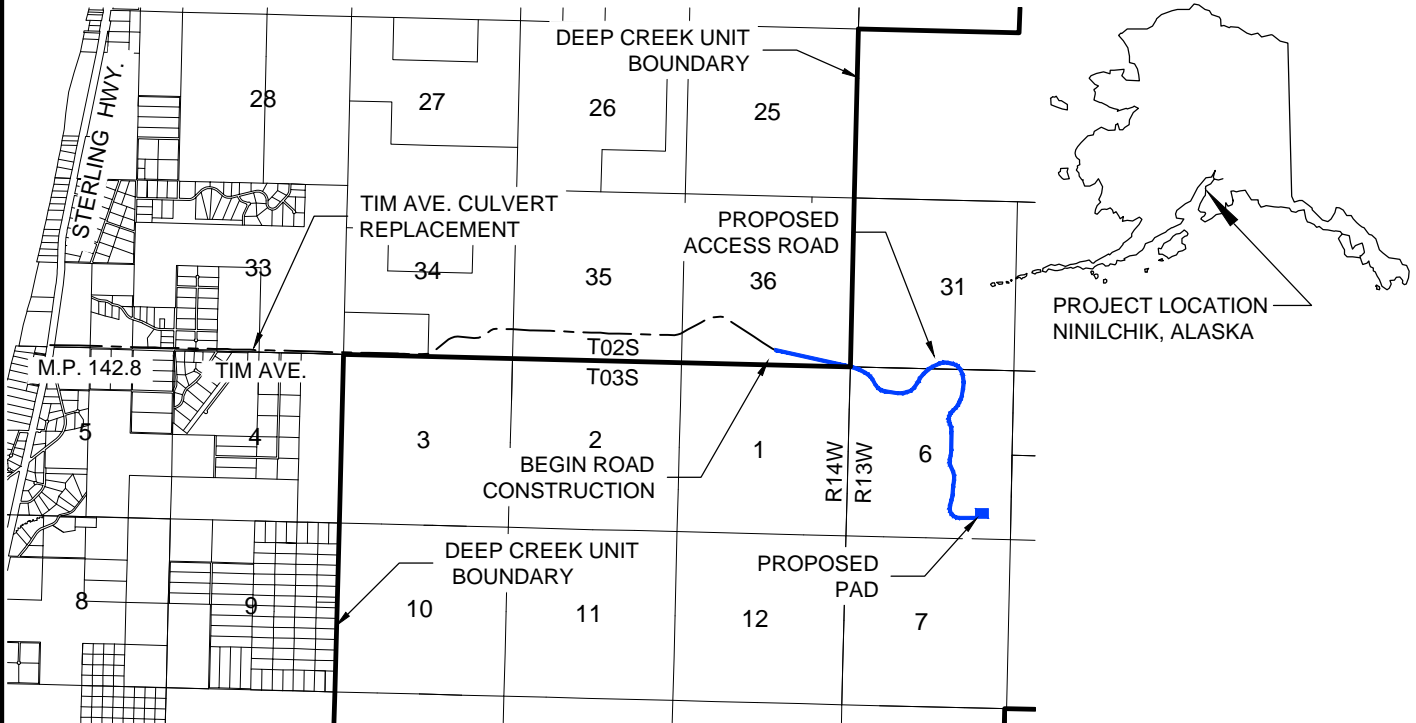
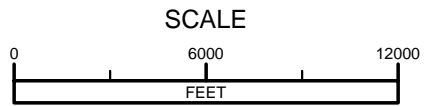


HILCORP ALASKA, LLC HAPPY VALLEY MIDDLE NATURAL GAS EXPLORATION PROJECT



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VICINITY MAP



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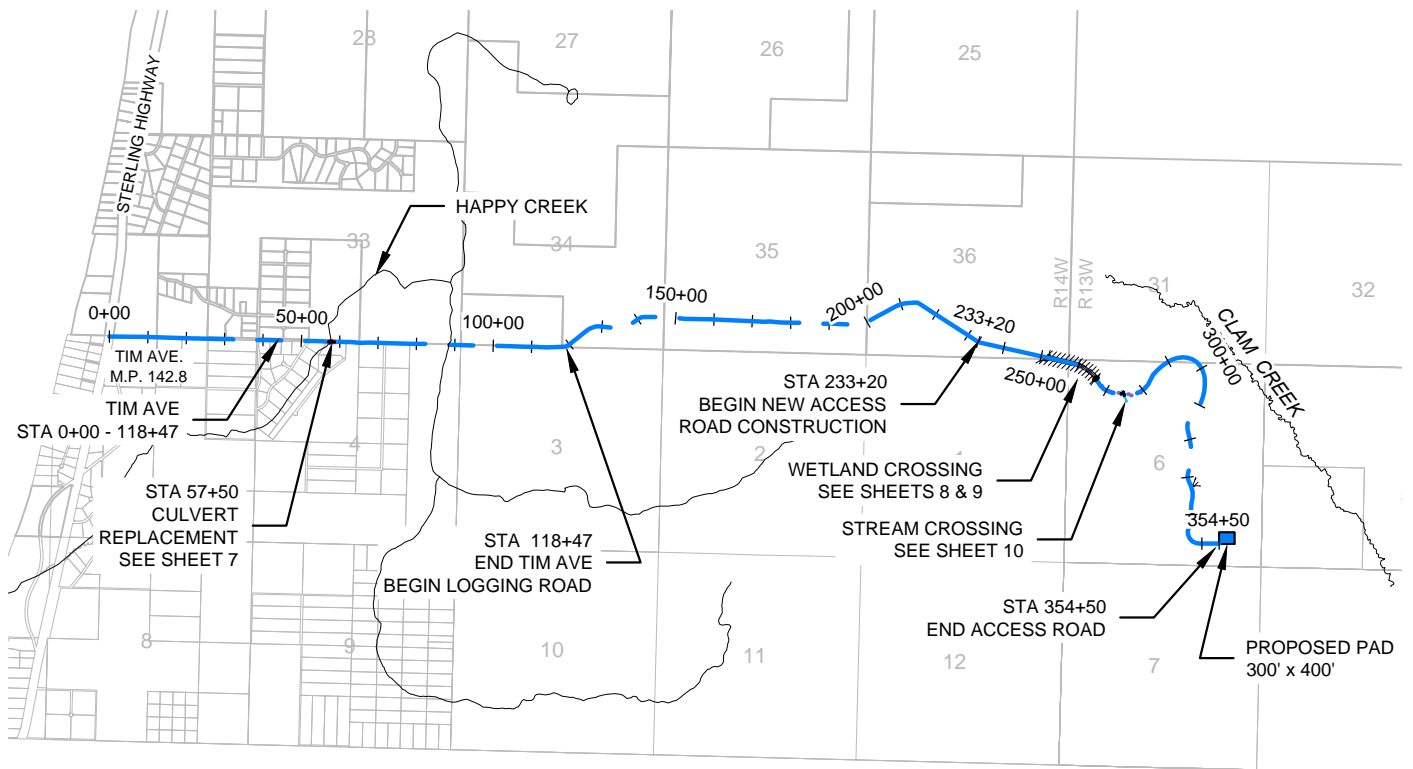
LOCATION
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PROJECT
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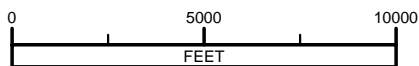
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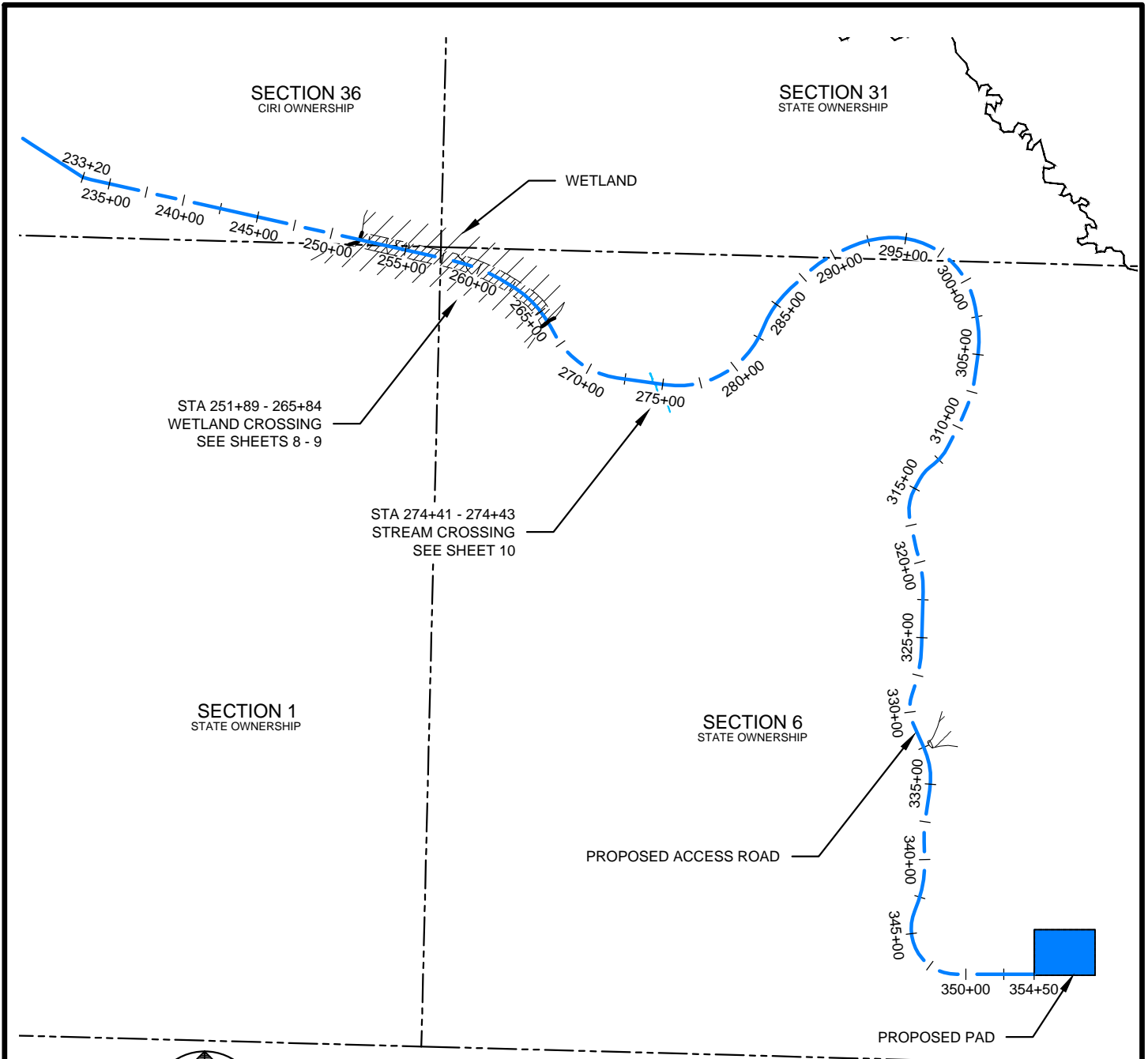
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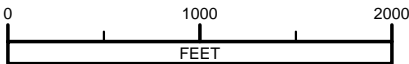
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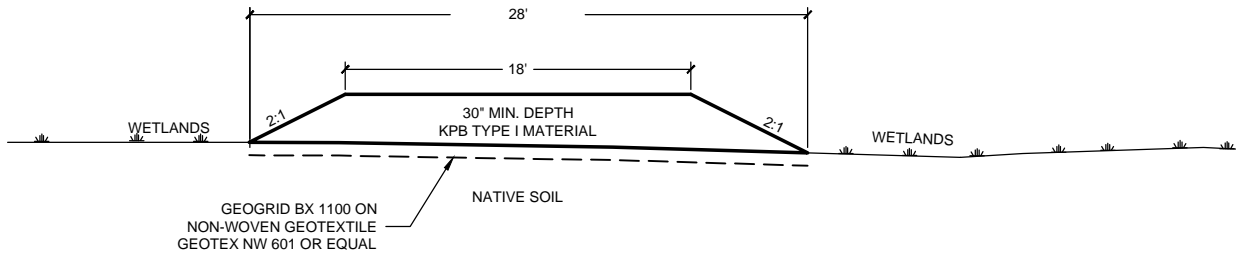
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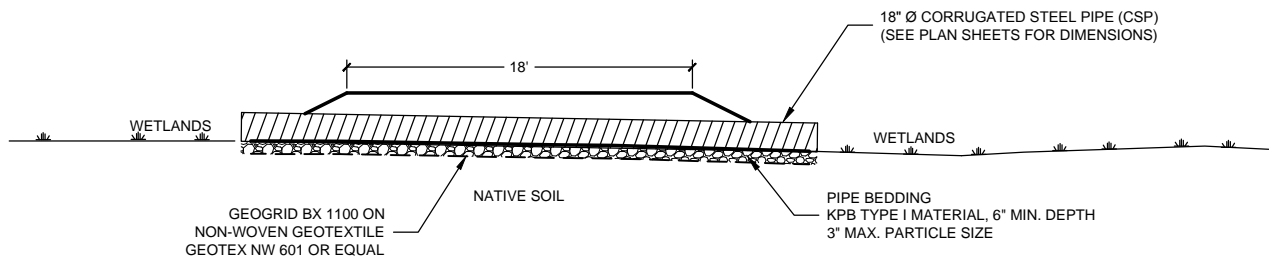
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- NOTES:
1. GRAVEL FILL SHALL BE PLACED IN NO GREATER THAN 12" LIFTS AND COMPACTED TO 95% OF MAXIMUM DENSITY, AS DETERMINED BY AASHTO T 180, METHOD D.
 2. TOP 4" KPBI TYPE I MATERIAL SHALL BE COBBLE FREE (3" MAX. PARTICLE SIZE).
 3. GRAVEL FILL SHALL BE UNDERLAIN WITH NON-WOVEN GEOTEXTILE, GEOTEX NW 601 OR EQUAL OVER BX 1100 OR EQUAL.
 4. IN WETLAND AREAS CONTRACTOR MAY NOT PLACE FILL, REMOVE NATIVE MATERIAL, OR RUN EQUIPMENT OUTSIDE DESIGNATED CONSTRUCTION ZONE AS MARKED IN FIELD BY THE ENGINEER.

A 18' WIDE ROAD SECTION - WETLANDS
4 SCALE: 1" = 10'



1. ALL CULVERTS SHALL BE CORRUGATED STEEL.
2. PRE-LEVEL WITH 6" DEPTH OF KPBI TYPE I MATERIAL PIPE BEDDING.
3. PIPE BEDDING FILL IS 1.1 CUBIC YARDS PER 18" CULVERT.
4. EXCAVATION MATERIAL SHALL BE DISPOSED IN AN UPLAND AREA.

B 18' WIDE ROAD-WETLAND W/ CROSS CULVERT SECTION
4 SCALE: 1" = 10'



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PROJECT

HAPPY VALLEY MIDDLE
NATURAL GAS EXPLORATION PROJECT

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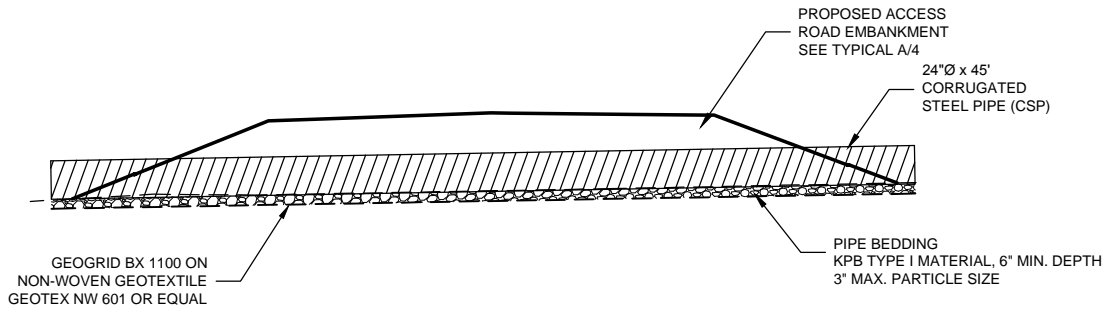
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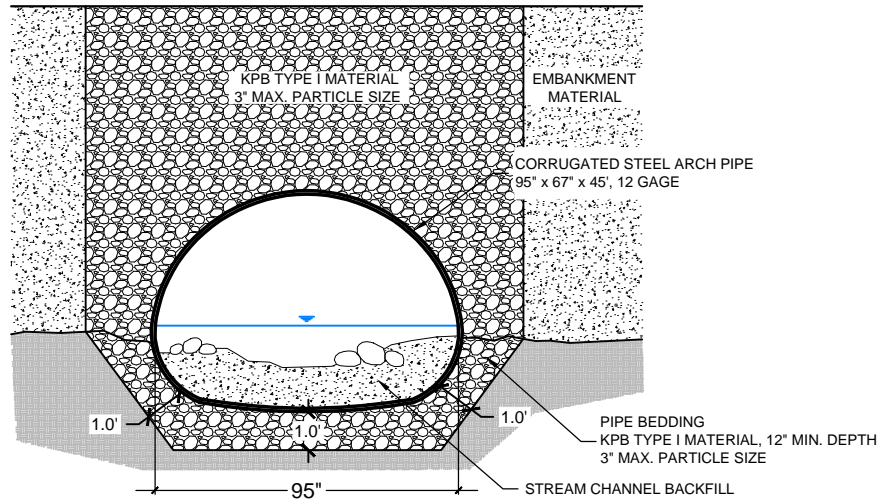
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A UNNAMED STREAM CROSSING W/ 24" CULVERT SECTION
5 SCALE: 1" = 10' - STA 274+45

1. ALL CULVERTS SHALL BE CORRUGATED STEEL.
2. PRE-LEVEL WITH 6" DEPTH OF KPB TYPE I MATERIAL PIPE BEDDING.
3. PIPE BEDDING FILL IS 2.5 CUBIC YARDS.
4. EXCAVATION MATERIAL SHALL BE DISPOSED IN AN UPLAND AREA.
5. NO FLOWING WATER PRESENT AT TIME OF FIELD SURVEY.
6. IF FLOWING WATER IS PRESENT AT TIME OF CONSTRUCTION USE PUMPED WATER BYPASS WITH APPROPRIATE SCREENED INTAKE AND ENERGY DISSIPATION AT DISCHARGE. SIMILAR TO BYPASS AT MAT. AVE. & HAPPY CREEK CROSSING. (3.0 CUBIC YARDS OF TEMPORARY DISCHARGE.)



- NOTES:
1. INSTALL PIPE AT SPECIFIED GRADE AND LOCATION.
 2. PLACE CHANNEL BACKFILL MATERIAL IN PIPE. MATCH UPSTREAM AND DOWNSTREAM CHANNEL CHARACTERISTICS. USE LOCAL GRAVELLY SAND WITH CLUSTERS OF COBBLES.
 3. USE PUMPED WATER BYPASS WITH APPROPRIATE SCREENED INTAKE AND ENERGY DISSIPATION AT DISCHARGE

B CORRUGATED ARCH PIPE TYPICAL SECTION
5 SCALE: 1" = 5'



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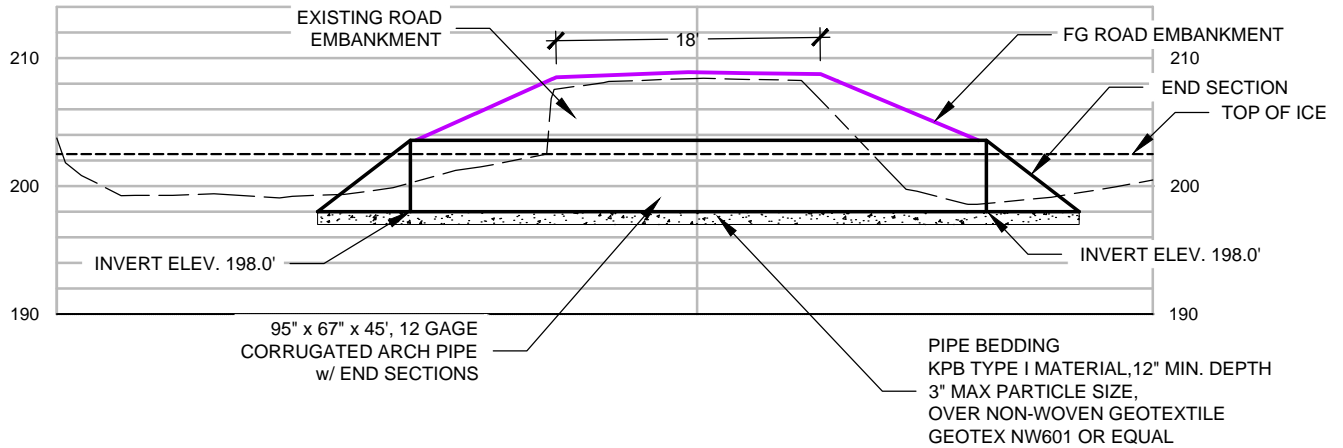
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 SEC 31 T2S R13W

PROJECT
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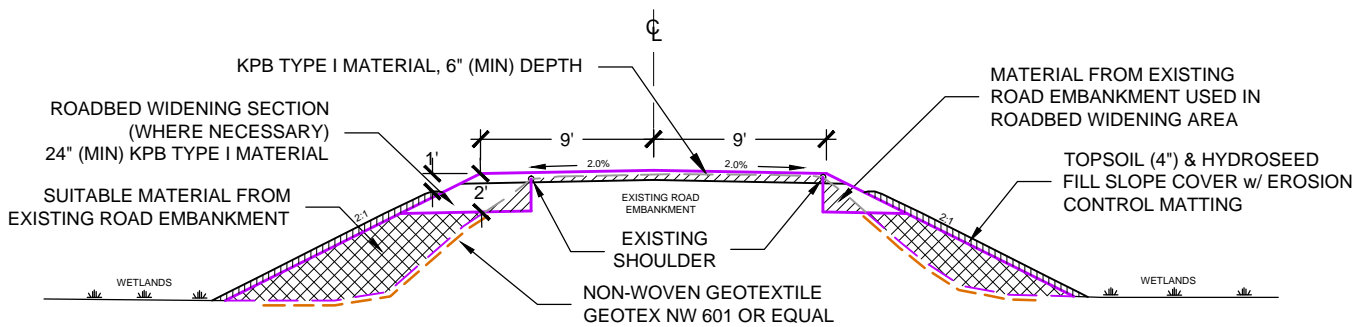
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A ROAD & ARCH PIPE SECTION
 6 SCALE: 1" = 15'



B TIM AVENUE - 57+00 TO 58+75
 6 SCALE: 1" = 5'



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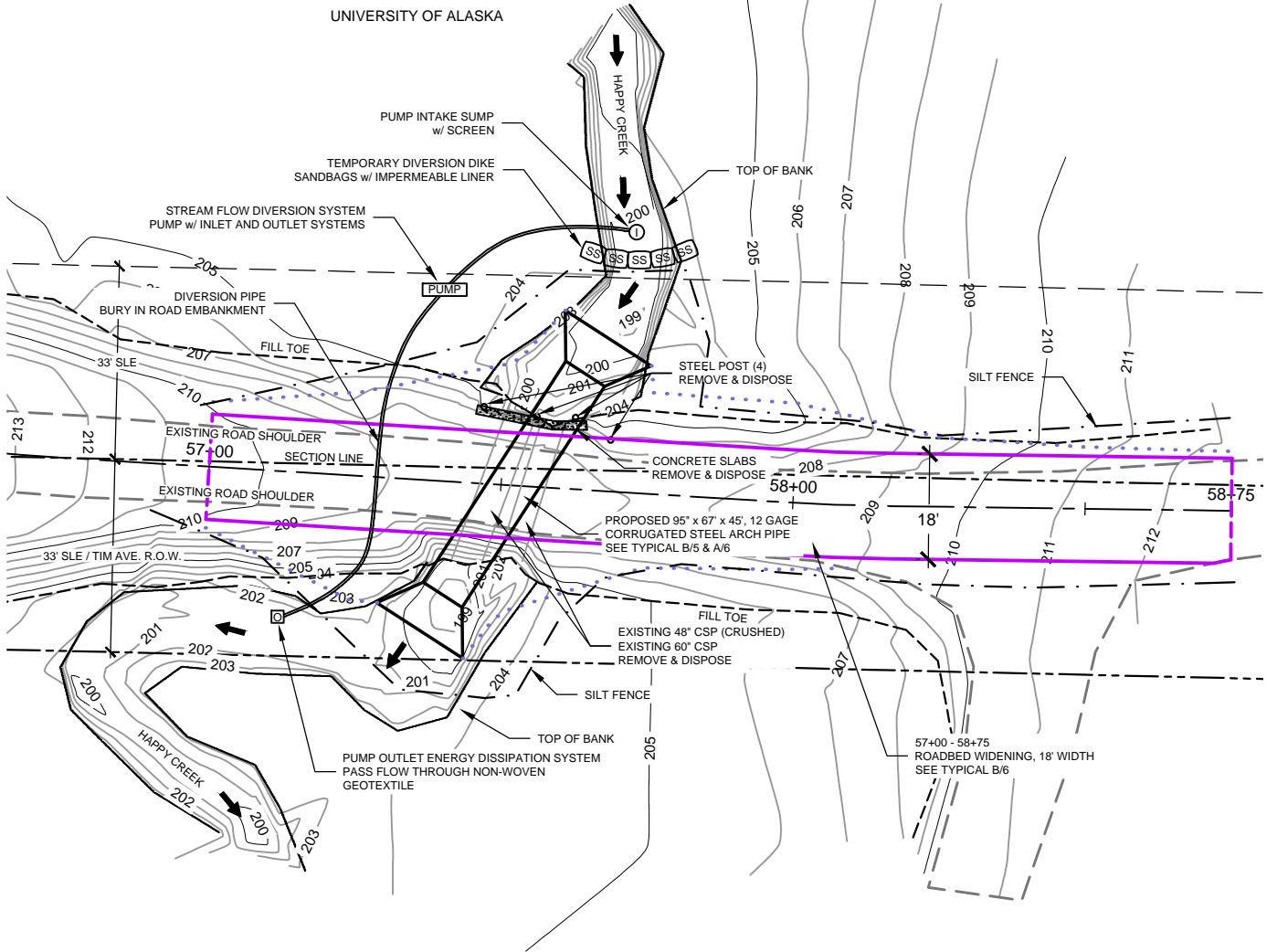
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PARCEL ID 15908018

E1/2 SW1/4
SEC33 T2S R14W

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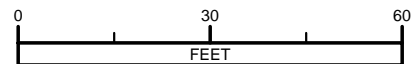
PARCEL ID 15953020

LOT 20 BASHAM SUB'D NO. 5
SEC4 T3S R14W

MICHAEL R. BASHAM



SCALE



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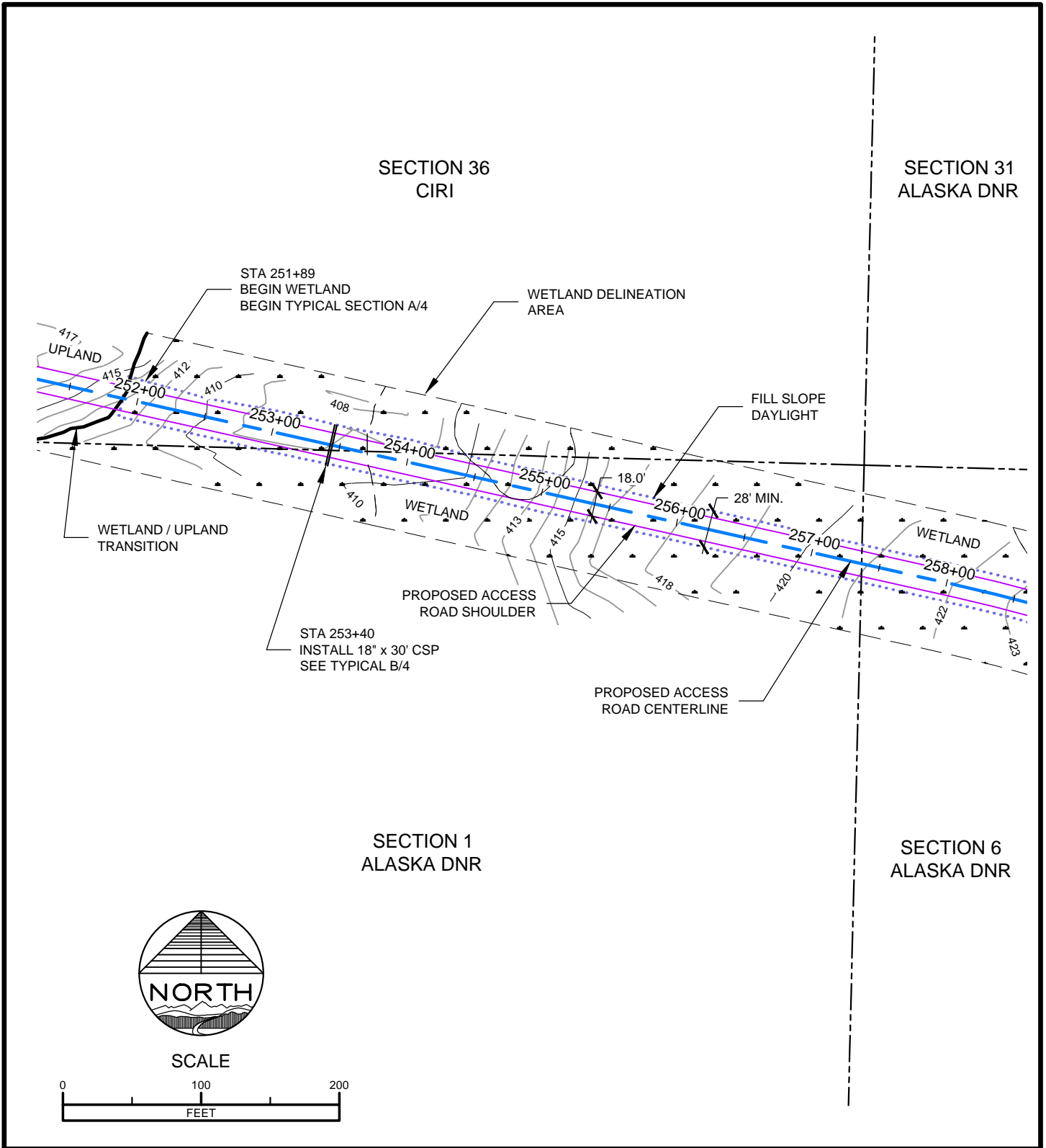
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SCALE: 1" = 30'

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PROJECT
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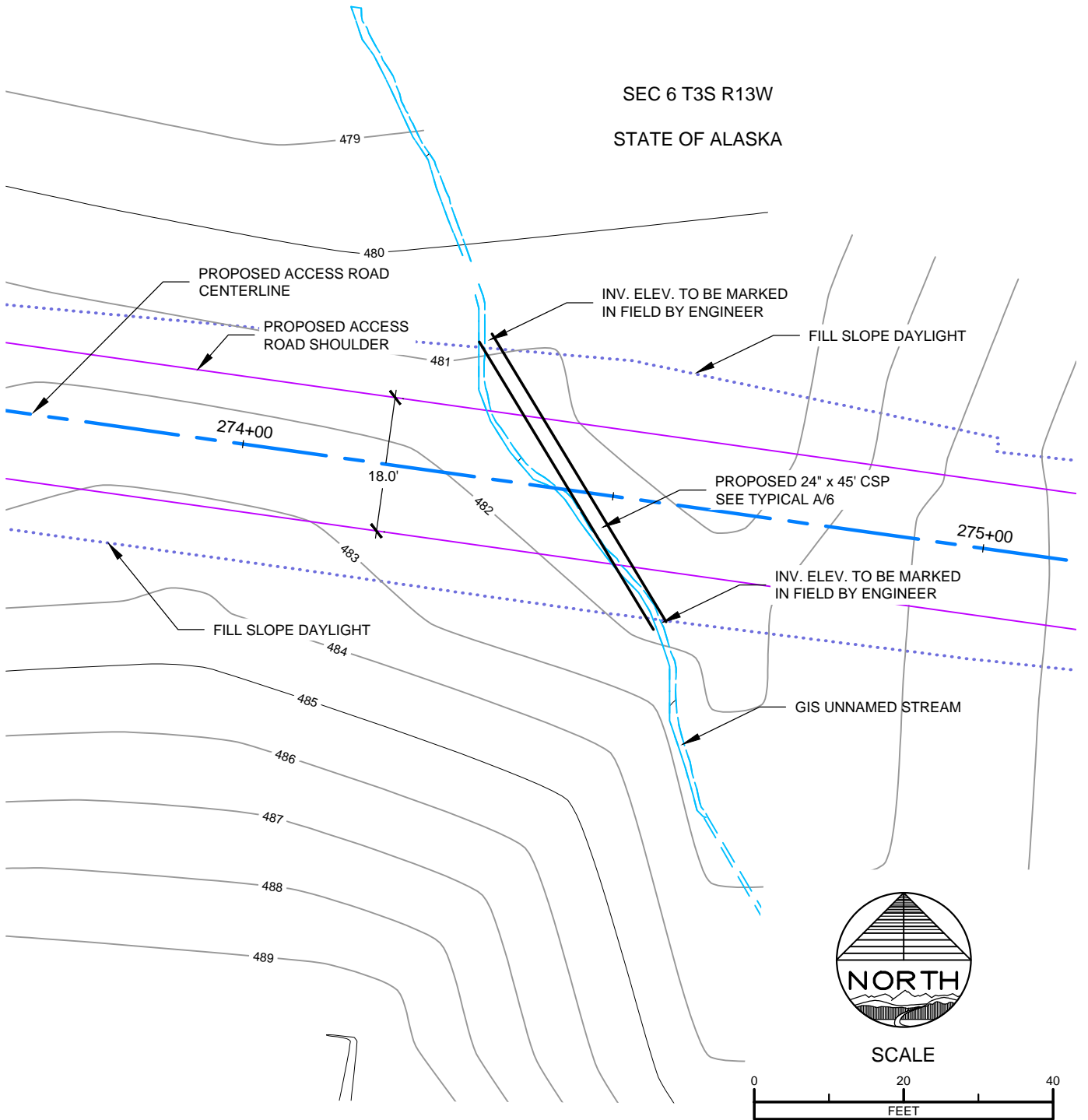
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SEC 6 T3S R13W

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 PROJECT NO. 143088
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ACCESS ROAD DATA			
IMPACTED WETLAND AREA	WETLAND EXCAVATION	TOTAL FILL	WETLAND FILL
39060.00 SF	0.00 CF	80212.50 CF	80212.50 CF
0.90 AC	0.00 CY	2970.83 CY	2970.83 CY

ACCESS ROAD DATA: LENGTH OF ROAD IN WETLAND = 1395 LF;
WIDTH = 28'; MIN. FILL DEPTH 2.5'

STREAM CROSSING - STA 274+45							
STREAM LENGTH	CULVERT DIA.	CULVERT LENGTH (FT)	CHANNEL AREA	TYPE I FILL IN CHANNEL	PIPE BEDDING FILL IN CHANNEL	CHANNEL EXCAVATION	TEMPORARY WETLAND DISCHARGE SANDBAGS
45.00 LF	24.00 IN	45.00 FT	33.06 SF	4.86 CY	2.50 CY	2.50 CY	3.00 CY
				131.22 CF	67.50 CF	67.50 CF	81.00 CF

TIM AVE. WIDENING STA 57+00 - 58+75 & CULVERT REPLACEMENT DATA						
IMPACTED WETLAND AREA	TOTAL WETLAND EXCAVATION	WETLAND FILL PIPE BEDDING	WETLAND FILL KPB TYPE I	ARCH PIPE STREAM CHANNEL BACKFILL	TOTAL WETLAND FILL	TEMPORARY WETLAND DISCHARGE (SANDBAGS)
787.10 SF	803.25 CF	803.25 CF	1865.70 CF	490.86 CF	3159.81 CF	135.00 CF
0.02 AC	29.75 CY	29.75 CY	69.10 CY	18.18 CY	117.03 CY	5.00 CY

95" x 67" x 45', 12 GAGE CORRUGATED STEEL PIPE. TOTAL LENGTH OF PIPE (END PAN TO END PAN) = 59.5'

18" CULVERT DATA STA 253+40, 259+25, 265+00				
CULVERT LENGTH	WETLAND EXCAVATION PER CULVERT	TOTAL WETLAND EXCAVATION	WETLAND FILL PER CULVERT	TOTAL WETLAND FILL
30' EACH LF	29.70 CF	89.10 CF	29.70 CF	89.10 CF
90' TOTAL LF	1.10 CY	3.30 CY	1.10 CY	3.30 CY

(3) 18" CORRUGATED STEEL CULVERTS, 30' LONG EACH. AT STATIONS 253+40, 259+25, & 265+00

TOTAL PROJECT IMPACTS			
IMPACTED WETLAND AREA	WETLAND EXCAVATION	WETLAND FILL	TEMPORARY WETLAND DISCHARGE (SANDBAGS)
39880.16 SF	959.85 CF	83660.13 CF	216.00 CF
0.92 AC	35.55 CY	3098.52 CY	8.00 CY



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