
**APPENDIX A2
PLAN VIEWS AND CROSS SECTIONS**

***Willow Master Development Plan
Wetlands Compensatory Mitigation Plan***

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Technical drawing showing two side-by-side ATVs. A dimension line above the vehicles indicates a width of 4' for each vehicle, totaling 8'.

QUANTITIES TABLE	
TRAIL LENGTH:	32,050 FT
TRAIL FOOTPRINT:	7.1 AC
UPLIFT AREA:	108.8 AC

P | N | D
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[illegible]

PND X	
 <h1 style="margin: 0;">ConocoPhillips</h1> <h2 style="margin: 0;">Alaska, Inc.</h2>	
MODULE: XX	UNIT: XX
<h3 style="margin: 0;">SUSTINENCE TRAIL TUNDRA REHABILITATION</h3> <h3 style="margin: 0;">WILLOW COMPENSATORY MITIGATION</h3>	
REDRAWN FROM:	CONSTRUCTION SHEET
OF	
<div style="display: flex; justify-content: space-around; margin-bottom: 5px;"> 123456 </div> <div style="display: flex; justify-content: space-between; padding: 0 10px;"> DO NOT SCALE ABOVE SCALE FOR REFERENCE ONLY </div>	
DATE:	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> DRAWN: M. GEMMELL CHECKED: D. THIEMAN APPROVAL: XX </div> <div style="width: 45%;"> DESIGN: M. GEMMELL ECM NO: XX CC NO: — CADD FILE NO: — </div> </div>
SCALE:	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> 5/22/20 AS SHOWN </div> <div style="width: 45%;"> PART: 2 OF 4 REV: 0 </div> </div>
JOB NO:	SUB JOB NO:
171012	0000

NOTES:

1. MINIMUM CULVERT QUANTITY WILL BE TWO (2) 36" DIA PIPES PER REPAIR LOCATION.
2. THESE LAYOUTS AND QUANTITIES ARE CONCEPTUAL, AND ARE SUBJECT TO SUBSTANTIAL CHANGE BASED ON SITE CONDITIONS, DESIGN DEVELOPMENT, AND STAKEHOLDER INPUT.

FINISH GRADE

STRUCTURAL STEEL PIPE CULVERT(S) (DIAMETER VARIES)

3 FT MIN

3 FT MIN

GRAVEL FILL

EXISTING GROUND

5 FT

VARIES

5 FT

SCOUR PROTECTION AS REQUIRED AT OUTLET, TYP

ROAD WIDTH VARIES

ROAD CL

2:1

3' MIN


2' MIN

FLOW

SCOUR PROTECTION AS REQUIRED AT OUTLET, TYP

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- MODULE: XX					UNIT: XX				
<h3>NUIQSUT CULVERT REPAIR</h3> <h3>WILLOW COMPENSATORY MITIGATION</h3>									
REDRAWN FROM:							CONSTRUCTION SHEET		
							OF		
<div style="display: flex; justify-content: space-between; width: 100%;"> 1 2 3 4 5 6 </div>									
DO NOT SCALE					ABOVE SCALE FOR REFERENCE ONLY				
DATE:		DRAWN:			DESIGN:		ECM NO:		
05/22/20		D. BROWN			E. PERRY		XX		
SCALE:		CHECKED:				CC NO:			
AS SHOWN		D. THIEMAN				-			
		APPROVAL:				CADD FILE NO.			
		XX				- -			
JOB NO:		SUB JOB NO:		DRAWING NO:		PART:		REV:	
171012		0000		XX		3 OF 4		0	

APPENDIX B
WILLOW PROJECT IMPACTS WITHIN 500 FEET OF ANADROMOUS
FISH-BEARING WATERS

***Willow Master Development Plan
Wetlands Compensatory Mitigation Plan***

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Anadromous Fish Bearing Buffer Impacts Figure B1.

Willow - Proposed

- Pipeline
- Bridge*
- Gravel Footprint

Indirect Impacts

- 35 foot Buffer

Anadromous Waters

- Anadromous Fish Streams (ADFG)
- Anadromous Fish Bearing Water - 500' Buffer

Wetlands by Cowardin Code

- | | |
|----------|-------|
| Uplands | PSS1C |
| PEM1F | R2UBH |
| PEM1H | R2USC |
| PSS1/USB | |

Imagery: Quantum Spatial 2018
*No fill below OHW

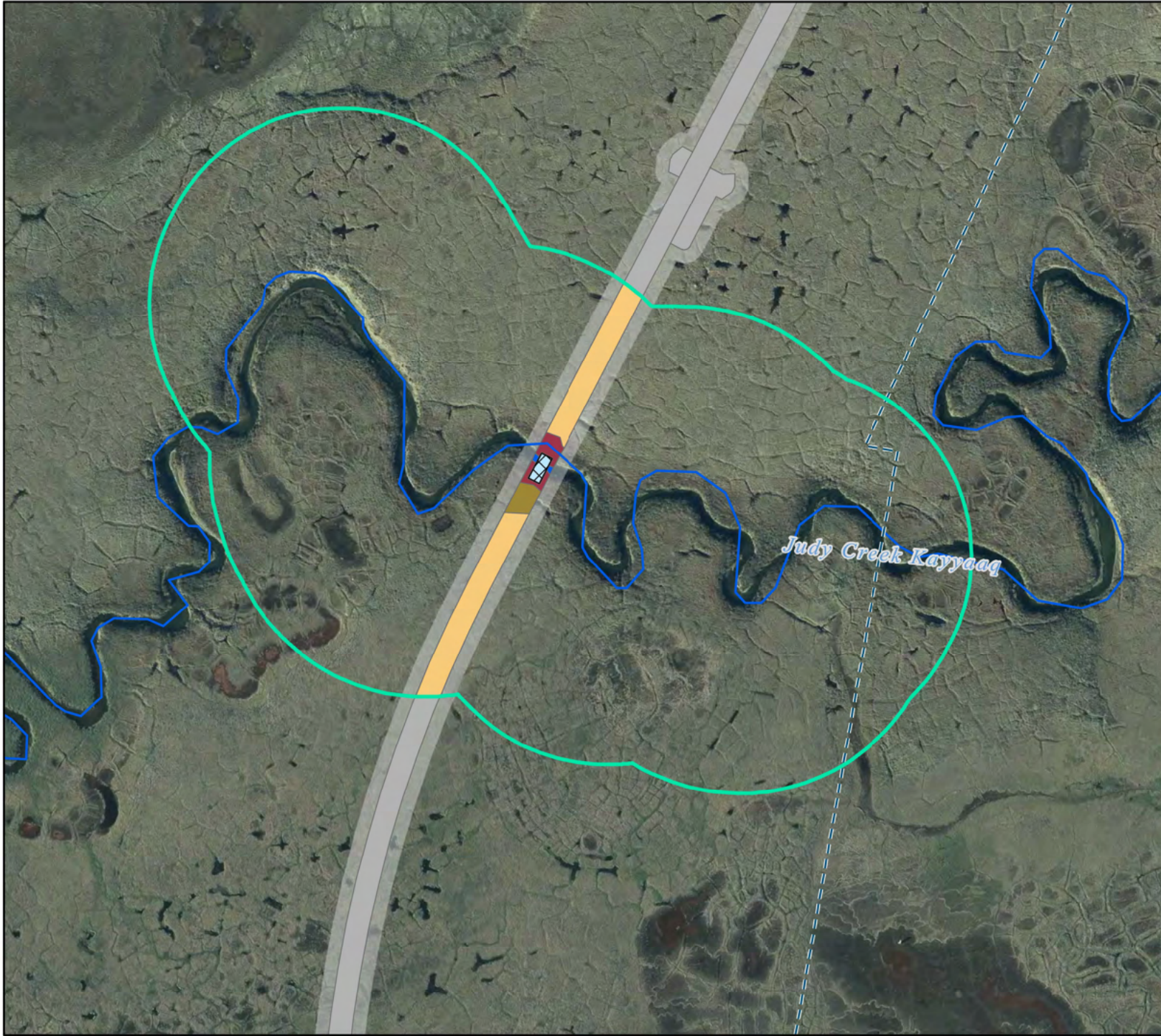


N

0 165 330 Feet

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Anadromous Fish Bearing Buffer Impacts Figure B2.

Willow - Proposed

- Pipeline
- Bridge*
- Gravel Footprint

Indirect Impacts

- 35 foot Buffer

Anadromous Waters

- Anadromous Fish Streams (ADFG)
- Anadromous Fish Bearing Water - 500' Buffer

Wetlands by Cowardin Code

- | | |
|-----------|-------|
| PEM1/SS1B | PSS1C |
| PEM1/SS1D | R2UBH |

Imagery: Quantum Spatial 2018
*No fill below OHW



0 125 250 Feet

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Anadromous Fish Bearing Buffer Impacts Figure B3.

Willow - Proposed

- Pipeline
- Bridge*
- Gravel Footprint

Indirect Impacts

- 35 foot Buffer

Anadromous Waters

- Anadromous Fish Streams (ADFG)
- Anadromous Fish Bearing Water - 500' Buffer

Wetlands by Cowardin Code

- | | |
|-----------|-------|
| Uplands | PSS1C |
| PEM1/SS1B | R2UBH |
| PEM1/SS1D | R2USC |
| PEM1H | |

Imagery: Quantum Spatial 2018
*No fill below OHW



0 165 330
Feet




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Anadromous Fish Bearing Buffer Impacts Figure B4.



Willow - Proposed

-  Pipeline
-  Bridge*
-  Gravel Footprint




Indirect Impacts

-  35 foot Buffer

Anadromous Waters

-  Anadromous Fish Streams (ADFG)
-  Anadromous Fish Bearing Water - 500' Buffer

Wetlands by Cowardin Code

-  PEM1/SS1B
-  PSS1/EM1B
-  PEM1F

Imagery: Quantum Spatial 2018
*No fill below OHW

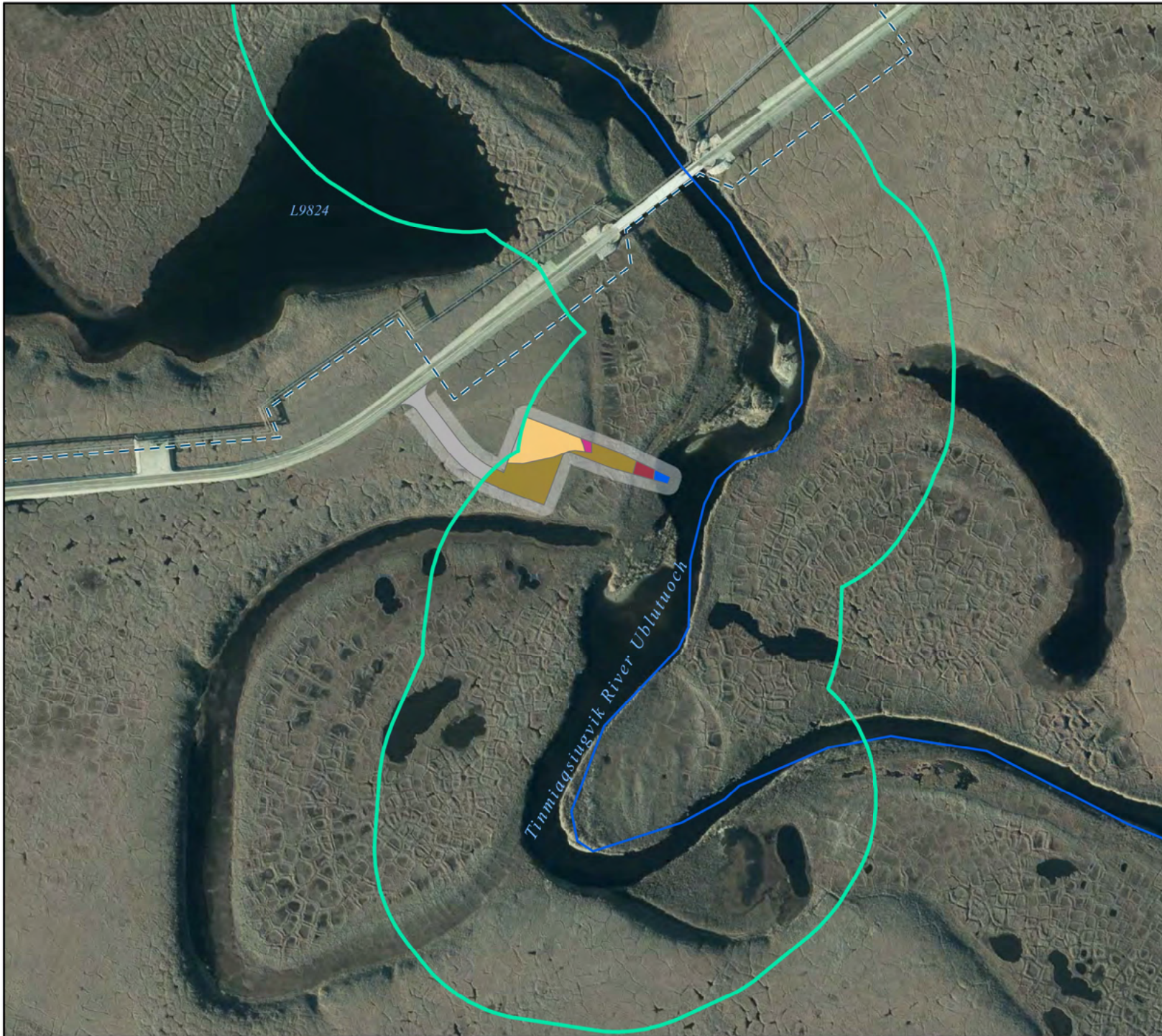


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Anadromous Fish Bearing Buffer Impacts Figure B5.

Willow - Proposed

- Pipeline
- Bridge*
- Gravel Footprint

Indirect Impacts

- 35 foot Buffer

Anadromous Waters

- Anadromous Fish Streams (ADFG)
- Anadromous Fish Bearing Water - 500' Buffer

Wetlands by Cowardin Code

- | | |
|-----------|-------|
| PEM1/SS1B | PSS3B |
| PEM1/SS1D | R2UBH |
| PSS1C | |

Imagery: Quantum Spatial 2018
*No fill below OHW



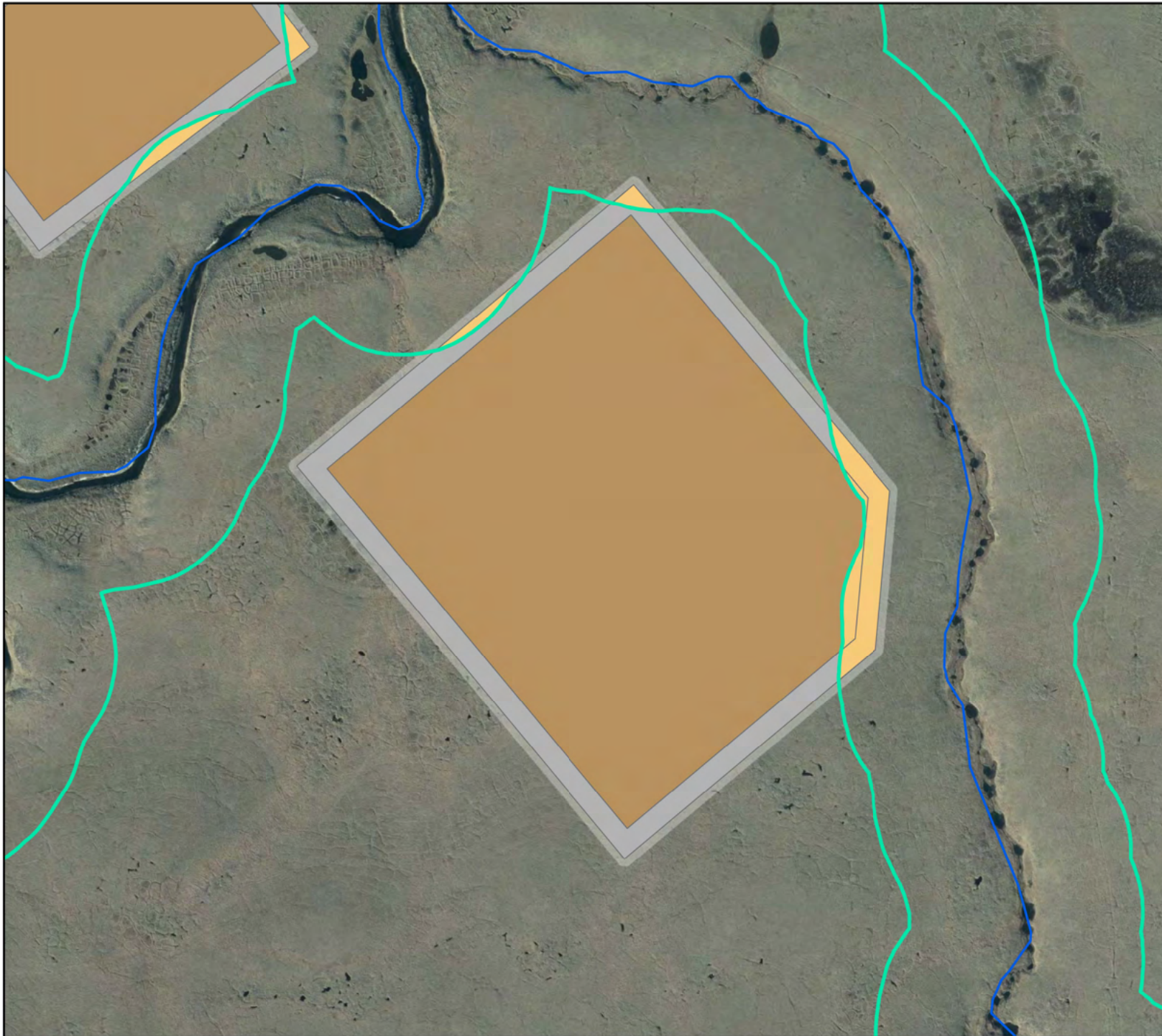
N

0 155 310

Feet




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**Anadromous Fish
Bearing Buffer Impacts**
Figure B6.



Willow - Proposed

-  Bridge*
-  Gravel Footprint
-  Mine Site Excavation Area


Indirect Impacts

-  35 foot Buffer

Anadromous Waters

-  Anadromous Fish Streams (ADFG)
-  Anadromous Fish Bearing Water - 500' Buffer

Wetlands by Cowardin Code

-  PEM1/SS1B

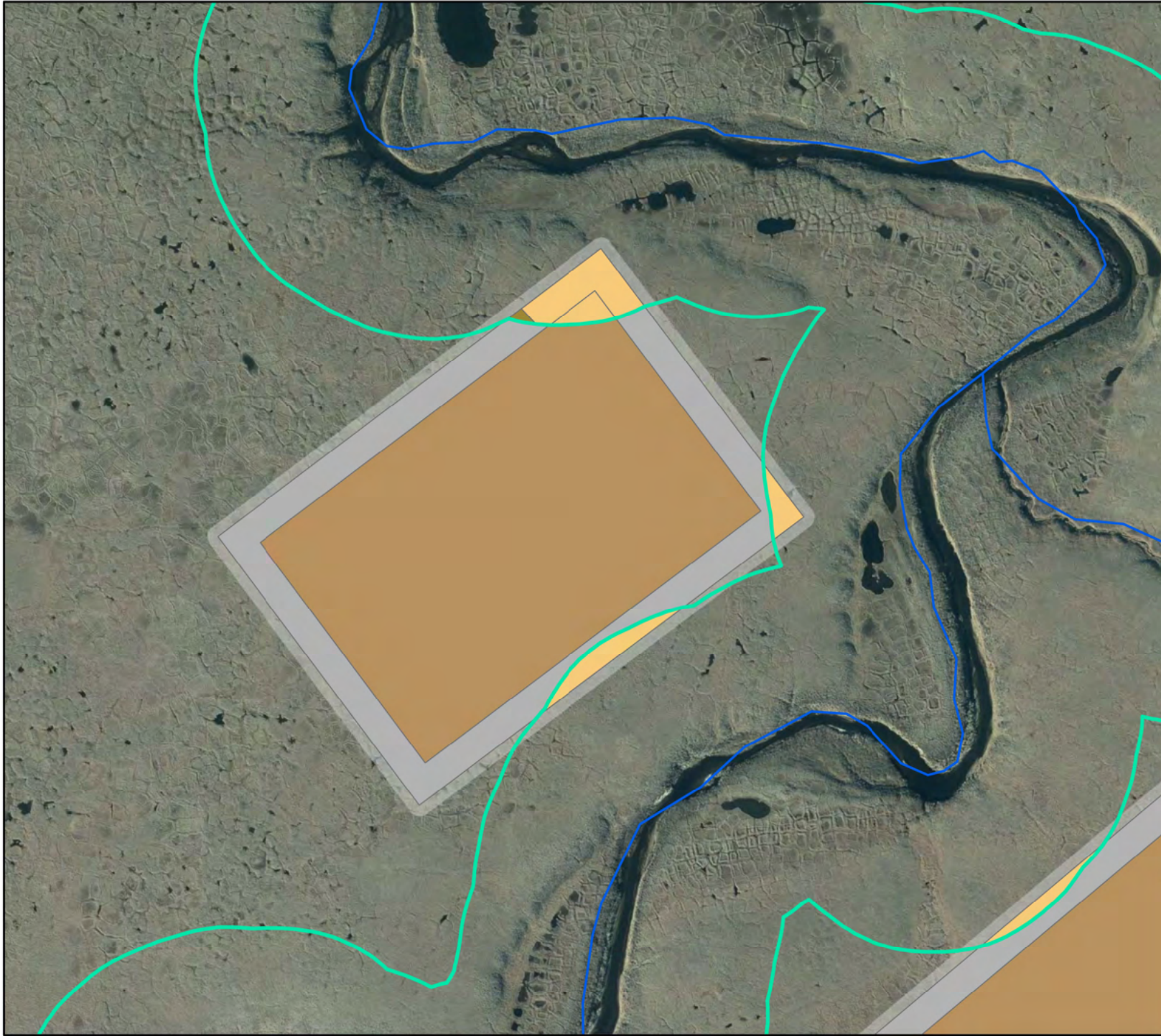
Imagery: Quantum Spatial 2018
*No fill below OHW



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Feet

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**Anadromous Fish
Bearing Buffer Impacts**
Figure B7.

Willow - Proposed

- Bridge*
- Gravel Footprint
- Mine Site Excavation Area

Indirect Impacts

- 35 foot Buffer

Anadromous Waters

- Anadromous Fish Streams (ADFG)
- Anadromous Fish Bearing Water - 500' Buffer

Wetlands by Cowardin Code

- PEM1/SS1B
- PEM1/SS1D

Imagery: Quantum Spatial 2018
*No fill below OHW



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Feet

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Anadromous Fish Bearing Buffer Impacts Figure B8.

Willow - Proposed

- Pipeline
- Bridge*
- Gravel Footprint

Indirect Impacts

- 35 foot Buffer

Anadromous Waters

- Anadromous Fish Streams (ADFG)
- Anadromous Fish Bearing Water - 500' Buffer

Wetlands by Cowardin Code

- PEM1F
- PSS1C

Imagery: Quantum Spatial 2018
*No fill below OHW



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APPENDIX C
WILLOW PROJECT IMPACTS WITHIN COLVILLE RIVER SPECIAL
AREA

***Willow Master Development Plan
Wetlands Compensatory Mitigation Plan***

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Colville River Special Area Impacts Figure C1.

Willow - Proposed

- Pipeline
- Bridge*
- Gravel Footprint (Outside Special Area Impact)

Indirect Impacts

- 35 foot Buffer

Boundaries

- Colville River Special Area
- Teshekpuk Lake Special Area
- Anadromous Fish Bearing Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

- PEM1/SS1B
- PEM1F
- PEM1/SS1D

Imagery: Quantum Spatial 2018
*No fill below OHW



0 200 400 Feet

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***Willow Master Development Plan
Wetlands Compensatory Mitigation Plan***

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APPENDIX D
WILLOW PROJECT IMPACTS WITHIN THE TESHEKPUK LAKE
SPECIAL AREA

***Willow Master Development Plan
Wetlands Compensatory Mitigation Plan***

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Teshkepuk Lake Special Area Impacts Figure D1.




Willow - Proposed

-  Pipeline
-  Bridge*
-  Gravel Footprint (Outside Special Area Impact)

Indirect Impacts

-  35 foot Buffer

Boundaries

-  Colville River Special Area
-  Teshkepuk Lake Special Area
-  Anadromous Fish Bearing Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

- | | |
|---|---|
|  PEM1/SS1B |  PEM1H |
|  PEM1/SS1D |  PSS1B |
|  PEM1F | |

Imagery: Quantum Spatial 2018
*No fill below OHW



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Teshkepuk Lake Special Area Impacts Figure D2.

Willow - Proposed

 Pipeline

 Bridge*


 Gravel Footprint (Outside
Special Area Impact)


Indirect Impacts

 35 foot Buffer

Boundaries


 Colville River Special Area


 Teshkepuk Lake Special
Area

 Anadromous Fish Bearing
Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

 PEM1/SS1B

 PEM1F

 PEM1/SS1D

Imagery: Quantum Spatial 2018
*No fill below OHW



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Teshkepuk Lake Special Area Impacts Figure D3.


Willow - Proposed

 Pipeline

 Bridge*


 Gravel Footprint (Outside
Special Area Impact)


Indirect Impacts

 35 foot Buffer

Boundaries

 Colville River Special Area

 Teshkepuk Lake Special
Area

 Anadromous Fish Bearing
Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

 PEM1/SS1B	 PEM1F
 PEM1/SS1D	 PEM1H
 PEM1/SS1F	 PUBH

Imagery: Quantum Spatial 2018
*No fill below OHW



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Teshkepkuk Lake Special Area Impacts Figure D4.




Willow - Proposed

-  Pipeline
-  Bridge*
-  Gravel Footprint (Outside Special Area Impact)

Indirect Impacts

-  35 foot Buffer

Boundaries

-  Colville River Special Area
-  Teshkepkuk Lake Special Area
-  Anadromous Fish Bearing Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

- | | |
|---|--|
|  Uplands |  PSS1/USB |
|  PEM1/SS1B |  PSS1B |
|  PEM1/SS1D |  PSS1D |
|  PEM1F |  PSS3B |
|  PEM1H | |

Imagery: Quantum Spatial 2018
*No fill below OHW

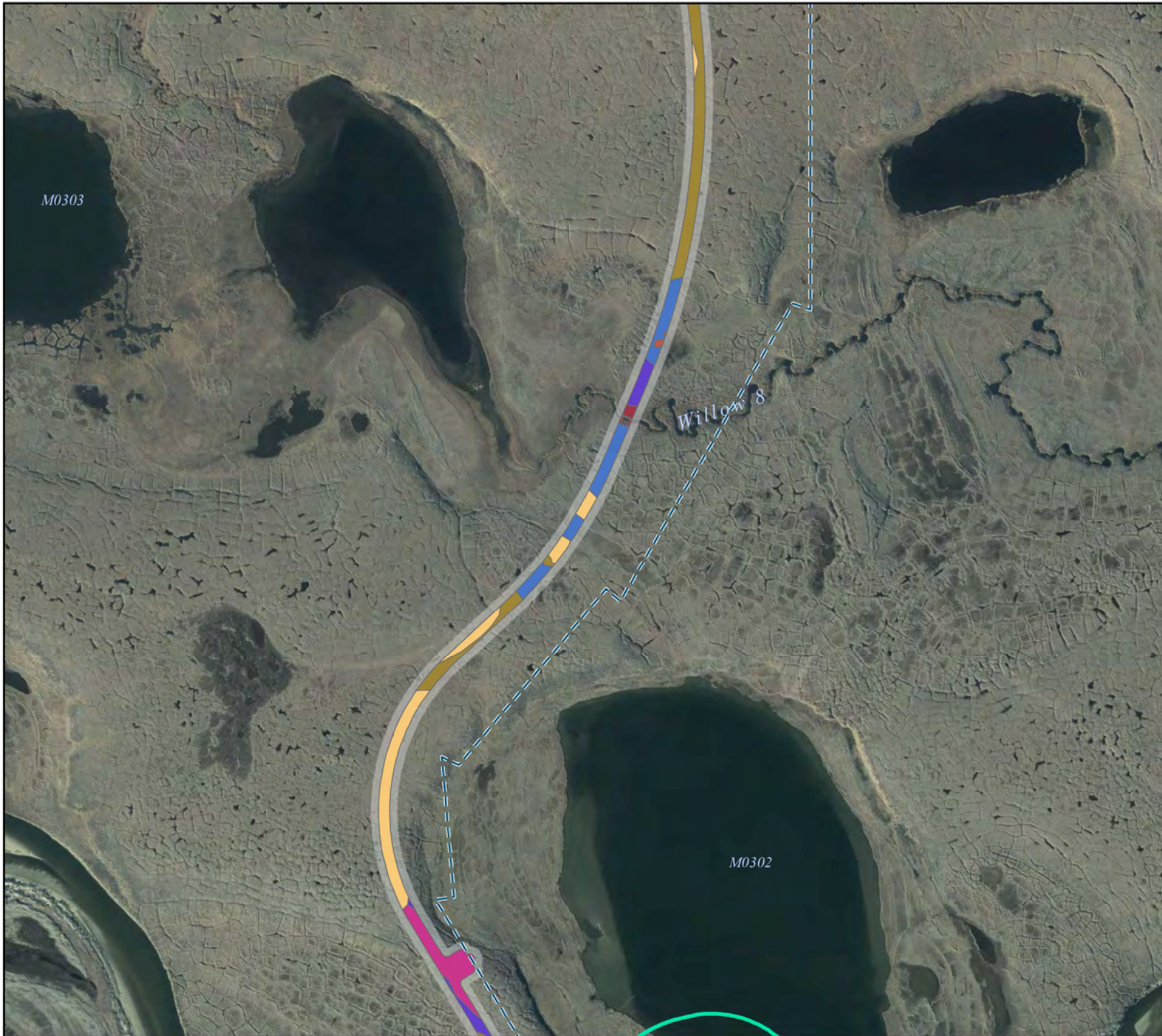


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Teshekpuk Lake Special Area Impacts Figure D5.

Willow - Proposed

- Pipeline
- Bridge*
- Gravel Footprint (Outside Special Area Impact)

Indirect Impacts

- 35 foot Buffer

Boundaries

- Colville River Special Area
- Teshekpuk Lake Special Area
- Anadromous Fish Bearing Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

- | | |
|-----------|-------|
| PEM1/SS1B | PSS1B |
| PEM1/SS1D | PSS1C |
| PEM1F | PSS3B |
| PEM1H | R2UBH |

Imagery: Quantum Spatial 2018
*No fill below OHW



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Feet

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Teshekpuk Lake Special Area Impacts Figure D6.

Willow - Proposed

- Pipeline
- Bridge*
- Gravel Footprint (Outside Special Area Impact)

Indirect Impacts

- 35 foot Buffer

Boundaries

- Colville River Special Area
- Teshekpuk Lake Special Area
- Anadromous Fish Bearing Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

- | | |
|-----------|-------|
| PEM1/SS1B | PEM1F |
| PEM1/SS1D | PEM1H |
| PEM1/SS1E | PUBH |

Imagery: Quantum Spatial 2018
*No fill below OHW



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Feet

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Teshekpuk Lake Special Area Impacts Figure D7.

Willow - Proposed

Pipeline

Bridge*

Gravel Footprint (Outside Special Area Impact)

Indirect Impacts

35 foot Buffer

Boundaries

Colville River Special Area

Teshekpuk Lake Special Area

Anadromous Fish Bearing Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

Uplands

PEM1/SS1B

PEM1/SS1D

PEM1/SS1F

PEM1F

PEM1H

PSS1B

Imagery: Quantum Spatial 2018
*No fill below OHW



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Teshekpuk Lake Special Area Impacts Figure D8.

Willow - Proposed

Pipeline

Bridge*

Gravel Footprint (Outside
Special Area Impact)

Indirect Impacts

35 foot Buffer

Boundaries

Colville River Special Area

Teshekpuk Lake Special
Area

Anadromous Fish Bearing
Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

Uplands

PEM1/SS1B

PEM1/SS1D

PEM1F

PEM1H

PSS1B

PSS3B

Imagery: Quantum Spatial 2018
*No fill below OHW



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Feet




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Teshkepuk Lake Special Area Impacts Figure D9.



Willow - Proposed

-  Pipeline
-  Bridge*
-  Gravel Footprint (Outside Special Area Impact)

Indirect Impacts

-  35 foot Buffer

Boundaries

-  Colville River Special Area
-  Teshkepuk Lake Special Area
-  Anadromous Fish Bearing Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

- | | |
|---|---|
|  Uplands |  PEM1F |
|  PEM1/SS1B |  PSS3B |
|  PEM1/SS1D | |

Imagery: Quantum Spatial 2018
*No fill below OHW



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Feet




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Teshkepuk Lake Special Area Impacts Figure D10.




Willow - Proposed

-  Pipeline
-  Bridge*
-  Gravel Footprint (Outside Special Area Impact)

Indirect Impacts

-  35 foot Buffer

Boundaries

-  Colville River Special Area
-  Teshkepuk Lake Special Area
-  Anadromous Fish Bearing Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

- | | |
|---|---|
|  Uplands |  PEM1F |
|  PEM1/SS1B |  PSS3B |
|  PEM1/SS1D | |

Imagery: Quantum Spatial 2018
*No fill below OHW



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Feet




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Teshkepuk Lake Special Area Impacts Figure D11.




Willow - Proposed

-  Pipeline
-  Bridge*
-  Gravel Footprint (Outside Special Area Impact)

Indirect Impacts

-  35 foot Buffer

Boundaries

-  Colville River Special Area
-  Teshkepuk Lake Special Area
-  Anadromous Fish Bearing Water - 500' Buffer

Proposed Gravel Footprint Wetlands by Cowardin Code

- | | |
|---|---|
|  PEM1/SS1B |  PEM1F |
|  PEM1/SS1D |  PUBH |
|  PEM1/SS1F | |

Imagery: Quantum Spatial 2018
*No fill below OHW



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Feet

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