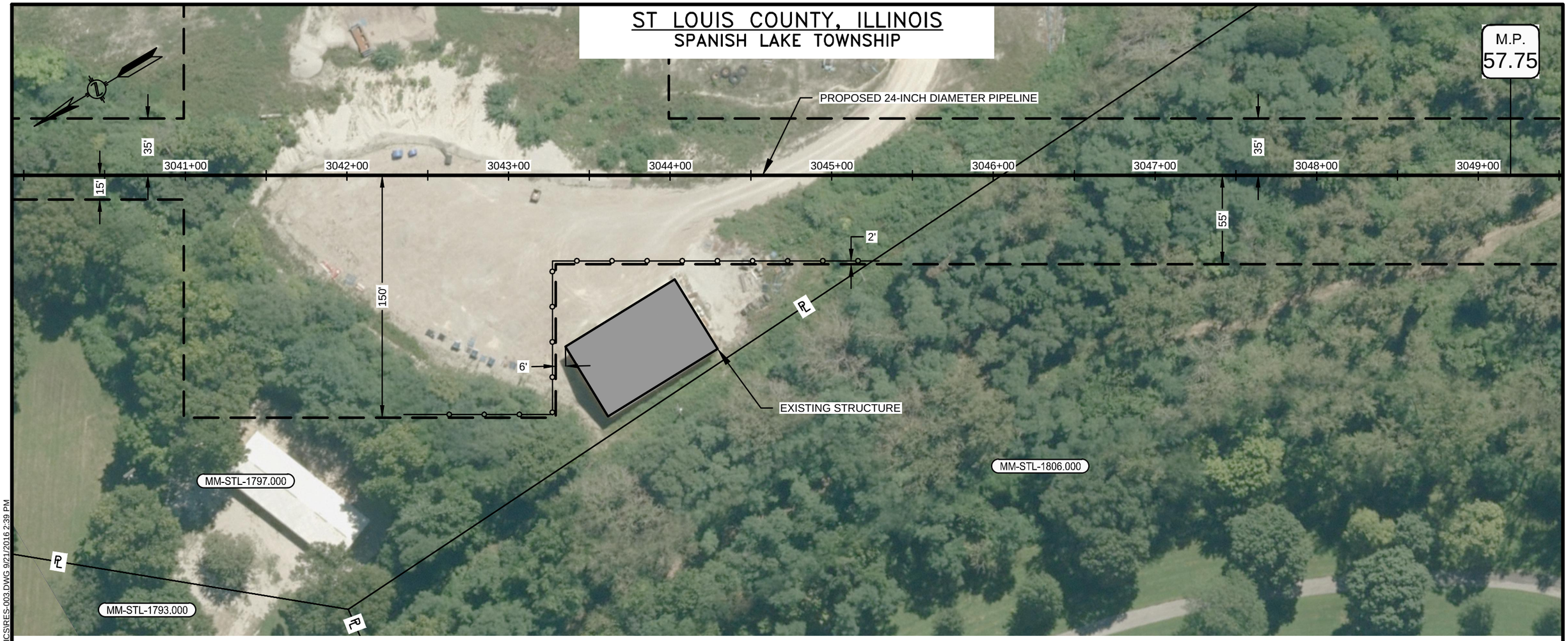
# ST LOUIS COUNTY, ILLINOIS
## SPANISH LAKE TOWNSHIP




## LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- OH — OVERHEAD UTILITY LINES
- EXISTING FOREIGN PIPELINE
- CONSTRUCTION LIMITS
- PROPERTY LINE
- PROPOSED ACCESS ROAD
- MM-STL-000.000 — LINE LIST NUMBER
- RESIDENTIAL OR BUSINESS ESTABLISHMENT
- UTILITY POLE

DRAFT FERC FILING
10/2016

GRAPHIC SCALE
60' 30' 0 60'

## PLAN VIEW
1" = 60'

## NOTES:

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| Division: | | Op. Area: | |
| State: ILLINOIS | | Co./Par.: ST LOUIS | |
| Section: | Township: | Range: | |
| Dft: HM | Date: 10/11/16 | Scale: 1" = 60' | |
| Chk: JC | Date: 10/11/16 | | |
| Appr: | Date: | Filename: RES-003.DWG | |

SPIRE STL PIPELINE PROJECT
PROPOSED 24-INCH DIAMETER PIPELINE
RESIDENTIAL SITE SPECIFIC
ST LOUIS COUNTY, ILLINOIS

PREPARED FOR
Spire STL Pipeline

PREPARED BY
MOTT MACDONALD

RES-003

Sheet: 1 of 1

Type: ACAD

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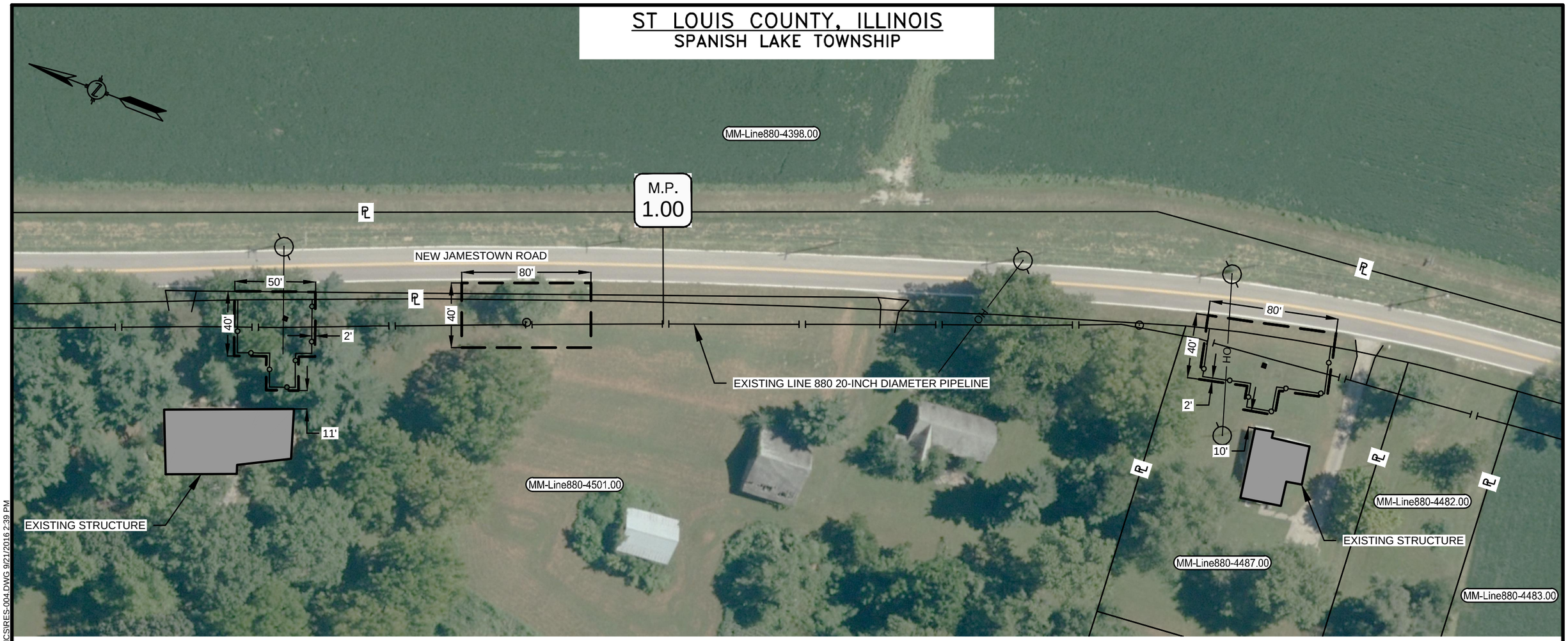
# ST LOUIS COUNTY, ILLINOIS
## SPANISH LAKE TOWNSHIP

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### LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- OVERHEAD UTILITY LINES
- EXISTING FOREIGN PIPELINE
- CONSTRUCTION LIMITS
- PROPERTY LINE
- PROPOSED ACCESS ROAD
- MM-STL-000.000 — LINE LIST NUMBER
- RESIDENTIAL OR BUSINESS ESTABLISHMENT
- UTILITY POLE

DRAFT FERC FILING
10/2016

GRAPHIC SCALE
60' 30' 0 60'

### PLAN VIEW
1" = 60'

### NOTES:

1. SAFETY FENCE WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (L.O.D.) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR BUSINESS ESTABLISHMENT. AT MINIMUM, FENCING WILL BE MAINTAINED THROUGHOUT ACTIVE CONSTRUCTION IN THE AREA.
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State: ILLINOIS | Co./Par.: ST LOUIS
Section: | Township: | Range:
Dft: HM | Date: 10/11/16 | Scale: 1" = 60'
Chk: JC | Date: 10/11/16 | Filename: RES-004.DWG
Appr: | Date:

SPIRE STL PIPELINE PROJECT
EXISTING LINE 880 20-INCH DIAMETER PIPELINE
RESIDENTIAL SITE SPECIFIC
ST LOUIS COUNTY, ILLINOIS

PREPARED FOR
Spire STL Pipeline

PREPARED BY
MOTT MACDONALD

RES-004

Sheet: 1 of 1
Type: ACAD

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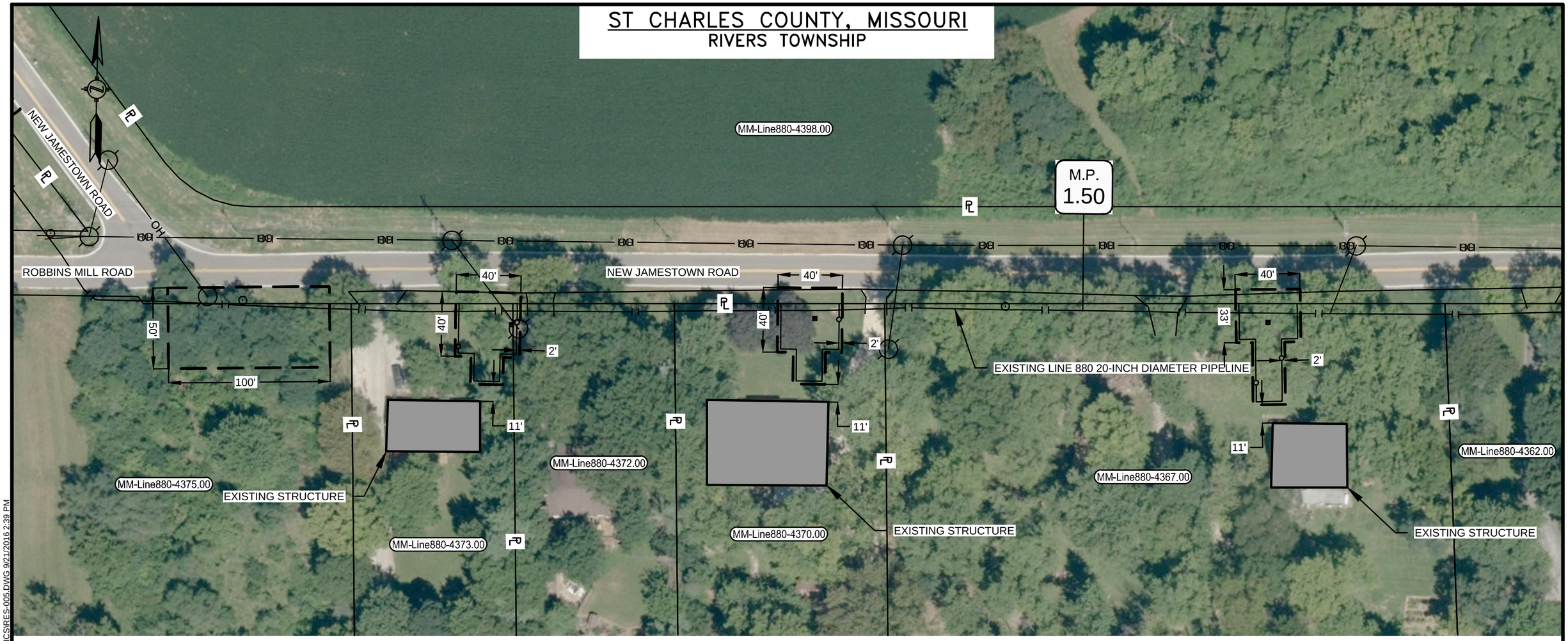
# ST CHARLES COUNTY, MISSOURI
## RIVERS TOWNSHIP




LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- OVERHEAD UTILITY LINES
- EXISTING FOREIGN PIPELINE
- CONSTRUCTION LIMITS
- PROPERTY LINE
- PROPOSED ACCESS ROAD
- MM-STL-000.000 — LINE LIST NUMBER
- RESIDENTIAL OR BUSINESS ESTABLISHMENT
- UTILITY POLE

DRAFT FERC FILING
10/2016

GRAPHIC SCALE
60' 30' 0 60'

PLAN VIEW
1" = 60'

NOTES:

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| Division: | | Op. Area: | |
| State: | MISSOURI | Co./Par.: | ST CHARLES |
| Section: | Township: | Range: | |
| Dft: HM | Date: 10/11/16 | Scale: | 1" = 60' |
| Chk: SB | Date: 10/11/16 | Filename: | RES-005.DWG |
| Appr: | Date: | | |

SPIRE STL PIPELINE PROJECT
EXISTING LINE 880 20-INCH DIAMETER PIPELINE
RESIDENTIAL SITE SPECIFIC
ST CHARLES COUNTY, MISSOURI

PREPARED FOR: Spire STL Pipeline

PREPARED BY: MOTT MACDONALD

RES-005 | Sheet: 1 of 1 | Type: ACAD | 0

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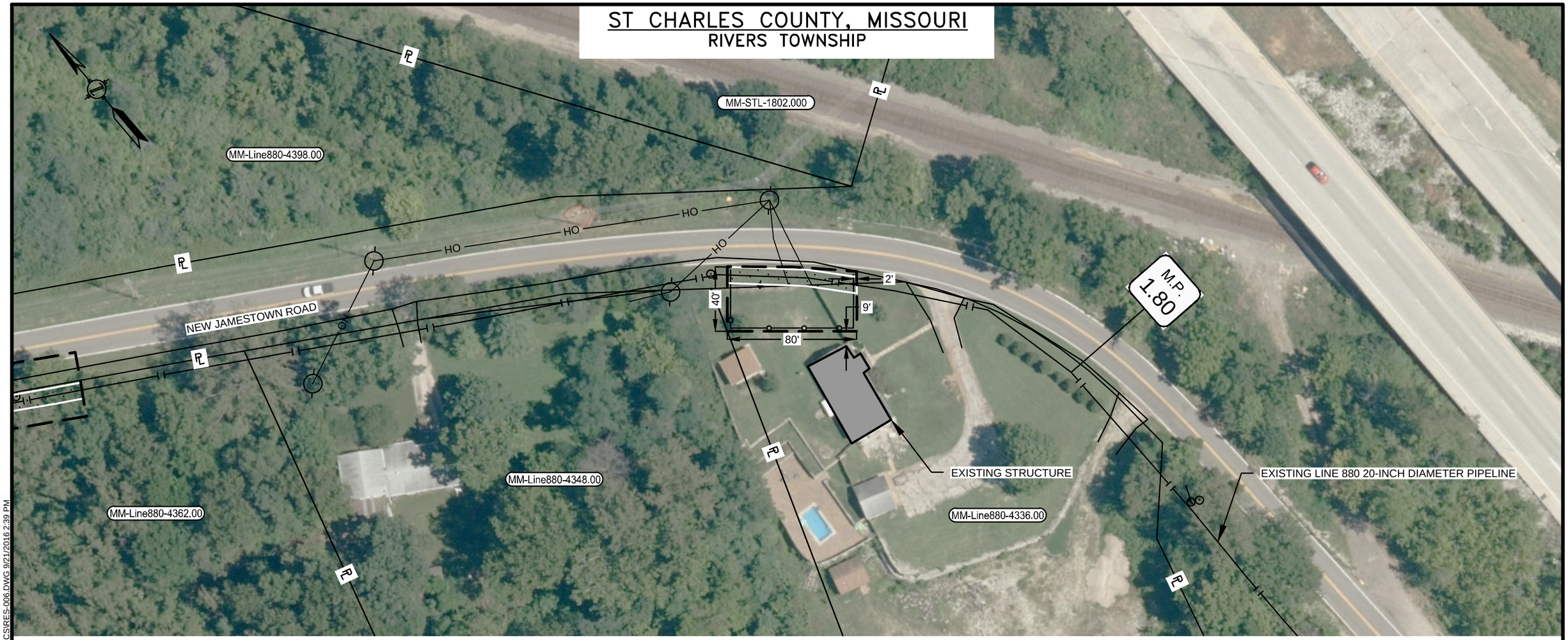
# ST CHARLES COUNTY, MISSOURI
## RIVERS TOWNSHIP

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### LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- OH — OVERHEAD UTILITY LINES
- EXISTING FOREIGN PIPELINE
- CONSTRUCTION LIMITS
- PROPERTY LINE
- PROPOSED ACCESS ROAD
- MM-STL-000.000 — LINE LIST NUMBER
- RESIDENTIAL OR BUSINESS ESTABLISHMENT
- UTILITY POLE

DRAFT FERC FILING
10/2016

GRAPHIC SCALE
60' 30' 0 60'

### PLAN VIEW
1" = 60'

### NOTES:

1. SAFETY FENCE WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (L.O.D.) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR BUSINESS ESTABLISHMENT. AT MINIMUM, FENCING WILL BE MAINTAINED THROUGHOUT ACTIVE CONSTRUCTION IN THE AREA.
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| State: MISSOURI | | Co./Par.: ST CHARLES |
| Section: | Township: | Range: |
| Dft: HM | Date: 10/11/16 | Scale: 1" = 60' |
| Chk: | Date: | Filename: RES-006.DWG |
| Appr: | Date: | |

SPIRE STL PIPELINE PROJECT
EXISTING LINE 880 20-INCH DIAMETER PIPELINE
RESIDENTIAL SITE SPECIFIC
ST CHARLES COUNTY, MISSOURI

PREPARED FOR
Spire STL Pipeline

PREPARED BY
MOTT MACDONALD

RES-006

Sheet: 1 of 1
Type: ACAD

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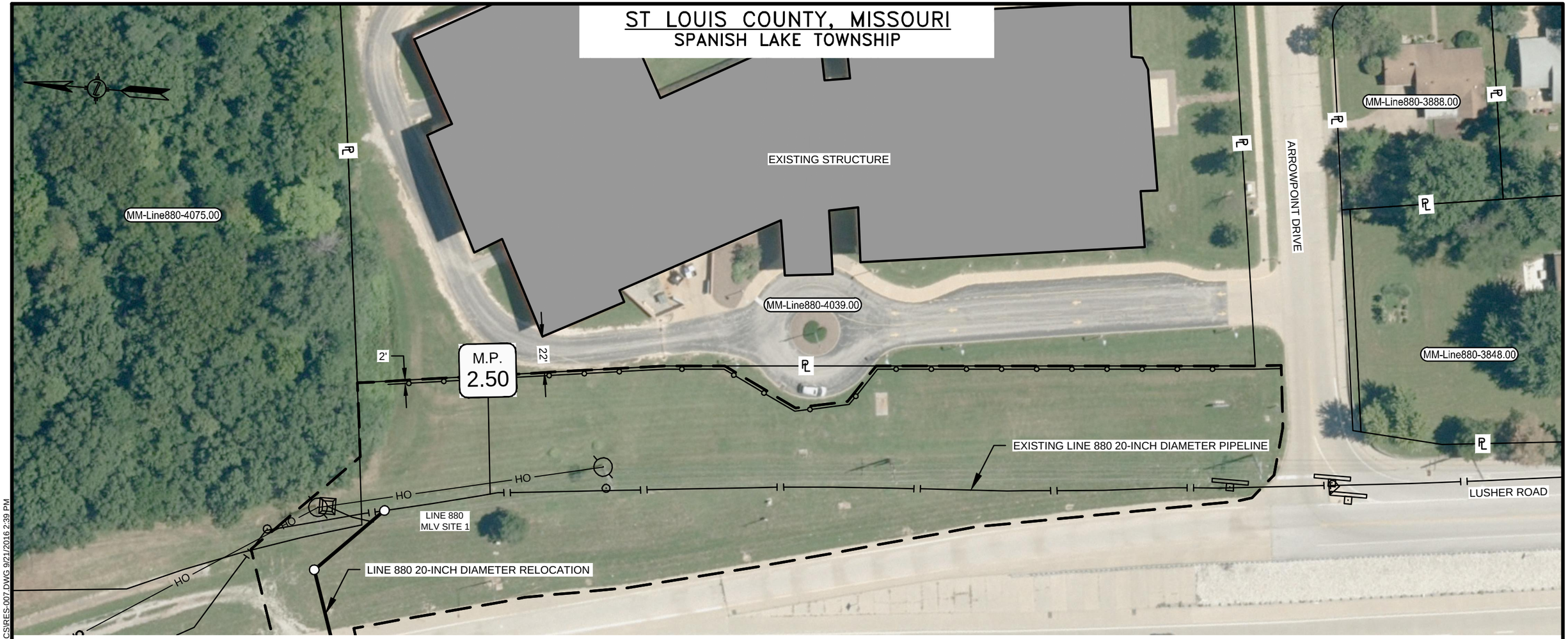
# ST LOUIS COUNTY, MISSOURI
## SPANISH LAKE TOWNSHIP




### LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- OH — OVERHEAD UTILITY LINES
- EXISTING FOREIGN PIPELINE
- CONSTRUCTION LIMITS
- PROPERTY LINE
- PROPOSED ACCESS ROAD
- MM-STL-000.000 — LINE LIST NUMBER
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DRAFT FERC FILING
10/2016

GRAPHIC SCALE
60' 30' 0 60'

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| State: MISSOURI | | Co./Par.: ST LOUIS | |
| Section: | Township: | Range: | |
| Dft: HM | Date: 10/11/16 | Scale: 1" = 60' | |
| Chk: SB | Date: 10/11/16 | | |
| Appr: | Date: | Filename: RES-007.DWG | |

SPIRE STL PIPELINE PROJECT
LINE 880 20-INCH DIAMETER RELOCATION
RESIDENTIAL SITE SPECIFIC
ST LOUIS COUNTY, MISSOURI

PREPARED FOR
Spire STL Pipeline

PREPARED BY
MOTT MACDONALD

RES-007

Sheet: 1 of 1
Type: ACAD

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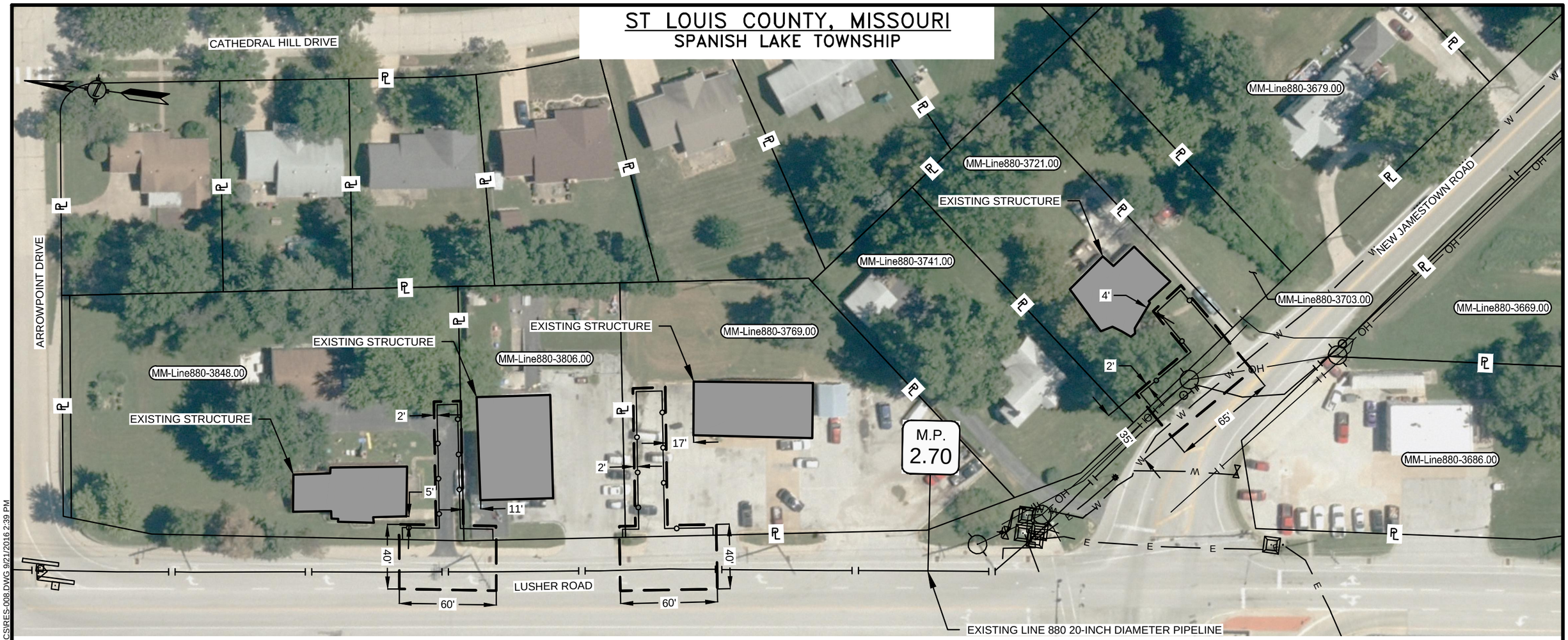
# ST LOUIS COUNTY, MISSOURI
## SPANISH LAKE TOWNSHIP




### LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- OH — OVERHEAD UTILITY LINES
- EXISTING FOREIGN PIPELINE
- CONSTRUCTION LIMITS
- PROPERTY LINE
- PROPOSED ACCESS ROAD
- MM-STL-000.000 — LINE LIST NUMBER
- RESIDENTIAL OR BUSINESS ESTABLISHMENT
- UTILITY POLE

DRAFT FERC FILING
10/2016

GRAPHIC SCALE
60' 30' 0 60'

### PLAN VIEW
1" = 60'

### NOTES:

1. SAFETY FENCE WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (L.O.D.) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR BUSINESS ESTABLISHMENT. AT MINIMUM, FENCING WILL BE MAINTAINED THROUGHOUT ACTIVE CONSTRUCTION IN THE AREA.
2. STRUCTURES WITHIN L.O.D. WILL BE REMOVED, RELOCATED OR PROTECTED PER LAND OWNER AGREEMENT.
3. THE STRUCTURES ARE BASED ON AERIAL DATA SERVICE IMAGERY FLOWN IN AUGUST AND SEPTEMBER 2016. STRUCTURE TYPES WILL BE CONFIRMED PRIOR TO FERC APPLICATION.
4. PROPERTY LINES DEPICTED ON THIS PLAN ARE BASED ON GIS TAX MAP DATA AND/OR FIELD LOCATED PROPERTY EVIDENCE. THEY SHOULD NOT BE RELIED ON AS AN ACCURATE DEPICTION OF THE ACTUAL PROPERTY LINE LOCATIONS. THEY DO NOT REPRESENT THE RESULTS OF A BOUNDARY SURVEY.

### CONSTRUCTION TECHNIQUES

1. THE STOVE PIPE TECHNIQUE IS A LESS EFFICIENT ALTERNATIVE TO THE MAINLINE METHOD OF CONSTRUCTION. IT IS TYPICALLY USED WHEN THE PIPELINE IS TO BE INSTALLED IN VERY CLOSE PROXIMITY TO AN EXISTING STRUCTURE OR WHEN AN OPEN DITCH WOULD ADVERSELY IMPACT A COMMERCIAL/RESIDENTIAL ESTABLISHMENT. THE TECHNIQUE INVOLVES INSTALLING PIPE ONE JOINT AT A TIME WHEREBY THE WELDING, X-RAY AND COATING ACTIVITIES ARE ALL PERFORMED IN THE OPEN TRENCH. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED OR THE OPEN TRENCH IS COVERED WITH STEEL PLATES OR TIMBER MATS.
2. THE DRAG SECTION CONSTRUCTION TECHNIQUE, WHILE LESS EFFICIENT THAN MAINLINE METHODS, IS NORMALLY PREFERRED OVER THE STOVE PIPE ALTERNATIVE. THIS TECHNIQUE INVOLVES THE TRENCHING, INSTALLATION AND BACKFILL OF A PREFABRICATED LENGTH OF PIPE CONTAINING SEVERAL SEGMENTS ALL IN ONE DAY. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED AND/OR COVERED WITH STEEL PLATES OR TIMBER MATS.

| NO. | DATE | BY | DESCRIPTION | PROJ. ID | APPR. |
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REVISIONS

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| Division: | | Op. Area: | |
| State: MISSOURI | | Co./Par.: ST LOUIS | |
| Section: | Township: | Range: | |
| Dft: HM | Date: 10/11/16 | Scale: 1" = 60' | |
| Chk: JC | Date: 10/11/16 | | |
| Appr: | Date: | Filename: RES-008.DWG | |

SPIRE STL PIPELINE PROJECT
EXISTING LINE 880 20-INCH DIAMETER PIPELINE
RESIDENTIAL SITE SPECIFIC
ST LOUIS COUNTY, MISSOURI

PREPARED FOR: Spire STL Pipeline

PREPARED BY: MOTT MACDONALD

RES-008 | Sheet: 1 of 1 | Type: ACAD | 0

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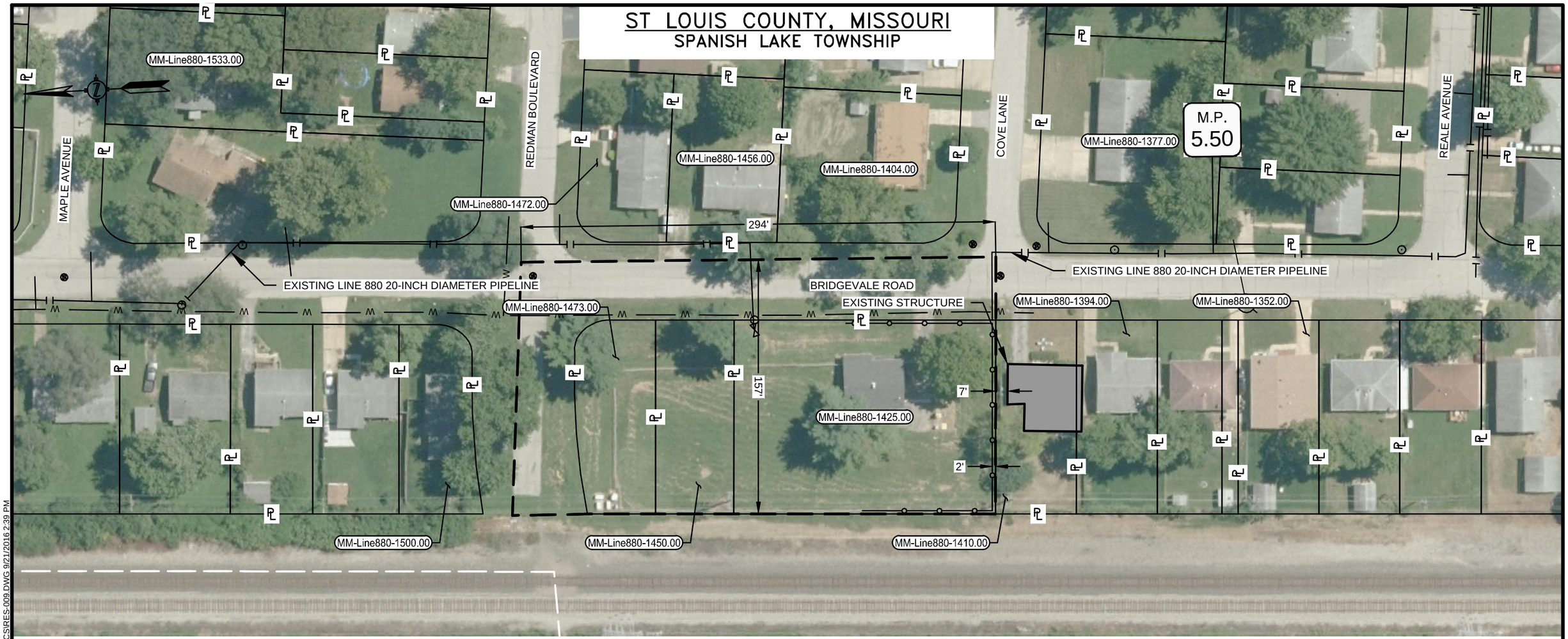
# ST LOUIS COUNTY, MISSOURI
## SPANISH LAKE TOWNSHIP




### LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- OH — OVERHEAD UTILITY LINES
- EXISTING FOREIGN PIPELINE
- CONSTRUCTION LIMITS
- PROPERTY LINE
- PROPOSED ACCESS ROAD
- MM-STL-000.000 — LINE LIST NUMBER
- RESIDENTIAL OR BUSINESS ESTABLISHMENT
- UTILITY POLE

DRAFT FERC FILING
10/2016

GRAPHIC SCALE
60' 30' 0 60'

### PLAN VIEW
1" = 60'

### NOTES:

1. SAFETY FENCE WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (L.O.D.) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR BUSINESS ESTABLISHMENT. AT MINIMUM, FENCING WILL BE MAINTAINED THROUGHOUT ACTIVE CONSTRUCTION IN THE AREA.
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4. PROPERTY LINES DEPICTED ON THIS PLAN ARE BASED ON GIS TAX MAP DATA AND/OR FIELD LOCATED PROPERTY EVIDENCE. THEY SHOULD NOT BE RELIED ON AS AN ACCURATE DEPICTION OF THE ACTUAL PROPERTY LINE LOCATIONS. THEY DO NOT REPRESENT THE RESULTS OF A BOUNDARY SURVEY.

### CONSTRUCTION TECHNIQUES

1. THE STOVE PIPE TECHNIQUE IS A LESS EFFICIENT ALTERNATIVE TO THE MAINLINE METHOD OF CONSTRUCTION. IT IS TYPICALLY USED WHEN THE PIPELINE IS TO BE INSTALLED IN VERY CLOSE PROXIMITY TO AN EXISTING STRUCTURE OR WHEN AN OPEN DITCH WOULD ADVERSELY IMPACT A COMMERCIAL/RESIDENTIAL ESTABLISHMENT. THE TECHNIQUE INVOLVES INSTALLING PIPE ONE JOINT AT A TIME WHEREBY THE WELDING, X-RAY AND COATING ACTIVITIES ARE ALL PERFORMED IN THE OPEN TRENCH. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED OR THE OPEN TRENCH IS COVERED WITH STEEL PLATES OR TIMBER MATS.
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REVISIONS

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| Division: | | Op. Area: | |
| State: MISSOURI | | Co./Par.: ST LOUIS | |
| Section: | Township: | Range: | |
| Dft: HM | Date: 10/11/16 | Scale: 1" = 60' | |
| Chk: SB | Date: 10/11/16 | Filename: RES-009.DWG | |
| Appr: | Date: | | |

SPIRE STL PIPELINE PROJECT
EXISTING LINE 880 20-INCH DIAMETER PIPELINE
RESIDENTIAL SITE SPECIFIC
ST LOUIS COUNTY, MISSOURI

PREPARED FOR
Spire STL Pipeline

PREPARED BY
MOTT MACDONALD

RES-009 | Sheet: 1 of 1 | Type: ACAD | 0

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# Appendix 8-D

## Land Use Mapping


① MILE POST

PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

SCOTT COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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| ① MILE POST | AGRICULTURAL | OPEN LAND |
| PROPOSED 24-INCH DIAMETER PIPELINE | DEVELOPED | OPEN WATER |
| | FOREST | COUNTY BOUNDARY |
| | | STATE BOUNDARY |

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

SCOTT COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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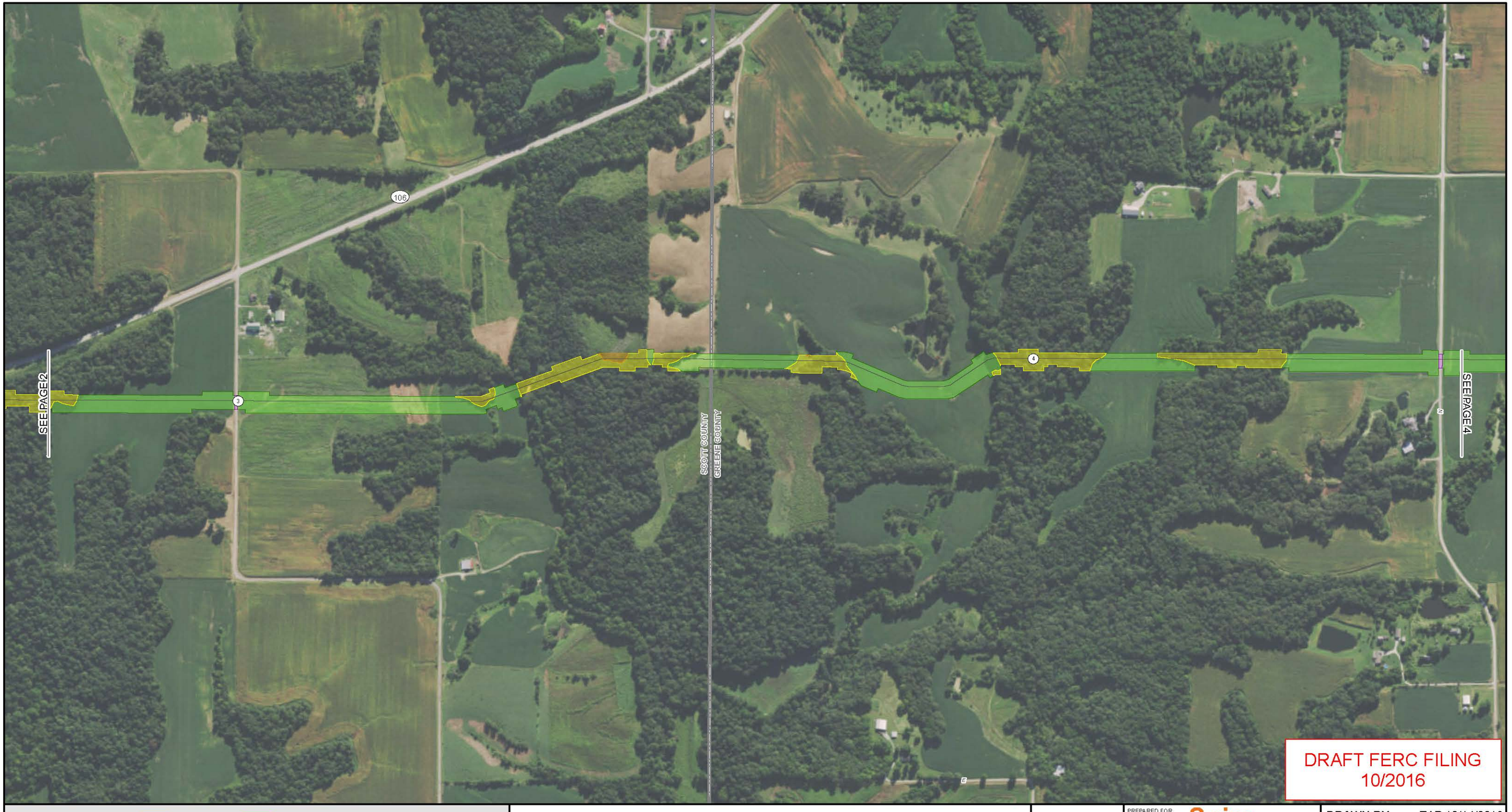


① MILE POST

PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL

DEVELOPED

FOREST

OPEN LAND

OPEN WATER

COUNTY BOUNDARY

STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

SCOTT & GREENE COUNTIES
ILLINOIS

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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10/2016

① MILE POST

PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE:
1:7,200

REFERENCE SCALE:
1 IN = 600 FEET

PREPARED FOR **Spire STL Pipeline**

PREPARED BY **MOTT MACDONALD**

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| ① MILE POST | AGRICULTURAL | OPEN LAND |
| PROPOSED 24-INCH DIAMETER PIPELINE | DEVELOPED | OPEN WATER |
| | FOREST | COUNTY BOUNDARY |
| | | STATE BOUNDARY |

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR **Spire STL Pipeline**

PREPARED BY **MOTT MACDONALD**

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR: Spire STL Pipeline

PREPARED BY: MOTT MACDONALD

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10/2016

① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR: Spire STL Pipeline

PREPARED BY: MOTT MACDONALD

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1 MILE POST

PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL

DEVELOPED

FOREST

OPEN LAND

OPEN WATER

COUNTY BOUNDARY

STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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① MILE POST

PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR: Spire STL Pipeline

PREPARED BY: MOTT MACDONALD

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| DRAWN BY: | EAP 10/14/2016 |
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10/2016

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| MILE POST | AGRICULTURAL | OPEN LAND |
| PROPOSED 24-INCH DIAMETER PIPELINE | DEVELOPED | OPEN WATER |
| | FOREST | COUNTY BOUNDARY |
| | | STATE BOUNDARY |

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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10/2016

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| 1 MILE POST | AGRICULTURAL | OPEN LAND |
| PROPOSED 24-INCH DIAMETER PIPELINE | DEVELOPED | OPEN WATER |
| | FOREST | COUNTY BOUNDARY |
| | | STATE BOUNDARY |

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR: Spire STL Pipeline

PREPARED BY: MOTT MACDONALD

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE
AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR: Spire STL Pipeline

PREPARED BY: MOTT MACDONALD

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MILE POST

PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL

DEVELOPED

FOREST

OPEN LAND

OPEN WATER

COUNTY BOUNDARY

STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR: Spire STL Pipeline

PREPARED BY: MOTT MACDONALD

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| DRAWN BY: | EAP 10/14/2016 |
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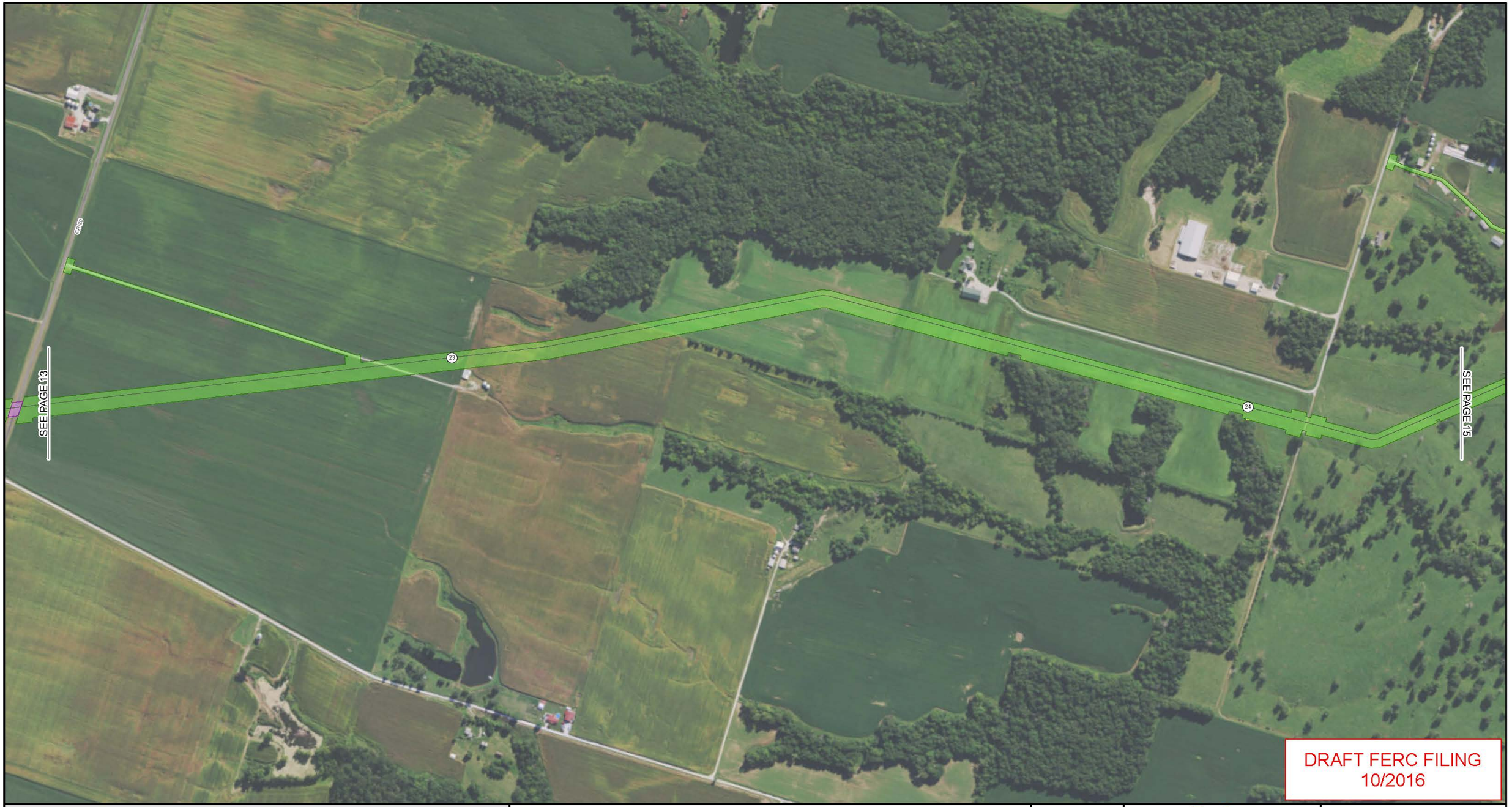


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10/2016

① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE
AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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| DRAWN BY: | EAP 10/14/2016 |
| CHECKED BY: | NDK 10/19/2016 |
| APPROVED BY: | JW 10/19/2016 |
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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

N W E S

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE
AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE:
1:7,200

REFERENCE SCALE:
1 IN = 600 FEET

PREPARED FOR
Spire
STL Pipeline

PREPARED BY
MOTT MACDONALD

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

GREENE & JERSEY COUNTIES
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE
AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

JERSEY COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE:
1:7,200

REFERENCE SCALE:
1 IN = 600 FEET

PREPARED FOR
Spire
STL Pipeline

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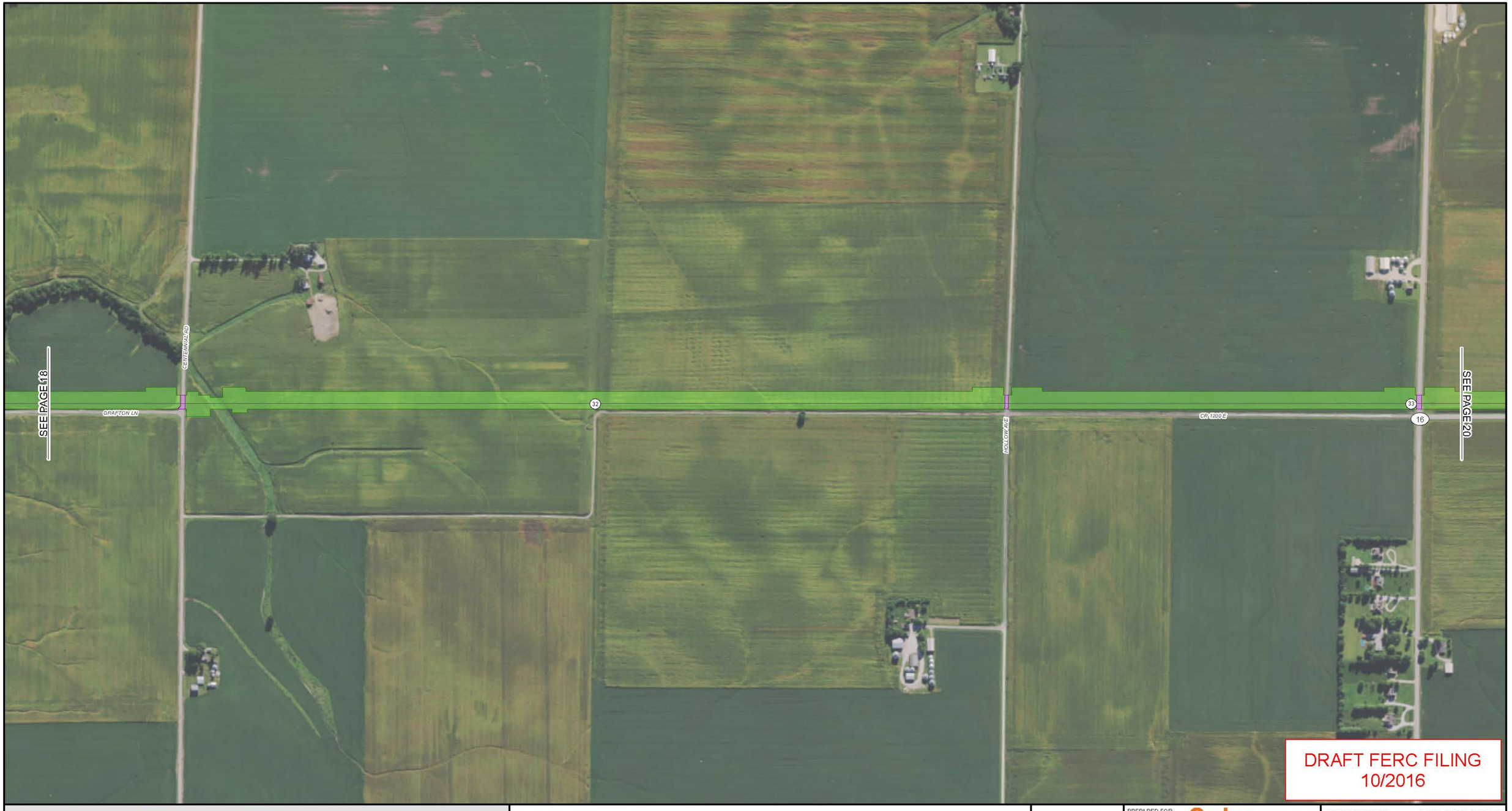


MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE
AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

JERSEY COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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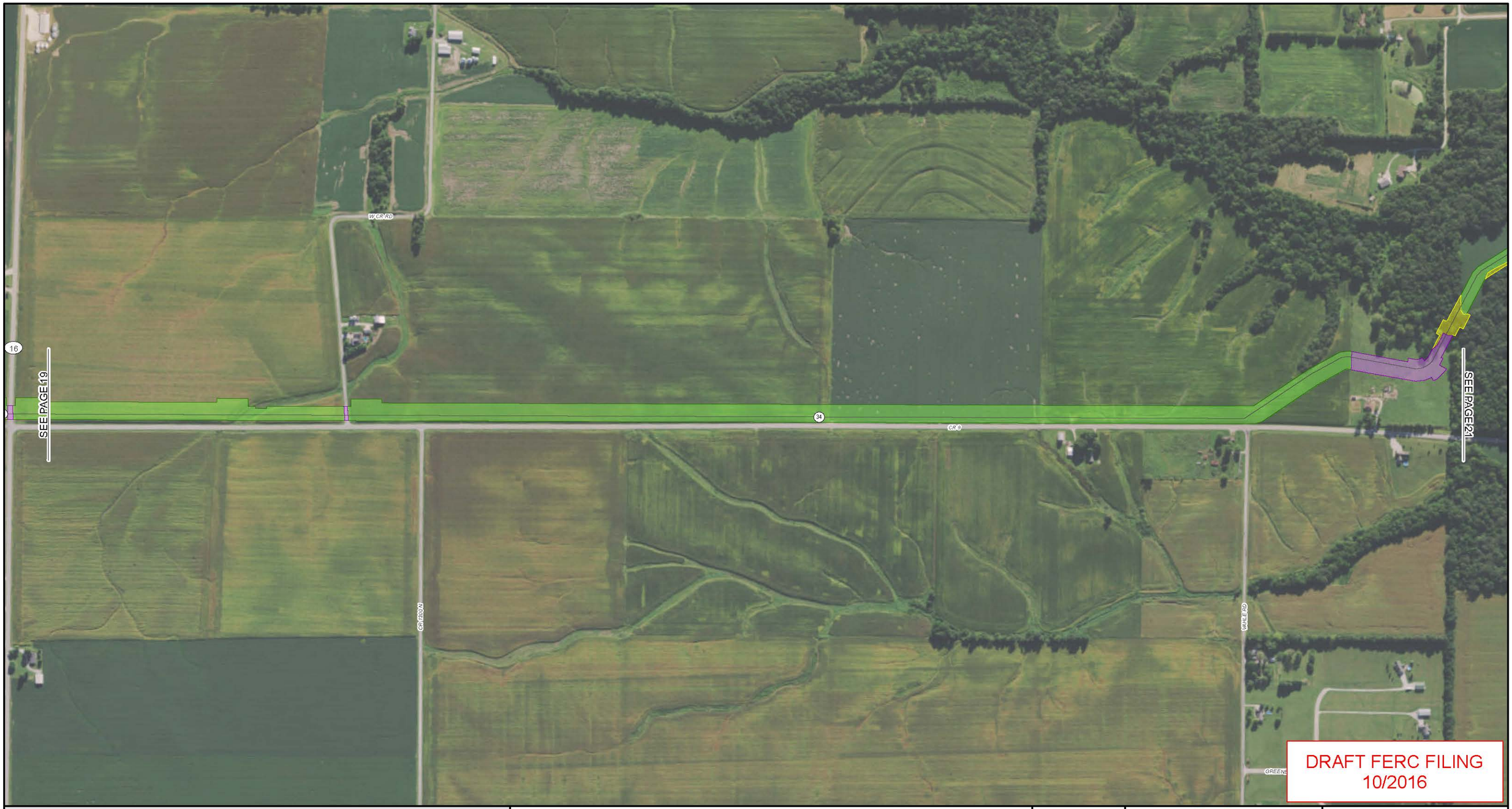


1 MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE
AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

JERSEY COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

N W E S

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

JERSEY COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

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SEE PAGE 21

SEE PAGE 23

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37

38

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① MILE POST

PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL

DEVELOPED

FOREST

OPEN LAND

OPEN WATER

COUNTY BOUNDARY

STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

JERSEY COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
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# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

JERSEY COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

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PREPARED BY MOTT MACDONALD

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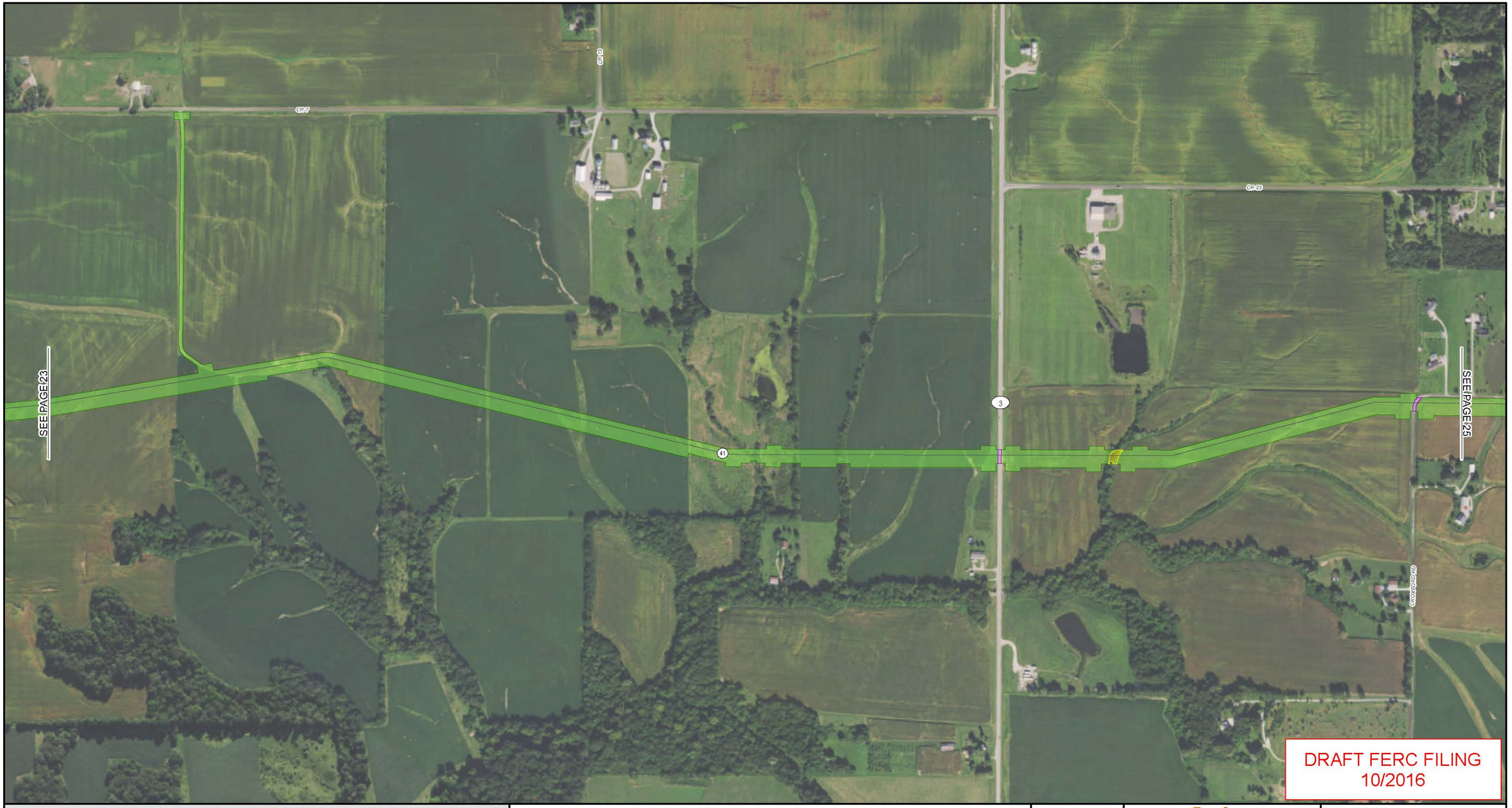


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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

JERSEY COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

JERSEY COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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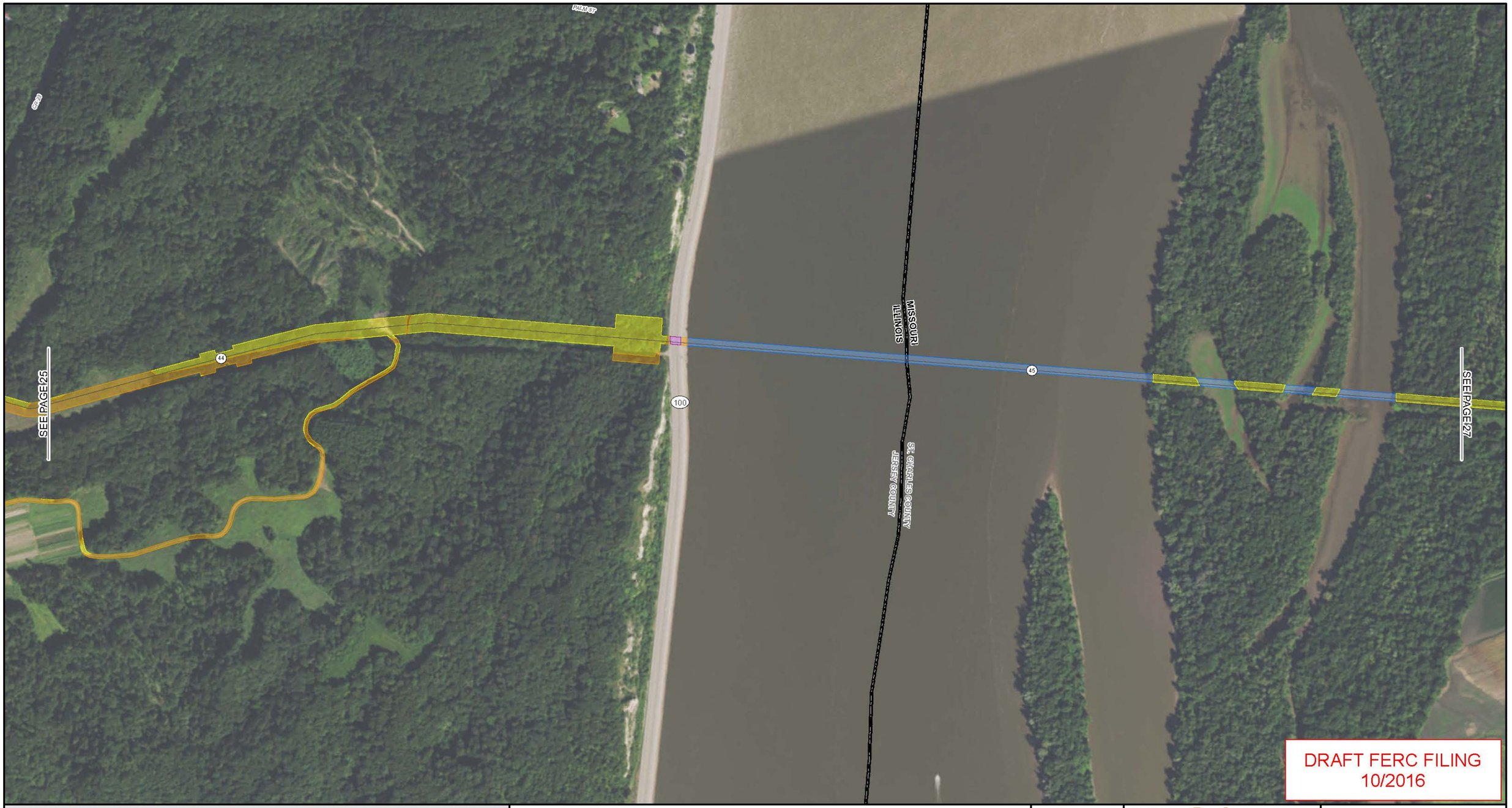


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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE
AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

JERSEY COUNY, ILLINOIS AND ST. CHARLES COUNTY
MISSOURI

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR: Spire STL Pipeline

PREPARED BY: MOTT MACDONALD

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

ST. CHARLES COUNTY
MISSOURI

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

ST. CHARLES COUNTY
MISSOURI

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

ST. CHARLES COUNTY
MISSOURI

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

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1 MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE
AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
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# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

ST. CHARLES COUNTY
MISSOURI

600 300 0 600 1,200 FEET

N E W S

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR **Spire STL Pipeline**

PREPARED BY **MOTT MACDONALD**

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MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE
AGRICULTURAL
DEVELOPED
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# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

ST. CHARLES COUNTY
MISSOURI

600 300 0 600 1,200 FEET

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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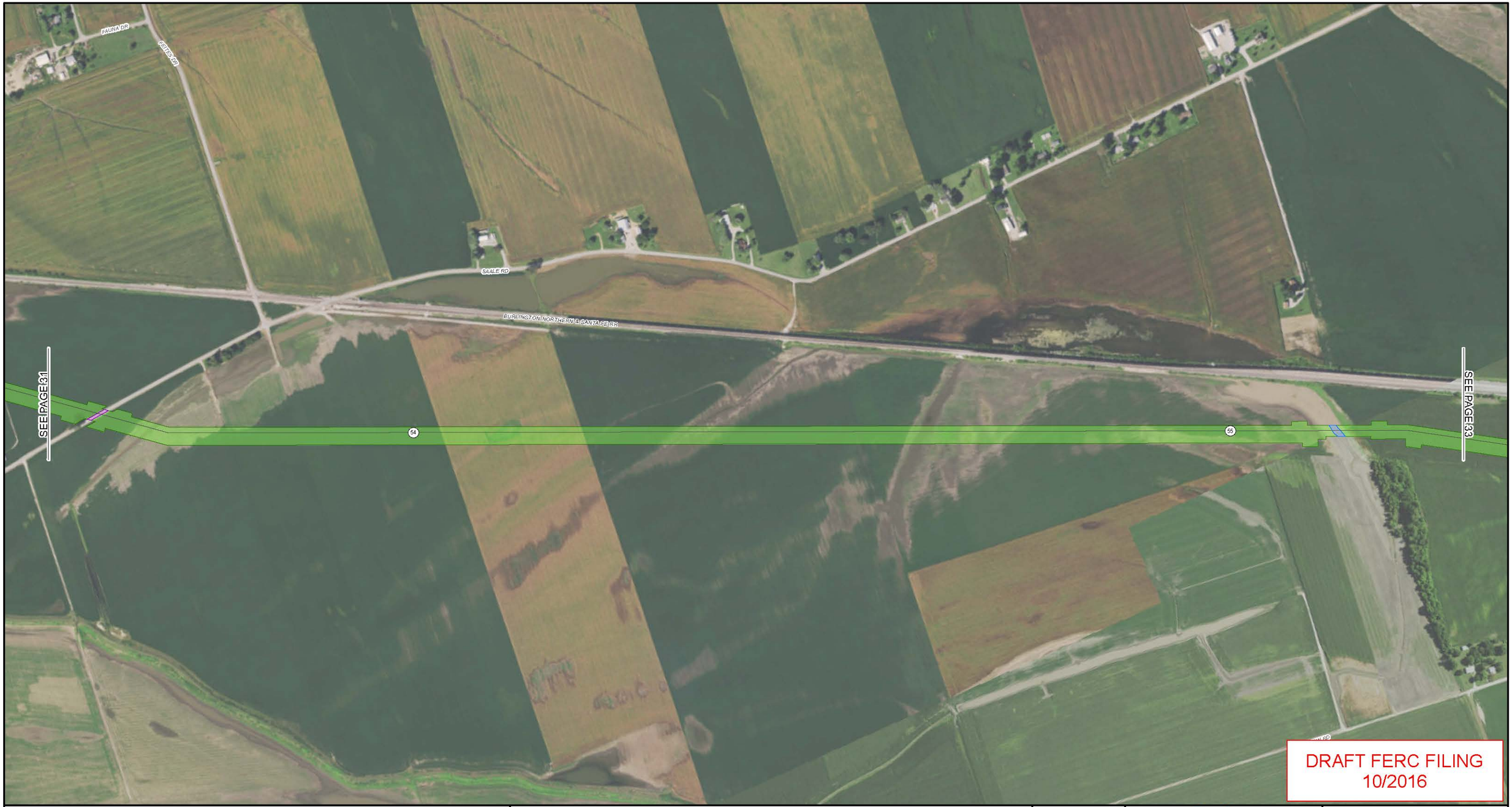


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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER
COUNTY BOUNDARY
STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
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# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

ST. CHARLES COUNTY
MISSOURI

600 300 0 600 1,200 FEET

N W E S

ABSOLUTE SCALE:
1:7,200

REFERENCE SCALE:
1 IN = 600 FEET

PREPARED FOR **Spire STL Pipeline**

PREPARED BY **MOTT MACDONALD**

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① MILE POST
PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL
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OPEN WATER
COUNTY BOUNDARY
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# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

ST. CHARLES & ST. LOUIS COUNTIES
MISSOURI

600 300 0 600 1,200 FEET

N E S W

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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|---|---|
| DRAWN BY: | EAP 10/14/2016 |
| CHECKED BY: | NDK 10/19/2016 |
| APPROVED BY: | JW 10/19/2016 |
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① MILE POST

PROPOSED 24-INCH DIAMETER PIPELINE

AGRICULTURAL

DEVELOPED

FOREST

OPEN LAND

OPEN WATER

COUNTY BOUNDARY

STATE BOUNDARY

Landuse data digitized using publicly available imagery and field data where field surveys have been completed.
Mapbook imagery sourced from NAIP 2015 USDA FAS.

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REFERENCE SCALE: 1 IN = 600 FEET

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AGRICULTURAL
DEVELOPED
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# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## PROPOSED 24-INCH DIAMETER PIPELINE

MADISON COUNTY
ILLINOIS

600 300 0 600 1,200 FEET

N W E S

ABSOLUTE SCALE: 1:7,200

REFERENCE SCALE: 1 IN = 600 FEET

PREPARED FOR **Spire STL Pipeline**

PREPARED BY **MOTT MACDONALD**

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10/2016

1 MILE POST
EXISTING LINE 880 20-INCH DIAMETER PIPELINE
LINE 880 20-INCH DIAMETER RELOCATION
AGRICULTURAL
DEVELOPED
FOREST
OPEN LAND
OPEN WATER

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# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## LINE 880 MODIFICATIONS

ST. LOUIS COUNTY
MISSOURI

200 100 0 200 400 FEET

ABSOLUTE SCALE: 1:2,400

REFERENCE SCALE: 1 IN = 200 FEET

PREPARED FOR Spire STL Pipeline

PREPARED BY MOTT MACDONALD

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- (1) MILE POST
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- LINE 880 20-INCH DIAMETER RELOCATION
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- DEVELOPED
- FOREST
- OPEN LAND
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Mapbook imagery sourced from NAIP 2015 USDA FAS.

# SPIRE STL PIPELINE

## LANDUSE AERIAL MAPBOOK
## LINE 880 MODIFICATIONS

ST. LOUIS COUNTY
MISSOURI

200 100 0 200 400 FEET

N E S W

**ABSOLUTE SCALE:** 1:2,400

**REFERENCE SCALE:** 1 IN = 200 FEET

PREPARED FOR **Spire STL Pipeline**

PREPARED BY **MOTT MACDONALD**

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# SPIRE STL PIPELINE

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N W E S

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LINE 880 20-INCH DIAMETER RELOCATION

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1 MILE POST

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# Appendix 8-E

## Unanticipated Discovery of Contaminants Plan

# Spire STL Pipeline Project

## Unanticipated Discovery of Contaminants Plan

FERC Docket No.PF16-9-000

Draft
October 2016

Public

# Table of Contents

# Acronyms and Abbreviations

| | |
|---|---|
| Enable MRT | Enable Mississippi River Transmission, LLC |
| LGC | Laclede Gas Company |
| Project | Spire STL Pipeline Project |
| REX | Rockies Express Pipeline LLC |
| Spire | Spire STL Pipeline LLC |
| USEPA | United States Environmental Protection Agency |

# Unanticipated Discovery of Contaminants Plan

## 1.1 Introduction

This Unanticipated Discovery of Contaminants Plan addresses the measures that Spire STL Pipeline LLC ("Spire") will implement to handle and dispose of contaminated soil, groundwater, or sediments in the event any is exposed during the construction of the Spire STL Pipeline Project ("Project")

## 1.2 Planning, Review, and Assessment

Spire plans to conduct desktop analysis and research to determine if any known or potential contaminated and/or hazardous sites occur at Project areas. Spire's Construction Manager, Field Construction Manager, Environmental Manager, and Lead Environmental Inspector shall review these findings of known or potential contaminated or hazardous waste sites prior to commencement of construction. If potential sites are within or close proximity to Project areas, Spire personnel will follow up with site reconnaissance and information from local sources/landowners and other public sources. Further investigation may be required; however, Spire does not anticipate contamination at Project areas.

Should the potential for contaminated sites be at or in close proximity to Project areas, the Lead Environmental Investigator and Environmental Manager shall determine the potential for impacts. If impacts to a contaminated site are planned by construction or operation of the Project, Spire will consult with the appropriate agency, landowner, and party responsible for a suitable course of action. If feasible, Spire may locate a reroute to avoid the site.

## 1.3 Unanticipated Discovery Response

In the event unanticipated contaminated soil, groundwater, or other potential environmental contamination (e.g., odor, staining, etc.) is encountered during Project construction, operation, or maintenance activities, the following procedures will be implemented:

- halt construction where contamination or hazardous waste is suspected;
- evacuate personnel, if necessary, to an upwind location or road;
- notify Spire's Construction Manager, Field Construction Manager, Environmental Manager, and Lead Environmental Inspector to manage the situation and facilitate follow-up actions;
- verify the type/level of contamination by a qualified health and safety professional (field observation, field screening, air sampling, laboratory analysis, or other methods may be required);
- consult with appropriate local, state, and/or the USEPA as necessary;
- contact local emergency services if immediate or imminent threats to human health or the environment exist (see Spire's Emergency Response Plan and Spire's Spill Prevention, Containment, and Countermeasure Plan);

- if remediation of the site is necessary, ensure a qualified remediation contractor is selected and aware of the limits of disturbance with Spire's authorized workspaces;
- remedial actions may involve:
  - sampling and laboratory analysis for waste classification for follow up requirements;
  - coordinating with Spire on sampling methods and sampling frequencies;
  - placement of suspect excavated soils/waste on plastic sheeting and covered at the end of each day or placement in approved containers/locations clearly labelled as "hazardous waste" with the contents (if known) and date placed in the container;
  - minimizing impacts by limiting or diverting clean surface water away from the affected area;
  - potential contaminated water or wastewater is not to be discharged to grade without appropriate state or federal approval; and
  - potential contaminated water or wastewater may require on-site storage tanks or discharge to public water treatment facilities;
- if disposal of contaminated materials is necessary, Spire and the Contractor will arrange for agency-approved transport and disposal facility;
- all disposal documentation will be obtained by Spire or the Contractor and maintained on file by Spire; and
- if USEPA-regulated hazardous wastes, Toxic Substance Control Act wastes, or state hazardous wastes are generated, a USEPA generator identification number will need to be obtained by Spire

## 1.4 Reference

United States Environmental Protection Agency. *Envirofacts EPA Regional KML Download*. Accessed October 2016 from https://www.epa.gov/enviro/epa-regional-kml-download.

# Appendix 8-F

## Additional Temporary Workspace

## Appendix 8-F. Additional Temporary Workspace

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| **24-inch Pipeline** | | | | | | |
| *Illinois* | | | | | | |
| Scott | ATWS-001 | 0.0 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| Scott | ATWS-002 | 0.0 | Construction of REX Receipt Station / installation of tap to REX line / topsoil segregation | 12,857 | 0.30 | Agricultural |
| Scott | ATWS-003 | 0.0 | ATWS is required for topsoil segregation | 81,686 | 1.88 | Agricultural |
| Scott | ATWS-004 | 0.2 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| Scott | ATWS-005 | 0.6 | ATWS is required for road crossing | 2,517 | 0.06 | Agricultural |
| Scott | ATWS-006 | 0.7 | ATWS is required for road crossing | 2,459 | 0.06 | Agricultural |
| Scott | ATWS-007 | 0.7 | ATWS is required for road crossing | 2,519 | 0.06 | Agricultural |
| Scott | ATWS-008 | 0.7 | ATWS is required for topsoil segregation | 80,458 | 1.85 | Agricultural |
| Scott | ATWS-009 | 0.7 | ATWS is required for road crossing | 2,803 | 0.06 | Agricultural |
| Scott | ATWS-010 | 0.9 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| Scott | ATWS-011 | 1.3 | ATWS is required for waterbody crossing | 57 | 0.00 | Agricultural |
| Scott | ATWS-011 | 1.3 | ATWS is required for waterbody crossing | 4,943 | 0.11 | Forest |
| Scott | ATWS-012 | 1.4 | ATWS is required for waterbody crossing | 2,671 | 0.06 | Agricultural |
| Scott | ATWS-013 | 1.4 | ATWS is required for topsoil segregation | 35,941 | 0.83 | Agricultural |
| Scott | ATWS-014 | 1.4 | ATWS is required for waterbody crossing | 2,231 | 0.05 | Agricultural |
| Scott | ATWS-015 | 1.6 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Scott | ATWS-016 | 1.7 | ATWS is required for topsoil segregation | 19,184 | 0.44 | Agricultural |
| Scott | ATWS-017 | 1.7 | ATWS is required for waterbody crossing | 2,335 | 0.05 | Agricultural |
| Scott | ATWS-018 | 1.7 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Scott | ATWS-019 | 1.8 | ATWS is required for waterbody crossing | 2,380 | 0.05 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Scott | ATWS-020 | 1.8 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Scott | ATWS-021 | 1.8 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Scott | ATWS-022 | 1.8 | ATWS is required for topsoil segregation | 12,334 | 0.28 | Agricultural |
| Scott | ATWS-023 | 1.8 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Scott | ATWS-024 | 1.9 | ATWS is required for road crossing | 2,440 | 0.06 | Agricultural |
| Scott | ATWS-025 | 1.9 | ATWS is required for road crossing | 2,550 | 0.06 | Agricultural |
| Scott | ATWS-026 | 1.9 | ATWS is required for road crossing | 2,555 | 0.06 | Agricultural |
| Scott | ATWS-027 | 1.9 | ATWS is required for topsoil segregation | 21,455 | 0.49 | Agricultural |
| Scott | ATWS-028 | 1.9 | ATWS is required for road crossing | 2,442 | 0.06 | Agricultural |
| Scott | ATWS-029 | 2.1 | ATWS is required for road crossing | 2,338 | 0.05 | Agricultural |
| Scott | ATWS-030 | 2.1 | ATWS is required for road crossing | 2,659 | 0.06 | Agricultural |
| Scott | ATWS-031 | 2.1 | ATWS is required for road crossing | 2,656 | 0.06 | Agricultural |
| Scott | ATWS-032 | 2.1 | ATWS is required for topsoil segregation | 6,781 | 0.16 | Agricultural |
| Scott | ATWS-033 | 2.2 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Scott | ATWS-034 | 2.2 | ATWS is required for topsoil segregation | 40,800 | 0.94 | Agricultural |
| Scott | ATWS-035 | 2.2 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Scott | ATWS-036 | 2.5 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Scott | ATWS-037 | 2.5 | ATWS is required for road crossing | 455 | 0.01 | Agricultural |
| Scott | ATWS-037 | 2.5 | ATWS is required for road crossing | 2,045 | 0.05 | Forest |
| Scott | ATWS-038 | 2.5 | ATWS is required for road crossing | 2,500 | 0.06 | Forest |
| Scott | ATWS-039 | 2.5 | ATWS is required for road crossing | 2,500 | 0.06 | Forest |
| Scott | ATWS-040 | 2.6 | ATWS is required for waterbody crossing | 518 | 0.01 | Forest |
| Scott | ATWS-040 | 2.6 | ATWS is required for waterbody crossing | 4,482 | 0.10 | Open Land |
| Scott | ATWS-041 | 2.6 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Forest |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Scott | ATWS-042 | 2.6 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Forest |
| Scott | ATWS-043 | 2.7 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Forest |
| Scott | ATWS-044 | 2.7 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Forest |
| Scott | ATWS-045 | 2.7 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Forest |
| Scott | ATWS-046 | 2.8 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Forest |
| Scott | ATWS-047 | 2.8 | ATWS is required for topsoil segregation | 22,546 | 0.52 | Agricultural |
| Scott | ATWS-048 | 3.0 | ATWS is required for road crossing / topsoil segregation | 5,000 | 0.11 | Agricultural |
| Scott | ATWS-049 | 3.0 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Scott | ATWS-050 | 3.0 | ATWS is required for topsoil segregation | 39,000 | 0.90 | Agricultural |
| Scott | ATWS-051 | 3.3 | ATWS is required for waterbody and wetland crossing | 1,677 | 0.04 | Agricultural |
| Scott | ATWS-051 | 3.3 | ATWS is required for waterbody and wetland crossing | 823 | 0.02 | Forest |
| Scott | ATWS-052 | 3.3 | ATWS is required for topsoil segregation | 3,217 | 0.07 | Agricultural |
| Scott | ATWS-053 | 3.3 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Scott | ATWS-054 | 3.4 | ATWS is required for waterbody and wetland crossing | 5,000 | 0.11 | Forest |
| Scott | ATWS-055 | 3.5 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Forest |
| Scott | ATWS-056 | 3.5 | ATWS is required for waterbody crossing / topsoil segregation | 1,172 | 0.03 | Agricultural |
| Scott | ATWS-056 | 3.5 | ATWS is required for waterbody crossing / topsoil segregation | 1,307 | 0.03 | Forest |
| Scott | ATWS-056 | 3.5 | ATWS is required for waterbody crossing / topsoil segregation | 22 | 0.00 | Open Land |
| Scott | ATWS-057 | 3.5 | ATWS is required for waterbody crossing / topsoil segregation | 3,553 | 0.08 | Agricultural |
| Scott | ATWS-057 | 3.5 | ATWS is required for waterbody crossing / topsoil segregation | 1,447 | 0.03 | Forest |
| Greene | ATWS-058 | 3.7 | ATWS is required for waterbody and wetland crossing | 47 | 0.00 | Agricultural |
| Greene | ATWS-058 | 3.7 | ATWS is required for waterbody and wetland crossing | 4,953 | 0.11 | Forest |
| Greene | ATWS-059 | 3.7 | ATWS is required for waterbody and wetland crossing | 2,501 | 0.06 | Agricultural |
| Greene | ATWS-059 | 3.7 | ATWS is required for waterbody and wetland crossing | 121 | 0.00 | Forest |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Greene | ATWS-060 | 3.8 | ATWS is required for topsoil segregation | 25,357 | 0.58 | Agricultural |
| Greene | ATWS-060 | 3.8 | ATWS is required for topsoil segregation | 752 | 0.02 | Forest |
| Greene | ATWS-061 | 3.8 | ATWS is required for waterbody and wetland crossing | 3,226 | 0.07 | Agricultural |
| Greene | ATWS-061 | 3.8 | ATWS is required for waterbody and wetland crossing | 4 | 0.00 | Forest |
| Greene | ATWS-062 | 3.9 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-063 | 3.9 | ATWS is required for waterbody crossing | 736 | 0.02 | Agricultural |
| Greene | ATWS-063 | 3.9 | ATWS is required for waterbody crossing | 1,304 | 0.03 | Forest |
| Greene | ATWS-064 | 4.0 | ATWS is required for waterbody crossing | 3,253 | 0.07 | Forest |
| Greene | ATWS-065 | 4.0 | ATWS is required for waterbody crossing | 3,281 | 0.08 | Forest |
| Greene | ATWS-066 | 4.1 | ATWS is required for waterbody crossing | 104 | 0.00 | Agricultural |
| Greene | ATWS-066 | 4.1 | ATWS is required for waterbody crossing | 1,794 | 0.04 | Forest |
| Greene | ATWS-067 | 4.1 | ATWS is required for topsoil segregation | 16,794 | 0.39 | Agricultural |
| Greene | ATWS-067 | 4.1 | ATWS is required for topsoil segregation | 0 | 0.00 | Forest |
| Greene | ATWS-068 | 4.3 | ATWS is required for waterbody crossing | 3,750 | 0.09 | Forest |
| Greene | ATWS-069 | 4.3 | ATWS is required for topsoil segregation | 24,189 | 0.56 | Agricultural |
| Greene | ATWS-070 | 4.5 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-071 | 4.5 | ATWS is required for road crossing | 1,632 | 0.04 | Agricultural |
| Greene | ATWS-072 | 4.5 | ATWS is required for road crossing | 4,143 | 0.10 | Agricultural |
| Greene | ATWS-073 | 4.5 | ATWS is required for topsoil segregation | 45,714 | 1.05 | Agricultural |
| Greene | ATWS-074 | 4.5 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-075 | 4.6 | ATWS is required for topsoil segregation | 2,185 | 0.05 | Agricultural |
| Greene | ATWS-076 | 4.9 | ATWS is required for topsoil segregation | 34,495 | 0.79 | Agricultural |
| Greene | ATWS-077 | 5.2 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-078 | 5.2 | ATWS is required for topsoil segregation | 56,630 | 1.30 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Greene | ATWS-079 | 5.2 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-080 | 5.6 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-081 | 5.6 | ATWS is required for access road transition to workspace | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-082 | 5.6 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-083 | 5.6 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-084 | 5.7 | ATWS is required for topsoil segregation | 5,053 | 0.12 | Agricultural |
| Greene | ATWS-085 | 5.7 | ATWS is required for waterbody and wetland crossing | 2,005 | 0.05 | Agricultural |
| Greene | ATWS-086 | 5.7 | ATWS is required for waterbody and wetland crossing / road crossing | 3,852 | 0.09 | Agricultural |
| Greene | ATWS-087 | 5.7 | ATWS is required for topsoil segregation | 3,911 | 0.09 | Agricultural |
| Greene | ATWS-088 | 5.8 | ATWS is required for topsoil segregation | 73,606 | 1.69 | Agricultural |
| Greene | ATWS-089 | 5.8 | ATWS is required for working around existing structures / topsoil storage | 2,395 | 0.05 | Agricultural |
| Greene | ATWS-090 | 6.1 | ATWS is required for access road entrance / equipment | 2,500 | 0.06 | Residential |
| Greene | ATWS-091 | 6.1 | ATWS is required for access road transition to workspace | 4,571 | 0.10 | Agricultural |
| Greene | ATWS-092 | 6.4 | ATWS is required for waterbody crossing | 2,415 | 0.06 | Agricultural |
| Greene | ATWS-093 | 6.4 | ATWS is required for waterbody crossing | 2,585 | 0.06 | Agricultural |
| Greene | ATWS-094 | 6.4 | ATWS is required for topsoil segregation | 28,699 | 0.66 | Agricultural |
| Greene | ATWS-094 | 6.4 | ATWS is required for topsoil segregation | 3 | 0.00 | Forest |
| Greene | ATWS-095 | 6.4 | ATWS is required for waterbody crossing | 2,324 | 0.05 | Agricultural |
| Greene | ATWS-096 | 6.4 | ATWS is required for waterbody crossing | 2,349 | 0.05 | Agricultural |
| Greene | ATWS-097 | 6.7 | ATWS is required for topsoil segregation | 56,692 | 1.30 | Agricultural |
| Greene | ATWS-098 | 6.8 | ATWS is required for access road transition to workspace | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-099 | 7.1 | ATWS is required for road and railroad bored crossing | 2,420 | 0.06 | Agricultural |
| Greene | ATWS-100 | 7.1 | ATWS is required for road and railroad bored crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-101 | 7.2 | ATWS is required for road and railroad bored crossing | 2,500 | 0.06 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Greene | ATWS-102 | 7.2 | ATWS is required for road and railroad bored crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-103 | 7.2 | ATWS is required for topsoil segregation | 17,875 | 0.41 | Agricultural |
| Greene | ATWS-104 | 7.3 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-105 | 7.3 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-106 | 7.3 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-107 | 7.3 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-108 | 7.3 | ATWS is required for topsoil segregation | 60,052 | 1.38 | Agricultural |
| Greene | ATWS-109 | 7.8 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-110 | 7.8 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-111 | 7.8 | ATWS is required for topsoil segregation | 134,517 | 3.09 | Agricultural |
| Greene | ATWS-112 | 7.8 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-113 | 7.8 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-114 | 8.6 | ATWS is required for access road transition to workspace | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-115 | 8.8 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-116 | 8.8 | ATWS is required for waterbody crossing | 2,467 | 0.06 | Agricultural |
| Greene | ATWS-116 | 8.8 | ATWS is required for waterbody crossing | 33 | 0.00 | Forest |
| Greene | ATWS-117 | 8.8 | ATWS is required for waterbody crossing | 1,975 | 0.05 | Agricultural |
| Greene | ATWS-117 | 8.8 | ATWS is required for waterbody crossing | 525 | 0.01 | Forest |
| Greene | ATWS-118 | 8.8 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-119 | 8.8 | ATWS is required for topsoil segregation | 29,059 | 0.67 | Agricultural |
| Greene | ATWS-120 | 9.0 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-121 | 9.1 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-122 | 9.1 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-123 | 9.1 | ATWS is required for topsoil segregation | 151,656 | 3.48 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Greene | ATWS-124 | 10.2 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-125 | 10.2 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-126 | 10.3 | ATWS is required for topsoil segregation | 60,140 | 1.38 | Agricultural |
| Greene | ATWS-126 | 10.3 | ATWS is required for topsoil segregation | 6 | 0.00 | Forest |
| Greene | ATWS-127 | 10.3 | ATWS is required for waterbody crossing | 3,728 | 0.09 | Agricultural |
| Greene | ATWS-128 | 10.7 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-129 | 10.7 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-130 | 10.8 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-131 | 10.8 | ATWS is required for topsoil segregation | 61,308 | 1.41 | Agricultural |
| Greene | ATWS-132 | 10.8 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-133 | 11.3 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-134 | 11.3 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-135 | 11.3 | ATWS is required for topsoil segregation | 152,378 | 3.50 | Agricultural |
| Greene | ATWS-136 | 11.3 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-137 | 11.3 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-138 | 12.5 | ATWS is required for topsoil segregation | 72,199 | 1.66 | Agricultural |
| Greene | ATWS-139 | 13.0 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-140 | 13.0 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-141 | 13.0 | ATWS is required for topsoil segregation | 5,920 | 0.14 | Agricultural |
| Greene | ATWS-142 | 13.0 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-143 | 13.0 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-144 | 13.2 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-145 | 13.2 | ATWS is required for waterbody crossing | 949 | 0.02 | Agricultural |
| Greene | ATWS-145 | 13.2 | ATWS is required for waterbody crossing | 1,551 | 0.04 | Forest |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Greene | ATWS-146 | 13.2 | ATWS is required for topsoil segregation | 6,591 | 0.15 | Agricultural |
| Greene | ATWS-147 | 13.4 | ATWS is required for topsoil segregation | 22,998 | 0.53 | Agricultural |
| Greene | ATWS-148 | 13.5 | ATWS is required for road crossing | 2,535 | 0.06 | Agricultural |
| Greene | ATWS-149 | 13.5 | ATWS is required for road crossing | 2,528 | 0.06 | Agricultural |
| Greene | ATWS-150 | 13.5 | ATWS is required for road crossing | 2,547 | 0.06 | Agricultural |
| Greene | ATWS-151 | 13.5 | ATWS is required for topsoil segregation | 13,818 | 0.32 | Agricultural |
| Greene | ATWS-152 | 13.5 | ATWS is required for road crossing | 2,547 | 0.06 | Agricultural |
| Greene | ATWS-153 | 13.9 | ATWS is required for waterbody and wetland crossing | 2,451 | 0.06 | Agricultural |
| Greene | ATWS-154 | 13.9 | ATWS is required for topsoil segregation | 8,250 | 0.19 | Agricultural |
| Greene | ATWS-155 | 13.9 | ATWS is required for waterbody and wetland crossing | 2,489 | 0.06 | Agricultural |
| Greene | ATWS-156 | 13.9 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-157 | 14.1 | ATWS is required for wetland crossing / topsoil segregation | 17,142 | 0.39 | Agricultural |
| Greene | ATWS-158 | 14.3 | ATWS is required for wetland crossing | 2,218 | 0.05 | Agricultural |
| Greene | ATWS-159 | 14.3 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-160 | 14.4 | ATWS is required for access road transition to workspace | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-161 | 14.4 | ATWS is required for topsoil segregation | 217,441 | 4.99 | Agricultural |
| Greene | ATWS-161 | 14.4 | ATWS is required for topsoil segregation | 456 | 0.01 | Developed |
| Greene | ATWS-162 | 15.1 | ATWS is required for access road transition to workspace | 2,495 | 0.06 | Agricultural |
| Greene | ATWS-163 | 15.1 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-164 | 16.1 | ATWS is required for topsoil segregation | 126,347 | 2.90 | Agricultural |
| Greene | ATWS-165 | 17.0 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-166 | 17.0 | ATWS is required for road crossing / wetland crossing | 1,316 | 0.03 | Agricultural |
| Greene | ATWS-167 | 17.0 | ATWS is required for road crossing / wetland crossing | 2,135 | 0.05 | Agricultural |
| Greene | ATWS-168 | 17.1 | ATWS is required for wetland crossing | 2,378 | 0.05 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Greene | ATWS-169 | 17.1 | ATWS is required for wetland crossing | 2,170 | 0.05 | Agricultural |
| Greene | ATWS-170 | 17.1 | ATWS is required for topsoil segregation | 61,039 | 1.40 | Agricultural |
| Greene | ATWS-171 | 17.6 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-172 | 17.6 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-173 | 17.6 | ATWS is required for waterbody crossing | 3,304 | 0.08 | Agricultural |
| Greene | ATWS-174 | 17.6 | ATWS is required for topsoil segregation | 9,981 | 0.23 | Agricultural |
| Greene | ATWS-175 | 17.7 | ATWS is required for topsoil segregation | 12,442 | 0.29 | Agricultural |
| Greene | ATWS-176 | 17.8 | ATWS is required for topsoil segregation | 35,591 | 0.82 | Agricultural |
| Greene | ATWS-177 | 18.1 | ATWS is required for road crossing | 2,518 | 0.06 | Agricultural |
| Greene | ATWS-178 | 18.1 | ATWS is required for road crossing | 2,518 | 0.06 | Agricultural |
| Greene | ATWS-179 | 18.1 | ATWS is required for road crossing | 2,519 | 0.06 | Agricultural |
| Greene | ATWS-180 | 18.1 | ATWS is required for topsoil segregation | 80,782 | 1.85 | Agricultural |
| Greene | ATWS-181 | 18.1 | ATWS is required for road crossing | 2,519 | 0.06 | Agricultural |
| Greene | ATWS-182 | 18.7 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-183 | 18.7 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-184 | 18.7 | ATWS is required for waterbody and wetland crossing | 2,498 | 0.06 | Agricultural |
| Greene | ATWS-184 | 18.7 | ATWS is required for waterbody and wetland crossing | 2 | 0.00 | Forest |
| Greene | ATWS-185 | 18.7 | ATWS is required for waterbody and wetland crossing | 2,172 | 0.05 | Agricultural |
| Greene | ATWS-185 | 18.7 | ATWS is required for waterbody and wetland crossing | 328 | 0.01 | Forest |
| Greene | ATWS-186 | 18.7 | ATWS is required for topsoil segregation | 43,563 | 1.00 | Agricultural |
| Greene | ATWS-187 | 19.0 | ATWS is required for waterbody crossing | 2,603 | 0.06 | Agricultural |
| Greene | ATWS-188 | 19.1 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-189 | 19.1 | ATWS is required for topsoil segregation | 53,541 | 1.23 | Agricultural |
| Greene | ATWS-190 | 19.5 | ATWS is required for road crossing | 2,507 | 0.06 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Greene | ATWS-191 | 19.5 | ATWS is required for road crossing | 2,502 | 0.06 | Agricultural |
| Greene | ATWS-192 | 19.5 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-193 | 19.5 | ATWS is required for topsoil segregation | 108,247 | 2.49 | Agricultural |
| Greene | ATWS-193 | 19.5 | ATWS is required for topsoil segregation | 164 | 0.00 | Developed |
| Greene | ATWS-194 | 19.5 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-195 | 20.3 | ATWS is required for road crossing | 2,372 | 0.05 | Agricultural |
| Greene | ATWS-195 | 20.3 | ATWS is required for road crossing | 167 | 0.00 | Developed |
| Greene | ATWS-196 | 20.3 | ATWS is required for road crossing | 2,376 | 0.05 | Agricultural |
| Greene | ATWS-196 | 20.3 | ATWS is required for road crossing | 164 | 0.00 | Developed |
| Greene | ATWS-197 | 20.3 | ATWS is required for road crossing | 2,534 | 0.06 | Agricultural |
| Greene | ATWS-198 | 20.3 | ATWS is required for topsoil segregation | 64,041 | 1.47 | Agricultural |
| Greene | ATWS-199 | 20.3 | ATWS is required for road crossing | 2,534 | 0.06 | Agricultural |
| Greene | ATWS-200 | 20.8 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-201 | 20.9 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-202 | 20.9 | ATWS is required for topsoil segregation | 51,848 | 1.19 | Agricultural |
| Greene | ATWS-203 | 21.2 | ATWS is required for road crossing | 2,517 | 0.06 | Agricultural |
| Greene | ATWS-204 | 21.2 | ATWS is required for road crossing | 2,517 | 0.06 | Agricultural |
| Greene | ATWS-205 | 21.3 | ATWS is required for road crossing | 2,509 | 0.06 | Agricultural |
| Greene | ATWS-206 | 21.3 | ATWS is required for topsoil segregation | 113,696 | 2.61 | Agricultural |
| Greene | ATWS-207 | 21.3 | ATWS is required for road crossing | 2,534 | 0.06 | Agricultural |
| Greene | ATWS-208 | 22.1 | ATWS is required for topsoil segregation | 41,943 | 0.96 | Agricultural |
| Greene | ATWS-209 | 22.4 | ATWS is required for road crossing | 2,347 | 0.05 | Agricultural |
| Greene | ATWS-210 | 22.4 | ATWS is required for road crossing | 2,637 | 0.06 | Agricultural |
| Greene | ATWS-211 | 22.5 | ATWS is required for road crossing | 2,644 | 0.06 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Greene | ATWS-212 | 22.5 | ATWS is required for topsoil segregation | 162,531 | 3.73 | Agricultural |
| Greene | ATWS-213 | 22.5 | ATWS is required for road crossing | 2,370 | 0.05 | Agricultural |
| Greene | ATWS-214 | 22.5 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-215 | 22.9 | ATWS is required for access road transition to workspace | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-216 | 23.7 | ATWS is required for topsoil segregation | 34,807 | 0.80 | Agricultural |
| Greene | ATWS-217 | 24.0 | ATWS is required for topsoil segregation | 9,897 | 0.23 | Agricultural |
| Greene | ATWS-217 | 24.0 | ATWS is required for topsoil segregation | 5 | 0.00 | Forest |
| Greene | ATWS-218 | 24.1 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-219 | 24.1 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-220 | 24.1 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-221 | 24.1 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-222 | 24.3 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-223 | 24.4 | ATWS is required for topsoil segregation | 36,053 | 0.83 | Agricultural |
| Greene | ATWS-224 | 24.6 | ATWS is required for access road transition to workspace | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-225 | 24.7 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-226 | 24.7 | ATWS is required for topsoil segregation | 2,057 | 0.05 | Agricultural |
| Greene | ATWS-227 | 24.7 | ATWS is required for waterbody and wetland crossing | 1,691 | 0.04 | Agricultural |
| Greene | ATWS-228 | 24.8 | ATWS is required for waterbody and wetland crossing / topsoil segregation | 20,009 | 0.46 | Agricultural |
| Greene | ATWS-229 | 24.8 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-230 | 24.8 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-231 | 25.0 | ATWS is required for waterbody and wetland crossing / topsoil segregation | 68,343 | 1.57 | Agricultural |
| Greene | ATWS-232 | 25.5 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-233 | 25.5 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-234 | 25.6 | ATWS is required for waterbody crossing | 3,560 | 0.08 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Greene | ATWS-235 | 25.6 | ATWS is required for topsoil segregation | 37,783 | 0.87 | Agricultural |
| Greene | ATWS-236 | 25.6 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-237 | 25.7 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-238 | 25.8 | ATWS is required for road crossing | 2,364 | 0.05 | Agricultural |
| Greene | ATWS-239 | 25.8 | ATWS is required for road crossing | 2,623 | 0.06 | Agricultural |
| Greene | ATWS-240 | 25.8 | ATWS is required for road crossing | 2,897 | 0.07 | Agricultural |
| Greene | ATWS-241 | 25.8 | ATWS is required for topsoil segregation | 59,537 | 1.37 | Agricultural |
| Greene | ATWS-242 | 25.8 | ATWS is required for road crossing | 2,366 | 0.05 | Agricultural |
| Greene | ATWS-243 | 25.9 | ATWS is required for access road entrance / equipment | 2,780 | 0.06 | Agricultural |
| Greene | ATWS-244 | 26.3 | ATWS is required for topsoil segregation | 11,846 | 0.27 | Agricultural |
| Greene | ATWS-245 | 26.4 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-246 | 26.4 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-247 | 26.4 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-248 | 26.4 | ATWS is required for topsoil segregation | 31,030 | 0.71 | Agricultural |
| Greene | ATWS-249 | 26.7 | ATWS is required for topsoil segregation | 39,585 | 0.91 | Agricultural |
| Greene | ATWS-250 | 26.9 | ATWS is required for topsoil segregation | 22,484 | 0.52 | Agricultural |
| Greene | ATWS-251 | 27.1 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-252 | 27.2 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-253 | 27.2 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-254 | 27.2 | ATWS is required for topsoil segregation | 33,116 | 0.76 | Agricultural |
| Greene | ATWS-255 | 27.4 | ATWS is required for topsoil segregation | 69,080 | 1.59 | Agricultural |
| Greene | ATWS-256 | 27.9 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-257 | 27.9 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Greene | ATWS-258 | 28.0 | ATWS is required for topsoil segregation | 65,450 | 1.50 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Greene | ATWS-259 | 28.0 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-260 | 28.4 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-261 | 28.5 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Greene | ATWS-262 | 28.5 | ATWS is required for topsoil segregation | 54,461 | 1.25 | Agricultural |
| Greene | ATWS-263 | 28.9 | ATWS is required for topsoil segregation | 41,648 | 0.96 | Agricultural |
| Jersey | ATWS-264 | 29.2 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-265 | 29.2 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-266 | 29.2 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-267 | 29.2 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-268 | 29.3 | ATWS is required for topsoil segregation | 191,056 | 4.39 | Agricultural |
| Jersey | ATWS-269 | 31.2 | ATWS is required for waterbody crossing | 352 | 0.01 | Agricultural |
| Jersey | ATWS-269 | 31.2 | ATWS is required for waterbody crossing | 4,582 | 0.11 | Forest |
| Jersey | ATWS-270 | 31.3 | ATWS is required for topsoil segregation | 30,475 | 0.70 | Agricultural |
| Jersey | ATWS-271 | 31.4 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Jersey | ATWS-272 | 31.5 | ATWS is required for road crossing / waterbody crossing | 7,715 | 0.18 | Agricultural |
| Jersey | ATWS-273 | 31.5 | ATWS is required for road crossing / waterbody crossing | 1,841 | 0.04 | Agricultural |
| Jersey | ATWS-274 | 31.5 | ATWS is required for topsoil segregation | 126,328 | 2.90 | Agricultural |
| Jersey | ATWS-275 | 31.5 | ATWS is required for waterbody crossing | 3,750 | 0.09 | Agricultural |
| Jersey | ATWS-276 | 31.6 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-277 | 32.5 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Jersey | ATWS-278 | 32.5 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Jersey | ATWS-279 | 32.5 | ATWS is required for topsoil segregation | 65,268 | 1.50 | Agricultural |
| Jersey | ATWS-280 | 33.0 | ATWS is required for road crossing / MLV site construction | 5,000 | 0.11 | Agricultural |
| Jersey | ATWS-281 | 33.0 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Jersey | ATWS-282 | 33.0 | ATWS is required for topsoil segregation | 37,560 | 0.86 | Agricultural |
| Jersey | ATWS-283 | 33.3 | ATWS is required for waterbody crossing | 5,000 | 0.11 | Agricultural |
| Jersey | ATWS-284 | 33.4 | ATWS is required for road crossing | 5,000 | 0.11 | Agricultural |
| Jersey | ATWS-285 | 33.4 | ATWS is required for topsoil segregation | 145,318 | 3.34 | Agricultural |
| Jersey | ATWS-286 | 34.5 | ATWS is required for topsoil segregation | 19,170 | 0.44 | Agricultural |
| Jersey | ATWS-286 | 34.5 | ATWS is required for topsoil segregation | 15,423 | 0.35 | Residential |
| Jersey | ATWS-287 | 34.7 | ATWS is required for waterbody and wetland crossing | 2,594 | 0.06 | Residential |
| Jersey | ATWS-288 | 34.8 | ATWS is required for waterbody and wetland crossing | 2,700 | 0.06 | Residential |
| Jersey | ATWS-289 | 34.8 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Forest |
| Jersey | ATWS-290 | 34.8 | ATWS is required for waterbody and wetland crossing | 12 | 0.00 | Agricultural |
| Jersey | ATWS-290 | 34.8 | ATWS is required for waterbody and wetland crossing | 2,488 | 0.06 | Forest |
| Jersey | ATWS-291 | 35.0 | ATWS is required for topsoil segregation | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-292 | 35.0 | ATWS is required for topsoil segregation | 11,699 | 0.27 | Agricultural |
| Jersey | ATWS-293 | 35.1 | ATWS is required for road crossing | 2,493 | 0.06 | Agricultural |
| Jersey | ATWS-294 | 35.1 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-295 | 35.1 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-296 | 35.1 | ATWS is required for topsoil segregation | 134,544 | 3.09 | Agricultural |
| Jersey | ATWS-296 | 35.1 | ATWS is required for topsoil segregation | 2,077 | 0.05 | Forest |
| Jersey | ATWS-297 | 36.1 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| Jersey | ATWS-298 | 36.2 | ATWS is required for wetland crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-299 | 36.2 | ATWS is required for wetland crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-300 | 36.2 | ATWS is required for topsoil segregation | 11,816 | 0.27 | Agricultural |
| Jersey | ATWS-301 | 36.2 | ATWS is required for wetland crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-302 | 36.2 | ATWS is required for wetland crossing | 2,500 | 0.06 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Jersey | ATWS-303 | 36.3 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-304 | 36.3 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-305 | 36.3 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Forest |
| Jersey | ATWS-306 | 36.4 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Forest |
| Jersey | ATWS-307 | 36.4 | ATWS is required for topsoil segregation | 66,367 | 1.52 | Agricultural |
| Jersey | ATWS-307 | 36.4 | ATWS is required for topsoil segregation | 13 | 0.00 | Developed |
| Jersey | ATWS-308 | 36.9 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-309 | 36.9 | ATWS is required for road crossing | 2,493 | 0.06 | Agricultural |
| Jersey | ATWS-309 | 36.9 | ATWS is required for road crossing | 7 | 0.00 | Developed |
| Jersey | ATWS-310 | 37.0 | ATWS is required for topsoil segregation | 100,974 | 2.32 | Agricultural |
| Jersey | ATWS-311 | 37.0 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-312 | 37.7 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-313 | 37.7 | ATWS is required for road crossing | 2,468 | 0.06 | Agricultural |
| Jersey | ATWS-314 | 37.7 | ATWS is required for topsoil segregation | 70,247 | 1.61 | Agricultural |
| Jersey | ATWS-314 | 37.7 | ATWS is required for topsoil segregation | 142 | 0.00 | Developed |
| Jersey | ATWS-315 | 37.7 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-316 | 37.7 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-317 | 38.2 | ATWS is required for road crossing | 2,493 | 0.06 | Agricultural |
| Jersey | ATWS-317 | 38.2 | ATWS is required for road crossing | 139 | 0.00 | Developed |
| Jersey | ATWS-318 | 38.2 | ATWS is required for road crossing | 2,531 | 0.06 | Agricultural |
| Jersey | ATWS-318 | 38.2 | ATWS is required for road crossing | 101 | 0.00 | Developed |
| Jersey | ATWS-319 | 38.3 | ATWS is required for road crossing | 2,622 | 0.06 | Agricultural |
| Jersey | ATWS-320 | 38.3 | ATWS is required for topsoil segregation | 202,178 | 4.64 | Agricultural |
| Jersey | ATWS-321 | 38.3 | ATWS is required for road crossing | 2,350 | 0.05 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Jersey | ATWS-322 | 39.8 | ATWS is required for road crossing | 2,531 | 0.06 | Agricultural |
| Jersey | ATWS-323 | 39.8 | ATWS is required for topsoil segregation | 80,578 | 1.85 | Agricultural |
| Jersey | ATWS-324 | 39.8 | ATWS is required for road crossing | 3,219 | 0.07 | Agricultural |
| Jersey | ATWS-325 | 39.8 | ATWS is required for road crossing | 2,511 | 0.06 | Agricultural |
| Jersey | ATWS-326 | 40.3 | ATWS is required for access road transition to workspace | 5,000 | 0.11 | Agricultural |
| Jersey | ATWS-327 | 40.4 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| Jersey | ATWS-328 | 40.5 | ATWS is required for topsoil segregation | 56,768 | 1.30 | Agricultural |
| Jersey | ATWS-329 | 41.0 | ATWS is required for waterbody crossing | 2,574 | 0.06 | Agricultural |
| Jersey | ATWS-330 | 41.1 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-331 | 41.1 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-332 | 41.1 | ATWS is required for topsoil segregation | 5,847 | 0.13 | Agricultural |
| Jersey | ATWS-333 | 41.2 | ATWS is required for topsoil segregation | 23,643 | 0.54 | Agricultural |
| Jersey | ATWS-334 | 41.3 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-335 | 41.3 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-336 | 41.3 | ATWS is required for road crossing | 2,501 | 0.06 | Agricultural |
| Jersey | ATWS-337 | 41.3 | ATWS is required for topsoil segregation | 15,525 | 0.36 | Agricultural |
| Jersey | ATWS-338 | 41.3 | ATWS is required for road crossing | 2,501 | 0.06 | Agricultural |
| Jersey | ATWS-339 | 41.4 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-340 | 41.4 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-341 | 41.5 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-342 | 41.5 | ATWS is required for topsoil segregation | 48,131 | 1.10 | Agricultural |
| Jersey | ATWS-343 | 41.5 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-344 | 41.8 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-345 | 41.8 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Jersey | ATWS-346 | 41.9 | ATWS is required for road crossing | 2,500 | 0.06 | Agricultural |
| Jersey | ATWS-347 | 41.9 | ATWS is required for topsoil segregation | 17,368 | 0.40 | Agricultural |
| Jersey | ATWS-348 | 42.0 | ATWS is required for topsoil segregation | 85,662 | 1.97 | Agricultural |
| Jersey | ATWS-349 | 42.7 | ATWS is required for topsoil segregation | 35,504 | 0.82 | Agricultural |
| Jersey | ATWS-350 | 43.0 | ATWS is required for topsoil segregation | 16,127 | 0.37 | Agricultural |
| Jersey | ATWS-351 | 43.1 | ATWS is required for topsoil segregation | 10,757 | 0.25 | Agricultural |
| Jersey | ATWS-351 | 43.1 | ATWS is required for topsoil segregation | 4,828 | 0.11 | Residential |
| Jersey | ATWS-352 | 43.3 | ATWS is required for topsoil segregation | 10,552 | 0.24 | Residential |
| Jersey | ATWS-353 | 43.4 | ATWS is required for road crossing | 2,472 | 0.06 | Residential |
| Jersey | ATWS-354 | 43.4 | ATWS is required for road crossing | 2,542 | 0.06 | Residential |
| Jersey | ATWS-355 | 43.4 | ATWS is required for road crossing | 2,546 | 0.06 | Agricultural |
| Jersey | ATWS-356 | 43.4 | ATWS is required for road crossing | 3,644 | 0.08 | Agricultural |
| Jersey | ATWS-357 | 43.4 | ATWS is required for topsoil segregation | 3,980 | 0.09 | Agricultural |
| Jersey | ATWS-358 | 43.4 | ATWS is required for access road entrance / equipment | 3,233 | 0.07 | Agricultural |
| Jersey | ATWS-358 | 43.4 | ATWS is required for access road entrance / equipment | 1,767 | 0.04 | Forest |
| Jersey | ATWS-359 | 43.6 | ATWS is required for topsoil segregation | 4,983 | 0.11 | Agricultural |
| Jersey | ATWS-360 | 43.6 | ATWS is required for waterbody crossing | 325 | 0.01 | Agricultural |
| Jersey | ATWS-360 | 43.6 | ATWS is required for waterbody crossing | 1,998 | 0.05 | Forest |
| Jersey | ATWS-361 | 43.6 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Forest |
| Jersey | ATWS-362 | 43.7 | ATWS is required for waterbody crossing | 1,172 | 0.03 | Forest |
| Jersey | ATWS-362 | 43.7 | ATWS is required for waterbody crossing | 1,328 | 0.03 | Open Land |
| Jersey | ATWS-363 | 43.7 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Open Land |
| Jersey | ATWS-364 | 44.0 | ATWS is required for waterbody crossing | 66 | 0.00 | Forest |
| Jersey | ATWS-364 | 44.0 | ATWS is required for waterbody crossing | 2,434 | 0.06 | Open Land |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| Jersey | ATWS-365 | 44.0 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Forest |
| Jersey | ATWS-366 | 44.0 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Open Land |
| Jersey | ATWS-367 | 44.0 | ATWS is required due to rugged terrain / parallel construction to existing ammonia pipelines | 61,895 | 1.42 | Forest |
| Jersey | ATWS-367 | 44.0 | ATWS is required due to rugged terrain / parallel construction to existing ammonia pipelines | 517 | 0.01 | Open Land |
| Jersey | ATWS-368 | 44.5 | ATWS is required for HDD | 34,500 | 0.79 | Forest |
| Jersey | ATWS-369 | 44.5 | ATWS is required for HDD | 13,346 | 0.31 | Forest |
| Jersey | ATWS-369 | 44.5 | ATWS is required for HDD | 15,155 | 0.35 | Open Land |
| *Missouri* | | | | | | |
| St. Charles | ATWS-370 | 45.6 | ATWS is required for HDD | 23,448 | 0.54 | Agricultural |
| St. Charles | ATWS-370 | 45.6 | ATWS is required for HDD | 5,035 | 0.12 | Forest |
| St. Charles | ATWS-371 | 45.6 | ATWS is required for HDD | 33,737 | 0.77 | Agricultural |
| St. Charles | ATWS-372 | 45.7 | ATWS is required for HDD | 438,923 | 10.08 | Agricultural |
| St. Charles | ATWS-372 | 45.7 | ATWS is required for HDD | 2,333 | 0.05 | Developed |
| St. Charles | ATWS-373 | 45.7 | ATWS is required for topsoil segregation | 57,282 | 1.32 | Agricultural |
| St. Charles | ATWS-374 | 46.1 | ATWS is required for road crossing / MLV site construction | 2,552 | 0.06 | Agricultural |
| St. Charles | ATWS-375 | 46.1 | ATWS is required for road crossing / MLV site construction | 2,537 | 0.06 | Agricultural |
| St. Charles | ATWS-376 | 46.2 | ATWS is required for road crossing | 2,784 | 0.06 | Agricultural |
| St. Charles | ATWS-377 | 46.2 | ATWS is required for topsoil segregation | 125,883 | 2.89 | Agricultural |
| St. Charles | ATWS-378 | 46.3 | ATWS is required for access road entrance / equipment | 5,000 | 0.11 | Agricultural |
| St. Charles | ATWS-379 | 46.3 | ATWS is required for HDD | 22,500 | 0.52 | Agricultural |
| St. Charles | ATWS-380 | 47.1 | ATWS is required for road crossing | 2,503 | 0.06 | Agricultural |
| St. Charles | ATWS-381 | 47.1 | ATWS is required for road crossing | 2,505 | 0.06 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| St. Charles | ATWS-382 | 47.1 | ATWS is required for road crossing | 2,502 | 0.06 | Agricultural |
| St. Charles | ATWS-383 | 47.1 | ATWS is required for topsoil segregation | 15,782 | 0.36 | Agricultural |
| St. Charles | ATWS-384 | 47.1 | ATWS is required for road crossing | 2,505 | 0.06 | Agricultural |
| St. Charles | ATWS-385 | 47.2 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-386 | 47.2 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-387 | 47.3 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-388 | 47.3 | ATWS is required for waterbody and wetland crossing | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-389 | 47.3 | ATWS is required for topsoil segregation | 85,347 | 1.96 | Agricultural |
| St. Charles | ATWS-390 | 48.0 | ATWS is required for topsoil segregation | 72,482 | 1.66 | Agricultural |
| St. Charles | ATWS-391 | 48.5 | ATWS is required for road crossing | 2,563 | 0.06 | Agricultural |
| St. Charles | ATWS-392 | 48.5 | ATWS is required for road crossing | 2,564 | 0.06 | Agricultural |
| St. Charles | ATWS-393 | 48.5 | ATWS is required for road crossing | 2,563 | 0.06 | Agricultural |
| St. Charles | ATWS-394 | 48.5 | ATWS is required for topsoil segregation | 50,603 | 1.16 | Agricultural |
| St. Charles | ATWS-395 | 48.5 | ATWS is required for road crossing | 2,564 | 0.06 | Agricultural |
| St. Charles | ATWS-396 | 48.9 | ATWS is required for road crossing | 2,515 | 0.06 | Agricultural |
| St. Charles | ATWS-397 | 48.9 | ATWS is required for road crossing | 2,518 | 0.06 | Agricultural |
| St. Charles | ATWS-398 | 48.9 | ATWS is required for road crossing | 2,515 | 0.06 | Agricultural |
| St. Charles | ATWS-399 | 48.9 | ATWS is required for topsoil segregation | 115,974 | 2.66 | Agricultural |
| St. Charles | ATWS-400 | 48.9 | ATWS is required for road crossing | 2,518 | 0.06 | Agricultural |
| St. Charles | ATWS-401 | 49.7 | ATWS is required for road crossing | 3,117 | 0.07 | Agricultural |
| St. Charles | ATWS-402 | 49.8 | ATWS is required for road crossing | 2,977 | 0.07 | Agricultural |
| St. Charles | ATWS-403 | 49.8 | ATWS is required for topsoil segregation | 75,290 | 1.73 | Agricultural |
| St. Charles | ATWS-404 | 49.8 | ATWS is required for road crossing | 3,055 | 0.07 | Agricultural |
| St. Charles | ATWS-405 | 49.8 | ATWS is required for road crossing | 3,109 | 0.07 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| St. Charles | ATWS-406 | 50.3 | ATWS is required for railroad bored crossing | 4,828 | 0.11 | Agricultural |
| St. Charles | ATWS-407 | 50.3 | ATWS is required for railroad bored crossing | 7,299 | 0.17 | Agricultural |
| St. Charles | ATWS-408 | 50.4 | ATWS is required for railroad bored crossing | 2,629 | 0.06 | Agricultural |
| St. Charles | ATWS-409 | 50.4 | ATWS is required for topsoil segregation | 25,252 | 0.58 | Agricultural |
| St. Charles | ATWS-409 | 50.4 | ATWS is required for topsoil segregation | 2,340 | 0.05 | Developed |
| St. Charles | ATWS-410 | 50.4 | ATWS is required for railroad bored crossing | 2,840 | 0.07 | Agricultural |
| St. Charles | ATWS-411 | 50.6 | ATWS is required for road crossing | 2,639 | 0.06 | Agricultural |
| St. Charles | ATWS-412 | 50.6 | ATWS is required for road crossing | 2,639 | 0.06 | Developed |
| St. Charles | ATWS-413 | 50.6 | ATWS is required for road crossing | 386 | 0.01 | Agricultural |
| St. Charles | ATWS-413 | 50.6 | ATWS is required for road crossing | 2,253 | 0.05 | Developed |
| St. Charles | ATWS-414 | 50.6 | ATWS is required for topsoil segregation | 53,823 | 1.24 | Agricultural |
| St. Charles | ATWS-414 | 50.6 | ATWS is required for topsoil segregation | 2,869 | 0.07 | Developed |
| St. Charles | ATWS-415 | 50.6 | ATWS is required for road crossing | 730 | 0.02 | Agricultural |
| St. Charles | ATWS-415 | 50.6 | ATWS is required for road crossing | 1,910 | 0.04 | Developed |
| St. Charles | ATWS-416 | 51.0 | ATWS is required for road crossing | 3,198 | 0.07 | Agricultural |
| St. Charles | ATWS-417 | 51.0 | ATWS is required for road crossing | 3,184 | 0.07 | Agricultural |
| St. Charles | ATWS-418 | 51.1 | ATWS is required for topsoil segregation | 67,708 | 1.55 | Agricultural |
| St. Charles | ATWS-419 | 51.1 | ATWS is required for road crossing | 3,183 | 0.07 | Agricultural |
| St. Charles | ATWS-420 | 51.1 | ATWS is required for road crossing | 3,183 | 0.07 | Agricultural |
| St. Charles | ATWS-421 | 51.5 | ATWS is required for access road entrance / equipment | 4,993 | 0.11 | Open Land |
| St. Charles | ATWS-422 | 51.6 | ATWS is required for access road transition to workspace | 5,000 | 0.11 | Agricultural |
| St. Charles | ATWS-423 | 51.6 | ATWS is required for topsoil segregation | 98,283 | 2.26 | Agricultural |
| St. Charles | ATWS-424 | 52.3 | ATWS is required for road crossing | 2,617 | 0.06 | Agricultural |
| St. Charles | ATWS-425 | 52.4 | ATWS is required for road crossing | 2,617 | 0.06 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| St. Charles | ATWS-426 | 52.4 | ATWS is required for topsoil segregation | 161,741 | 3.71 | Agricultural |
| St. Charles | ATWS-427 | 52.4 | ATWS is required for road crossing | 2,617 | 0.06 | Agricultural |
| St. Charles | ATWS-428 | 53.6 | ATWS is required for road crossing | 2,810 | 0.06 | Agricultural |
| St. Charles | ATWS-429 | 53.6 | ATWS is required for road crossing | 2,817 | 0.06 | Agricultural |
| St. Charles | ATWS-430 | 53.6 | ATWS is required for road crossing | 2,806 | 0.06 | Agricultural |
| St. Charles | ATWS-431 | 53.6 | ATWS is required for topsoil segregation | 198,441 | 4.56 | Agricultural |
| St. Charles | ATWS-432 | 53.6 | ATWS is required for road crossing | 2,816 | 0.06 | Agricultural |
| St. Charles | ATWS-433 | 55.1 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-434 | 55.1 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-435 | 55.2 | ATWS is required for waterbody crossing | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-436 | 55.2 | ATWS is required for waterbody crossing | 2,546 | 0.06 | Agricultural |
| St. Charles | ATWS-437 | 55.2 | ATWS is required for topsoil segregation | 78,159 | 1.79 | Agricultural |
| St. Charles | ATWS-438 | 55.8 | ATWS is required for road crossing | 2,504 | 0.06 | Agricultural |
| St. Charles | ATWS-439 | 55.8 | ATWS is required for road crossing | 2,504 | 0.06 | Agricultural |
| St. Charles | ATWS-440 | 55.8 | ATWS is required for road crossing | 2,505 | 0.06 | Agricultural |
| St. Charles | ATWS-441 | 55.8 | ATWS is required for topsoil segregation | 20,189 | 0.46 | Agricultural |
| St. Charles | ATWS-442 | 55.8 | ATWS is required for road crossing | 2,505 | 0.06 | Agricultural |
| St. Charles | ATWS-443 | 56.0 | ATWS is required for wetland crossing | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-444 | 56.0 | ATWS is required for wetland crossing | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-445 | 56.0 | ATWS is required for topsoil segregation | 55,599 | 1.28 | Agricultural |
| St. Charles | ATWS-446 | 56.0 | ATWS is required for wetland crossing | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-447 | 56.0 | ATWS is required for wetland crossing | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-448 | 56.3 | ATWS is required for HDD | 22,500 | 0.52 | Agricultural |
| St. Charles | ATWS-449 | 56.4 | ATWS is required for HDD | 192,487 | 4.42 | Agricultural |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| St. Charles | ATWS-449 | 56.4 | ATWS is required for HDD | 1,414 | 0.03 | Developed |
| St. Charles | ATWS-450 | 56.4 | ATWS is required for topsoil segregation | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-451 | 56.4 | ATWS is required for topsoil segregation | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-452 | 56.5 | ATWS is required for topsoil segregation | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-453 | 56.5 | ATWS is required for topsoil segregation | 10,259 | 0.24 | Agricultural |
| St. Charles | ATWS-454 | 56.5 | ATWS is required for topsoil segregation | 2,500 | 0.06 | Agricultural |
| St. Charles | ATWS-455 | 56.6 | ATWS is required for road crossing | 2,503 | 0.06 | Agricultural |
| St. Charles | ATWS-456 | 56.6 | ATWS is required for road crossing | 2,503 | 0.06 | Agricultural |
| St. Charles | ATWS-457 | 56.6 | ATWS is required for road crossing | 2,503 | 0.06 | Agricultural |
| St. Charles | ATWS-458 | 56.6 | ATWS is required for road crossing | 2,648 | 0.06 | Agricultural |
| St. Charles | ATWS-459 | 56.6 | ATWS is required for access road entrance / equipment | 5,001 | 0.11 | Agricultural |
| St. Charles | ATWS-460 | 56.6 | ATWS is required for topsoil segregation | 43,648 | 1.00 | Agricultural |
| St. Charles | ATWS-461 | 57.0 | ATWS is required for HDD | 28,500 | 0.65 | Agricultural |
| St. Charles | ATWS-462 | 57.0 | ATWS is required for HDD | 34,500 | 0.79 | Agricultural |
| St. Louis | ATWS-463 | 57.6 | ATWS is required for HDD | 17,691 | 0.41 | Developed |
| St. Louis | ATWS-463 | 57.6 | ATWS is required for HDD | 4,159 | 0.10 | Forest |
| St. Louis | ATWS-464 | 57.6 | ATWS is required for HDD | 34,500 | 0.79 | Developed |
| St. Louis | ATWS-465 | 57.8 | ATWS is required for access road entrance / equipment | 7,140 | 0.16 | Developed |
| | | | | **Subtotal[1]** | **193.36** | |
| **Line 880** | | | | | | |
| *Missouri* | | | | | | |
| St. Louis | ATWS-466 | 2.1 | ATWS is required for terrain and waterbody crossing | 3,390 | 0.08 | Forest |
| St. Louis | ATWS-466 | 2.1 | ATWS is required for terrain and waterbody crossing | 37,004 | 0.85 | Open Land |
| St. Louis | ATWS-467 | 2.3 | ATWS is required for terrain, waterbody and highway crossing | 10,666 | 0.24 | Forest |

## Appendix 8-F. Additional Temporary Workspace (Continued)

| County | Workspace ID | Nearest Milepost[1] | Justification | Area (Square Feet) | Area (acres) | Existing Land Use |
|---|---|---|---|---|---|---|
| St. Louis | ATWS-467 | 2.3 | ATWS is required for terrain, waterbody and highway crossing | 3,830 | 0.09 | Open Land |
| St. Louis | ATWS-467 | 2.3 | ATWS is required for terrain, waterbody and highway crossing | 4,188 | 0.10 | Developed |
| St. Louis | ATWS-468 | 2.4 | ATWS is required for terrain and highway crossing | 14,373 | 0.33 | Open Land |
| St. Louis | ATWS-468 | 2.4 | ATWS is required for terrain and highway crossing | 8,088 | 0.19 | Residential |
| St. Louis | ATWS-468 | 2.4 | ATWS is required for terrain and highway crossing | 490 | 0.01 | Developed |
| St. Louis | ATWS-469 | 2.5 | ATWS is required for terrain and highway crossing | 53,527 | 1.23 | Developed |
| St. Louis | ATWS-469 | 2.5 | ATWS is required for terrain and highway crossing | 1,854 | 0.04 | Developed |
| | | | | **Subtotal[1]** | **3.15** | |
| | | | | **Project Totals[1]** | **196.52** | |

Notes:

[1] Totals may not equal the sum of the columns due to rounding.