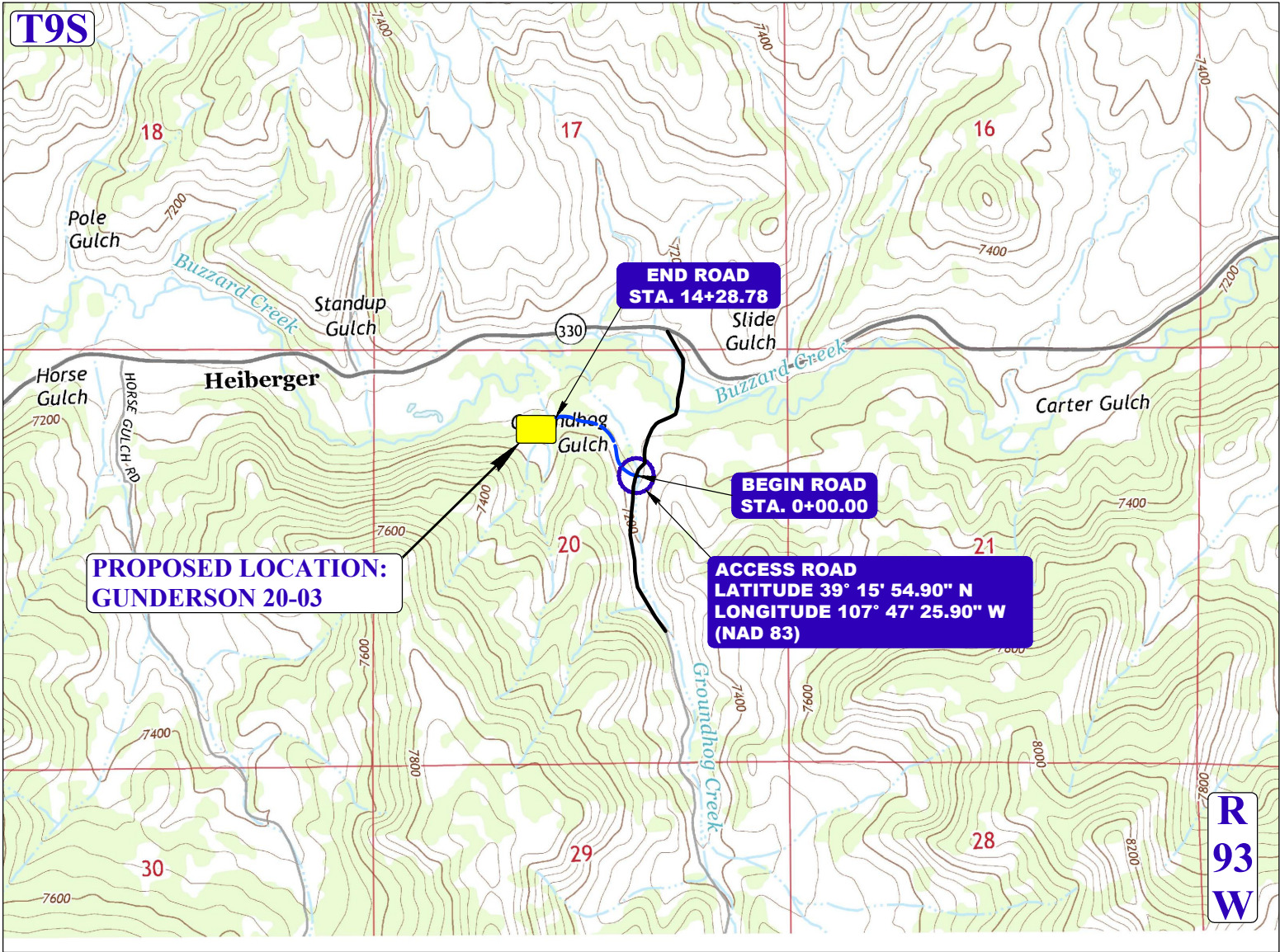


LARAMIE ENERGY, LLC
GUNDERSON 20-03
ACCESS ROAD

LOCATED IN:
Sections 20, T9S, R93W, 6TH P.M.
Mesa County, COLORADO

INDEX OF SHEETS	
No.	SHEET DESCRIPTION
1	Title/Cover Sheet
2	General Notes & Geometric Standards Sheet
3	Cattle Guard Diagram Sheet
4	Culvert Installation Details Sheet
P1	Plan & Profile Sheet
C1-3	Cross Section Sheets

LOCATION MAP



TAKEN FROM 7.5 MIN TOPOGRAPHIC MAPS PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY, SOUTH MAMM PEAK, COLO. 1960.

SCALE: 1"=2,000'

20-03 ROAD - APPROX. EARTHWORK QUANTITIES	
TOTAL CUT	2,640 Cu. Yds.
TOTAL FILL	2,640 Cu. Yds.
EXCESS/DEFICIT MATERIAL	0 Cu. Yds.

- NOTES:
- FILL QUANTITY INCLUDES A 10% FILL FACTOR TO ACCOUNT FOR COMPACTION.



Uintah Engineering and Land Surveying assumes no liability written or implied as to the location of pipelines or cable lines in the vicinity of this road design. Utility Notification Center of Colorado, (Public lines) and the owner of any transmission lines (Private/Corporate lines) must be contacted for identification and location before construction begins. Transmission lines that may be identified on these plans may not be the only transmission lines in the vicinity of the road. These plans are not intended to be used to identify the location of transmission lines. Extreme caution shall be used when constructing road near or over transmission lines.

LARAMIE ENERGY, LLC
GUNDERSON 20-03
ACCESS ROAD
TITLE

REVISIONS		
DATE	BY	REVISIONS

SCALE: No Scale
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PROJECT NO: LAR03-16-11-0035
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Uintah Engineering and Land Surveying assumes no liability written or implied as to the location of pipelines or cable lines in the vicinity of this road design. Utility Notification Center of Colorado (public lines) and or the owner of the transportation line (Private/Corporate lines) must be contacted for identification and location before construction begins. Transportation lines that may be identified on these plans may not be the only transportation lines in the vicinity of the road. These plans are not intended to be used to identify the location of transportation lines. Extreme caution shall be used when constructing road near or over transportation lines.

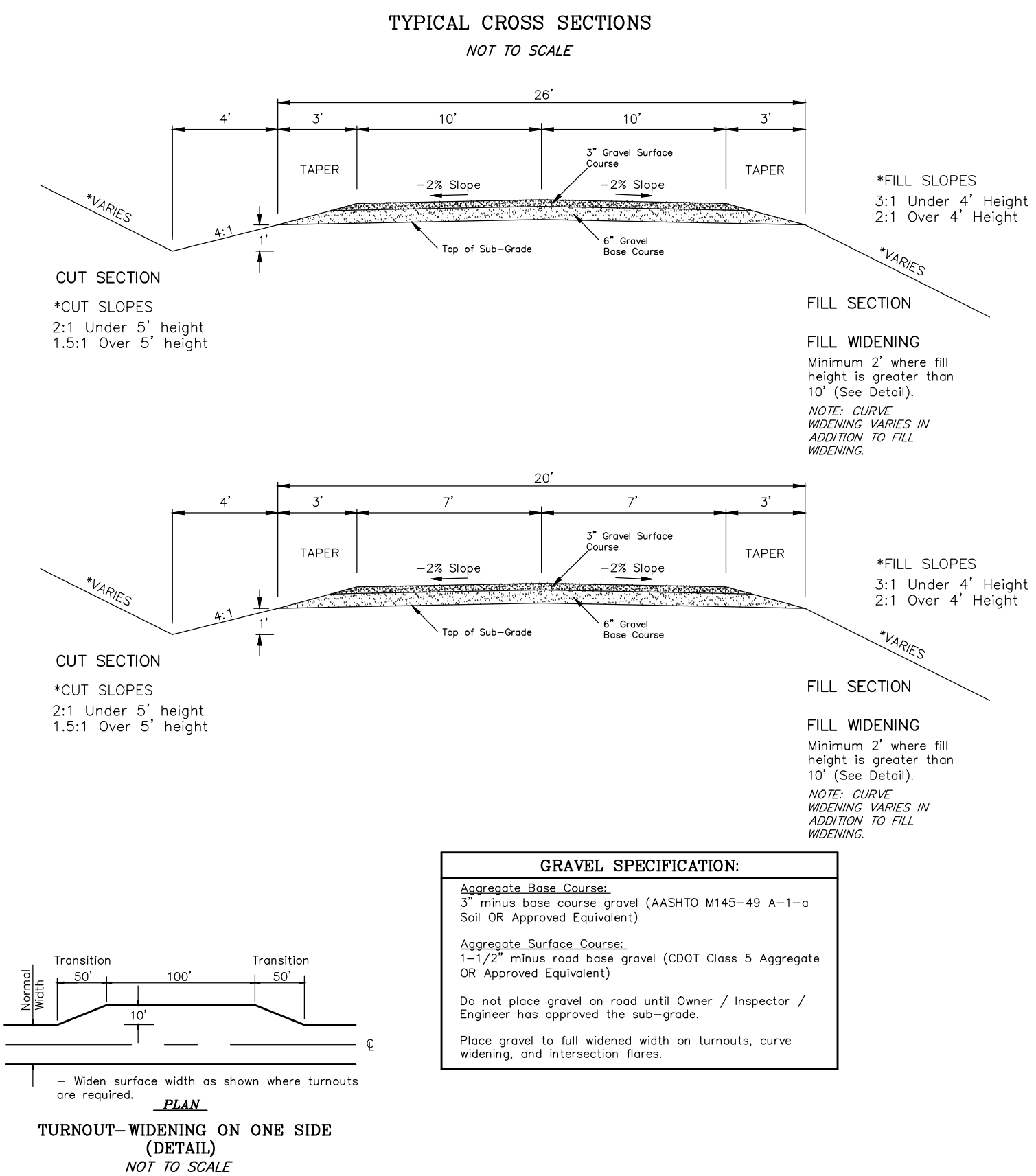
EXPLANATIONS:
PLAN & PROFILE SHEETS

Plan & Profile sheets show the horizontal and vertical alignment of the road, sign placement if any, turnout placement if any, estimated culvert placements and sizes, estimated wing ditches, horizontal and vertical curve data, and the percent super for construction of horizontal curves.

SCOPE OF WORK:
SHAPING THE ROADWAY

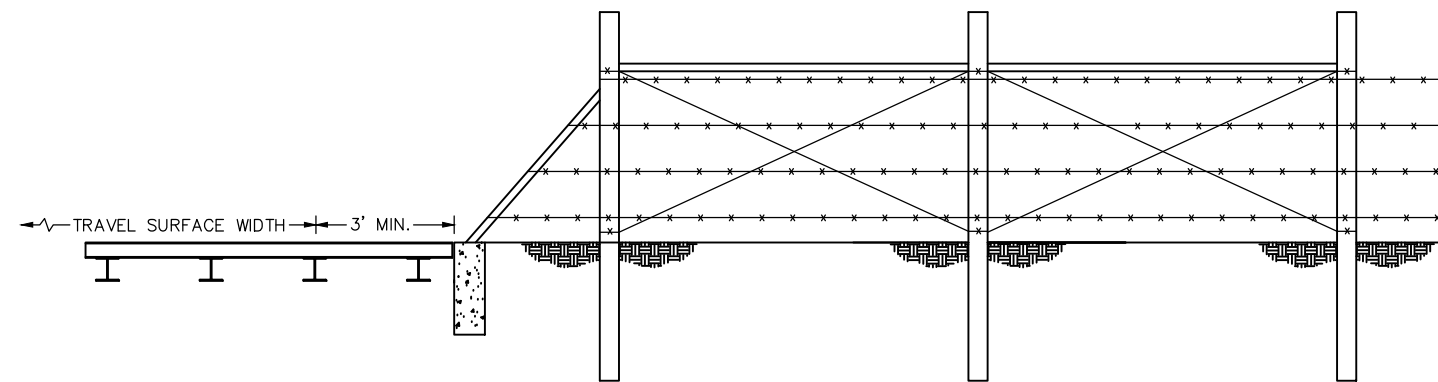
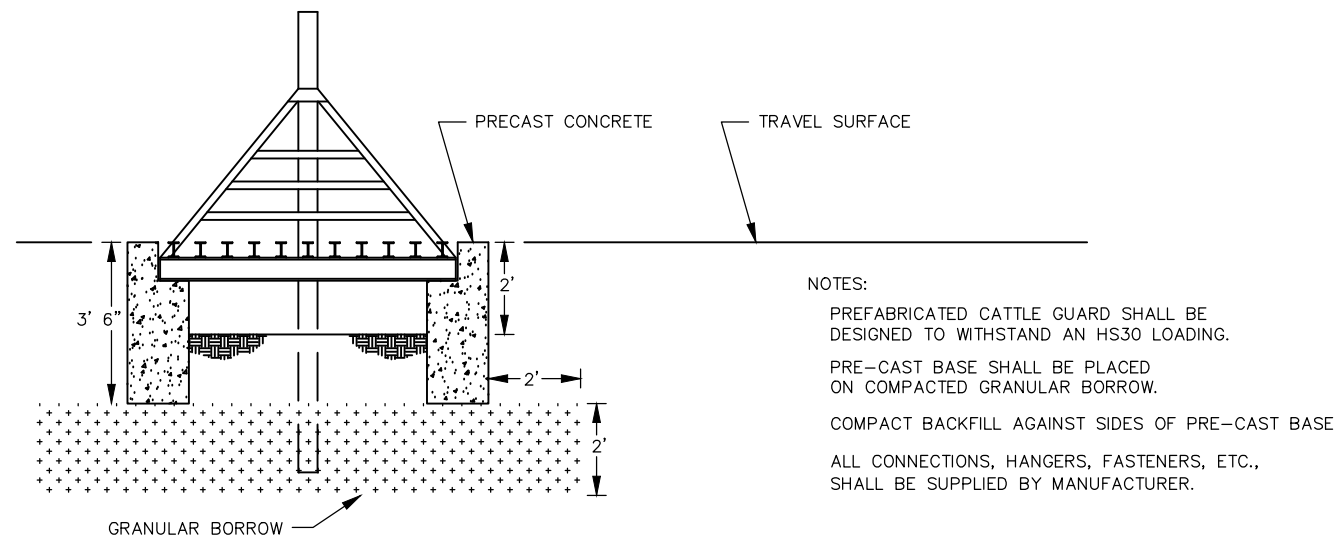
The roadway is to be shaped to the dimensions shown on the typical cross section included in this document. Care shall be given to insure that the travel-way width is not less or significantly more than the dimensions given on the typical cross section. Where turnouts are indicated, the typical section widths shown on the typical cross section will need to be modified by the amounts shown on the typical turn-out. Where there are horizontal curves, super-elevations will be constructed to the percentages shown on the plan and profile sheets. One-third of the super transition occurs on the curve and two-thirds on the tangent.

Top soil will be handled in the manner agreed upon and stated within the APD and the conditions of approval. If top soil is to be moved; Top soil will be peeled back during construction. Some over-excavation of cut slopes and bar ditches will provide needed material for road construction. Top soil will then be spread back over the cut and fill slopes and bar ditches.

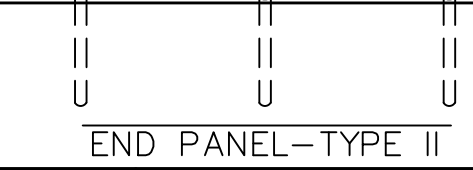
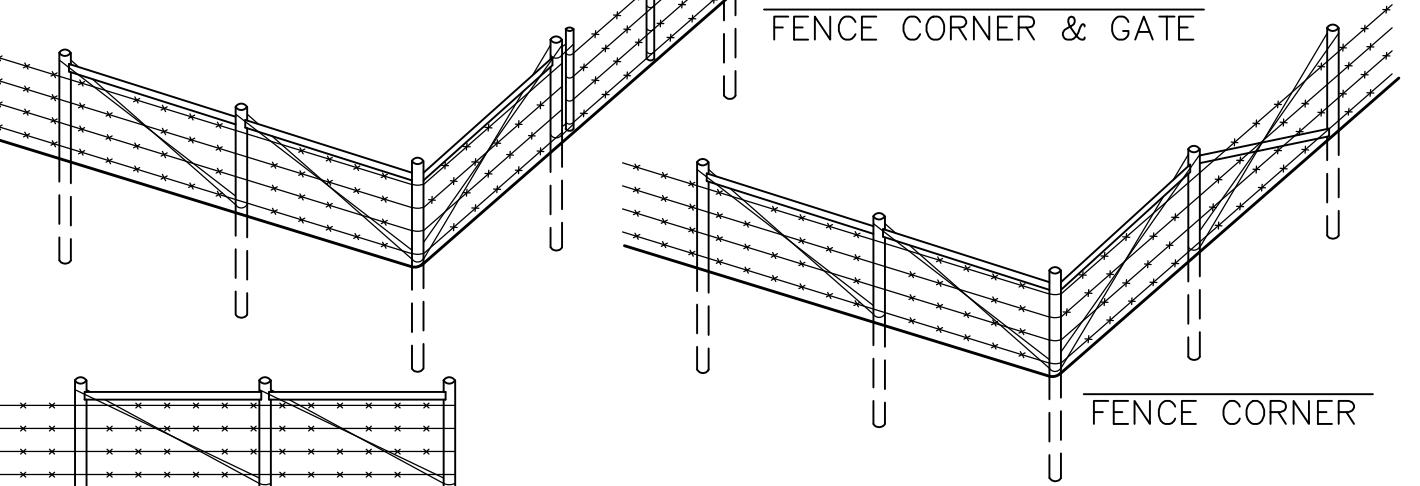
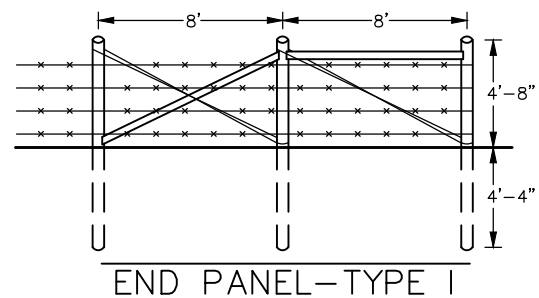
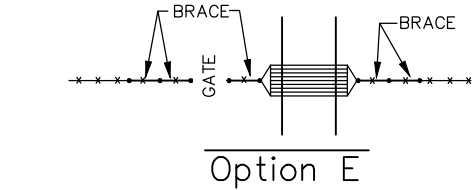
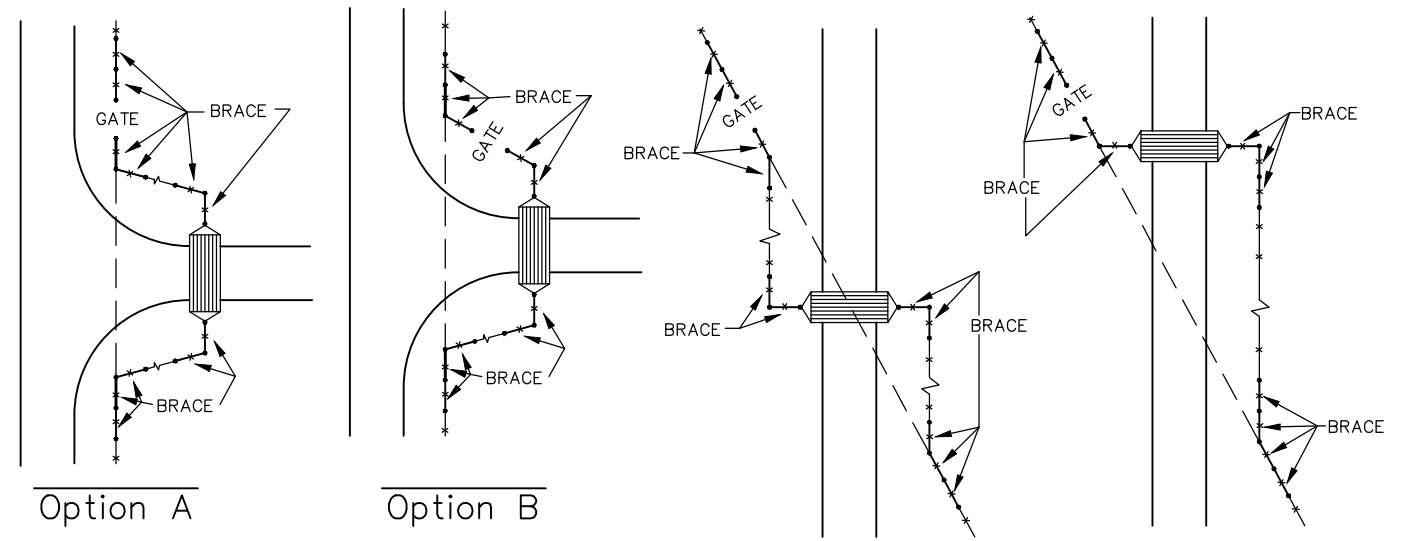
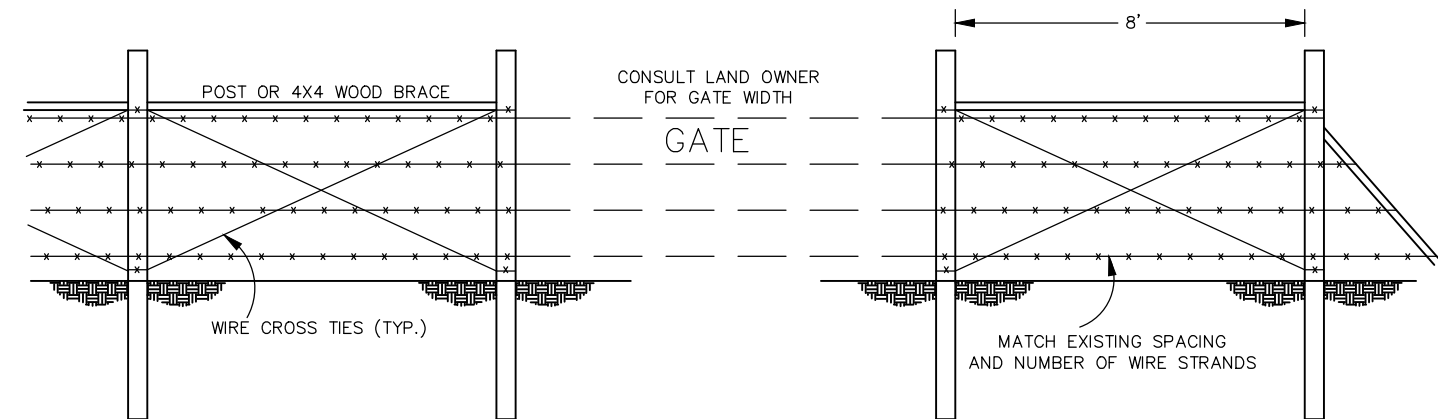


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FENCE / GATE



WOOD BRACES TO BE
4" X 4" SQUARE OR
5" DIAMETER ROUND

LARAMIE ENERGY, LLC
GUNDERSON 20-03
ACCESS ROAD
CATTLE GUARD DETAILS

DATE	BY	REVISIONS

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THE PLANS SHOW AN ESTIMATE OF THE NUMBER AND THE SIZE OF THE CULVERTS TO BE PLACED ON THE ROAD. THERE MAY NEED TO BE SOME FIELD ADJUSTMENTS MADE BY THE CONTRACTOR, AND/OR INSPECTOR/ENGINEER TO THE PLACEMENT AND LENGTH OF THE CULVERTS AND WING DITCHES.

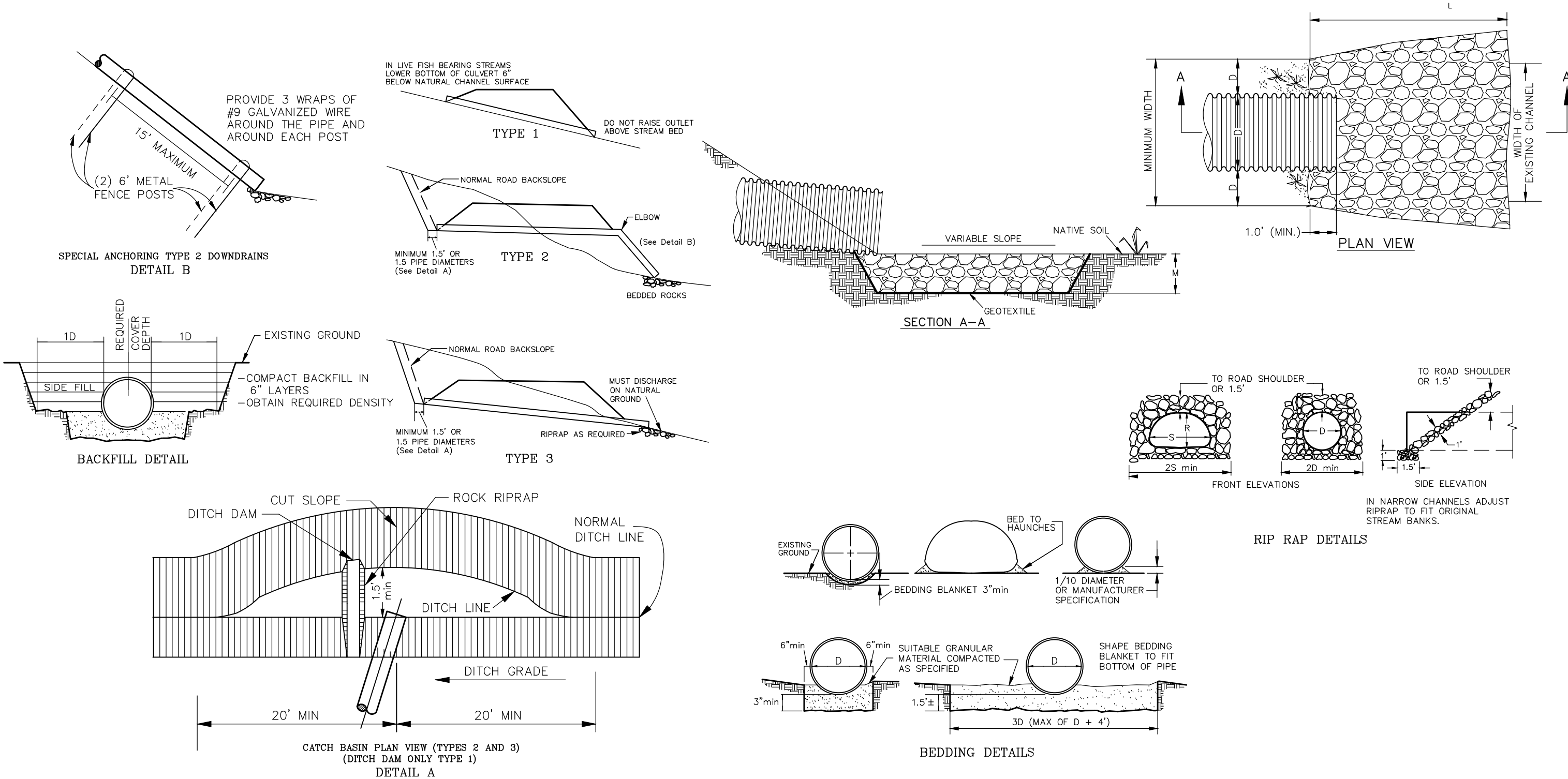
CULVERT INGRESS AND EGRESS DITCH LENGTHS ARE TO BE DETERMINED DURING CONSTRUCTION. ALL DITCHES ARE TO BE CONSTRUCTED WITH SUFFICIENT SLOPE SO THAT WATER WILL EXIT THE DOWNSTREAM SIDE AND NOT POND IN THE DITCH.

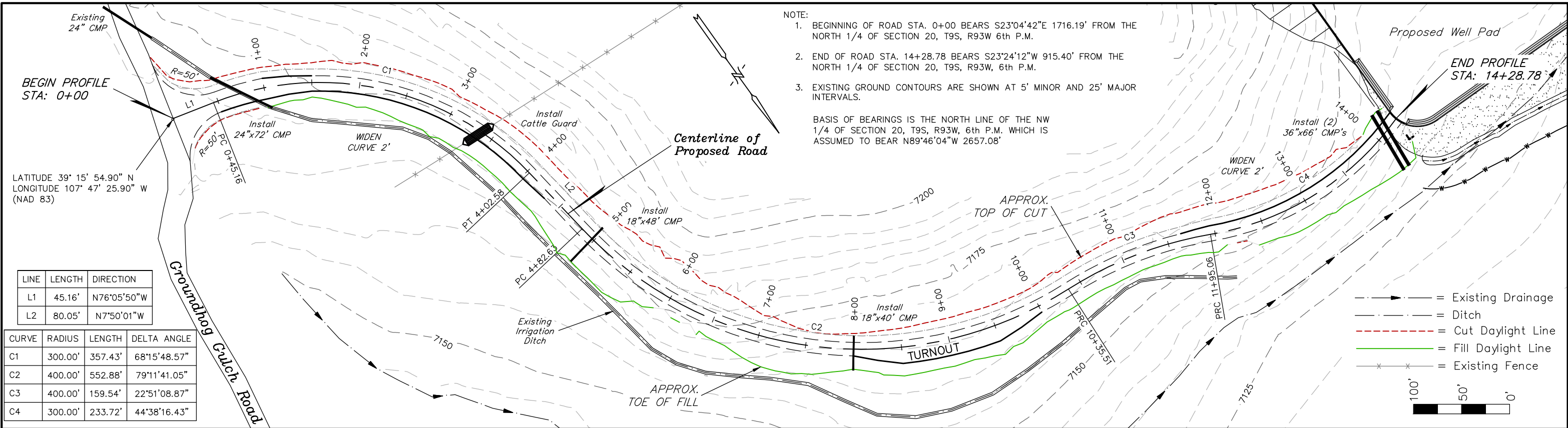
ALL CULVERTS SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT AN HS-20 LOADING OR HEAVIER. CHECK WITH MANUFACTURER FOR INFORMATION ABOUT MINIMUM COVER AND LOAD RATINGS. IN NO CASE SHALL COVER OVER CULVERTS BE LESS THAN 1'. CULVERT LENGTHS ARE ESTIMATED ON THE PLANS BUT THERE MAY NEED TO BE SOME ADJUSTMENTS MADE TO THE LENGTHS OF THE CULVERTS DURING CONSTRUCTION.

RIP-RAP WILL BE PLACED AT CULVERT INLETS AND OUTLETS WHERE SPECIFIED ON THE PLAN & PROFILE SHEETS. RIP-RAP WILL BE SIZED DEPENDENT UPON PIPE DIAMETER AS SHOWN. RIP RAP SHALL BE WELL GRADED WITH A SUFFICIENT AMOUNT OF SMALLER STONES UNIFORMLY DISTRIBUTED THOUGHOUT.

PIPE DIAM.-D	RIP-RAP SIZE	L	M	YARDAGE
0"-24"	60% shall be 8" in diameter or larger	5'	12"	±1 cyds
25"-48"	60% shall be 12" in diameter or larger	10'	18"	±6 cyds
49"-72"	60% shall be 18" in diameter or larger	15'	24"	±19 cyds

*Larger than 72", consult engineer.





BEGIN PROFILE STA: 0+00

Existing 24" CMP

Install 24"x72' CMP

WIDEN CURVE 2'

Install 18"x48' CMP

Install 18"x40' CMP

Install (2) 36"x66' CMP's

WIDEN CURVE 2'

END PROFILE STA: 14+28.78

Proposed Well Pad

Groundhog Gulch Road

Centerline of Proposed Road

APPROX. TOP OF CUT

APPROX. TOE OF FILL

TURNOUT

Existing Irrigation Ditch

Existing Fence

Legend:

- Existing Drainage
- Ditch
- Cut Daylight Line
- Fill Daylight Line
- Existing Fence

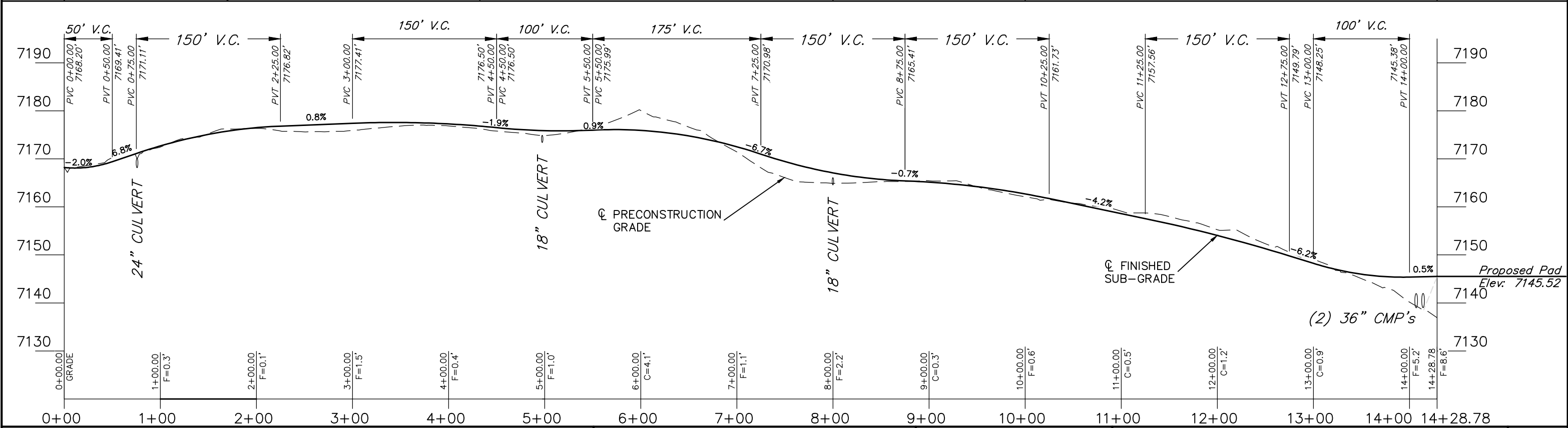
Scale: 1"=100'

Latitude 39° 15' 54.90" N
Longitude 107° 47' 25.90" W
(NAD 83)

LINE	LENGTH	DIRECTION
L1	45.16'	N76°05'50"W
L2	80.05'	N7°50'01"W

CURVE	RADIUS	LENGTH	DELTA ANGLE
C1	300.00'	357.43'	68°15'48.57"
C2	400.00'	552.88'	79°11'41.05"
C3	400.00'	159.54'	22°51'08.87"
C4	300.00'	233.72'	44°38'16.43"

GRADE %	-2.0	+6.8	+0.8	-1.9	+0.9	-6.7	-0.7	-4.2	-6.2	+0.5	PROPOSED WELL PAD
TYP. SECTION	"A"			"B"			Turnout		"B"		2' Curve Widening
	2' Curve Widening										



LARAMIE ENERGY, LLC
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ACCESS ROAD
PLAN & PROFILE

DATE	BY	REVISIONS

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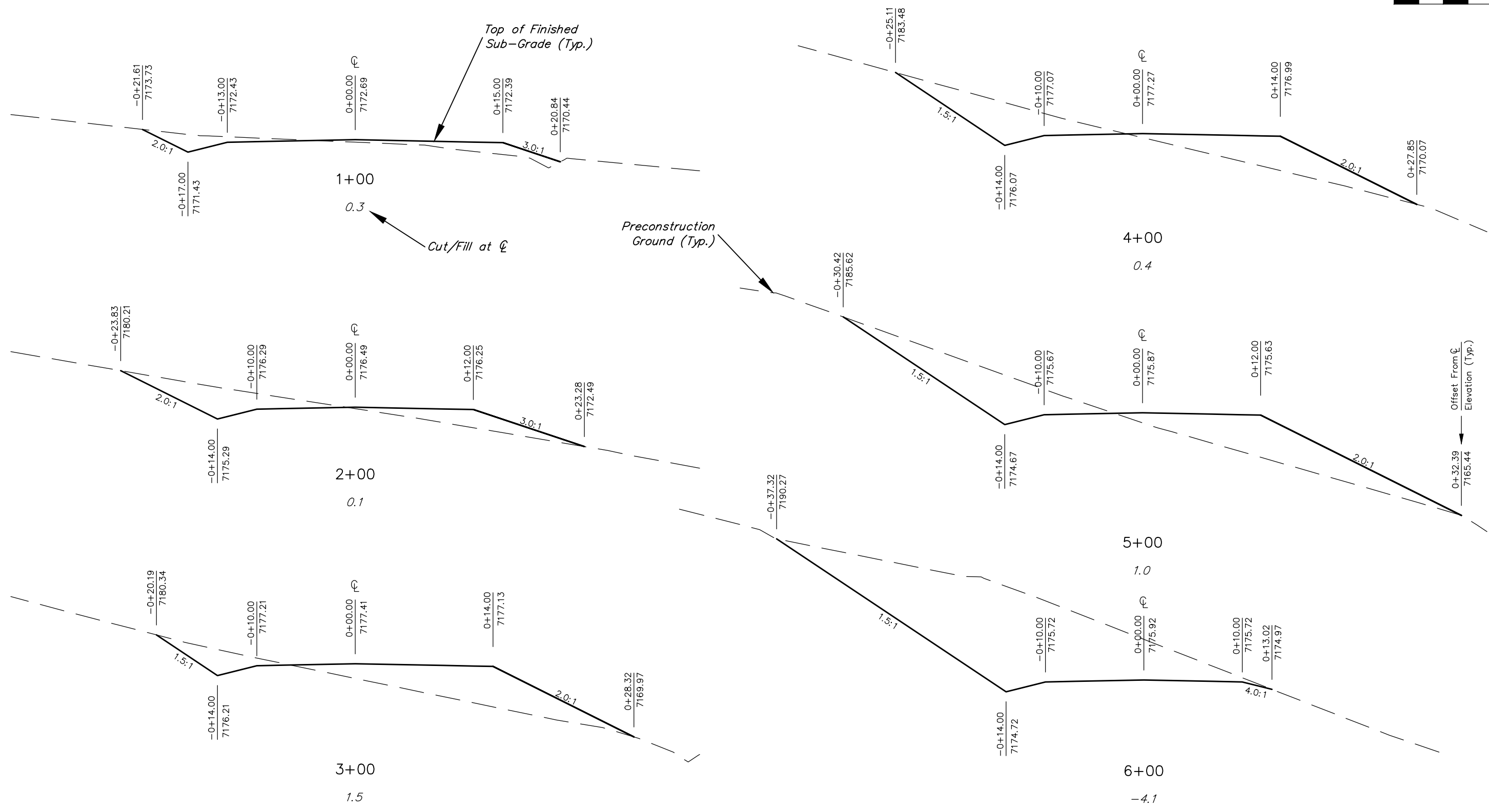
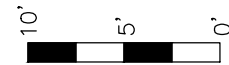
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P1



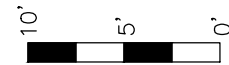
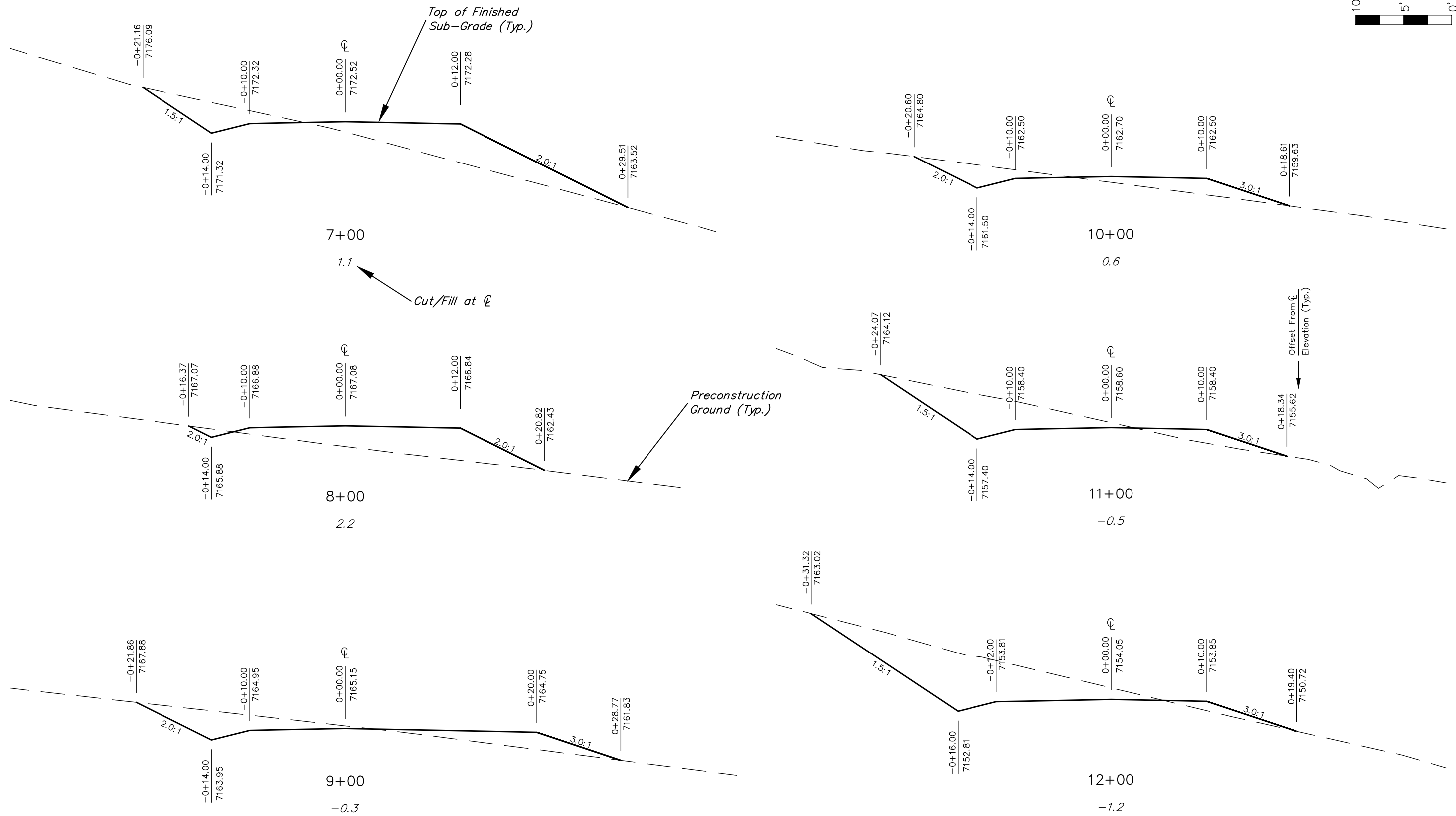
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GUNDERSON 20-03
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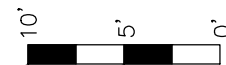
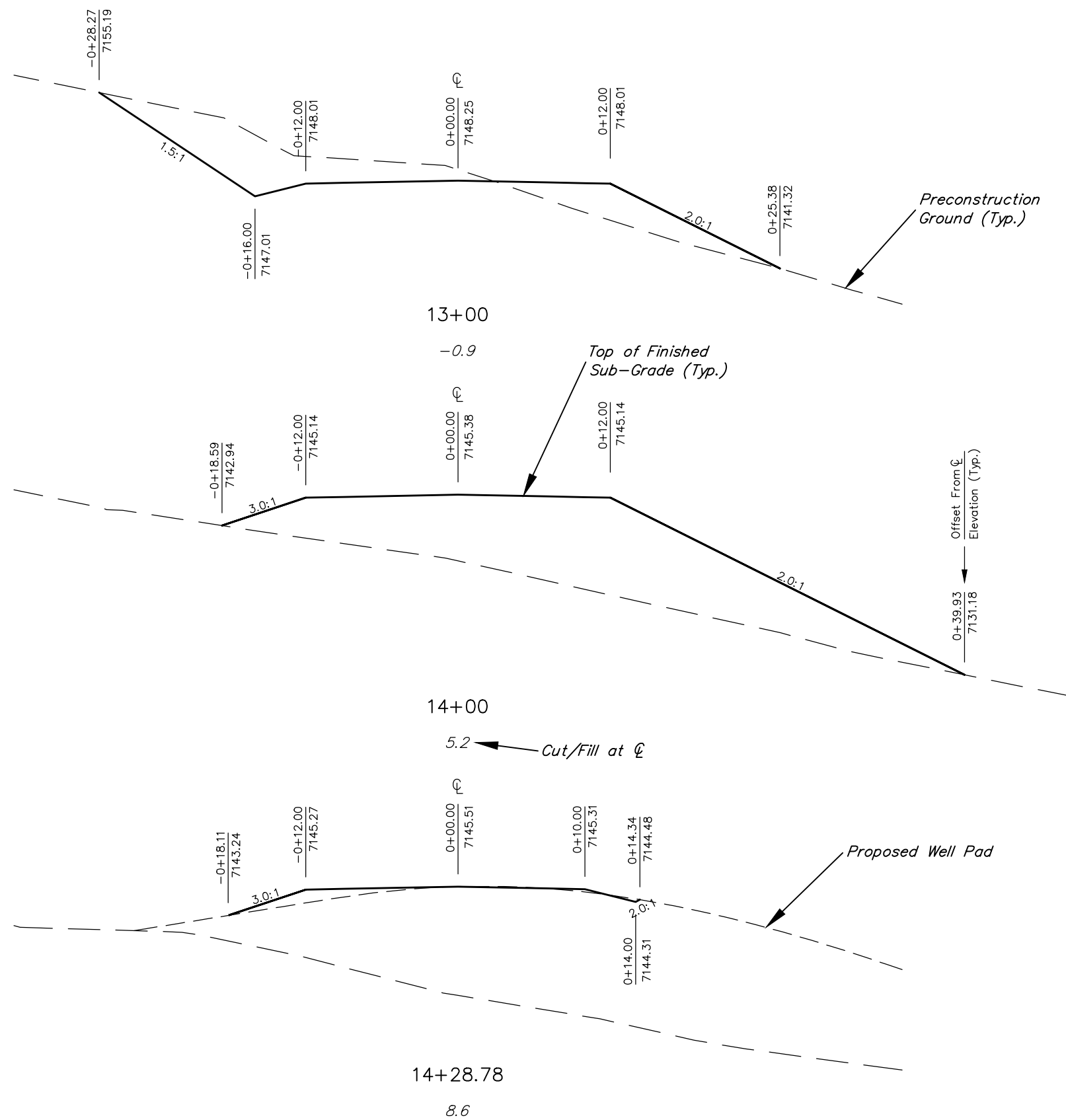
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