

LARAMIE ENERGY, LLC

GUNDERSON 20-03

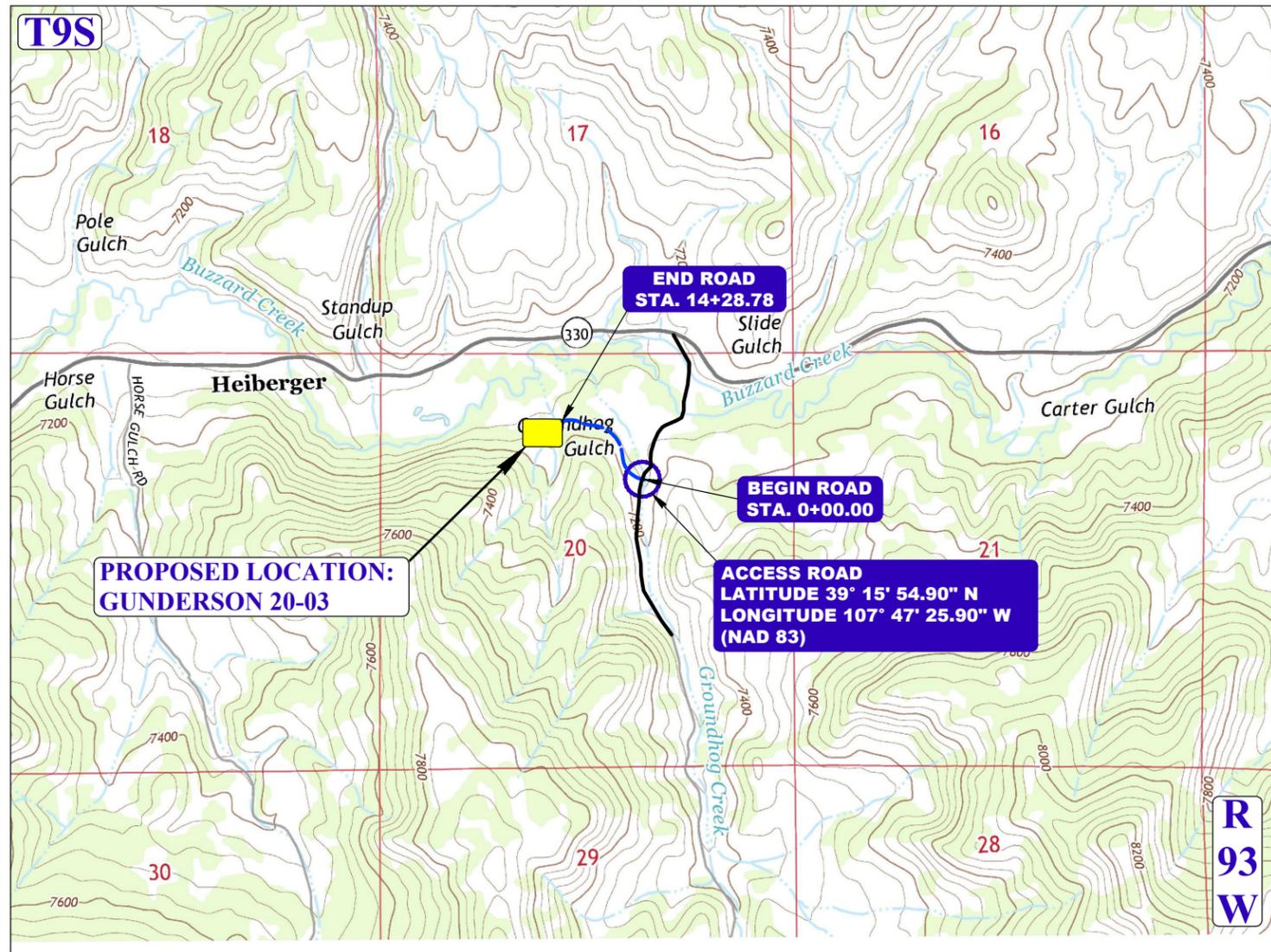
ACCESS ROAD

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



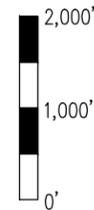
20-03 ROAD - APPROX. EARTHWORK QUANTITIES	
TOTAL CUT	2,640 Cu. Yds.
TOTAL FILL	2,640 Cu. Yds.
EXCESS/DEFICIT MATERIAL	0 Cu. Yds.

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



RESPONSIBLE ENGINEER

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.



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

SCALE: 1"=2,000'

LARAMIE ENERGY, LLC
 GUNDERSON 20-03
 ACCESS ROAD
 TITLE

DATE	BY	REVISIONS

SCALE: No Scale
 DRAWN BY: D.B.S.
 E-FILE: \20-03 Road.dwg
 PROJECT NO: LAR03-16-11-0035
 DRAWING DATE: 11-07-2016



85 SOUTH 200 EAST
 VERNAL, UTAH 84078
 (435) 789-1017
 www.uintahgroup.com

- SINCE 1964 -

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:

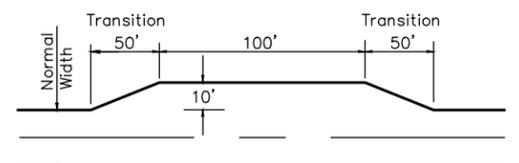
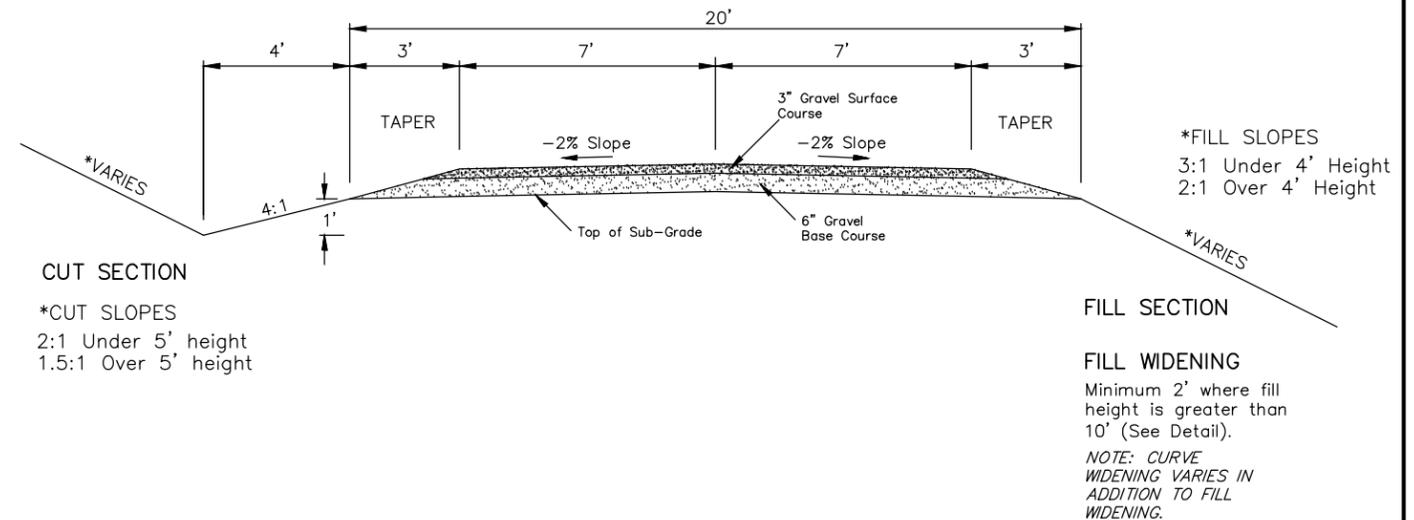
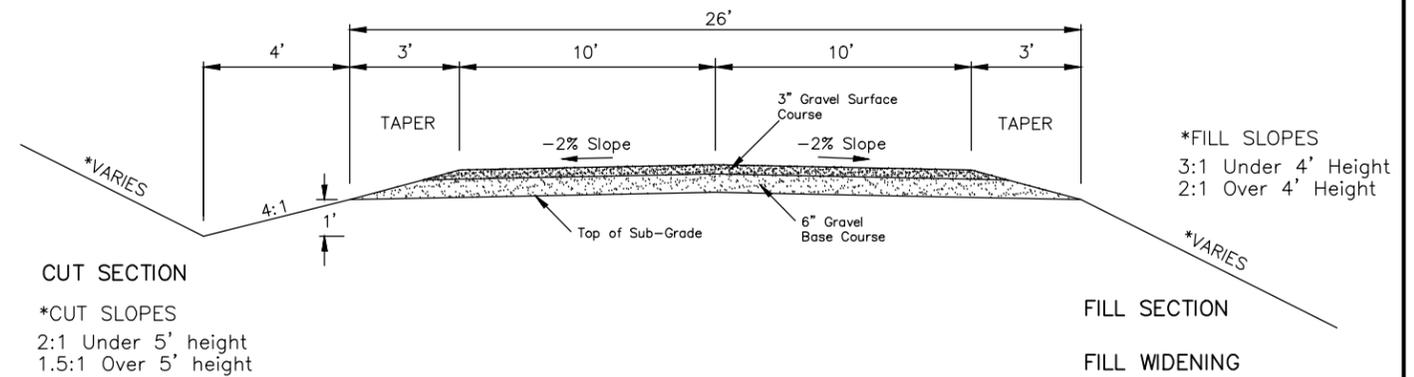
SHAPING THE ROADWAY

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.

TYPICAL CROSS SECTIONS

NOT TO SCALE



PLAN
TURNOUT-WIDENING ON ONE SIDE
(DETAIL)
NOT TO SCALE

GRAVEL SPECIFICATION:

Aggregate Base Course:
3" minus base course gravel (AASHTO M145-49 A-1-a Soil OR Approved Equivalent)

Aggregate Surface Course:
1-1/2" minus road base gravel (CDOT Class 5 Aggregate OR Approved Equivalent)

Do not place gravel on road until Owner / Inspector / Engineer has approved the sub-grade.

Place gravel to full widened width on turnouts, curve widening, and intersection flares.

LARAMIE ENERGY, LLC
GUNDERSON 20-03
ACCESS ROAD

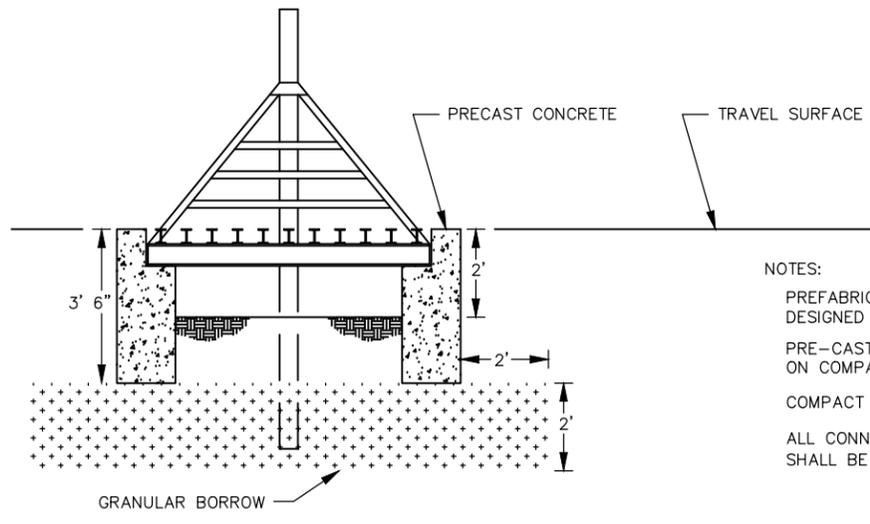
GENERAL NOTES & GEOMETRIC STANDARDS

SCALE: No Scale		
DRAWN BY: D.B.S.		
E-FILE: \20-03 Road.dwg		
PROJECT NO: LAR03-16-11-0035		
DRAWING DATE: 11-07-2016		
DATE	BY	REVISIONS

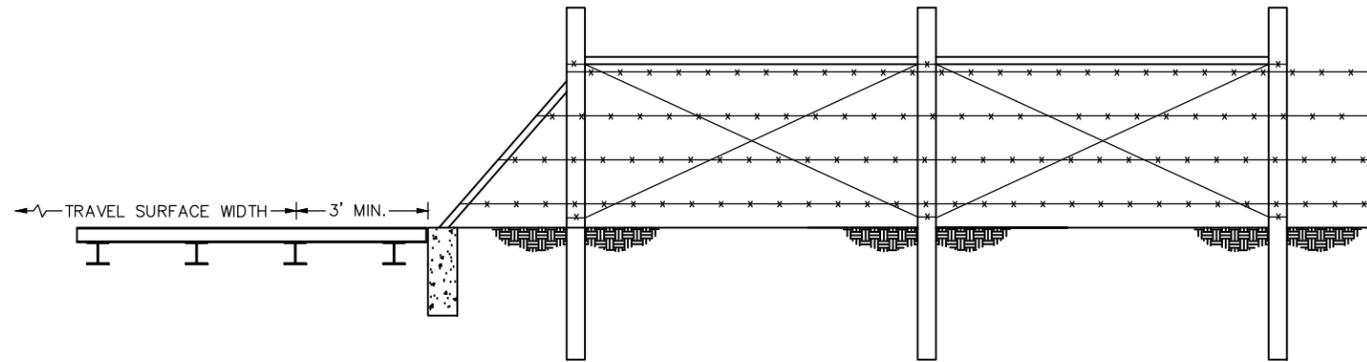


85 SOUTH 200 EAST
VERNAL, UTAH 84078
(435) 789-1017
www.uintahgroup.com

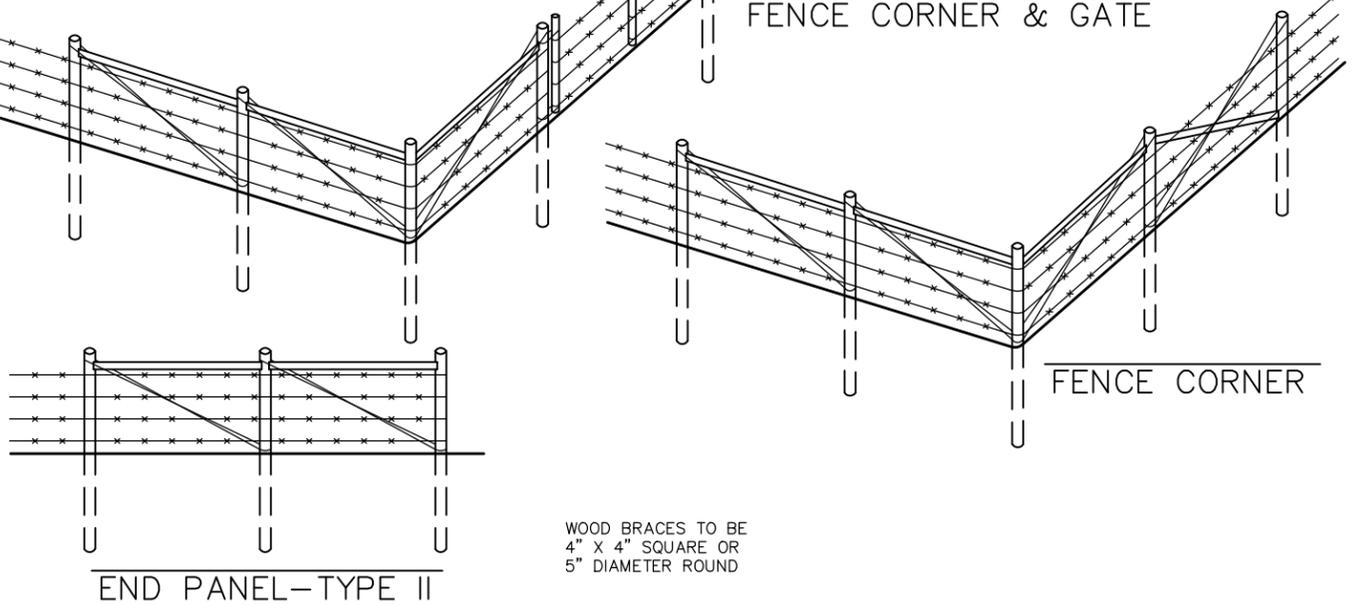
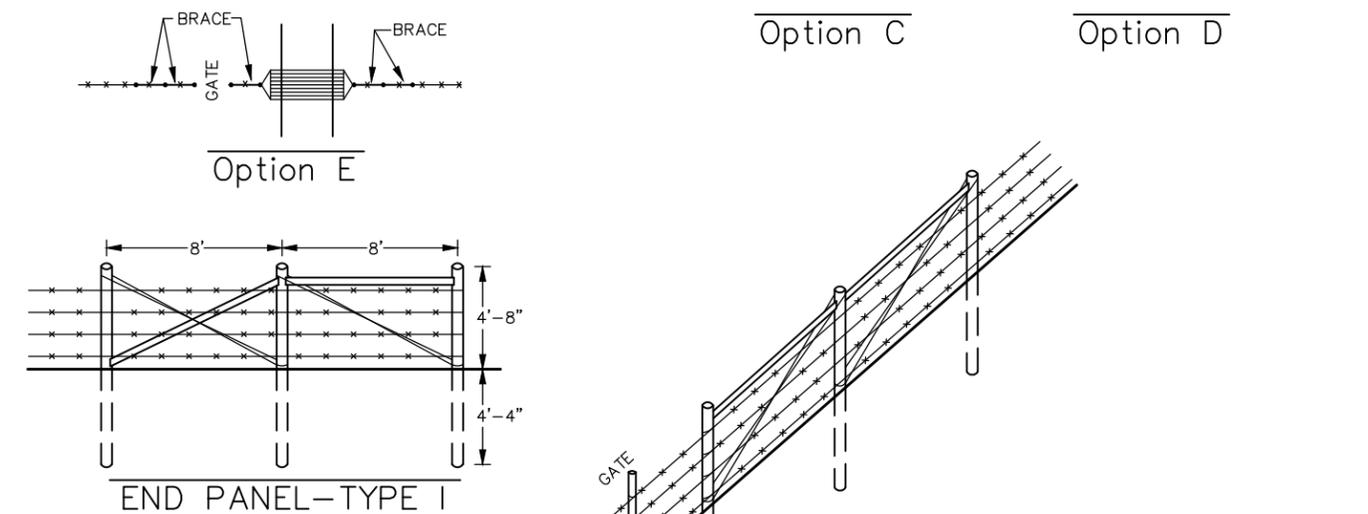
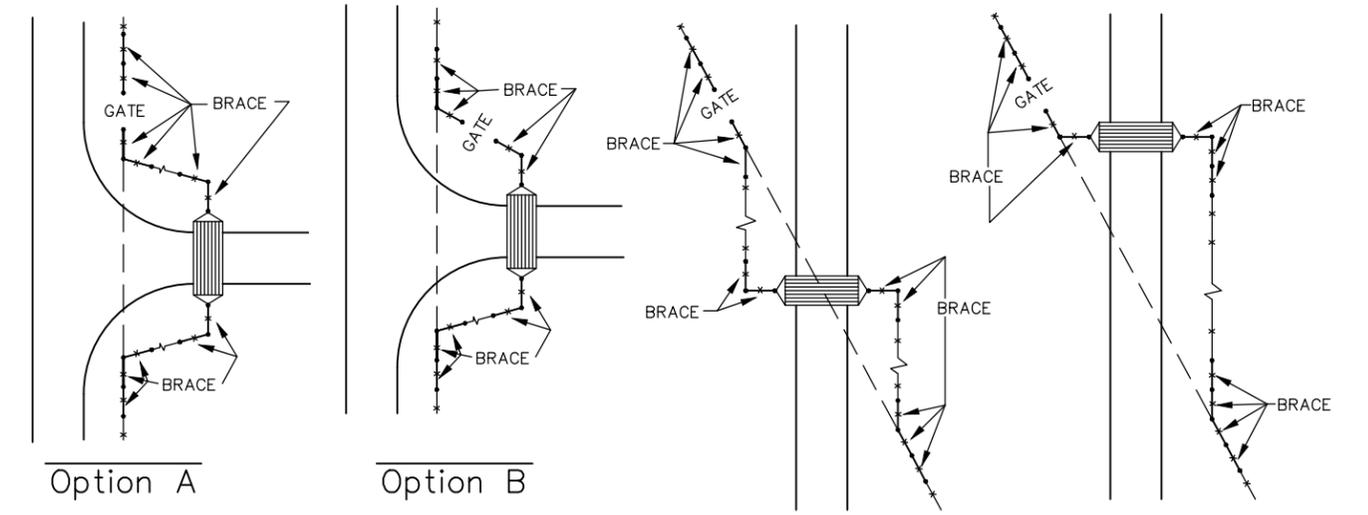
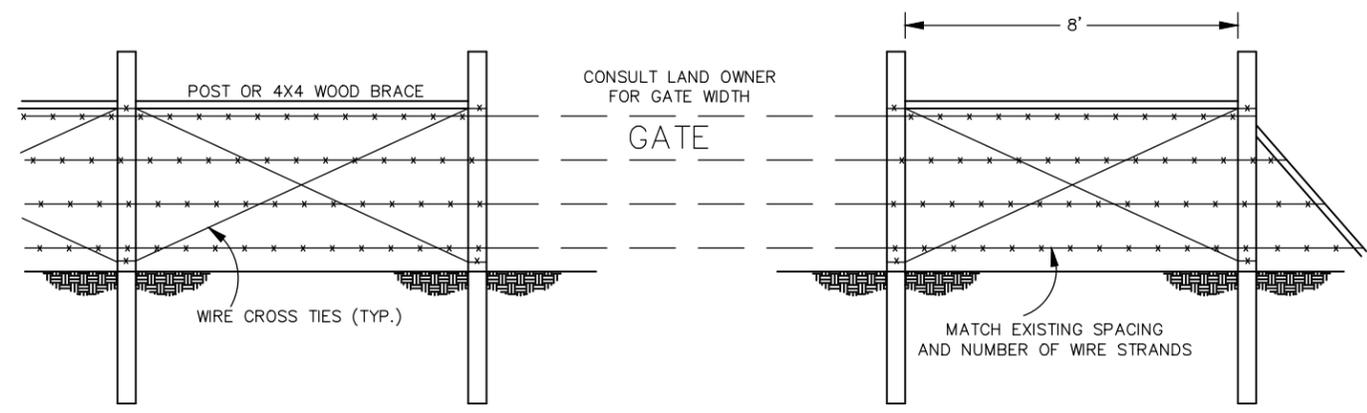
- SINCE 1964 -



NOTES:
 PREFABRICATED CATTLE GUARD SHALL BE DESIGNED TO WITHSTAND AN HS30 LOADING.
 PRE-CAST BASE SHALL BE PLACED ON COMPACTED GRANULAR BORROW.
 COMPACT BACKFILL AGAINST SIDES OF PRE-CAST BASE
 ALL CONNECTIONS, HANGERS, FASTENERS, ETC., SHALL BE SUPPLIED BY MANUFACTURER.



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

SCALE: No Scale
 DRAWN BY: D.B.S.
 E-FILE: \20-03 Road.dwg
 PROJECT NO: LAR03-16-11-0035
 DRAWING DATE: 11-07-2016



85 SOUTH 200 EAST
 VERNAL, UTAH 84078
 (435) 789-1017
 www.uintahgroup.com
 - SINCE 1964 -

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.

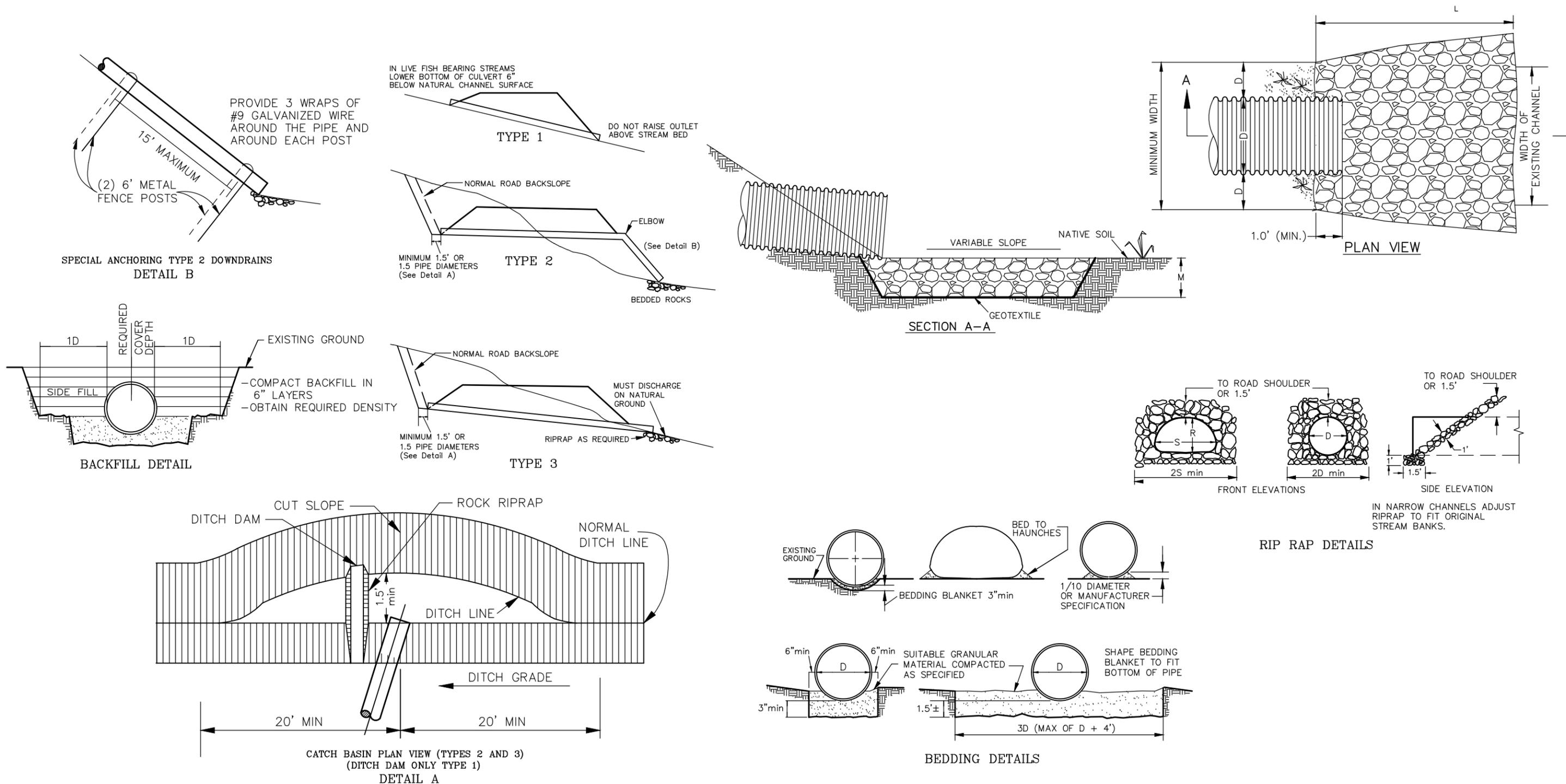
CULVERT INGRESS AND EGRESS DITCH LENGTHS ARE TO BE DETERMINED DURING CONSTRUCTION. ALL DITCHES ARE TO BE CONSTRUCTED WITH SUFFICIENT SLOPE SO THAT WATER WILL EXIT THE DOWNSTREAM SIDE AND NOT POND IN THE DITCH.

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 THROUGHOUT.

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.

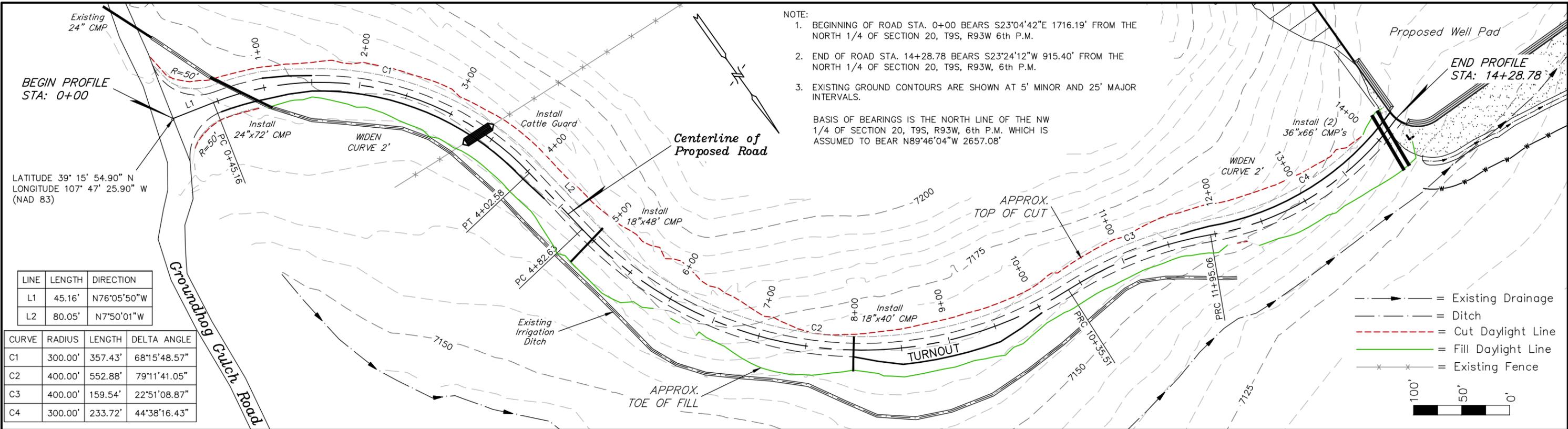


LARAMIE ENERGY, LLC
 GUNDERSON 20-03
 ACCESS ROAD
 CULVERT INSTALLATION DETAILS

DATE	BY	REVISIONS

SCALE: No Scale
 DRAWN BY: D.B.S.
 E-FILE: \20-03 Road.dwg
 PROJECT NO: LAR03-16-11-0035
 DRAWING DATE: 11-07-2016

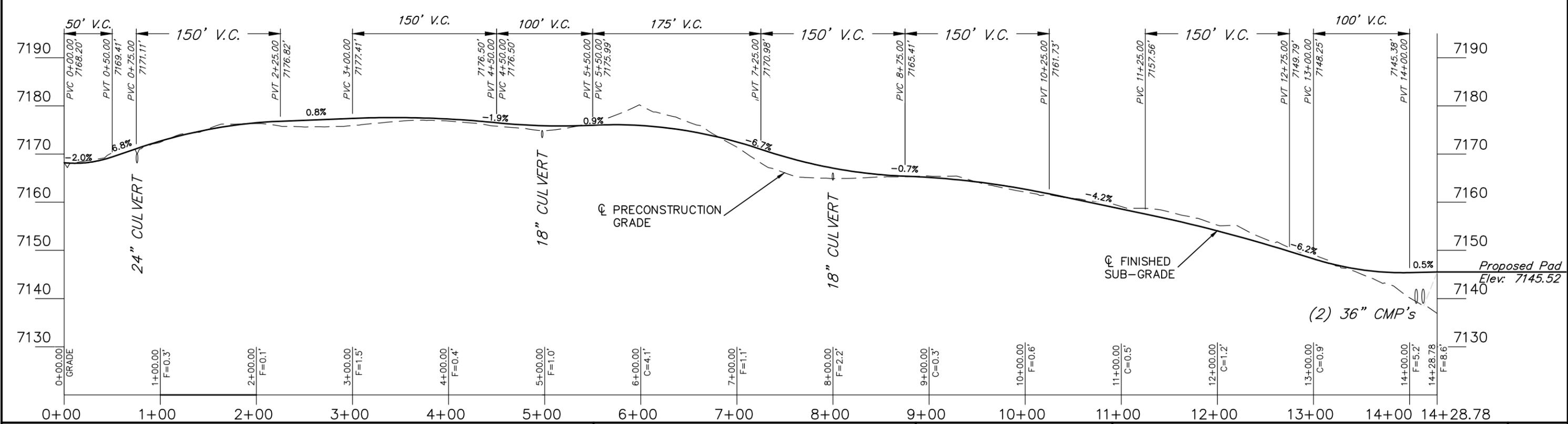
85 SOUTH 200 EAST
 VERNAL, UTAH 84078
 (435) 789-1017
 www.uintahgroup.com
 - SINCE 1964 -



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" 2' Curve Widening		"B"			Turnout		"B"		2' Curve Widening	



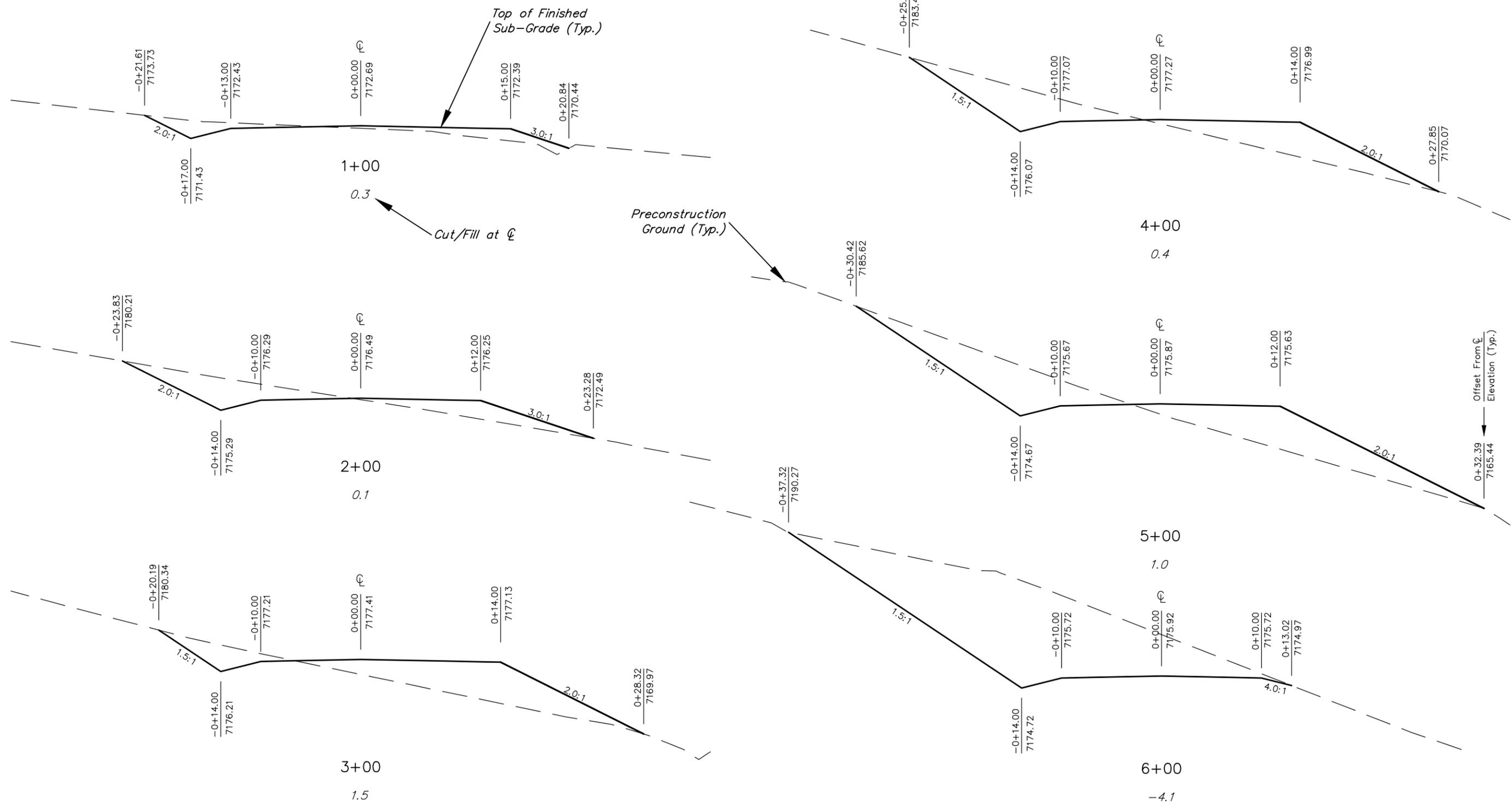
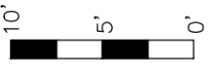
LARAMIE ENERGY, LLC
 GUNDERSON 20-03
 ACCESS ROAD
 PLAN & PROFILE

DATE	BY	REVISIONS

SCALE: 1"=100'
 DRAWN BY: D.B.S.
 E-FILE: \20-03 Road.dwg
 PROJECT NO: LAR03-16-11-0035
 DRAWING DATE: 11-07-2016



85 SOUTH 200 EAST
 VERNAL, UTAH 84078
 (435) 789-1017
 www.uintahgroup.com
 - SINCE 1964 -



LARAMIE ENERGY, LLC
 GUNDERSON 20-03
 ACCESS ROAD
 CROSS SECTIONS

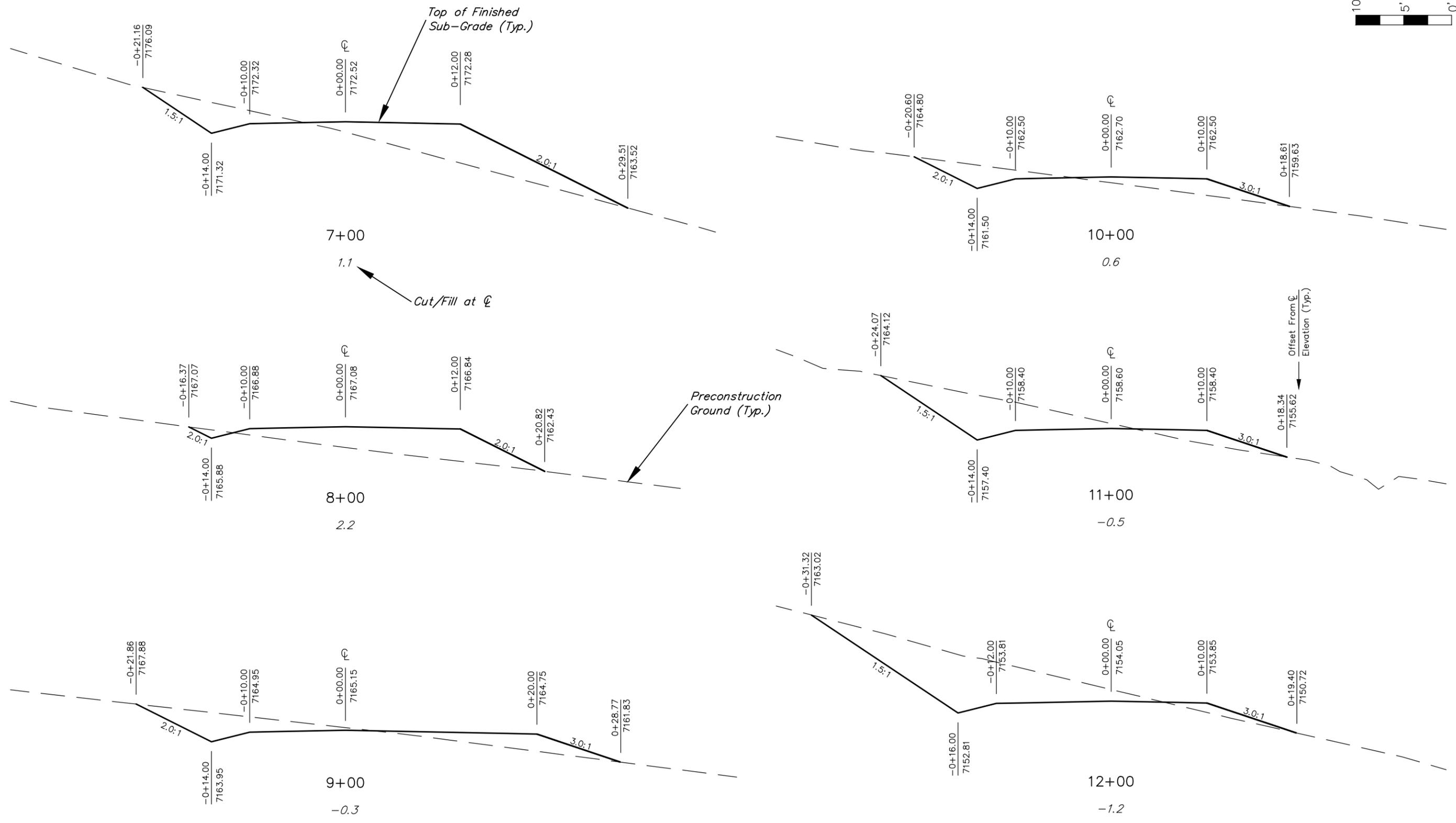
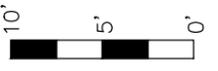
DATE	BY	REVISIONS

SCALE: 1"=10'
 DRAWN BY: D.B.S.
 E-FILE: \20-03 Road.dwg
 PROJECT NO: LAR03-16-11-0035
 DRAWING DATE: 11-07-2016



85 SOUTH 200 EAST
 VERNAL, UTAH 84078
 (435) 789-1017
 www.uintahgroup.com
 - SINCE 1964 -

C1



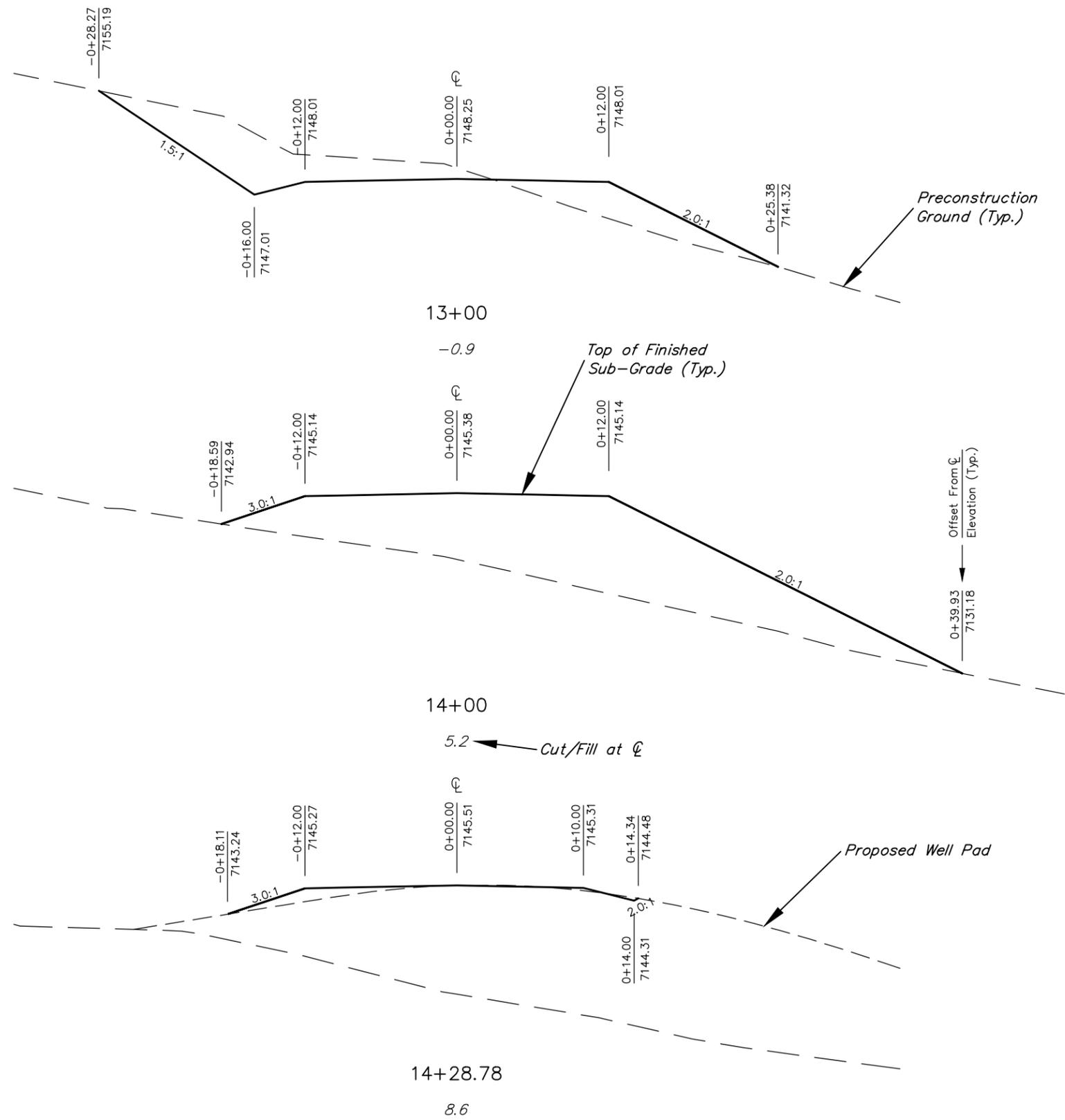
LARAMIE ENERGY, LLC
 GUNDERSON 20-03
 ACCESS ROAD
 CROSS SECTIONS

DATE	BY	REVISIONS

SCALE: 1"=10'
 DRAWN BY: D.B.S.
 E-FILE: \20-03 Road.dwg
 PROJECT NO: LAR03-16-11-0035
 DRAWING DATE: 11-07-2016



85 SOUTH 200 EAST
 VERNAL, UTAH 84078
 (435) 789-1017
 www.uintahgroup.com
 - SINCE 1964 -



LARAMIE ENERGY, LLC
 GUNDERSON 20-03
 ACCESS ROAD
 CROSS SECTIONS

DATE	BY	REVISIONS

SCALE: 1"=10'
 DRAWN BY: D.B.S.
 E-FILE: \20-03 Road.dwg
 PROJECT NO: LAR03-16-11-0035
 DRAWING DATE: 11-07-2016



85 SOUTH 200 EAST
 VERNAL, UTAH 84078
 (435) 789-1017
 www.uintahgroup.com
 - SINCE 1964 -