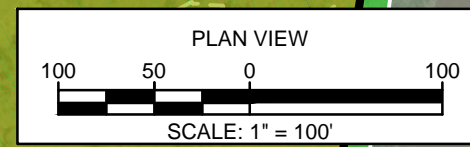
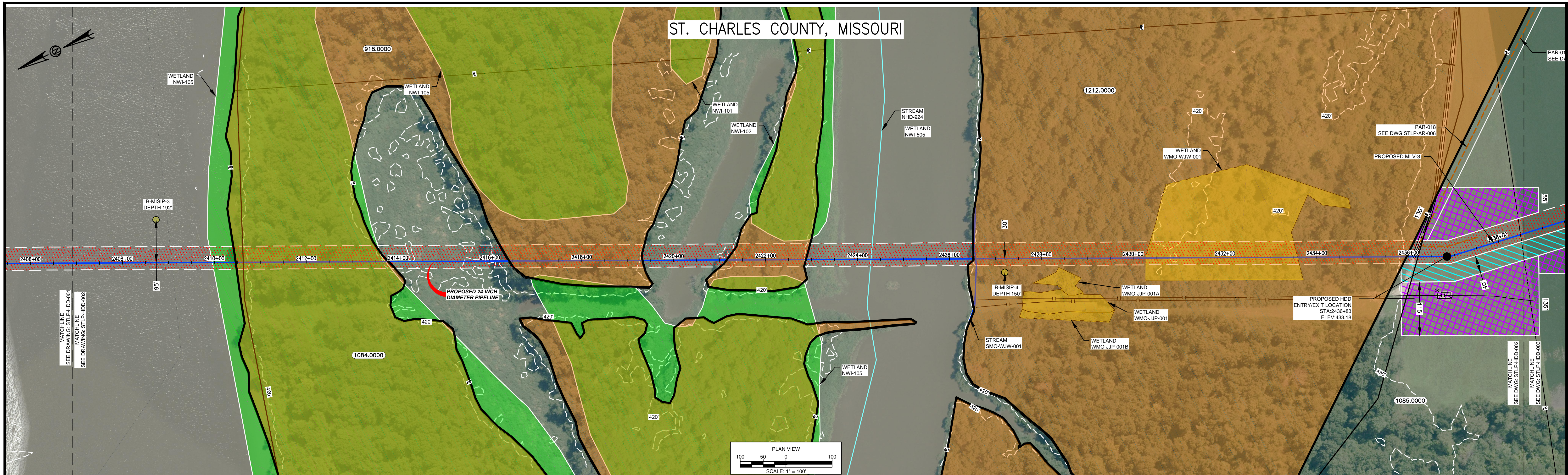


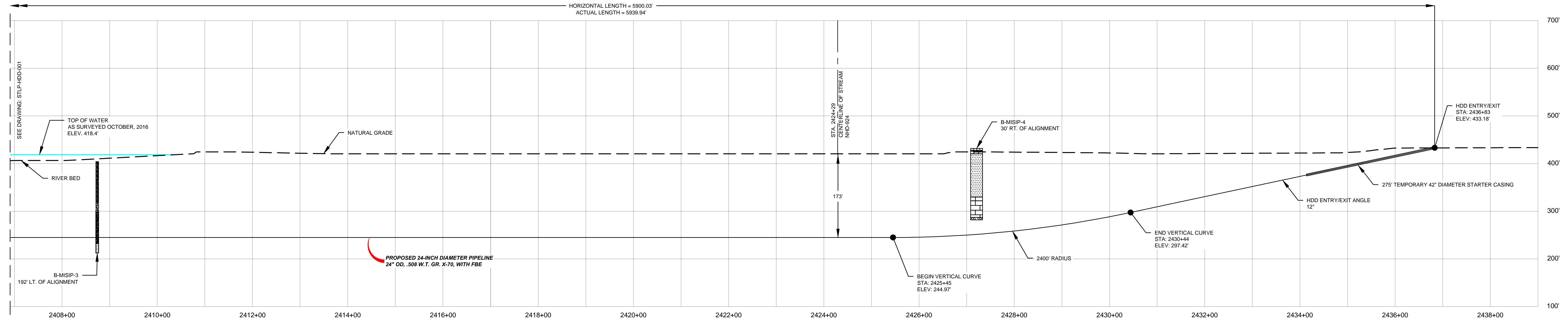
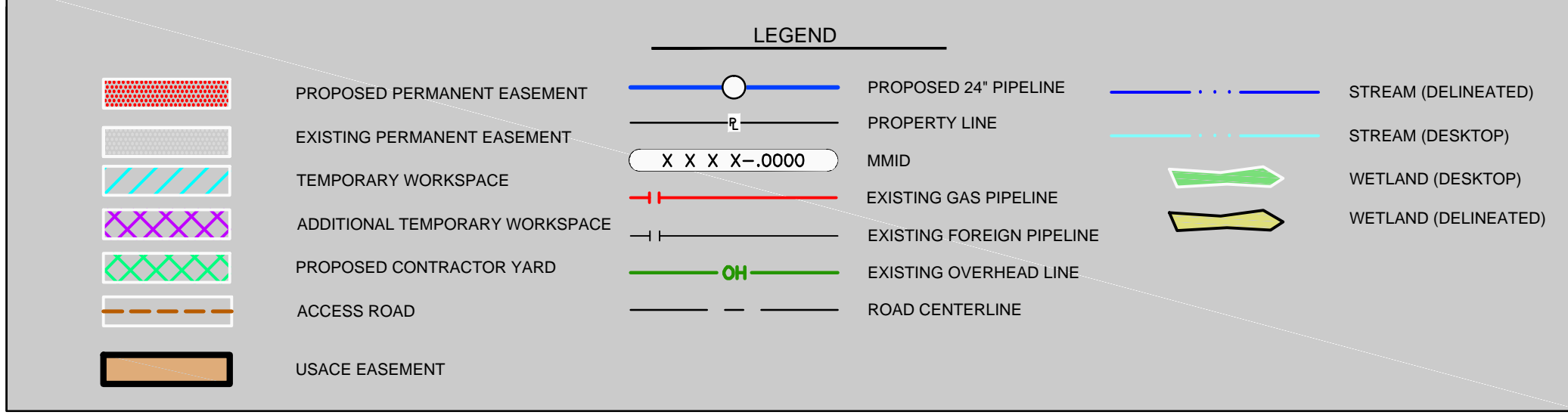
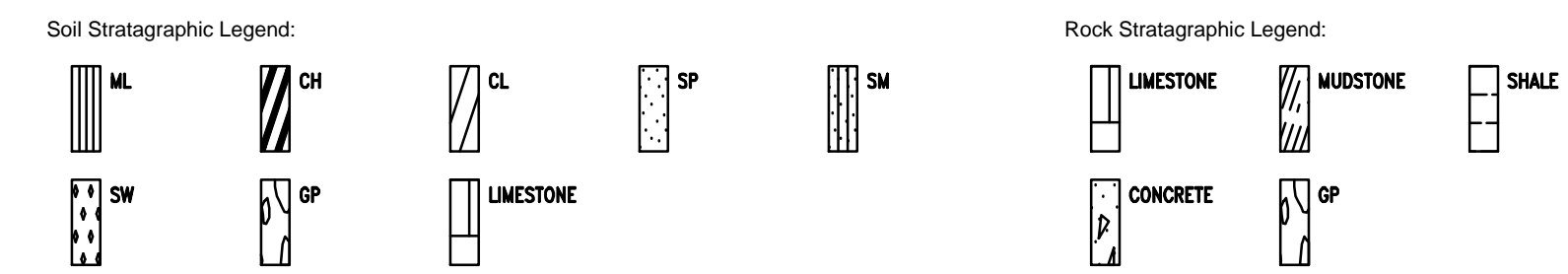
ST. CHARLES COUNTY, MISSOURI



HDD NOTES:

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MISSISSIPPI HDD PLAN VIEW



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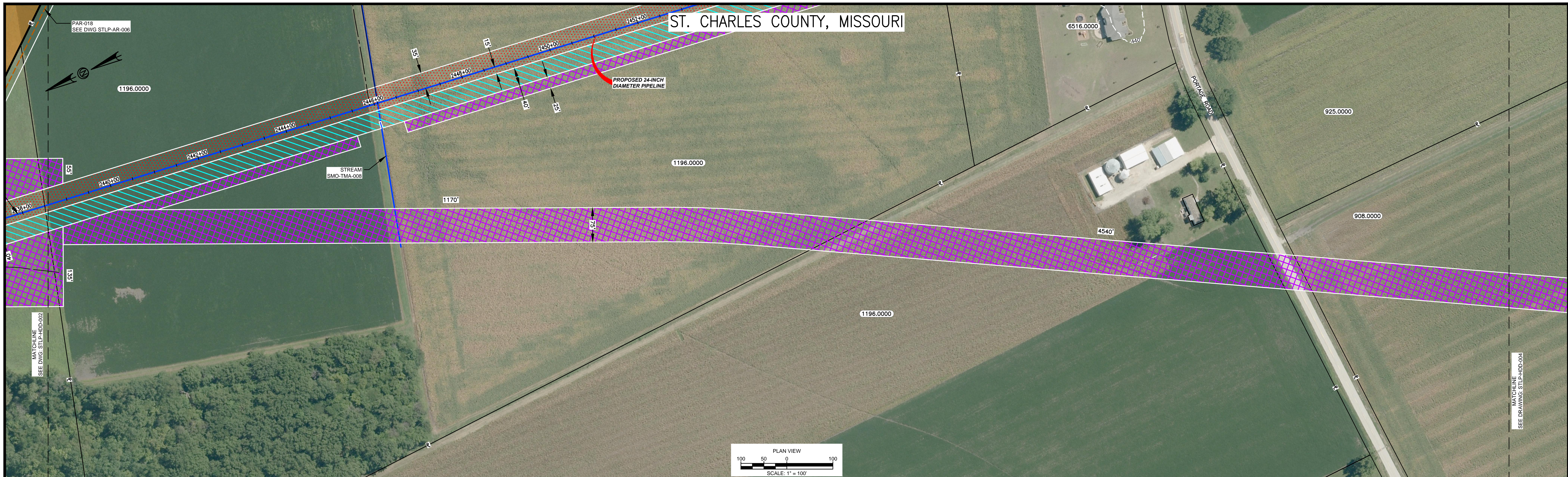
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STLP-A-052	ALIGNMENT SHEET			1	ISSUE FOR FERC	01/2017										D.R.G.	01/2017	D.G.G.	01/2017			
STLP-A-053	ALIGNMENT SHEET																					
STLP-AR-006	ACCESS ROAD SITE PLAN - PAR-018																E.B.	01/2017	J.E.W.	01/2017		

PREPARED FOR
Spire
STL Pipeline

PREPARED BY
MOTT MACDONALD

SPIRE STL PIPELINE PROJECT
HDD PROFILE OVERVIEW
MISSISSIPPI RIVER MAINLINE
JERSEY COUNTY, ILLINOIS & ST. CHARLES COUNTY, MISSOURI

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Soil Stratigraphic Legend:

ML	CH	CL	SP	SM
SW	GP	LIMESTONE		

Rock Stratigraphic Legend:

LIMESTONE	MUDSTONE	SHALE
CONCRETE	GP	

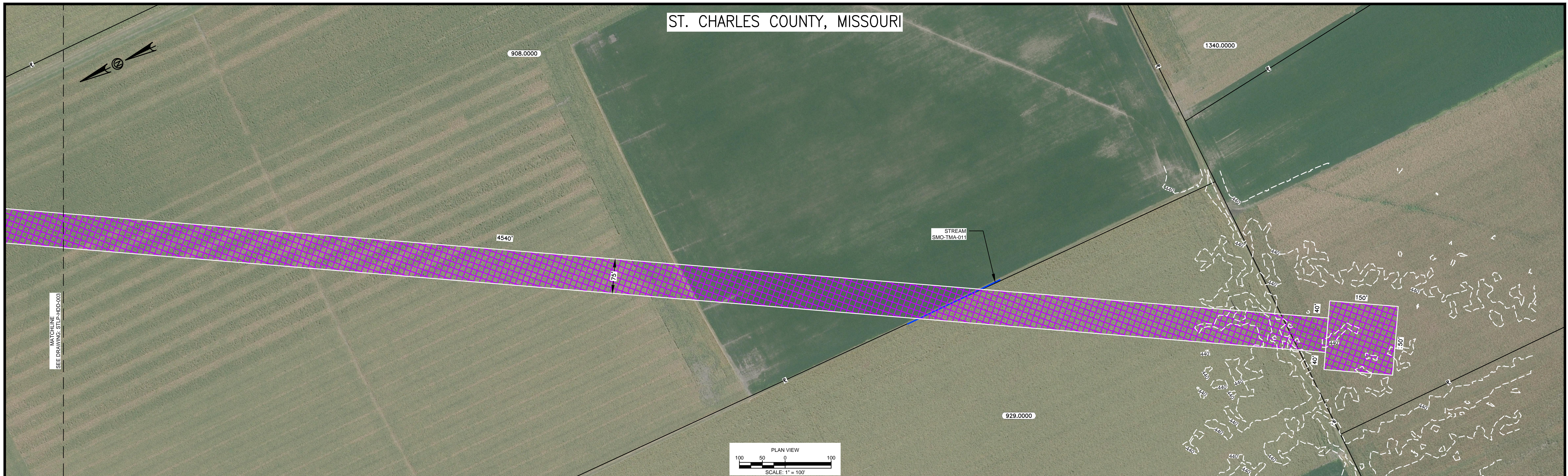
LEGEND

[Red Hatched]	PROPOSED PERMANENT EASEMENT	[Blue Line]	PROPOSED 24" PIPELINE	[Blue Dashed]	STREAM (DELINEATED)
[White]	EXISTING PERMANENT EASEMENT	[Dashed Line]	PROPERTY LINE	[Cyan Dashed]	STREAM (DESKTOP)
[Green Hatched]	TEMPORARY WORKSPACE	[Circle]	MMID	[Green Arrow]	WETLAND (DESKTOP)
[Purple Hatched]	ADDITIONAL TEMPORARY WORKSPACE	[Red Line]	EXISTING GAS PIPELINE	[Yellow Arrow]	WETLAND (DELINEATED)
[Green Dotted]	PROPOSED CONTRACTOR YARD	[Red Line]	EXISTING FOREIGN PIPELINE		
[Orange]	ACCESS ROAD	[Green Line]	EXISTING OVERHEAD LINE		
[Brown]	USACE EASEMENT	[Dashed Line]	ROAD CENTERLINE		

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REFERENCE DRAWINGS		REFERENCE DRAWINGS		REVISIONS				REVISIONS				APPROVALS				PREPARED FOR Spire STL Pipeline	PREPARED BY M MOTT MACDONALD	SPIRE STL PIPELINE PROJECT HDD PROFILE OVERVIEW MISSISSIPPI RIVER MAINLINE ST. CHARLES COUNTY, MISSOURI				
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STLP-A-053	ALIGNMENT SHEET			1	ISSUE FOR FERC	01/2017											D.R.G.	01/2017	D.G.G.	01/2017		
STLP-AR-006	ACCESS ROAD SITE PLAN - PAR-018																E.B.	01/2017	J.E.W.	01/2017		

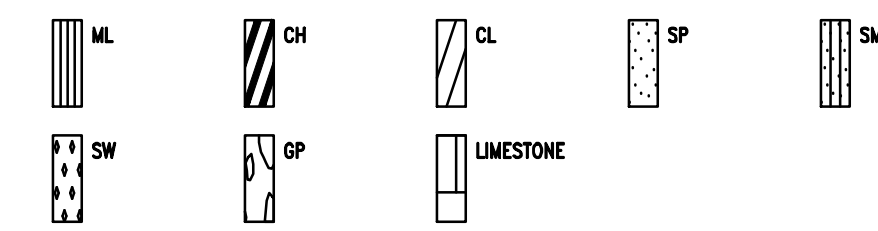
ST. CHARLES COUNTY, MISSOURI



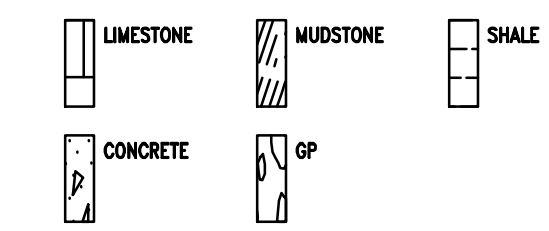
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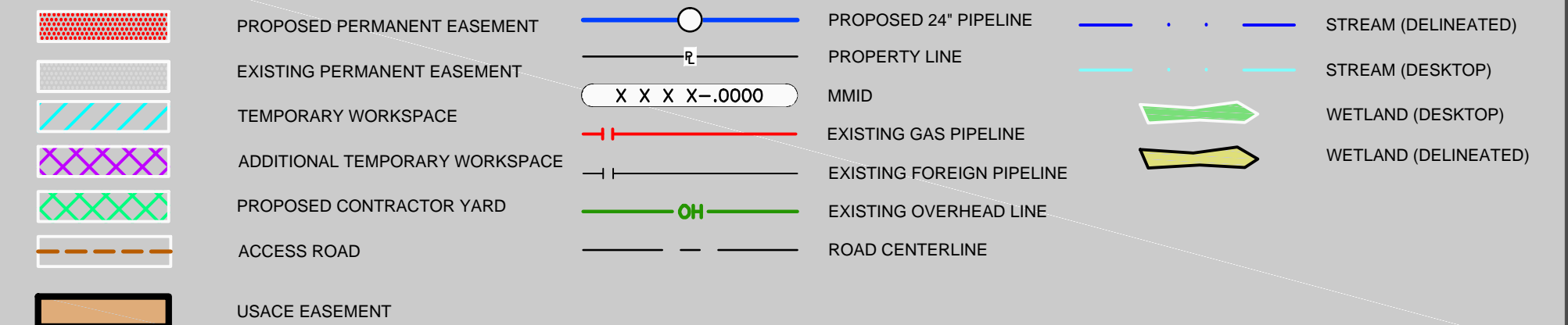
Soil Stratigraphic Legend:



Rock Stratigraphic Legend:



LEGEND

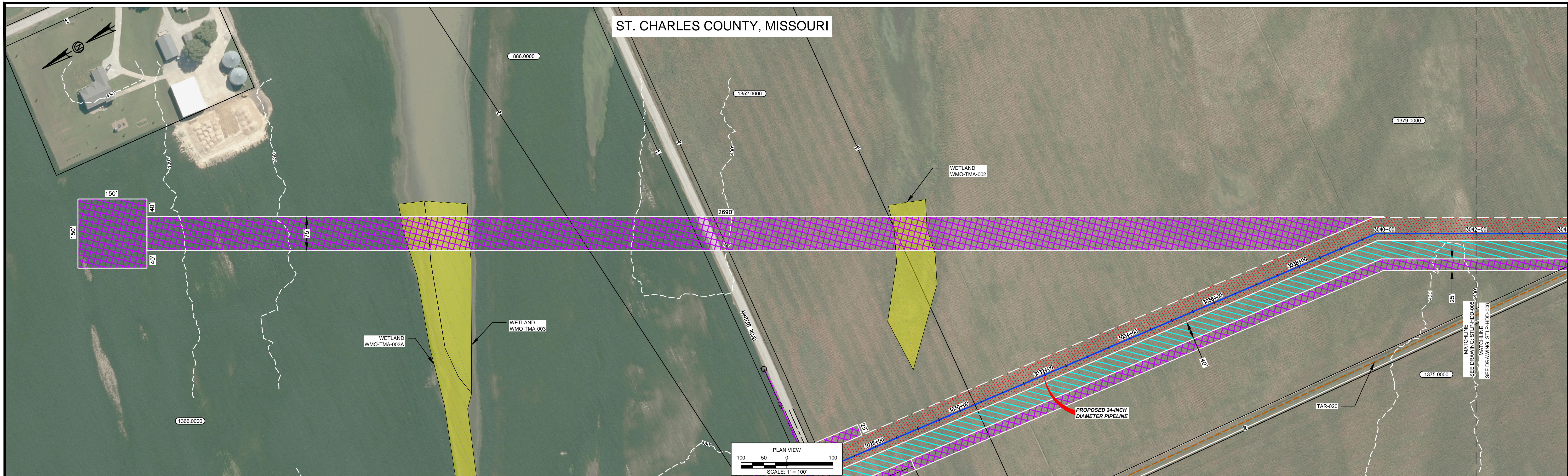


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REFERENCE DRAWINGS		REFERENCE DRAWINGS		REVISIONS					REVISIONS					APPROVALS				PREPARED FOR Spire STL Pipeline	PREPARED BY MOTT MACDONALD	SPIRE STL PIPELINE PROJECT HDD PROFILE OVERVIEW MISSISSIPPI RIVER MAINLINE ST. CHARLES COUNTY, MISSOURI		
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	REVISIONS	DATE	DRAWN	CK	APPR	NO.	REVISIONS	DATE	DRAWN	CK	APPR	DRAWN BY	DATE				ENG. APPROVAL	DATE
STLP-A-053	ALIGNMENT SHEET			1	ISSUE FOR FERC	01/2017											D.R.G.	01/2017	D.G.G.	01/2017		
																	E.B.	01/2017	J.E.W.	01/2017		

ST. CHARLES COUNTY, MISSOURI



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MISSOURI RIVER HDD PLAN VIEW

Soil Stratigraphic Legend:

ML	CH	CL	SP	SM
SW	GP	LIMESTONE		

Rock Stratigraphic Legend:

LIMESTONE	MUDSTONE	SHALE
CONCRETE	GP	

LEGEND

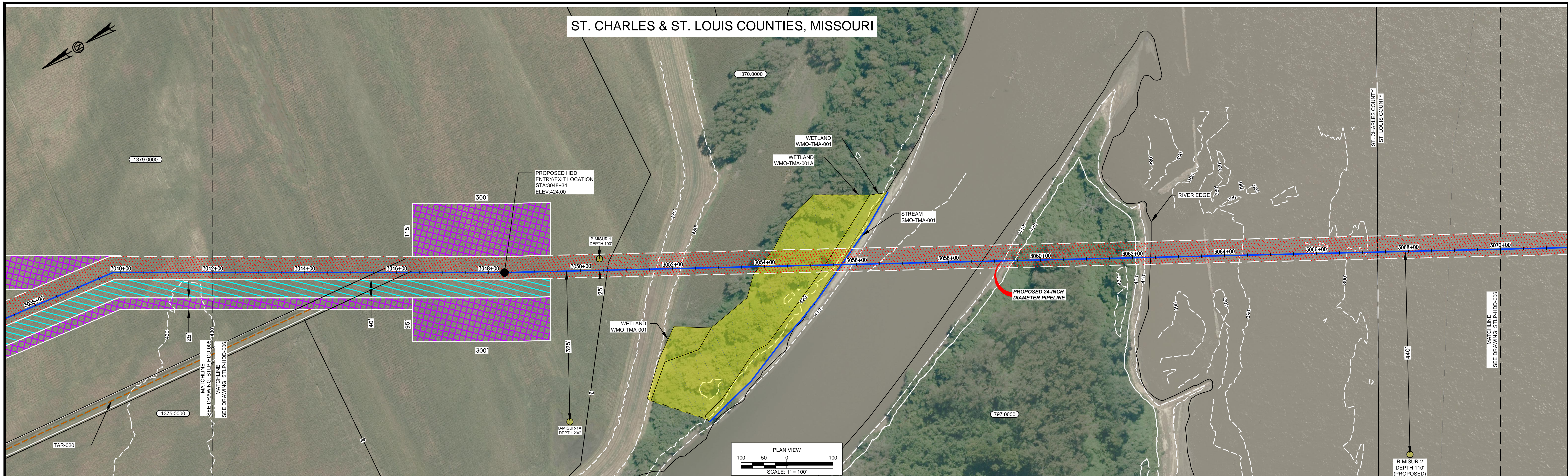
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	EXISTING PERMANENT EASEMENT		PROPERTY LINE		STREAM (DESKTOP)
	TEMPORARY WORKSPACE		MMID		WETLAND (DESKTOP)
	ADDITIONAL TEMPORARY WORKSPACE		EXISTING GAS PIPELINE		WETLAND (DELINEATED)
	PROPOSED CONTRACTOR YARD		EXISTING FOREIGN PIPELINE		
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REFERENCE DRAWINGS		REFERENCE DRAWINGS		REVISIONS				REVISIONS				APPROVALS				PREPARED FOR		PREPARED BY		SPIRE STL PIPELINE PROJECT							
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	REVISIONS	DATE	DRAWN	CK	APPR	NO.	REVISIONS	DATE	DRAWN	CK	APPR	DRAWN BY	DATE	ENG. APPROVAL	DATE	CLIENT APPROVAL	DATE	Spire STL Pipeline		MOTT MACDONALD		HDD PROFILE OVERVIEW MISSOURI RIVER MAINLINE ST. CHARLES & ST. LOUIS COUNTIES, MISSOURI	
STLP-A-066	ALIGNMENT SHEET			1	ISSUE FOR FERC	01/2017										D.R.G.	01/2017	D.G.G.	01/2017								
STLP-A-067	ALIGNMENT SHEET															E.B.	01/2017	J.E.W.	01/2017								

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ST. CHARLES & ST. LOUIS COUNTIES, MISSOURI



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MISSOURI RIVER HDD PLAN VIEW

Soil Stratigraphic Legend:

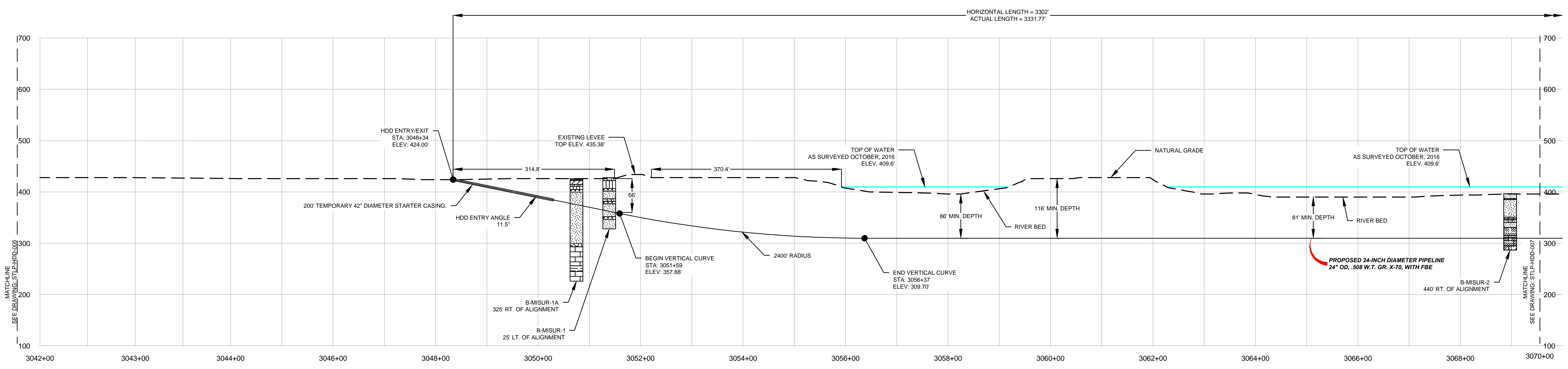
ML	CH	CL	SP	SM
SW	GP	LIMESTONE		

Rock Stratigraphic Legend:

LIMESTONE	MUDSTONE	SHALE
CONCRETE	GP	

LEGEND

[Red Hatched]	PROPOSED PERMANENT EASEMENT	[Blue Line]	PROPOSED 24" PIPELINE	[Blue Dashed Line]	STREAM (DELINEATED)
[Green Hatched]	EXISTING PERMANENT EASEMENT	[Black Line]	PROPERTY LINE	[Blue Dotted Line]	STREAM (DESKTOP)
[Blue Hatched]	TEMPORARY WORKSPACE	[Red Line]	MMID	[Green Arrow]	WETLAND (DESKTOP)
[Purple Hatched]	ADDITIONAL TEMPORARY WORKSPACE	[Red Line with X's]	EXISTING GAS PIPELINE	[Green Arrow]	WETLAND (DELINEATED)
[Green Hatched]	PROPOSED CONTRACTOR YARD	[Red Line with X's]	EXISTING FOREIGN PIPELINE		
[Orange Hatched]	ACCESS ROAD	[Green Line with OH]	EXISTING OVERHEAD LINE		
[Brown Hatched]	USACE EASEMENT	[Black Dashed Line]	ROAD CENTERLINE		

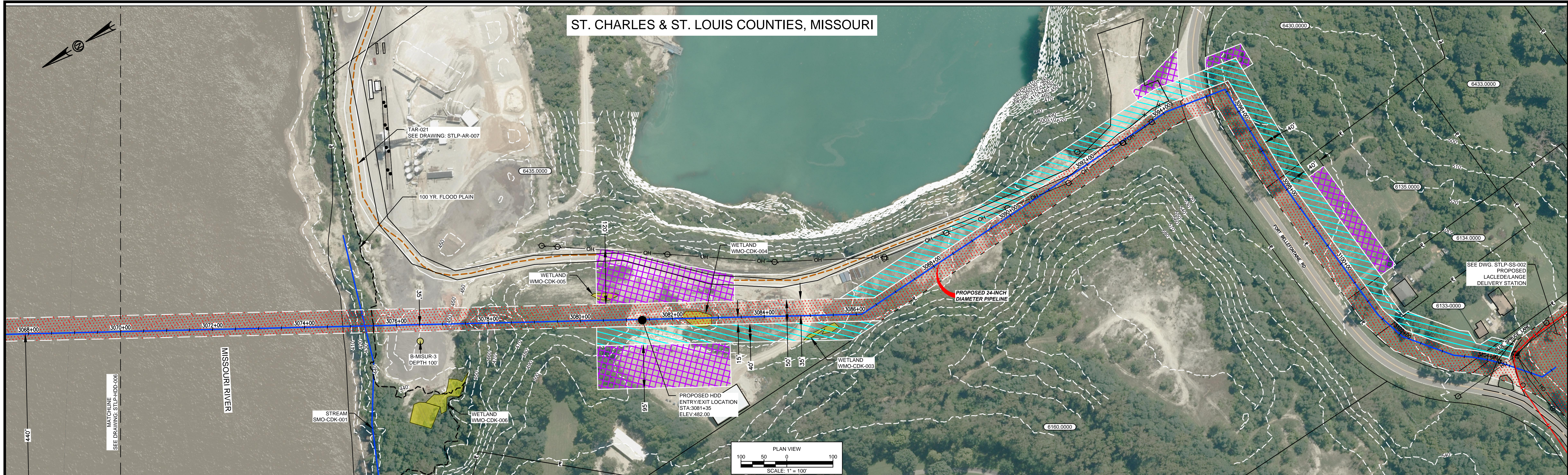


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REFERENCE DRAWINGS		REFERENCE DRAWINGS		REVISIONS				REVISIONS				APPROVALS				PREPARED FOR Spire STL Pipeline	PREPARED BY M MOTT MACDONALD	PROJECT SPIRE STL PIPELINE PROJECT HDD PROFILE OVERVIEW MISSOURI RIVER MAINLINE ST. CHARLES & ST. LOUIS COUNTIES, MISSOURI				
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	REVISIONS	DATE	DRAWN	CK	APPR	NO.	REVISIONS	DATE	DRAWN	CK	APPR				DRAWN BY	DATE	ENG. APPROVAL	DATE
STLP-A-067	ALIGNMENT SHEET			1	ISSUE FOR FERC	01/2017											D.R.G.	01/2017	D.G.G.	01/2017		
																	E.B.	01/2017	J.E.W.	01/2017		

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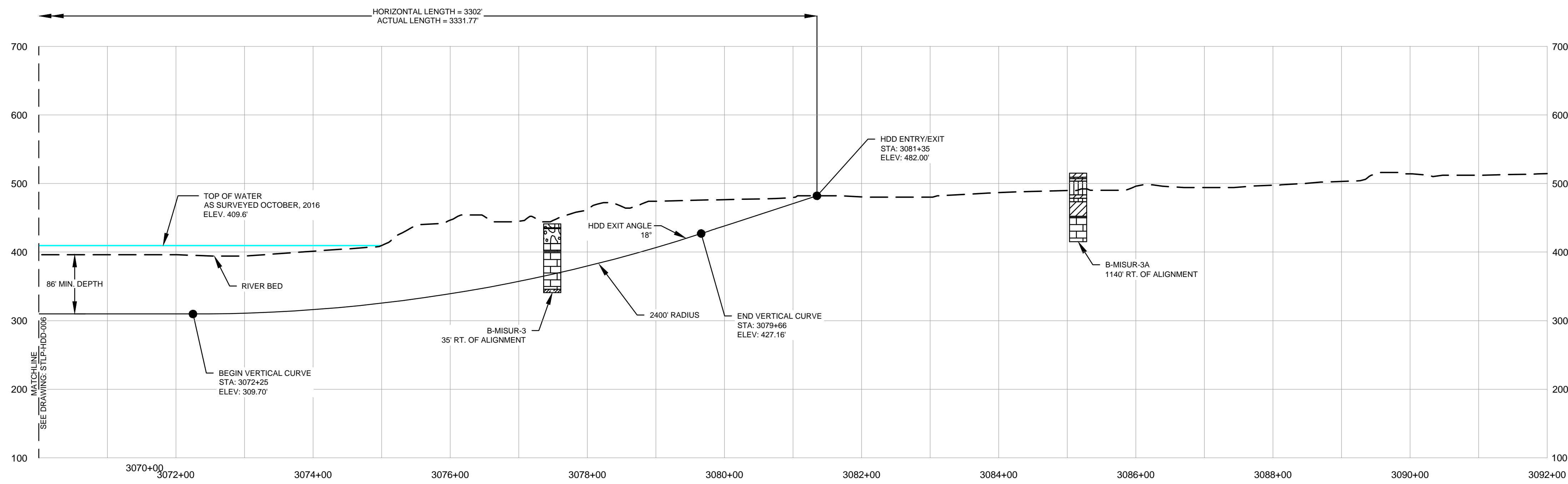
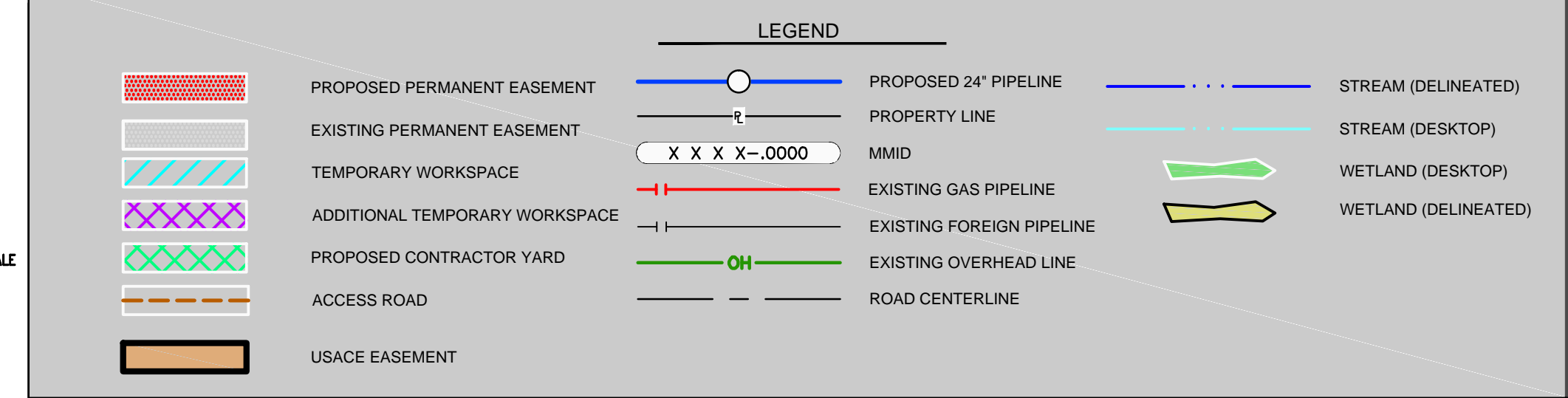
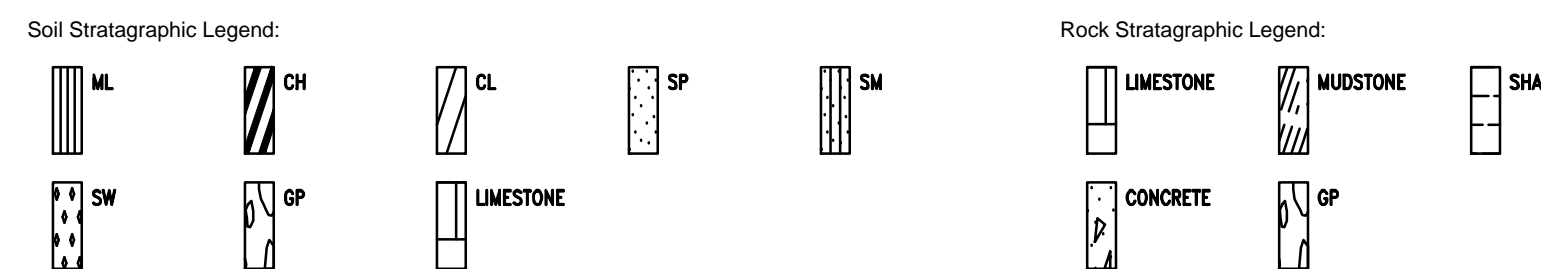
ST. CHARLES & ST. LOUIS COUNTIES, MISSOURI



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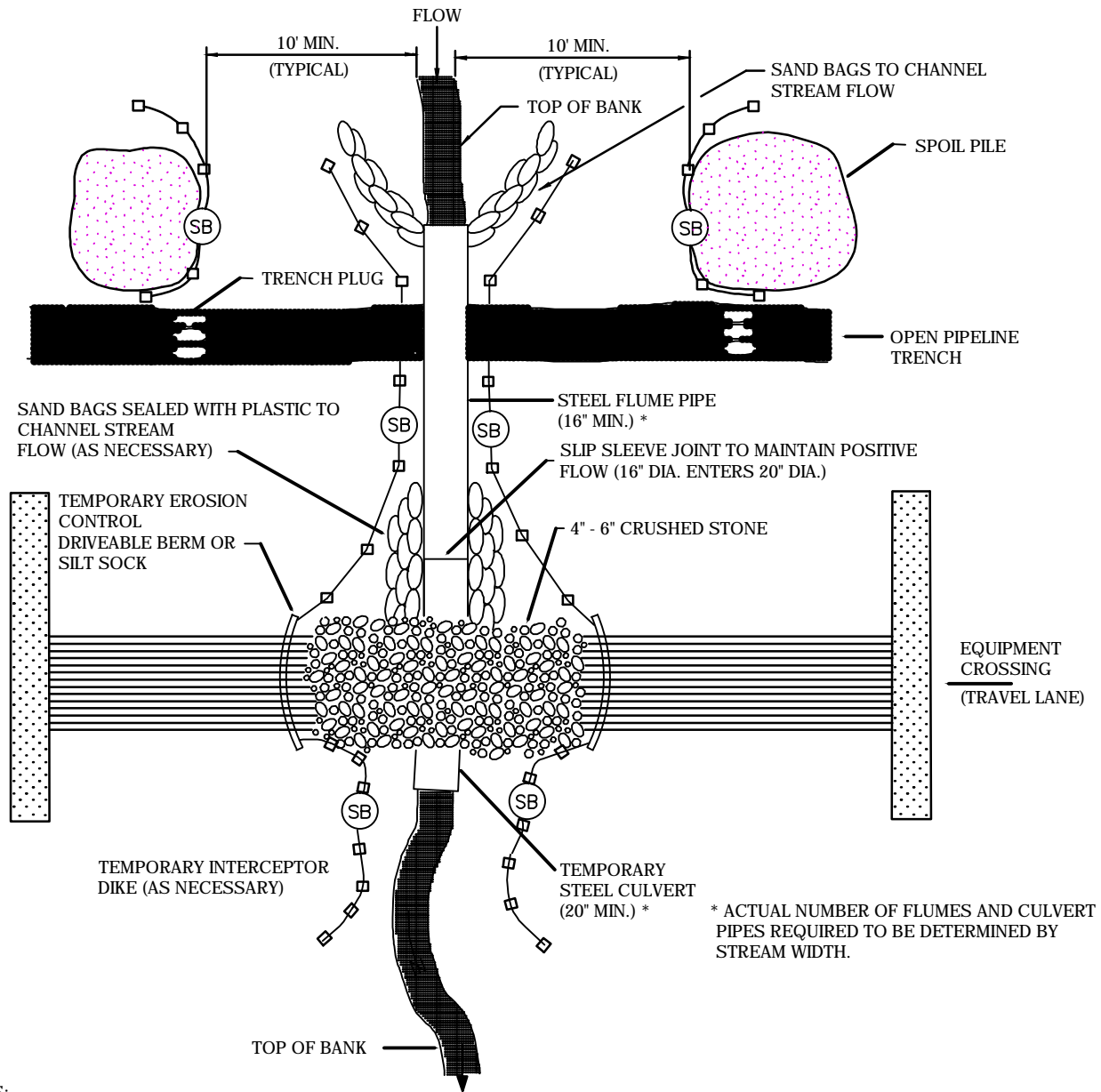
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STLP-A-068	ALIGNMENT SHEET			1	ISSUE FOR FER	01/2017										D.R.G.	01/2017	D.G.G.	01/2017			
STLP-AR-007	ACCESS ROAD SITE PLAN - TAR-007															Checked by	DATE	P.M. APPROVAL	DATE			
STLP-SS-002	LACLEDE/LANGE DELIVERY STATION SITE LAYOUT - STLP-SS-002															E.B.	01/2017	J.E.W.	01/2017			STLP-HDD-007

PREPARED FOR
Spire STL Pipeline

PREPARED BY
MOTT MACDONALD

ST. CHARLES & ST. LOUIS COUNTIES, MISSOURI

SPIRE STL PIPELINE PROJECT
HDD PROFILE OVERVIEW
MISSOURI RIVER MAINLINE



NOTES:

1. (SB) TEMPORARY SEDIMENT BARRIER OF SILT FENCE, SILT SOCK AND/OR STRAW BALES.
2. SAND BAGS MUST BE FILLED WITH CLEAN SAND.
3. THE ENDS OF THE FLUME AND CULVERT MUST EXTEND TO AN UNDISTURBED AREA.
4. FLUME PIPE(S) MAY BE REMOVED IF NO WATER IS FLOWING AT THE TIME(S) OF CONSTRUCTION ACTIVITIES FOR EXCAVATION OF CONTINUOUS TRENCH AND SUBSEQUENT INSTALLATION/ LOWERING IN OF NEW PIPELINE SECTION(S). IF THERE IS A SUBSTANTIAL AMOUNT OF WATER FLOWING AT THE TIME OF CONSTRUCTION, ALTERNATE METHODS MAY BE EMPLOYED TO ACHIEVE A DRY CROSSING.
5. FLUME PIPE(S) MUST BE REPLACED AT THE END OF EACH WORKING DAY UNTIL BACKFILLING AND RESTORATION ARE COMPLETE. STREAM BOTTOM AND BANKS WILL BE RESTORED IN ACCORDANCE WITH THE FERC PROCEDURES.
6. TRENCH PLUGS WILL BE CONSTRUCTED AT TIME OF PIPE INSTALLATION

* ACTUAL NUMBER OF FLUMES AND CULVERT PIPES REQUIRED TO BE DETERMINED BY STREAM WIDTH.

ENG. RECORD		DATE
DRAWN BY:	MM	122016
DRAWING APPROVAL		
PROJECT APPROVAL		
SURVEY DATE:		
SCALE: N.T.S.		
PROJECT ID:		
FILE NAME:		

TYPICAL FLUMED CROSSING

FOR PROPOSED 24-INCH DIAMETER PIPELINE

DWG. NO. **TypicalFlumeCrossing**

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
REVISIONS					