

Oversight / NHS	
FHWA REGION VIII OVERSIGHT?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES
NATIONAL HIGHWAY SYSTEM?	<input type="checkbox"/> NO <input checked="" type="checkbox"/> YES

# DEPARTMENT OF TRANSPORTATION STATE OF COLORADO

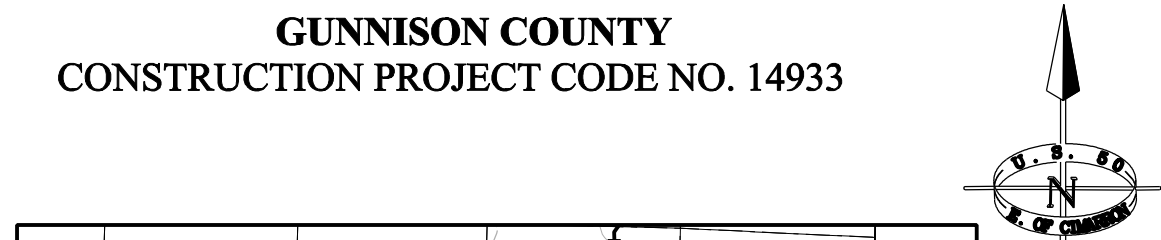
## HIGHWAY CONSTRUCTION BID PLANS FOR FEDERAL AID PROJECT NO. NH 0501-046 US HIGHWAY NO. 50 - BLUE CREEK CANYON SEGMENT 2 GUNNISON COUNTY CONSTRUCTION PROJECT CODE NO. 14933

<b>Related Projects:</b>	
P. E. UNDER PROJECT:	NH 0501-046
Project Number	14933
Project Code:	
<b>R.O.W. Projects:</b>	
R.O.W. Project Description	NH 0501-046

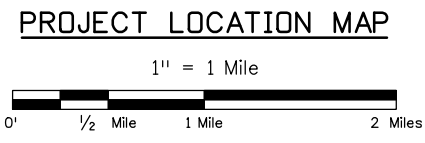
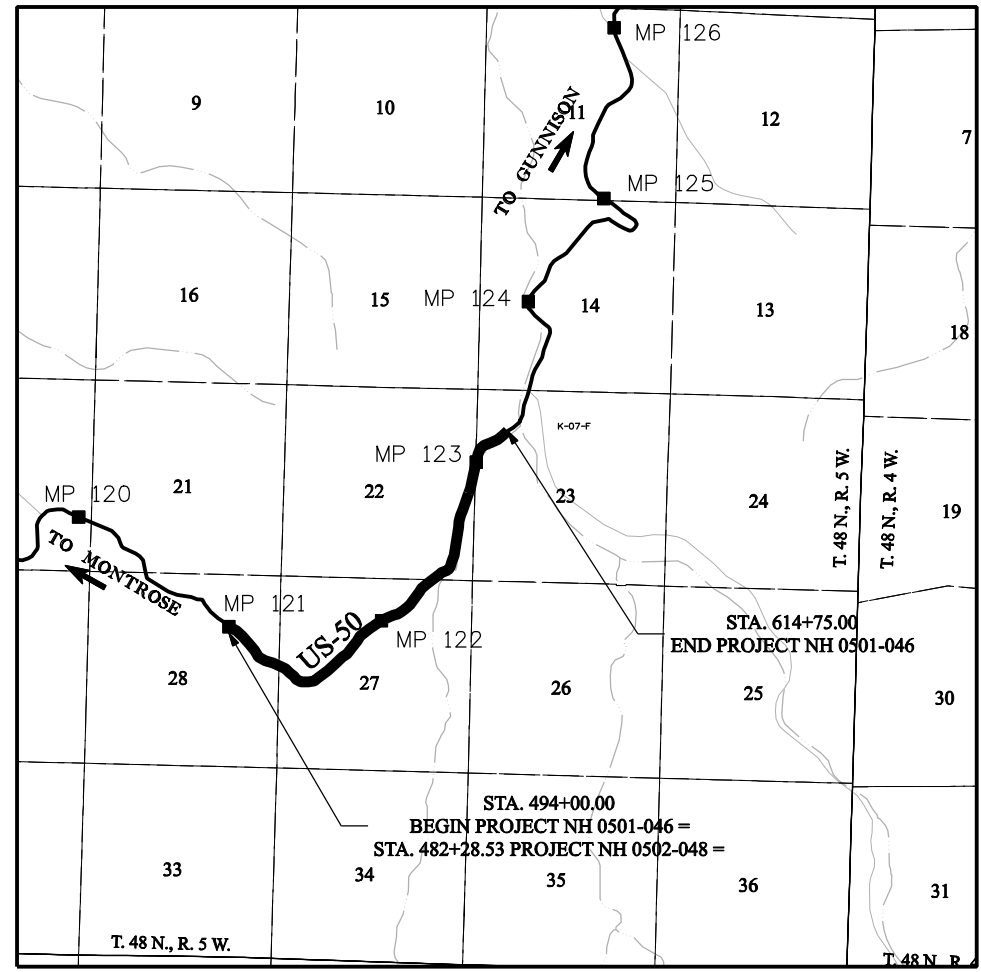
**FOR  
APRIL 2010**

**TABULATION OF LENGTH & DESIGN DATA**

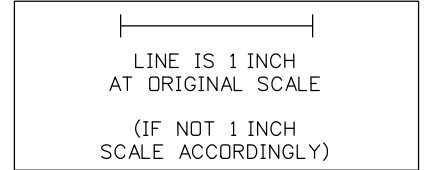
STATION	FEET		MAJOR STR.
	US 50	US 50	
STA. 494+00.00 BEGIN OVERLAY = BEGIN PROJECT NH 0501-046 = STA. 482+28.53 PROJECT NH 0502-048 = MILEPOST 120.85	9,400		
STA. 588+00.00 END RECONSTRUCTION = STA. 588+00.00 BEGIN ROCK EXCAVATION = MILEPOST 122.83	2,675		
STA. 614+75.00 END ROCK EXCAVATION = END PROJECT NH 0501-046 = MILEPOST 123.34			
<b>TOTAL</b>	<b>12,075</b>		
<b>SUMMARY OF PROJECT LENGTH</b>	<b>FEET</b>	<b>MILES</b>	
ROADWAY (NET LENGTH)	9,400	1.78	
MAJOR STRUCTURE			
PROJECT GROSS LENGTH	12,075	2.29	
PROJECT LANE MILES	5.3		
<b>DESIGN DATA</b>	<b>US 50</b>	<b>US 50</b>	
MINIMUM RADIUS OF CURVE	716 ft		
MAXIMUM GRADE	6.00%		
MINIMUM S.S.D. HORIZONTAL	>495 ft		
MINIMUM S.S.D. VERTICAL	>365 ft		
MAXIMUM DESIGN SPEED	55 MPH		
2030 DESIGN TRAFFIC	DHV = 388 ADT = 3528		
DHV TRUCKS %	10.1%		
CLEAR ZONE DISTANCE	30 ft		



SHEET NO.	INDEX OF SHEETS
1	TITLE SHEET
2	STANDARD PLANS LIST
3	SURVEY TABULATION SHEET
4 - 5	GENERAL NOTES
6 - 9	TYPICAL SECTIONS
10 - 13	SUMMARY OF APPROXIMATE QUANTITIES
14	SUMMARY OF EARTHWORK QUANTITIES
15	TABULATION OF SURFACING QUANTITIES
16	TABULATION OF ROAD APPROACHES
17	TABULATION OF DRAINAGE STRUCTURE QUANTITIES
18	TABULATION OF FENCING AND GUARDRAIL
19 - 21	DRAINAGE DETAILS
22 - 36	ENGINEERING GEOLOGY SHEETS
37	REINFORCED EMBANKMENT TYPICAL SECTION
38 - 39	EPS DETAILS
40	ROCK BUTTRESS DETAIL
41	HORIZONTAL DRAIN PLAN VIEW AND TYPICAL SECTION
42 - 46	SUSPENDED WIRE MESH DETAILS
47 - 49	GROUND NAIL WALL DETAILS
50 - 51	WALL PLAN AND PROFILE SHEETS
52 - 55	PROJECT LAYOUT PLANS
56 - 65	PLAN SHEETS
66 - 75	PROFILE SHEETS
76 - 81	ACCESS DRIVE PLAN AND PROFILE
82	FIELD APPROACH PROFILES
83 - 90	STRUCTURE PROFILES
91	GRADING DETAILS
92	TABULATION OF SIGNS
93	SUMMARY OF PAVEMENT MARKINGS
94 - 101	SIGNING AND STRIPING PLANS
102 - 103	CONSTRUCTION TRAFFIC CONTROL PLANS
104 - 107	SWMP PLAN NOTES
108 - 117	SWMP PLAN SHEETS
118 - 174	CROSS SECTIONS



SCALE NOTE FOR ENTIRE PLAN SET



\* FOR INFORMATION ONLY

Print Date: 3/26/2010
File Name: 14933Seg2-TitleSheet.dgn
Horiz. Scale: 1:1      Vert. Scale: As Noted
Unit Information      Unit Leader Initials
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

2424 North Townsend Avenue  
Montrose, CO 81401  
Phone: 972-249-5285 FAX: 970-249-6018

**Region 3**      **RBA**

<b>As Constructed</b>
No Revisions:
Revised:
Void:

<b>Contract Information</b>
Contractor:
Resident Engineer: RBA
Project Engineer: AGC
PROJECT STARTED: / /      ACCEPTED: / /
Comments:



<b>Project No./Code</b>
NH 0501-046
14933
Sheet Number <b>1</b>

PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	NEW OR REVISED	S STANDARD TITLE	PAGE NUMBER
<input checked="" type="checkbox"/>		M-100-1 STANDARD SYMBOLS (3 SHEETS).....	1-3	<input checked="" type="checkbox"/>		M-607-1 WIRE FENCES AND GATES (3 SHEETS).....	84-86	<input checked="" type="checkbox"/>		S-612-1 DELINEATOR INSTALLATIONS (5 SHEETS) (REVISED, AUGUST 19, 2009).....	131-135
<input checked="" type="checkbox"/>		M-203-1 APPROACH ROADS .....	4	<input type="checkbox"/>		M-607-2 CHAIN LINK FENCE (3 SHEETS).....	87-89	<input checked="" type="checkbox"/>		S-614-1 GROUND SIGN PLACEMENT (2 SHEETS).....	136-137
<input type="checkbox"/>		M-203-2 DITCH TYPES.....	5	<input type="checkbox"/>		M-607-3 BARRIER FENCE.....	90	<input checked="" type="checkbox"/>		S-614-2 CLASS I SIGNS.....	138
<input checked="" type="checkbox"/>		M-203-11 SUPERELEVATION CROWNED AND DIVIDED HIGHWAYS (3 SHEETS).....	6-8	<input type="checkbox"/>		M-607-4 DEER FENCE AND GATES (2 SHEETS).....	91-92	<input checked="" type="checkbox"/>		S-614-3 CLASS II SIGNS.....	139
<input type="checkbox"/>		M-203-12 SUPERELEVATION STREETS (2 SHEETS).....	9-10	<input checked="" type="checkbox"/>		M-607-10 PICKET SNOW FENCE .....	93	<input type="checkbox"/>		S-614-4 CLASS III SIGNS (3 SHEETS) (REVISED, DECEMBER 29, 2009) .....	140-142
<input checked="" type="checkbox"/>		M-206-1 EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS).....	11-12	<input type="checkbox"/>		M-607-15 ROAD CLOSURE GATE (9 SHEETS).....	94-102	<input type="checkbox"/>		S-614-5 BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS).....	143-144
<input type="checkbox"/>		M-206-2 EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS).....	13-14	<input type="checkbox"/>		M-608-1 CURB RAMPS (4 SHEETS).....	103-106	<input type="checkbox"/>		S-614-6 CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS).....	145-146
<input type="checkbox"/>		M-208-1 TEMPORARY EROSION CONTROL (7 SHEETS) (REVISED ON JULY 09, 2009).....	<del>15-21</del>	<input type="checkbox"/>		M-609-1 CURBS, GUTTERS, AND SIDEWALKS (3 SHEETS) (REVISED ON JULY 09, 2009).....	<del>107-109</del>	<input type="checkbox"/>		S-614-8 TUBULAR STEEL SIGN SUPPORT DETAILS (5 SHEETS) (REVISED ON DEC. 07, 2009).....	<del>147-151</del>
<input type="checkbox"/>		M-210-1 MAILBOX SUPPORTS (2 SHEETS).....	22-23	<input type="checkbox"/>		M-611-1 CATTLE GUARD (2 SHEETS).....	110-111	<input type="checkbox"/>		S-614-10 MARKER ASSEMBLY INSTALLATIONS .....	152
<input type="checkbox"/>		M-214-1 PLANTING DETAILS.....	24	<input type="checkbox"/>		M-613-1 ROADWAY LIGHTING (4 SHEETS).....	112-115	<input type="checkbox"/>		S-614-11 MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS (NEW, JUNE 22, 2009).....	
<input type="checkbox"/>		M-412-1 CONCRETE PAVEMENT JOINTS (5 SHEETS) (REVISED ON JULY 09, 2009).....	<del>25-29</del>	<input type="checkbox"/>		M-614-1 RUMBLE STRIPS (3 SHEETS).....	116-118	<input type="checkbox"/>		S-614-12 STRUCTURE NUMBER INSTALLATION .....	153
<input type="checkbox"/>		M-510-1 STRUCTURAL PLATE PIPE H-20 LOADING.....	30	<input type="checkbox"/>		M-614-2 SAND BARREL ARRAYS (2 SHEETS).....	119-120	<input type="checkbox"/>		S-614-14 FLASHING BEACON AND SIGN INSTALLATIONS (3 SHEETS).....	154-156
<input type="checkbox"/>		M-601-1 SINGLE CONCRETE BOX CULVERT (2 SHEETS).....	31-32	<input type="checkbox"/>		M-615-1 EMBANKMENT PROTECTOR TYPE 3.....	121	<input checked="" type="checkbox"/>		S-614-15 TYPICAL POLE MOUNT SIGN INSTALLATIONS.....	157
<input type="checkbox"/>		M-601-2 DOUBLE CONCRETE BOX CULVERT (2 SHEETS).....	33-34	<input type="checkbox"/>		M-615-2 EMBANKMENT PROTECTOR TYPE 5.....	122	<input checked="" type="checkbox"/>		S-614-21 CONCRETE BARRIER SIGN POST INSTALLATIONS.....	158
<input type="checkbox"/>		M-601-3 TRIPLE CONCRETE BOX CULVERT (2 SHEETS).....	35-36	<input type="checkbox"/>		M-616-1 INVERTED SIPHON.....	123	<input type="checkbox"/>		S-614-22 TYPICAL MULTI-SIGN INSTALLATIONS.....	159
<input type="checkbox"/>		M-601-10 HEADWALL FOR PIPES.....	37	<input checked="" type="checkbox"/>		M-620-1 FIELD LABORATORY CLASS 1.....	124	<input type="checkbox"/>		S-614-40 TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS.....	160-166
<input type="checkbox"/>		M-601-11 TYPE "S" SADDLE HEADWALLS FOR PIPE.....	38	<input checked="" type="checkbox"/>		M-620-2 FIELD LABORATORY CLASS 2.....	125	<input type="checkbox"/>		S-614-40A ALTERNATIVE TRAFFIC SIGNAL INSTALLATION DETAILS.....	167-171
<input type="checkbox"/>		M-601-12 HEADWALLS AND PIPE OUTLET PAVING .....	39	<input type="checkbox"/>		M-620-11 FIELD OFFICE CLASS 1.....	126	<input type="checkbox"/>		S-614-50 MONOTUBE OVERHEAD SIGNS (14 SHEETS).....	172-185
<input type="checkbox"/>		M-601-20 WINGWALLS FOR PIPE OR BOX CULVERTS.....	40	<input checked="" type="checkbox"/>		M-620-12 FIELD OFFICE CLASS 2.....	127	<input type="checkbox"/>		S-627-1 PAVEMENT MARKINGS (5 SHEETS) (REVISED ON JULY 28, 2009) .....	<del>186-190</del>
<input type="checkbox"/>		M-603-1 METAL PIPE (4 SHEETS) (REVISED ON FEBRUARY 25, 2010) .....	<del>41-42</del>	<input checked="" type="checkbox"/>		M-629-1 SURVEY MONUMENTS (2 SHEETS).....	128-129	<input type="checkbox"/>		S-630-1 TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (REVISED ON FEB. 17, 2010) (19 SHEETS).....	<del>191-202</del>
<input checked="" type="checkbox"/>		M-603-2 REINFORCED CONCRETE PIPE.....	43					<input type="checkbox"/>		S-630-2 BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP.) AND VERTICAL PANELS.....	203
<input type="checkbox"/>		M-603-3 PRECAST CONCRETE BOX CULVERT (REVISED ON JULY 09, 2009) .....	<del>44</del>					<input type="checkbox"/>		S-630-3 FLASHING BEACON (PORTABLE) DETAILS.....	204
<input type="checkbox"/>		M-603-4 CORRUGATED POLYETHYLENE PIPE (AASHTO M294) (REV. ON FEB. 25, 2010).....						<input type="checkbox"/>		S-630-4 STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION DETAILS (NEW, MARCH 22, 2010).....	
<input type="checkbox"/>		M-603-5 POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304) (NEW ON FEB. 25, 2010).....									
<input checked="" type="checkbox"/>		M-603-10 CONCRETE AND METAL END SECTIONS (2 SHEETS).....	45-46								
<input checked="" type="checkbox"/>		M-604-10 INLET, TYPE C.....	47								
<input checked="" type="checkbox"/>		M-604-11 INLET, TYPE D.....	48								
<input type="checkbox"/>		M-604-12 CURB INLET TYPE R (2 SHEETS).....	49-50								
<input type="checkbox"/>		M-604-13 CONCRETE INLET TYPE 13.....	51								
<input type="checkbox"/>		M-604-20 MANHOLES (3 SHEETS).....	52-54								
<input type="checkbox"/>		M-604-25 VANE GRATE INLET (5 SHEETS).....	55-59								
<input type="checkbox"/>		M-605-1 SUBSURFACE DRAINS (REVISED ON JULY 09, 2009) .....	<del>60</del>								
<input checked="" type="checkbox"/>		M-606-1 GUARDRAIL TYPE 3 W-BEAM (16 SHEETS).....	61-76								
<input type="checkbox"/>		M-606-13 GUARDRAIL TYPE 7 F-SHAPE BARRIER (4 SHEETS).....	77-80								
<input type="checkbox"/>		M-606-14 PRECAST TYPE 7 CONCRETE BARRIER (3 SHEETS).....	81-83								

THE STANDARD PLAN SHEETS INDICATED HEREON BY A MARKED BOX ARE TO BE USED TO CONSTRUCT THIS PROJECT.

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

**COLORADO**  
**DEPARTMENT OF TRANSPORTATION**  
**STANDARD PLANS LIST**  
**M&S STANDARDS**  
 July 04, 2006  
 Revised on March 22, 2010

Print Date: 3/26/2010		<b>Sheet Revisions</b>			Colorado Department of Transportation			As Constructed		STANDARD PLANS LIST			Project No./Code	
Drawing File Name: 14933Seg2-StandardPlansList.dgn		Date:	Comments	Init.	 2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018			No Revisions:		Designer: NJL Detailer: MAM Sheet Subset: ROADWAY    Subset Sheets: 1 of 1			NH 0501-046	
Horiz. Scale: 1:1    Vert. Scale: N/A								Revised:					14933	
Unit Leader Information    Unit Leader Initials								Void:					Sheet Number 2	
 <b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939								Region 3    RBA						
777 S. Wadsworth Blvd. #4-100 Lakewood, CO 80226														



**TO ESTABLISH GEOMETRIC CONTROL FOR THE CONSTRUCTION OF THIS PROJECT, THE DEPARTMENT HAS PROVIDED THE FOLLOWING INFORMATION:**

<input type="checkbox"/> Horizontal Control	Format *	PLAN SHEET
<input type="checkbox"/> Vertical Control	PLAN SHEET	
<input type="checkbox"/> Roadway Alignment	PLAN SHEET	
<input type="checkbox"/> Original Terrain Data	PLAN SHEET	
<input type="checkbox"/> Other:		

\* Specify the information format, i.e., plan sheet, computer disk, computer printout, or other. The information marked is either contained on the plans or is available from the Engineer.

**TYPE OF PROJECT**

- Landscaping
- Signalization
- Safety Improvement
- Asphalt Overlay
- Concrete Overlay
- Minor Widening
- Major Reconstruction
- New Roadway Construction
- Bridge Replacement
- Bridge Widening
- New Bridge
- Other: \_\_\_\_\_

**SURVEY WORK TO BE PERFORMED BY OTHERS:** \_\_\_\_\_

**WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 625:**

- Establish and Maintain Project Centerline or Engineer Approved Offset Line(s)
- Verification and Maintenance of Horizontal and Vertical Control
- Verify or Determine existing grades and alignments
- Verify or Determine existing topography
- GPS/RTS (Global Positioning System/Robotic Total Station) Construction Machine Control
- Clearing and Grubbing Limits (Section 201)
- Removal Limits (Section 202)
- Reset Items (Section 210)
- Excavation and Embankment (Section 203)

- Excavation
  - Unclassified
  - Stripping
  - Muck
  - Rock
  - Borrow
  - Other: \_\_\_\_\_
  - Potholing

- Embankment
- Site Grading
- Erosion Control (Perm)
- Other: \_\_\_\_\_
- As Staked Earthwork Quantities (See General Notes)

- Landscaping
  - Top Soil (Section 207)
  - Seeding (Section 212)
  - Mulching (Section 213)
  - Planting (Section 214)
  - Herbicide (Section 217)
  - Other: \_\_\_\_\_
- Erosion Control (Section 208)
  - Seeding (Temp)
  - Silt Fence
  - Erosion Bales
  - Erosion Logs
  - Riprap (Temp)
  - Other: Temporary Diversion
- Roadway Bases
  - Untreated Subgrade
  - Treated Subgrade
  - Aggregate Base Course (Section 304)
  - Reconditioning
  - PMBB - Plant Mix Bituminous Base
  - Other: \_\_\_\_\_

	Slope Staking (Y/N)	Grid (Y/N)	Grade Stakes	Special Interval
Excavation	YES	-	-	50 ft
	YES	-	-	50 ft
Embankment	YES	-	-	50 ft
	YES	-	-	50 ft

	Slope Staking (Y/N)	Grid (Y/N)	Grade Stakes	Special Interval
Excavation	YES	-	-	50 ft
	YES	-	-	50 ft
Embankment	YES	-	-	50 ft
	YES	-	-	50 ft

	Grid (Y/N)	Grade (Y/N)	Special Interval	Special Offset
Roadway Bases	YES	-	-	50 ft
	YES	-	-	50 ft
	YES	-	-	50 ft
	-	-	-	-
-	-	-	-	-
-	-	-	-	-

- Pavements
  - HMA - Hot Mix Asphalt (Section 403)
  - Concrete (Section 412)
  - Heating & Scarifying Treatment
  - Prime Coat, Tack Coat & Rejuvenating Agent (Section 407)
  - Seal Coat or Chip Seal (Section 409)
  - Other: \_\_\_\_\_

	Grid (Y/N)	Special Interval	Special Offset
Pavements	YES	-	50 ft
	-	-	-
	-	-	-
	-	-	-

- Roadway Elements
  - Curb and Gutter (Section 609)
  - Drop inlets - alignment and grades (Section 604)
  - Retaining Walls
  - Guard Rail (Section 606)
  - Sidewalk (Section 608)
  - Overlay Stationing
  - Other: \_\_\_\_\_

	Tangent Interval	Curve Interval	Special Offset
Curb & Gutter	-	-	-
	-	-	-

- Riprap (Perm) (Section 506)
- Slope and Ditch Paving (Section 507)

- Minor Structures
  - Structure Excavation limits (Section 206)
  - Culverts (Section 603)
  - Culverts w/ Headwalls and Wingwalls (Section 601)
  - Concrete Box Culverts w/ Headwalls and Wingwalls
  - Pipes (Section 603)
    - Sanitary Sewer
    - Storm Sewer
    - Water
    - Irrigation
    - Miscellaneous
  - Manholes (Section 604)
  - Inlets (Section 604)
  - Other: \_\_\_\_\_

	Left Interval	Center Interval	Right Interval
Stationing	-	-	-
	-	-	-

- Major Structures - Overhead Signs (Section 614), Concrete Box Culverts, Bridges - and all other structures assigned a structure number
  - Structure Excavation limits (Section 206)
  - Concrete Box Culverts (Section 603) w/ Headwalls and Wingwalls (Section 601)
  - Piling locations and cut off elevations (Section 502)
  - Caisson locations and elevations (Section 503)
  - Footing locations, alignment, and elevations
  - Abutment/Pier locations, alignment, and elevations
  - Wingwall skew angles/offsets
  - Structural concrete form locations
  - Substructure As-constructed survey required for Bridges (Subsection 601 .12) and Overhead signs (S-614-50)
  - Bridge expansion joint(s) alignment and grade (longitudinal and transverse)
  - Deck grades at Girder 10th or "n" th point locations and elevations
  - Slope and Ditch Paving (Section 507)
  - Other: \_\_\_\_\_

- Fencing (Section 607)
  - Temporary
  - Permanent
  - Sound Barrier
  - Other: \_\_\_\_\_

- Delineators (Section 612)
  - Temporary
  - Permanent

- Lighting (Section 613) and Traffic Control Devices (Permanent) (Section 614)
  - Signal pole locations and elevations
  - Light pole locations and elevations
  - Sign locations
  - Field verify sign post locations, elevations, and lengths before fabrication.
  - Other: \_\_\_\_\_

- Pavement Marking (Section 627)
  - Striping (Temp)
  - Striping (Perm)
  - Symbols
  - Other: \_\_\_\_\_
- Temporary Lighting and Construction Traffic Control Devices (Section 630)
  - Signal pole locations and elevations (Temp)
  - Light pole locations and elevations (Temp)
  - Sign Locations (Temp)
  - Other: \_\_\_\_\_
- All Easements (Temp Staking by P.L.S. Only)
- Right of Way (Temp Staking by P.L.S. Only)

**WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 629:**

- Monumentation (Section 629)
  - Control
  - Right of Way
  - Land corners, Aliquot corners
  - Easements
  - Reference the specified existing monuments:\*\* \_\_\_\_\_
  - Replace the specified existing monuments: \*\* \_\_\_\_\_
  - Locate monuments. It is estimated \_\_\_\_\_ hours are required.

NOTE: All 629 items shall include adequate research, calculations, and evaluations of evidence for monuments to be set.

\*\* A Tabulation of Survey Monuments may be provided on the plans.

**GENERAL NOTES:**

- Unless indicated otherwise on this Survey Tabulation Sheet, all survey work and staking intervals shall be done in accordance with the latest edition of the CDOT Survey Manual.
- Adequate information for establishing lines, grades, and locations for all work items have been specified on the plans. Any additional information required to stake the item or element shall be generated by the Contractor's surveyor.
- The Contractor's surveyor shall provide an estimate of the man-hours necessary to complete the work items indicated on this sheet. A copy of this sheet, with the estimated man-hours written on the blank line to the left of the specified items, shall be submitted with the Survey Schedule to the Engineer 3 days prior to the Presurvey Conference - Construction Survey.
- Stakes and Monuments which are damaged or destroyed by the progress of construction shall be replaced by the Contractor at no additional cost to the Department.
- The Contractor shall furnish an As Staked (or GPS/RTS Construction Machine Control) Earthwork Quantity report to the Engineer prior to completion of twenty percent (20%) of the planned earthwork in any phase as per the CDOT Survey Manual. A printed copy of the As Staked (or GPS/RTS Construction Machine Control) Earthwork data report and a computer disk with that information on it, in the specified format shall be submitted to the Engineer. The Contractor shall field verify original ground cross sections at a maximum 500 feet intervals.
- Prior to beginning work on any subsequent operation, such as placing base course or paving, the Contractor shall certify in writing to the Engineer that the final grade is within specified tolerance.
- The Contractor's surveyor shall perform all field surveying and calculations necessary to tie plan grades into field grades.
- The Contractor shall coordinate construction staking on the project with any utility work.
- Fieldbooks shall contain daily records of points set and or measurements observed. The information recorded shall contain: date, crew members' names, point no., description, staking information, and sketches. If the survey information is collected electronically, information recorded shall be provided to the Project Engineer in a hard copy format that is intuitive, clear and related to the supplemental information recorded in the field books. All linear surveys, such as slope stakes and blue tops, shall have the station and offset information related to the measured information. Non-linear surveys such as structures staking shall have sketches relating electronic information, such as point numbers, to the sketch.
- The Contractor's surveyor shall submit the following fieldbooks to the Engineer:
  - Horizontal Control (Primary & Secondary)
  - Vertical Control (i.e. Benchmarks)
  - Property Pin Ties
  - Horizontal Alignment
  - Grading
  - Slope Staking
  - Minor Structures
  - Major Structures
  - One fieldbook for each work category shown on this sheet
  - Other Fieldbook(s): \_\_\_\_\_

Print Date: 3/26/2010

Drawing File Name: 14933Seg2-SurveyTabulation.dgn

Horiz. Scale: 1:1 Vert. Scale: N/A

Unit Leader Information Unit Leader Initials

**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226  
 CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions			
Date:	Comments	Init.	

Colorado Department of Transportation

2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018

Region 3 RBA

As Constructed
No Revisions:
Revised:
Void:

SURVEY TABULATION SHEET			
Designer:	NJL		
Detailer:	MAM		
Sheet Subset:	ROADWAY	Subset Sheets:	1 OF 1

Project No./Code	
NH 0501-046	
14933	
Sheet Number	3

**GENERAL NOTES**



1. For preliminary plan quantities of pavement materials, the following rates of application were used:
  - a. Emulsified Asphalt (Prime Coat) @0.30 Gals./Sq. Yd.
  - b. Emulsified Asphalt (Slow Setting) @0.1 Gals./Sq. Yd.
  - c. Bituminous Pavement @110 Lbs./Sq. Yd./Inch
  - d. Aggregate Base Course Class @133 Lbs./Cu. Ft.
2. A tack coat of Emulsified Asphalt (Slow Setting) is to be applied to improve bond at the following locations:
  - Before placing new pavement over existing pavement,
  - Along the face of all surfaces against which asphalt will be placed, and
  - Between pavement courses when ordered by the Engineer.
3. Diluted emulsified asphalt for tack coat shall consist of 1 part emulsified asphalt and 1 part water. Tack coat shall be not paid for separately, but shall be included in the work. Rates of application shall be as determined by the Engineer at the time of application.
4. A Magnesium Chloride solution shall be used as a dust palliative where required. Locations shall be as directed by the Engineer. It is estimated that 8,800 gallons will be required on this project.
5. Water shall be used as a dust palliative where required. Locations shall be as directed by the Engineer. It is estimated that 350 mgal will be required on this project.
6. The following shall be furnished with each bituminous paver:
  - A ski type device at least 30 feet in length.
  - Short ski or shoe.
  - 1500 feet of control line and stakes.
7. Any layer of bituminous pavement that is to have a succeeding layer placed thereon shall be completed full width before succeeding layer is placed.
8. Asphalt joints shall fall on lines, shoulders lines or median lines, except where stated in the plans.
9. All travel lanes are subject to smoothness incentive/disincentive payments. Pavement smoothness incentive/disincentive shall be based on Inches/Mile.
10. Prior to placing bituminous pavement, the paved surface shall be swept and cleaned. This will not be paid for separately, but shall be included in the cost of the Hot Mix Asphalt Pavement Item.
11. The Contractor may use an exposed longitudinal joint for a maximum of one day. The joint will consist of a vertical face 1 inch deep, and at the bottom of the vertical face, a 3:1 slope to the existing pavement (or subgrade). The maximum depth of the 3:1 slope shall be 2 inches. At the end of one day, placement of HMA on the adjacent lane is required.
12. The Contractor shall coordinate the shouldering operation such that full compliance to the existing grade is obtained on a daily basis following the paving operation for the affected area unless otherwise approved by the Engineer.
13. Public approaches and entrances to building or residences shall be paved 50 feet out from the edge of shoulder or to the Right-of-Way line, whichever is less. Field entrances shall be paved 4 feet out from the edge of the shoulder.
14. Overlay of planed areas shall commence within 5 working days following the planing unless otherwise approved by the Engineer.
15. Where new pavement is to abut existing pavement, the existing pavement shall be revoked to a neat vertical line using a cutting saw or other method as approved by the Engineer. Saw cutting asphalt will not be paid for separately, but shall be considered incidental to the work.
16. Existing pavement and base course is to be reclaimed and remain in place as subgrade material as indicated in the typical sections. Proper moisture content and compaction of this material must be achieved prior to placement of new roadway materials.
17. No excavation work shall begin until the Contractor has obtained, at his expense, any permits required to perform the proposed work.

18. During HMA paving operations, temporary pavement markings shall be provided and placed/removed by the Contractor at the end of each day. Locating, aligning, and placing shall be done under the supervision of the Traffic Control Supervisor and in accordance with Standard Plans S-627-1. This work shall not be measured and paid for separately, but shall be included in the cost of the work.
19. Depth of moisture-density control for this project shall be as follows:
  - a. Full depth of all embankments:
  - b. Bases of cuts and fills 6 inches.
  - c. Full depth of embankment sections used for ditches and channel changes.
  - d. Full depth of structure backfill material.
20. Excavation required for compaction of bases of cuts and fills will be considered as subsidiary to that operation and will not be paid for separately.
21. Type of compaction for this project will be AASHTO T-99. Water for compaction will not be paid for separately but shall be included in the work.
22. The pavement subgrade shall be proof-rolled with a heavily loaded pneumatic tired vehicle. Areas which deform excessively under the wheel loads shall be removed and replaced prior to paving.
23. The Engineer shall determine acceptance for proof-rolling. The cost of the proof-rolling shall not be paid for separately, but shall be included in the cost of the work.
24. It is estimated that 16,000 sy of Geogrid Reinforcement will be required on this project.
25. The Contractor shall be responsible to maintain drainage during the work. Any rework or materials due to lack of this maintenance shall be repaired at the contractor's expense.
26. The Contractor shall notify the Region 3 Traffic Department at (970) 248-7230 seven working days prior to final striping to schedule final striping layout.
27. The Contractor shall limit construction activities to those areas within the limits of disturbance and/or toes of slopes as shown on the plans and cross-sections. Any disturbance beyond those limits shall be restored to original condition by the Contractor at the Contractor's expense. Construction activities in addition to normal construction procedure shall include parking of vehicles or equipment, disposal of litter and any other action which would alter existing conditions.
28. Road approaches shall not be used as turnarounds unless written permission is obtained from the appropriate property owner.
29. No Contractor staging or material storage will be allowed within 100 feet of riparian or wetland areas.
30. The Contractor shall provide CDOT a copy of a letter of final acceptance for all property owners affected by the Contractor's operations. This shall be submitted prior to CDOT's final acceptance.
31. The Contractor shall protect all existing survey monumentation designated to remain from damage during construction operations. Any monuments disturbed by the Contractor that are not designated for relocation, shall be reset at the Contractor's expense. The Contractor and Engineer shall note these monuments in the field prior to construction. See Tabulation of Survey.

**UTILITY INFORMATION**



1. The Contractor will call the Utility Notification Center of Colorado (UNCC) at 811 for utility locations at least 2 business days (not including the day of actual notification) prior to excavation.
2. It is suggested that the Contractor initiate a request to Delta/Montrose Electric for any construction-related temporary electrical power sources as soon as possible. In some instances, up to 30 days may be required to provide the sources. The request is to be processed through: Dan Blowers, Delta /Montrose Electric Association.
3. The following is a list of utilities within this project:
 

Delta/Montrose Electric Association	Dan Blowers, (970) 249-4572
Qwest Communications	Robert Conley, <a href="mailto:Robert.conley@qwest.net">Robert.conley@qwest.net</a>
4. The information shown on these plans concerning type and location of utilities is not guaranteed to be accurate or all-inclusive. The Contractor is responsible for making all determinations as to the type and location of underground and other utilities as may be necessary to avoid damage.
5. It is estimated that 10 hours will be required for potholing. The Contractor shall be responsible for contacting and coordinating with the appropriate utility representatives to be onsite during potholing. The Contractor shall refer to the utility specification for additional requirements.






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Drawing File Name: 14933Seg2-GeneralNotes01.dgn		Date:    Comments    Init.	 2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018	No Revisions:			NH 0501-046
Horiz. Scale: 1:1      Vert. Scale: N/A	00			Revised:	Designer: NJL		14933
Unit Leader Information      Unit Leader Initials	00			Void:	Detailer: NJL		Sheet Number    4
 <b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939	00		<b>Region 3</b>		Sheet Subset: ROADWAY	Subset Sheets: 1 of 2	

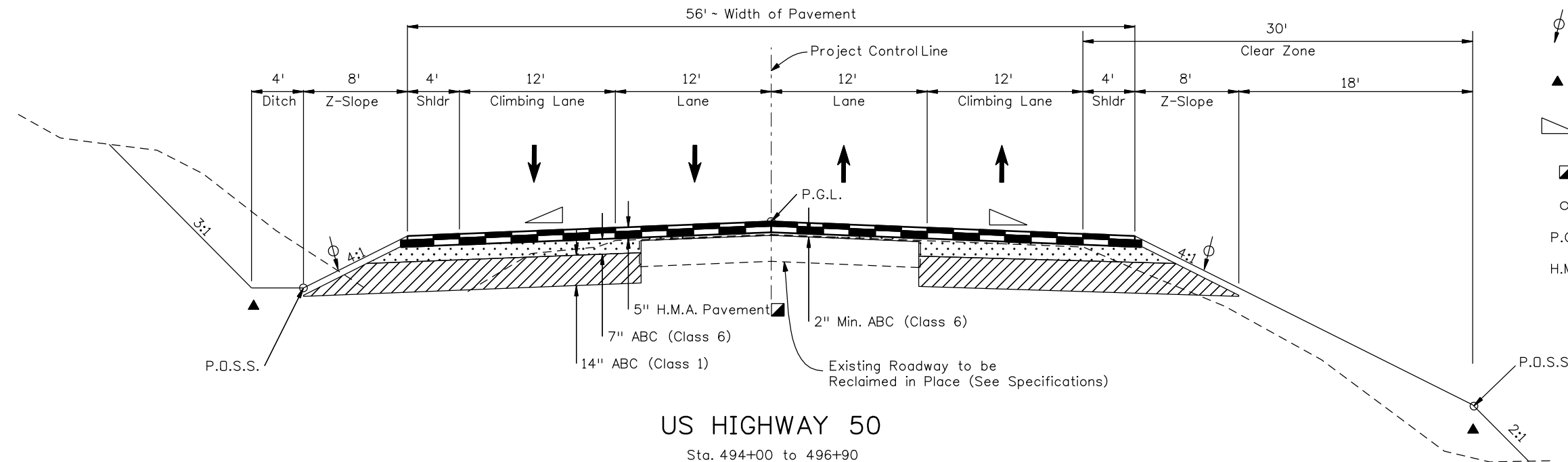
**DRAINAGE GENERAL NOTES**

1. The Contractor shall be responsible for acceptance and control of all surface and subsurface drainage and ground water entering the area. The Contractor is responsible for providing dewatering if needed at no additional cost to the project. Dewatering methods shall be approved by the Engineer. See specifications for proper handling of discharge from trench dewatering operations. Contact the Colorado Department of Public Health and Environment at (303) 692-3618 to determine if a dewatering permit is required. If needed, the Contractor will be responsible for obtaining the permit and the costs associated with said permit.
2. The cost for all joint gaskets, cradles, collars and pipe connections for culverts and culvert extensions shall be included in the cost of the work. Connections to existing storm sewers include a concrete pipe collar at no additional cost.
3. The Manufacturer's joint tolerance for all pipe types used shall be supplied to the Engineer. For deflections greater than the Manufacturer's tolerance, a concrete pipe collar shall be used. The cost of the concrete pipe collar shall be included in the cost of the pipe.
4. All pipe lengths are given and paid for in the horizontal dimension. The Contractor shall supply the additional length of the pipe to account for slopes and include it in the cost of the work.
5. The Contractor shall be responsible for verifying pipe sizes, lengths and locations prior to ordering and delivery of the pipe material to the site.
6. All culvert pipe shall include end sections. End sections for culvert pipe shall not be paid for separately.
7. End sections for side drains shall be type SD.
8. All corrugated steel pipe shall conform to AASHTO M36.
9. All flared end sections must be installed with joint fasteners. In addition, joint fasteners shall be installed on all pipe joints within 25-feet of the downstream end of all culverts.
10. Riprap is shown on the plan sheets, structure profiles and drainage details.
11. Structure Backfill and Structure Excavation shall be included in the cost of pipe, riprap and bed course material.
12. Structure Backfill (Flow-Fill) shall be used in place of Structure Backfill (Class 1 or Class 2) as indicated on Standard Plan M-206-1 for all cross culverts within the two feet beyond existing edge of soil. Structure Backfill (Flow-Fill) shall go to the surface of the existing ground and shall be included in the cost of the pipe.
13. Other utilities may be crossed or otherwise impact culvert construction. Contractor shall protect existing utilities in place.
14. All structure inlet and outlet elevations have been approximated using design survey elevations. Adjustments may be necessary during construction. All changes shall be submitted to the Engineer for review and approval prior to installation.
15. All culvert pipe shall conform to the requirements of Section 624 of the project special provisions. Unless otherwise noted, all culvert pipe furnished for the project shall meet or exceed the requirements specified for Class 2 in Table 624-1 of the project special provisions.
16. The culvert pipe furnished for the culvert at Station 496+57 shall meet or exceed the requirements specified for Class 8 in Table 624-1 of the project special provisions.
17. If the contractor chooses to furnish metal pipe, it shall meet or exceed the resistivity requirements in Table 624-2 of the project special provisions for a pH of 8.2.

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Drawing File Name: 14933Seg2-GeneralNotes01.dgn		Date:	Comments	Init.	 2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018		No Revisions:		Designer: NJL			NH 0501-046			
Horiz. Scale: 1:1      Vert. Scale: N/A							Revised:					Detailer: NJL			14933
Unit Leader Information      Unit Leader Initials							Void:		Sheet Subset: ROADWAY			Subset Sheets: 2 of 2		Sheet Number 5	
 <b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939		777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226					<b>Region 3</b>		<b>RBA</b>						

**TYPICAL SECTION NOTES**

-  The Contractor will be required to place suitable material to this line after completion of paving operation.
-  Break points in slopes and in bottoms of ditches shall be rounded for a pleasing appearance.
-  Typical 2% roadway cross slope. for specific cross slopes in superelevation, see profile sheets.
-  Approximate thickness
-  Vertical alignment control points.
- P.G.L. Profile Grade Line
- H.M.A. Hot Mix Asphalt

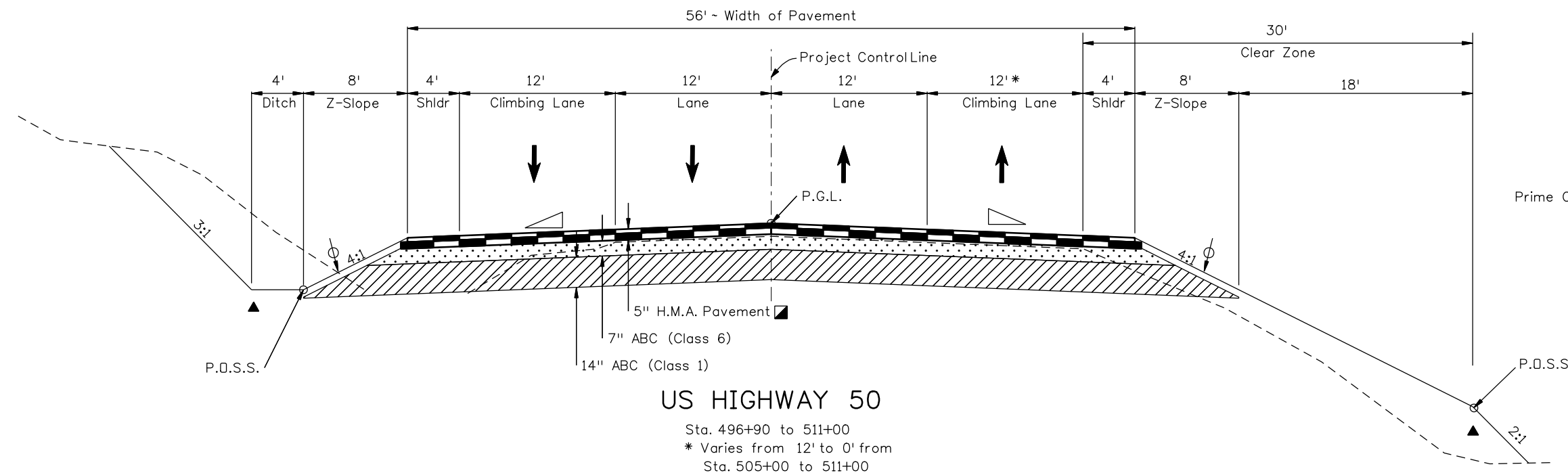


**US HIGHWAY 50**

Sta. 494+00 to 496+90



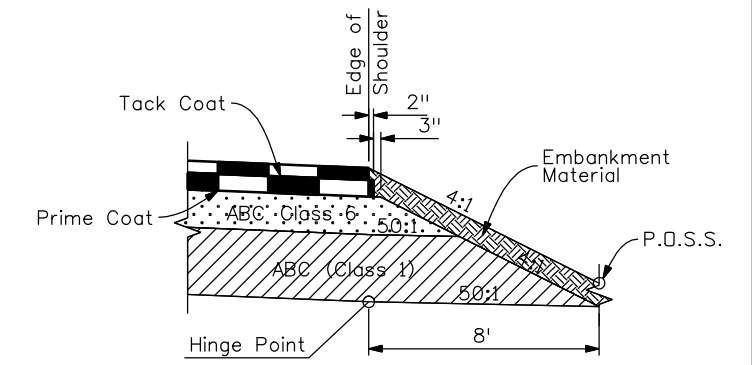
**PAVEMENT DETAIL**





**US HIGHWAY 50**

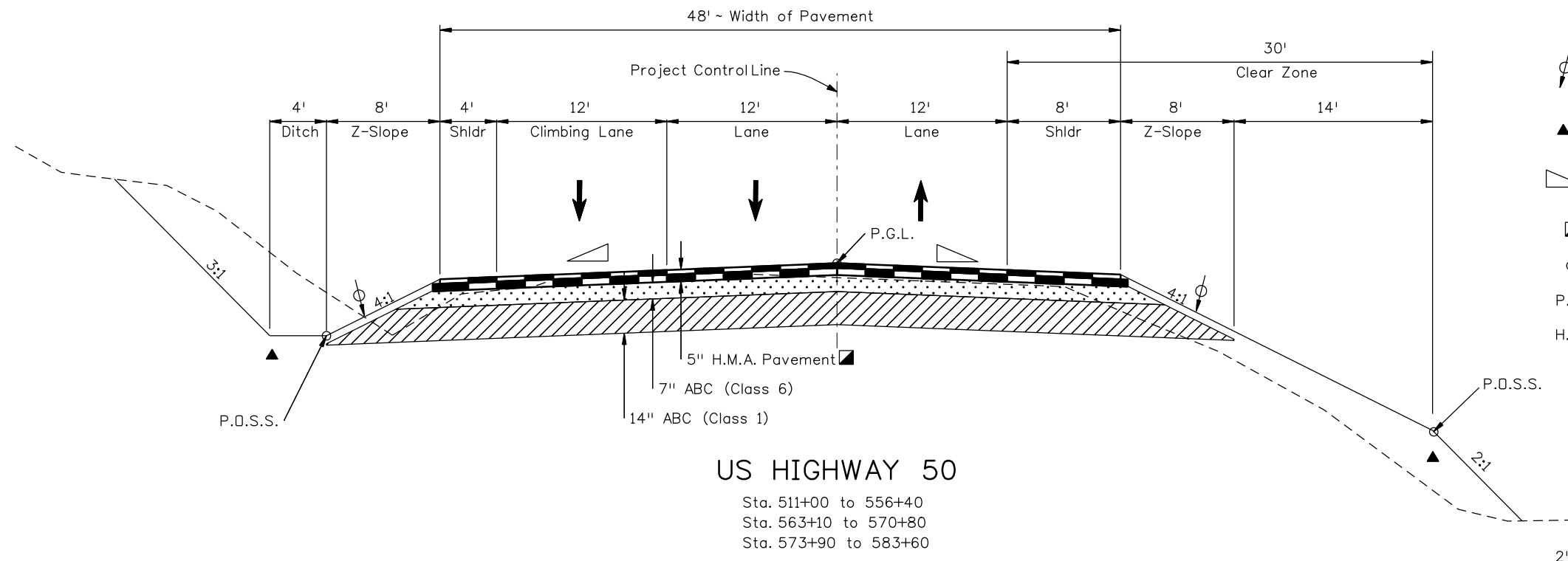
Sta. 496+90 to 511+00

\* Varies from 12' to 0' from  
Sta. 505+00 to 511+00



**SECTION DETAIL**

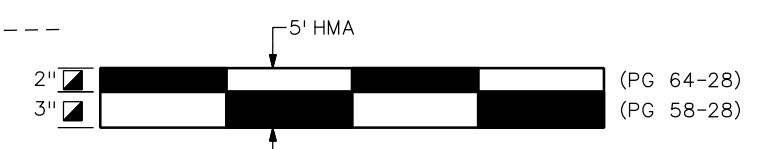
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Drawing File Name: 14933Seg2-TypicalSection01.dgn	Date:	Comments	Init.					NH 0501-046	
Horiz. Scale: 1:10				 2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018	No Revisions:	Designer: NJL		14933	
Unit Leader Information						Region 3	Revised:	Detailer: CLJ	
Unit Leader Initials				 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939	Void:			Sheet Subset: TYPICALS	



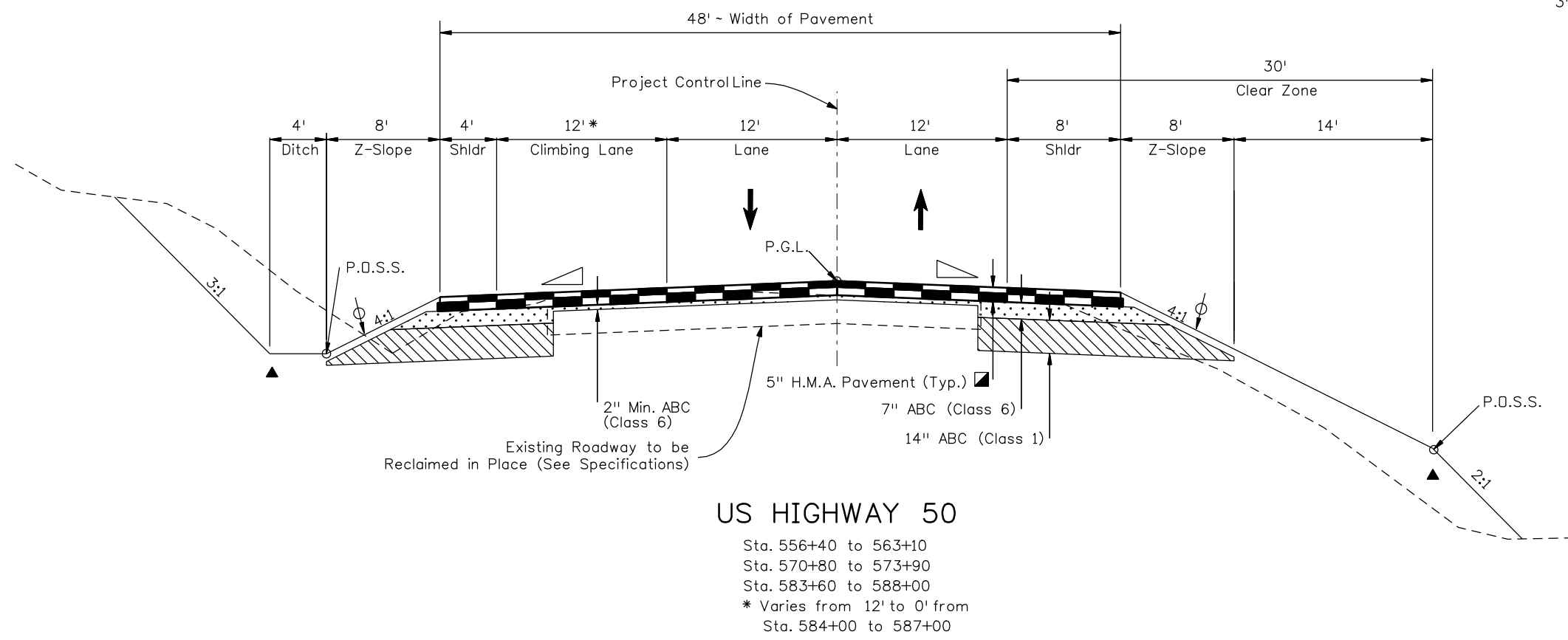
**US HIGHWAY 50**

Sta. 511+00 to 556+40  
 Sta. 563+10 to 570+80  
 Sta. 573+90 to 583+60

- TYPICAL SECTION NOTES**
- ⚡ The Contractor will be required to place suitable material to this line after completion of paving operation.
  - ▲ Break points in slopes and in bottoms of ditches shall be rounded for a pleasing appearance.
  - ▴ Typical 2% roadway cross slope. for specific cross slopes in superelevation, see profile sheets.
  - ▣ Approximate thickness
  - Vertical alignment control points.
  - P.G.L. Profile Grade Line
  - H.M.A. Hot Mix Asphalt

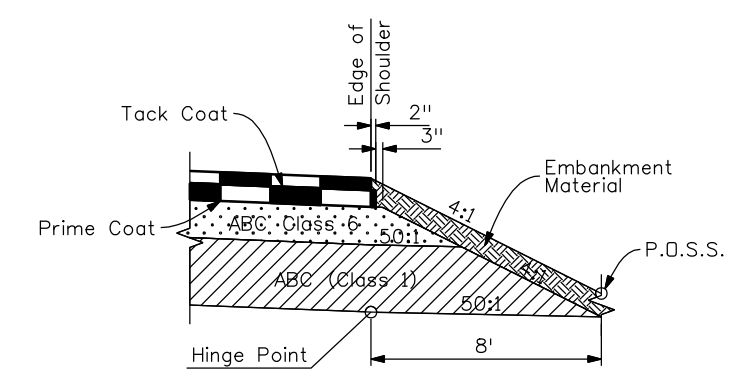


**PAVEMENT DETAIL**



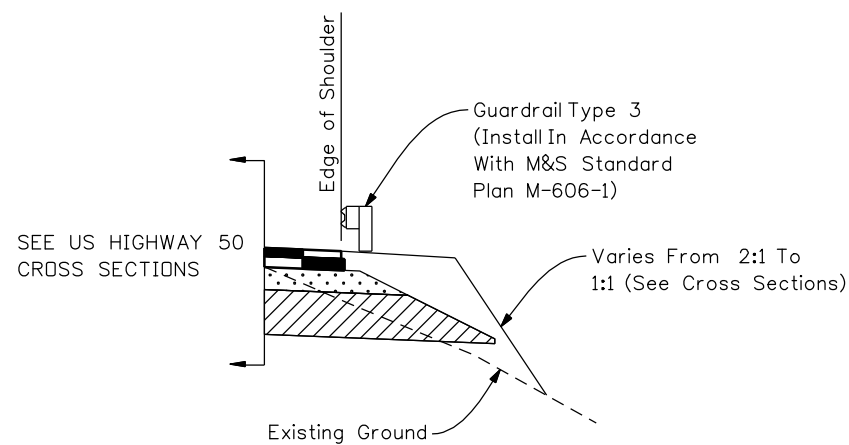
**US HIGHWAY 50**

Sta. 556+40 to 563+10  
 Sta. 570+80 to 573+90  
 Sta. 583+60 to 588+00  
 \* Varies from 12' to 0' from  
 Sta. 584+00 to 587+00



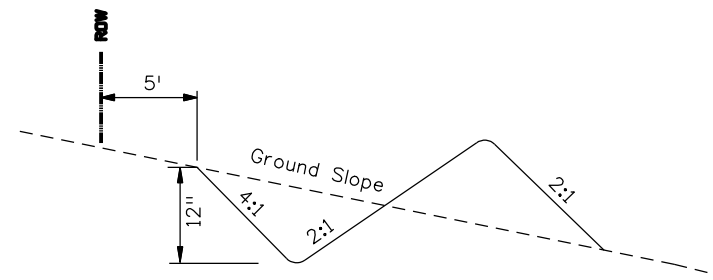
**SECTION DETAIL**

Print Date: 3/26/2010		<b>Sheet Revisions</b>			<b>Colorado Department of Transportation</b>  2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018 <b>Region 3</b>	<b>As Constructed</b>		<b>TYPICAL SECTIONS</b>		<b>Project No./Code</b>	
Drawing File Name: 14933Seg2-TypicalSection01.dgn		Date:	Comments	Init.		No Revisions:	Designer: NJL Detailer: CLJ			NH 0501-046	
Horiz. Scale: 1:10 Vert. Scale: N/A						Revised:			Sheet Subset: TYPICALS Subset Sheets: 2 OF 4		14933
Unit Leader Information Unit Leader Initials						Void:	Sheet Number				7
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939		<b>Region 3</b>		<b>RBA</b>							



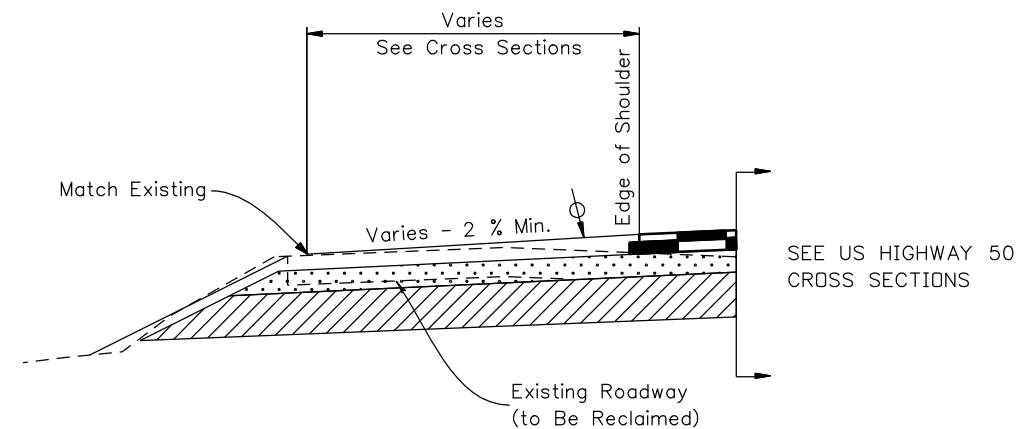
**GUARDRAIL**

Sta. 494+00 to 496+90 Right  
Sta. 562+25 to 587+60 Right



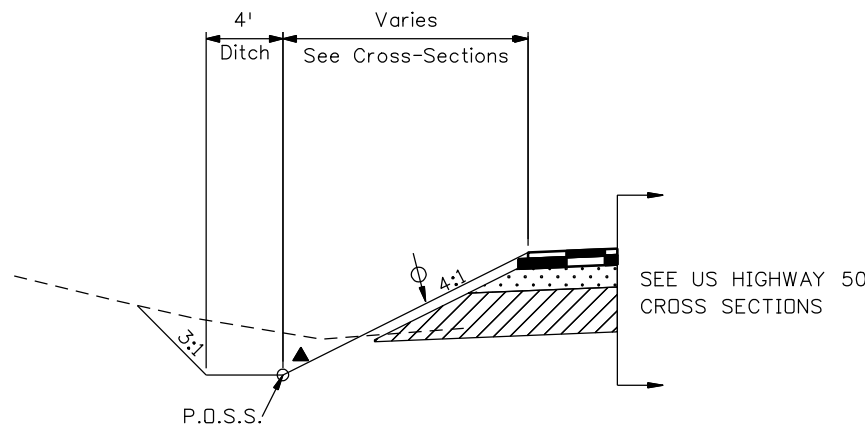
**IRRIGATION DITCH DETAIL**

(LOOKING DOWNSTREAM)  
Sta. 507+05 to 524+84 RIGHT



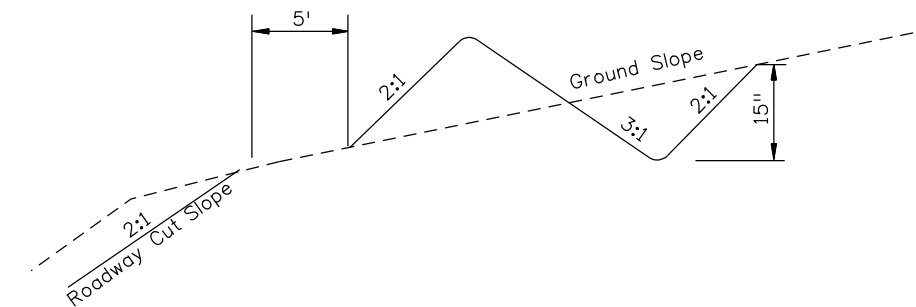
**VARIABLE SLOPES**

Sta. 511+00 to 516+20 Right  
Sta. 533+30 to 540+70 Left  
Sta. 565+60 to 568+30 Right



**ROADSIDE DITCH**

Sta. 502+45 to 507+05 LEFT  
Sta. 548+20 to 553+20 LEFT



**INTERCEPTING DITCH DETAIL**

(To Be Constructed at the Top of Cuts)



**PAVEMENT DETAIL**


**TYPICAL SECTION NOTES**

- ⊕ The Contractor will be required to place suitable material to this line after completion of paving operation.
- ▲ Break points in slopes and in bottoms of ditches shall be rounded for a pleasing appearance.
- ▴ Typical 2% roadway cross slope. for specific cross slopes in superelevation, see profile sheets.
- ▣ Approximate thickness
- Vertical alignment control points.
- P.G.L. Profile Grade Line
- H.M.A. Hot Mix Asphalt

Print Date: 3/26/2010	
Drawing File Name: 14933Seg2-TypicalSection01.dgn	
Horiz. Scale: 1:10	Vert. Scale: N/A
Unit Leader Information	Unit Leader Initials
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Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation



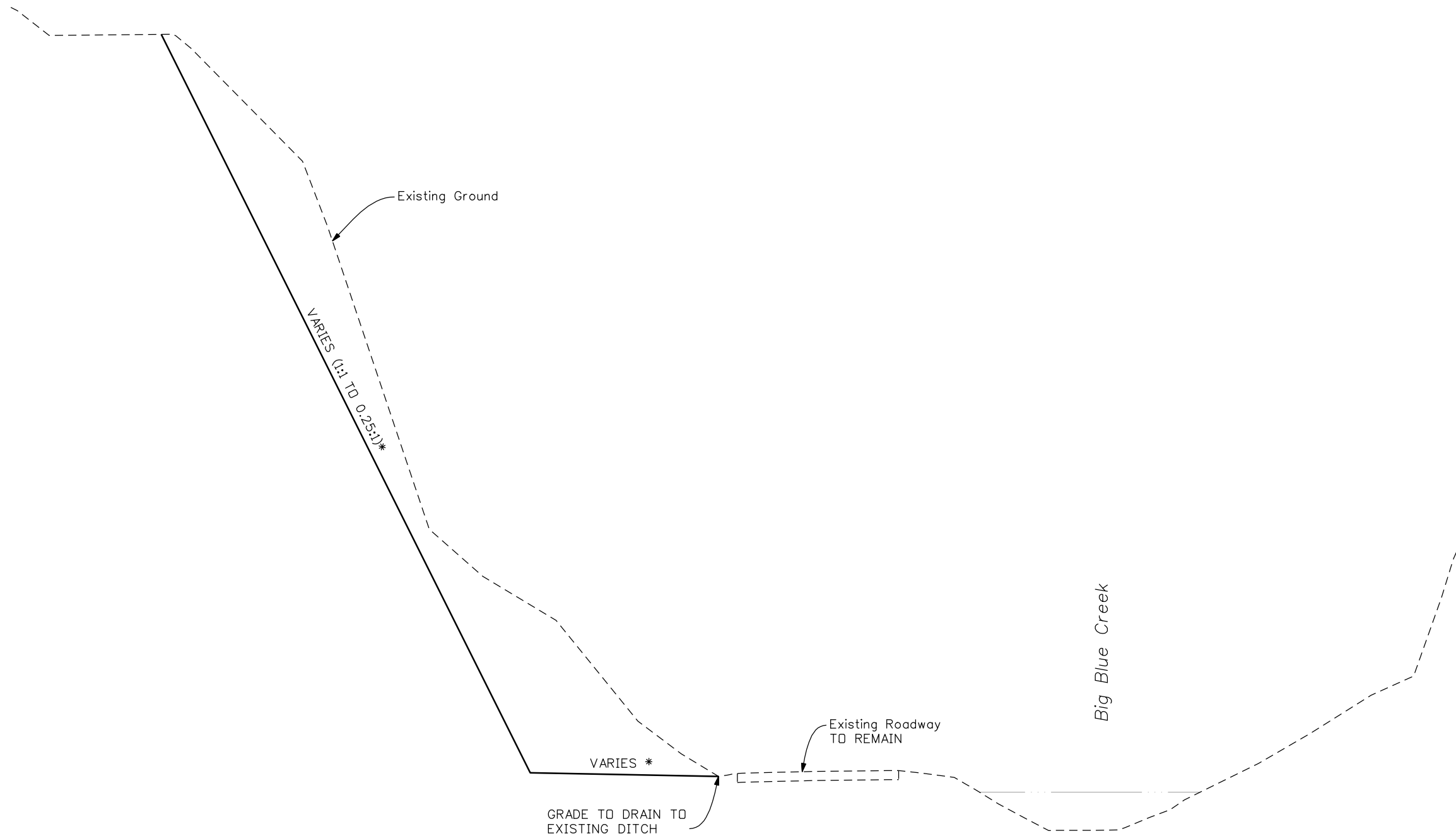
2424 North Townsend Avenue  
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Phone: 972-249-5285 FAX: 970-249-6018

Region 3 RBA

<b>As Constructed</b>
No Revisions:
Revised:
Void:

TYPICAL SECTIONS	
Designer: NJL	
Detailer: CLJ	
Sheet Subset: TYPICALS	Subset Sheets: 3 OF 4

<b>Project No./Code</b>
NH 0501-046
14933
Sheet Number 8



**ROCK EXCAVATION TYPICAL**  
STA. 588+00 TO 614+75

\*SEE CROSS-SECTIONS FOR SLOPES

Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-TypicalSection01.dgn  
 Horiz. Scale: 1:10      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
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Sheet Revisions		
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**Region 3**      **RBA**

<b>As Constructed</b>
No Revisions:
Revised:
Void:

TYPICAL SECTIONS			
Designer:	NJL		
Detailer:	MAM		
Sheet Subset:	TYPICALS	Subset Sheets:	4 OF 4

<b>Project No./Code</b>
NH 0501-046
14933
Sheet Number <b>9</b>

ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY											PROJECT TOTALS				
			PLAN	AS CONST.											PLAN	AS CONST.		
201	Clearing and Grubbing	LS	1														1	
202	Removal of Headwall	EACH	11														11	
202	Removal of Pipe	EACH	14														14	
202	Removal of Delineator	EACH	75														75	
202	Removal of Asphalt Mat (Planing)	SY	1,250														1,250	
202	Removal of Pavement Marking	SF	9,725														9,725	
202	Removal of Ground Sign	EACH	8														8	
202	Removal of Sign Panel	EACH	1														1	
202	Removal of Fence	LF	9,867														9,867	
202	Removal of Guardrail Type 3	LF	1,577														1,577	
203	Unclassified Excavation (Complete In Place)	CY	173,397														173,397	
203	Rock Excavation	CY	58,400														58,400	
203	Expanded Polystyrene Fill (Complete In Place)	CY	10,700														10,700	
203	Blading	HOUR	10														10	
203	Backhoe	HOUR	10														10	
203	Combination Loader	HOUR	10														10	
203	Potholing	HOUR	10														10	
203	Laborer	HOUR	10														10	
203	Rock Scaler	HOUR	150														150	
206	Structure Backfill (Flow-Fill)	CY	848														848	
206	Filter Material (Class A)	CY	26,400														26,400	
206	Filter Material (Class B)	CY	2,063														2,063	
208	Temporary Diversion	LF	1,360														1,360	
208	Erosion Log (12 Inch)	LF	10,525														10,525	
208	Check Dam	EACH	3														3	
208	Concrete Washout Structure	EACH	4														4	
208	Storm Drain Inlet Protection (Type 2)	LF	270														270	
208	Stabilized Construction Entrance	EACH	4														4	
208	Removal and Disposal of Sediment (Labor)	HOUR	10														10	
208	Erosion Control Supervisor	DAY	210														210	

Print Date: 3/26/2010  
Drawing File Name: 14933Seg2-SAQ01.dgn  
Horiz. Scale: 1:1      Vert. Scale: N/A  
Unit Leader Information      Unit Leader Initials  
 **MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
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P: 06-065.01/14933/Traffic ITS/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

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Region 3      RBA


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SUMMARY OF APPROXIMATE QUANTITIES  
Designer: NJL  
Detailer: MAM  
Sheet Subset: TABS      Subset Sheets: 1 of 4

Project No./Code  
NH 0501-046  
14933  
Sheet Number 10



ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY										PROJECT TOTALS				
			PLAN	AS CONST.									PLAN	AS CONST.			
209	Water	MGAL	350													350	
209	Dust Palliative (Magnesium Chloride)	GAL	8,800													8,800	
210	Reset Marker	EACH	2													2	
210	Reset Ground Sign	EACH	11													11	
210	Reset Sign Panel	EACH	4													4	
210	Reset Flashing Beacon	EACH	1													1	
210	Reset Fence	LF	344													344	
210	Reset Gate	EACH	3													3	
211	Rock Reinforcement (Dowels)	LF	734													734	
211	Rock Reinforcement (Number 10)	LF	360													360	
212	Seeding (Native)	ACRE	16													16	
213	Mulching (Weed Free Straw)	ACRE	15													15	
213	Mulch Tackifier	LB	4,530													4,530	
216	Soil Retention Blanket (Straw/Coconut)	SY	4,650													4,650	
304	Aggregate Base Course (Class 1)	TON	42,233													42,233	
304	Aggregate Base Course (Class 6)	TON	19,517													19,517	
403	Hot Mix Asphalt (Patching) (Asphalt)	SY	348													348	
403	Hot Mix Asphalt (Grading SX) (75)	TON	14,849													14,849	
411	Asphalt Cement Performance Grade (PG 64-28)	TON	354													354	
411	Asphalt Cement Performance Grade (PG 58-28)	TON	537													537	
411	Emulsified Asphalt (Prime Coat)	GAL	16,080													16,080	
504	Facing (Special)	SF	16,760													16,760	
504	Ground Nail (10 Foot)	EACH	229													229	
504	Ground Nail (15 Foot)	EACH	612													612	
504	Riprap (Special)	CY	27,700													27,700	
506	Riprap (12 Inch)	CY	149													149	
506	Riprap (18 Inch)	CY	547													547	
506	Geogrid Reinforcement	SY	16,000													16,000	
601	Concrete Class B	CY	688													688	
601	Concrete Class D	CY	52													52	

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Drawing File Name: 14933Seg2-SAQ02.dgn  
Horiz. Scale: 1:1      Vert. Scale: N/A  
Unit Leader Information      Unit Leader Initials  
 **MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
CONSULTING ENGINEERS #4 - 100 Lakewood, CO 80226  
P: 06-065.01/14933/Traffic ITS/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.


Colorado Department of Transportation  
  
2424 North Townsend Avenue  
Montrose, CO 81401  
Phone: 972-249-5285 FAX: 970-249-6018  
Region 3      RBA

As Constructed  
No Revisions:  
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Void:

SUMMARY OF APPROXIMATE QUANTITIES  
Designer: NJL  
Detailer: MAM  
Sheet Subset: TABS      Subset Sheets: 2 of 4

Project No./Code  
NH 0501-046  
14933  
Sheet Number 11

ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY											PROJECT TOTALS				
			PLAN	AS CONST.											PLAN	AS CONST.		
602	Reinforcing Steel	LB	30,342														30,342	
603	6 Inch Plastic Pipe	LF	23														23	
603	12 Inch Plastic Pipe	LF	111														111	
604	Inlet Type C (5 Foot)	EACH	2														2	
604	Inlet Type D (5 Foot)	EACH	1														1	
604	Manhole Slab Base (5 Foot)	EACH	1														1	
604	Manhole Slab Base (10 Foot)	EACH	1														1	
605	4 Inch Perforated Pipe Underdrain	LF	3,200														3,200	
605	6 Inch Perforated Pipe Underdrain	LF	2,400														2,400	
605	3 Inch Horizontal Drain	LF	3,600														3,600	
606	Guardrail Type 3 (6-3 Post Spacing)	LF	2,850														2,850	
606	End Anchorage (Flared)	EACH	4														4	
607	Fence Barbed Wire with Metal Posts	LF	2,521														2,521	
607	Fence Combination Wire With Metal Posts	LF	6,968														6,968	
607	Mesh Anchor (Special)	EACH	169														169	
607	Mesh Pin	EACH	33														33	
607	Wire Mesh	SF	122,200														122,200	
612	Delineator (Type I)	EACH	79														79	
612	Delineator (Type II)	EACH	11														11	
612	Delineator (Type III)	EACH	46														46	
614	Sign Panel (Class I)	SF	5														5	
614	Sign Panel (Class II)	SF	112														112	
614	Steel Sign Support (2-Inch Round)(Post)	LF	10														10	
614	Steel Sign Support (2-Inch Round)(Socket)	EACH	3														3	
614	Steel Sign Support (2-1/2 Inch Round NP-40)(Post)	LF	88														88	
614	Steel Sign Support (2-1/2 Inch Round NP-40)(Slipbase)	EACH	18														18	
617	18 Inch Culvert Pipe	LF	196														196	
617	24 Inch Culvert Pipe	LF	1,431														1,431	
617	30 Inch Culvert Pipe	LF	78														78	
617	36 Inch Culvert Pipe	LF	195														195	

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Unit Leader Information      Unit Leader Initials  
 **MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
CONSULTING ENGINEERS #4 - 100 Lakewood, CO 80226  
P: 06-065.01/14933/Traffic ITS/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.


Colorado Department of Transportation  
  
2424 North Townsend Avenue  
Montrose, CO 81401  
Phone: 972-249-5285 FAX: 970-249-6018  
Region 3      RBA

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Void:

SUMMARY OF APPROXIMATE QUANTITIES  
Designer: NJL  
Detailer: MAM  
Sheet Subset: TABS      Subset Sheets: 3 of 4

Project No./Code  
NH 0501-046  
14933  
Sheet Number 12

ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY											PROJECT TOTALS				
			PLAN	AS CONST.											PLAN	AS CONST.		
617	42 Inch Culvert Pipe	LF	93														93	
617	48 Inch Culvert Pipe	LF	225														225	
620	Field Office (Class 1)	EACH	1														1	
620	Field Laboratory (Class 2)	EACH	1														1	
620	Sanitary Facility	EACH	2														2	
625	Construction Surveying	LS	1														1	
626	Mobilization	LS	1														1	
627	Epoxy Pavement Marking	GAL	134														134	
629	Survey Monument (Type 1)	EACH	100														100	
630	Construction Traffic Control	LS	1														1	
700	F/A Minor Contract Revisions	FA	1														1	
700	F/A Partnering	FA	1														1	
700	F/A Asphalt Pavement Incentive	FA	1														1	
700	F/A Roadway Smoothness Incentive	FA	1														1	
700	F/A Fuel Cost Adjustment	FA	1														1	
700	F/A Asphalt Cement Cost Adjustment	FA	1														1	
700	F/A On-The-Job Trainee	EACH	1														1	
700	F/A OJT Colorado Training Program	FA	1														1	
700	F/A ESB Program	FA	1														1	
700	F/A Erosion Control	FA	1														1	
700	F/A Instrumentation	FA	1														1	

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Unit Leader Information      Unit Leader Initials  
 **MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
CONSULTING ENGINEERS #4 - 100  
Lakewood, CO 80226  
P: 06-065.01/14933/Traffic ITS/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
 2424 North Townsend Avenue  
Montrose, CO 81401  
Phone: 972-249-5285 FAX: 970-249-6018  
Region 3      RBA

As Constructed  
No Revisions:  
Revised:  
Void:

SUMMARY OF APPROXIMATE QUANTITIES			
Designer:	NJL		
Detailer:	MAM		
Sheet Subset:	TABS	Subset Sheets:	4 of 4

Project No./Code  
NH 0501-046  
14933  
Sheet Number 13

### SUMMARY OF EARTHWORK QUANTITIES

	CUBIC YARDS
<b>UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)</b>	
ROADWAY (FROM CROSS-SECTIONS)	72,200
ROCK BUTTRESS (EXCAVATION OF 1:1 BUTTRESS AREAS)	99,000
ROAD APPROACHES (FROM TAB)	432
DRAINAGE STRUCTURES (FROM TAB)	1,849
<b>TOTAL FOR PAY QUANTITY</b>	<b>173,481</b>
<b>ROCK EXCAVATION</b>	<b>58,400</b>
<b>TOTAL EMBANKMENT AND FILL MATERIALS</b>	<b>231,881</b>
<b>FOR INFORMATION ONLY</b>	
	CUBIC YARDS
<b>EMBANKMENT MATERIAL</b>	
ROADWAY (FROM CROSS-SECTIONS)	78,200
ROCK BUTTRESS (BACKFILL OF 1:1 BUTTRESS EXCAVATION AREAS)	47,200
ROAD APPROACHES (FROM TAB)	2,795
STA. 541+12 GRADING	1,600
<b>SUBTOTAL</b>	<b>129,795</b>
<b>RIPRAP (SPECIAL) FOR ROCK BUTTRESS</b>	<b>26,400</b>
<b>FILTER MATERIAL (CLASS A) FOR ROCK BUTTRESS</b>	<b>25,400</b>
<b>EXPANDED POLYSTYRENE FILL</b>	<b>10,700</b>
<b>TOTAL EMBANKMENT AND FILL MATERIALS</b>	<b>192,295</b>
<b>ROADWAY QUANTITIES BALANCE:</b>	
	CUBIC YARDS
<b>UNCLASSIFIED EXCAVATION</b>	231,881
<b>EMBANKMENT MATERIAL x 1.15 EXPANSION</b>	179,624
<b>EMBANKMENT MATERIAL NOT EXPANDED (EPS AND FILTER MATERIAL)</b>	36,100
<b>EXCESS</b>	<b>16,157</b>

**NOTES:**

1. UNCLASSIFIED EXCAVATION VOLUMES INCLUDE THE EXISTING PAVEMENT.
2. SUBGRADE BENEATH PAVEMENT SHALL HAVE AN R-VALUE OF NOT LESS THAN 5 WHEN TESTED BY THE HVEEM STABILIMETER METHOD.
3. EARTHWORK FOR DETOUR PAVEMENT SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
4. EXCESS MATERIAL SHALL REMAIN THE PROPERTY OF THE DEPARTMENT AND SHALL BE STOCKPILED AS DIRECTED BY THE ENGINEER.

Print Date: 3/26/2010		<b>Sheet Revisions</b>	Colorado Department of Transportation	<b>As Constructed</b>	<b>SUMMARY OF EARTHWORK QUANTITIES</b>		<b>Project No./Code</b>	
Drawing File Name: 14933Seg2-TabEarthwork01.dgn		Date:	Comments	Init.	No Revisions:			NH 0501-046
Horiz. Scale: 1:1      Vert. Scale: N/A					Revised:	Designer: NJL		14933
Unit Leader Information      Unit Leader Initials					Void:	Detailer: MAM		Sheet Number 14
<b>MULLER ENGINEERING CO., INC.</b> <small>CONSULTING ENGINEERS</small> P: 06-065.01/14933/Traffic ITS/Drawings	777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 303-988-4939	2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018	Region 3      RBA	Sheet Subset: TABS      Subset Sheets: 1 of 1				

**TABULATION OF SURFACING QUANTITIES**

STATION TO STATION	TOTAL HMA AREA SF	REMOVAL OF ASPHALT MAT (PLANING) SY	AGGREGATE BASE COURSE (CLASS 1)		AGGREGATE BASE COURSE (CLASS 6)		HOT MIX ASPHALT (PATCHING) (ASPHALT)		HOT MIX ASPHALT (GR SX) (75)				ASPHALT CEMENT PERFORMANCE GRADE (PG 64-28) <sup>3</sup>		ASPHALT CEMENT PERFORMANCE GRADE (PG 58-28) <sup>3</sup>		EMULSIFIED ASPHALT (SLOW SETTING) <sup>1</sup>		EMULSIFIED ASPHALT (PRIME COAT)	
			TON		TON		SY		TOP LIFT (2")		BOTTOM LIFT (3")		TON		TON		GALLONS		GALLONS	
			PLAN	AS CONST	PLAN	AS CONST	PLAN	AS CONST	PLAN	AS CONST	PLAN	AS CONST	PLAN	AS CONST	PLAN	AS CONST	PLAN	AS CONST	PLAN	AS CONST
494+00 TO 496+90	16,220	905	792		524				198		297		12		18		90		541	
496+90 TO 511+00	76,509		7,087		3,123				935		1,403		56		84		425		2,550	
511+00 TO 556+40	217,663		20,727		9,019				2,660		3,990		160		239		1,209		7,255	
556+40 TO 563+10	32,235		1,791		988				394		591		24		35		179		1,075	
563+10 TO 570+80	36,796		3,545		1,557				450		675		27		41		204		1,227	
570+80 TO 573+90	14,880		870		422				182		273		11		16		83		496	
573+90 TO 583+60	46,587		4,356		1,890				569		854		34		51		259		1,553	
583+60 TO 588+00	18,520	285	1,054		506				226		340		14		20		103		617	
TABULATION OF ROAD APPROACHES					559						105				6		25			
TABULATION OF DRAINAGE STRUCTURES								331												
<b>SUBTOTALS</b>		1,190	40,222		18,588			331		5,614		8,528		337		511		2,577		15,314
<b>5% IRREGULARITIES</b>		60	2,011		929			17		281		426		17		26		129		766
<b>TOTALS</b>		1,250	42,233		19,517			348		5,895		8,954		354		537		2,706		16,080

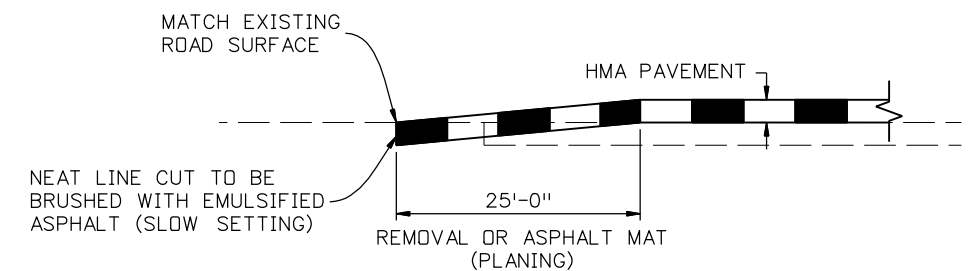
**NOTES:**

- EMULSIFIED ASPHALT (SLOW SETTING) QUANTITY IS FOR INFORMATION ONLY.
- ALL HMA THICKNESSES ARE APPROXIMATE AND ARE MINIMUMS.
- FOR ESTIMATING PURPOSES, QUANTITIES ARE BASED ON 6% OF THE HMA QUANTITIES.

**FLEXIBLE PAVEMENT DESIGN CRITERIA**

18K ESAL (20 YEAR)	1,661,000
DESIGN SERVICEABILITY LOSS	2.0
RELIABILITY FACTOR	80%
R-VALUE OF SUBGRADE (MINIMUM)	5
DESIGN STRUCTURE NUMBER (SN)	4.58
HMA STRENGTH COEFFICIENT	0.44
ABC (CLASS 6) STRENGTH COEFFICIENT	0.12
ABC (CLASS 1) STRENGTH COEFFICIENT	0.11

DESIGN PROVIDED BY CDOT



**FEATHERED JOINT DETAIL**

N.T.S.




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Drawing File Name: 14933Seg2-TabSurfacing01.dgn		Date:	Comments	Init.			NH 0501-046					
Horiz. Scale: 1:1      Vert. Scale: N/A							14933					
Unit Leader Information      Unit Leader Initials							Sheet Number      15					
MULLER ENGINEERING CO., INC. CONSULTING ENGINEERS P: 06-065.01/14933/Traffic_LTS/Drawings	777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 303-988-4939					Designer: NJL Detailer: MAM Sheet Subset: TABS      Subset Sheets: 1 of 1						

**TABULATION OF ROAD APPROACHES**

STATION	SIDE	TYPE	WIDTH	UNCLASSIFIED EXCAVATION (CIP) <sup>1</sup>	EMBANKMENT MATERIAL (CIP) <sup>1</sup>	AGGREGATE BASE COURSE (CLASS 6) <sup>2</sup>	HOT MIX ASPHALT (GR SX) (75) <sup>2</sup>	ASPHALT CEMENT PERFORMANCE GRADE (PG 58-28) <sup>2</sup>	EMULSIFIED ASPHALT (SLOW SETTING) <sup>2</sup>
			FEET	CY	CY	TON	TON	TON	GALLONS
497+60	RT	DRIVE	16	16	327	68	20	1	4
498+52	RT	ROAD	8	222	63	178	0	0	0
536+15	RT	DRIVE	20	48	1744	252	39	2	9
558+50	LT	FA	24	1	16	14	2	0	1
559+44	LT	FA	16	1	10	12	2	0	1
560+00	RT	DRIVE	16	13	635	31	21	1	5
571+49	LT	DRIVE	16	131	0	5	21	1	5
<b>TOTALS</b>				432	2,795	559	105	6	25

**NOTES:**

1. QUANTITY CARRIED FORWARD TO THE SUMMARY OF EARTHWORK QUANTITIES.
2. QUANTITY CARRIED FORWARD TO THE TABULATION OF SURFACING QUANTITIES.

Print Date: 3/26/2010		<b>Sheet Revisions</b>			Colorado Department of Transportation  2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018 Region 3	<b>As Constructed</b>		<b>TABULATION OF ROAD APPROACHES</b>			<b>Project No./Code</b>			
Drawing File Name: 14933Seg2-TabRoadApproach01.dgn		Date:	Comments	Init.		No Revisions:				NH 0501-046				
Horiz. Scale: 1:1      Vert. Scale: N/A						Revised:	Designer:	NJL			14933			
Unit Leader Information      Unit Leader Initials						Void:	Detailer:	MAM			Sheet Subset:	TABS	Subset Sheets:	1 of 1
 <b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS P: 06-065.01/14933/Traffic ITS/Drawings	777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 303-988-4939			RBA										

**TABULATION OF DRAINAGE STRUCTURE QUANTITIES**

STATION	SKEW (RIGHT OR LEFT)/OFFSET	REMOVE CULVERT PIPE	REMOVE HEADWALL	INLET		MANHOLE		CULVERT PIPE						END SECTIONS (FOR INFORMATION ONLY)						CONCRETE COLLAR (FOR INFORMATION ONLY)	BERM (FOR INFORMATION ONLY)	12-INCH WELL GRADED RIPRAP (INLET PROTECTION)	18-IN WELL GRADED RIPRAP (OUTLET PROTECTION)	CONCRETE (CLASS D)		REINFORCING STEEL		STRUCTURE BACKFILL (FLOW-FILL)		STRUCTURE EXCAVATION (F.I.O.)			UNCL. EX.*		ASPHALT PATCHING (FOR INFORMATION ONLY)	REMARKS				
				TYPE C (H=5 FOOT)**	TYPE D (H=5 FOOT)**	4' DIAMETER	5' DIAMETER	18 INCH	24 INCH	30 INCH	36 INCH	42 INCH	48 INCH	18 INCH	24 INCH	30 INCH	36 INCH	42 INCH	48 INCH					EA	EA	CUTOFF WALL	TOEWALL	CUTOFF WALL	TOEWALL	CULVERT PIPE	PLUG EXISTING CULVERT	CULVERT PIPE	RIPRAP*	OTHER			CULVERT PIPE	OTHER	CY	CY
				FA	FA	H=5'	H=10'	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA					EA	EA	CY	CY	CY	CY	CY	CY	CY	CY	CY			CY	CY	CY	CY
496+57		1	1			1		147							2				9.3	15.2	1.9	0.8	104	27	19		23.5	24.5	9.3	47.2	3.6	20								
505+37		1							129						2				1	9.3	15.2	1.9	0.8	104	27	34		38.0	24.5		57.2		17							
508+92		1	1						97						2				1	9.3	15.2	1.9	0.8	104	27	27.7		30.4	24.5		39.7		15							
517+87	66.73° RT		1						113						2					41.9	1.9	0.8	104	27	42.7	5.6	49.3	41.9		49.4		15								
522+55									37						2			2	9.3	41.9	1.9	0.8	104	27				51.2		19.9										
525+81		1							92						2			1	9.3	17.4	1.9	0.8	104	27	26.2		28.7	26.7		36.7		15								
530+88	75.75° RT	1							124						2				9.3	15.2	1.9	0.8	104	27	62.2		118.7	24.5		54.2		17								
533+79	44.20° LT		1				1		196						2				9.3	15.2	1.9	0.8	104	27	37.8	5.2	52.8	24.5	18.6	96.3	7.3	18								
541+12	68.50° RT		1							123					2				9.3	148.2	2.3	1.1	124	40	57.9	23.1	61.6	158		83.1		21	SEE STA. 541+12 GRADING							
544+09	76.78° RT	1	1						98						2				9.3	33	1.9	0.8	104	27	32.9		34.8	42.3		40.3		15								
550+00		1	1						102						2			1	9.3	33	1.9	0.8	104	27	34.7		39.1	42.3		43.3		15								
555+58	80.20° RT	1	1						100						2				9.3	19.6	1.9	0.8	104	27	38.7		49.8	28.9		42.1		15								
558+50	LT	1																																REMOVE EX ACCESS CULV						
558+62	40.00° RT					1							225				1			20.4		1.3		46	99.6		160.5	20.4	12.4	245	4.8	32	SEE STA. 558+61 GRADING							
559+50	LT	1						49							2																			ACCESS DRIVE CULVERT						
560+50	85.20° RT	1	1						105						2				9.3	15.2	1.9	0.8	104	27	44.4		52.4	24.5		43.9		16								
565+90									87						2			1	9.3	17.4	1.9	0.8	104	27	32.1		73.1	26.7		33.7		15								
570+68	87.30° LT	1							76						2				9.3	15.2	1.9	0.8	104	27	31.8		41.7	24.5		27.1		15								
572+51			1								93				2				9.3	20.4	2.5	1.3	135	33	58.3	5.9	69.8	29.7		70.9		20	SEE STA. 572+50 GRADING							
577+36				1					75						1			1		13		0.8		27	42.3		62.4	13	8.9	26.5	2.8	15								
582+80		1	1	1						78					1			1		16.9		0.9		33	41.2		41.8	16.9	8.9	35.9	2.8	17								
587+32		1								72					2				9.3	17.3	2.3	1.1	124	40	44.6		42.0	26.6		39.7		18								
<b>SEGMENT TOTALS</b>		<b>14</b>	<b>11</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>196</b>	<b>1431</b>	<b>78</b>	<b>195</b>	<b>93</b>	<b>225</b>	<b>4</b>	<b>27</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>7</b>	<b>148.8</b>	<b>546.8</b>	<b>33.7</b>	<b>17.7</b>	<b>1839</b>	<b>597</b>	<b>808.1</b>	<b>39.8</b>	<b>1070</b>	<b>696</b>	<b>58</b>	<b>1132</b>	<b>21</b>	<b>331</b>					

NOTES:  
 \* CARRIED FORWARD TO THE SUMMARY OF EARTHWORK QUANTITIES  
 \*\* SLOPE AND DITCH PAVING TO BE INCLUDED IN THE COST OF THE INLET

Print Date: 3/26/2010  
 Drawing File Name: 14933-Seg2-DrainageTAB-01.dgn  
 Horiz. Scale: 1:1      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939 Lakewood, CO 80226

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
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 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3**      **RBA**

**As Constructed**  
 No Revisions:  
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 Void:

**TABULATION OF DRAINAGE STRUCTURE QUANTITIES**

Designer: ASP  
 Detailer: ASP  
 Sheet Subset: HYDRAULICS      Subset Sheets:

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **17**

**TABULATION OF FENCING**

STATION TO STATION	SIDE	REMOVAL OF FENCE	RESET FENCE	RESET GATE	FENCE BARBED WIRE WITH METAL POSTS	FENCE COMBINATION WIRE WITH METAL POSTS
		LF	LF	EA	LF	LF
495+50 TO 516+52	LT	2,057				2,074
497+70	RT			1		
498+37 TO 510+27	RT	1,513				1,248
516+69 TO 535+09	RT	1,896		2		1,889
531+74 TO 532+15	RT	70				
533+16 TO 535+34	RT	233				208
540+93 TO 542+23	RT	122			162	
542+91 TO 558+98	RT	1,671			1,675	
545+12 TO 553+37	LT	782				802
552+41 TO 552+94	RT	89				
559+06 TO 564+95	RT	595			684	
562+97 TO 563+15	LT	19				24
572+05 TO 575+40	LT		344			
573+25 TO 574+15	LT	90				
580+73 TO 587+84	LT					723
580+73 TO 583+02	LT	247				
583+09 TO 587+84	LT	483				
<b>TOTALS</b>		<b>9,867</b>	<b>344</b>	<b>3</b>	<b>2,521</b>	<b>6,968</b>

**NOTES:**

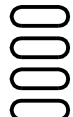


1. IT IS ESTIMATED THAT 10 END POSTS AND 46 CORNER AND LINE BRACE POSTS WILL BE REQUIRED.
2. SEE STANDARD PLAN M-607-01 FOR ADDITIONAL DETAILS.
3. METAL LINE POSTS AND METAL CORNER AND LINE BRACE POSTS WILL BE REQUIRED ON THIS PROJECT.
4. WIRE TIES WILL BE REQUIRED ON EACH WIRE AT EACH METAL POST.
5. FENCE BARBED WIRE WITH METAL POSTS SHALL HAVE WOODEN STAYS.

**TABULATION OF GUARDRAIL**

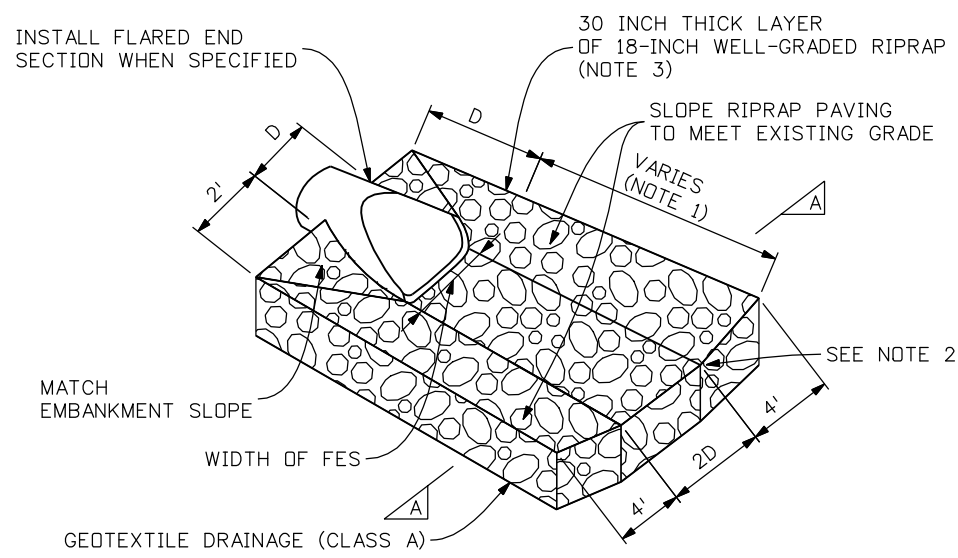
STATION TO STATION	SIDE	REMOVAL OF GUARDRAIL TYPE 3	GUARDRAIL TYPE 3 (6-3 POST SPACING)	END ANCHORAGE (FLARED)	REMARKS
		LF	LF	EA	
494+00 TO 496+90	RT		294	2	
539+05 TO 550+29	LT & RT	1,126			
562+25 TO 587+60	RT		2,556	2	
564+26 TO 568+59	RT	451		2	
<b>TOTALS</b>		<b>1,577</b>	<b>2,850</b>	<b>6</b>	

**NOTES:**

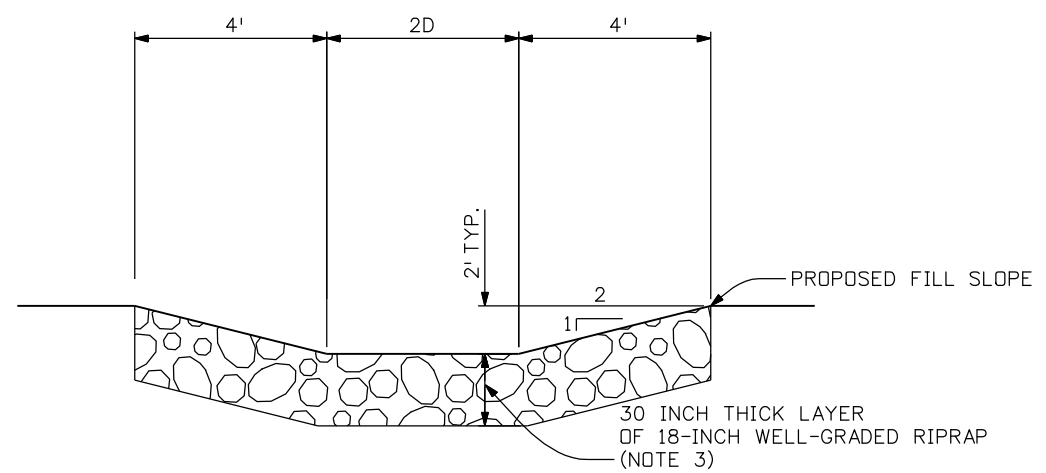
1. ALL GUARDRAIL TYPE 3 SHALL BE GALVANIZED. REFLECTOR TABS SHALL BE PROVIDED AND PLACED.
2. USE STEEL POSTS FOR ALL NEW GUARDRAIL, EXCEPT AS REQUIRED FOR END ANCHORAGES. GUARDRAIL POSTS SHALL BE GALVANIZED. ALL BLOCKS SHALL BE COMPOSITE PLASTIC (SYNTHETIC) PER STANDARD PLAN M-606-1.

Print Date: 3/26/2010		<b>Sheet Revisions</b>			Colorado Department of Transportation  2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018 <b>Region 3</b>	<b>As Constructed</b>		<b>TABULATION OF FENCING AND TABULATION OF GUARDRAIL</b>		<b>Project No./Code</b>		
Drawing File Name: 14933Seg2-TabFencing01.dgn		Date:	Comments	Init.		No Revisions:			NH 0501-046			
Horiz. Scale: 1:1      Vert. Scale: N/A						Revised:	Designer:	NJL	14933			
Unit Leader Information      Unit Leader Initials						Void:	Detailer:	MAM	Sheet Subset:	TABS	Subset Sheets:	1 of 1
 <b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS P: 06-065.01/14933/Traffic ITS/Drawings	777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 303-988-4939			<b>RBA</b>								

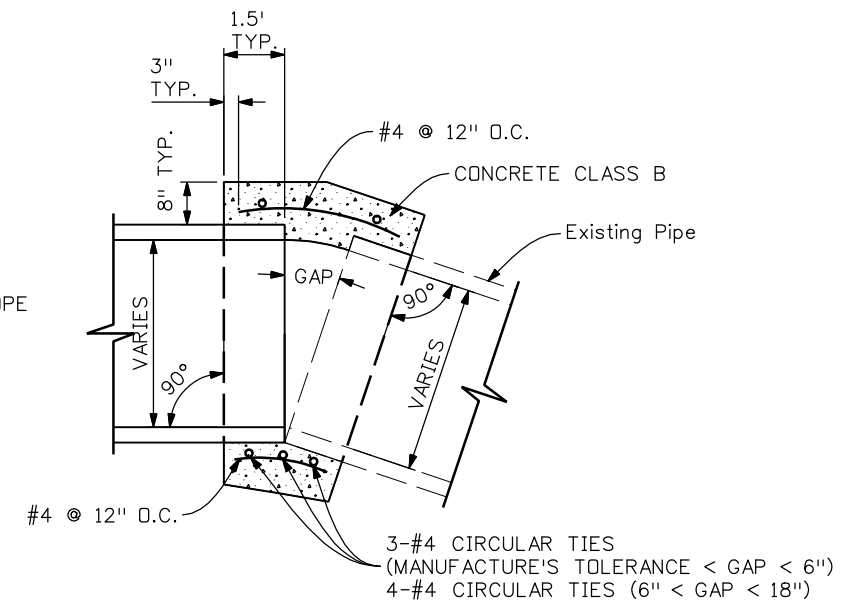




**PLAN VIEW**



**SECTION A-A**



**CONCRETE PIPE COLLAR**

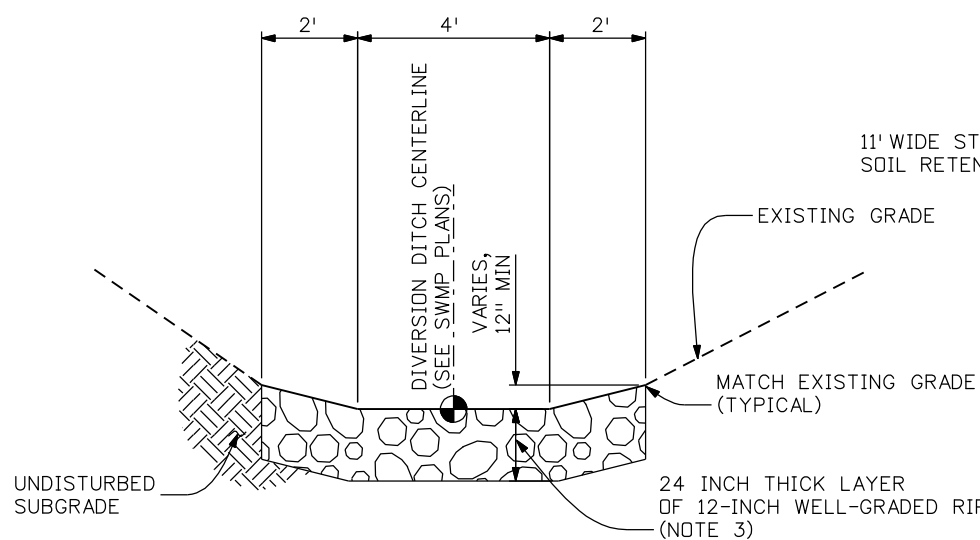
N.T.S.

**RIPRAP OUTLET PROTECTION**  
N.T.S.

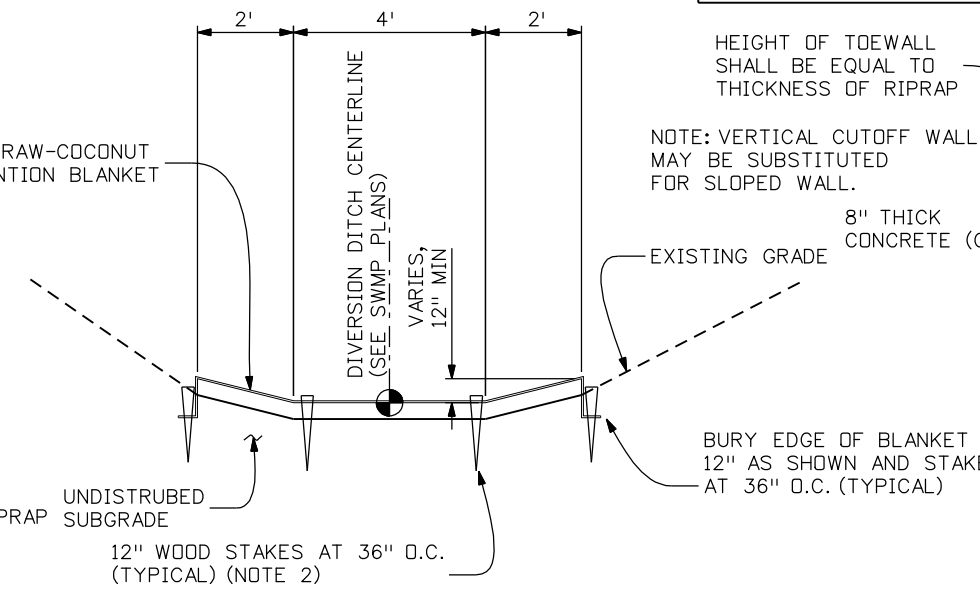
RIPRAP OUTLET PROTECTION NOTES:

- 1) LENGTH OF RIPRAP PROTECTION VARIES BY LOCATION. SEE STRUCTURE PROFILES. HOWEVER, LENGTH SHALL NOT BE LESS THAN 4xD.
- 2) RIPRAP PROTECTION SHALL EXTEND A MINIMUM OF 5-FEET BEYOND TOE-OF-FILL TO PROVIDE A 'KEY-IN'.
- 3) WELL-GRADED RIPRAP SHALL MATCH THE GRADATIONS SPECIFIED IN THE DRAINAGE DETAILS.

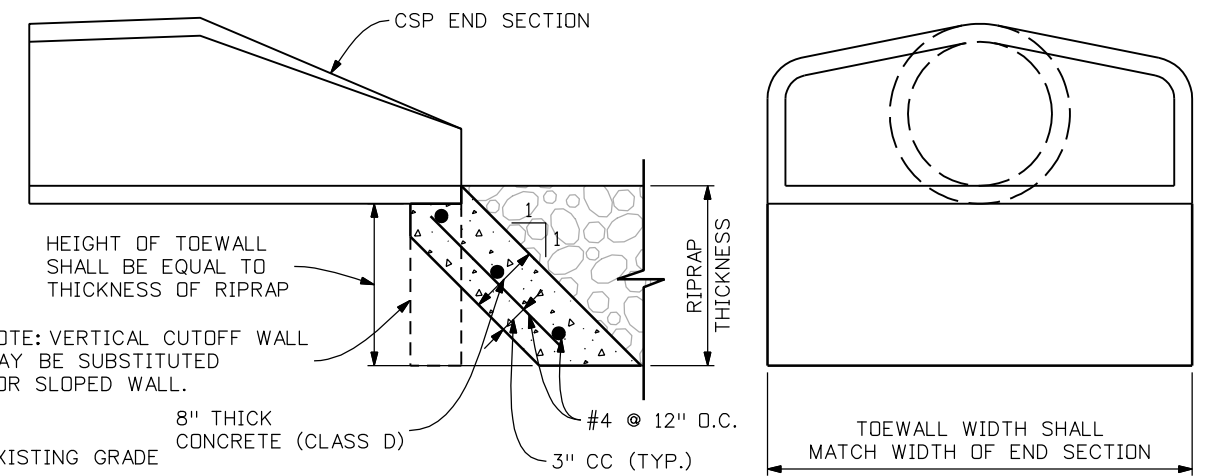
**DD DIVERSION DITCH DETAILS**



**DD DIVERSION DITCH (RIPRAP-LINED)**  
1/4"=1'-0"



**DD DIVERSION DITCH (ECB-LINED)**  
1/4"=1'-0"



**TOEWALL DETAIL**

N.T.S.

DIVERSION DITCH NOTES:

- 1) DIVERSION DITCH (RIPRAP-LINED) AND DIVERSION DITCH (ECB-LINED), SHALL BE PAID FOR AS 208 TEMPORARY DIVERSION.
- 2) WOOD STAKES SHALL BE INSTALLED LEAVING 1-1/2" EXPOSED ABOVE GROUND.
- 3) WELL-GRADED RIPRAP SHALL MATCH THE GRADATIONS SPECIFIED IN THE DRAINAGE DETAILS.

Print Date: 3/26/2010

Drawing File Name: 14933-Seg2-DrainageDetails01.dgn

Horiz. Scale: 1:1      Vert. Scale: N/A

Unit Leader Information      Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

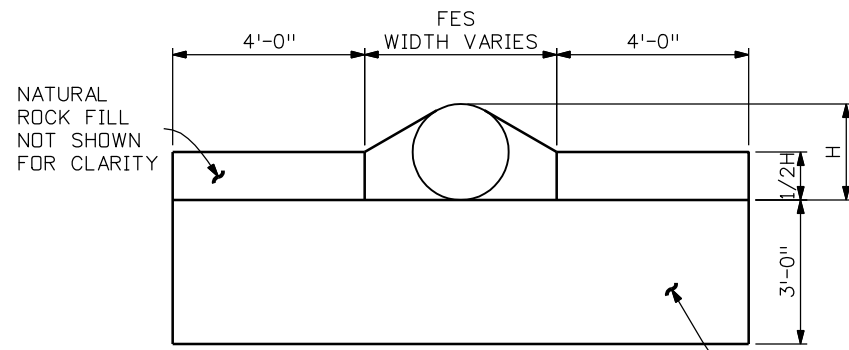
2424 North Townsend Avenue  
Montrose, CO 81401  
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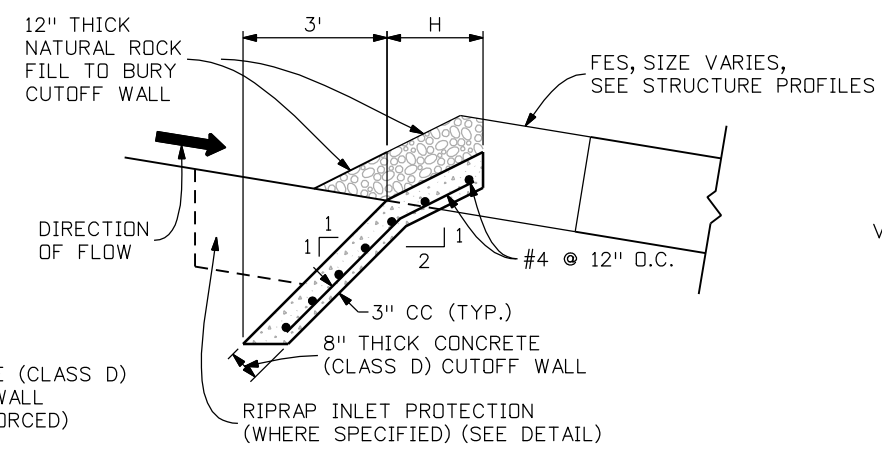
DRAINAGE DETAILS	
Designer: ASP	
Detailer: MAM	
Sheet Subset: DRN DET	Subset Sheets: 1 of 3

<b>Project No./Code</b>
NH 0501-046
14933
Sheet Number 19



**CUTOFF WALL NOTES:**

- 1) CUTOFF WALL SHALL BE INSTALLED AT THE UPSTREAM ENTRANCE TO ALL PROPOSED CULVERTS. CUTOFF WALLS ARE NOT REQUIRED AT THE DOWNSTREAM END OF CULVERTS (SEE TOEWALL DETAIL).
- 2) NATURAL ROCK FILL SHALL BE COMPOSED OF NATIVE, GRANULAR MATERIAL (NOT SILT) AND SHALL BE PLACED IN A MANNER TO OBSCURE THE CONCRETE CUTOFF WALL.



**CUTOFF WALL DETAIL**  
SCALE: 1" = 4'-0"

**WELL-GRADED RIPRAP NOTES:**

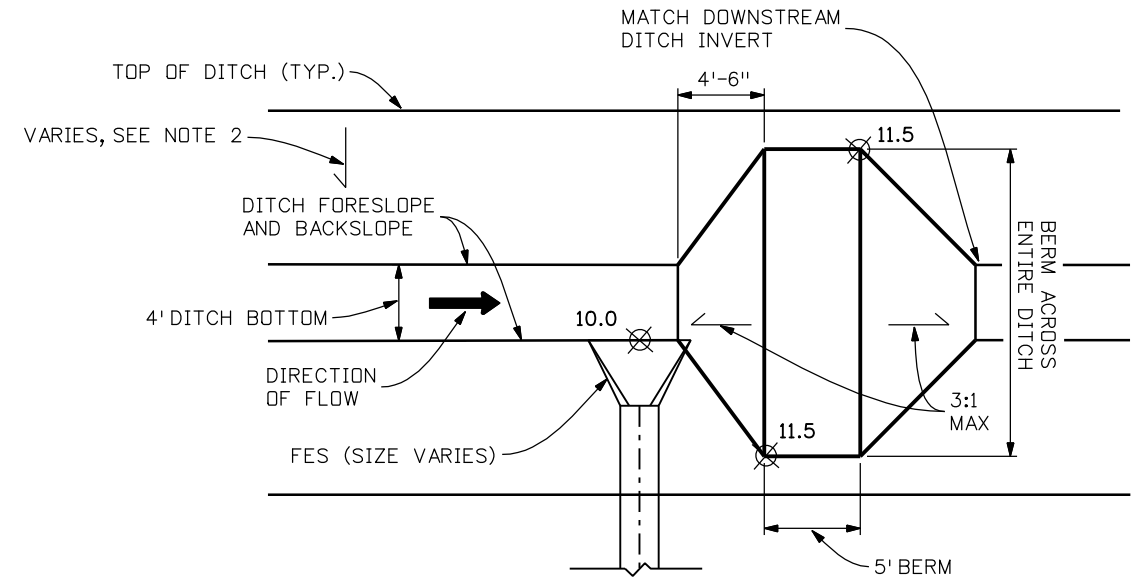
1. SAMPLES OF RIPRAP AND VOID-FILL MATERIALS SHALL BE SUBMITTED FOR THE REVIEW AND APPROVAL OF THE ENGINEER AND OWNER PRIOR TO CONSTRUCTION.
2. ELEVATION TOLERANCE FOR THE VOID-FILLED RIPRAP SHALL BE 0.10 FEET. THICKNESS OF VOID-FILLED RIPRAP SHALL BE NO LESS THAN THICKNESS SHOWN AND NO MORE THAN 2-INCHES GREATER THAN THE THICKNESS SHOWN.
3. WHERE "12-INCH WELL-GRADED RIPRAP" IS DESIGNATED ON THE CONTRACT DRAWINGS, D50 = 12" RIPRAP SHALL BE MIXED WITH THE MATERIALS AND ASSOCIATED PROPORTIONS LISTED IN THE TABLE BELOW TO FILL THE VOIDS OF THE RIPRAP:

WHERE "18-INCH WELL-GRADED RIPRAP" IS DESIGNATED ON THE CONTRACT DRAWINGS, D50 = 18" RIPRAP SHALL BE MIXED WITH THE MATERIALS AND ASSOCIATED PROPORTIONS LISTED IN THE TABLE BELOW TO FILL THE VOIDS OF THE RIPRAP:

APPROXIMATE PROPORTIONS (LOADER BUCKETS)	MATERIAL TYPE	MATERIAL DESCRIPTION
6	RIPRAP	RIPRAP (D50=18") OR (D50=12") OR NATIVE ROCK MATERIAL MEETING CDOT GRADATIONS
1	VOID-FILL MATERIAL	2 TO 4-INCH COBBLE (ROUND WASHED RIVER ROCK THAT IS WELL-GRADED, 100% PASSING 6-INCH SIEVE, 35-50% PASSING 3-INCH SIEVE, 5-20% PASSING 2-INCH SIEVE)
1	VOID-FILL MATERIAL	4-INCH MINUS PIT RUN SURGE (ROUND ROCK AND SAND, WELL GRADED), (90-100% PASSING 4-INCH SIEVE, 70-80% PASSING 1 1/2-INCH SIEVE, 40-60% PASSING 3/8-INCH SIEVE, 10-30% PASSING #16 SIEVE)
2	VOID-FILL MATERIAL	7-INCH MINUS CRUSHED ROCK SURGE (100% PASSING 7-INCH SIEVE, 80-100% PASSING 6-INCH SIEVE, 35-50% PASSING 3-INCH SIEVE, 10-20% PASSING 1.5-INCH SIEVE)
1	VOID-FILL MATERIAL	TYPE II BEDDING OR NATIVE GRAVEL MATERIAL
1/2 TO 1	VOID-FILL MATERIAL	NATIVE TOPSOIL

NOTE: MIX PROPORTIONS AND MATERIAL GRADATIONS ARE APPROXIMATE AND ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER. NO ADJUSTMENT IN UNIT PRICE FOR WELL-GRADED RIPRAP WILL BE ALLOWED BASED ON MODIFICATIONS TO THE MIX PROPORTIONS.

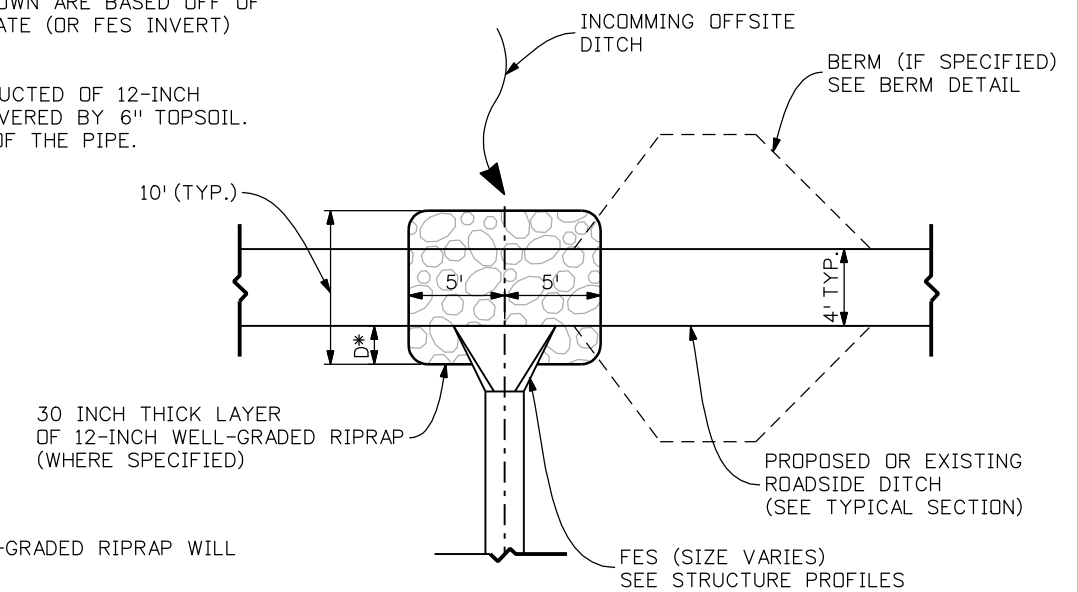
4. THE RIPRAP AND VOID-FILL MATERIALS SHALL BE THOROUGHLY MIXED PRIOR TO PLACEMENT AND SHALL BE INSTALLED AND COMPACTED SO THAT A DENSE, INTERLOCKED LAYER OF RIPRAP AND VOID-FILL MATERIAL IS PROVIDED WITH RIPRAP VOIDS COMPLETELY FILLED. THE LOOSE MATERIAL SHALL BE PLACED IN A SINGLE LIFT OF SUFFICIENT HEIGHT SUCH THAT FINAL GRADE WILL BE ACHIEVED UPON COMPACTION. IF THE COMPACTED MATERIAL IS BELOW FINAL GRADE, PLACEMENT OF ONLY THE SMALLER VOID-FILL MATERIALS TO ACHIEVE FINAL GRADE WILL NOT BE PERMITTED. SEGREGATION OF MATERIALS SHALL BE AVOIDED AND IN NO CASE SHALL THE COMBINED MATERIAL CONSIST PRIMARILY OF THE VOID-FILL MATERIALS. THE DENSITY AND INTERLOCKING NATURE OF RIPRAP IN THE MIXED MATERIAL SHALL ESSENTIALLY BE THE SAME AS IF THE RIPRAP WAS PLACED WITHOUT FILLING THE VOIDS.
5. COMPACTION OF THE WELL-GRADED RIPRAP SHALL BE PERFORMED BY WHEEL ROLLING WITH HEAVY RUBBER-TIRED EQUIPMENT (E.G., FRONT END LOADER). THE MOISTURE CONTENT OF THE MIXTURE SHALL BE AT OPTIMUM CONDITIONS PRIOR TO COMPACTION AND WATER SHALL BE ADDED, AS NECESSARY, AT THE DIRECTION OF THE ENGINEER.
6. ON-SITE MATERIALS MAY CONFORM TO THE VOID-FILL MATERIAL GRADATIONS. MINOR VARIATIONS IN GRADATION MAY BE APPROVED BY THE ENGINEER.



**BERM DETAIL FOR FES**  
N.T.S.

**BERM NOTES**

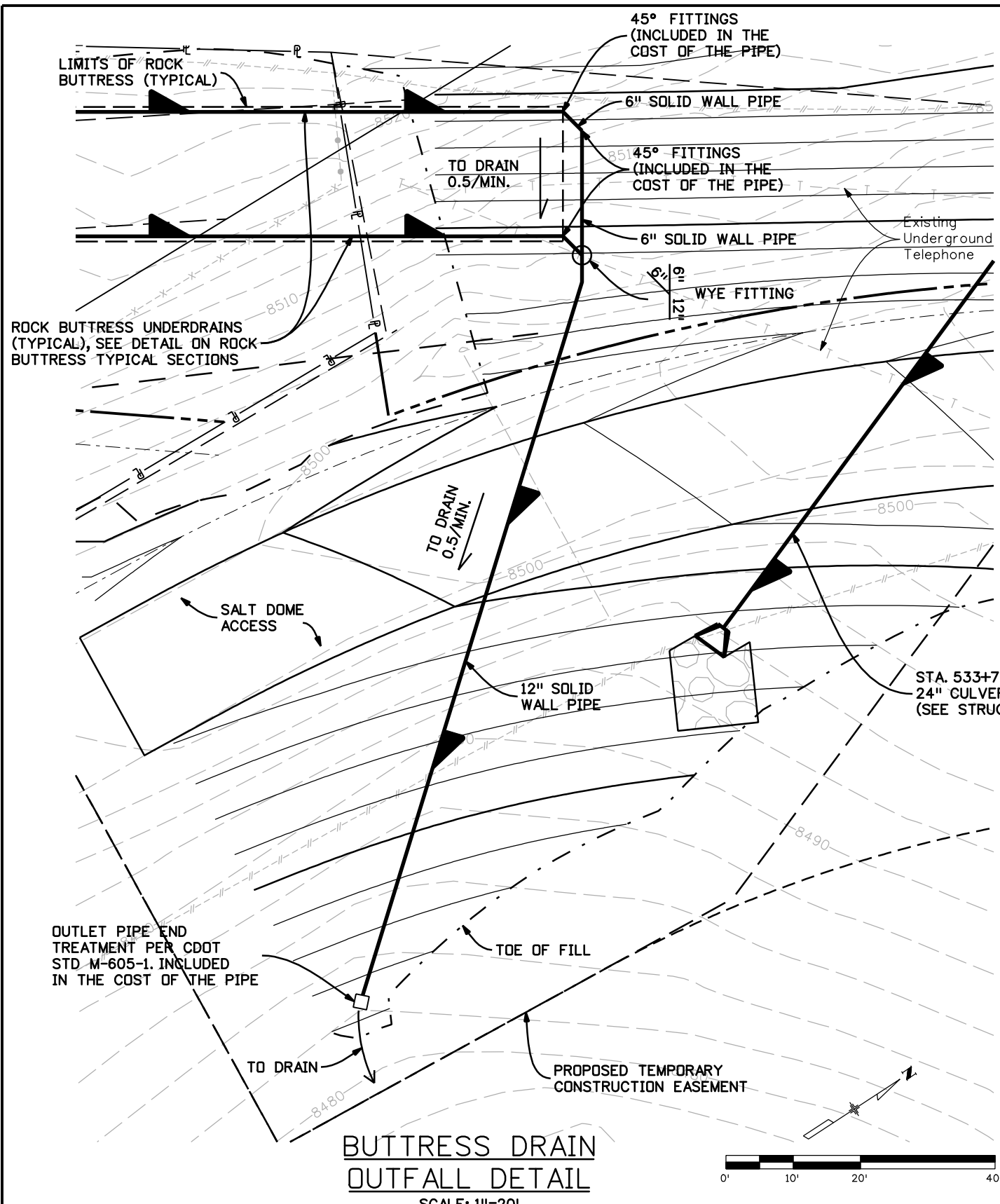
- 1) TYPE OF DRAINAGE STRUCTURE VARIES BY INSTALLATION (SEE STRUCTURE PROFILES). FOR BERMS ADJACENT TO TYPE C OR D INLETS, SEE TYPE C OR D INSTALLATION DETAILS.
- 2) DITCH SLOPES VARY BETWEEN 4:1 AND 2:1 BY LOCATION. REFER TO STRUCTURE PROFILES.
- 3) SPOT ELEVATIONS <sup>11.5</sup> SHOWN ARE BASED OFF OF AN ARBITRARY TOP-OF-GRADE (OR FES INVERT) ELEVATION OF 10.0
- 4) BERMS SHALL BE CONSTRUCTED OF 12-INCH WELL GRADED RIPRAP COVERED BY 6" TOPSOIL. INCLUDED IN THE COST OF THE PIPE.



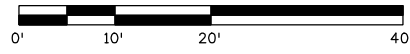
**RIPRAP INLET PROTECTION**  
N.T.S.

NOTE:  
\* D = DIAMETER OF CULVERT PIPE (VARIES BY LOCATION, SEE STRUCTURE PROFILES)

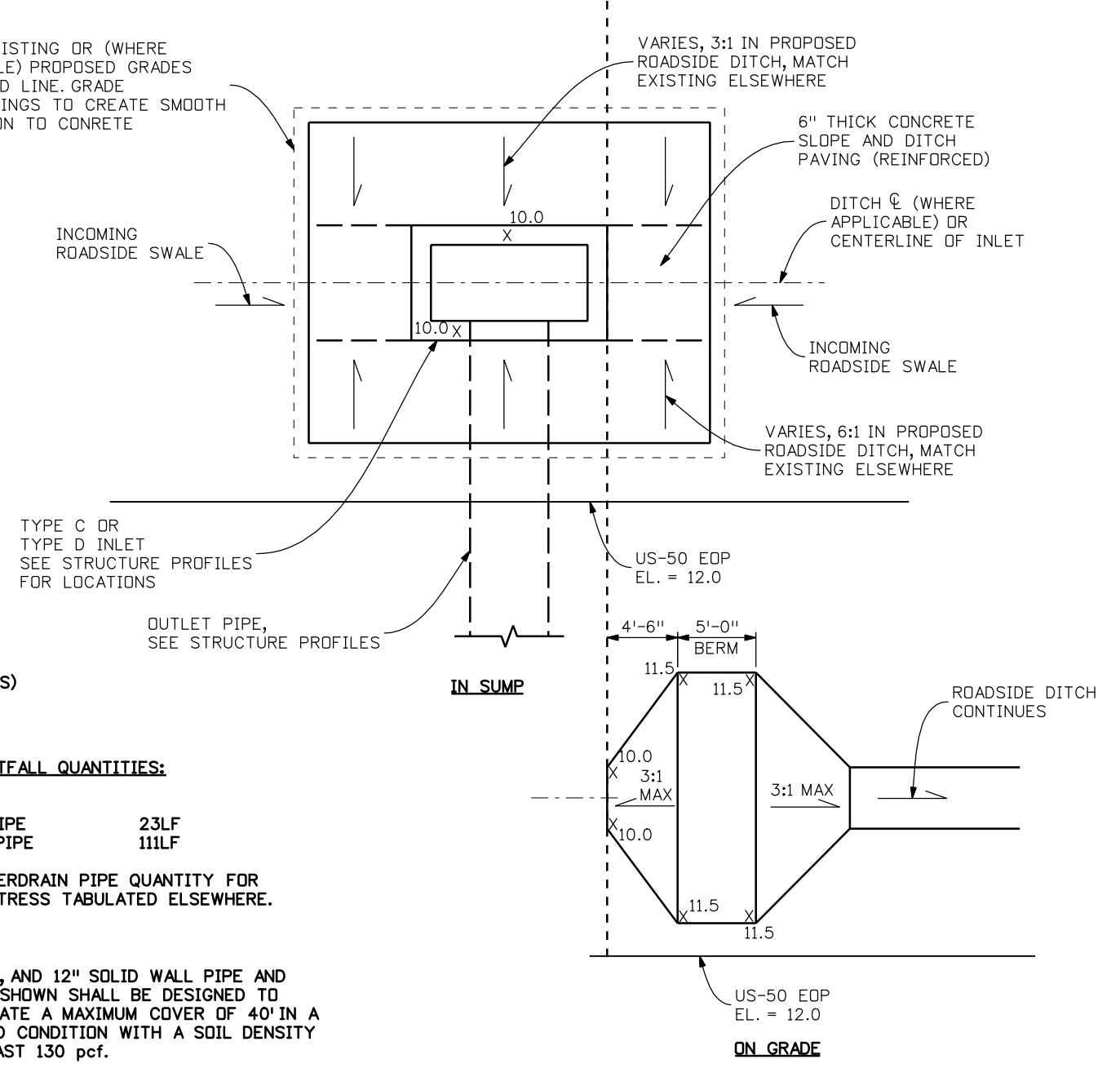
Print Date: 3/26/2010		<b>Sheet Revisions</b>			<b>Colorado Department of Transportation</b>  2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018 <b>Region 3</b>	<b>As Constructed</b>	<b>DRAINAGE DETAILS</b>		<b>Project No./Code</b>
Drawing File Name: 14933-Seg2-DrainageDetails02.dgn		Date:	Comments	Init.		No Revisions:			NH 0501-046
Horiz. Scale: 1:1 Vert. Scale: N/A						Revised:	Designer: ASP		14933
Unit Leader Information Unit Leader Initials						Void:	Detailer: MAM		Sheet Number 20
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939					<b>RBA</b>	Sheet Subset: DRN DET	Subset Sheets: 2 of 3		



**BUTTRESS DRAIN OUTFALL DETAIL**  
SCALE: 1"=20'



MATCH EXISTING OR (WHERE APPLICABLE) PROPOSED GRADES AT DASHED LINE. GRADE SURROUNDINGS TO CREATE SMOOTH TRANSITION TO CONCRETE



**TYPE C OR D INLET INSTALLATION DETAILS**  
N.T.S.

**BUTTRESS OUTFALL QUANTITIES:**

6" PLASTIC PIPE	23LF
12" PLASTIC PIPE	111LF

NOTE: UNDERDRAIN PIPE QUANTITY FOR BUTTRESS TABULATED ELSEWHERE.

**NOTES:**

- ALL 4", 6", AND 12" SOLID WALL PIPE AND FITTINGS SHOWN SHALL BE DESIGNED TO ACCOMMODATE A MAXIMUM COVER OF 40' IN A SATURATED CONDITION WITH A SOIL DENSITY OF AT LEAST 130 pcf.
- PIPE BEDDING SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL SUBMIT MANUFACTURER'S SPECIFICATIONS TO THE ENGINEER DEMONSTRATING ACCEPTABILITY FOR THE LOADING CONDITIONS SHOWN PRIOR TO INSTALLATION OF PIPE.

Print Date: 3/26/2010  
 Drawing File Name: 14933-Seg2-DrainageDetails03.dgn  
 Horiz. Scale: 1:1      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
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Sheet Revisions		
Date:	Comments	Init.

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**Region 3**      **RBA**













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No Revisions:
Revised:
Void:

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Designer:	AGC		
Detailer:	MAM		
Sheet Subset:	DRN DET	Subset Sheets:	3 of 3







<b>Project No./Code</b>
NH 0501-046
14933
Sheet Number <b>21</b>

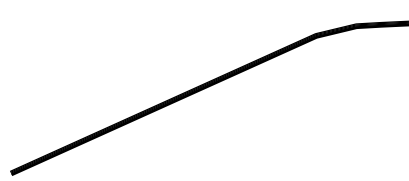
## LEGEND

### Soil Lithology

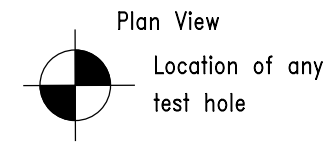
	Asphalt		Topsoil		Fill with Gravel as major soil		USCS Low Plasticity Gravelly Clay
	USCS High Plasticity Clay		Cobbles and gravel		USCS Low Plasticity Clay		USCS Low to High Plasticity Clay
	USCS Clayey Gravel		USCS Clayey Sand		USCS Low Plasticity Sandy Clay		USCS Silty Sand

### Rock Lithology

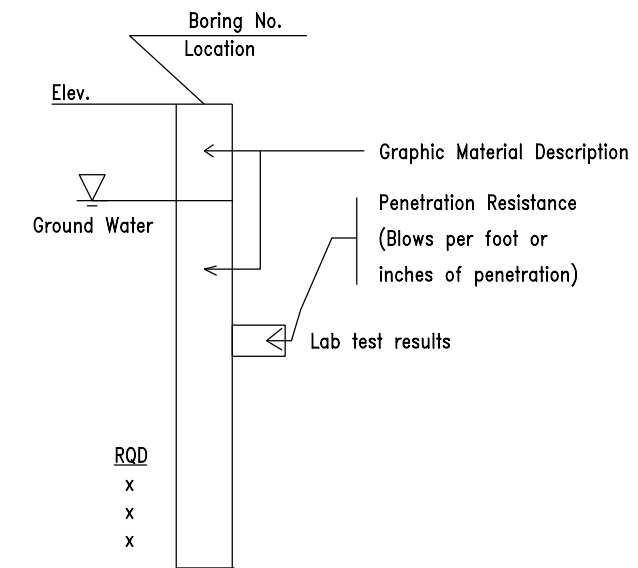
	Shale		Weathered Bedrock
	Gneiss		Granite
	Quartz Pegmatite		Schist

 Seismic Refraction Line

### TYPICAL TEST HOLE SYMBOL



### TYPICAL TEST HOLE LOG



Print Date: 3/26/2010
Drawing File Name: legend.dgn
Horiz. Scale: 1:100      Vert. Scale: N/A
Unit Leader Information      Unit Leader Initials
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Sheet Revisions		
Date:	Comments	Init.

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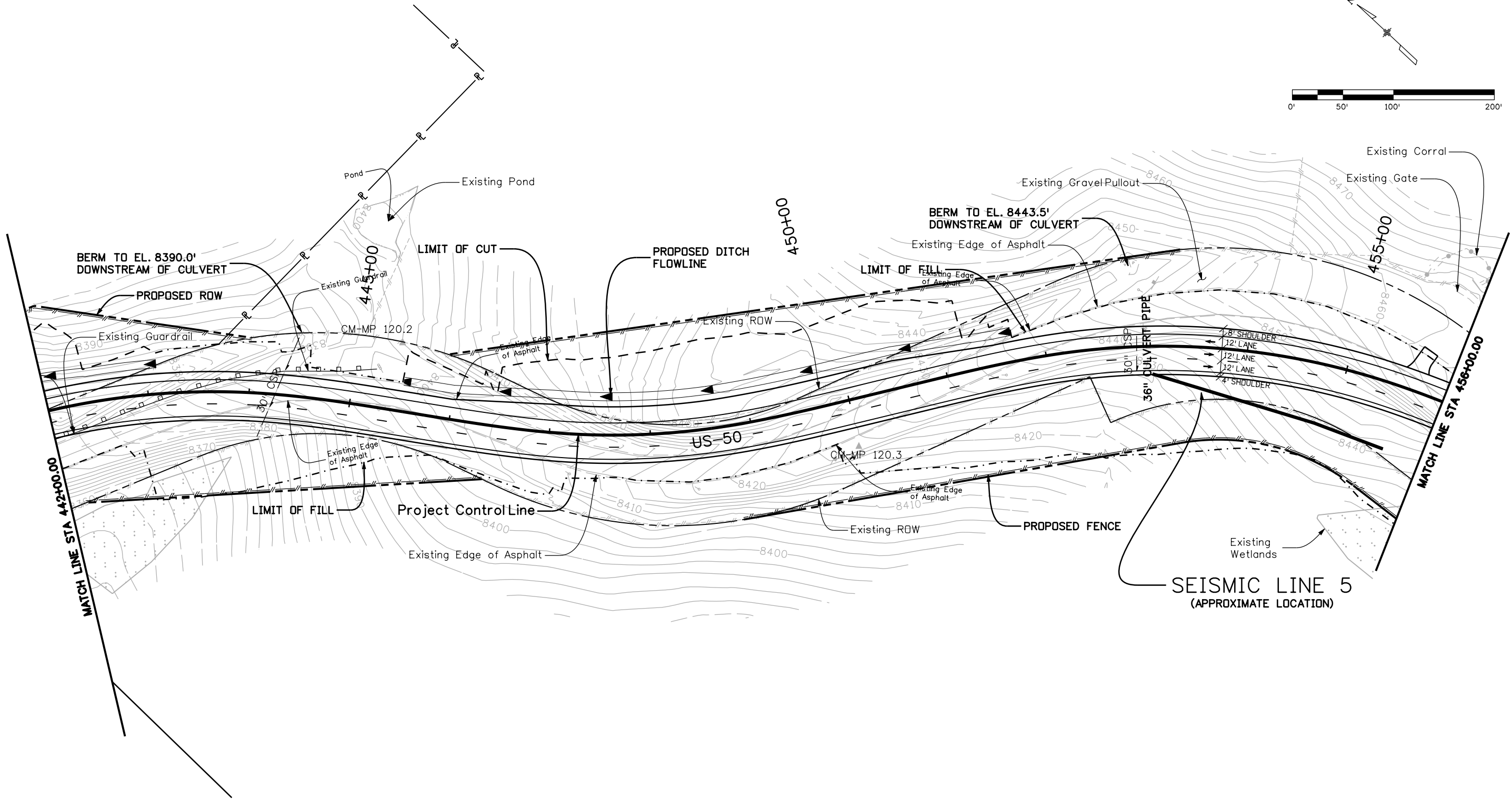
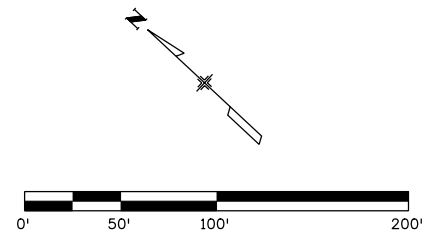
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Region 3      RBA

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Revised:
Void:

ENGINEERING GEOLOGY LEGEND			
Designer:	BPA		
Detailer:	MDN		
Sheet Subset:		Subset Sheets:	1 of 15


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NH 0501-046
14933
Sheet Number 22



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Consulting Engineers & Scientists

Print Date: 3/26/2010  
 Drawing File Name: 14933Seg1-SEISMIC\_08.dgn  
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 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

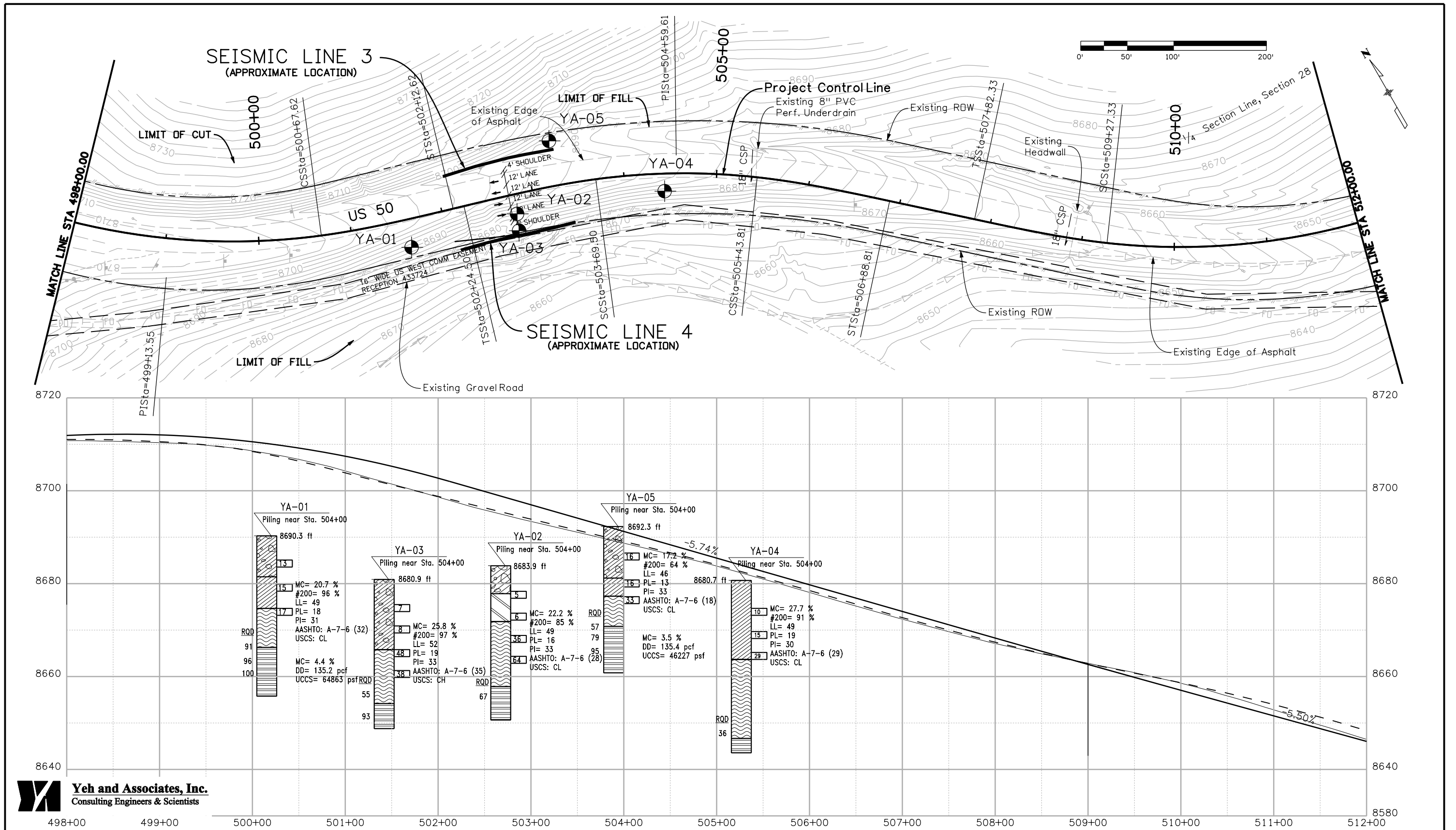
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Date:	Comments	Init.

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**Region 3**      **RBA**

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

**PLAN SHEET**  
**STA. 442+00 to STA. 456+00**  
 Designer: B. Arndt  
 Detailer: M. Norris  
 Sheet Subset: ROADWAY      Subset Sheets: 2 of 15

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **23**



**Yeh and Associates, Inc.**  
Consulting Engineers & Scientists

Print Date: 3/26/2010

Drawing File Name: 14933Seg2-Eng\_Geo\_03.dgn

Horiz. Scale: 1:100

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

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Region 3

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Revised:

Void:

**ENGINEERING GEOLOGY**  
**STA. 498+00 to STA. 512+00**

Designer: BPA

Detailer: MDN

Sheet Subset:

Subset Sheets: 3 of 15

Project No./Code

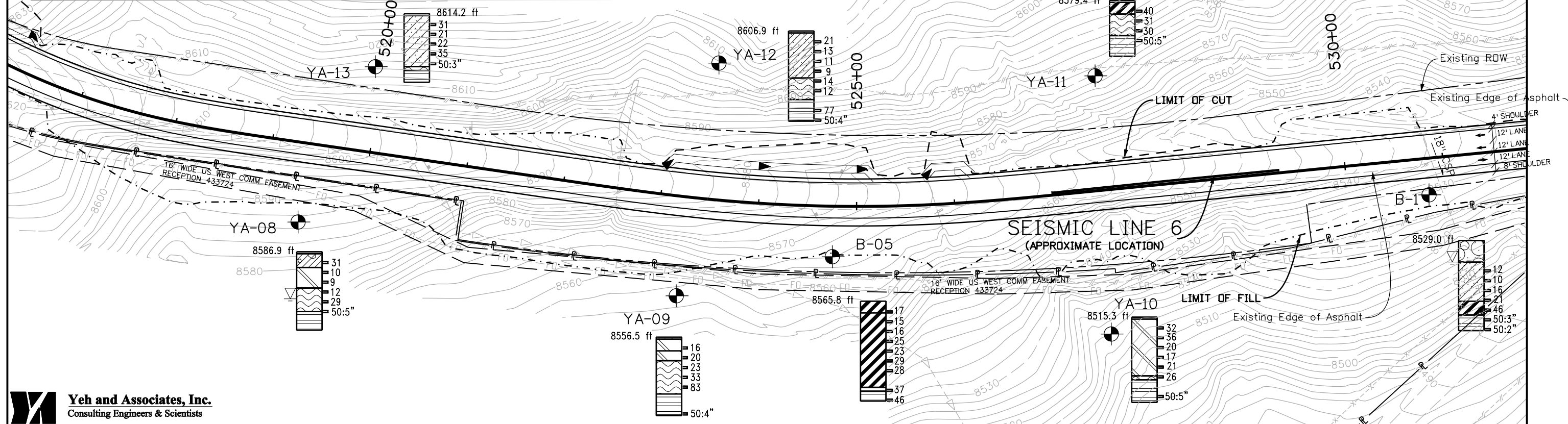
NH 0501-046

14933

Sheet Number 24

SUMMARY OF TEST RESULTS - LANDSLIDE BORINGS

Boring No.	Depth (ft)	Sample Type	Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Direct Shear Cohes. (c, psf)	Direct Shear Friction (phi, deg)	Unconf. Comp. Strength (psf)	AASHTO Classification	USCS Classification
					Gravel >#4 %	Sand %	Fines <#200 %	Liquid Limit	Plastic Limit	Plastic Index							
B-1	15	CA	25.2	96.1	-	-	77	46	20	26	8.2	.014	-	-	A-7-6 (20)	CL	
B-1	20	CA	23.9	-	26	42	32	46	16	30	-	-	-	-	A-2-7 (3)	SC	
B-1	45	CA	28.4	88.9	-	-	78	43	21	22	-	-	-	-	A-7-6 (17)	CL	
B-2	15	CA	20.8	89.4	-	-	86	46	18	28	-	-	-	-	A-7-6 (24)	CL	
B-2	30	CA	20.7	105.3	-	-	83	-	-	-	-	1222.0	28.0	-	-	-	
B-2	50	CA	10.9	104.2	-	-	70	40	19	21	-	-	-	-	A-6 (13)	CL	
B-3	5	CA	17.3	97.5	8	46	46	54	21	33	-	-	-	-	A-7-6 (10)	SC	
B-3	15	CA	20.8	103	-	-	83	36	19	17	-	-	-	-	A-6 (13)	CL	
B-3	25	CA	10.0	-	-	-	79	40	18	22	-	-	-	-	A-6 (16)	CL	
B-5	5	CA	17.3	85.3	19	31	50	66	20	46	-	-	-	-	A-7-6 (18)	CH	
B-5	20	CA	21.5	-	-	-	-	-	-	-	-	1308.0	35.0	-	-	-	
B-5	50	CA	13.8	102.7	-	-	79	36	21	15	-	-	-	-	A-6 (11)	CL	
B-6	10	CA	34.3	75.5	3	47	50	46	21	25	-	-	-	-	A-7-6 (9)	SC	
B-6	15	CA	17.4	93.4	40	36	24	54	21	33	-	-	-	-	A-2-7 (0)	GC	
B-6	25	CA	9.4	96.4	-	-	77	39	18	21	-	-	-	-	A-6 (15)	CL	
B-7	10	CA	29.6	72.3	4	51	45	64	22	42	-	-	-	-	A-7-6 (13)	SC	
B-7	20	CA	23.4	95.8	-	-	83	48	21	27	-	-	-	-	A-7-6 (23)	CL	
B-7	25	CA	10.8	97.5	-	-	54	43	19	24	-	-	-	-	A-7-6 (10)	CL	
YA-08	15	CA	28.2	93.7	-	-	80	48	18	30	-	-	-	-	A-7-6 (24)	CL	
YA-08	25	CA	21.8	101.2	-	-	62	46	18	28	-	-	-	-	A-7-6 (15)	CL	
YA-09	5	CA	20.3	107	-	-	80	49	18	31	-	-	-	-	A-7-6 (25)	CL	
YA-09	20	CA	15.5	112.1	-	-	80	45	19	26	-	-	-	-	A-7-6 (21)	CL	
YA-10	20	CA	22.0	104.8	-	-	79	45	15	30	-	-	-	-	A-7-6 (23)	CL	
YA-10	30	CA	19.2	101.2	-	-	75	50	19	31	-	-	-	-	A-7-6 (23)	CH	
YA-11	5	CA	15.9	-	-	-	78	64	22	42	-	-	-	-	A-7-6 (34)	CL	
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YA-12	30	CA	25.5	98.4	-	-	85	48	18	30	-	-	-	-	A-7-6 (26)	CL	
YA-12	45	CA	14.2	109.8	-	-	89	47	17	30	-	-	2721	-	A-7-6 (27)	CL	
YA-13	10	CA	7.8	-	33	35	32	44	15	32	-	-	-	-	A-7-6 (3)	SC	



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Print Date: 3/26/2010  
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P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

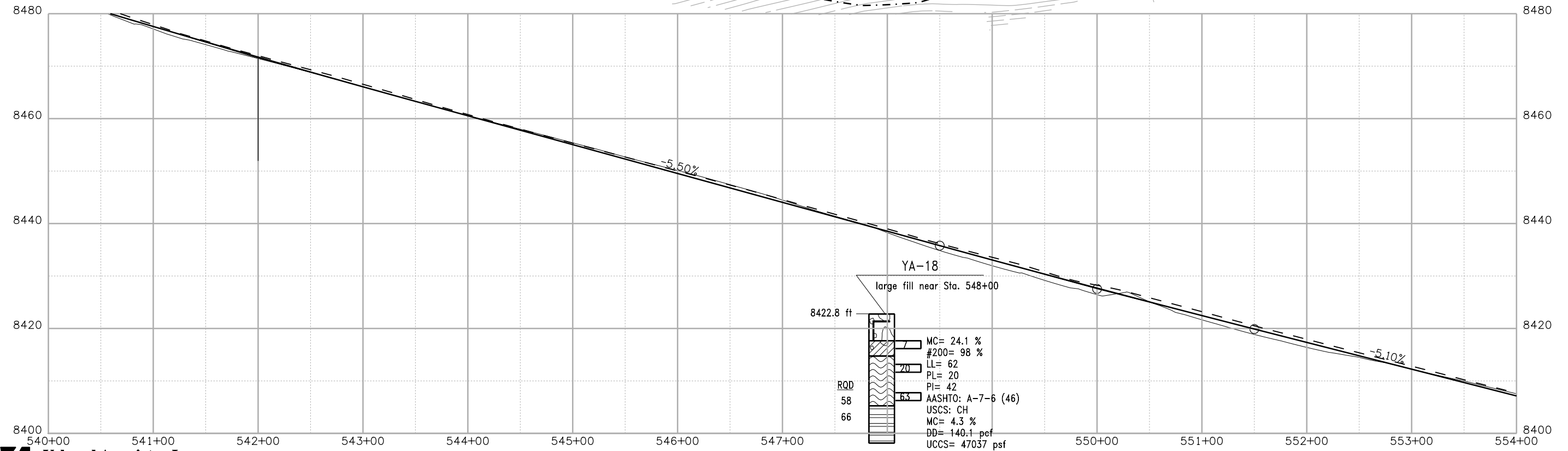
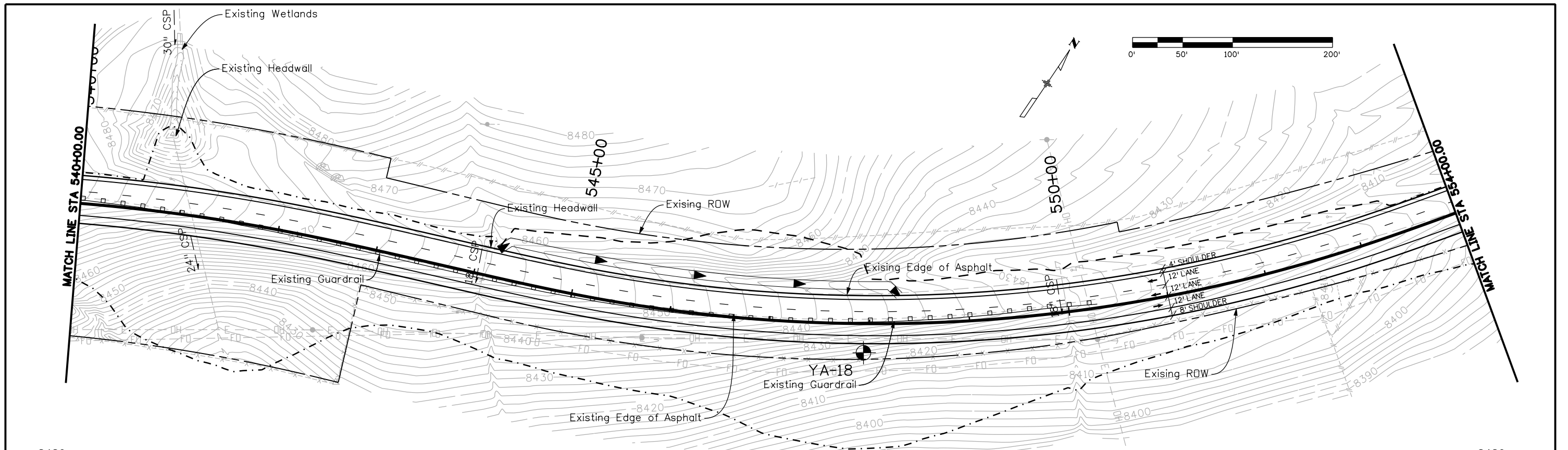
Colorado Department of Transportation  
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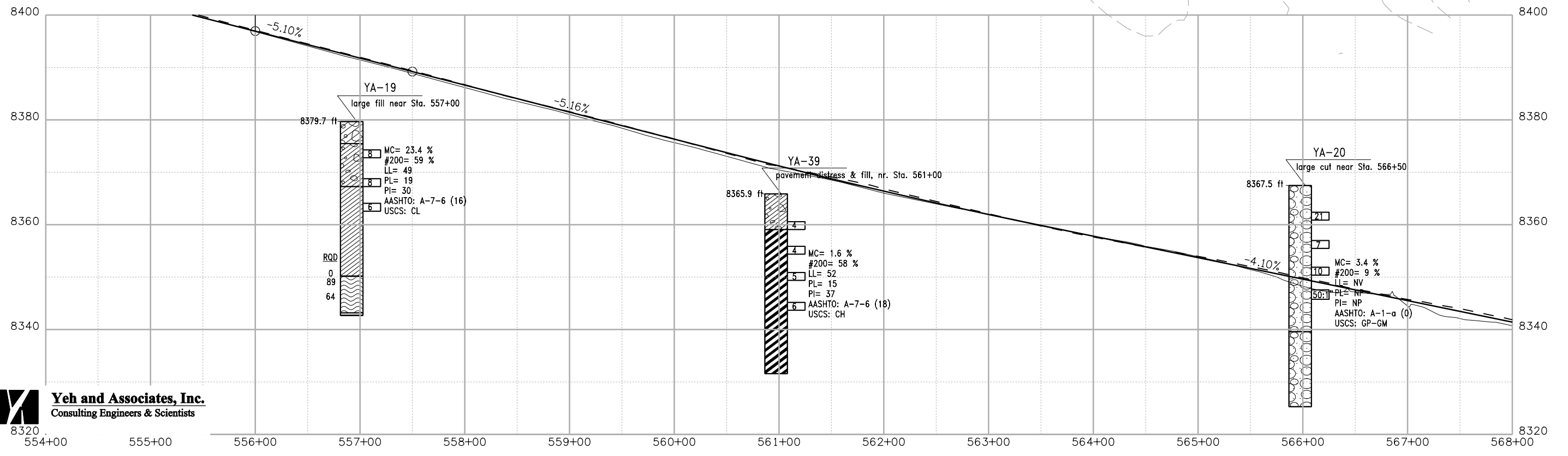
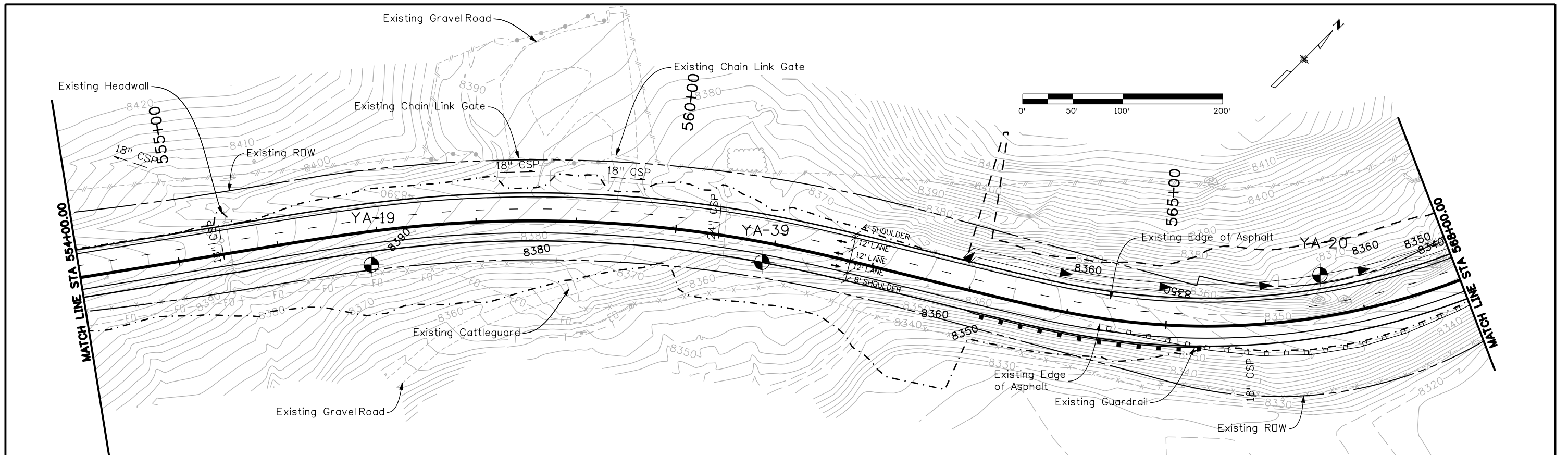
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**STA. 540+00 to STA. 554+00**  
Designer: BPA  
Detailer: MDN  
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14933  
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Date:	Comments	Init.

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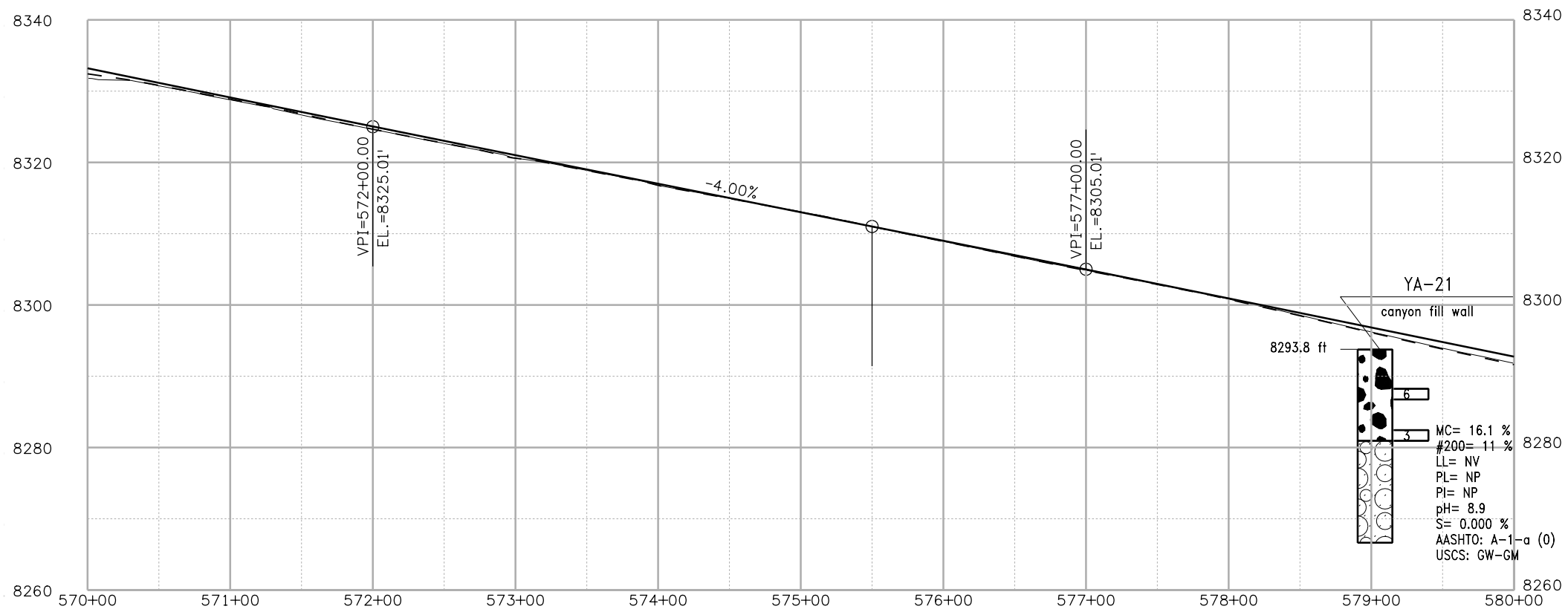
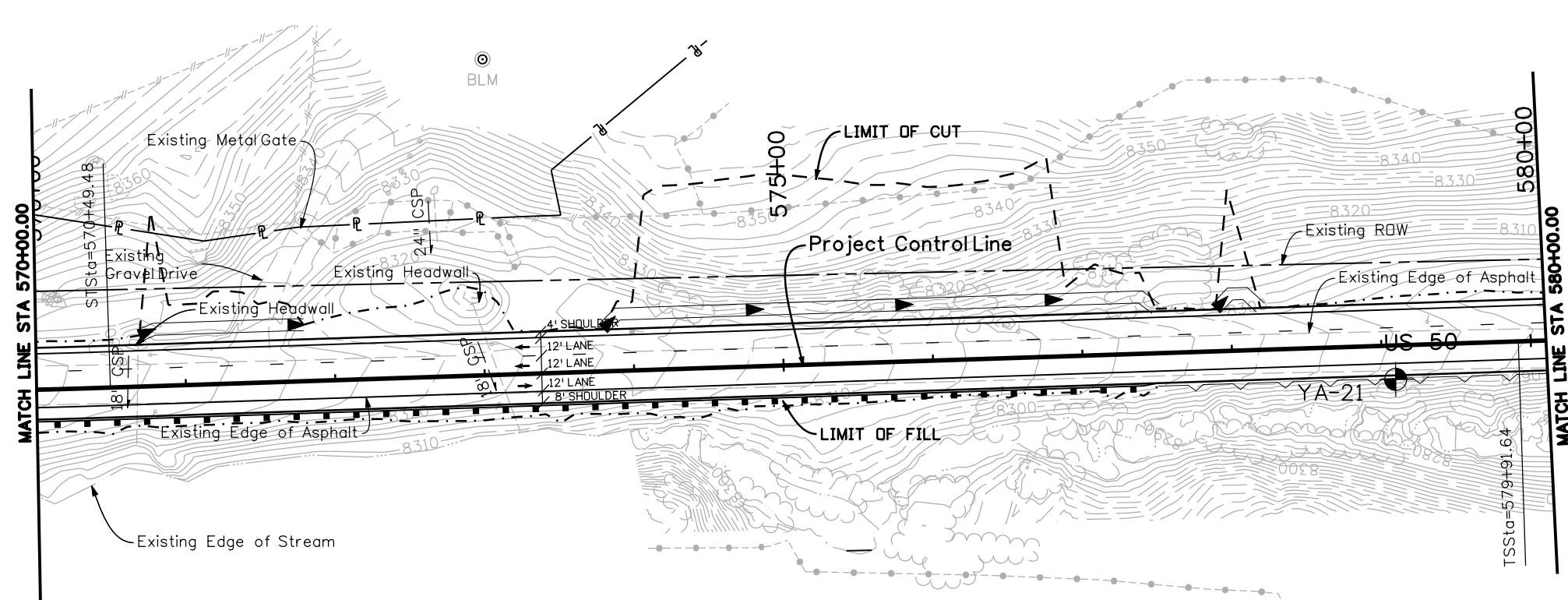
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Designer:	BPA
Detailer:	MDN
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14933	
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Print Date: 3/26/2010

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Unit Leader Information

Unit Leader Initials

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Detailer: MDN

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Project No./Code

NH 0501-046

14933

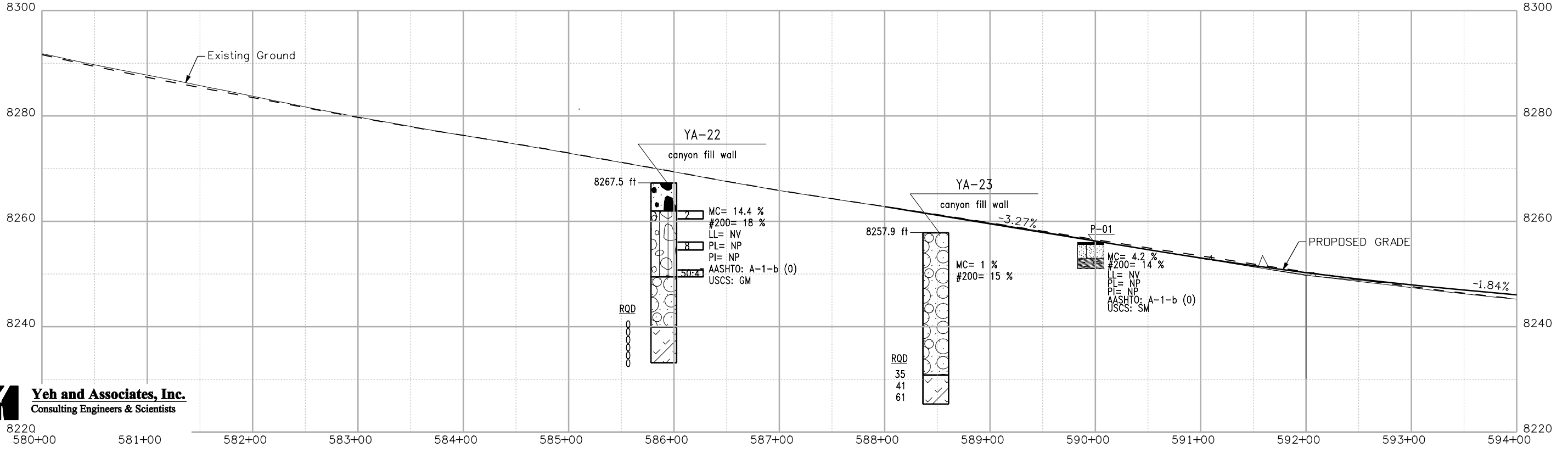
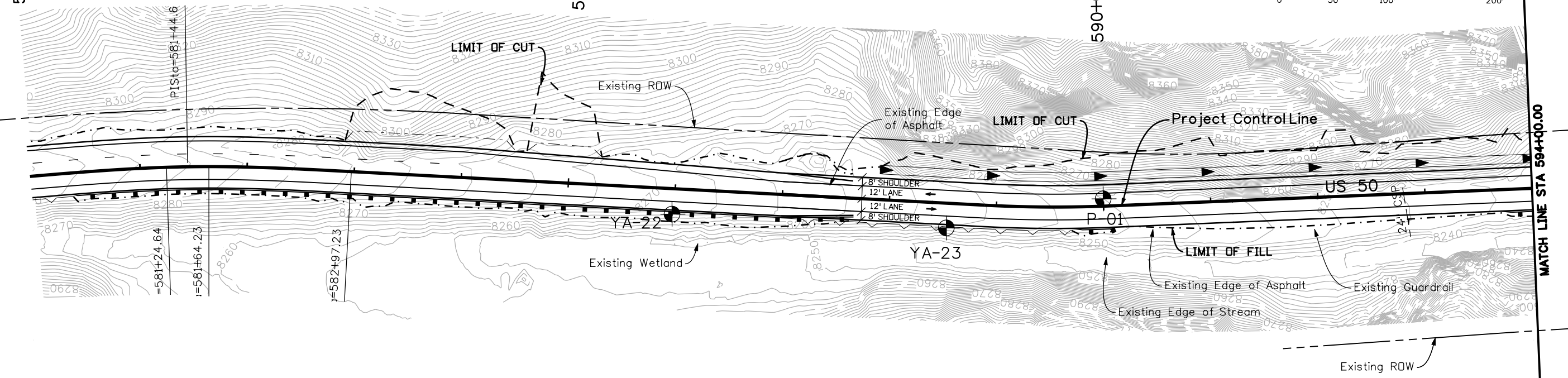
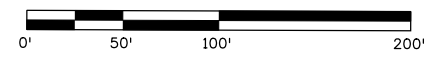
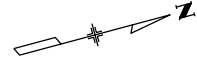
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580+00

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MATCH LINE STA 594+00.00



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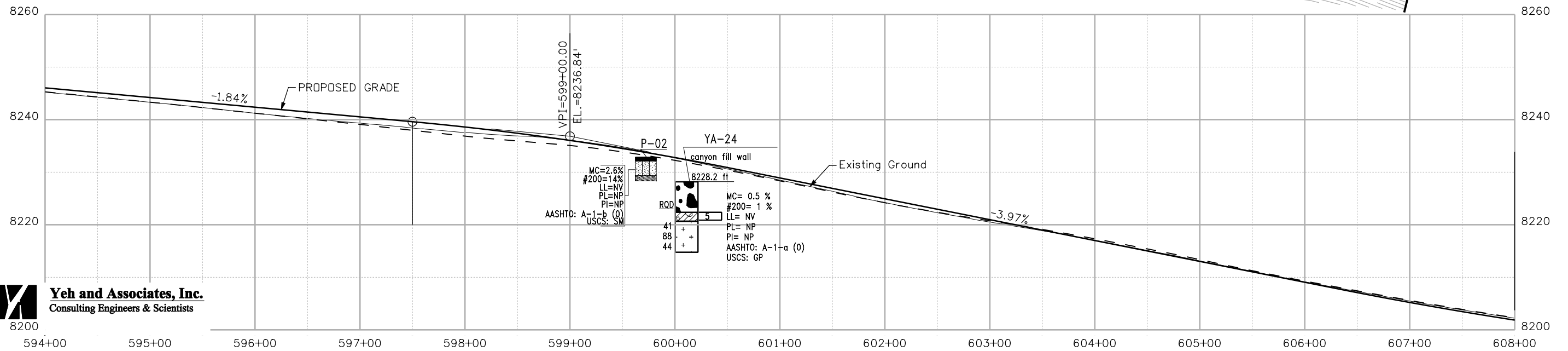
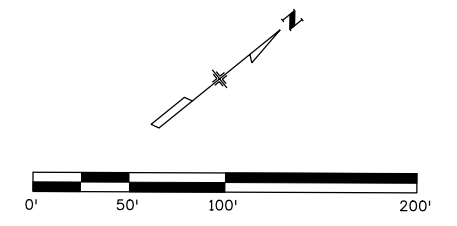
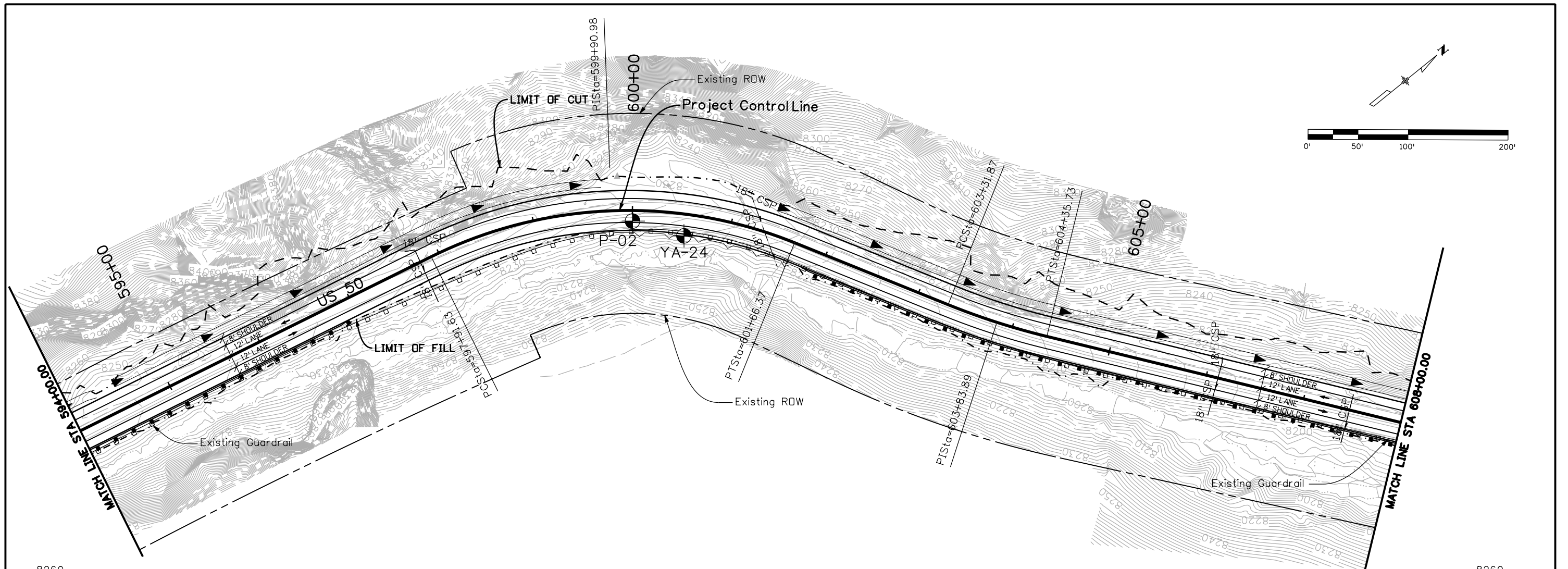
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STA. 580+00 to STA. 594+00  
Designer: BPA  
Detailer: MDN  
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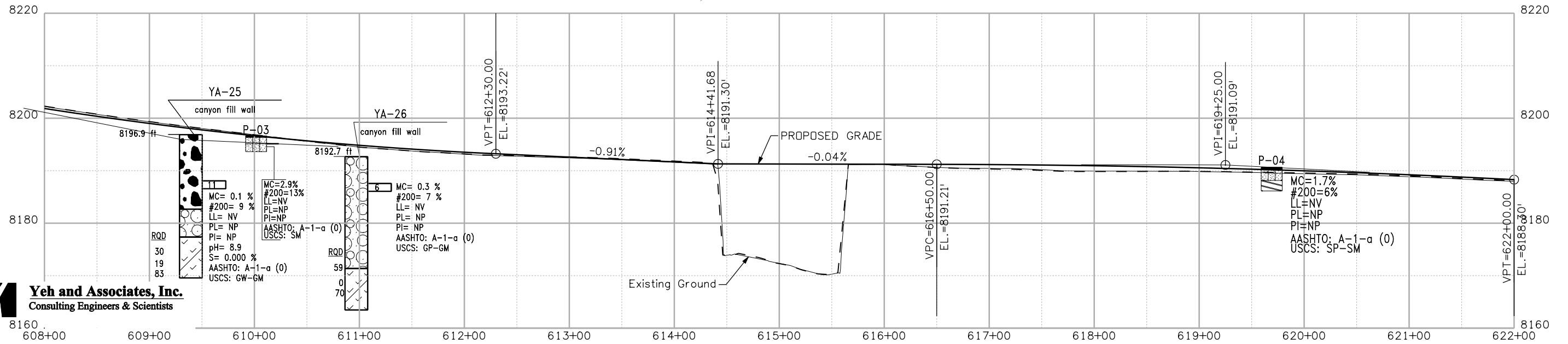
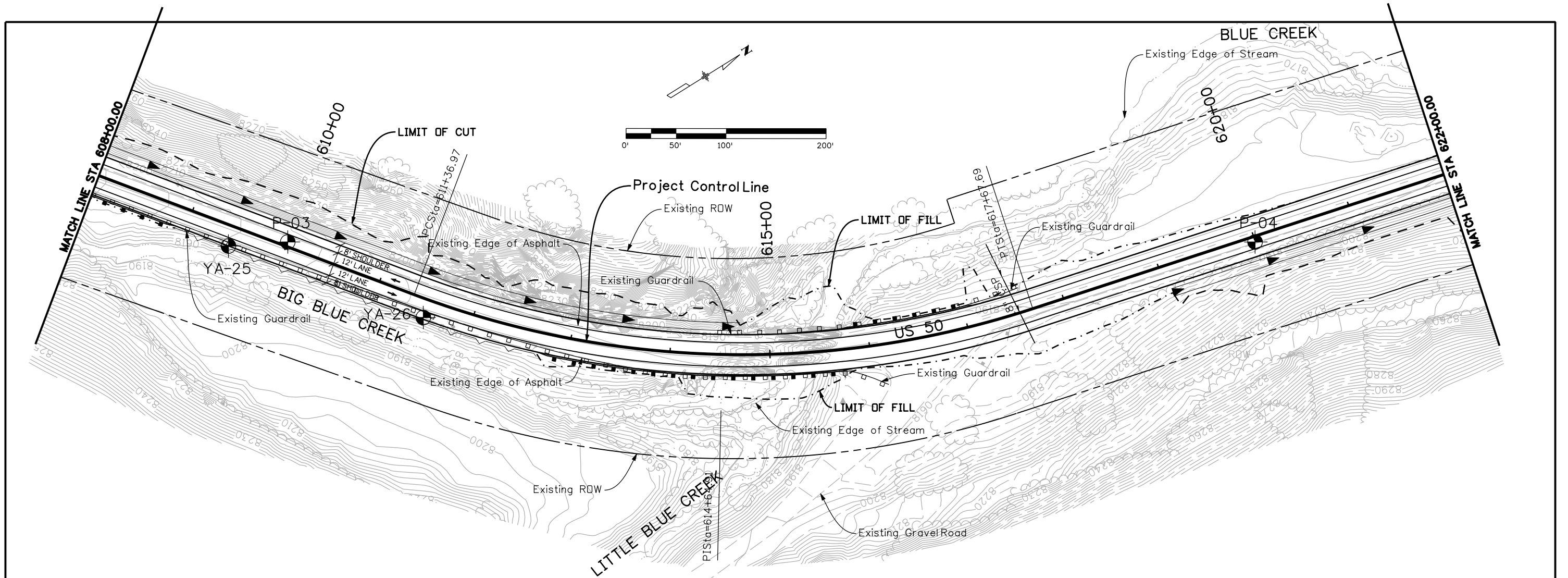
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Print Date: 3/26/2010

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Horiz. Scale: 1:100

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Unit Leader Information

Unit Leader Initials

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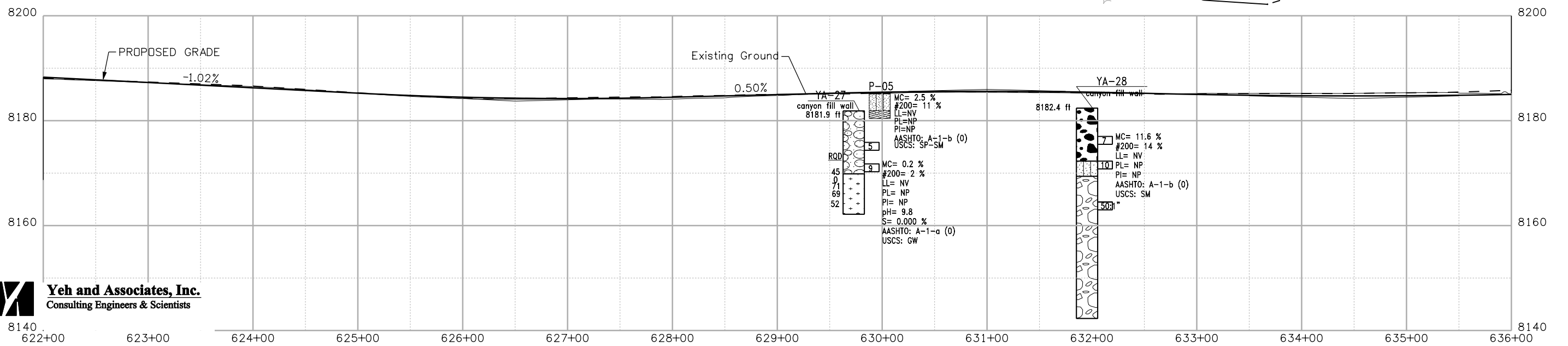
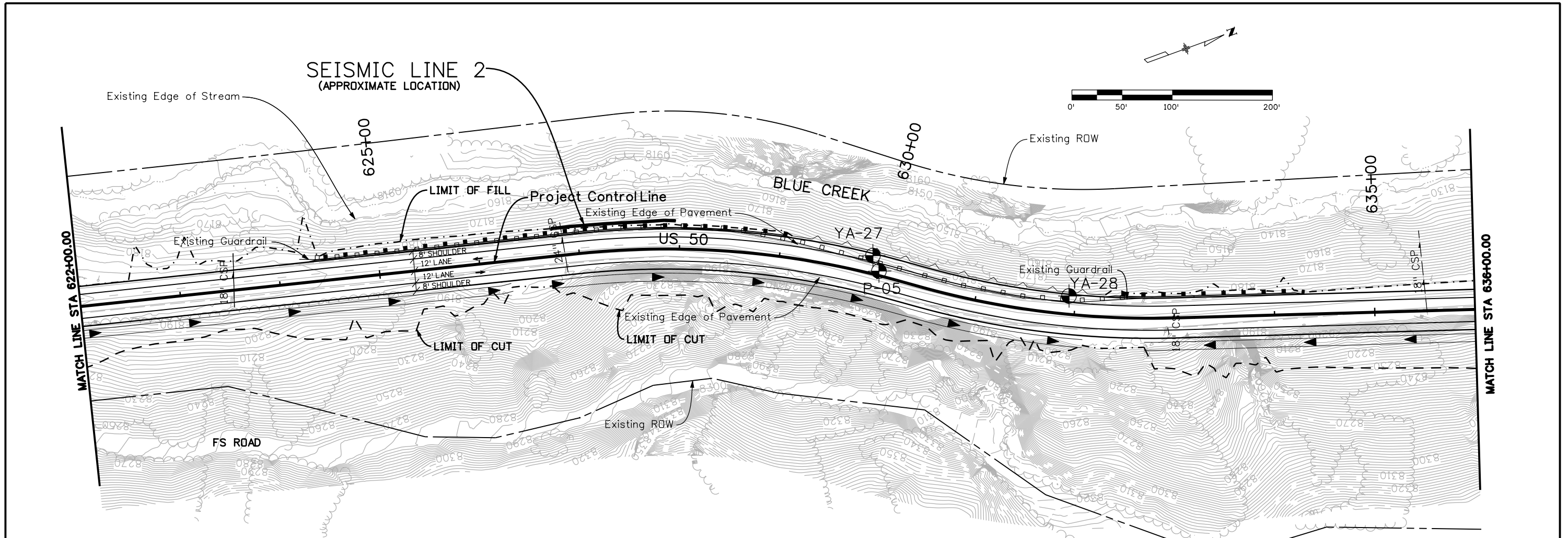
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 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939 Lakewood, CO 80226

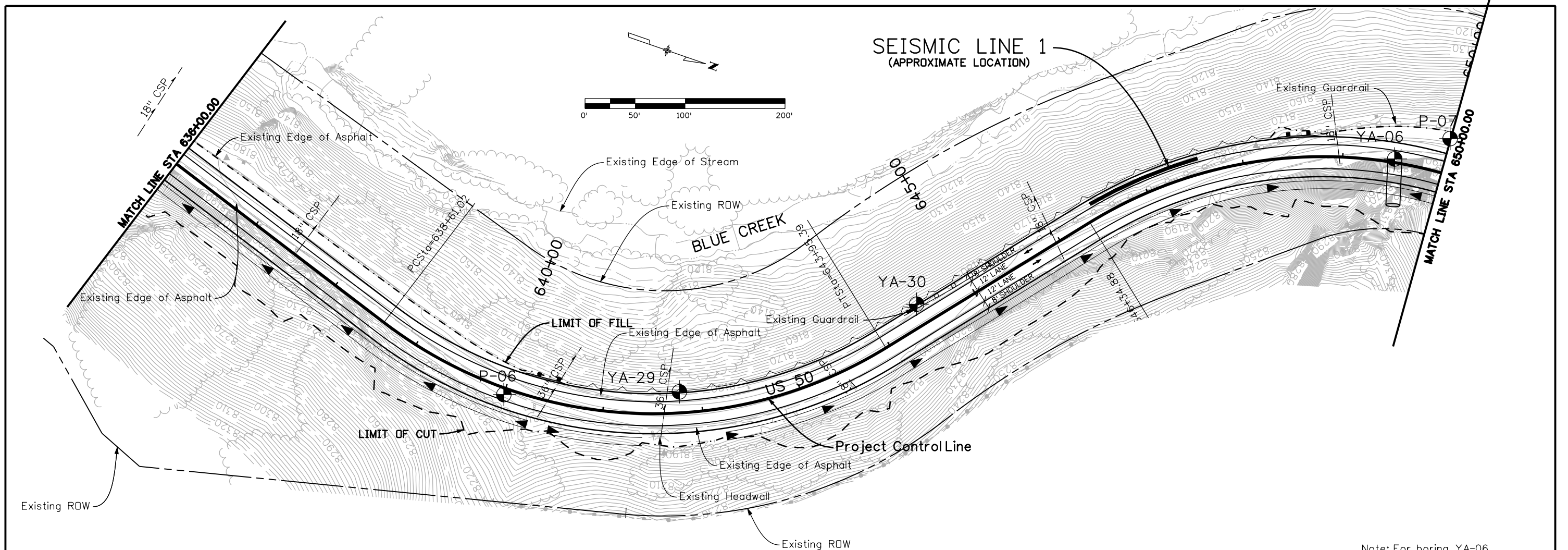
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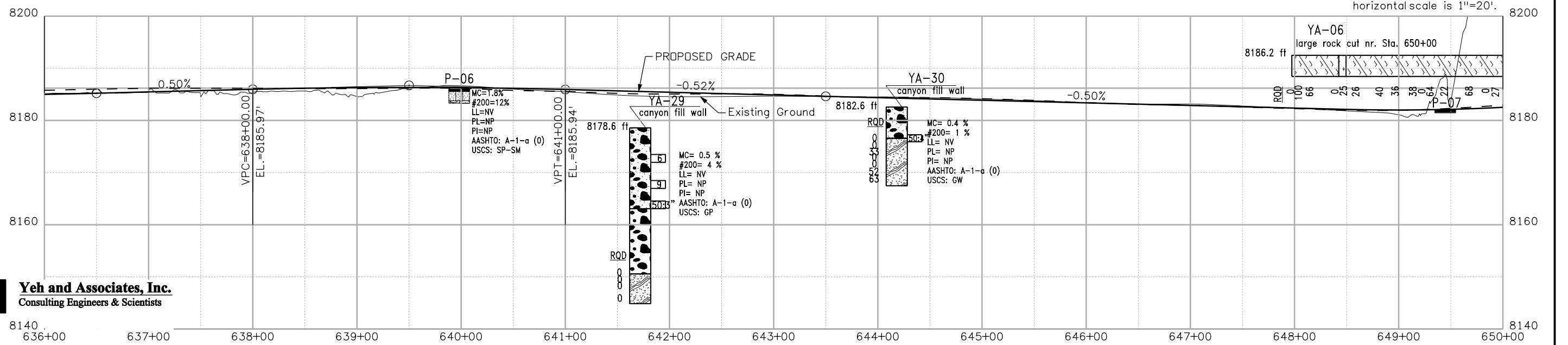
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 Detailer: MDN  
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 NH 0501-046  
 14933  
 Sheet Number **32**



Note: For boring YA-06, horizontal scale is 1"=20'.



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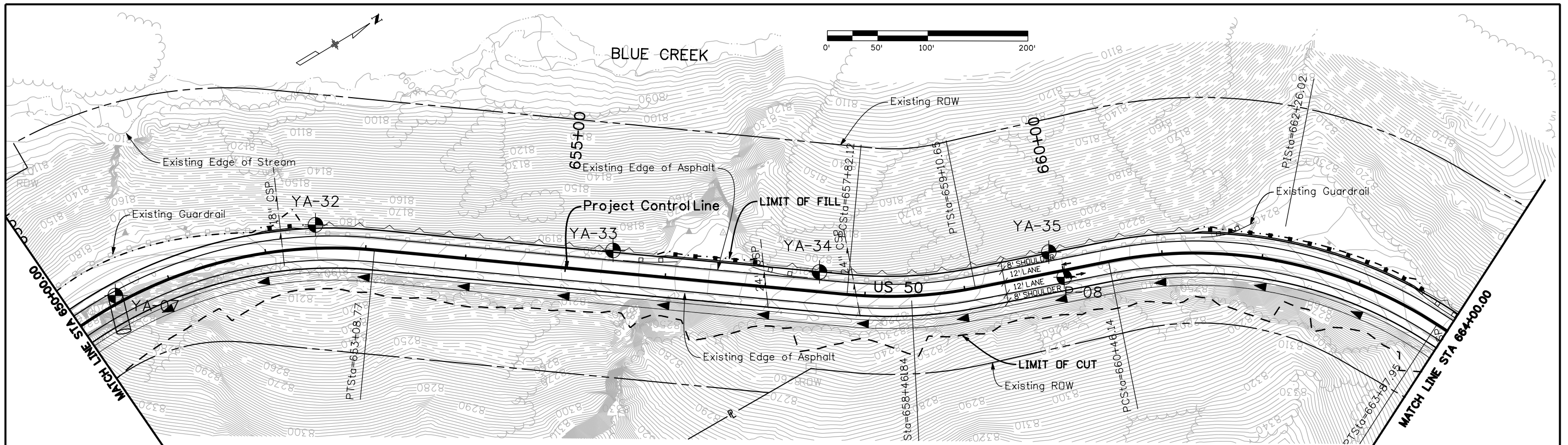
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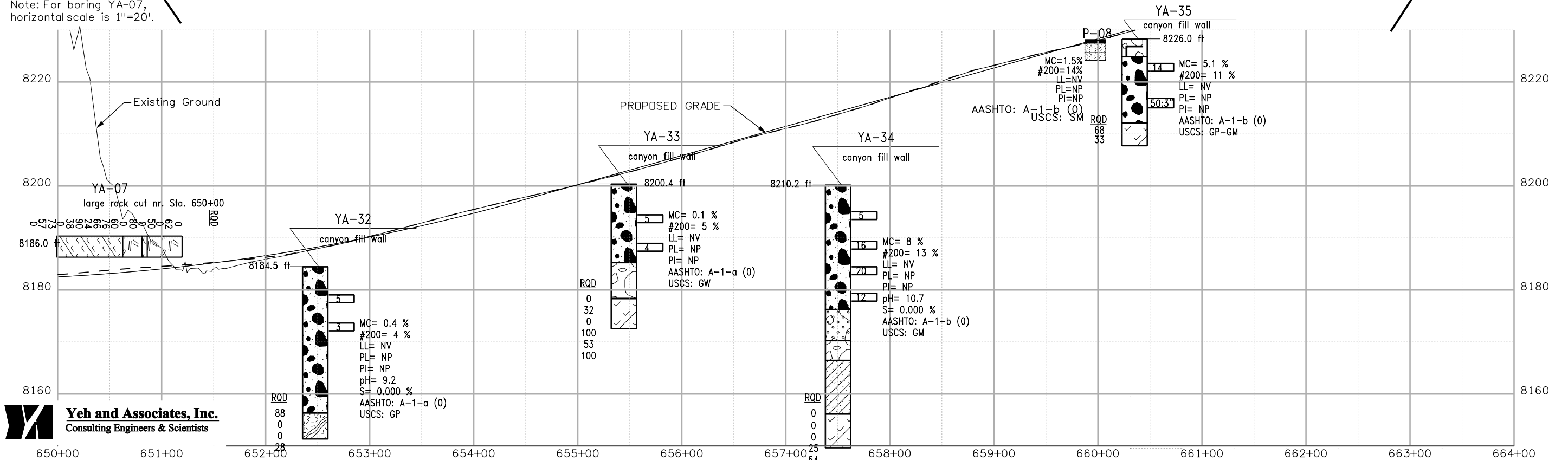
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Project No./Code  
NH 0501-046  
14933  
Sheet Number 33



Note: For boring YA-07, horizontal scale is 1"=20'.



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Print Date: 3/26/2010

Drawing File Name: 14933Seg3-Eng\_Geo\_06.dgn

Horiz. Scale: 1:100

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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Lakewood, CO 80226  
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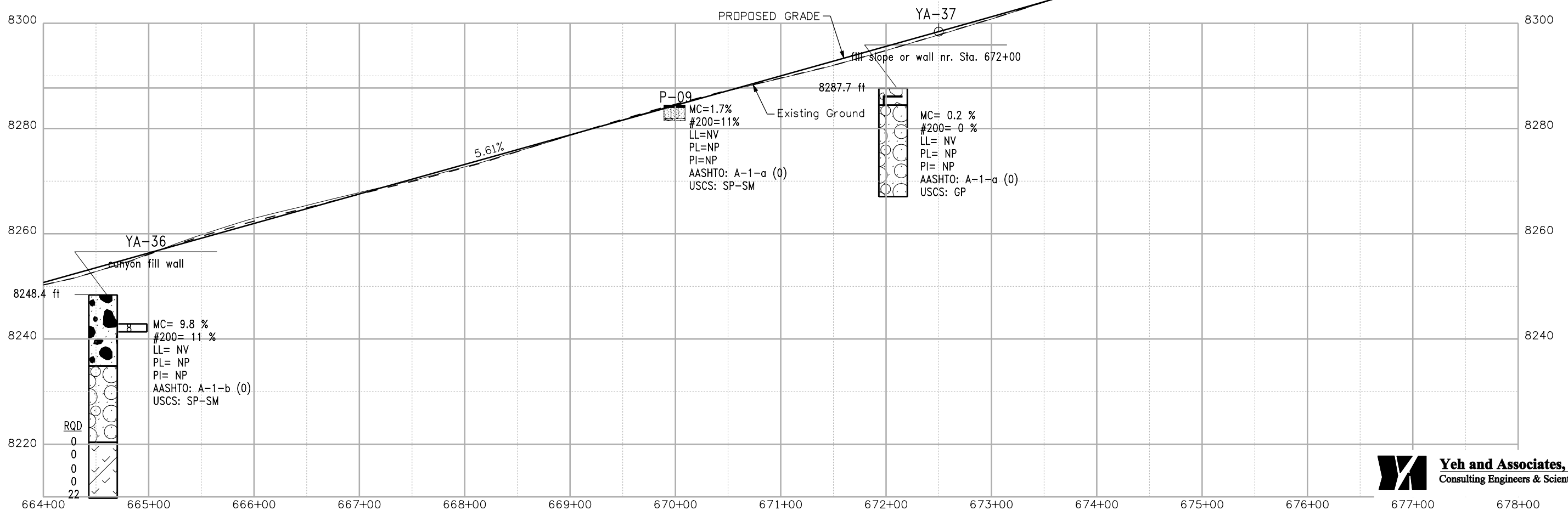
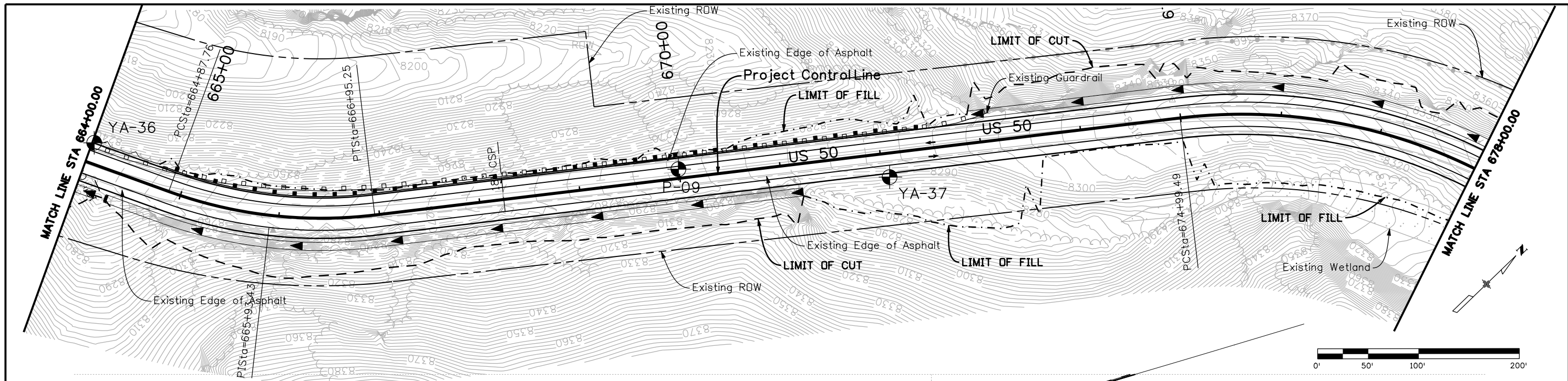
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Designer: BPA  
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14933  
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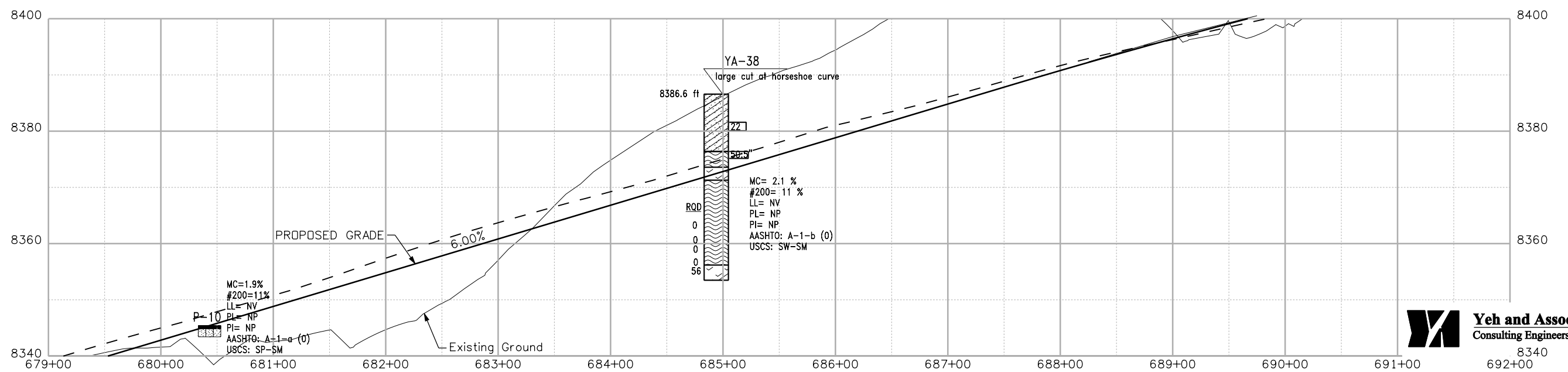
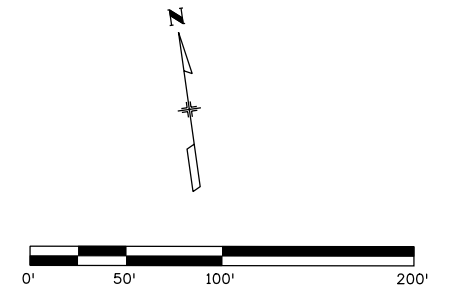
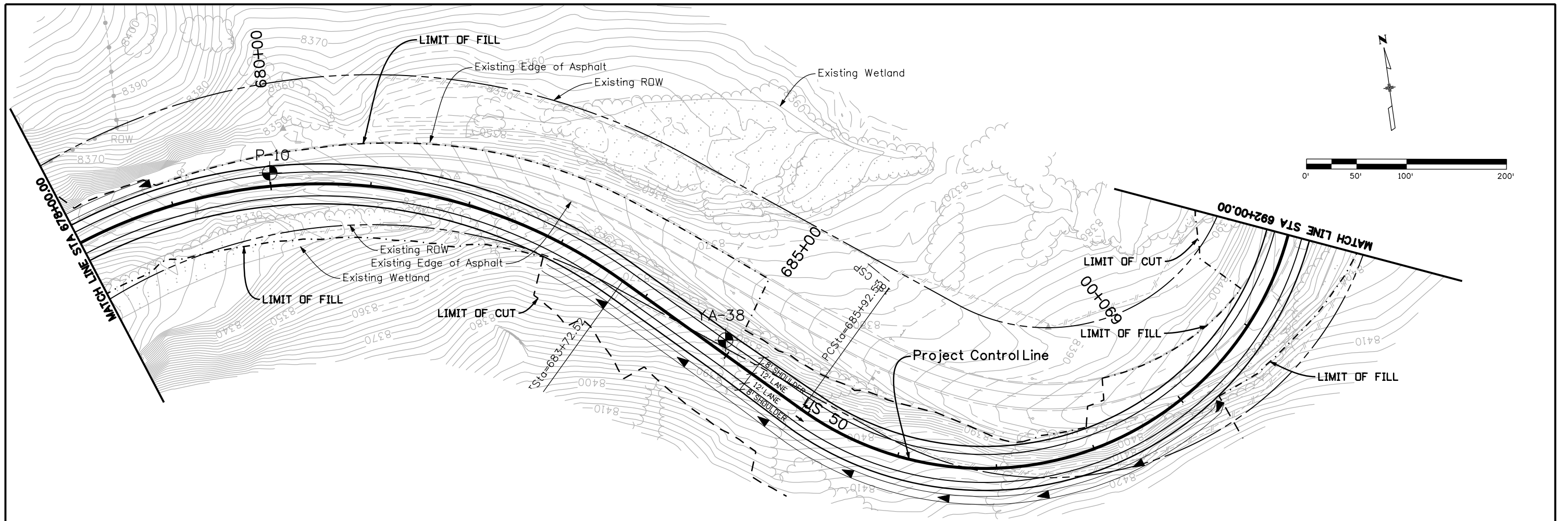
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 Designer: BPA  
 Detailer: MDN  
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Project No./Code  
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 14933  
 Sheet Number 35



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Print Date: 3/26/2010  
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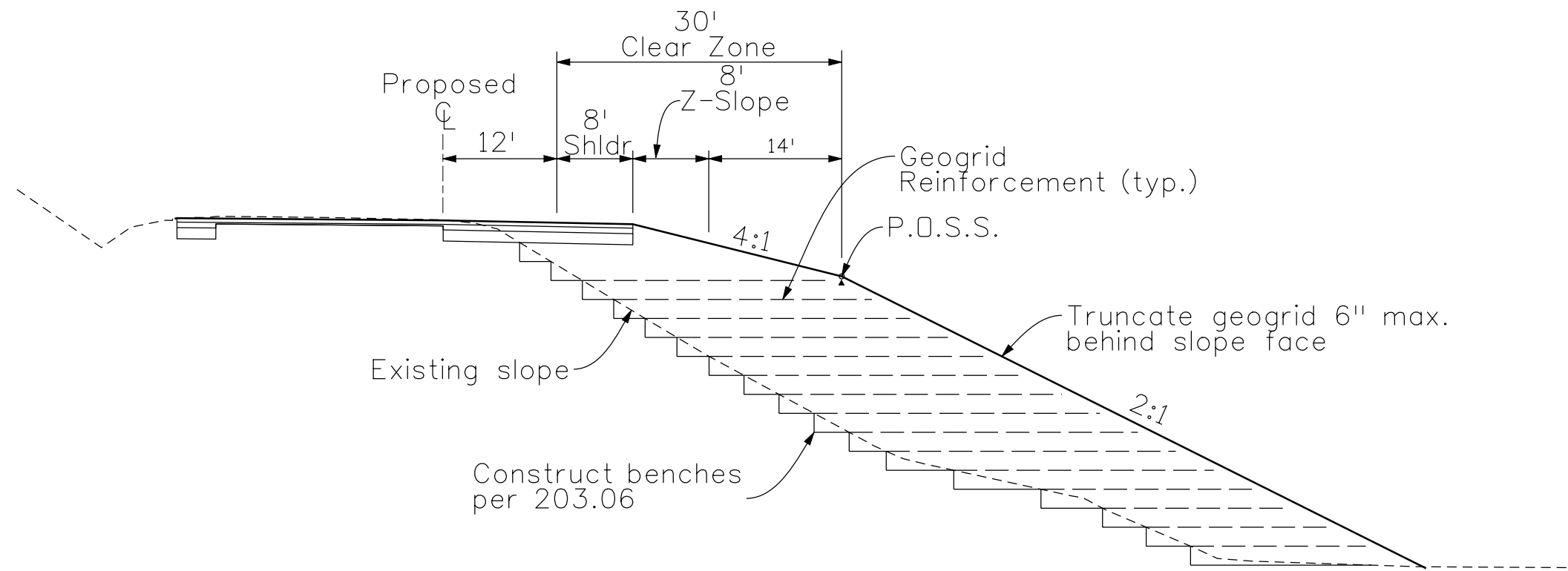
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 Designer: BPA  
 Detailer: MDN  
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 NH 0501-046  
 14933  
 Sheet Number 36



**TYPICAL SECTION  
REINFORCED EMBANKMENT**

**Notes:**

1. Reinforced Embankment required between Sta. 562+50 to 565+00 using A-1, A-2 or A-3 embankment material with 1.5H:1V slopes
2. Reinforced Embankment required between Sta. 505+00 to 510+00, Sta. 516+50 to 533+50, and Sta. 539+50 to 563+00 using A-4, A-5, A-6 or A-7 embankment material with 2.0H:1V slopes
3. Reinforced Embankment not required between Sta. 505+00 to 510+00, Sta. 516+50 to 533+50, and Sta. 539+50 to 563+00 using A-1, A-2 or A-3 embankment material with 2.0H:1V slopes



Print Date: 3/26/2010  
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 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

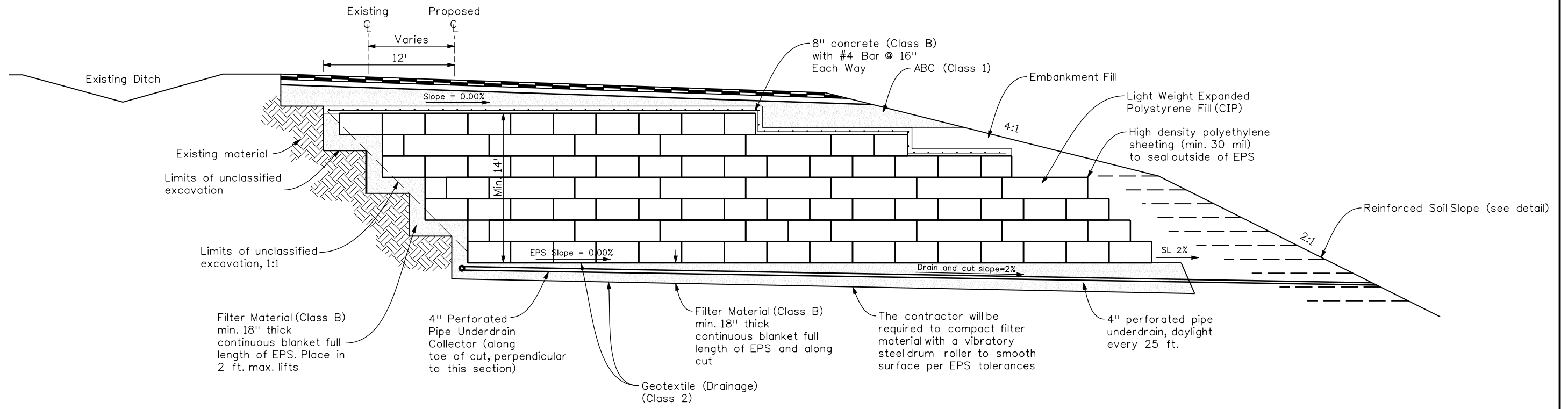
Sheet Revisions		
Date:	Comments	Init.

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 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3**      **RBA**

<b>As Constructed</b>
No Revisions:
Revised:
Void:

<b>REINFORCED EMBANKMENT TYPICAL SECTION</b>	
Designer:	B. Arndt
Detailer:	M. Walz
Sheet Subset:	Subset Sheets:

<b>Project No./Code</b>
NH 0501-046
14933
Sheet Number <b>37</b>



**TYPICAL SECTION**  
Sta. 500+00 to 505+00 Right

**GENERAL NOTES:**

1. THE CONTRACTOR SHALL PROVIDE ALL PIPE TEE'S, ELBOWS AND OTHER NECESSARY FITTINGS AS REQUIRED FOR A COMPLETE INSTALLATION OF PERFORATED UNDERDRAIN. THESE ITEMS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PIPE.
2. CONTRACTOR IS RESPONSIBLE FOR EXCAVATION SUPPORT DURING CONSTRUCTION.
3. PROVIDE 8" OF SOIL COVER ABOVE CONCRETE PROTECTIVE SLAB AND TOP LIFTS OF EPS MATERIAL PRIOR TO COMPACTION.
4. THE DESIGN IS BASED ON 4'X8'X2' AND 4'X4'X2' EPS BLOCKS. SOME BLOCKS MAY REQUIRE CUTTING TO MATCH LAYOUT. NO OTHER SIZE WILL BE ALLOWED.
5. ALL EPS BLOCKS WILL BE PLACED PARALLEL TO EACH OTHER AND PERPENDICULAR TO THE CENTERLINE AT STATION 502+50.
6. VERTICAL FASTENERS WILL BE REQUIRED TO SECURE EPS BLOCKS AS DIRECTED BY THE ENGINEER.
7. GEOTEXTILE (DRAINAGE) CLASS B SHALL BE INCLUDED IN THE COST OF FILTER MATERIAL (CLASS B).

**TABULATION OF EPS QUANTITIES**

ITEM NO.	DESCRIPTION	UNIT	EST. QUANTITY
203-00850	POLYSTYRENE FILL (CIP)	CY	10,700
206-00520	FILTER MATERIAL (CLASS B)	CY	2,100
601-01000	CONCRETE (CLASS B)	CY	700
602-00000	REINFORCING STEEL	LBS	27,900
605-00040	4 INCH PP UNDERDRAIN	LF	2,000



Print Date: 3/26/2010  
 Drawing File Name: 28-139 EPS Typical Section.dgn  
 Horiz. Scale: 1:10      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

**Colorado Department of Transportation**



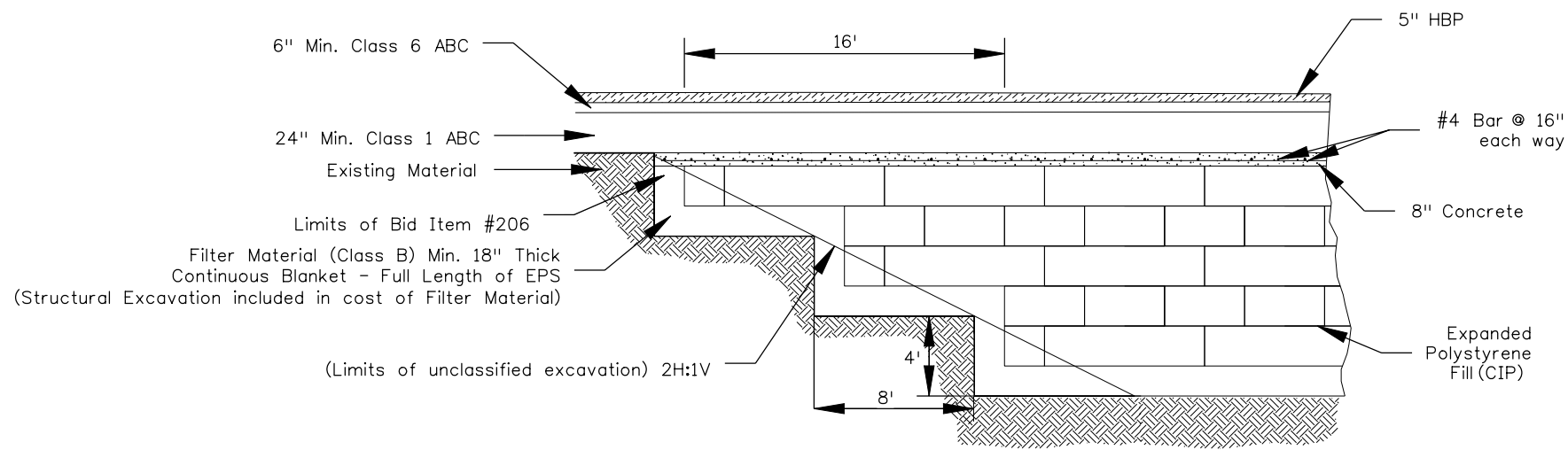
2424 North Townsend Avenue  
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 Phone: 972-249-5285 FAX: 970-249-6018

**Region 3      RBA**

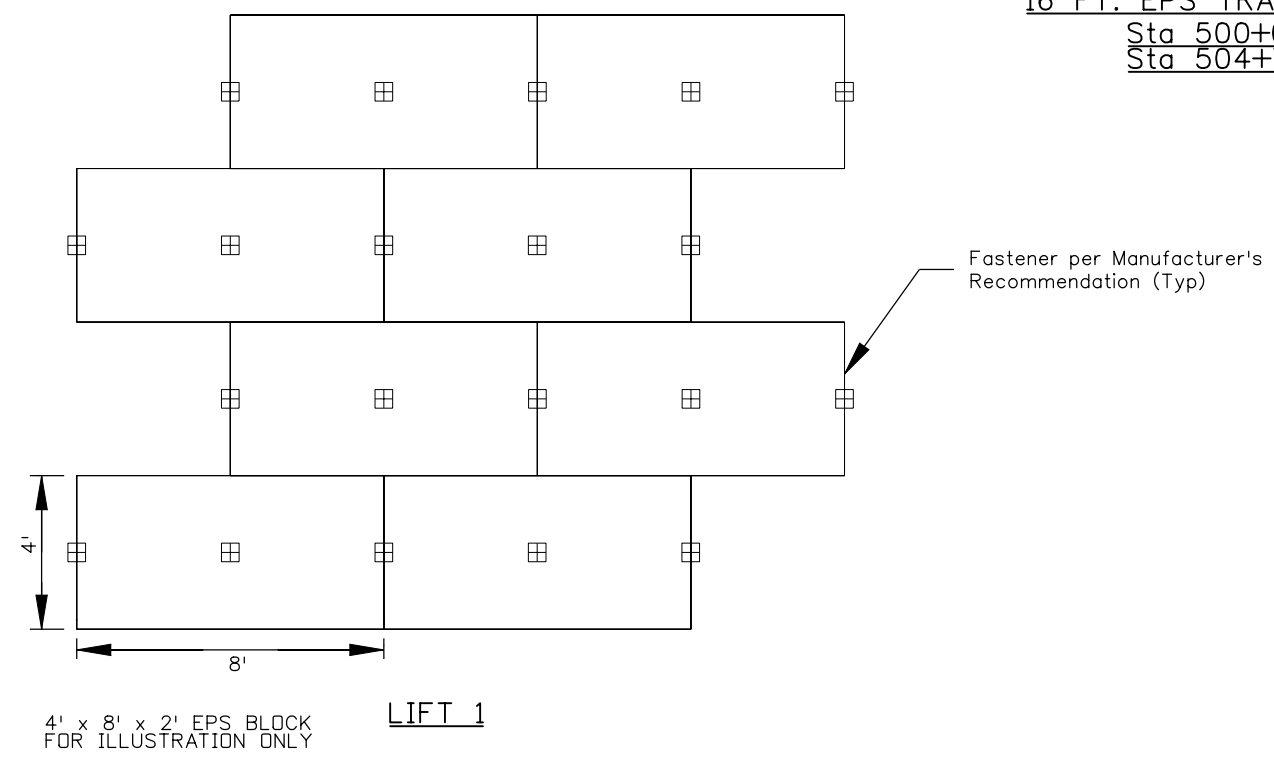
<b>As Constructed</b>
No Revisions:
Revised:
Void:

EPS DETAIL	
Designer:	B. Arndt
Detailer:	M. Walz
Sheet Subset:	Subset Sheets: 1 of 2

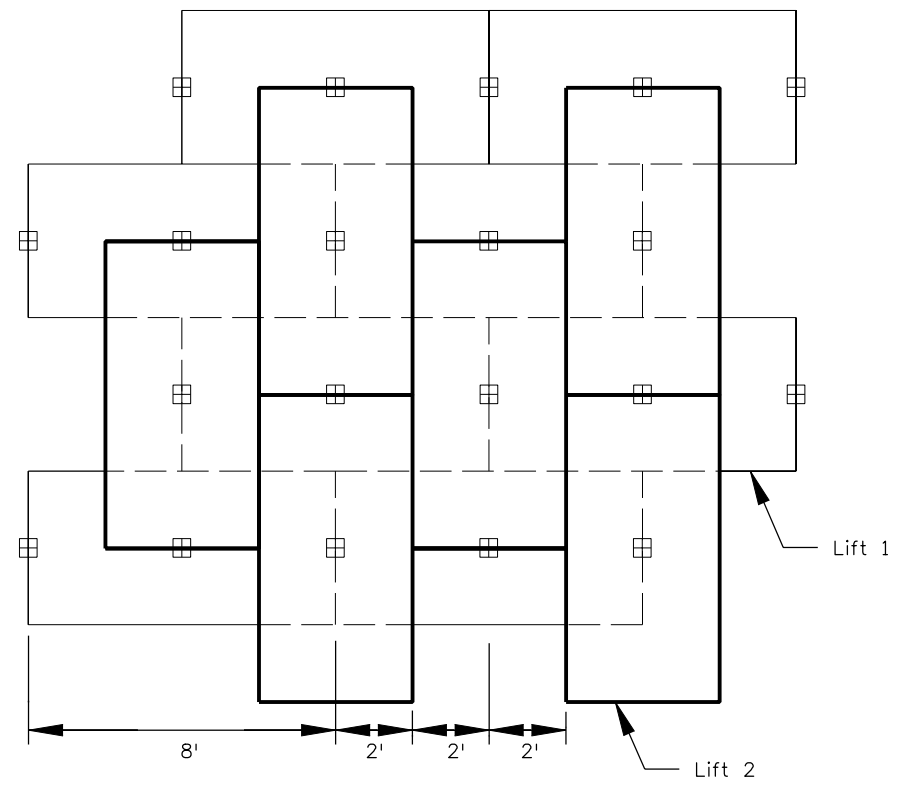
<b>Project No./Code</b>
NH 0501-046
14933
Sheet Number <b>38</b>



16 FT. EPS TRANSITION (PROFILE VIEW)  
 Sta 500+00 to Sta. 500+28  
 Sta 504+72 to Sta. 505+00



4' x 8' x 2' EPS BLOCK  
 FOR ILLUSTRATION ONLY  
 LIFT 1



LIFT 2 ON TOP OF LIFT 1

Place EPS Blocks similar to masonry.

PLAN VIEW PLACEMENT ILLUSTRATION - EPS BLOCKS  
 (NOT TO SCALE)



Print Date: 3/26/2010
Drawing File Name: 28-139 EPS Details.dgn
Horiz. Scale: 1:1      Vert. Scale: N/A
Unit Leader Information      Unit Leader Initials
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

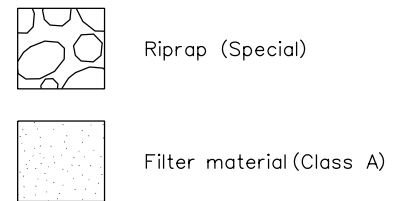
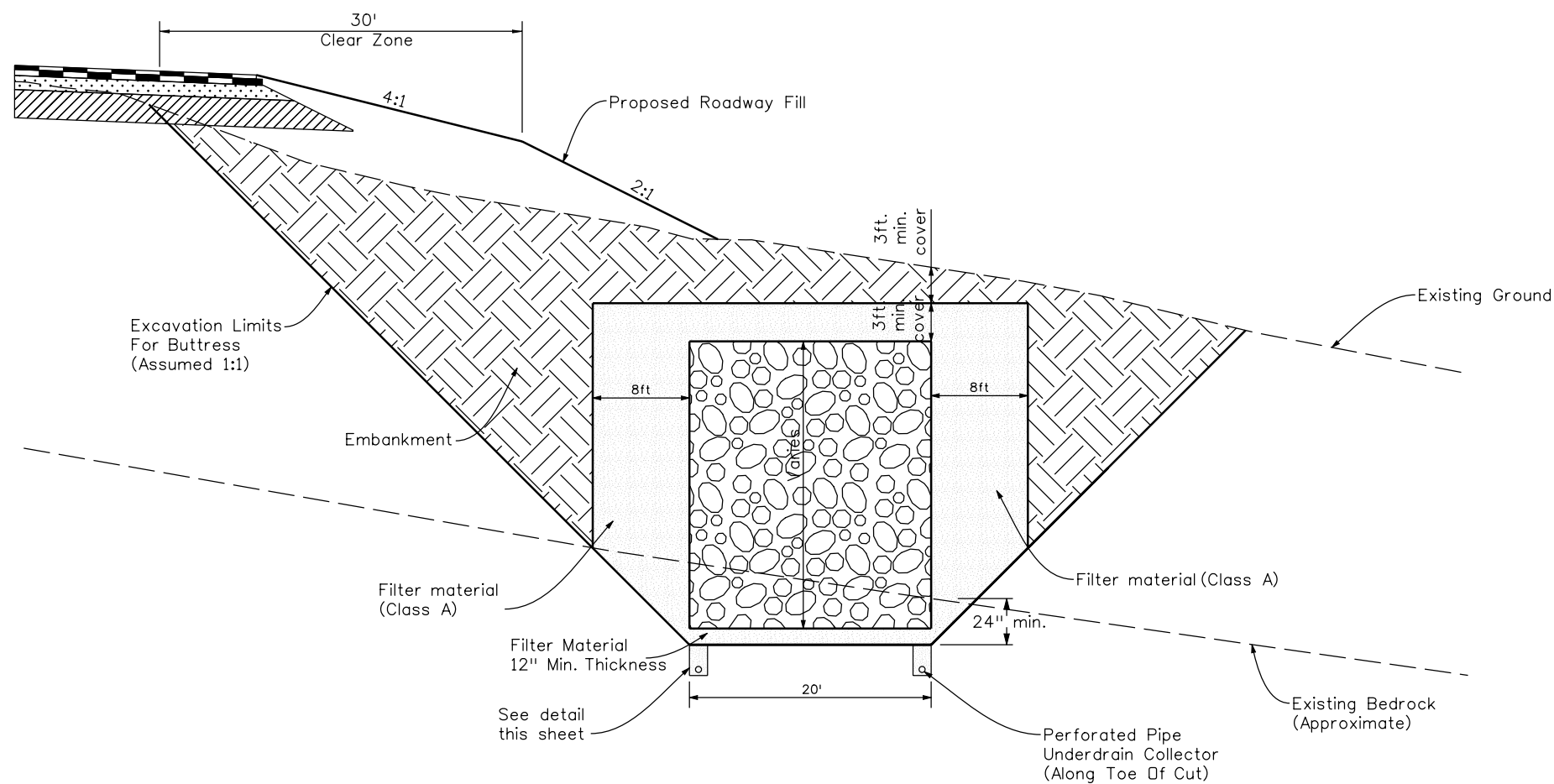
2424 North Townsend Avenue  
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Region 3      RBA

As Constructed
No Revisions:
Revised:
Void:

EPS DETAILS	
Designer: B. Arndt	
Detailer: M. Walz	
Sheet Subset:	Subset Sheets: 2 of 2

Project No./Code
NH 0501-046
14933
Sheet Number 39



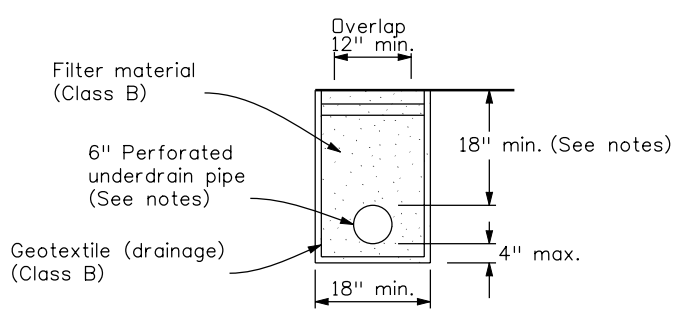
Notes:  
 1. Buttress excavation to be staged in 100ft increments to reduce instability effects to landslide.  
 2. Instrumentation to be installed and monitored prior to excavation.

### ROCK BUTTRESS DETAIL

Sta. 521+00 to Sta. 533+00

#### TABULATION OF EPS QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	EST. QUANTITY
203-00010	UNCLASSIFIED EXCAVATION (CIP)	CY	99,000
203-00060	EMBANKMENT MATERIAL (CIP)	CY	47,200
206-00510	FILTER MATERIAL (CLASS A)	CY	25,400
506-00010	RIPRAP (SPECIAL)	LBS	26,400
605-00060	6 INCH PP UNDERDRAIN	LF	2,400



### PIPE UNDERDRAIN

Notes Pipe Underdrain:  
 1. 6" perforated pipe shown shall be designed to accommodate a maximum cover of 40'-0" in a saturated condition with a soil density of at least 130 pcf.  
 2. Contractor shall submit manufacturer's specifications to the Engineer demonstrating acceptability for the loading conditions shown prior to installation of pipe.  
 3. Contractor shall install pipe underdrain to provide positive drainage to the Buttress Drain Outfall.

**Yeh and Associates, Inc.**  
 Consulting Engineers & Scientists

Print Date: 3/26/2010  
 Drawing File Name: 28-139 Seg2-ButtressTypical.dgn  
 Horiz. Scale: 1:10 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

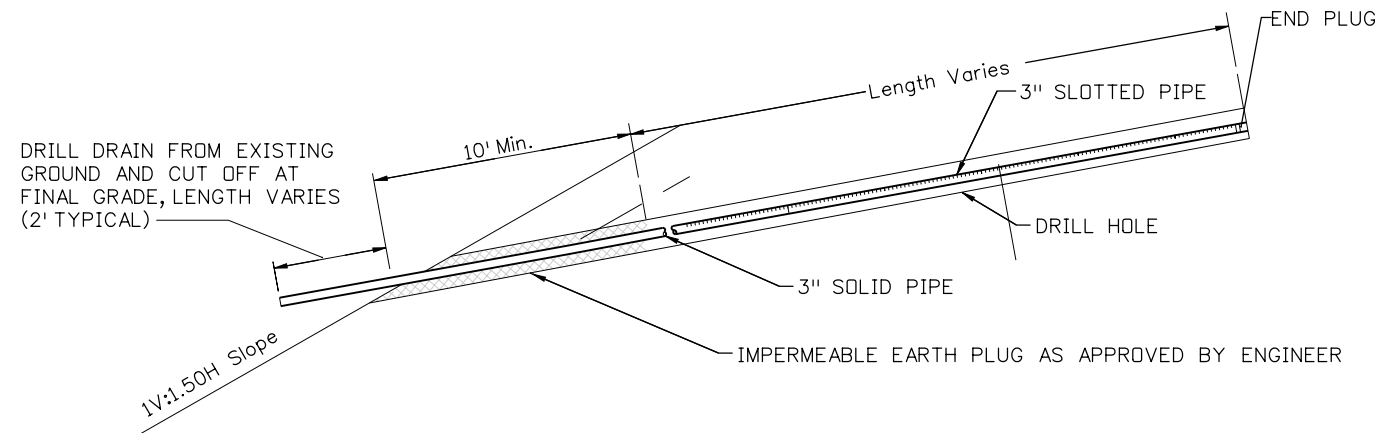
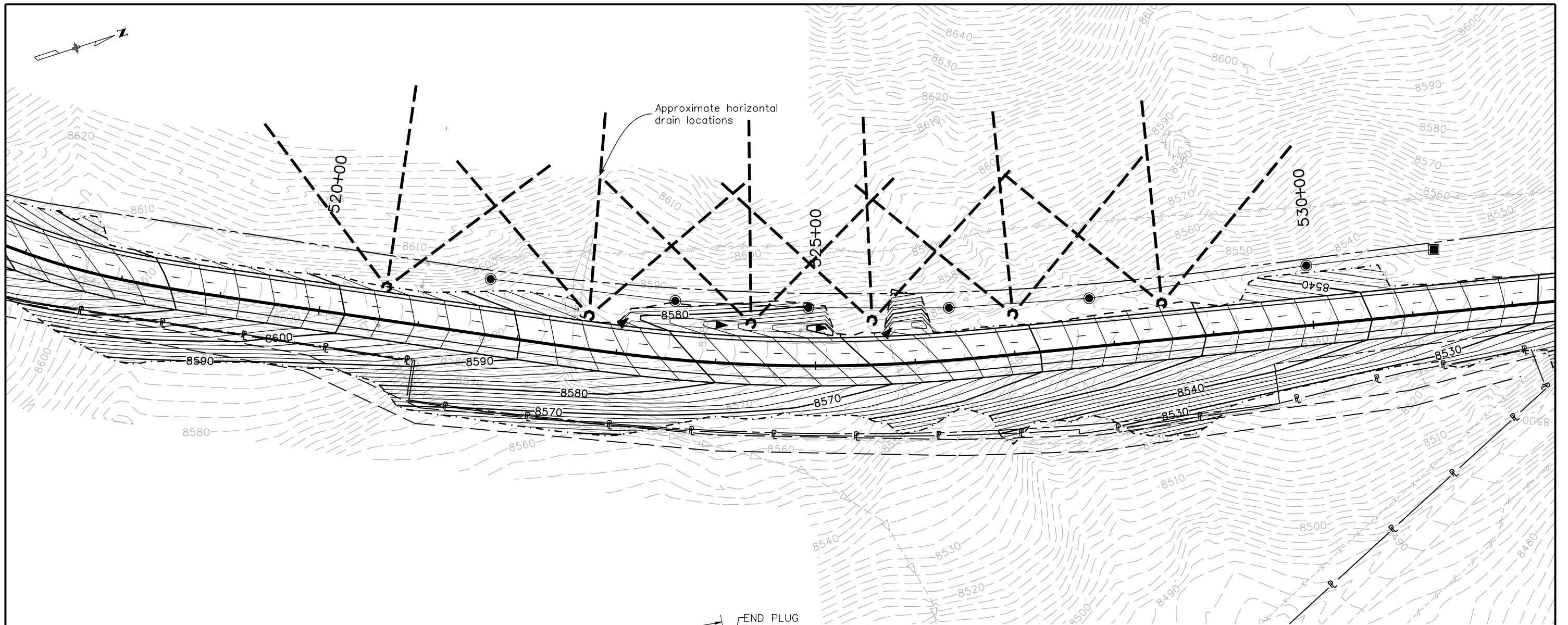
Sheet Revisions		
Date:	Comments	Init.

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**Region 3** RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:

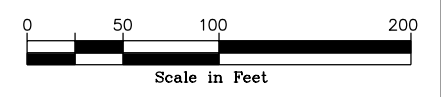
**ROCK BUTTRESS DETAIL**  
 Designer: B. Arndt  
 Detailer: M. Walz  
 Sheet Subset: Subset Sheets:

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number **40**



- In-place Inclinometers
- Conduit
- Data Collection Panel

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
605-01030	3 IN. HORIZONTAL DRAIN	LF	3600



**HORIZONTAL DRAIN**  
(To be installed as directed by the Engineer)

**Yeh and Associates, Inc.**  
Consulting Engineers & Scientists

Print Date: 3/26/2010  
 Drawing File Name: 28-139 HorizontalDrains Plan.dgn  
 Horiz. Scale: 1:100      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
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 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
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 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3**      **RBA**

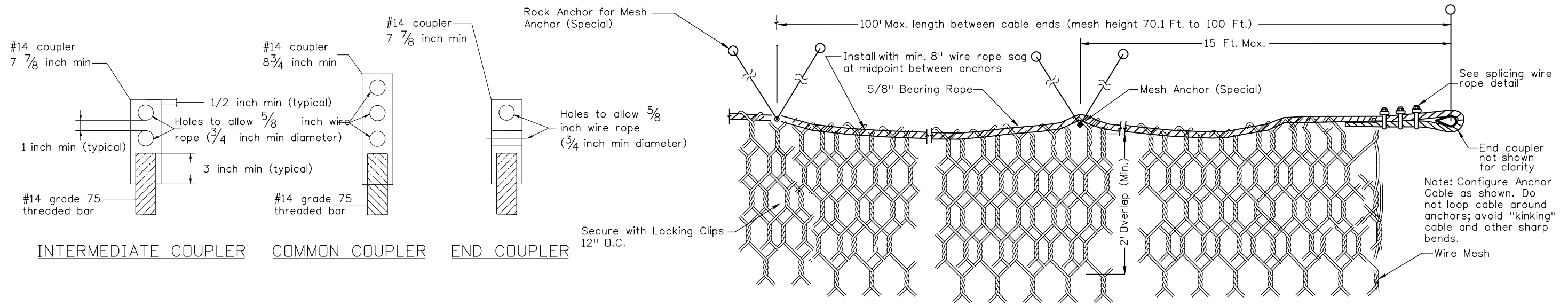
**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

**HORIZONTAL DRAIN**  
**PLAN VIEW AND TYPICAL SECTION**

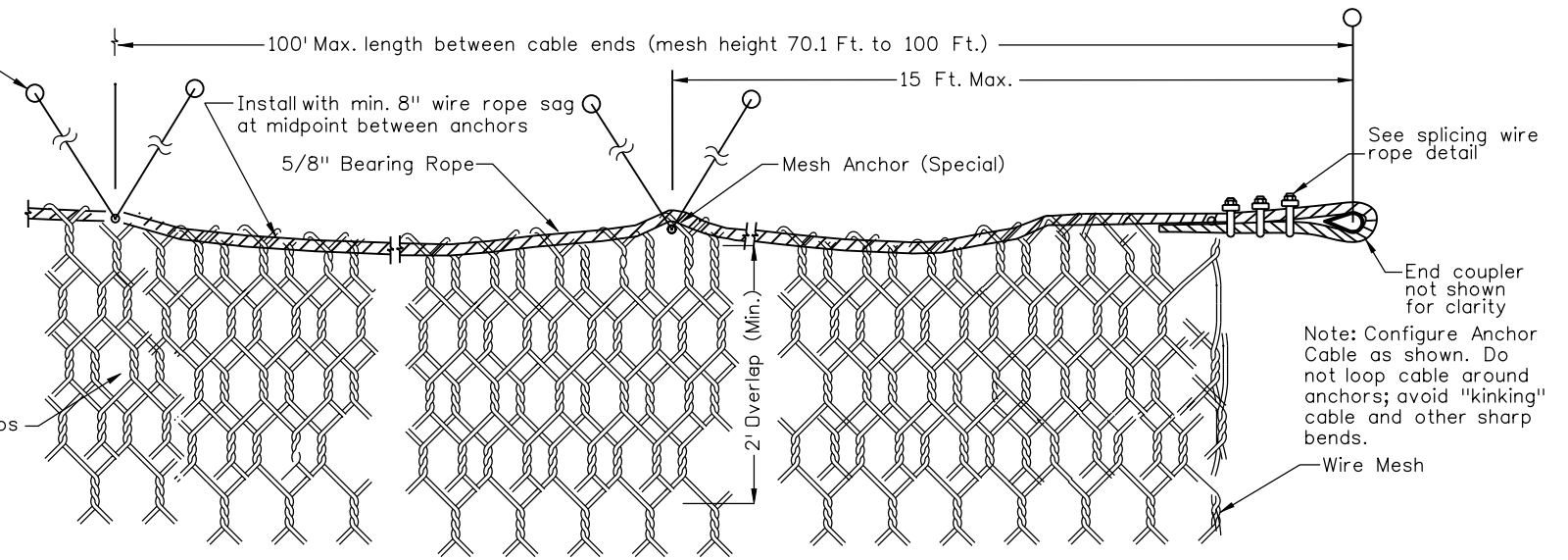
Designer:  
 Detailer:  
 Sheet Subset: ROADWAY      Subset Sheets:

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **41**

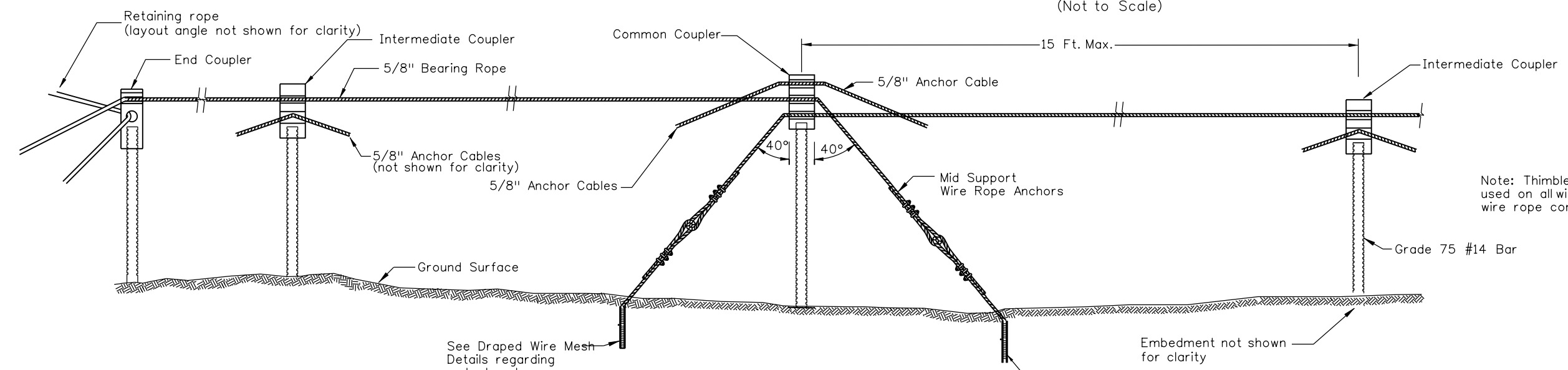




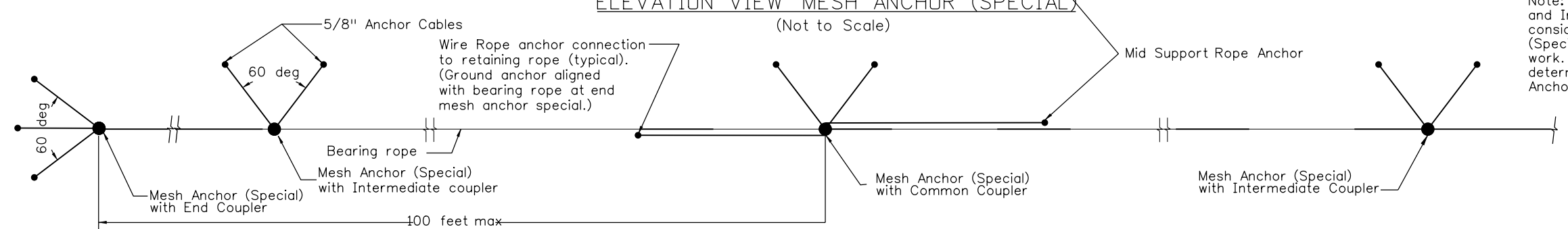
INTERMEDIATE COUPLER COMMON COUPLER END COUPLER



WIRE MESH DETAIL (Not to Scale)



ELEVATION VIEW MESH ANCHOR (SPECIAL) (Not to Scale)



PLAN VIEW OF MESH ANCHOR (SPECIAL) (Not to Scale)

**Yeh and Associates, Inc.**  
Consulting Engineers & Scientists

Print Date: 3/26/2010  
Drawing File Name: 28-139 Wire Mesh Details01.dgn  
Horiz. Scale: 1:1 Vert. Scale: N/A  
Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226  
P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

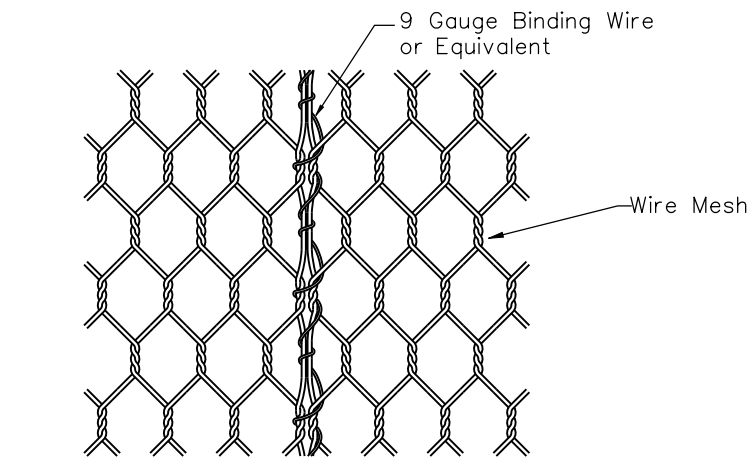
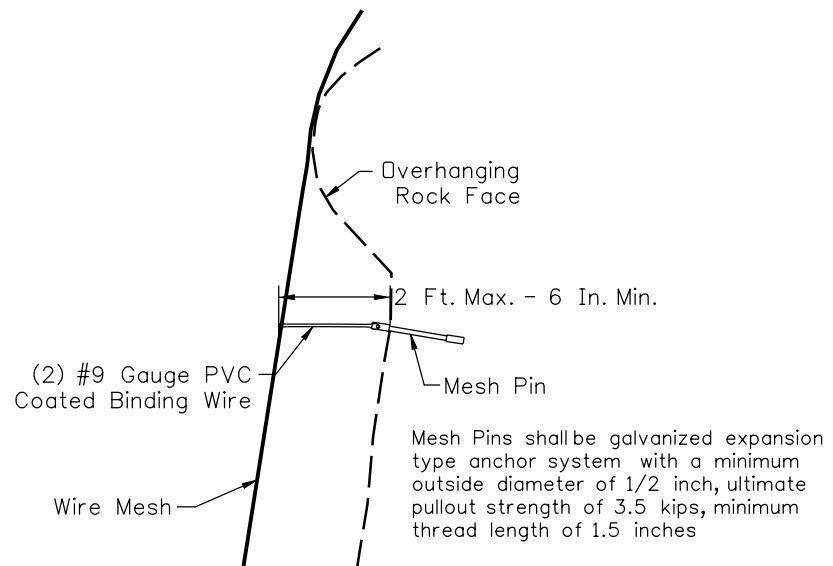
Colorado Department of Transportation  
**DOT** 2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018  
Region 3 RBA

As Constructed  
No Revisions:  
Revised:  
Void:

SUSPENDED WIRE MESH DETAILS	
Designer:	B. Arndt
Detailer:	M. Walz
Sheet Subset:	Subset Sheets: 1 of 5

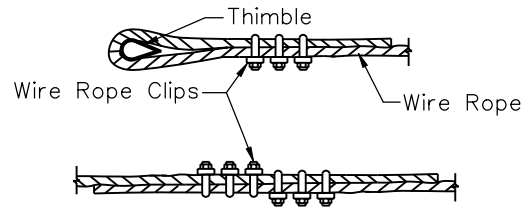
Project No./Code  
NH 0501-046  
14933  
Sheet Number 42



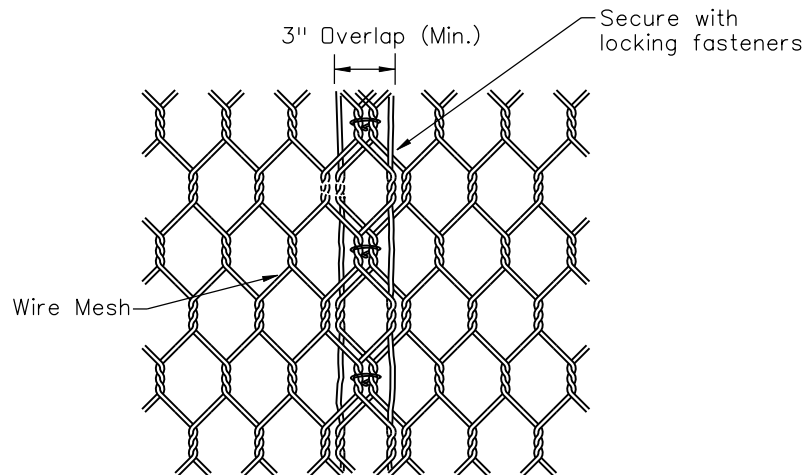


OPTION 1: TYPICAL SPLICING DETAIL  
(Not to Scale)

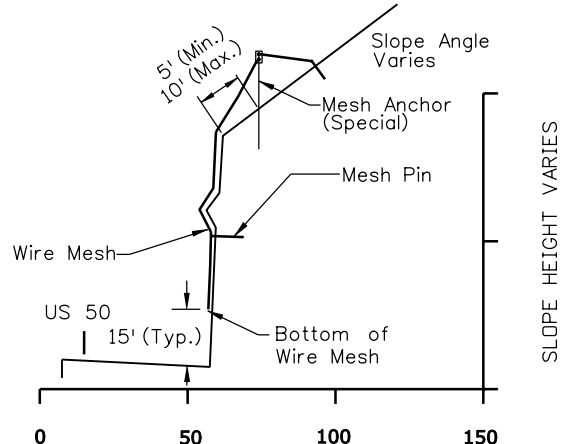
MESH PIN DETAIL  
(Not to Scale)



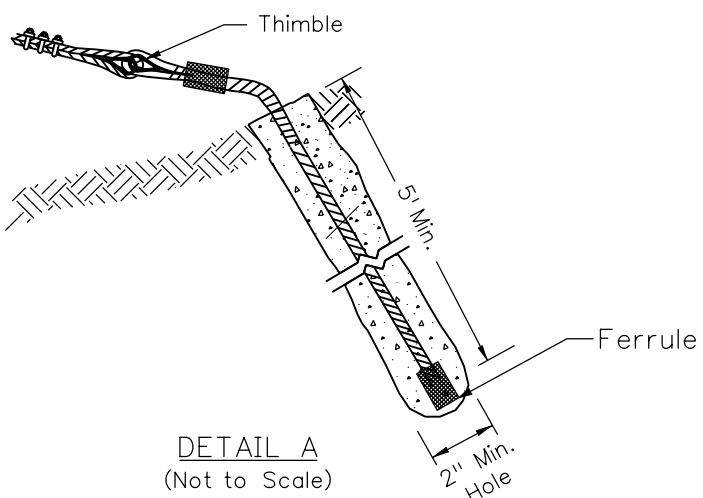
SPLICING WIRE ROPE DETAIL  
(As recommended by manufacturer)



OPTION 2: TYPICAL SPLICING DETAIL  
(Not to Scale)



TYPICAL SECTION  
WIRE MESH WITH MESH ANCHOR  
(SPECIAL)



DETAIL A  
(Not to Scale)

**DESIGN ASSUMPTIONS**

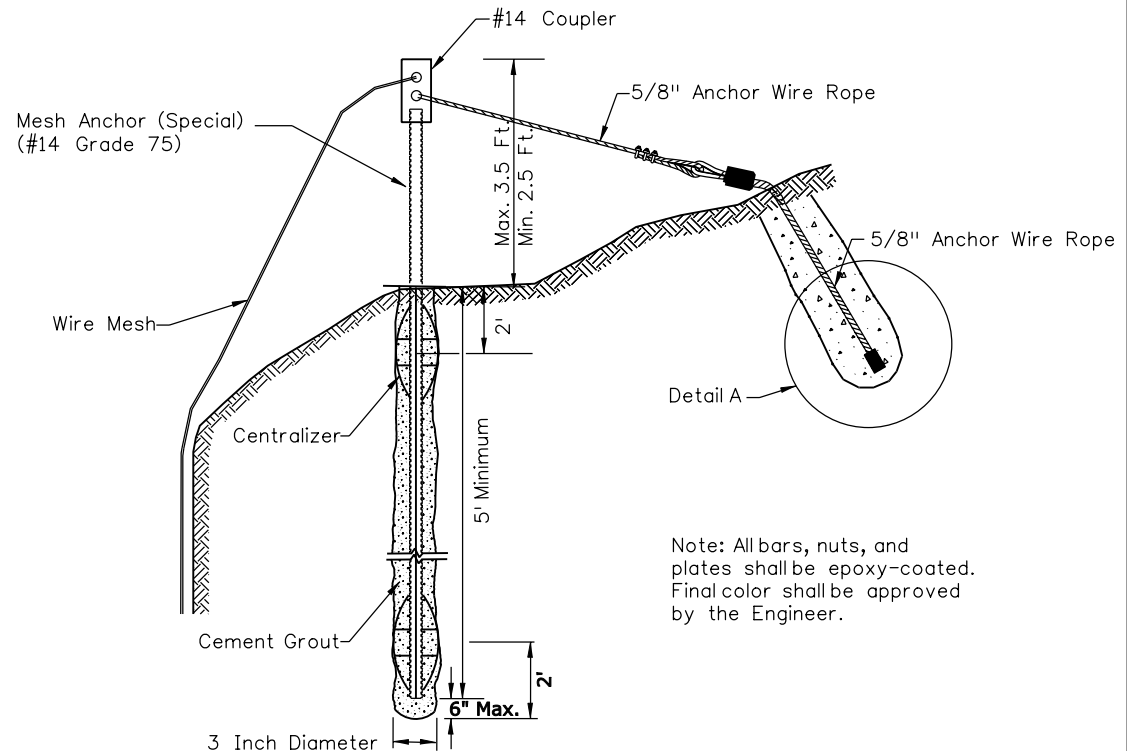
**LIMITATIONS FOR ROCKFALL SYSTEM**

1. The wire mesh is designed to hold smaller potentially unstable rock in place by contacting and covering the rock slope. The wire mesh is also designed to allow rocks to migrate between the mesh and rock cut face down into the ditch. The systems are not considered a rock slope stabilization feature or a rockfall barrier system.
2. Rockfall and rockfall events are sporadic and unpredictable. Causes can include, but are not limited to, factors such as animal, human, construction, environmental, weather, and/or earthquakes. Because of the multiplicity of factors affecting rockfall dynamics, rockfall cannot be predicted and is not an exact science that guarantees the safety of individuals and property. However, by the application of sound engineering principles to a range of rockfall dynamics, the risk of injury and property loss can be reduced by the use of properly designed rockfall mitigation features in identified risk areas. Consequently, neither the rockfall hazard in terms of probability of a rockfall at any specific location, nor the risk to people or facilities from such events, is assessed in the design.
3. Periodic inspection and maintenance of rockfall mitigation features is necessary to ensure the desired protection levels is not degraded by impact damage which exceeds the design limits of the mesh system including, but not limited to, extremely wet snow avalanches or large debris flow events.

**WIRE MESH**

The Wire Mesh design is based on "Design Guidelines for Wire Mesh Cable Net Slope Protection", WA-RD 612.2, April 2005.

Wire Mesh  
Maximum rock diameter: 2 Feet (690 Lbs.)  
Maximum rock impact velocity behind mesh: 10 Feet per Second (fps)



MESH ANCHOR (SPECIAL) DETAIL  
(Not to Scale)

Note: All bars, nuts, and plates shall be epoxy-coated. Final color shall be approved by the Engineer.

**Yeh and Associates, Inc.**  
Consulting Engineers & Scientists

Print Date: 3/26/2010
Drawing File Name: 28-139 Wire Mesh Details02.dgn
Horiz. Scale: 1:1      Vert. Scale: N/A
Unit Leader Information      Unit Leader Initials
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

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**Region 3**      **RBA**

As Constructed	SUSPENDED WIRE MESH DETAILS	
No Revisions:	Designer: B. Arndt	
Revised:	Detailer: M. Walz	
Void:	Sheet Subset:      Subset Sheets: 2 of 5	

Project No./Code	NH 0501-046
	14933
Sheet Number	43

**1.0 GENERAL NOTES FOR ROCK REINFORCEMENT (NUMBER 10)**

1.1 Rock Reinforcement (Number 10): Grade 150, 1 1/4" bar (ASTM A-722), epoxy coated (ASTM A-775), "keyhole" bearing plate 12"x12"x3/4" (A-36), beveled washers (ASTM A-536), hex nut (ASTM A-29). All hardware and bars that are exposed shall be epoxy coated.

1.2 Outer nuts and plates shall be painted as directed by the Engineer.

1.3 Contractor to verify quantities prior to ordering. Quantities provided for information only.

**2.0 INSTALLATION CONSTRUCTION SEQUENCE**

2.1 The Engineer will mark locations and orientations of the Rock Reinforcement (Number 10) in the field based on the quantities and general locations provided in the plans.

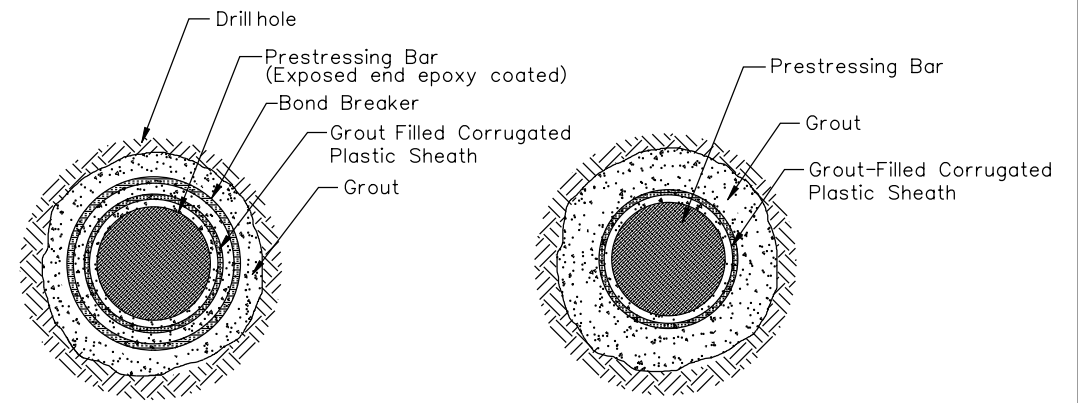
2.2 Rock Reinforcement (Number 10) to be grouted in two phases to allow post tensioning of anchor.

**3.0 DESIGN ASSUMPTIONS**

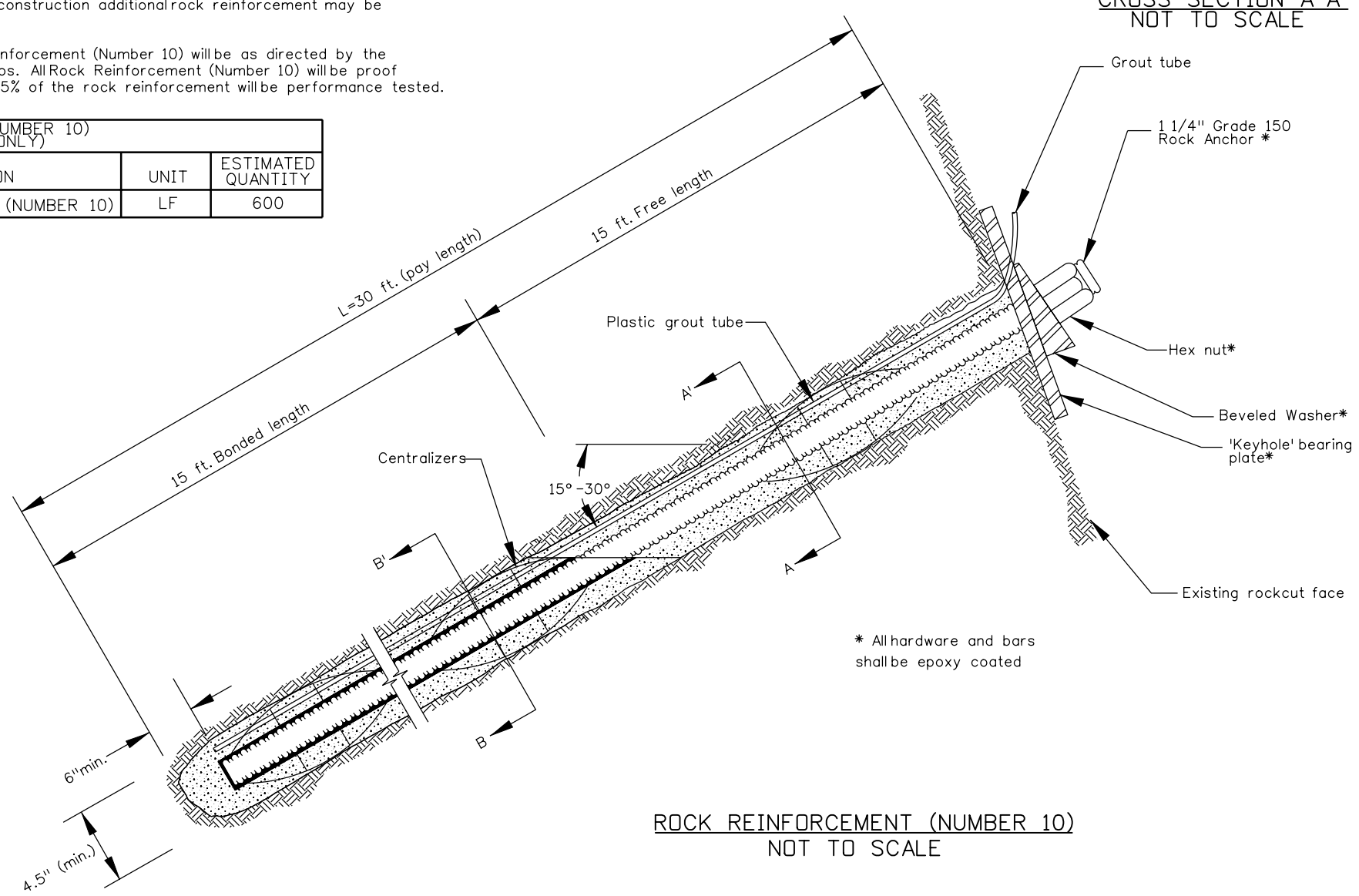
3.1 The design assumes the bond zone of the rock reinforcement will be in gneiss, quartz monzonite or granite rock with an ultimate bond stress of 12 ksf.

3.2 Rock reinforcement designed to provide confinement. If planar or wedge rock failures, that daylight out of slope, occur during construction additional rock reinforcement may be required as directed by the Engineer.

3.3 The Design Load (DL) for the Rock Reinforcement (Number 10) will be as directed by the Engineer, typically between 60 to 90 kips. All Rock Reinforcement (Number 10) will be proof or performance tested. A minimum of 5% of the rock reinforcement will be performance tested.



ROCK REINFORCEMENT (NUMBER 10) (FOR INFORMATION ONLY)			
ITEM NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY
211-01115	ROCK REINFORCEMENT (NUMBER 10)	LF	600



**ROCK REINFORCEMENT (NUMBER 10)**  
NOT TO SCALE



Print Date: 3/26/2010	
Drawing File Name: 28-139 Rock Reinforcement.dgn	
Horiz. Scale: 1:1      Vert. Scale: N/A	
Unit Leader Information      Unit Leader Initials	
<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939	777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226

Sheet Revisions		
Date:	Comments	Init.

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2424 North Townsend Avenue  
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Region 3      RBA

<b>As Constructed</b>
No Revisions:
Revised:
Void:

<b>ROCK REINFORCEMENT (NUMBER 10)</b>	
Designer: <b>B. Arndt</b>	
Detailer: <b>M. Walz</b>	
Sheet Subset:	Subset Sheets: 3 of 5

<b>Project No./Code</b>
NH 0501-046
14933
Sheet Number <b>44</b>

**1.0 GENERAL NOTES FOR ROCK REINFORCEMENT (DOWEL)**

1.1 Rock Reinforcement (Dowel): Grade 75, #8 bar, (ASTM 615), epoxy coated (ASTM A-775), "keyhole" bearing plate 8"x8"x1/2" (A-36), beveled washers (ASTM A-536), hex nut (ASTM A-108). All hardware and bars shall be epoxy coated.

1.2 Outer nuts and plates shall be painted as directed by the Engineer.

1.3 Contractor to verify quantities prior to ordering. Quantities provided for information only.

**2.0 INSTALLATION CONSTRUCTION SEQUENCE**

2.1 The Engineer will mark locations and orientations of the rock reinforcement in the field based on the quantities and general locations provided in the plans.

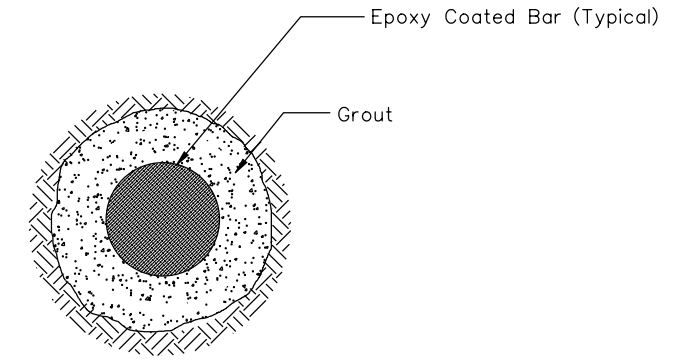
2.2 One coupler is allowed per anchor. Coupler shall be epoxy coated.

2.3 Rock Reinforcement (Dowel) to be grouted in one phase. Grout shall be tremied from bottom to top of hole.

**3.0 DESIGN ASSUMPTIONS**

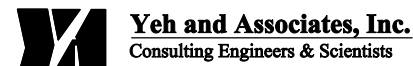
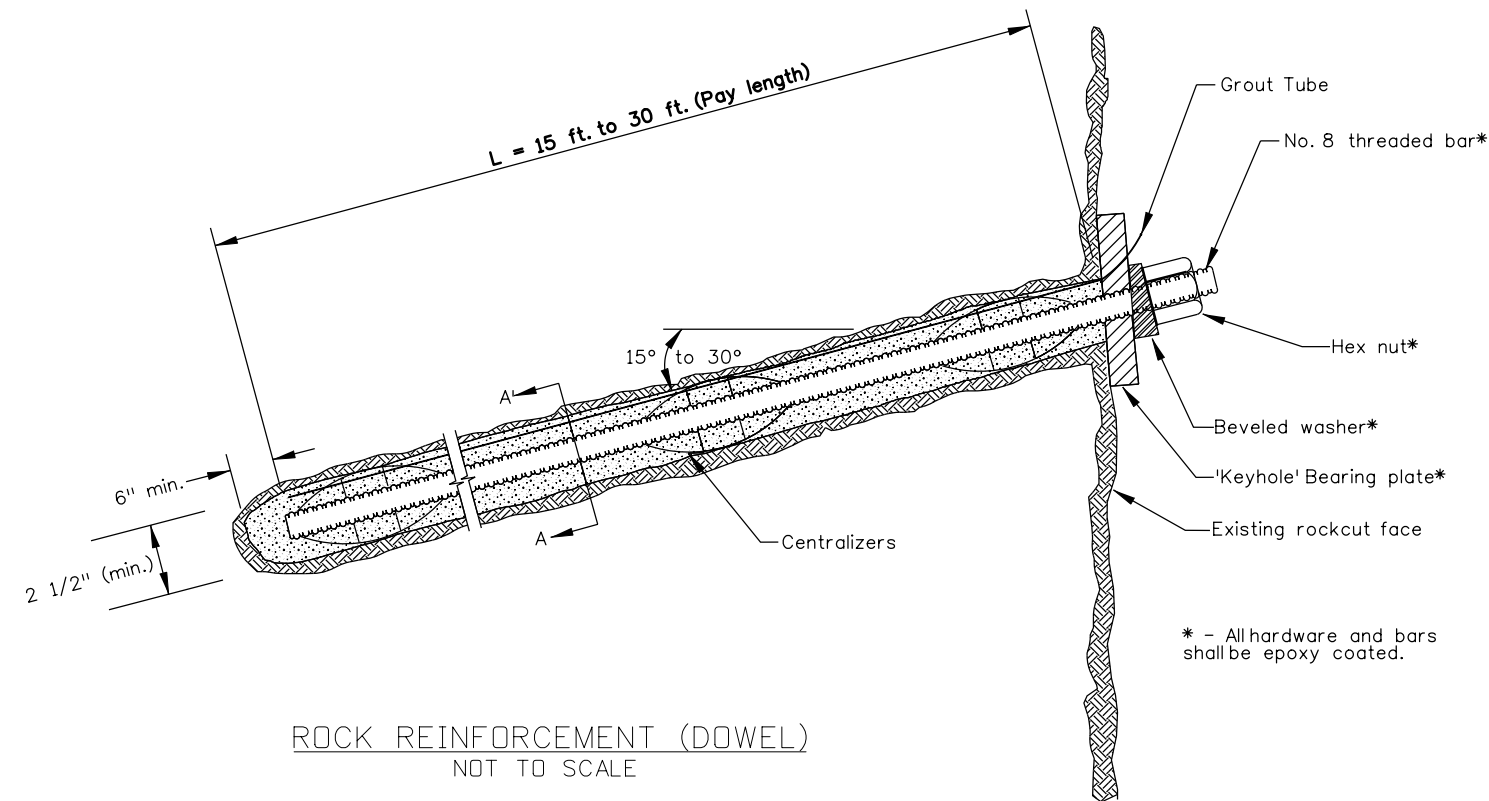
3.1 The design assumes the bond zone of the rock anchors will be in gneiss, quartz monzonite or granite. rock with an ultimate bond stress of 12 ksf.

3.2 The Test Load (TL) for the Rock Reinforcement (Dowel) will be 15 kips or as directed by the Engineer. A minimum of five (5) percent of the Rock Reinforcement (Dowel) shall have a lift-off test.



BONDED LENGTH CROSS SECTION A-A'  
NOT TO SCALE

ROCK REINFORCEMENT (DOWELS) (FOR INFORMATION ONLY)			
ITEM NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY
211-01111	ROCK REINFORCEMENT (DOWEL)	LF	1,500



Print Date: 3/26/2010	
Drawing File Name: 28-139 Rock DowelDetail.dgn	
Horiz. Scale: 1:1      Vert. Scale: N/A	
Unit Leader Information      Unit Leader Initials	
<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939	777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

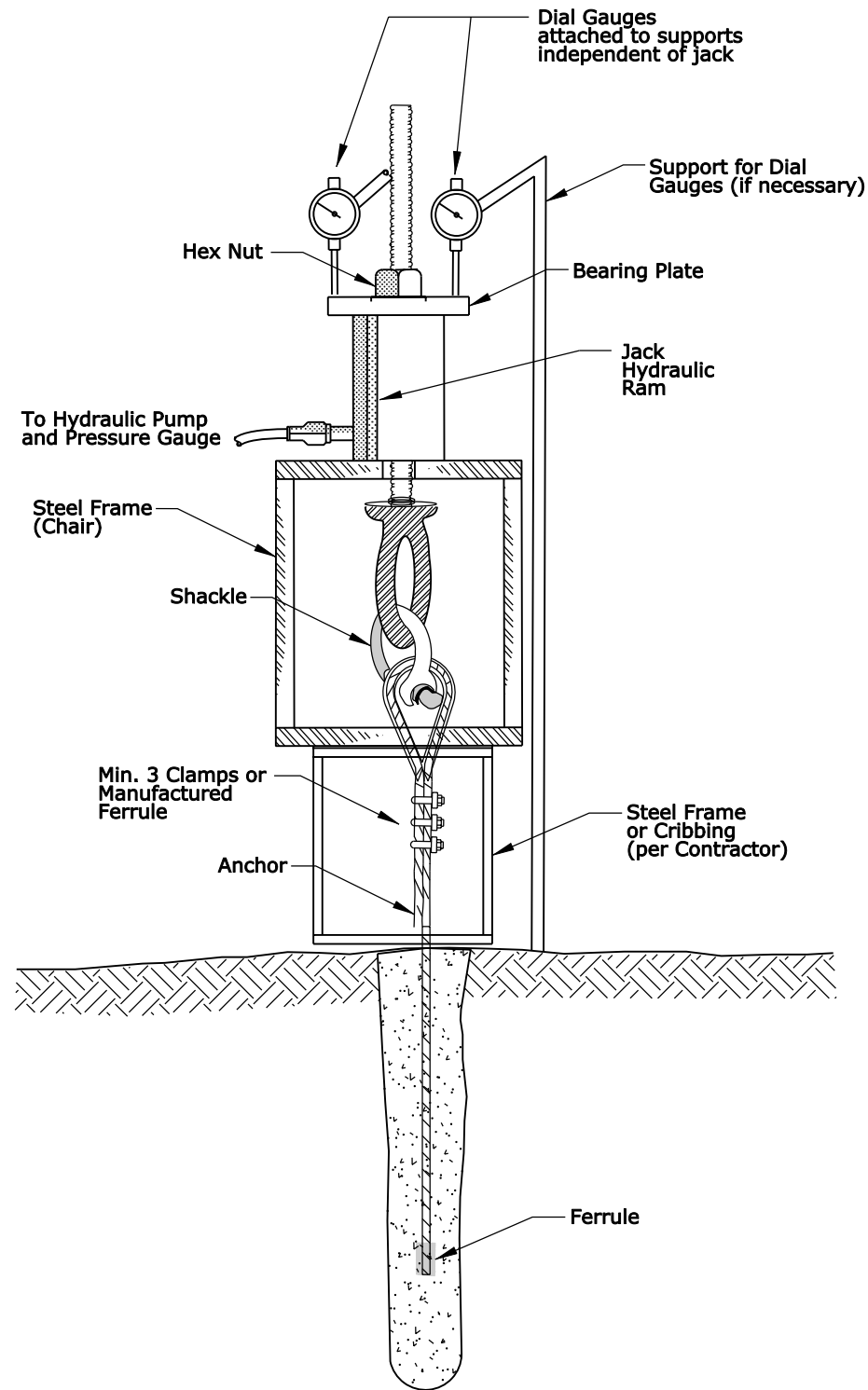
2424 North Townsend Avenue  
Montrose, CO 81401  
Phone: 972-249-5285 FAX: 970-249-6018

Region 3      RBA

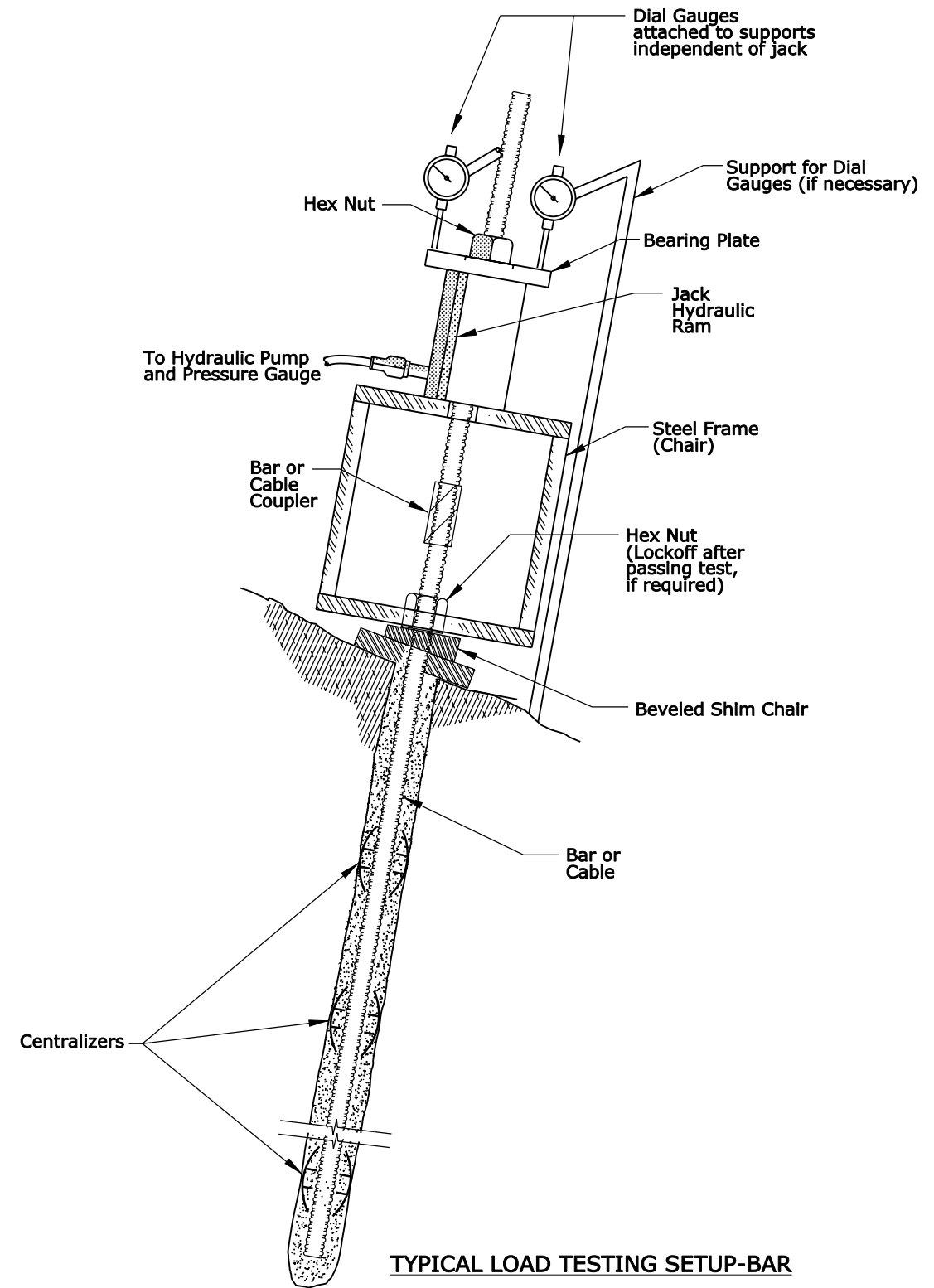
As Constructed
No Revisions:
Revised:
Void:

ROCK REINFORCEMENT (DOWEL)			
Designer:	B.Arndt		
Detailer:	M. Walz		
Sheet Subset:		Subset Sheets:	4 of 5

Project No./Code	NH 0501-046
	14933
Sheet Number	45



TYPICAL LOAD TESTING SETUP-CABLE



TYPICAL LOAD TESTING SETUP-BAR

**Yeh and Associates, Inc.**  
Consulting Engineers & Scientists

Print Date: 3/26/2010  
Drawing File Name: 28-139 Anchor Testing Detail.dgn  
Horiz. Scale: 1:1 Vert. Scale: N/A  
Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
#4 - 100 Lakewood, CO 80226  
CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

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Region 3 RBA

As Constructed  
No Revisions:  
Revised:  
Void:

ANCHOR TESTING DETAILS  
Designer: B. Arndt  
Detailer: M. Walz  
Sheet Subset:  
Subset Sheets: 5 of 5

Project No./Code  
NH 0501-046  
14933  
Sheet Number 46

## 1.0 Ground Nail Wall Materials

- 1.1 Ground nails – Grade 75 threadbar or equivalent in accordance with ASTM A615 and galvanized or epoxy coated in accordance with ASTM A153 as shown on the drawings.  
 $f_y=75,000$  psi
- 1.2 Grout – Grout may be neat-cement or with sand, with Type II cement in accordance with ASTM C150. Water to cement ratio should be between 0.4 and 0.6.  
 $f'c=1,500$  psi minimum, 3 day  
 $f'c=3,000$  psi minimum, 28 day
- 1.3 End hardware – Nuts and washers shall be in accordance with ground nail bar manufacturer's recommendations. Bearing plate shall be in accordance with ASTM A36, Grade 36. All hardware shall be epoxy coated.
- 1.4 Shotcrete – Shotcrete mix shall consist of Type II cement in accordance with ASTM C150, potable water and normal weight aggregate in accordance with ASTM C33. Admixtures, if used, should be non-corrosive to steel.  
 $f'c=4,500$  psi (28-day strength)  
 Unless otherwise noted on the plans, minimum cover of shotcrete reinforcement should be as follows  
 Face exposed to weather – 2"  
 Face exposed to ground – 3"
- 1.5 Welded wire mesh shall be in accordance with ASTM A185.
- 1.6 Walers and vertical bearing bars shall be in accordance with ASTM A615.  
 $f_y=60,000$  psi
- 1.7 Geocomposite drain strips shall consist of 12" wide dimpled cores wrapped in geotextile.
- 1.8 Centralizers should be plastic and attached to the nails in accordance with the manufacturer's recommendations.

## 2.0 Ground Nail Wall Construction Sequence

- 2.1 Excavate the uppermost lift to a maximum depth of five (5) feet. Boulders, cobbles and/or bedrock may be encountered at any depth of the excavation or drilling. At the Contractor's option, ground nails may be drilled and installed through a temporary stabilizing berm. Care should be taken during excavation that no ground is lost from beneath the existing footing.
- 2.2 Install ground nails at the spacings and to the lengths shown on the plans. Ground nail location may vary by up to 6". Tremie the grout from the bottom of the hole up.
- 2.3 Install drain strips, welded wire mesh, walers and vertical bearing bars as shown on the drawings. Use plastic chairs to hold the welded wire mesh away from the ground as necessary.
- 2.4 Install shotcrete to the minimum thickness shown on the drawings and to attain the minimum coverages specified herein. Give special attention to filling the void in the borehole above the grout line. Cold weather protection measures may be necessary.
- 2.5 Install the ground nail end hardware after the shotcrete has been installed. While the shotcrete is still wet, embed the plate into the shotcrete surface until there is no void behind the plate. Handtighten the nut.
- 2.6 Once the grout and shotcrete have attained 80% of their specific strengths, repeat 2.1–2.6 to the bottom of the wall.
- 2.7 At the bottom lift, construct drains as shown on the drawings.

## 3.0 Ground Nail Wall Design Parameters

3.1 The ground nail wall has been designed in general accordance with procedures contained in the FHWA "Manual for Design and Construction Monitoring of Ground Nail Walls", Report No. FHWA-SA-96-069R and AASHTO Standard Specifications for Highway Bridges, using ASD criteria.

3.2 The following values have been assumed for design parameters:

	$\phi$ (deg)	c (psf)	$\gamma$ (pcf)	Qd (lb/ft)
Silty sand	34	50	120	2967
Crystalline bedrock	30	1000	150	2967

3.3 It was assumed drainage measures installed behind the wall will eliminate hydrstatic pressures.

3.4 Minimum factors of safety

- Bearing capacity – FS=2.5
- Overturning – Eccentricity  $\leq B/6$
- Global Permanent – FS=1.35
- Global Temporary – FS=1.2
- Pullout – FS=2.0
- Yield reduction factor –  $\alpha_N=0.55$
- Facing flexure factor –  $\alpha_{F\_fl}=0.67$
- Facing punching factor –  $\alpha_{F\_pn}=0.67$

## 4.0 Special Notes

- 4.1 The ground nail wall may be redesigned based on verification test results at the discretion of the Engineer.
- 4.2 The Contractor is responsible for maintaining slope stability above and below the ground nail wall during construction.
- 4.3 The Contractor is responsible for field locating all nearby utilities. Conflicting utilities may require ground nail wall redesign, at the Engineer's discretion.
- 4.4 The Contractor shall survey top of wall as constructed to determine final pay area – survey shall not be measured and paid separately.
- 4.5 The Contractor is responsible for maintaining ground nail location and orientation tolerances. Excavation overbreak and other extra excavation quantities due to contractor installation methods will not be measured or paid for separately, but shall be included in the work.



Print Date: 3/26/2010	
Drawing File Name: 28-139 GNW Notes.dgn	
Horiz. Scale: 1:1	Vert. Scale: N/A
Unit Leader Information	Unit Leader Initials
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939	

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

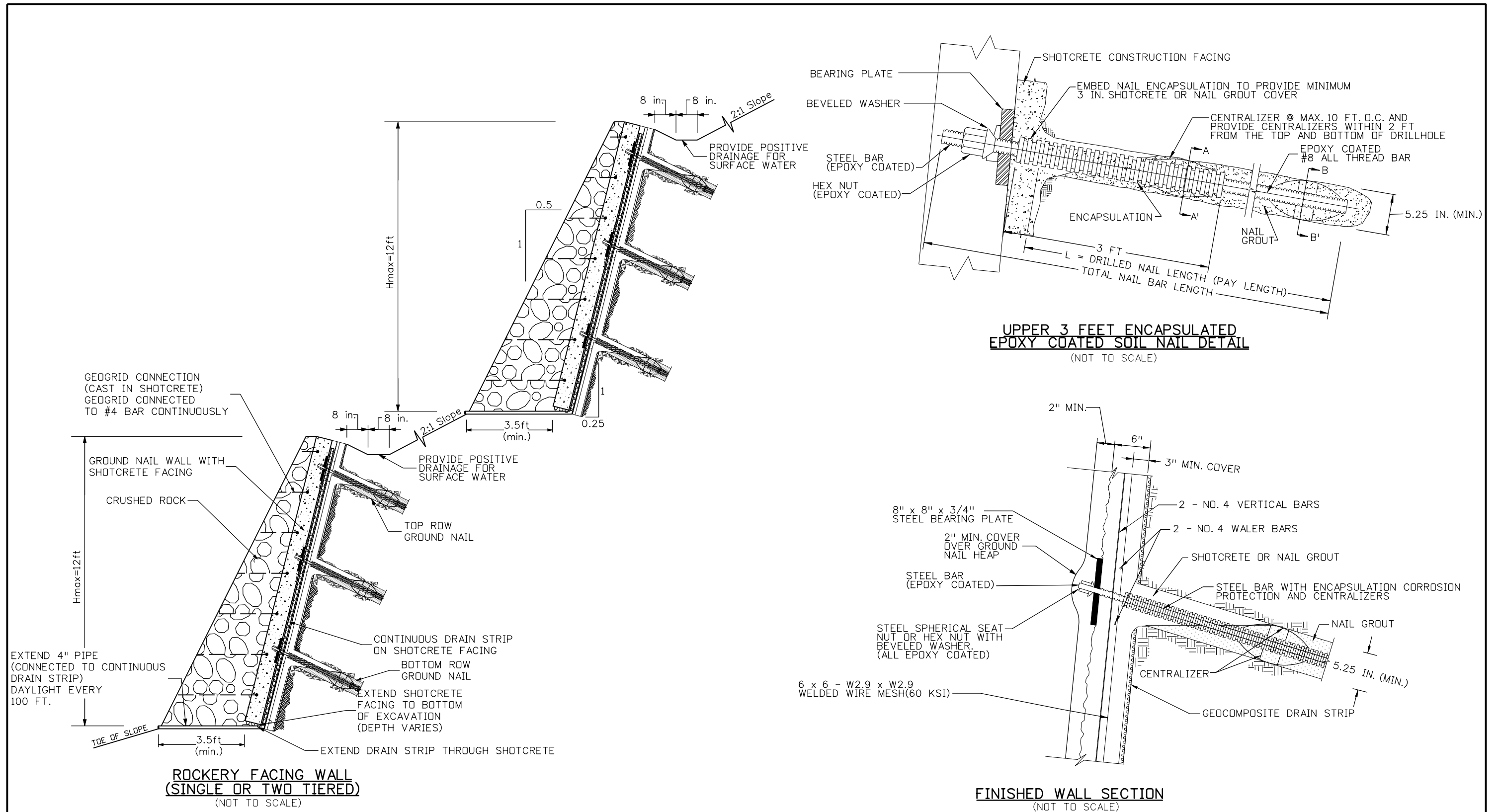
2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018

Region 3 RBA

As Constructed
No Revisions:
Revised:
Void:

GROUND NAIL WALL GENERAL NOTES	
Designer:	B. Arndt
Detailer:	M. Walz
Sheet Subset:	Subset Sheets: 1 of 3

Project No./Code
NH 0501-046
14933
Sheet Number 47



**Yeh and Associates, Inc.**  
Consulting Engineers & Scientists

Print Date: 3/26/2010  
 Drawing File Name: 28-139 GNW Detail01.dgn  
 Horiz. Scale: 1:1 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

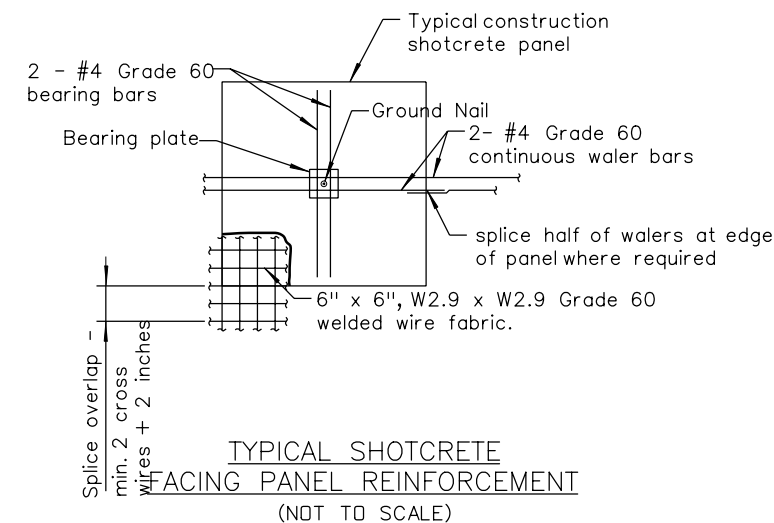
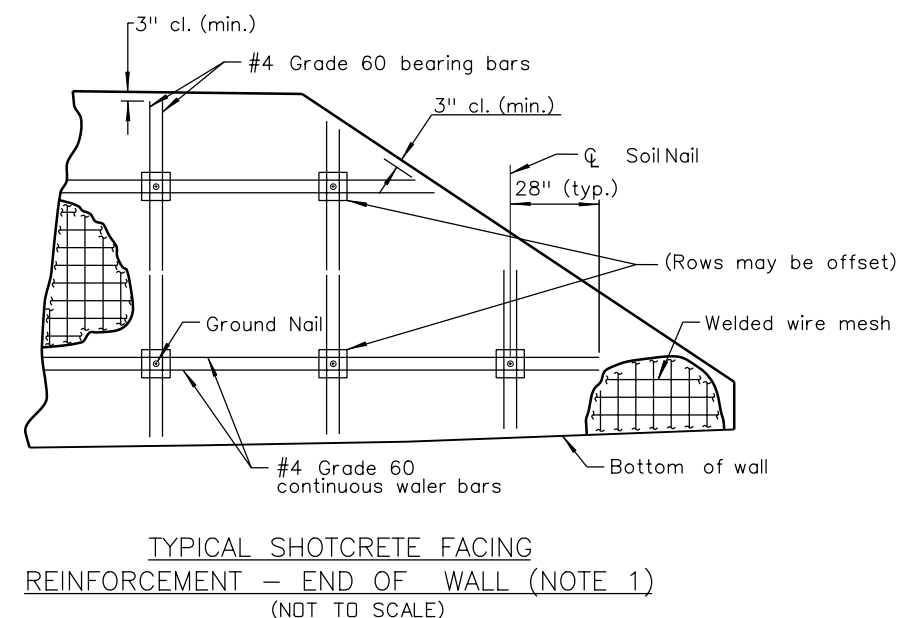
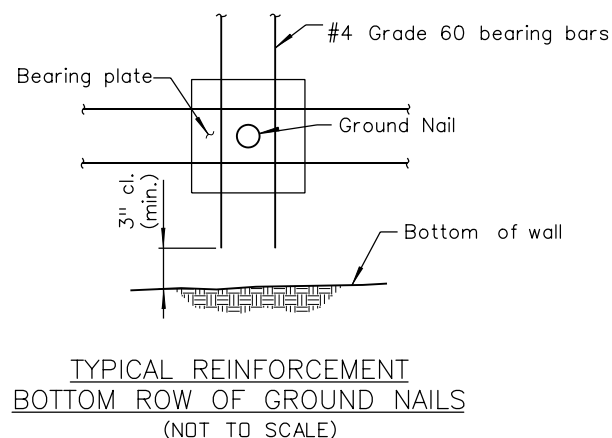
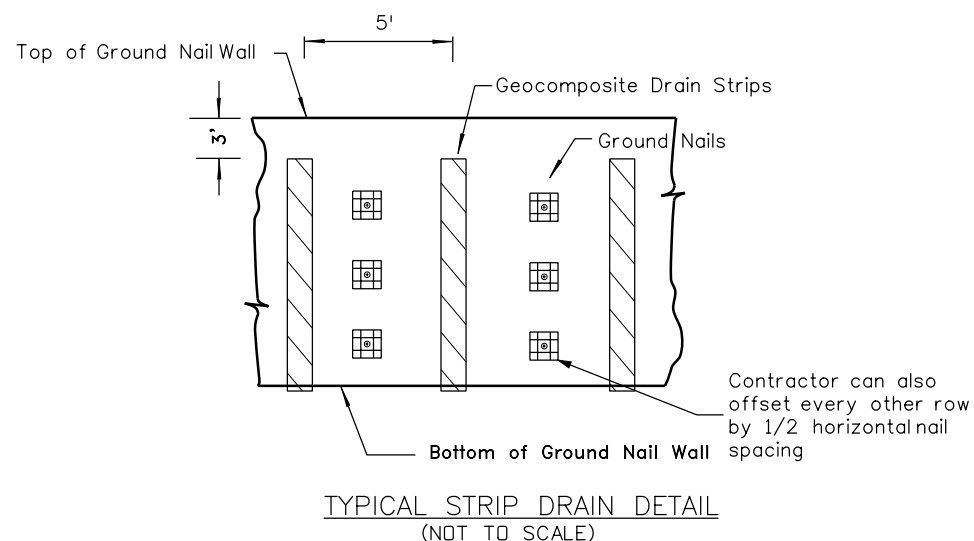
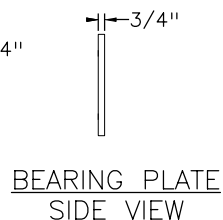
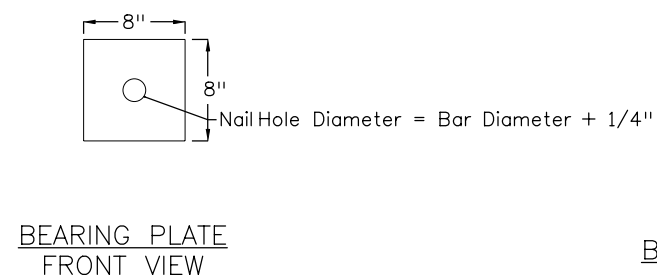
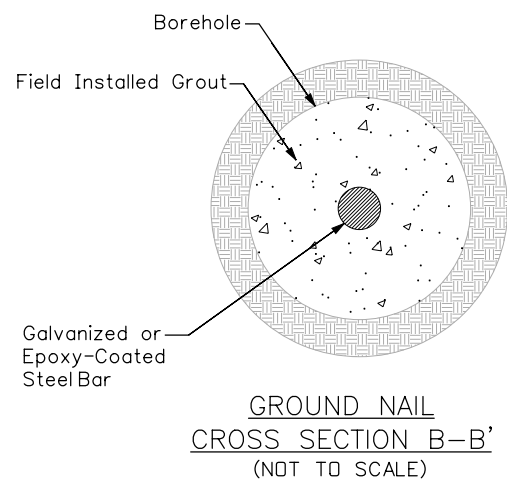
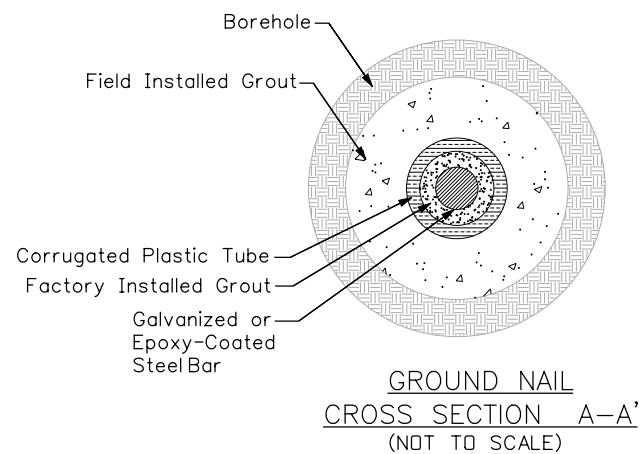
Colorado Department of Transportation  
 2424 North Townsend Avenue  
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 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:

**GROUND NAIL WALL DETAILS**

Designer: B. Arndt  
 Detailer: M. Walz  
 Sheet Subset: Subset Sheets: 2 of 3

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 48



- NOTES:
1. Reinforcement for the shotcrete facing shall be installed throughout the entire shotcrete facing, including the facing beyond the ground nails.
  2. The minimum splice length for #4 bars is 15 inches.

**Yeh and Associates, Inc.**  
Consulting Engineers & Scientists

Print Date: 3/26/2010  
Drawing File Name: 28-139 GNW Detail02.dgn  
Horiz. Scale: 1:1 Vert. Scale: N/A  
Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
#4 - 100 Lakewood, CO 80226  
P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

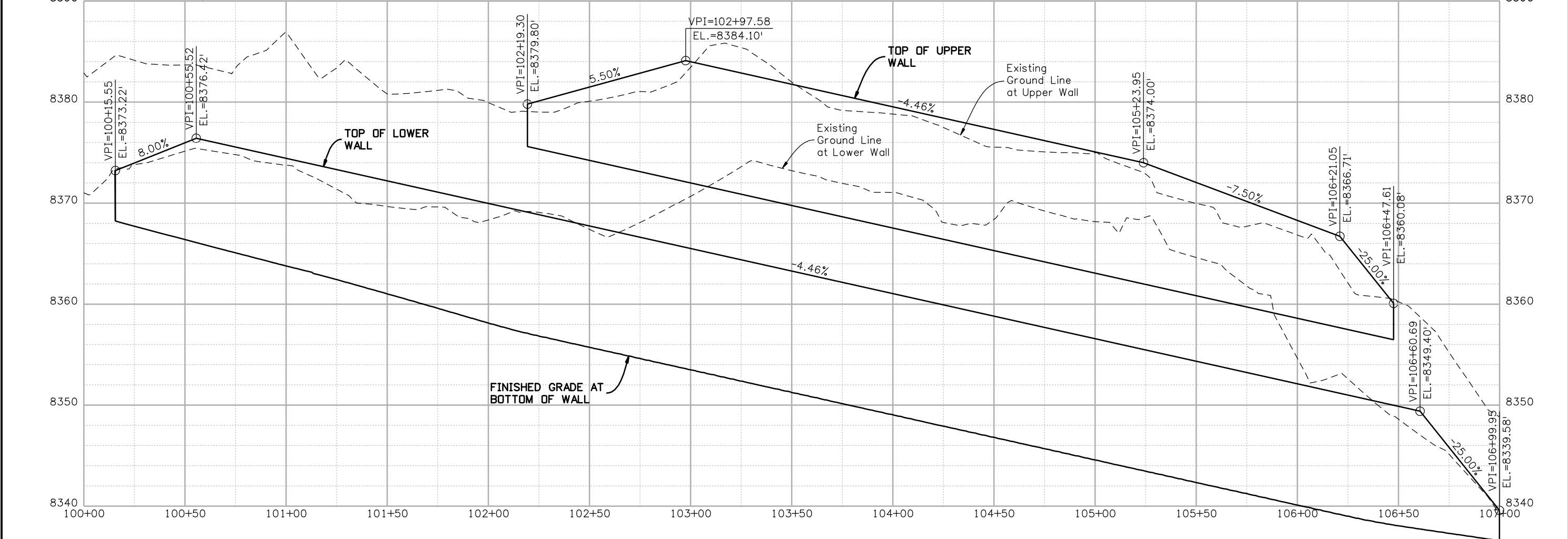
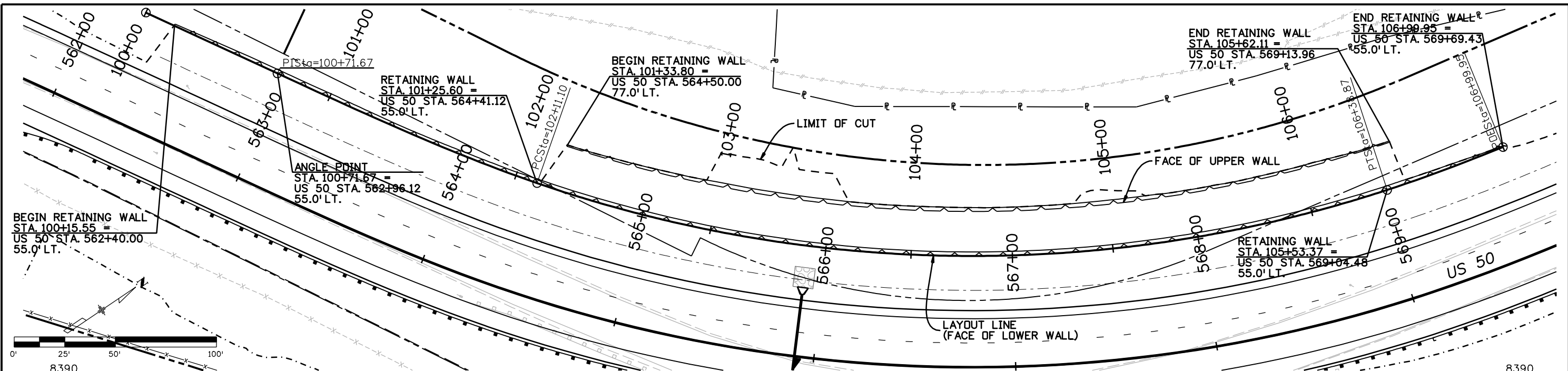
Sheet Revisions		
Date:	Comments	Init.

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Region 3 RBA

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No Revisions:  
Revised:  
Void:

GROUND NAIL WALL DETAILS	
Designer:	B. Arndt
Detailer:	M. Walz
Sheet Subset:	Subset Sheets: 3 of 3

Project No./Code  
NH 0501-046  
14933  
Sheet Number 49



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-P&PWall01.dgn  
 Horiz. Scale: 1:50 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
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 #4 - 100 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

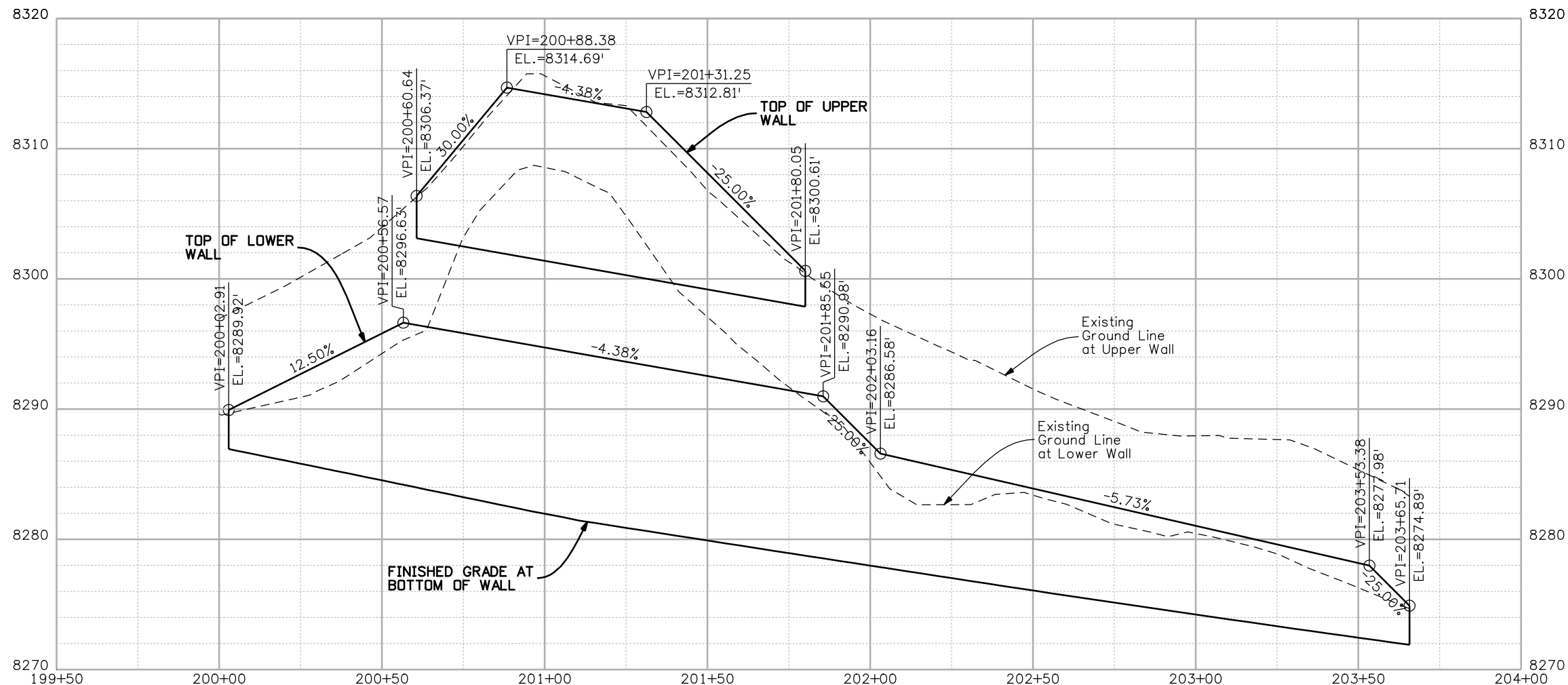
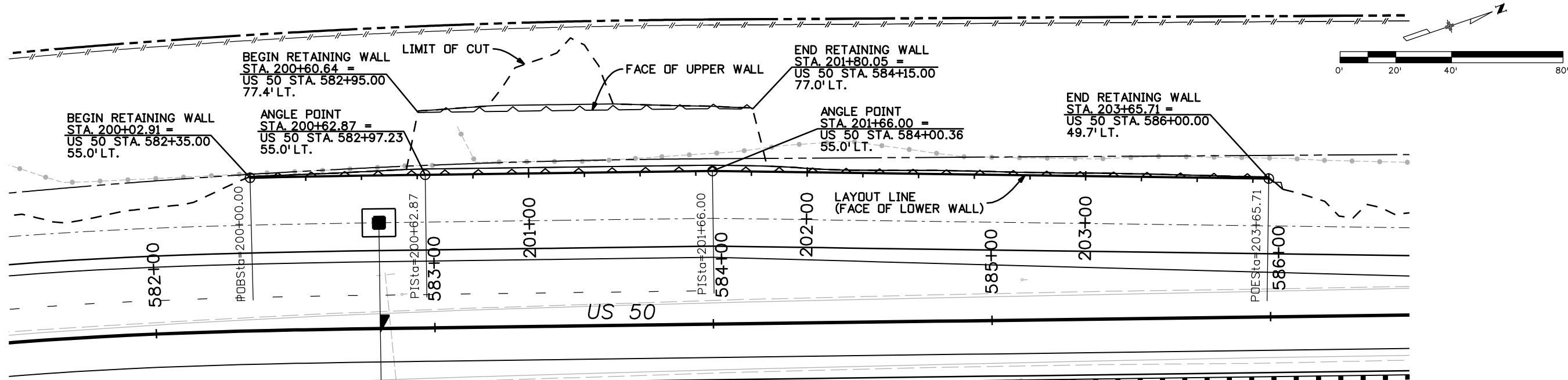
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**Region 3** RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:

**WALL PLAN AND PROFILE**  
**STA. 565+00**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: WALL Subset Sheets: 1 of 2

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number **50**





Print Date: 3/26/2010

Drawing File Name: 14933Seg2-P&PWall02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

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Region 3

RBA

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No Revisions:

Revised:

Void:

WALL PLAN AND PROFILE  
 STA. 583+00

Designer:

NJL

Detailer:

MAM

Sheet Subset:

WALL

Subset Sheets:

2 of 2

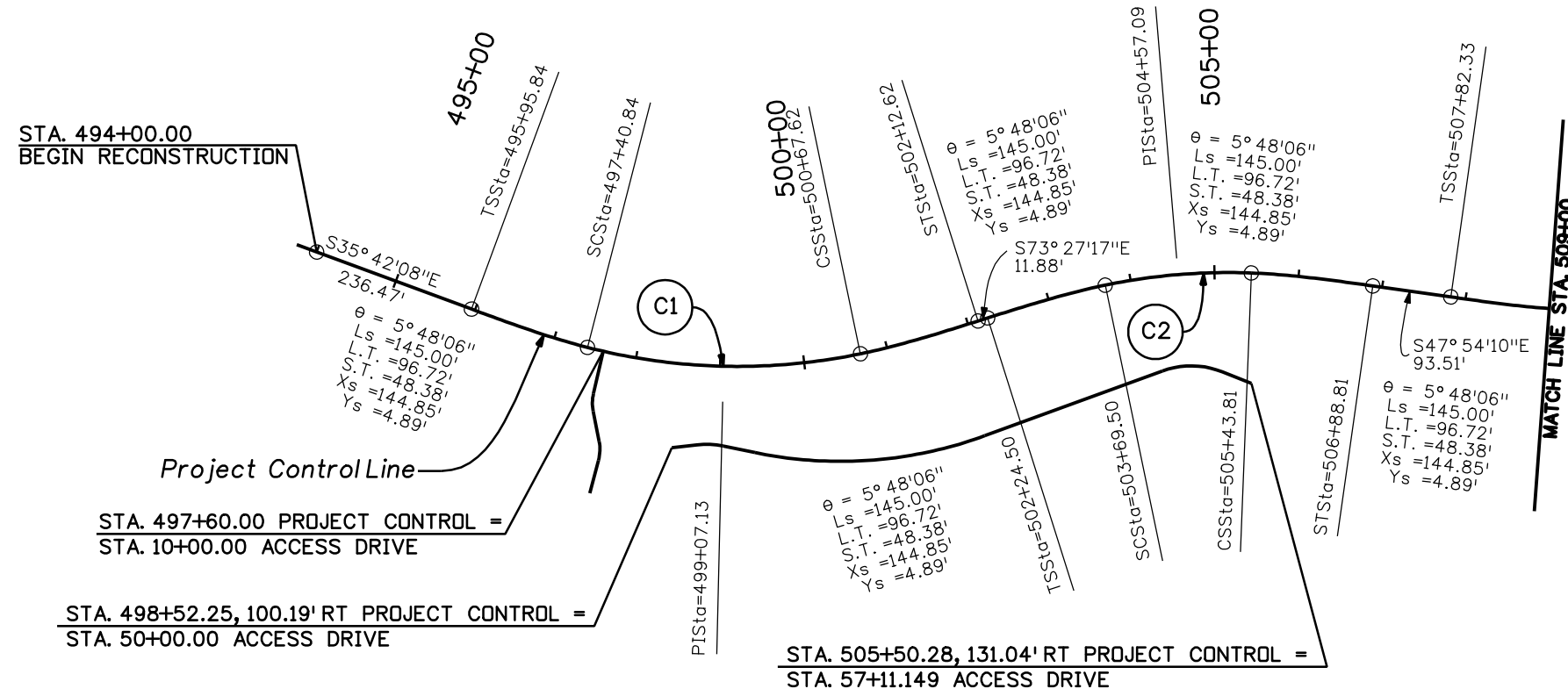
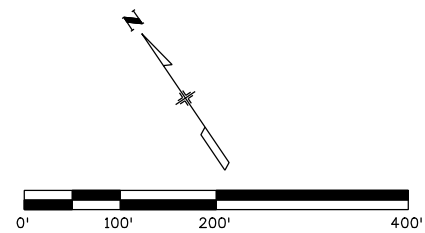
Project No./Code

NH 0501-046

14933

Sheet Number

51



CONTROL LINE DATA									
CURVE NO.	BEARING	NORTHING (Y)	EASTING (X)	STATIONING		DELTA	R	L	T
				PC	PT				
C18	S 67°39'12" E	207143.05	445891.80	497+40.84	500+67.62	26°08'58"	-716.00'	326.7'	166.29'
C19	S 53°42'16" E	206951.26	446412.92	503+69.50	505+43.81	13°56'56"	716.00'	174.31'	87.59'
C20	N 59°03'59" E	206368.02	447158.04	509+27.33	517+67.46	67°13'45"	-716.00'	840.13'	475.97'
C21	N 42°01'05" E	207032.03	448123.61	523+47.88	525+82.09	8°36'08"	-1560.00'	234.21'	117.33'
C22	N 66°35'18" E	208037.93	448983.46	533+63.88	541+99.35	24°55'54"	1920.00'	835.47'	424.45'
C23	N 38°22'51" E	208484.84	450031.73	545+27.87	552+86.03	27°50'46"	-1560.00'	758.17'	386.73'
C24	N 55°45'25" E	209283.85	450646.48	557+21.17	560+91.45	16°58'21"	1250.00'	370.28'	186.51'
C25	N 15°55'28" E	209720.51	451287.64	564+41.12	569+04.48	37°04'45"	-716.00'	463.36'	240.12'
C26	N 14°59'09" E	211170.40	451579.59	581+24.64	581+64.23	1°48'54"	1250.00'	39.60'	19.80'
C27	N 12°37'05" E	211935.09	451824.96	588+88.46	590+06.61	5°24'57"	-1250.00'	118.16'	59.12'

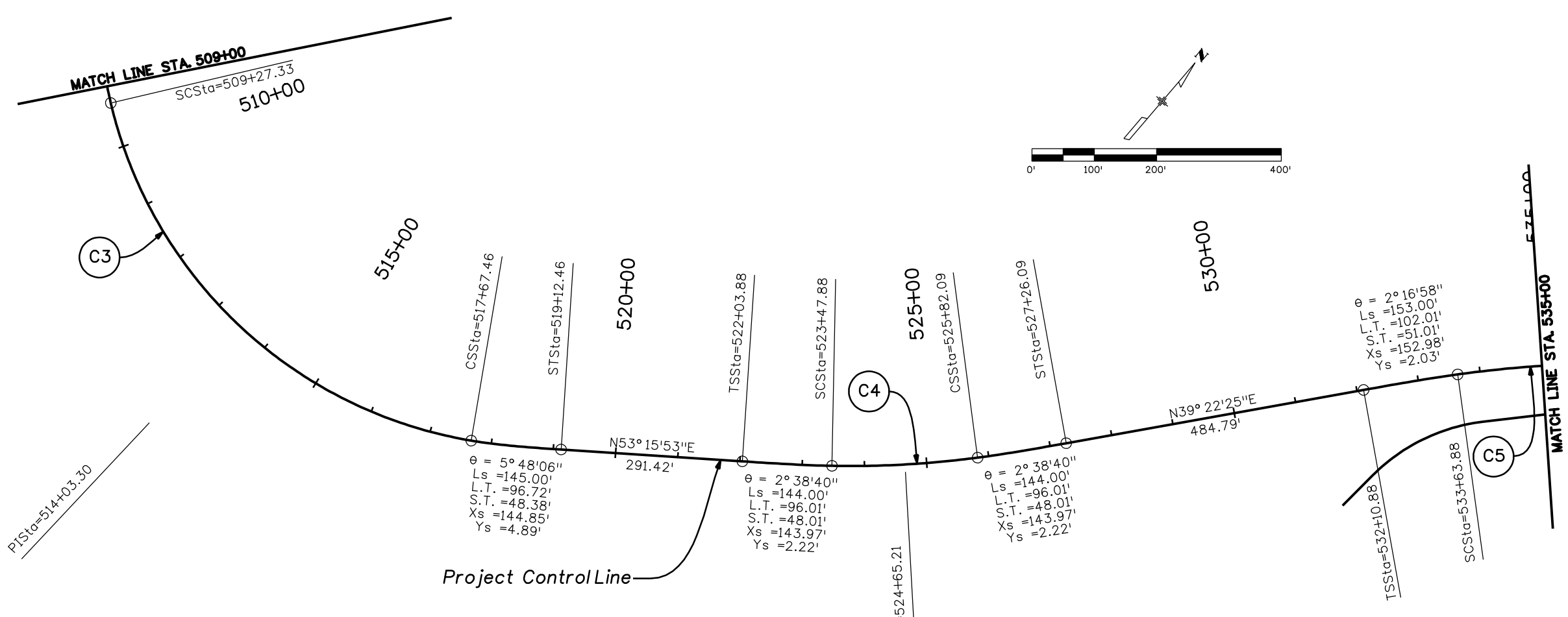
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Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
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As Constructed	PROJECT LAYOUT	
No Revisions:	Designer: NJL	
Revised:	Detailer: CLJ	
Void:	Sheet Subset: CTRLRL	Subset Sheets: 1 OF 4

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 52



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-ProjectLayout.dgn  
 Horiz. Scale: 1:200      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

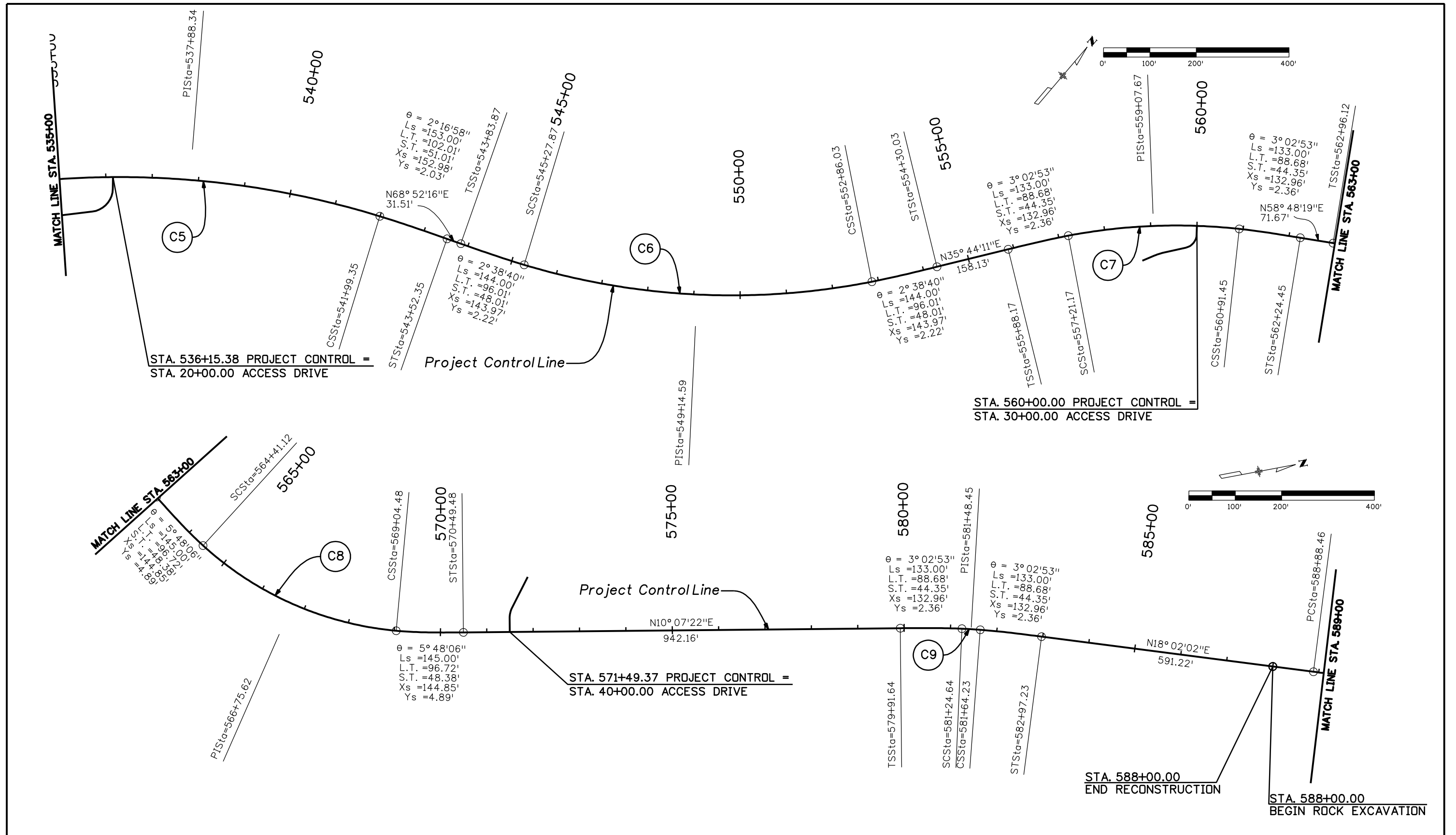
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
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 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3**      **RBA**

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 No Revisions:  
 Revised:  
 Void:

PROJECT LAYOUT			
Designer:	NJL		
Detailer:	CLJ		
Sheet Subset:	CTRL	Subset Sheets:	2 OF 4

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **53**



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-ProjectLayout.dgn  
 Horiz. Scale: 1:200 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

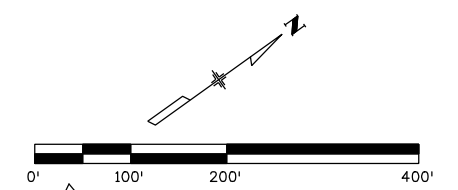
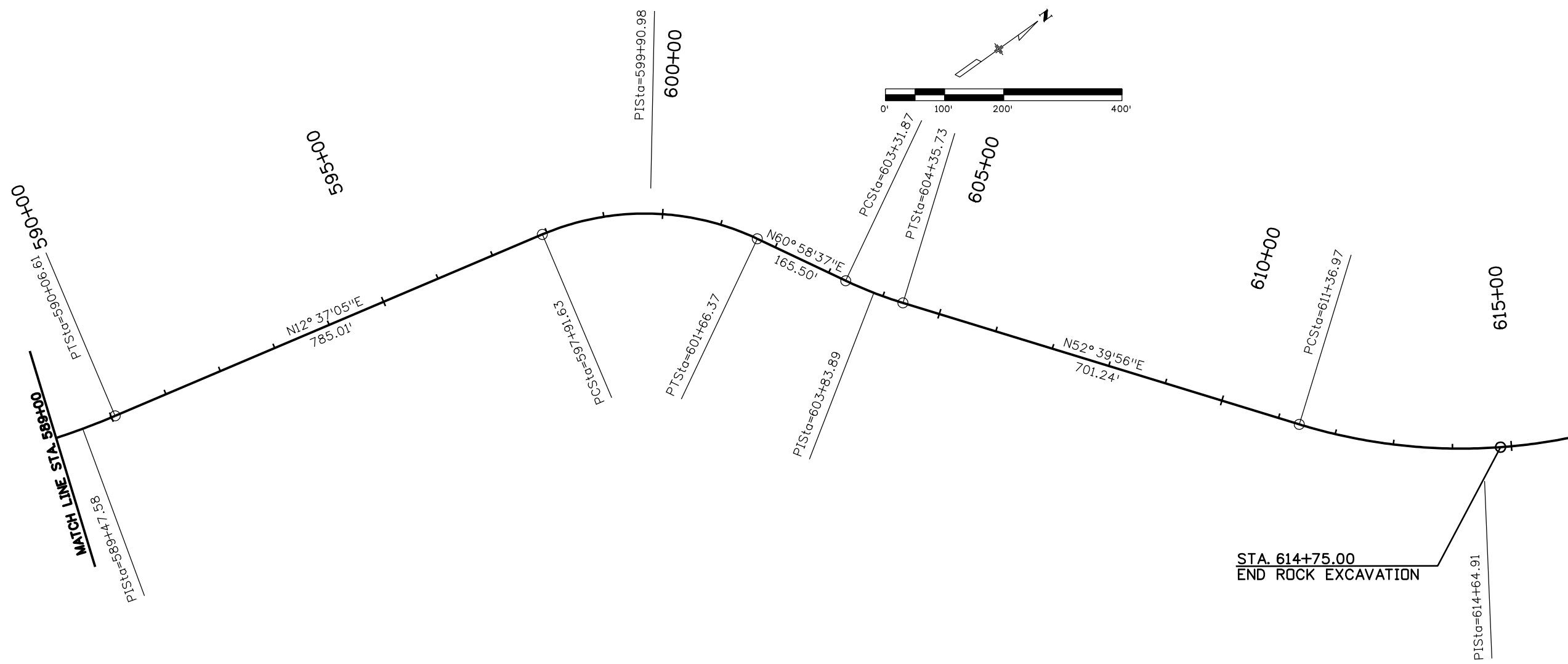
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
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 No Revisions:  
 Revised:  
 Void:


PROJECT LAYOUT	
Designer:	NJL
Detailer:	CLJ
Sheet Subset:	CONTROL
Subset Sheets:	3 OF 4

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 54



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-ProjectLayout.dgn  
 Horiz. Scale: 1:200      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

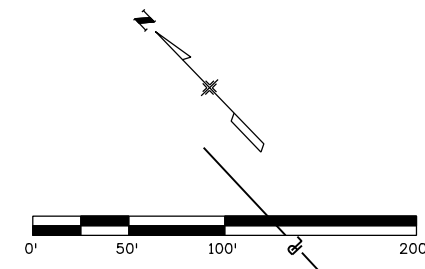
Colorado Department of Transportation  
  
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 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3**      **RBA**

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PROJECT LAYOUT	
Designer:	NJL
Detailer:	CLJ
Sheet Subset:	CONTROL
Subset Sheets:	4 OF 4

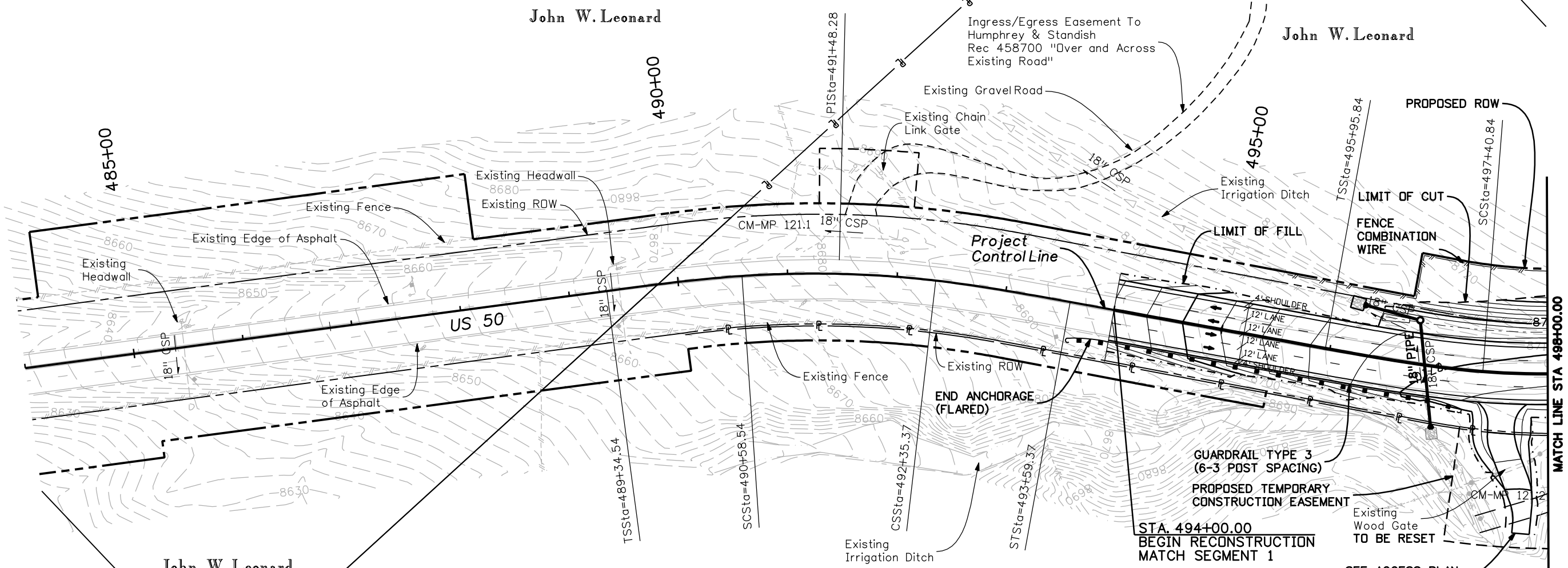
**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **55**

SE 1/4 of Sec. 28



John W. Leonard

John W. Leonard



John W. Leonard

R. D. & C. Company  
A California Limited Partnership

STA. 494+00.00  
BEGIN RECONSTRUCTION  
MATCH SEGMENT 1

SEE ACCESS PLAN  
AND PROFILE

STA. 496+57  
IRRIGATION FLOW  
REMOVE EXISTING 18" PIPE  
AND MAHOLE  
REQ'D: 18" PIPE W/ END SECTIONS  
RT AND LT. INSTALL RIPRAP INLET  
PROTECTION AND CUTOFF WALL  
RT. INSTALL 12 LF RIPRAP OUTFALL  
PROTECTION AND TOWALL LT.



Know what's below.  
Call before you dig.

Print Date: 3/26/2010	
Drawing File Name: 14933Seg2-Plan01.dgn	
Horiz. Scale: 1:100	Vert. Scale: N/A
Unit Leader Information	Unit Leader Initials
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Sheet Revisions		
Date:	Comments	Init.

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2424 North Townsend Avenue  
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Region 3 RBA

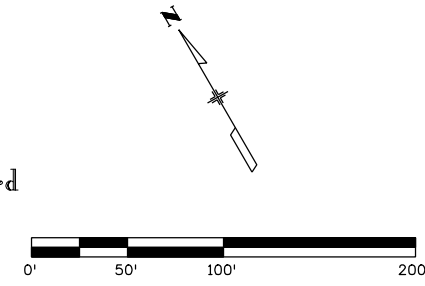
As Constructed	
No Revisions:	
Revised:	
Void:	

PLAN SHEET			
STA. 494+00 to STA. 498+00			
Designer:	NJL		
Detailer:	MAM		
Sheet Subset:	ROADWAY	Subset Sheets:	1 of 10

Project No./Code	
NH 0501-046	
14933	
Sheet Number	56



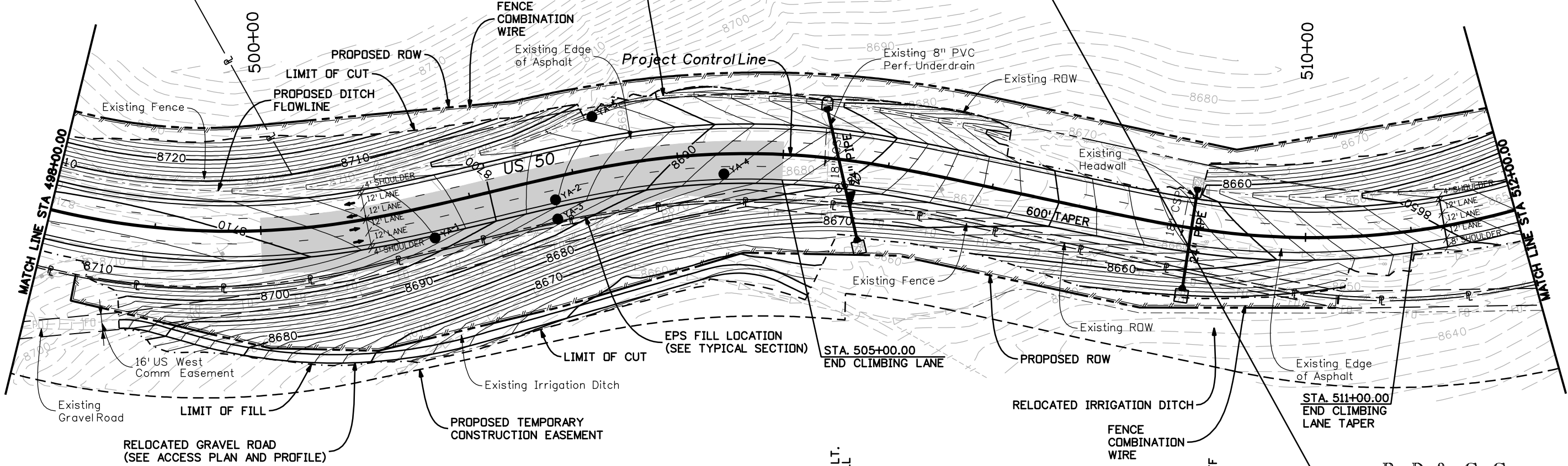
Roadside Ditch, Station 504+00 (Left) Layout Table				
Station/Offset		Northing/Easting		
US-50 CL Station	Offset (Left or Right)	Easting	Northing	Elevation
503+00.00	45.86 LT	446280.88	207051.93	8695.18
503+50.00	54.81 LT	446333.32	207042.95	8692.18
504+00.00	58.28 LT	446384.29	207025.29	8689.14
504+50.00	54.57 LT	446430.76	206997.67	8686.09
505+00.00	52.04 LT	446475.61	206968.00	8683.05
505+50.00	51.45 LT	446519.29	206936.94	8680.03
506+00.00	51.44 LT	446560.64	206904.09	8676.82
506+50.00	52.29 LT	446600.18	206870.94	8672.87
507+00.00	48.93 LT	446635.37	206834.74	8668.43



John W. Leonard

John W. Leonard

SEE ROADSIDE DITCH, STA 504+00(LT) LAYOUT TABLE



R. D. & C. Company  
A California Limited Partnership

R. D. & C. Company  
A California Limited Partnership

STA. 505+37  
REMOVE: EXISTING 18" CSP  
REQ'D: 24" PIPE W/  
END SECTION RT AND LT  
INSTALL CUTOFF WALL, RIPRAP  
INLET PROTECTION AND BERM, LT.  
INSTALL 12 LF RIPRAP OUTFALL  
PROTECTION AND TOEWALL RT.

STA. 508+92  
REMOVE: EXISTING 18" CSP  
AND HEADWALL LT  
REQ'D: 24" PIPE W/  
END SECTION RT AND LT  
INSTALL BERM, RIPRAP  
INLET PROTECTION, AND CUTOFF  
WALL LT. INSTALL 12 LF  
RIPRAP OUTFALL PROTECTION  
AND TOEWALL RT



Print Date: 3/26/2010	
Drawing File Name: 14933Seg2-Plan02.dgn	
Horiz. Scale: 1:100	Vert. Scale: N/A
Unit Leader Information	Unit Leader Initials
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Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

2424 North Townsend Avenue  
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Phone: 972-249-5285 FAX: 970-249-6018

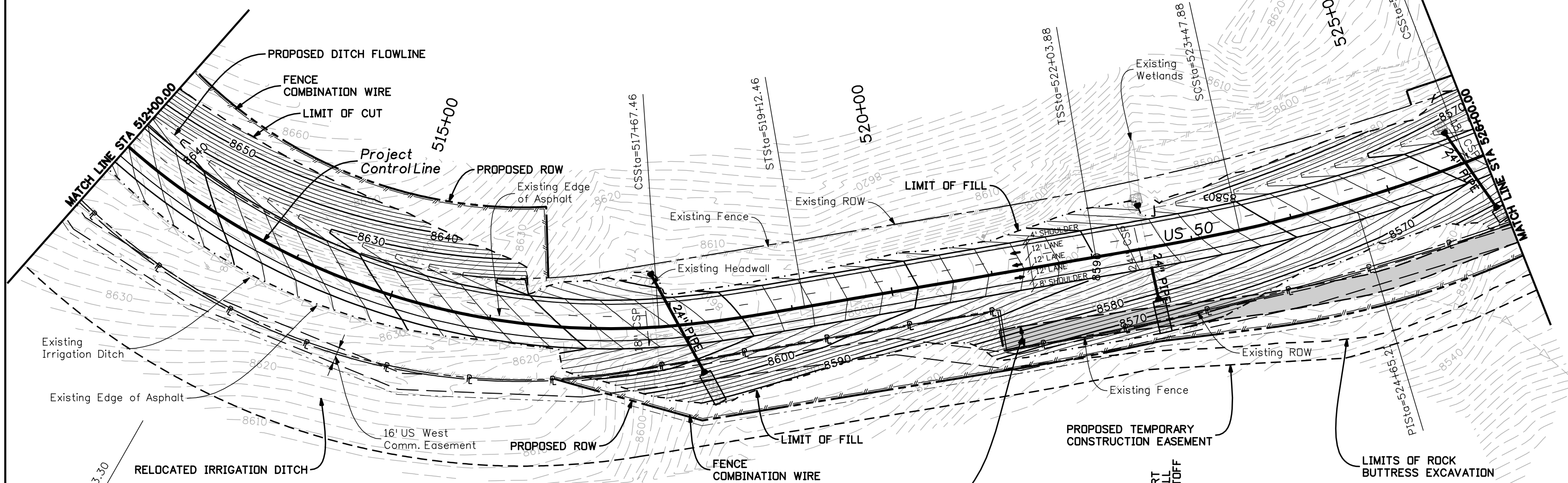
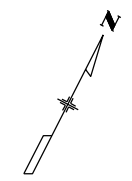
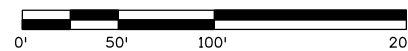
Region 3 RBA

As Constructed	
No Revisions:	
Revised:	
Void:	

PLAN SHEET			
STA. 498+00 to STA. 512+00			
Designer:	NJL		
Detailer:	MAM		
Sheet Subset:	ROADWAY	Subset Sheets:	2 of 10

Project No./Code	
NH 0501-046	
14933	
Sheet Number	57

John W. Leonard



R. D. & C. Company  
A California Limited Partnership

STA. 517+87, SKEW 66.73° RT.  
FLOWFILL AND ABANDON  
85 LF EXISTING 18" CSP  
AND REMOVE HEADWALL LT  
REQ'D: 24" PIPE W/ END SECTION  
RT AND LT. INSTALL CUTOFF WALL  
LT. INSTALL 36 LF RIPRAP OUTFALL  
PROTECTION AND TOEWALL RT.

APPROXIMATE LOCATION  
OF ROCK BUTTRESS  
(SEE TYPICAL SECTION)

STA. 522+55  
REQ'D: EXTEND EXISTING 24" PIPE RT  
W/ END SECTION LT AND RT. INSTALL  
RIPRAP INLET PROTECTION AND CUTOFF  
WALL LT. INSTALL 36 LF  
RIPRAP OUTFALL PROTECTION AND  
TOEWALL RT.

STA. 525+81  
REMOVE EXISTING 18" CSP  
REQ'D: 24" PIPE W/  
END SECTION RT AND LT  
INSTALL RIPRAP INLET  
PROTECTION, CUTOFF WALL, LF  
AND BERM LT. INSTALL 14 LF  
RIPRAP OUTFALL PROTECTION  
AND TOEWALL RT.



Print Date: 3/26/2010	
Drawing File Name: 14933Seg2-Plan03.dgn	
Horiz. Scale: 1:100	Vert. Scale: N/A
Unit Leader Information	Unit Leader Initials
777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 Phone: 303-988-4939	

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

2424 North Townsend Avenue  
Montrose, CO 81401  
Phone: 972-249-5285 FAX: 970-249-6018

Region 3 RBA

As Constructed
No Revisions:
Revised:
Void:

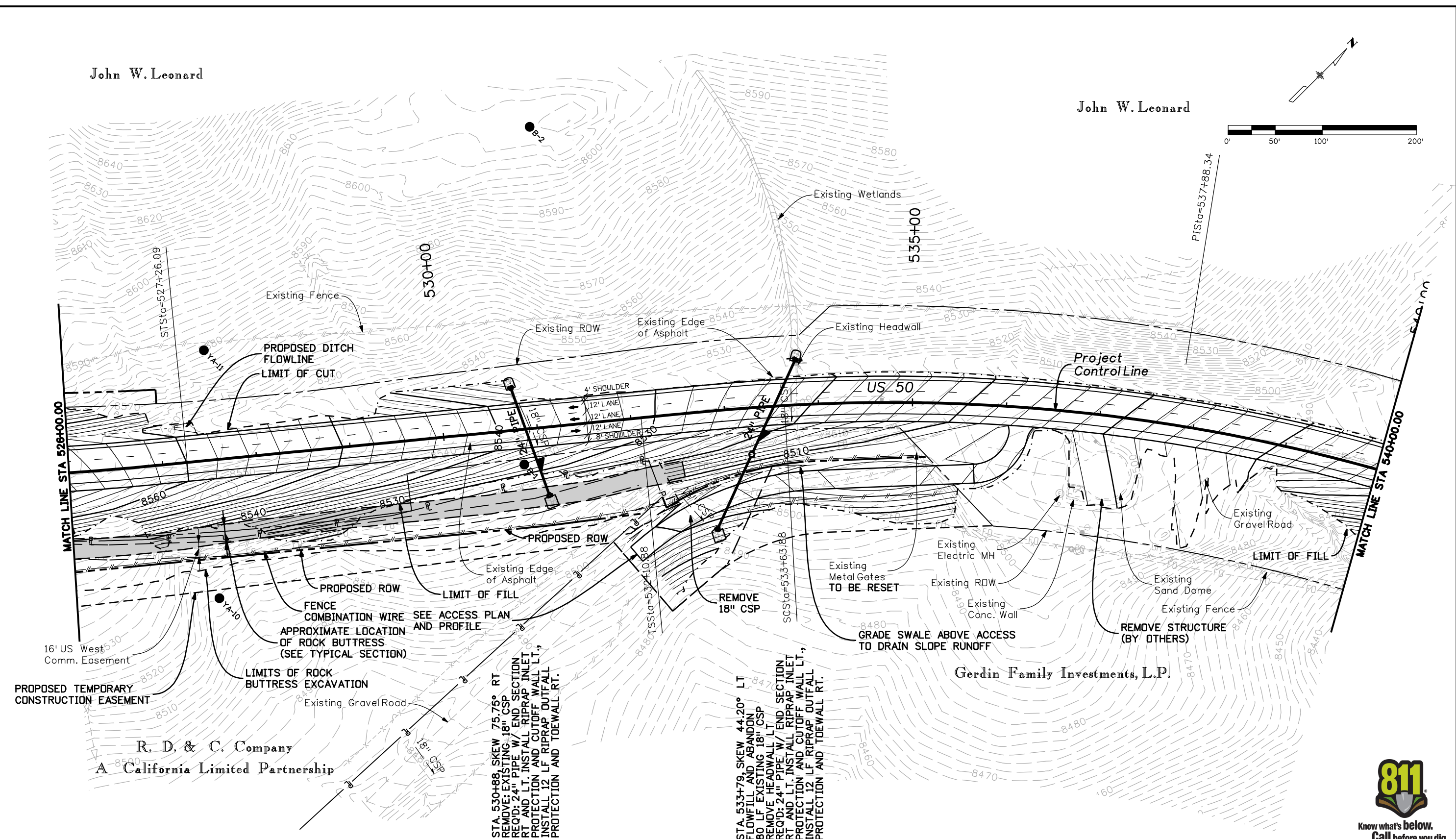
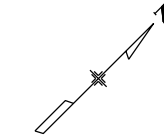
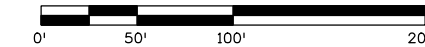
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STA. 512+00 to STA. 526+00	
Designer:	NJL
Detailer:	MAM
Sheet Subset: ROADWAY	Subset Sheets: 3 of 10

Project No./Code	NH 0501-046
	14933
Sheet Number	58



John W. Leonard

John W. Leonard



16' US West Comm. Easement

R. D. & C. Company  
A California Limited Partnership

STA. 530+88, SKEW 75.75° RT  
REMOVE EXISTING 18" CSP  
REQ'D: 24" PIPE W/ END SECTION  
RT AND LT. INSTALL RIPRAP INLET  
PROTECTION AND CUTOFF WALL LT.,  
INSTALL 12' LF RIPRAP OUTFALL  
PROTECTION AND TOEWALL RT.

STA. 533+79, SKEW 44.20° LT  
FLOWFILL AND ABANDON  
80 LF EXISTING 18" CSP  
REMOVE HEADWALL LT.  
REQ'D: 24" PIPE W/ END SECTION  
RT AND LT. INSTALL RIPRAP INLET  
PROTECTION AND CUTOFF WALL LT.,  
INSTALL 12' LF RIPRAP OUTFALL  
PROTECTION AND TOEWALL RT.

Gerdin Family Investments, L.P.

Print Date: 3/26/2010  
Drawing File Name: 14933Seg2-Plan04.dgn  
Horiz. Scale: 1:100 Vert. Scale: N/A  
Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
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Sheet Revisions		
Date:	Comments	Init.

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 2424 North Townsend Avenue  
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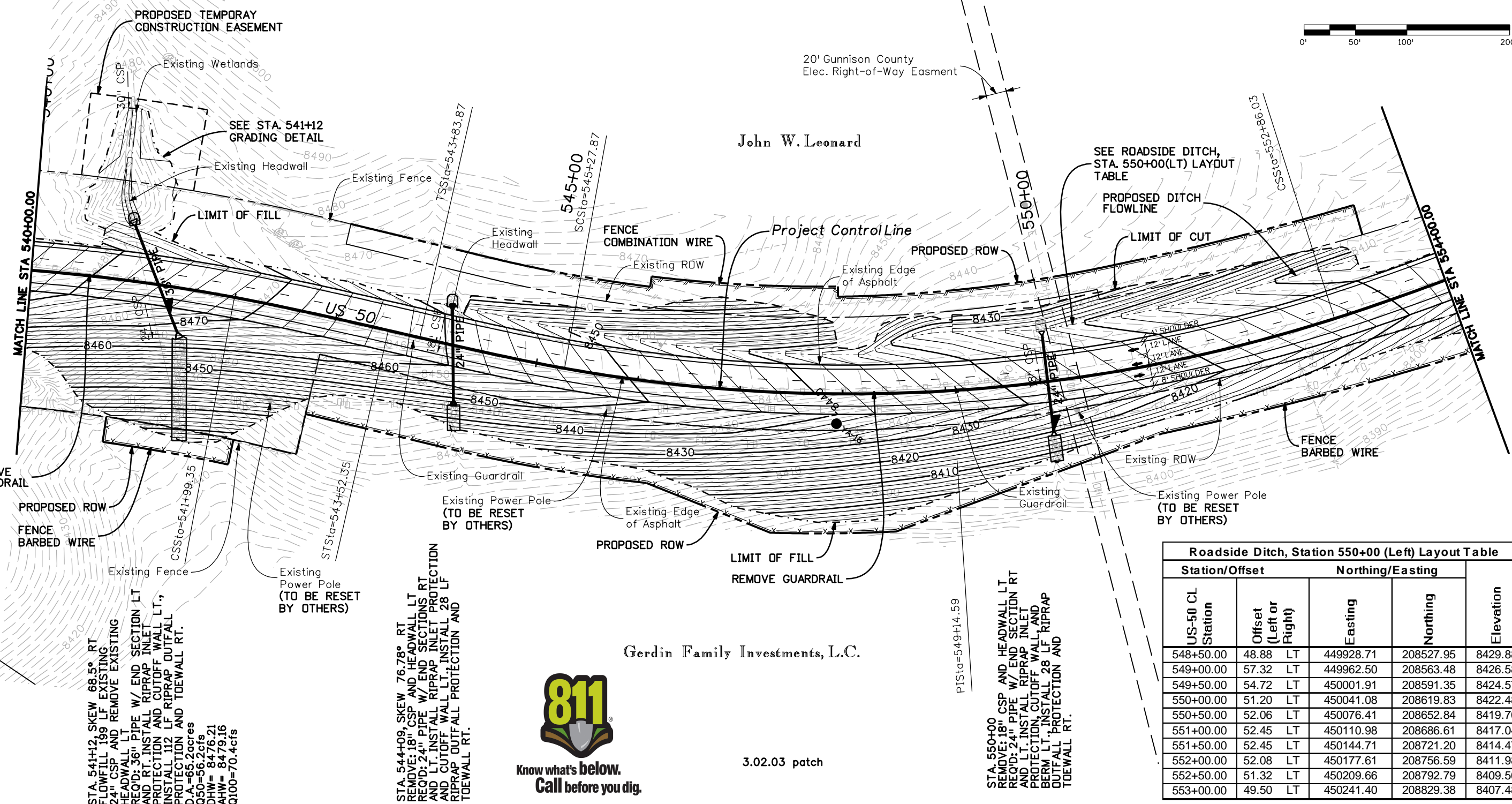
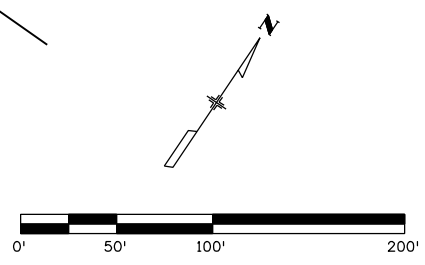
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No Revisions:  
Revised:  
Void:

PLAN SHEET  
STA. 526+00 to STA. 540+00  
Designer: NJL  
Detailer: MAM  
Sheet Subset: ROADWAY Subset Sheets: 4 of 10

Project No./Code  
NH 0501-046  
14933  
Sheet Number 59







**Roadside Ditch, Station 550+00 (Left) Layout Table**

Station/Offset		Northing/Easting			
US-50 CL Station	Offset (Left or Right)	Easting	Northing	Elevation	
548+50.00	48.88 LT	449928.71	208527.95	8429.88	
549+00.00	57.32 LT	449962.50	208563.48	8426.58	
549+50.00	54.72 LT	450001.91	208591.35	8424.57	
550+00.00	51.20 LT	450041.08	208619.83	8422.48	
550+50.00	52.06 LT	450076.41	208652.84	8419.70	
551+00.00	52.45 LT	450110.98	208686.61	8417.04	
551+50.00	52.45 LT	450144.71	208721.20	8414.47	
552+00.00	52.08 LT	450177.61	208756.59	8411.98	
552+50.00	51.32 LT	450209.66	208792.79	8409.56	
553+00.00	49.50 LT	450241.40	208829.38	8407.48	

STA. 541+12, SKEW 68.5° RT  
FLOWFILL 199 LF EXISTING  
24" CSP AND REMOVE EXISTING  
HEADWALL LT  
REQD: 36" PIPE W/ END SECTION LT  
AND RT. INSTALL RIPRAP INLET  
PROTECTION AND CUTOFF WALL LT,  
INSTALL I12 LF RIPRAP OUTFALL  
PROTECTION AND TOEWALL RT.  
D.A.=65.2acres  
Q50=56.2cfs  
DHW= 8476.21  
AHW= 8479.16  
Q100=70.4cfs

STA. 544+09, SKEW 76.78° RT  
REMOVE: 18" CSP AND HEADWALL LT  
REQD: 24" PIPE W/ END SECTIONS RT  
AND LT. INSTALL RIPRAP INLET  
PROTECTION AND CUTOFF WALL LT,  
INSTALL 28 LF RIPRAP OUTFALL  
PROTECTION AND TOEWALL RT.

STA. 550+00  
REMOVE: 18" CSP AND HEADWALL LT  
REQD: 24" PIPE W/ END SECTION RT  
AND LT. INSTALL RIPRAP INLET  
PROTECTION, CUTOFF WALL, AND  
BERM LT. INSTALL 28 LF RIPRAP  
OUTFALL PROTECTION AND  
TOEWALL RT.



3.02.03 patch

Gerdin Family Investments, L.C.

20' Gunnison County  
Elec. Right-of-Way Easment

John W. Leonard

Print Date: 3/26/2010  
Drawing File Name: 14933Seg2-Plan05.dgn  
Horiz. Scale: 1:100 Vert. Scale: N/A  
Unit Leader Information Unit Leader Initials  
MULLER ENGINEERING CO., INC. 777 S. Wadsworth Blvd.  
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CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

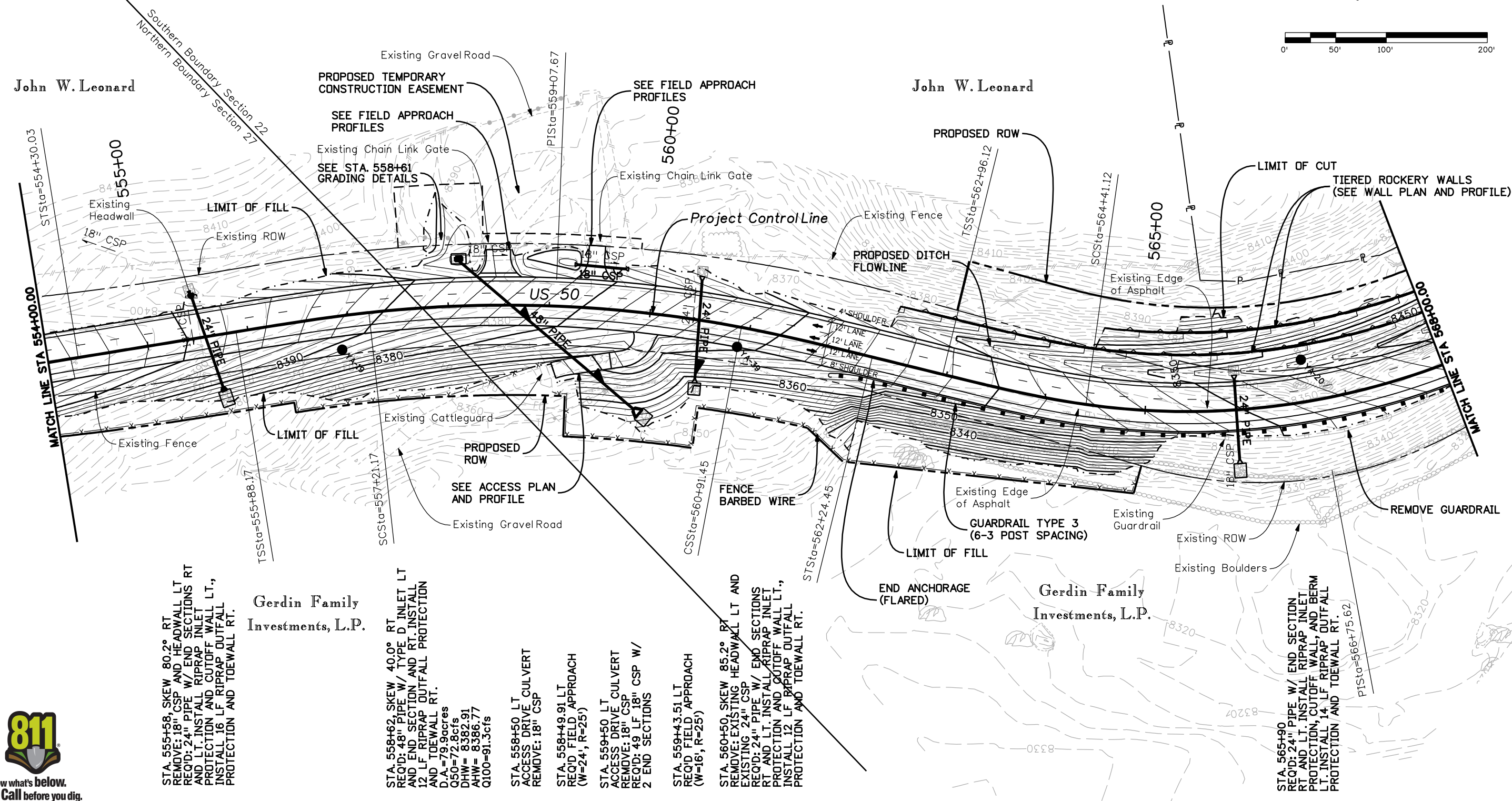
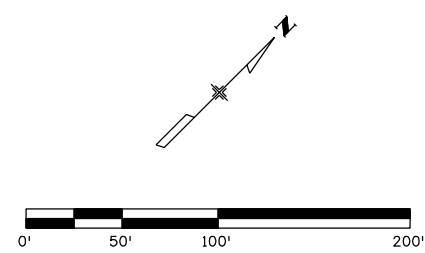
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Void:

PLAN SHEET  
STA. 540+00 to STA. 554+00  
Designer: NJL  
Detailer: MAM  
Sheet Subset: ROADWAY Subset Sheets: 5 of 10

Project No./Code  
NH 0501-046  
14933  
Sheet Number 60



John W. Leonard

John W. Leonard

Gerdin Family Investments, L.P.

Gerdin Family Investments, L.P.

STA. 555+58, SKEW 80.2° RT  
REMOVE: 18" CSP AND HEADWALL LT  
REQ'D: 24" PIPE W/ END SECTIONS RT  
AND LT. INSTALL RIPRAP INLET  
PROTECTION AND CUTOFF WALL LT.,  
INSTALL 16 LF RIPRAP OUTFALL  
PROTECTION AND TOEWALL RT.

STA. 558+62, SKEW 40.0° RT  
REQ'D: 48" PIPE W/ TYPE D INLET LT  
AND END SECTION AND RT. INSTALL  
12 LF RIPRAP OUTFALL PROTECTION  
AND TOEWALL RT.  
D.A.=79.9acres  
C50=72.8cfs  
DHW= 8382.91  
AHW= 8386.77  
Q100=91.3cfs

STA. 558+50 LT  
ACCESS DRIVE CULVERT  
REMOVE: 18" CSP

STA. 558+49.91 LT  
REQ'D FIELD APPROACH  
(W=24', R=25')

STA. 559+50 LT  
ACCESS DRIVE CULVERT  
REMOVE: 18" CSP  
REQ'D: 49 LF 18" CSP W/  
2 END SECTIONS

STA. 559+43.51 LT  
REQ'D FIELD APPROACH  
(W=16', R=25')

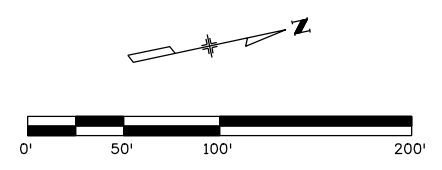
STA. 560+50, SKEW 85.2° RT  
REMOVE: EXISTING HEADWALL LT AND  
EXISTING 24" CSP  
REQ'D: 24" PIPE W/ END SECTIONS  
RT AND LT. INSTALL RIPRAP INLET  
PROTECTION AND CUTOFF WALL LT.,  
INSTALL 12 LF RIPRAP OUTFALL  
PROTECTION AND TOEWALL RT.

STA. 565+90  
REQ'D: 24" PIPE W/ END SECTION  
RT AND LT. INSTALL RIPRAP INLET  
PROTECTION, CUTOFF WALL, AND BERM  
LT. INSTALL 14 LF RIPRAP OUTFALL  
PROTECTION AND TOEWALL RT.  
PISSta=566+75.62

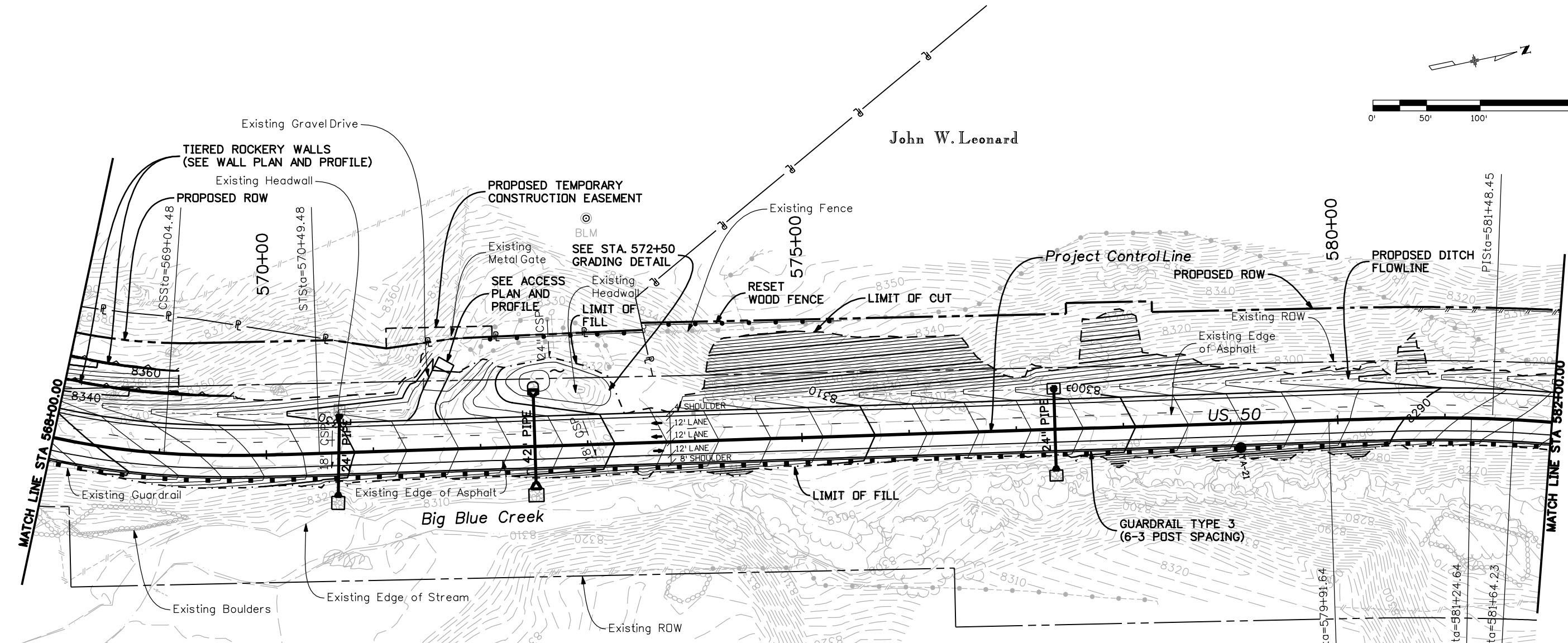


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Horiz. Scale: 1:100 Vert. Scale: N/A					Region 3 RBA		Revised:		Designer: NJL		14933		
Unit Leader Information Unit Leader Initials							Void:		Detailer: MAM		Sheet Number 61		
MULLER ENGINEERING CO., INC. 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939										Sheet Subset: ROADWAY		Subset Sheets: 6 of 10	





John W. Leonard





STA. 570+68, SKEW 87.3° LT,  
FLOWFILL 95 LF EXISTING 18" CMP  
REQ'D: 24" PIPE W/ END SECTIONS RT  
AND LT. INSTALL RIPRAP INLET  
PROTECTION AND CUTOFF WALL LT,  
INSTALL 12 LF RIPRAP OUTFALL  
PROTECTION AND TOWALL RT.

STA. 572+51  
FLOWFILL AND ABANDON  
90 LF EXISTING 18" CSP  
AND REMOVE HEADWALL LT  
REQ'D: 42" PIPE W/ END SECTIONS  
RT AND LT. INSTALL RIPRAP INLET  
PROTECTION AND CUTOFF WALL LT,  
INSTALL 12 LF RIPRAP OUTFALL  
PROTECTION AND TOWALL RT.  
D.A.=79.7acres  
Q50=74.9cfs  
DHW= 8316.39  
AHW= 8316.88  
Q100=93.9cfs

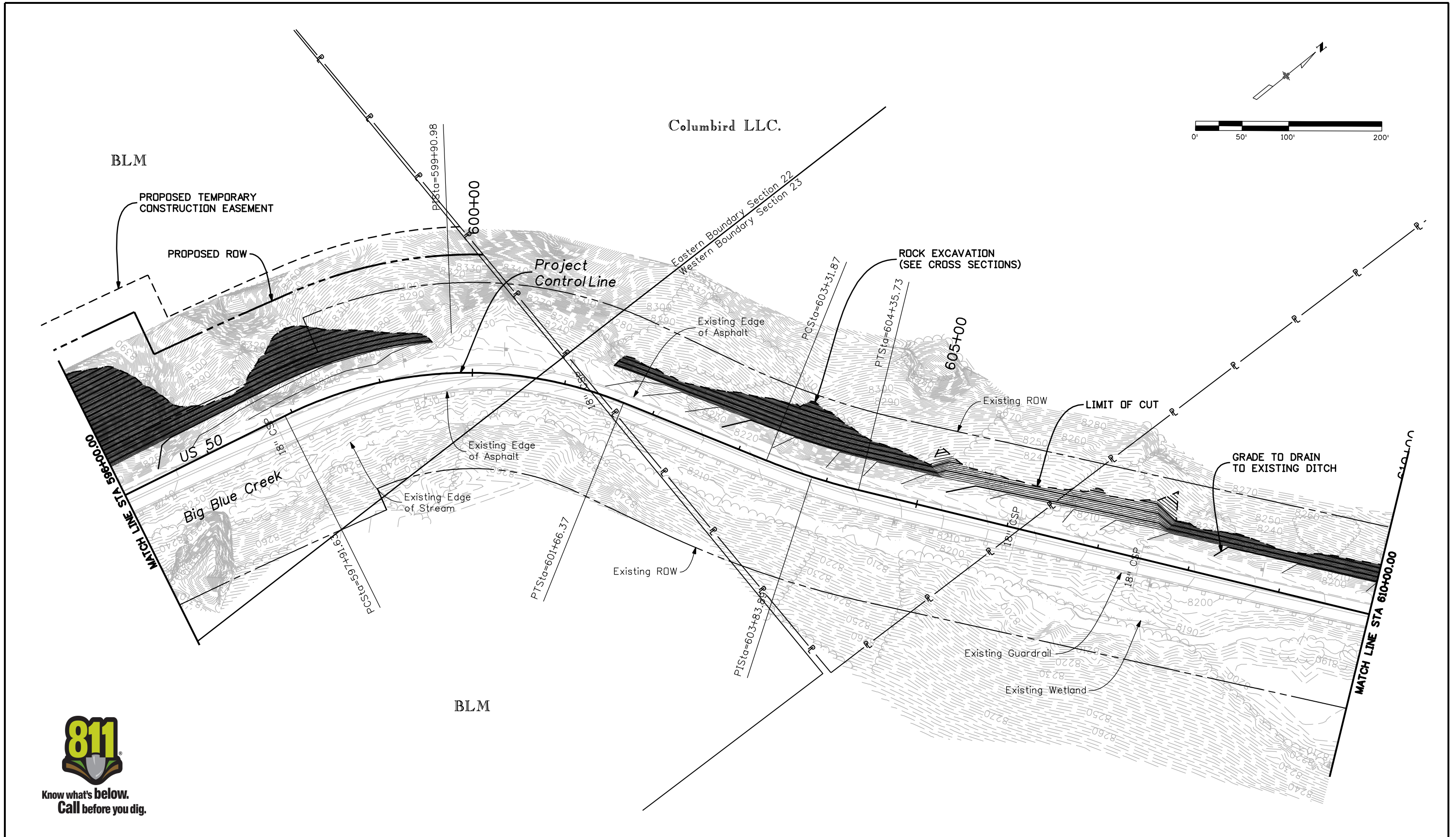
STA. 577+36  
REQ'D: 24" PIPE W/  
TYPE C INLET LT AND  
END SECTION RT  
INSTALL BERM LT  
INSTALL 10 LF RIPRAP  
OUTFALL PROTECTION  
AND TOWALL RT.



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Sheet Revisions																							
Date:	Comments	Init.																					
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Drawing File Name: 14933Seg2-Plan09.dgn	
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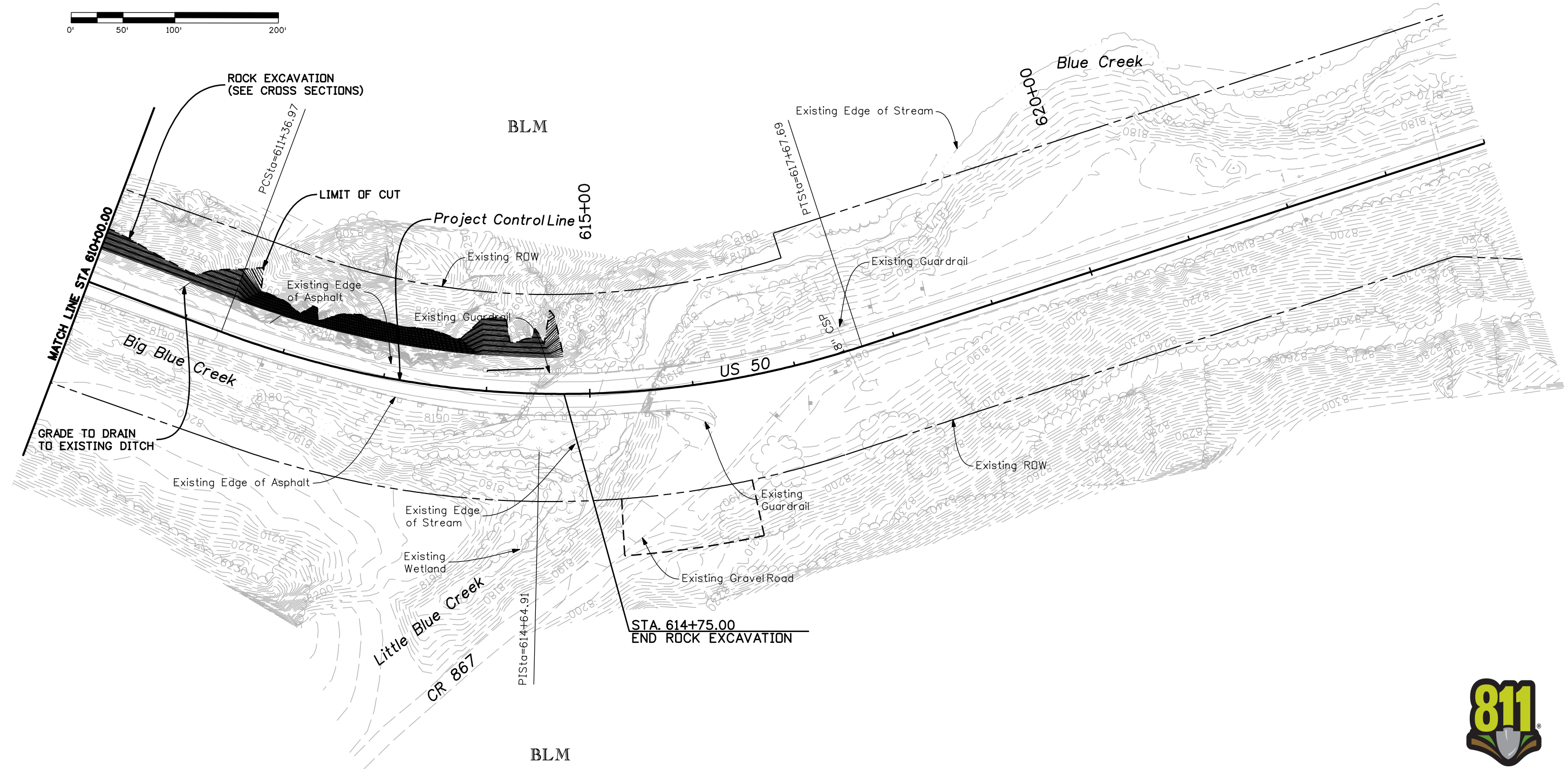
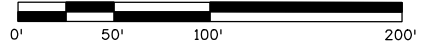
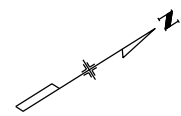
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Revised:	
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STA. 596+00 to STA. 610+00			
Designer:	NJL		
Detailer:	MAM		
Sheet Subset:	ROADWAY	Subset Sheets:	9 of 10

Project No./Code	
NH 0501-046	
14933	
Sheet Number	64





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Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Plan10.dgn  
 Horiz. Scale: 1:100      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
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Date:	Comments	Init.

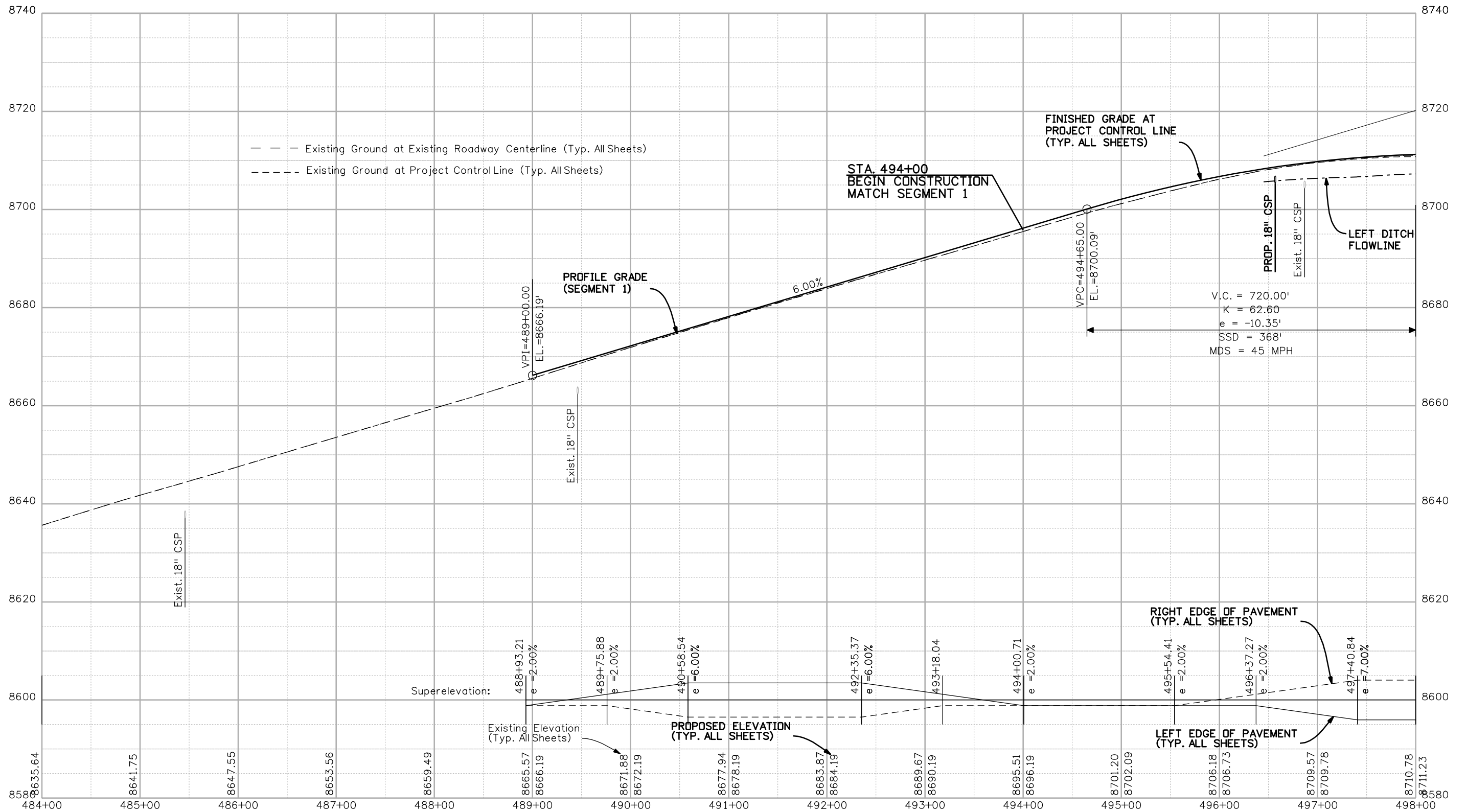
Colorado Department of Transportation  
  
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 Region 3      RBA

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PLAN SHEET  
 STA. 610+00 to STA. 615+00  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: ROADWAY      Subset Sheets: 10 of 10

Project No./Code  
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 14933  
 Sheet Number 65





Print Date: 3/26/2010

Drawing File Name: 14933Seg2-Prof01.dgn

Horiz. Scale: 1:100

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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Designer: NJL

Detailer: MAM

Sheet Subset: ROADWAY

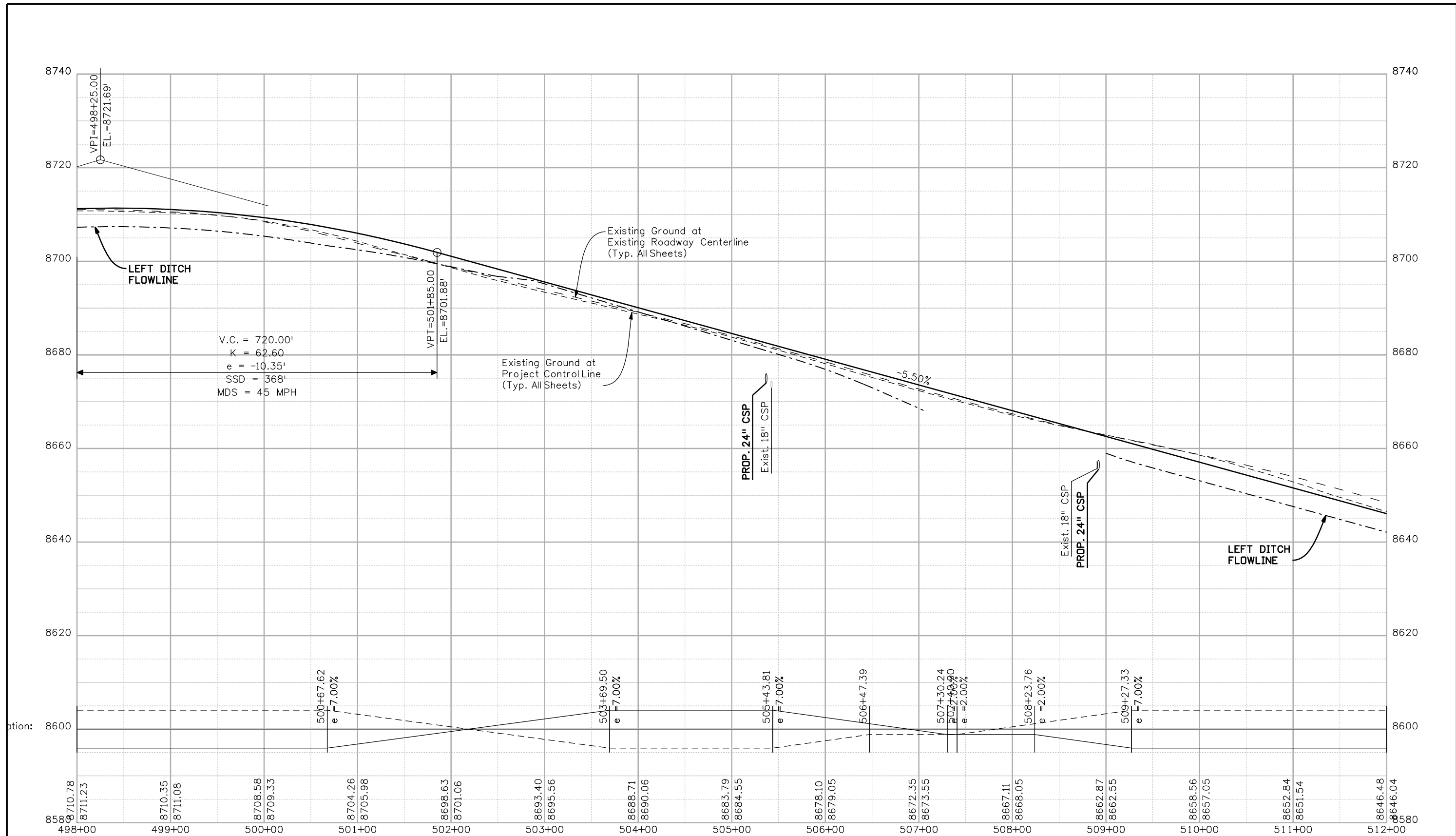
Subset Sheets: 1 OF 10

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14933

Sheet Number 66



V.C. = 720.00'  
 K = 62.60  
 e = -10.35'  
 SSD = 368'  
 MDS = 45 MPH

Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Prof02.dgn  
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 Unit Leader Information    Unit Leader Initials  
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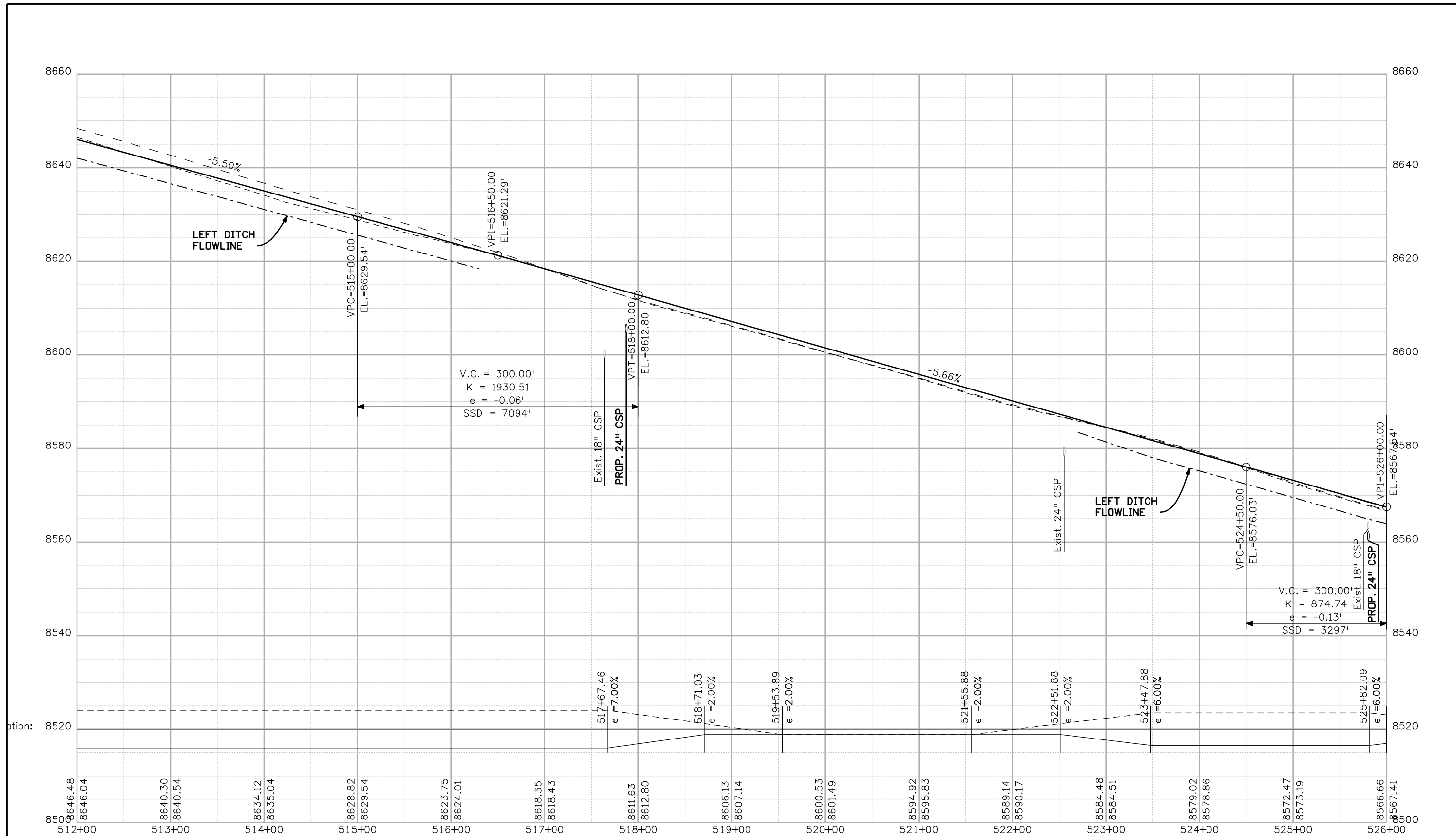
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PROFILE SHEET  
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Print Date: 3/26/2010  
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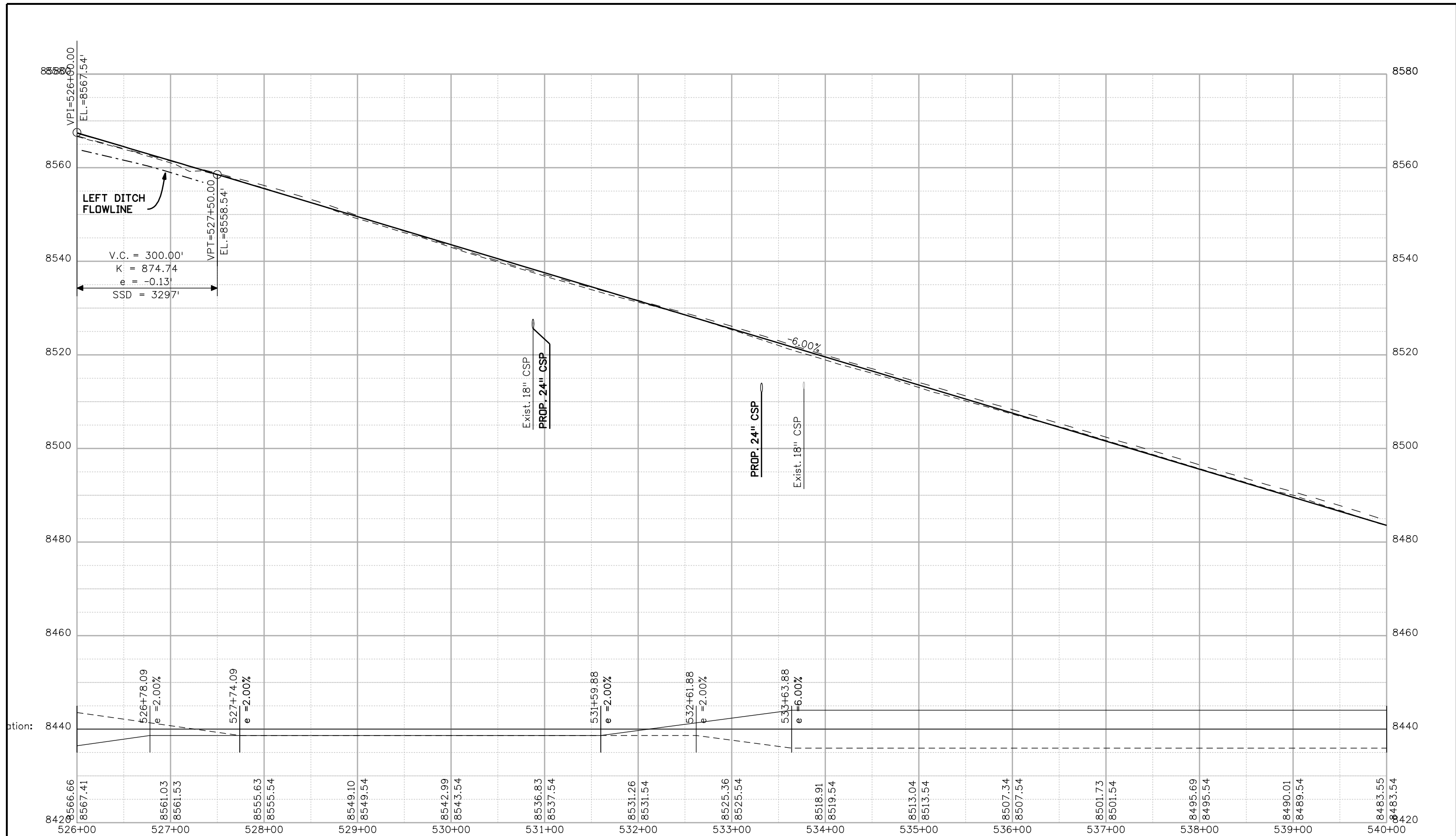
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 No Revisions:  
 Revised:  
 Void:

PROFILE SHEET  
 STA. 512+00 to STA. 526+00  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: ROADWAY Subset Sheets: 3 OF 10

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 68



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Prof04.dgn  
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 Unit Leader Information Unit Leader Initials  
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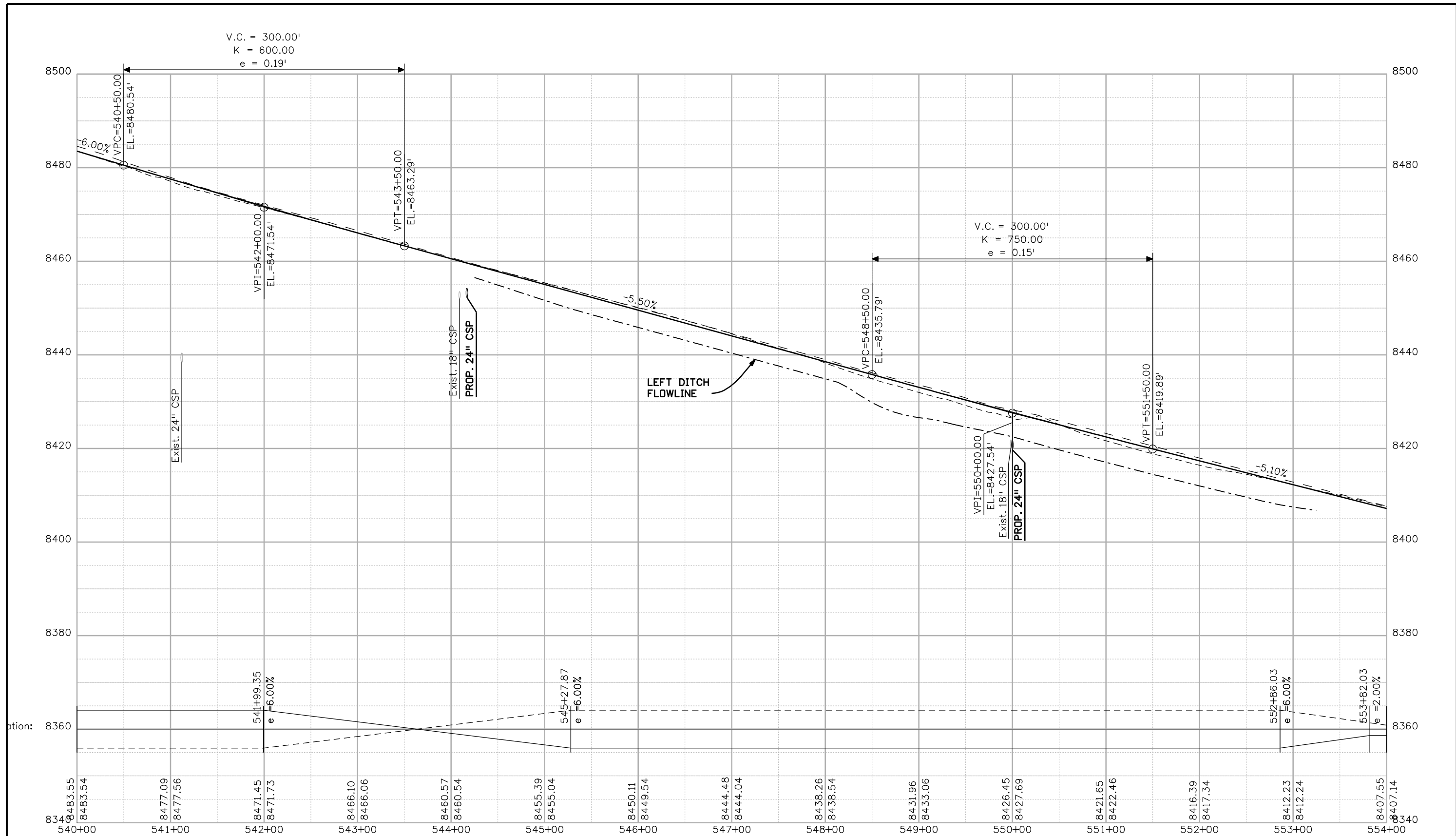
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 STA. 526+00 to STA. 540+00  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: ROADWAY Subset Sheets: 4 OF 10

Project No./Code  
 NH 0501-046  
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 Sheet Number 69



Print Date: 3/26/2010  
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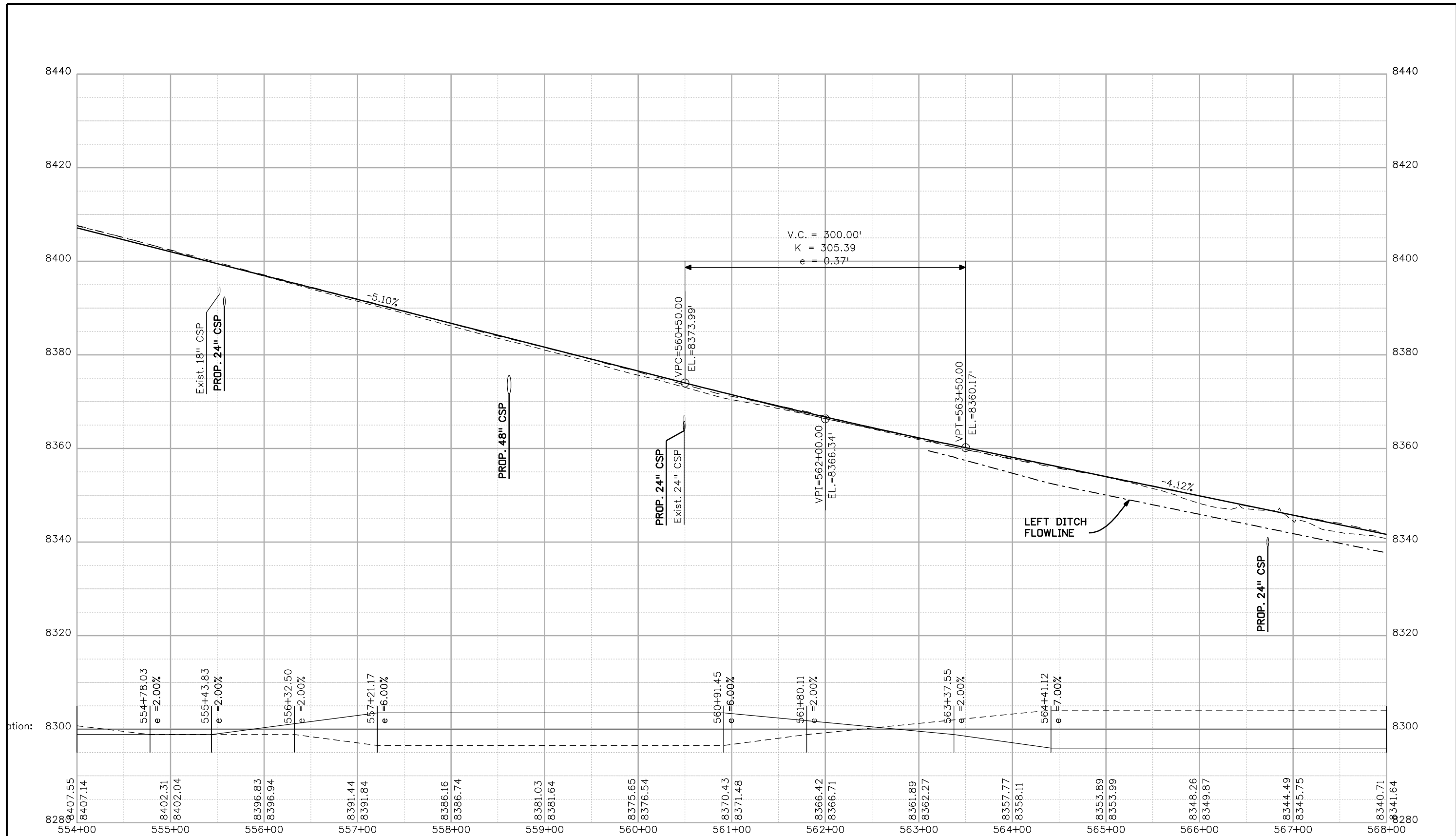
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 2424 North Townsend Avenue  
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 No Revisions:  
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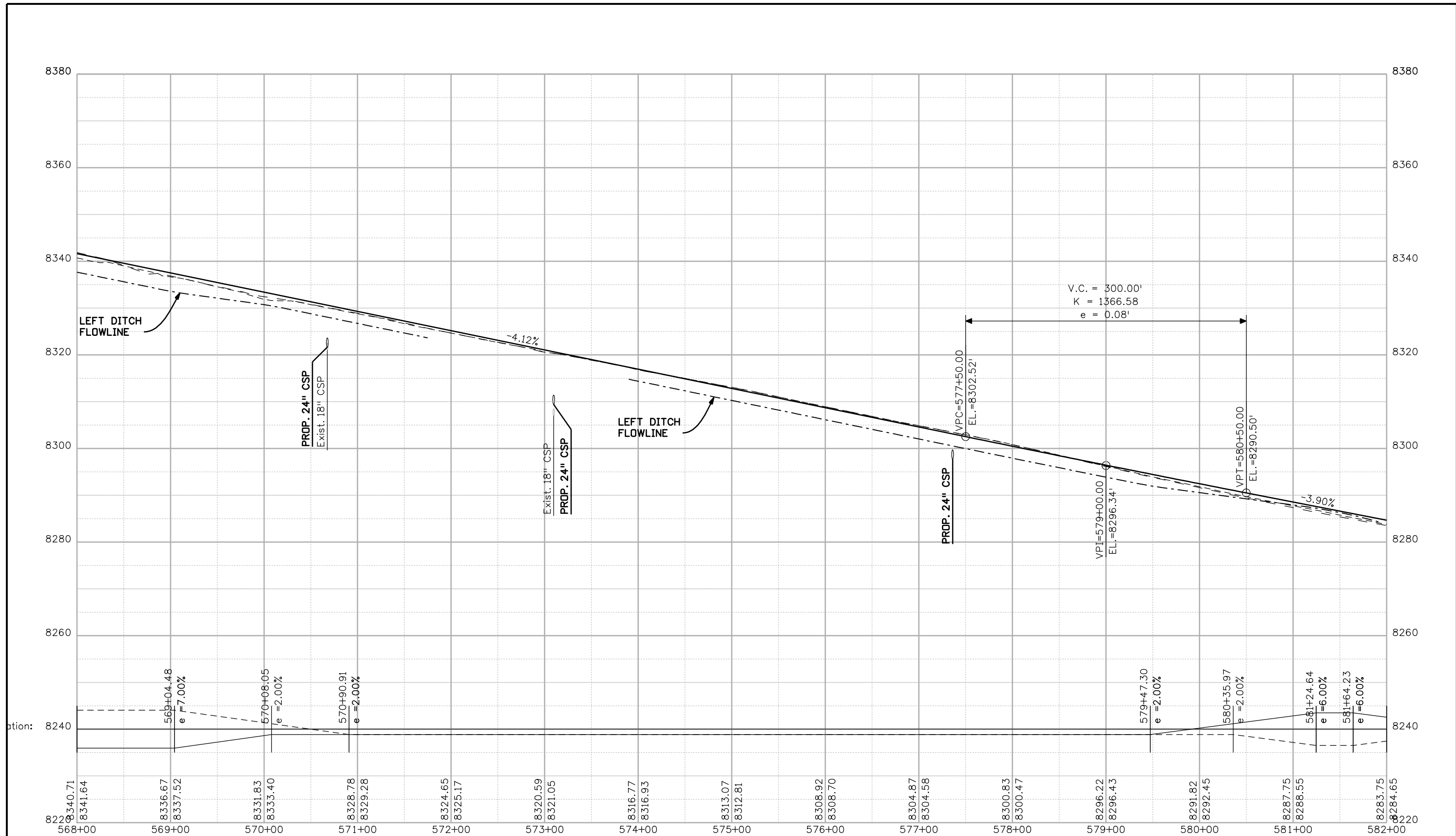
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**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **70**

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Print Date: 3/26/2010  
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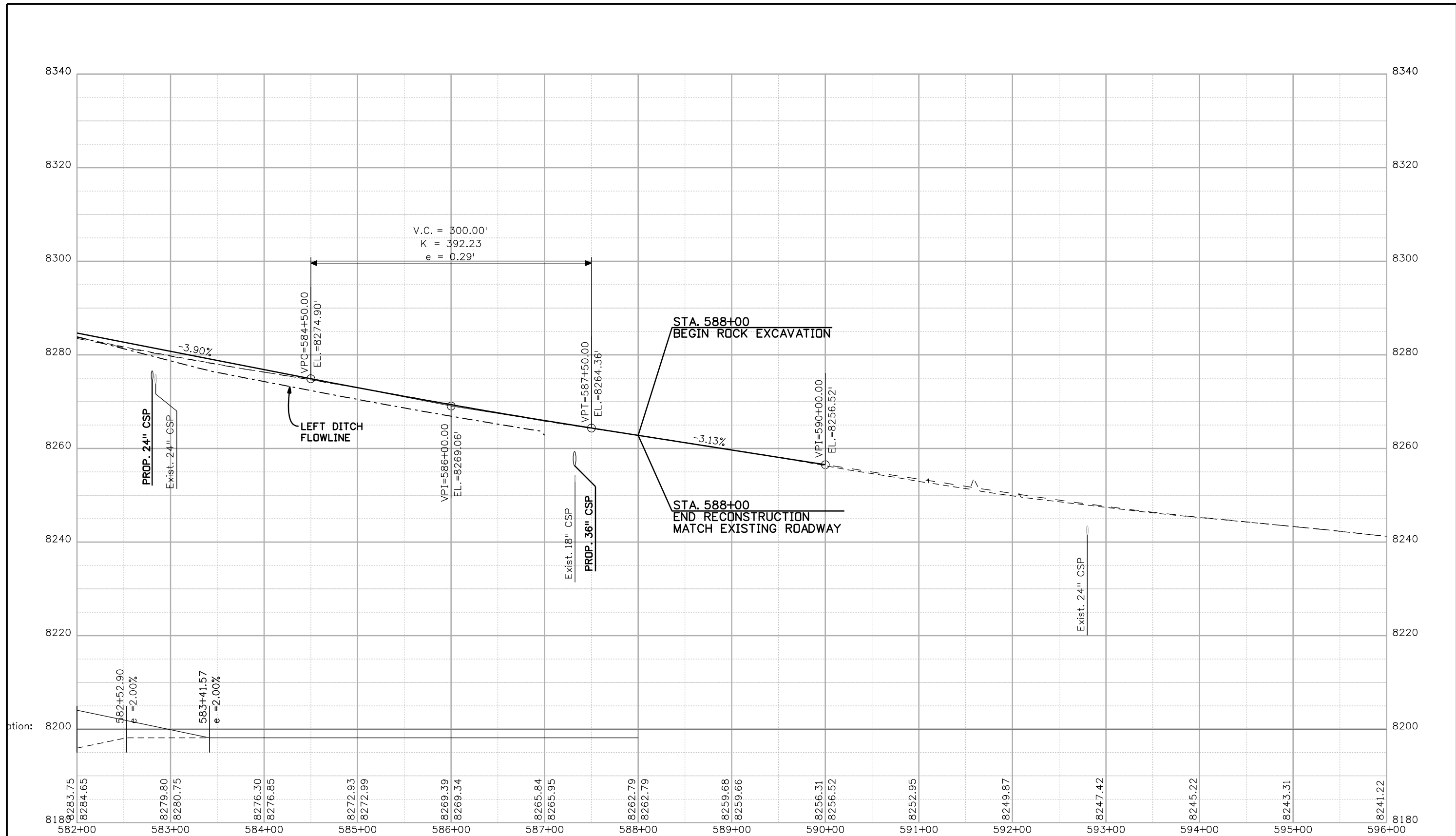
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 No Revisions:  
 Revised:  
 Void:

**PROFILE SHEET**  
 STA. 568+00 to STA. 582+00  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: ROADWAY Subset Sheets: 7 OF 10

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number 72



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Prof08.dgn  
 Horiz. Scale: 1:100      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939 Lakewood, CO 80226

Sheet Revisions		
Date:	Comments	Init.

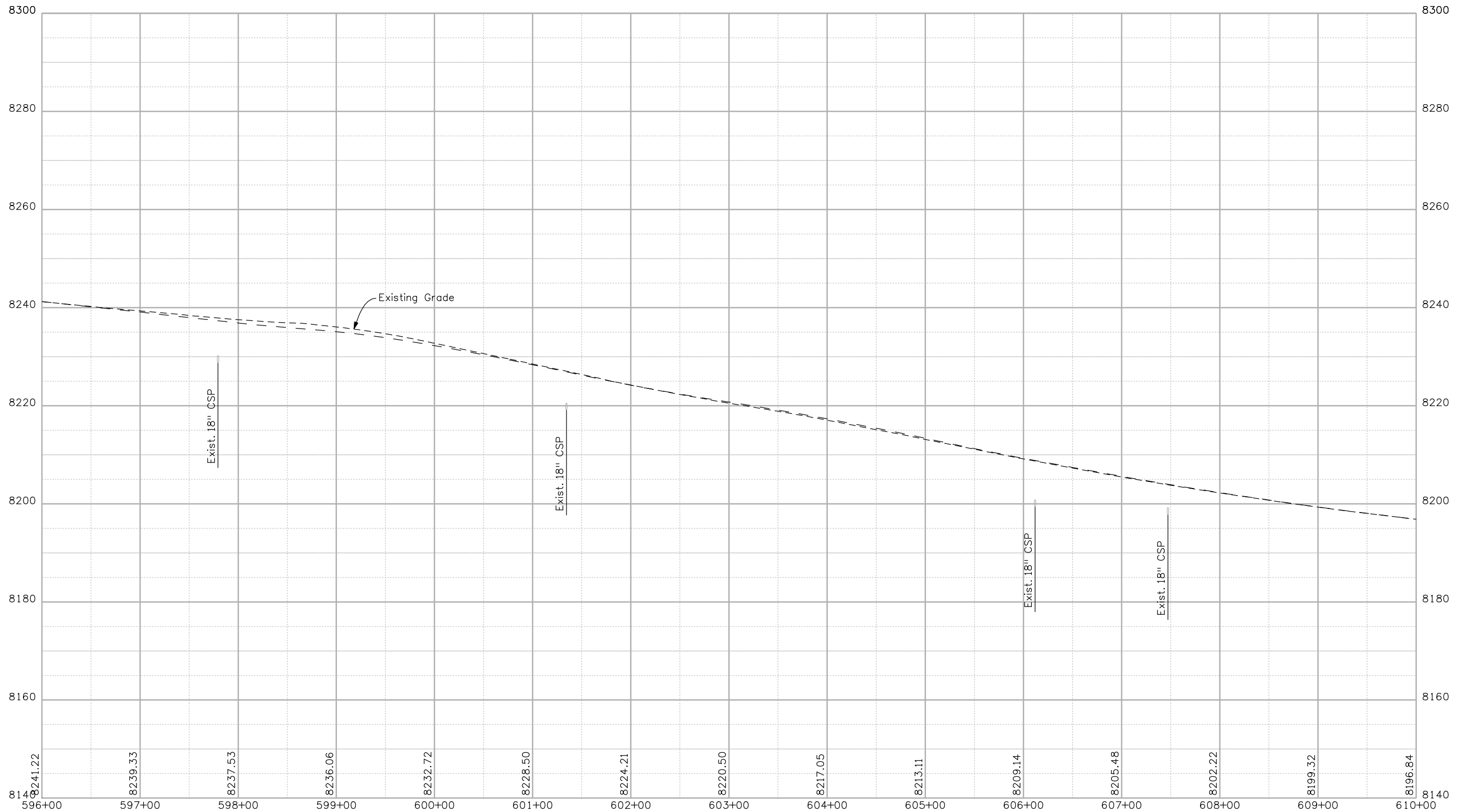
**Colorado Department of Transportation**  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3**      **RBA**

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

**PROFILE SHEET**  
**STA. 582+00 to STA. 596+00**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: ROADWAY      Subset Sheets: 8 OF 10

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **73**





Print Date: 3/26/2010

Drawing File Name: 14933Seg2-Prof09.dgn

Horiz. Scale: 1:100

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

0000

**Sheet Revisions**

Date:	Comments	Init.

Colorado Department of Transportation



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 Montrose, CO 81401  
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Region 3

RBA

**As Constructed**

No Revisions:

Revised:

Void:

**PROFILE SHEET  
 STA. 596+00 to STA. 610+00**

Designer: NJL

Detailer: MAM

Sheet Subset: ROADWAY

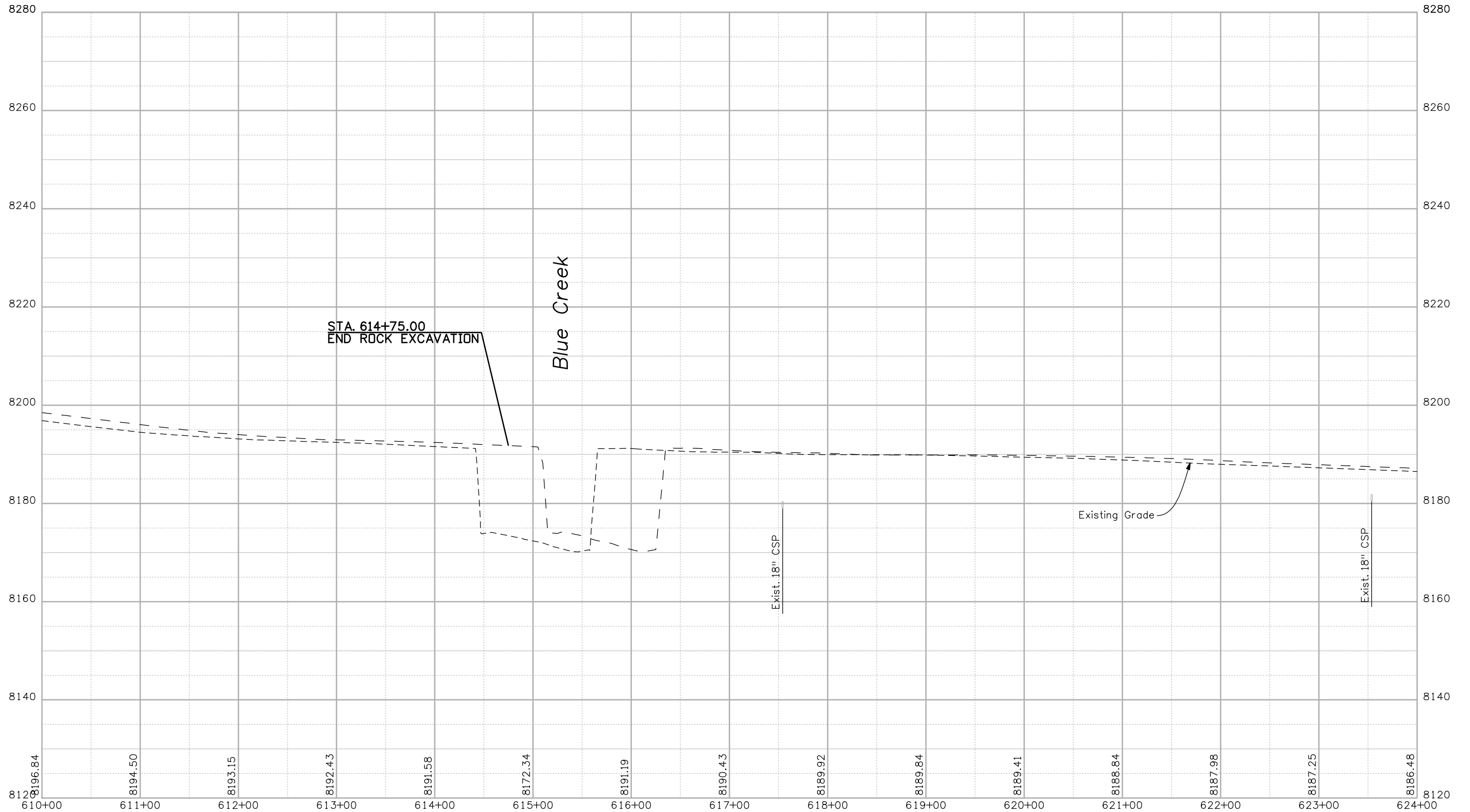
Subset Sheets: 9 OF 10

**Project No./Code**

NH 0501-046

14933

Sheet Number 74



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Prof10.dgn  
 Horiz. Scale: 1:100    Vert. Scale: N/A  
 Unit Leader Information    Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3    RBA

As Constructed	
No Revisions:	
Revised:	
Void:	

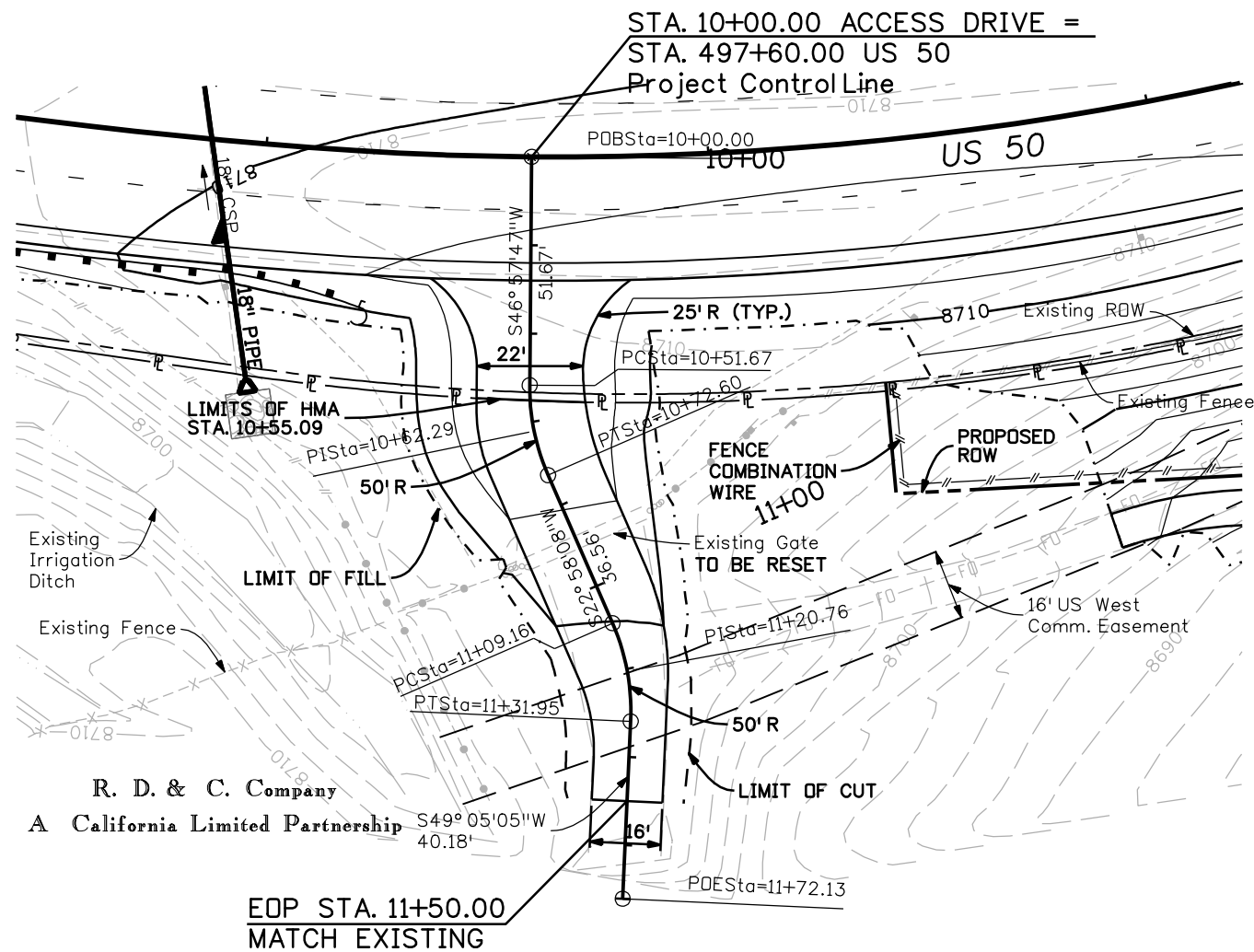
PROFILE SHEET  
 STA. 610+00 to STA. 614+75

Designer: NJL	
Detailer: MAM	
Sheet Subset: ROADWAY	Subset Sheets: 10 OF 10

Project No./Code
NH 0501-046
14933
Sheet Number 75

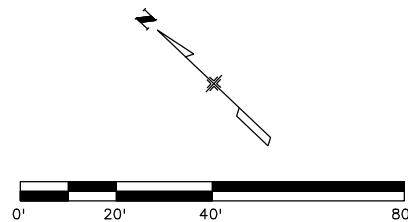


**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100 Lakewood, CO 80226  
 CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939



R. D. & C. Company  
A California Limited Partnership

EOP STA. 11+50.00  
MATCH EXISTING

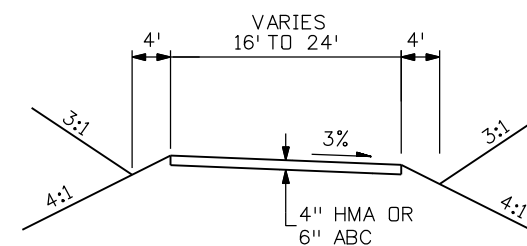
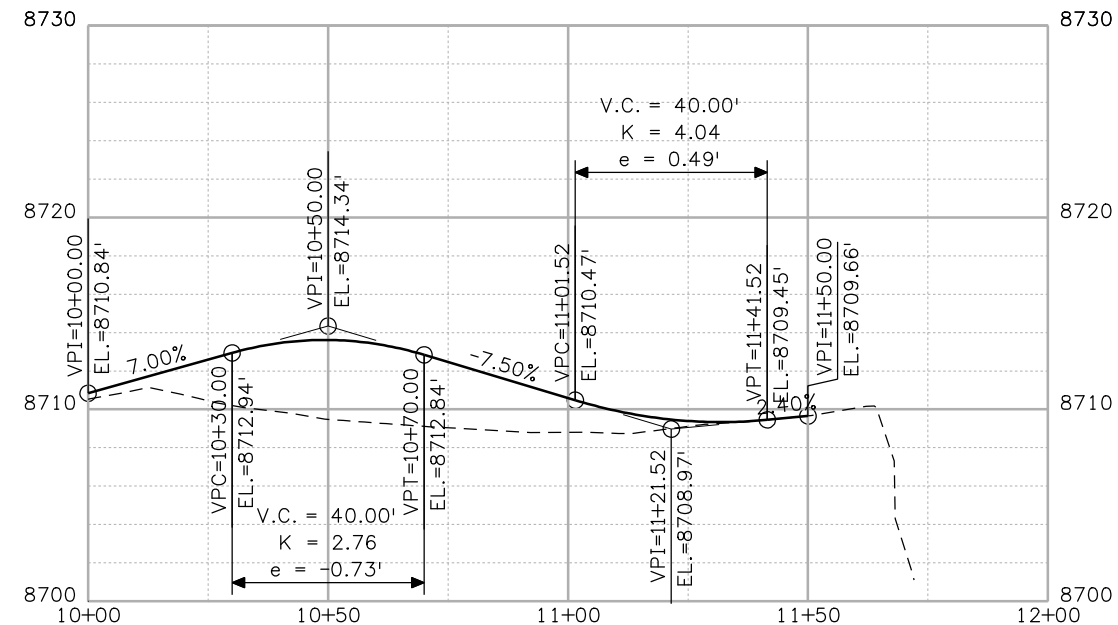


**SURFACING QUANTITIES**

AREA TO PAVE 87 SY  
HMA 20 TONS  
ABC (CL 6) 68 TONS

**EARTHWORK QUANTITIES (APPROXIMATE)**

EMBANKMENT MATERIAL 327 CU YDS  
UNCLASSIFIED EXCAVATION 16 CU YDS



TYPICAL APPROACH SECTION  
SCALE: 1" = 20'



Know what's below.  
Call before you dig.

Print Date: 3/26/2010	
Drawing File Name: 14933Seg2-P&PAccess01.dgn	
Horiz. Scale: 1:40	Vert. Scale: N/A
Unit Leader Information	Unit Leader Initials
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939	

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

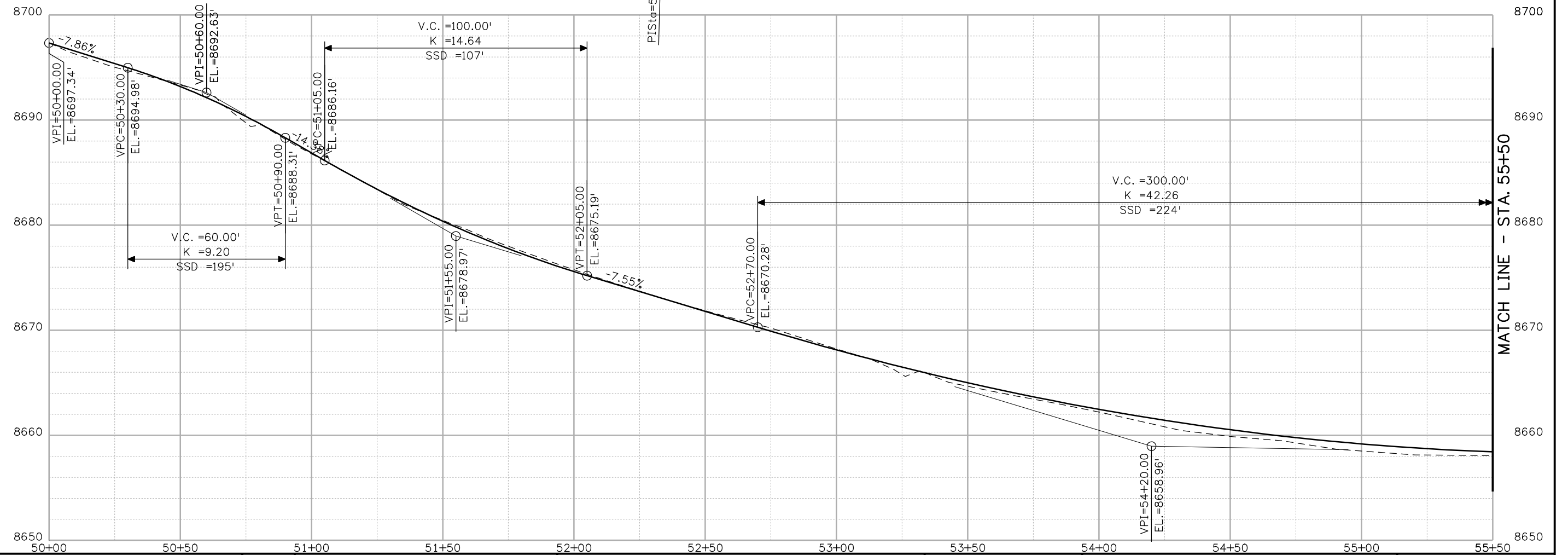
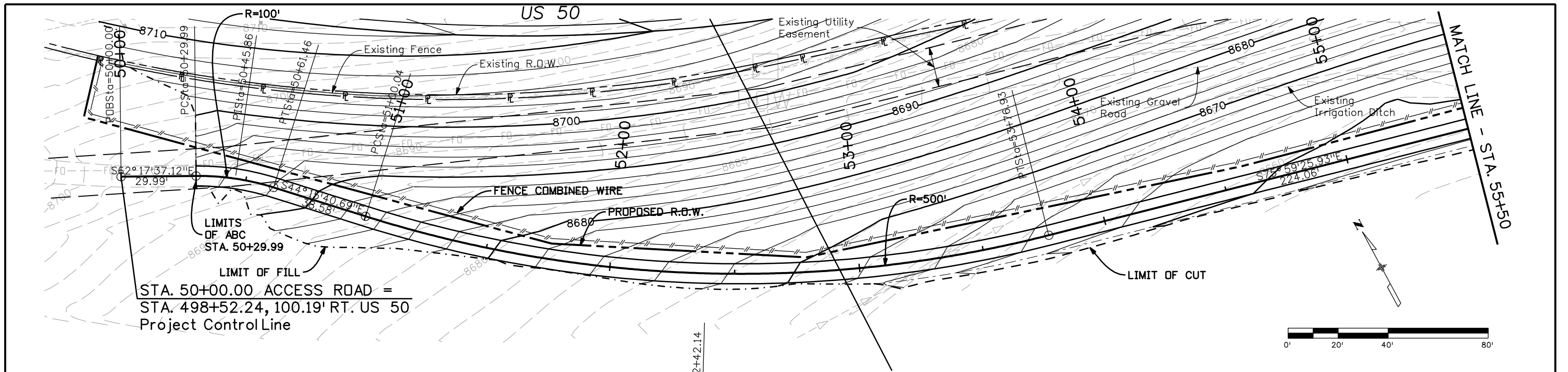
2424 North Townsend Avenue  
Montrose, CO 81401  
Phone: 972-249-5285 FAX: 970-249-6018

Region 3 RBA

<b>As Constructed</b>
No Revisions:
Revised:
Void:

<b>ACCESS DRIVE PLAN AND PROFILE</b>	
STA. 497+60.00 RT	
Designer:	NJL
Detailer:	MAM
Sheet Subset:	ROADWAY
Subset Sheets:	1 of 6

<b>Project No./Code</b>
NH 0501-046
14933
Sheet Number 76



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-P&PAccess02.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

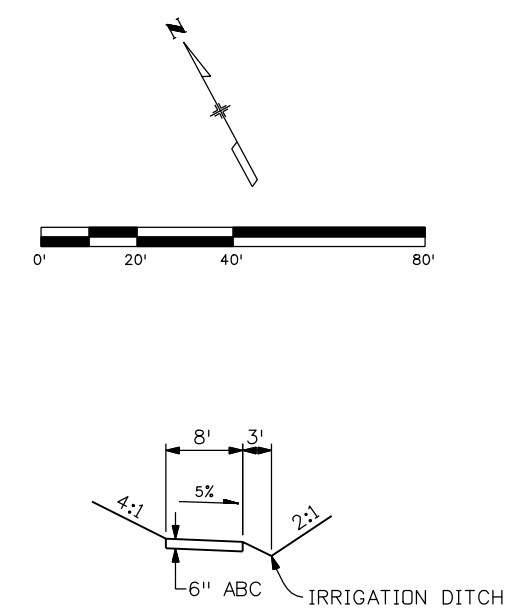
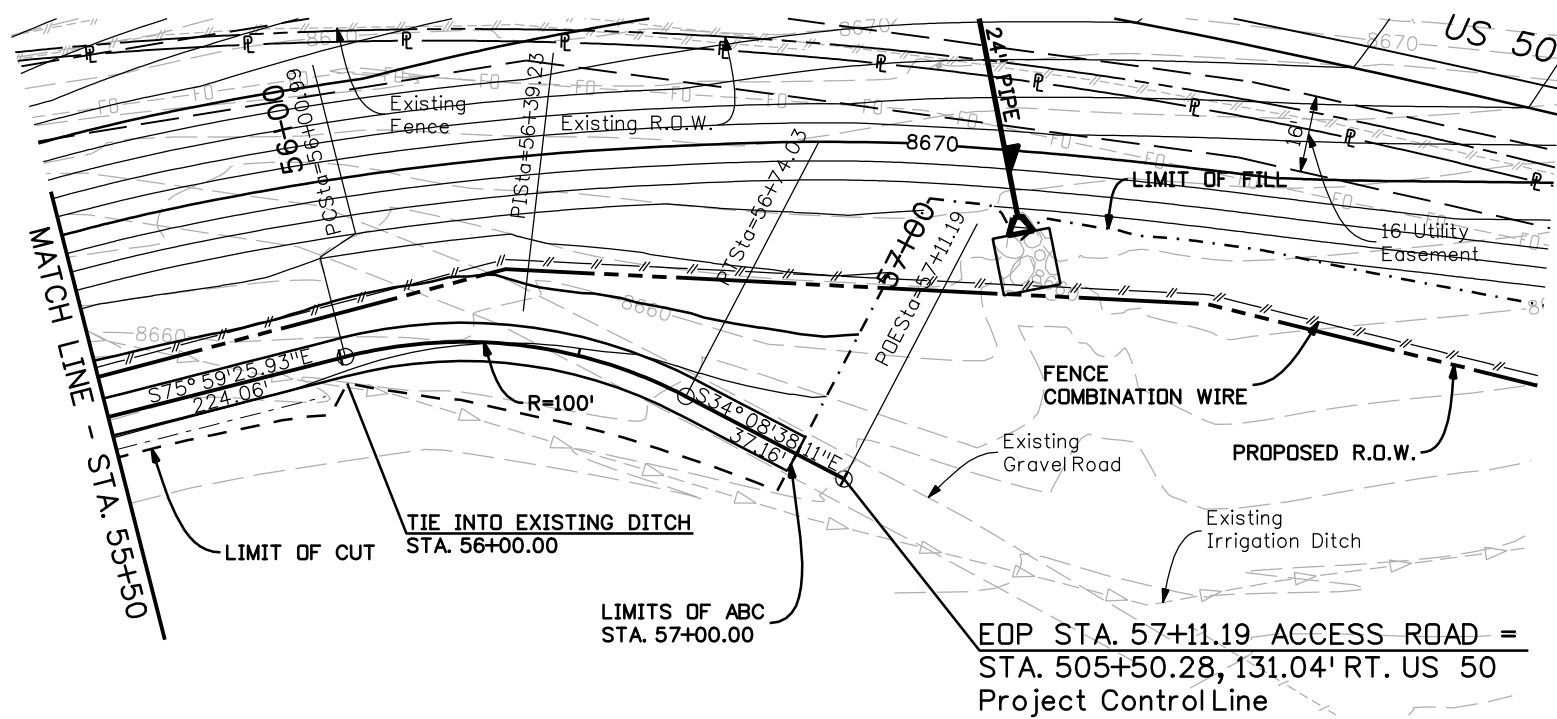
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3** RBA

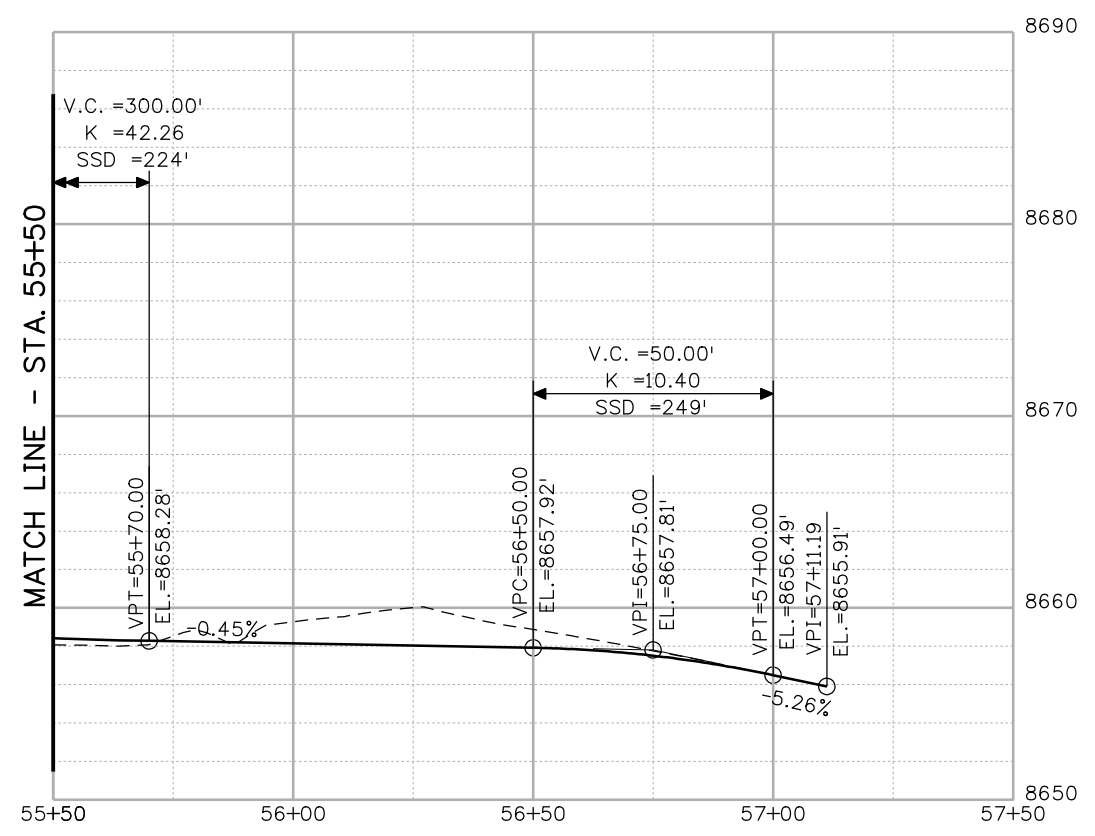
As Constructed  
 No Revisions:  
 Revised:  
 Void:

**ACCESS DRIVE PLAN AND PROFILE**  
**STA. 498+52.24 RT**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: ROADWAY Subset Sheets: 2 of 6

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 77



TYPICAL APPROACH SECTION  
SCALE: 1" = 20'



**SURFACING QUANTITIES**  
ABC (CL 6) 178 TONS

**EARTHWORK QUANTITIES (APPROXIMATE)**  
EMBANKMENT MATERIAL 63 CU YDS  
UNCLASSIFIED EXCAVATION 222 CU YDS



Know what's below.  
Call before you dig.

Print Date: 3/26/2010  
Drawing File Name: 14933Seg2-P&PAccess03.dgn  
Horiz. Scale: 1:40 Vert. Scale: N/A  
Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd. #4-100 Lakewood, CO 80226  
CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
**DOT**  
2424 North Townsend Avenue  
Montrose, CO 81401  
Phone: 972-249-5285 FAX: 970-249-6018  
Region 3 RBA

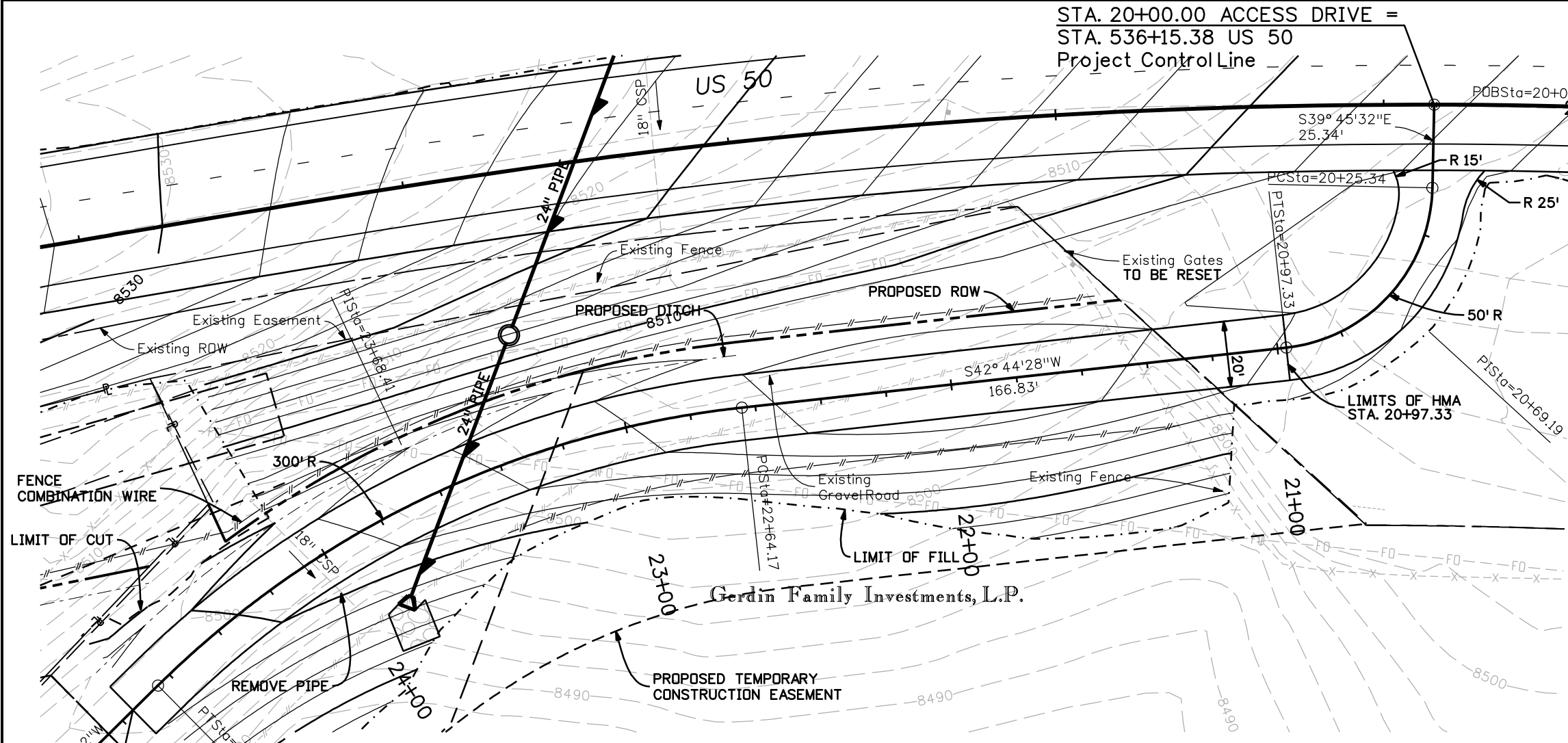
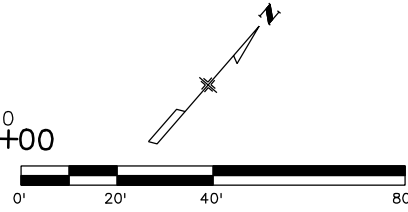
As Constructed  
No Revisions:  
Revised:  
Void:

ACCESS DRIVE PLAN AND PROFILE  
STA. 498+52.24 RT  
Designer: NJL  
Detailer: MAM  
Sheet Subset: ROADWAY Subset Sheets: 3 of 6

Project No./Code  
NH 0501-046  
14933  
Sheet Number 78



STA. 20+00.00 ACCESS DRIVE =  
 STA. 536+15.38 US 50  
 Project Control Line

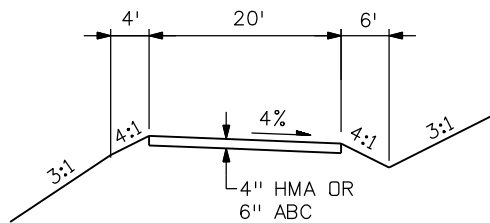


**SURFACING QUANTITIES**

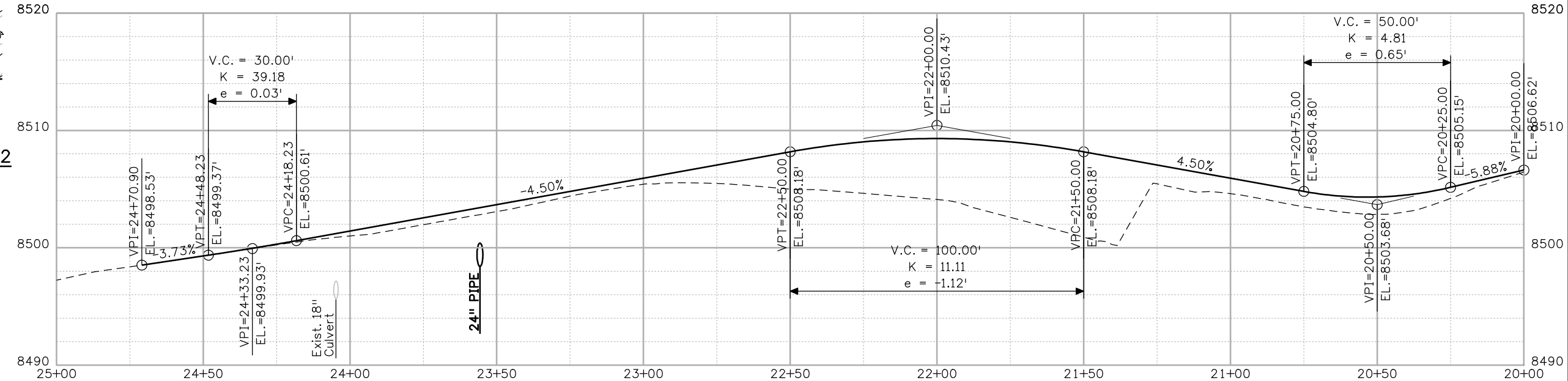
AREA TO PAVE 175 SY  
 HMA 39 TONS  
 ABC (CL 6) 252 TONS

**EARTHWORK QUANTITIES (APPROXIMATE)**

EMBANKMENT MATERIAL 1744 CU YDS  
 UNCLASSIFIED EXCAVATION 48 CU YDS



TYPICAL APPROACH SECTION  
 SCALE: 1" = 20'



EOP STA. 24+75.52  
 MATCH EXISTING



Know what's below.  
 Call before you dig.

Print Date: 3/26/2010	
Drawing File Name: 14933Seg2-P&PAccess04.dgn	
Horiz. Scale: 1:40	Vert. Scale: N/A
Unit Leader Information	Unit Leader Initials
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939	

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

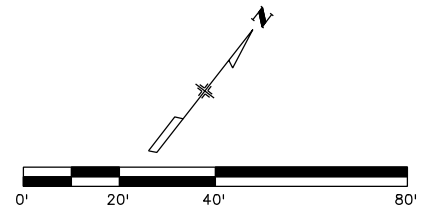
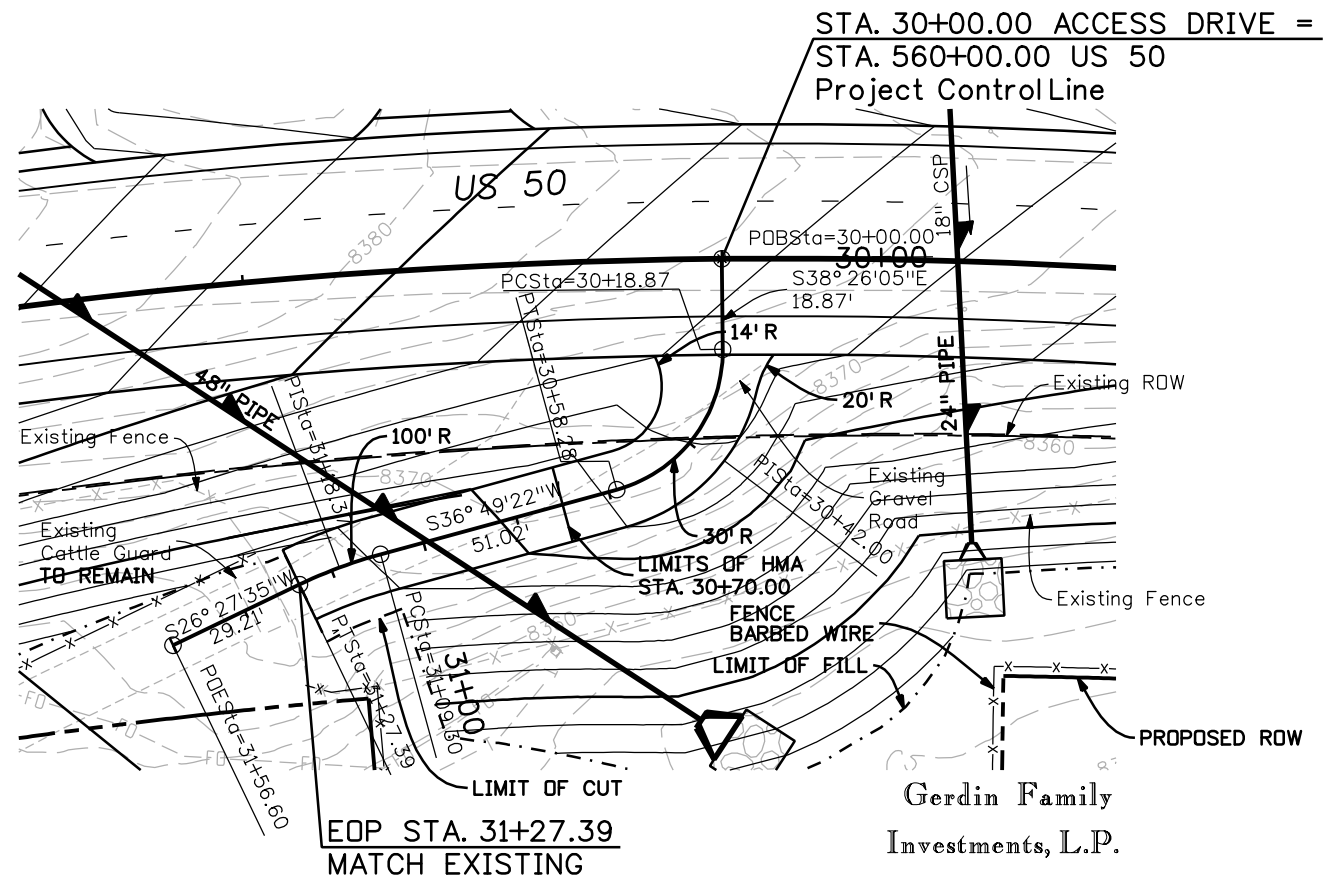
2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018

Region 3 RBA

As Constructed
No Revisions:
Revised:
Void:

ACCESS DRIVE PLAN AND PROFILE STA. 536+15.38 RT	
Designer:	NJL
Detailer:	MAM
Sheet Subset:	ROADWAY
Subset Sheets:	4 of 6

Project No./Code	NH 0501-046
	14933
Sheet Number	79

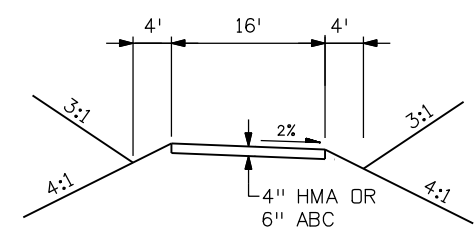
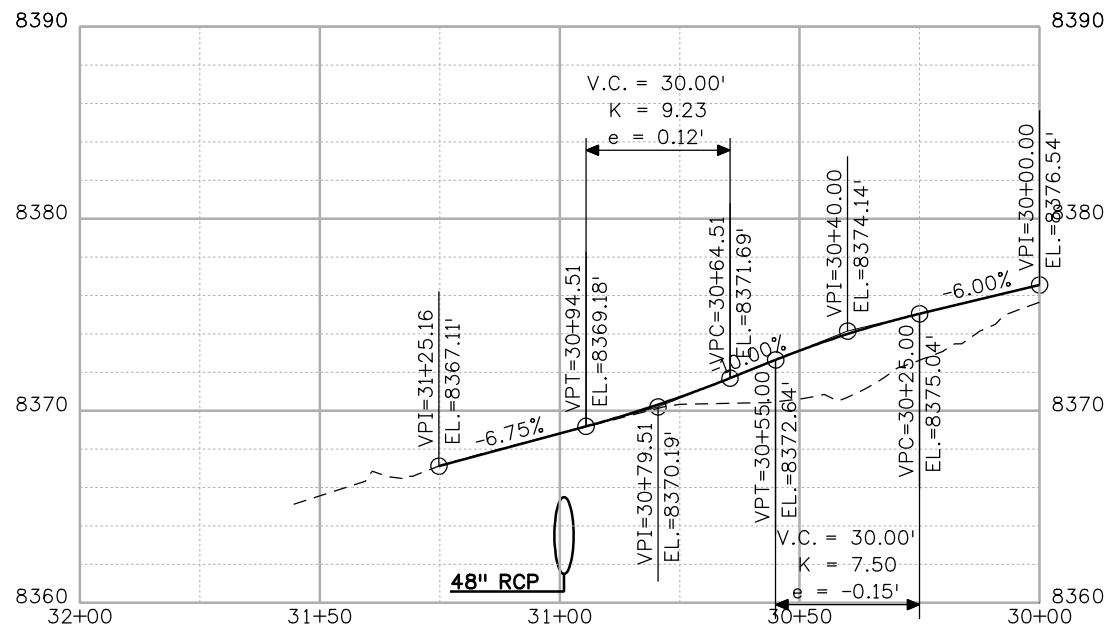


**SURFACING QUANTITIES**

AREA TO PAVE 95 SY  
 HMA 21 TONS  
 ABC (CL 6) 31 TONS

**EARTHWORK QUANTITIES (APPROXIMATE)**

EMBANKMENT MATERIAL 635 CU YDS  
 UNCLASSIFIED EXCAVATION 13 CU YDS



**TYPICAL APPROACH SECTION**  
 SCALE: 1" = 20'



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-P&PAccess05.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

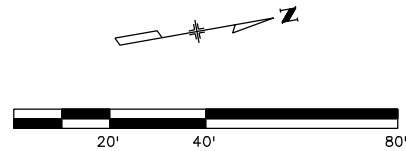
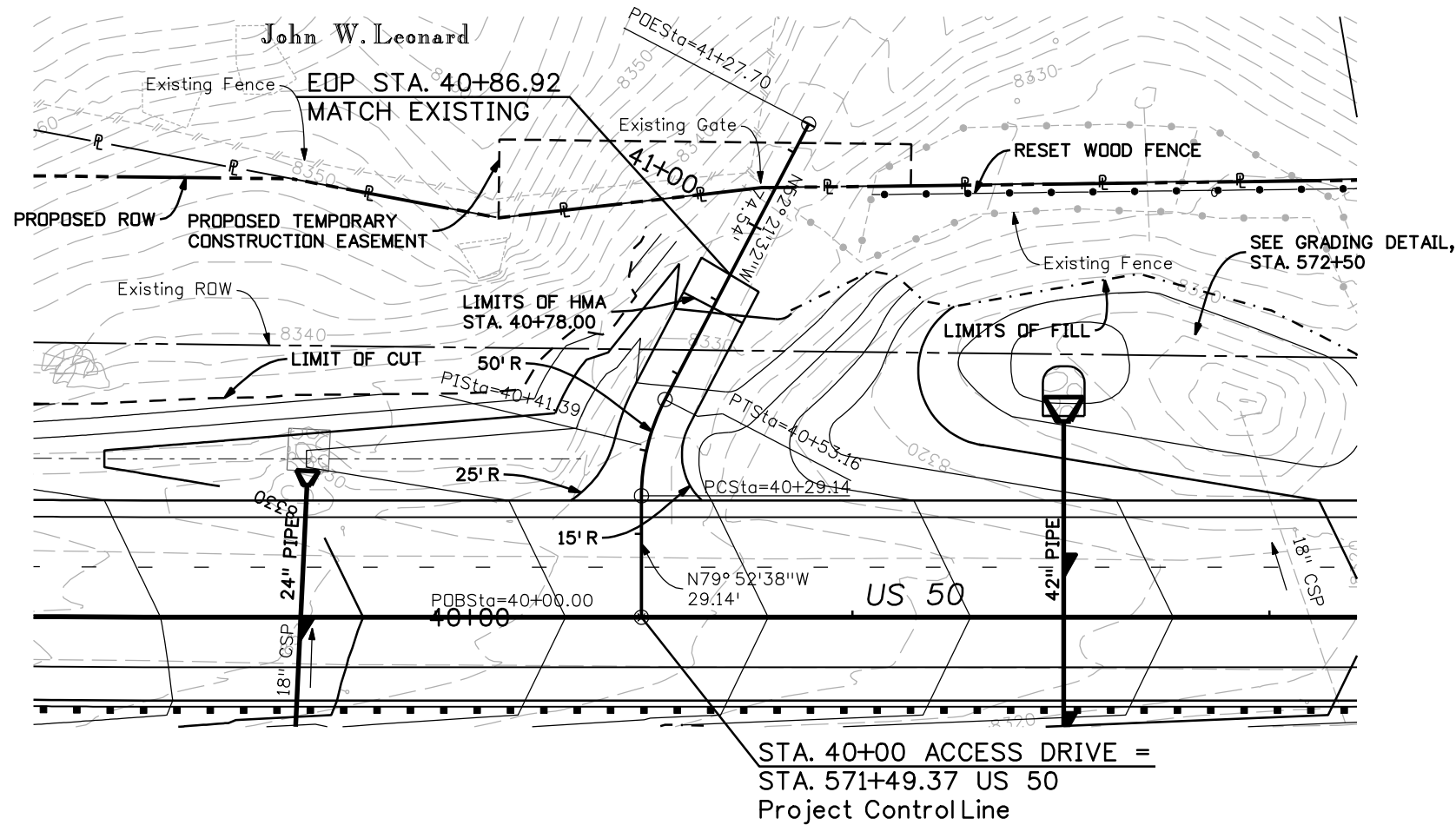
Colorado Department of Transportation  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

**ACCESS DRIVE PLAN AND PROFILE**  
 STA. 560+00.00 RT  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: ROADWAY Subset Sheets: 5 of 6

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 80



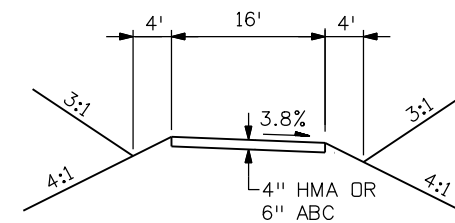
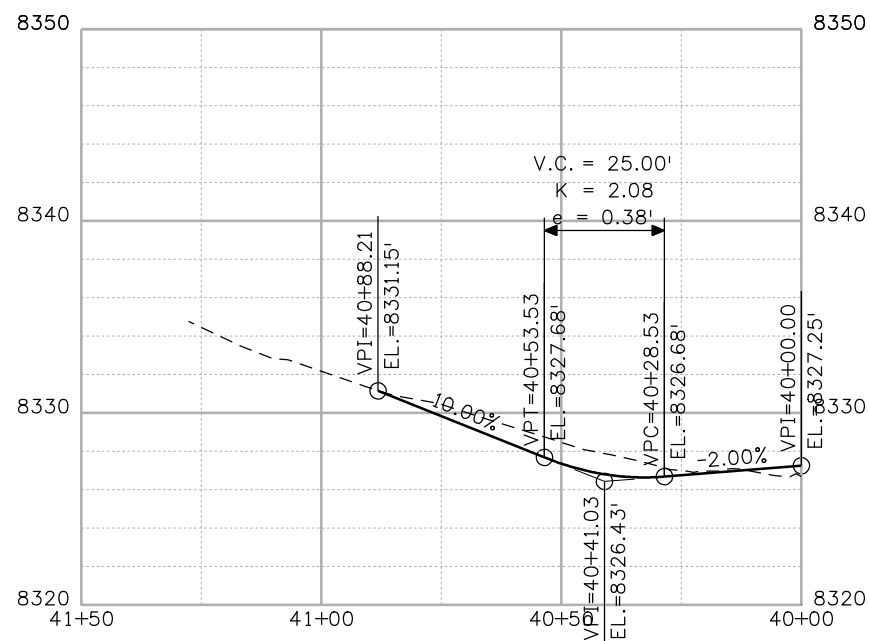


**SURFACING QUANTITIES**

AREA TO PAVE 97 SY  
 HMA 21 TONS  
 ABC (CL 6) 5 TONS

**EARTHWORK QUANTITIES (APPROXIMATE)**

EMBANKMENT MATERIAL 0 CU YDS  
 UNCLASSIFIED EXCAVATION 131 CU YDS



TYPICAL APPROACH SECTION  
 SCALE: 1" = 20'



Know what's below.  
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Print Date: 3/26/2010

Drawing File Name: 14933Seg2-P&PAccess06.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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 CONSULTING ENGINEERS  
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 Lakewood, CO 80226

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation



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Region 3

RBA

As Constructed

No Revisions:

Revised:

Void:

ACCESS DRIVE PLAN AND PROFILE  
 STA. 571+49.37 LT

Designer:

NJL

Detailer:

MAM

Sheet Subset: ROADWAY

Subset Sheets: 6 of 6

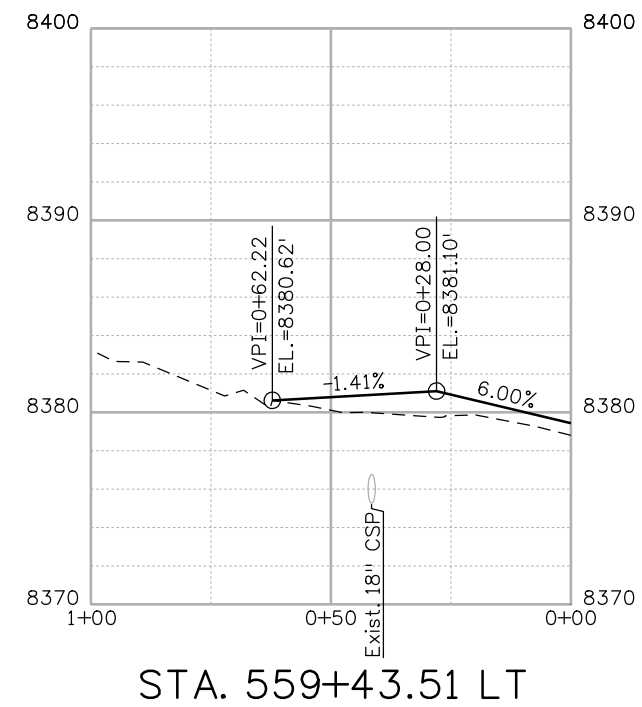
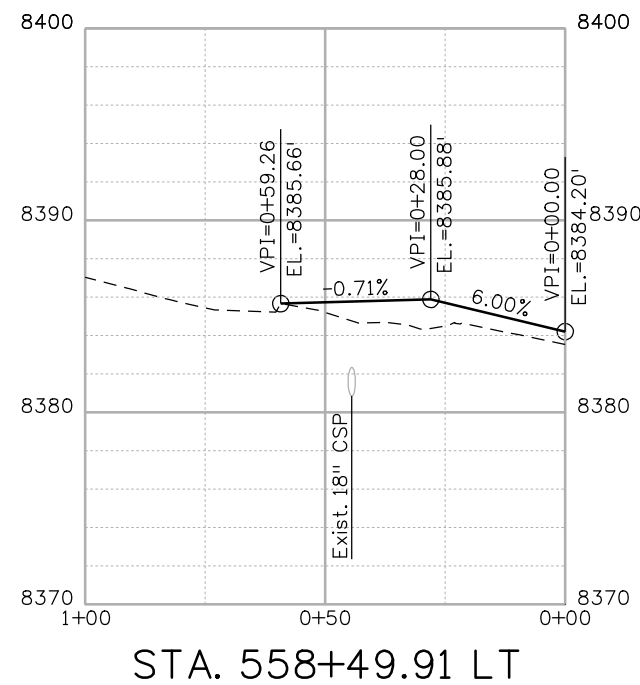
Project No./Code

NH 0501-046

14933


Sheet Number

81



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-DriveProf01.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939

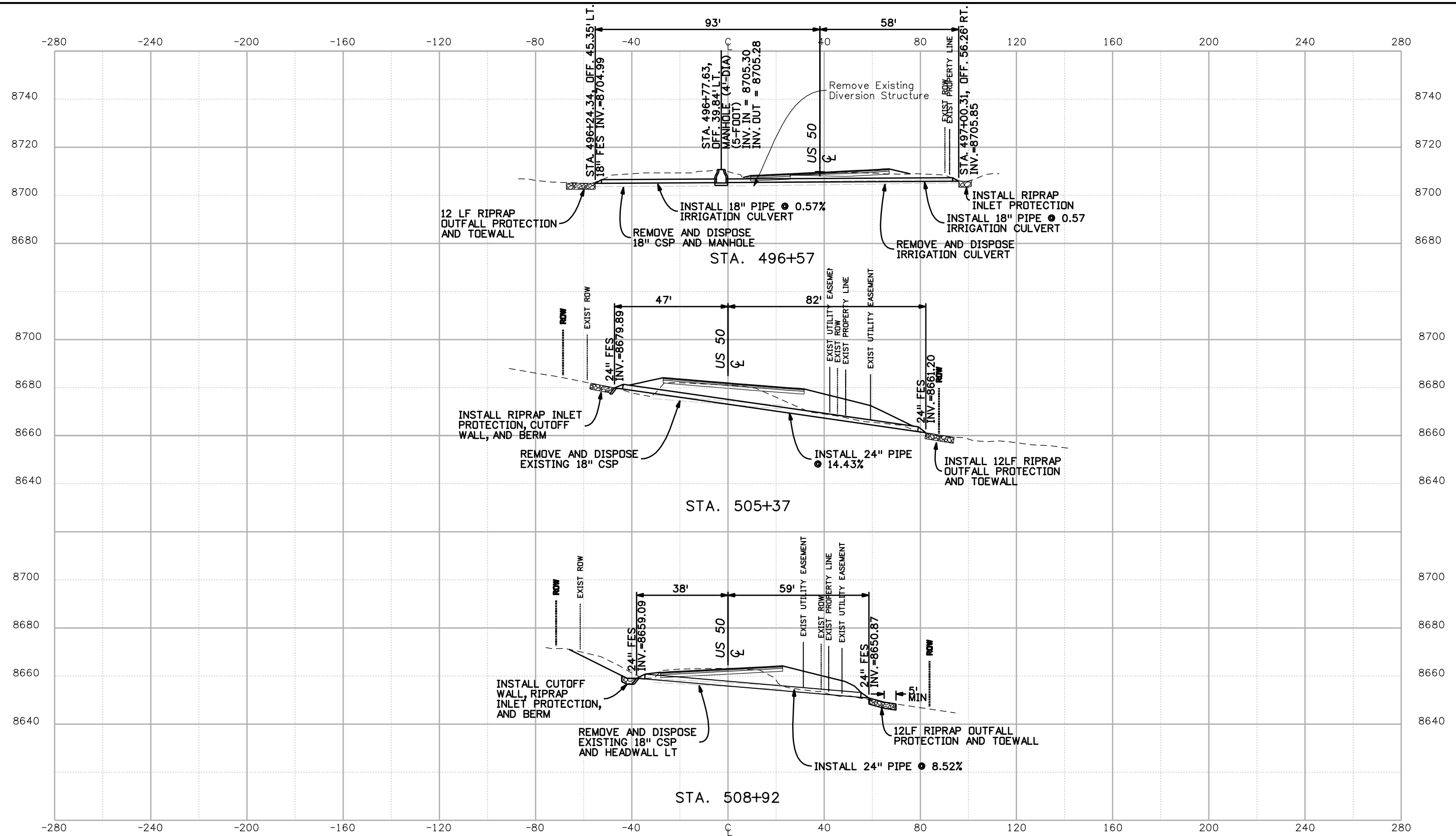
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
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 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3      RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:


FIELD APPROACH PROFILES	
Designer:	NJL
Detailer:	MAM
Sheet Subset:	PROFILES
Subset Sheets:	1 of 1

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 82



Print Date: 3/26/2010  
 Drawing File Name: 14933-Seg2-StructureProfile01.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939

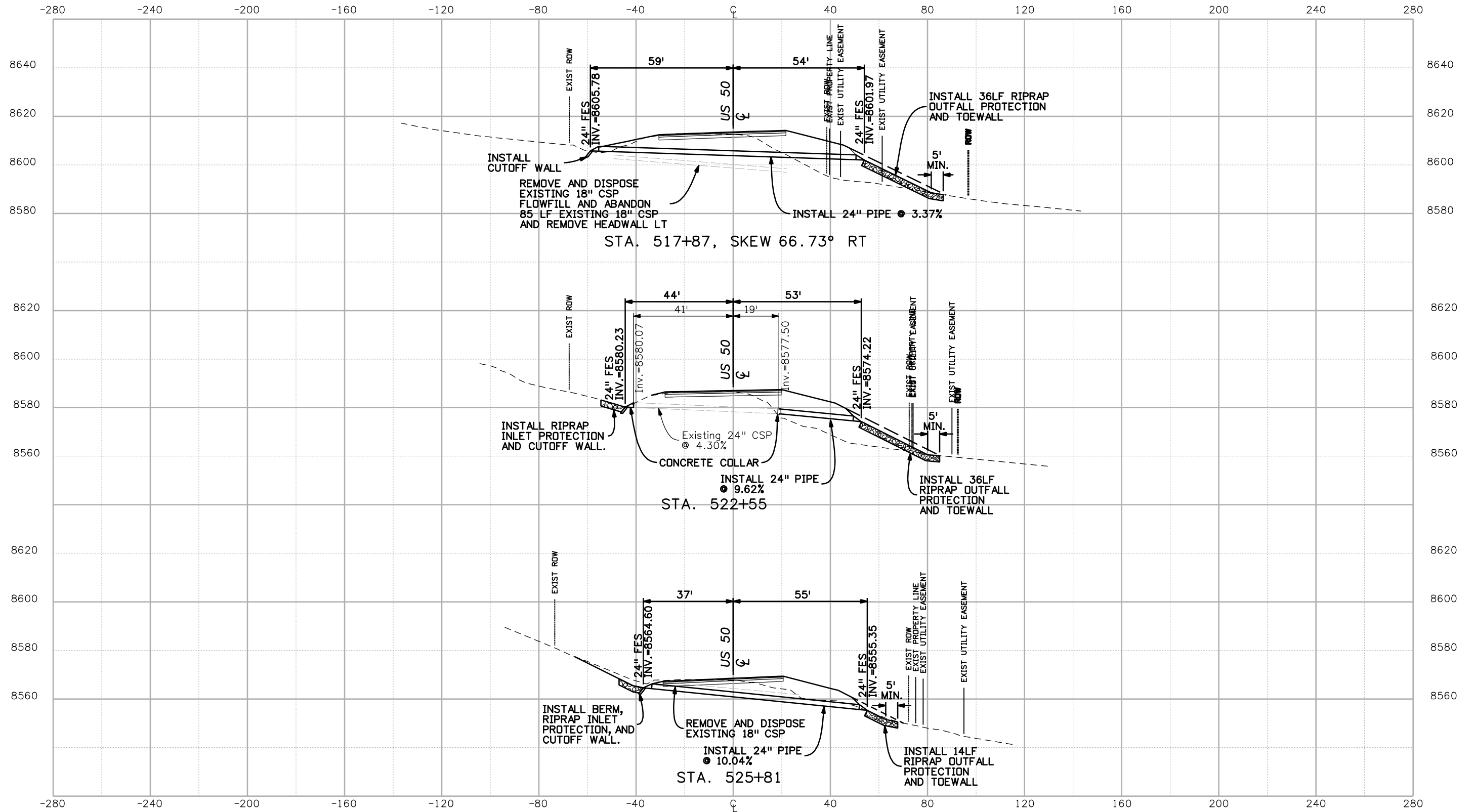
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3

As Constructed  
 No Revisions:  
 Revised:  
 Void:


STRUCTURE PROFILES  
 Designer: ASP  
 Detailer: MAM  
 Sheet Subset: DRN PRF      Subset Sheets: 1 of 8

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 83



Print Date: 3/26/2010  
 Drawing File Name: 14933-Seg2-StructureProfile02.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939 Lakewood, CO 80226

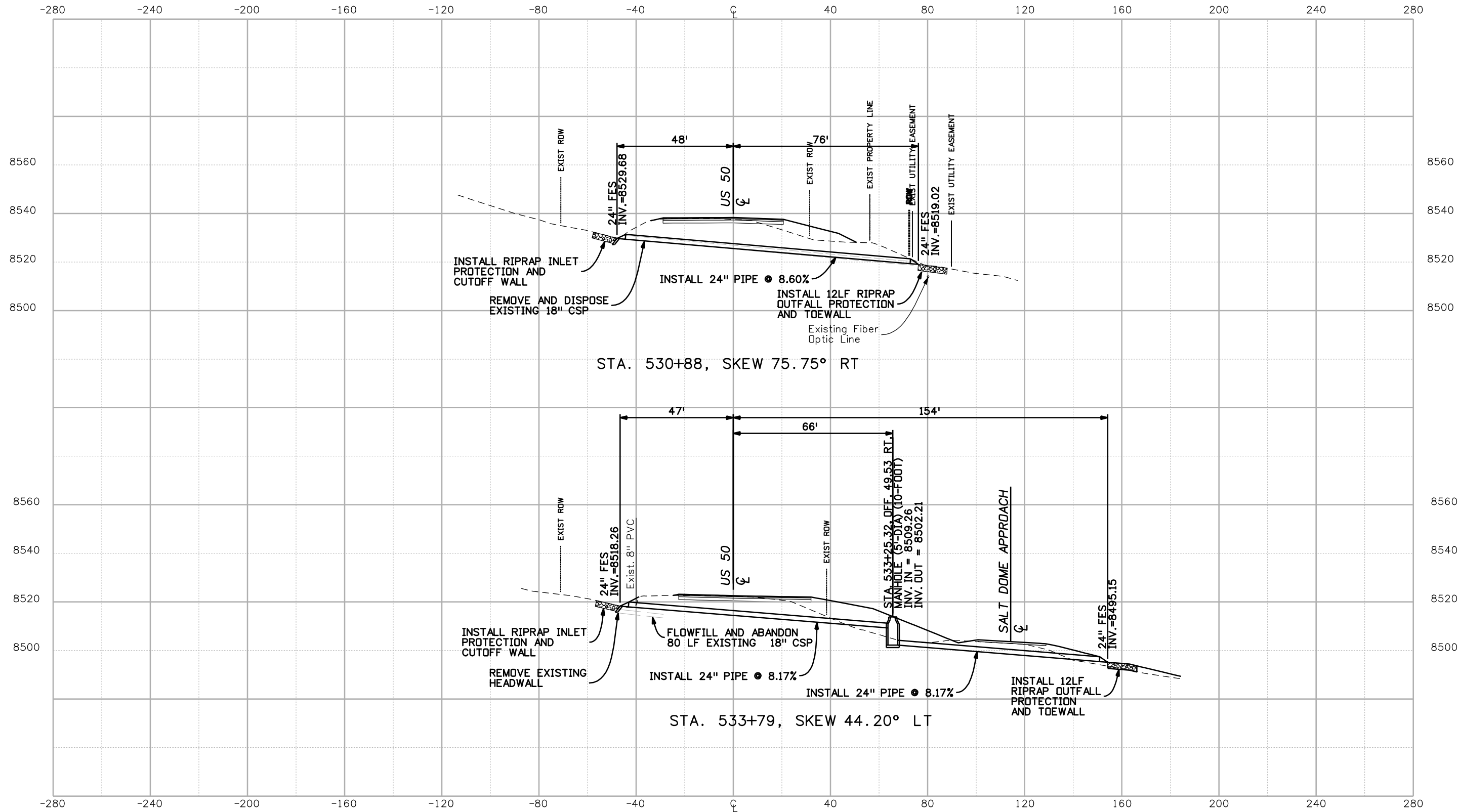
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3

As Constructed  
 No Revisions:  
 Revised:  
 Void:


STRUCTURE PROFILES  
 Designer: ASP  
 Detailer: MAM  
 Sheet Subset: DRN PRF      Subset Sheets: 2 of 8

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 84



Print Date: 3/26/2010  
 Drawing File Name: 14933-Seg2-StructureProfile03.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939

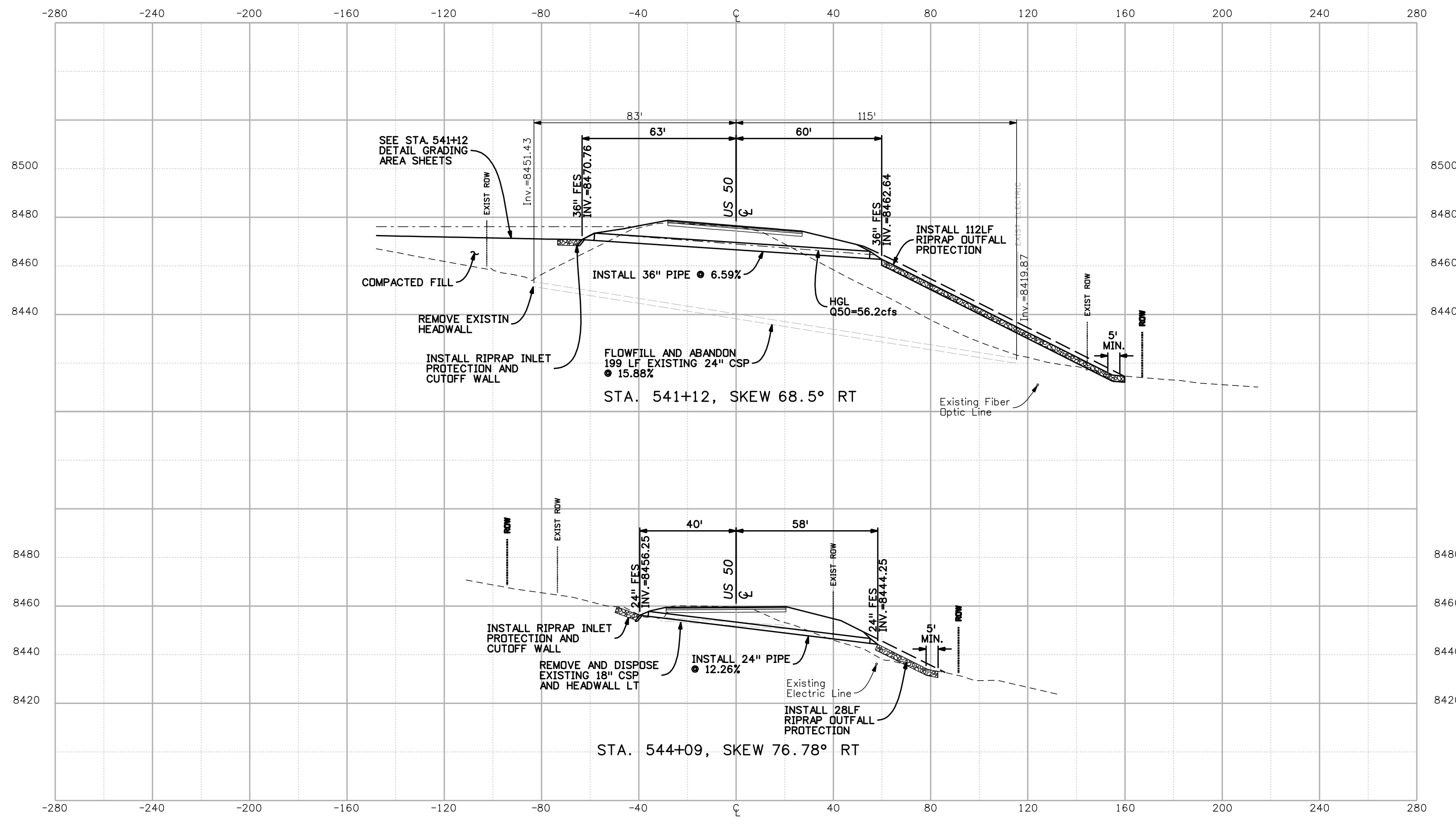
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
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 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3

As Constructed  
 No Revisions:  
 Revised:  
 Void:

STRUCTURE PROFILES  
 Designer: ASP  
 Detailer: MAM  
 Sheet Subset: DRN PRF      Subset Sheets: 3 of 8

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 85



Print Date: 3/26/2010  
 Drawing File Name: 14933-Seg2-StructureProfile04.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939 Lakewood, CO 80226

Sheet Revisions		
Date:	Comments	Init.

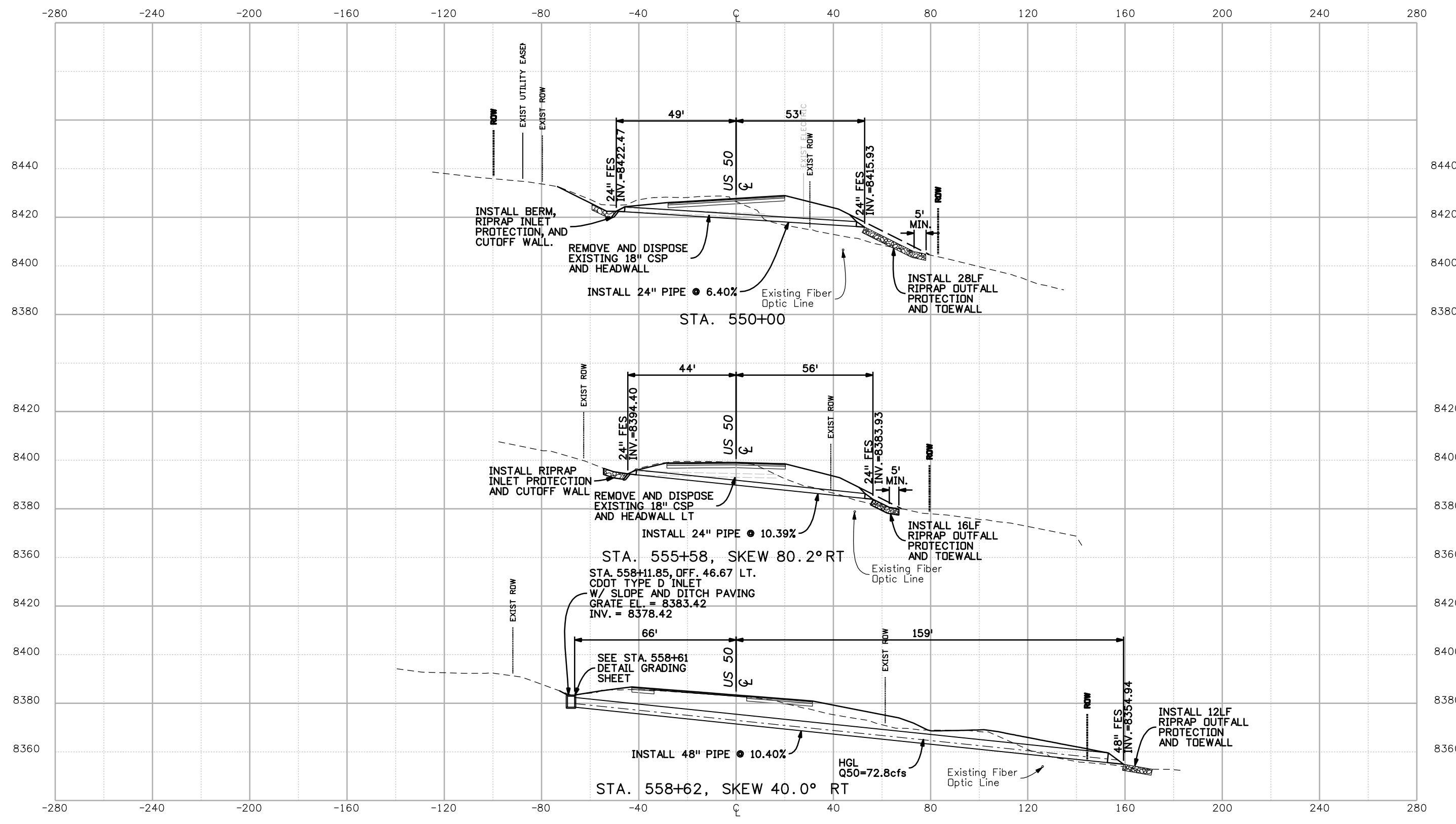
Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

**STRUCTURE PROFILES**

Designer:	ASP
Detailer:	MAM
Sheet Subset:	DRN PRF
Subset Sheets:	4 of 8

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **86**



Print Date: 3/26/2010  
 Drawing File Name: 14933-Seg2-StructureProfile05.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939

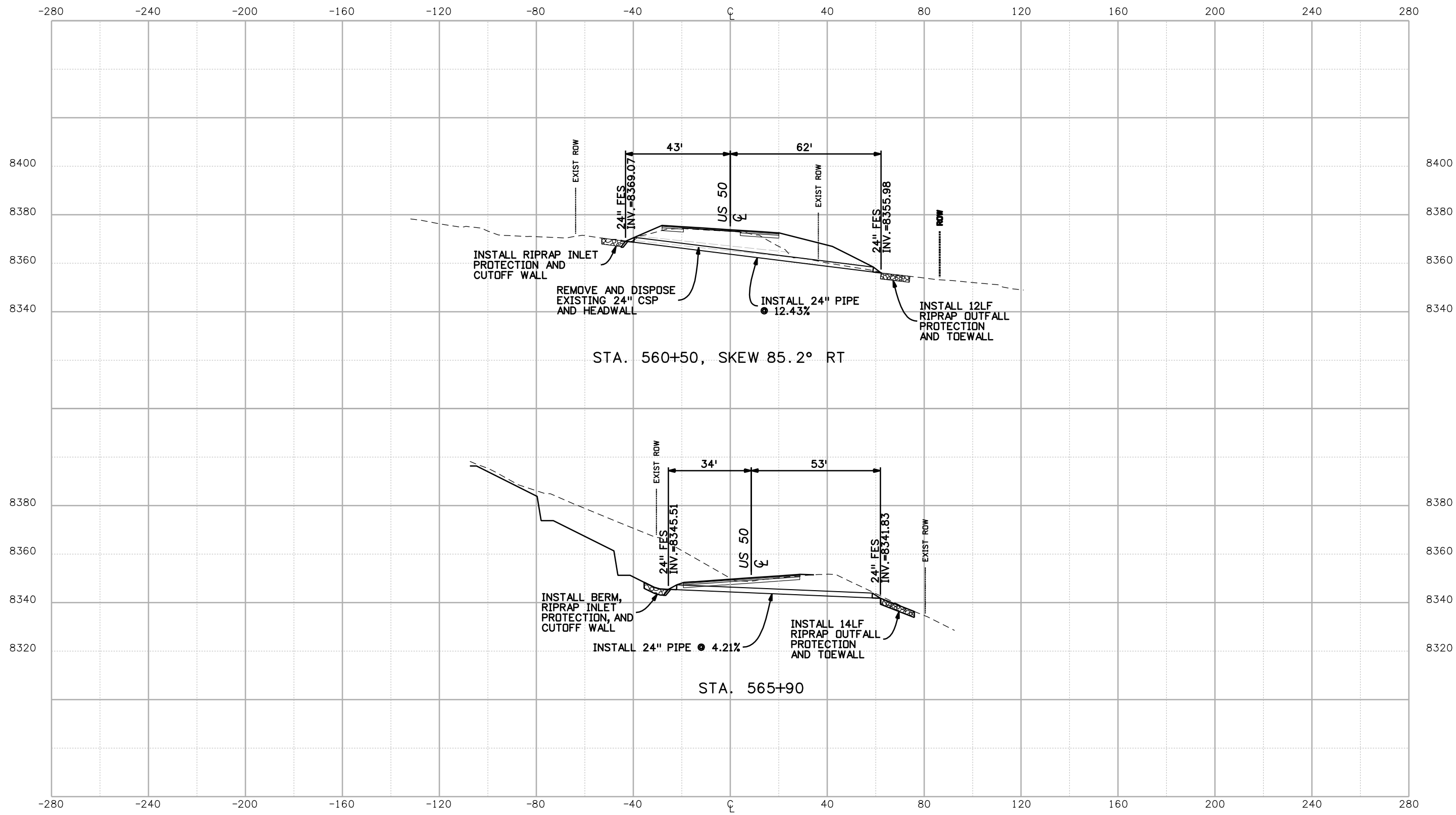
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:


**STRUCTURE PROFILES**  
 Designer: ASP  
 Detailer: MAM  
 Sheet Subset: DRN PRF      Subset Sheets: 5 of 8

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **87**



Print Date: 3/26/2010  
 Drawing File Name: 14933-Seg2-StructureProfile06.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
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 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3

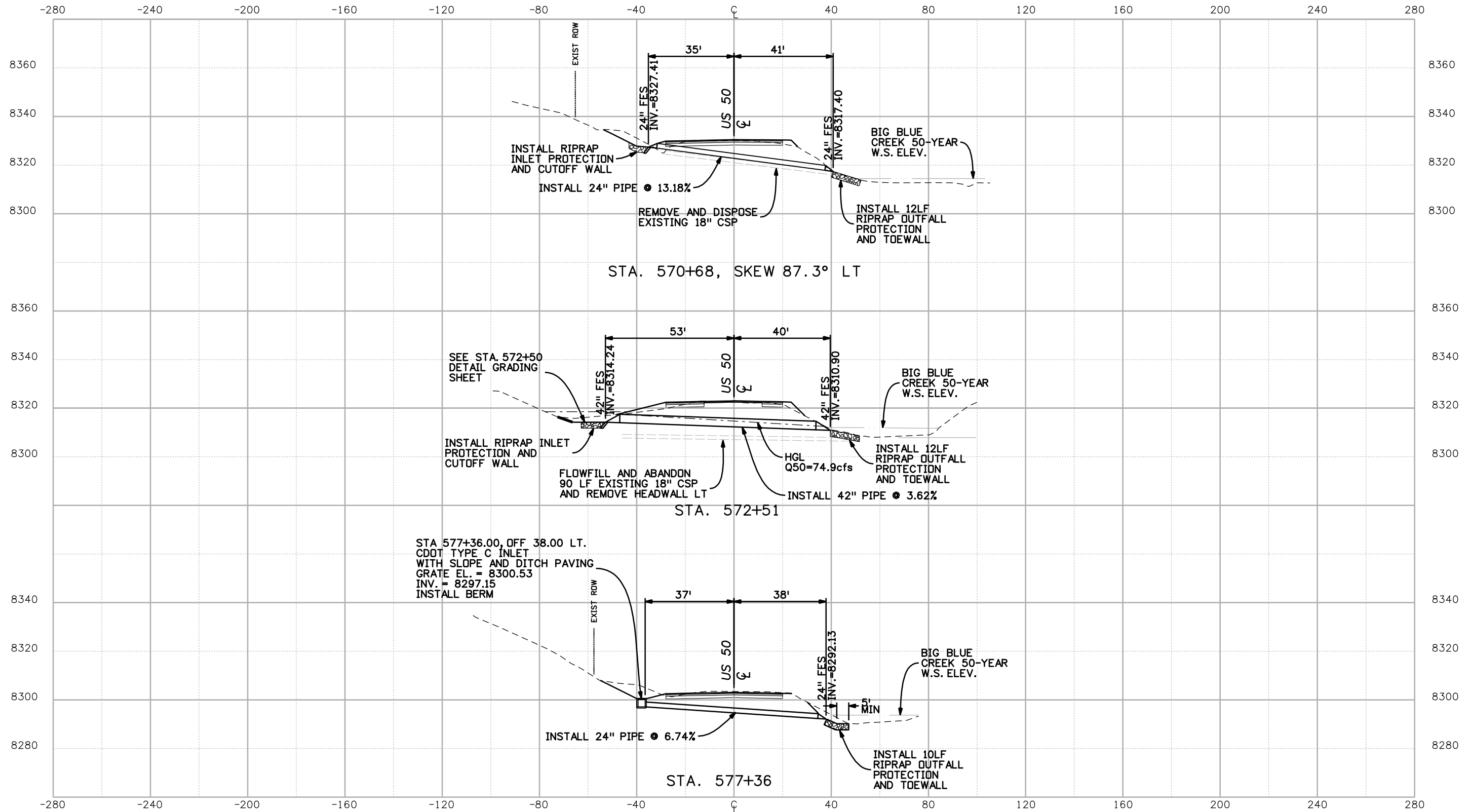
As Constructed  
 No Revisions:  
 Revised:  
 Void:

STRUCTURE PROFILES

Designer:	ASP
Detailer:	MAM
Sheet Subset:	DRN PRF
Subset Sheets:	6 of 8


Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 88





Print Date: 3/26/2010  
 Drawing File Name: 14933-Seg2-StructureProfile07.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939

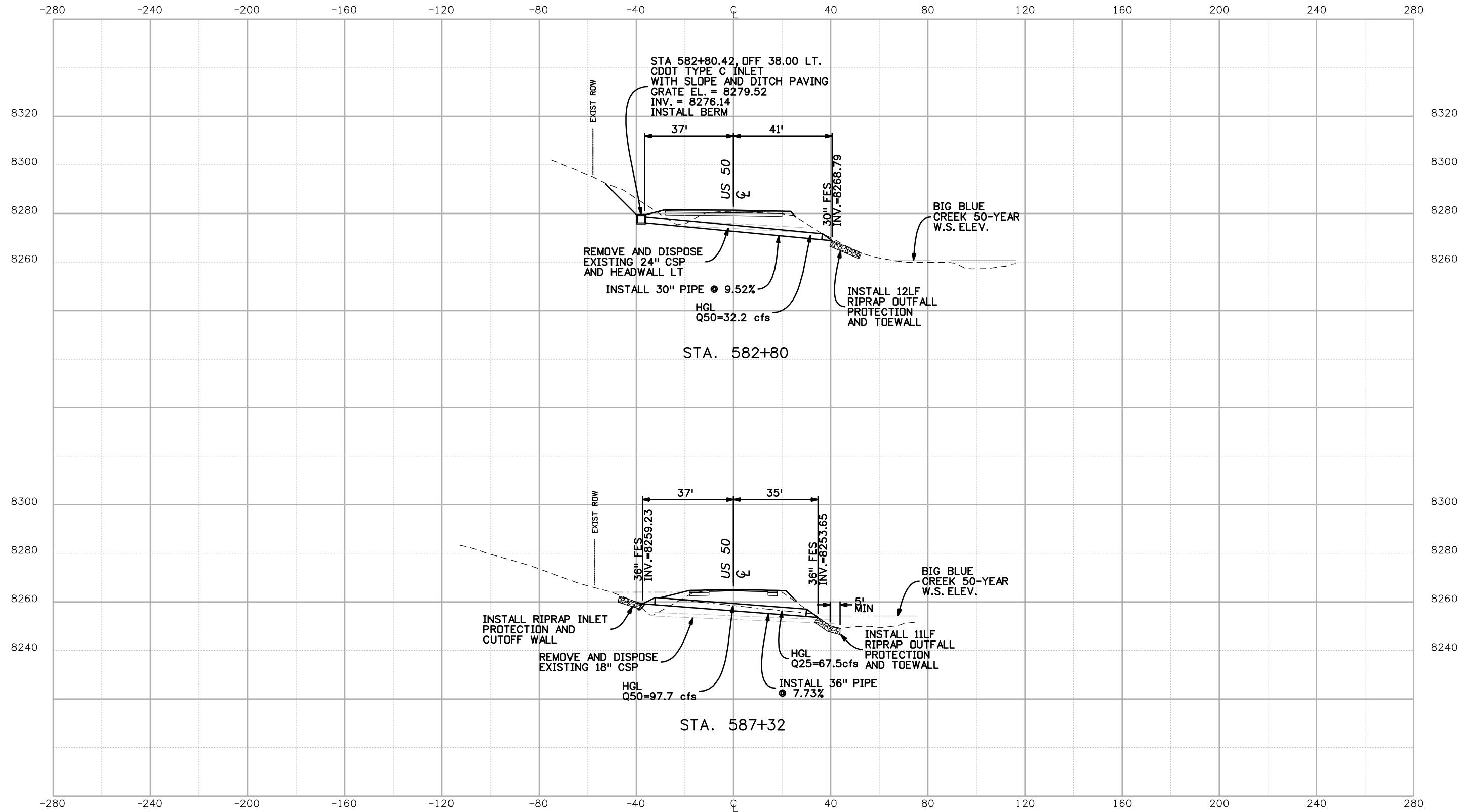
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3

As Constructed  
 No Revisions:  
 Revised:  
 Void:


STRUCTURE PROFILES  
 Designer: ASP  
 Detailer: MAM  
 Sheet Subset: DRN PRF      Subset Sheets: 7 of 8

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 89



Print Date: 3/26/2010  
 Drawing File Name: 14933-Seg2-StructureProfile08.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

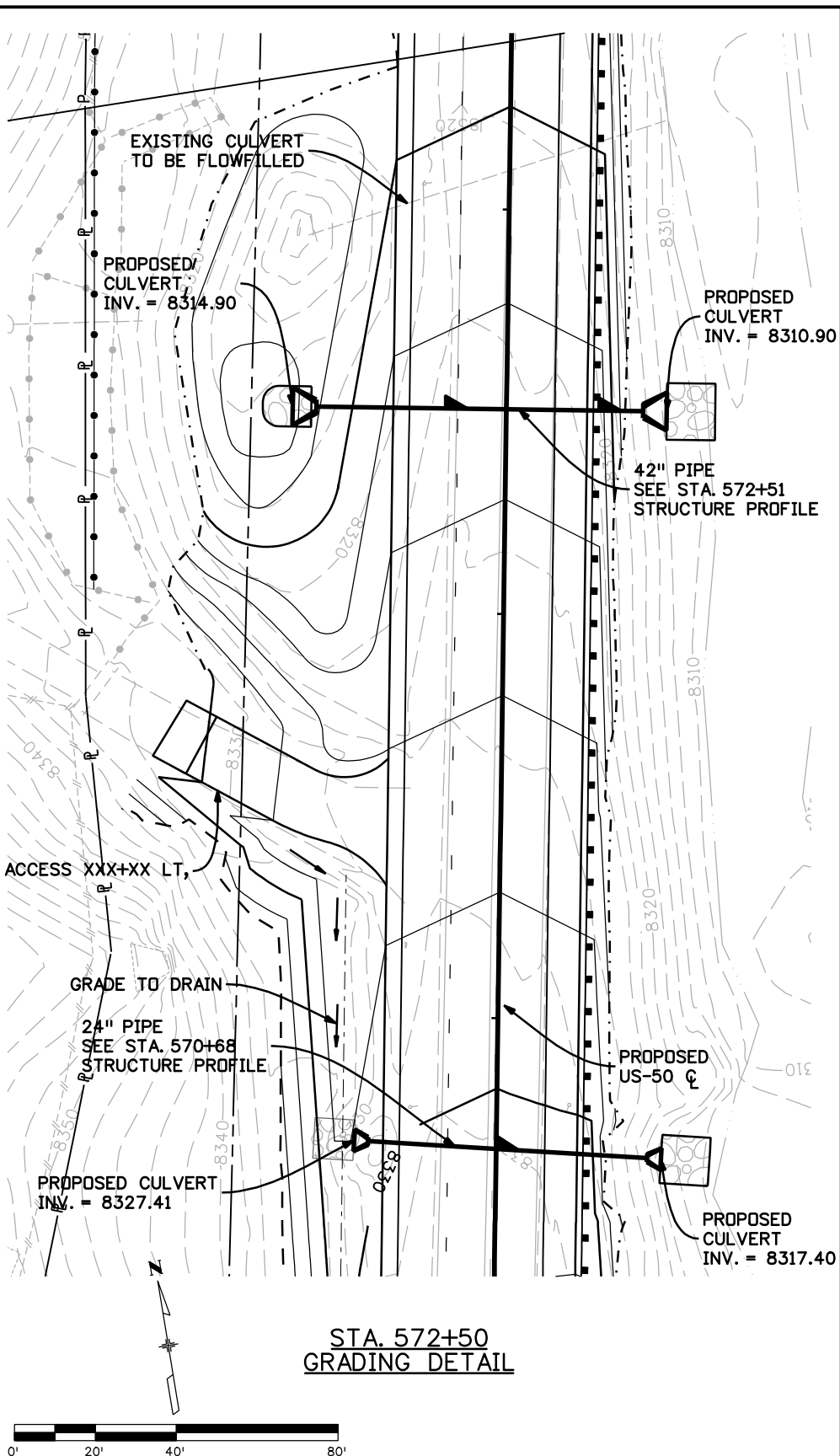
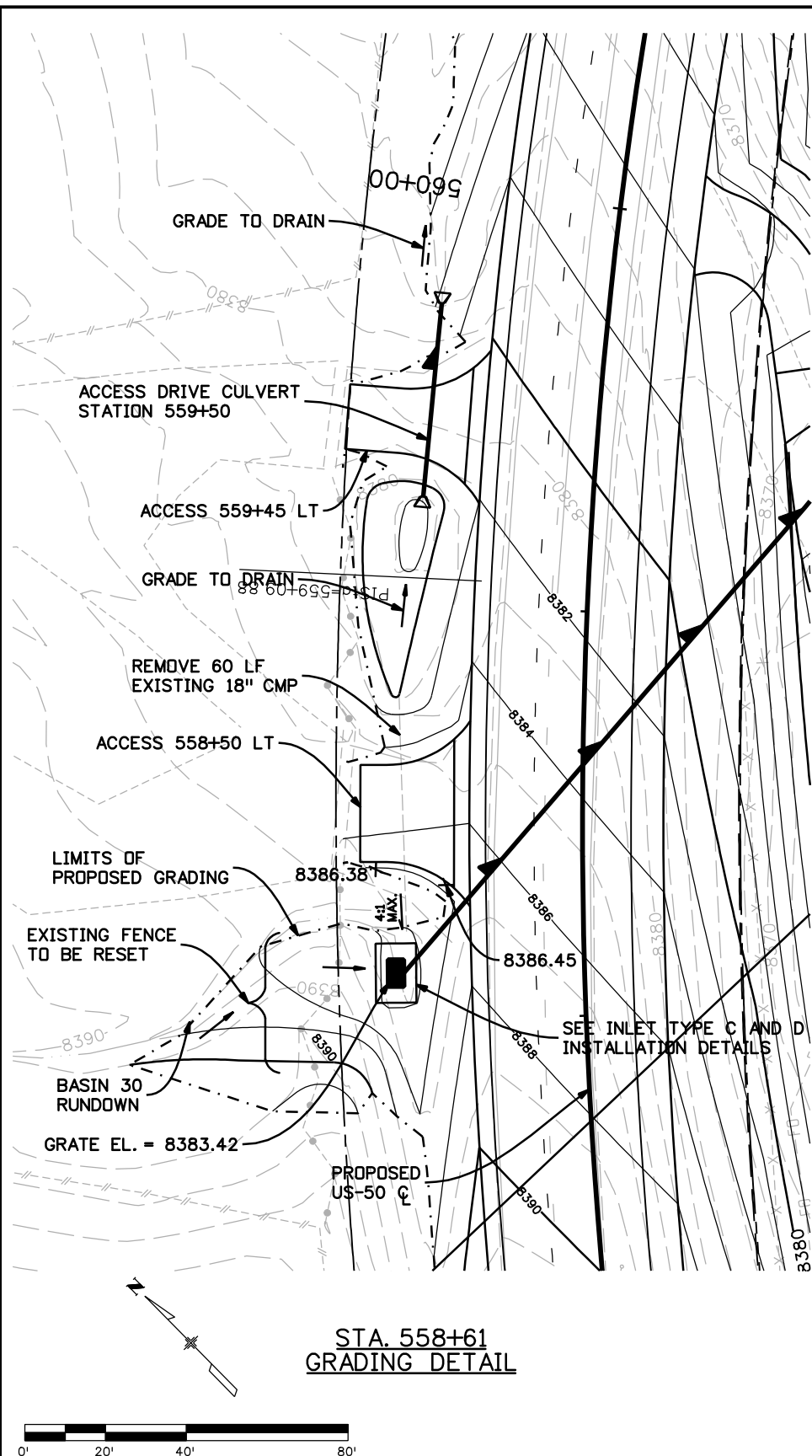
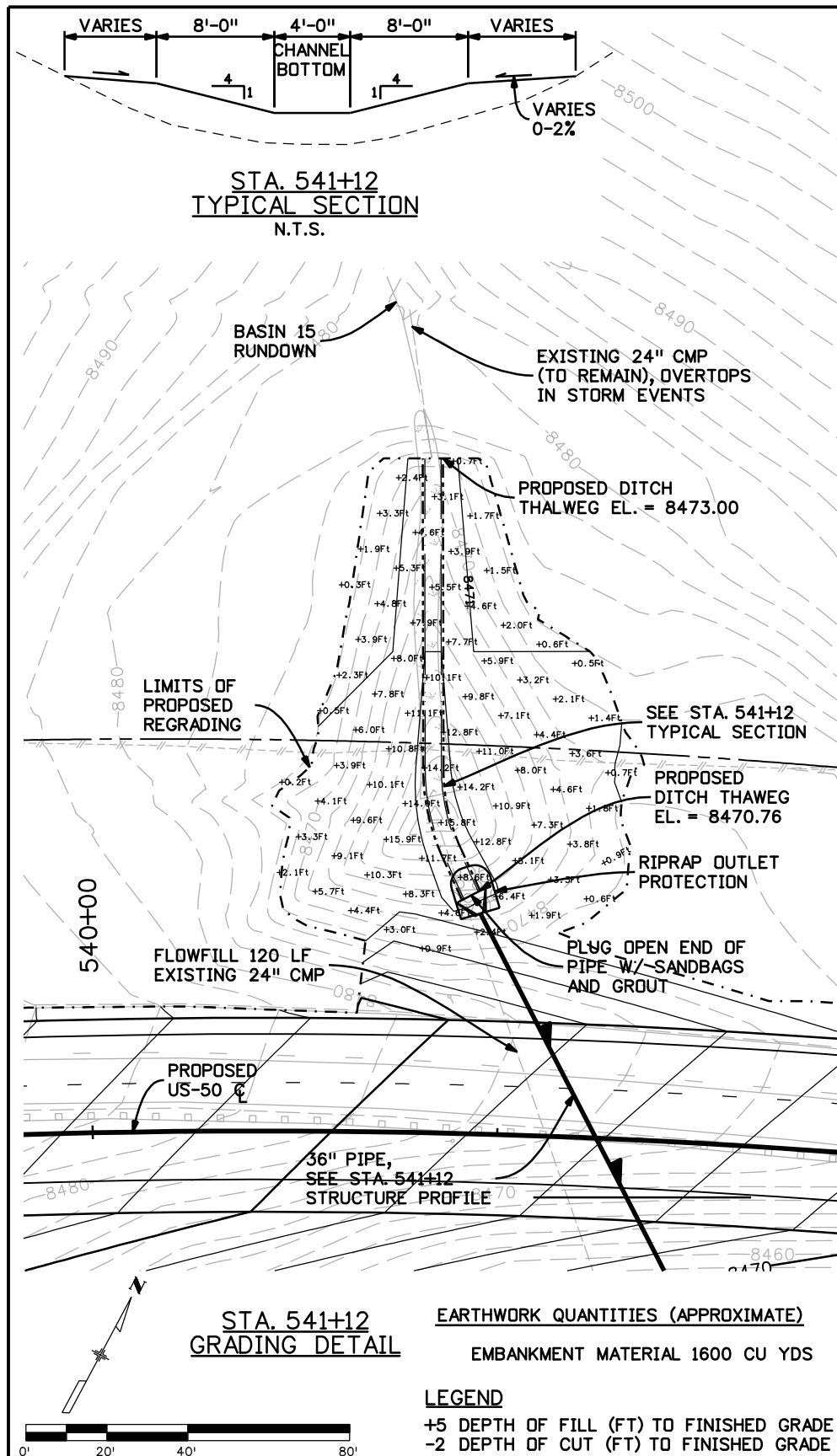
Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3

As Constructed  
 No Revisions:  
 Revised:  
 Void:

STRUCTURE PROFILES

Designer:	ASP
Detailer:	MAM
Sheet Subset:	DRN PRF
Subset Sheets:	8 of 8

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 90



Print Date: 3/26/2010	<b>Sheet Revisions</b>			Colorado Department of Transportation		As Constructed		GRADING DETAILS		Project No./Code	
Drawing File Name: 14933-Seg2-GR-PLN-01.dgn	Date:	Comments	Init.	2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018		No Revisions:		Designer: ASP		NH 0501-046	
Horiz. Scale: 1:40 Vert. Scale: N/A				Region 3 RBA		Revised:		Detailer: MAM		14933	
Unit Leader Information Unit Leader Initials						Void:		Sheet Subset: GRADING		Sheet Number 91	
<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939				<b>DOT</b> DEPARTMENT OF TRANSPORTATION				Subset Sheets: 1 of 1			

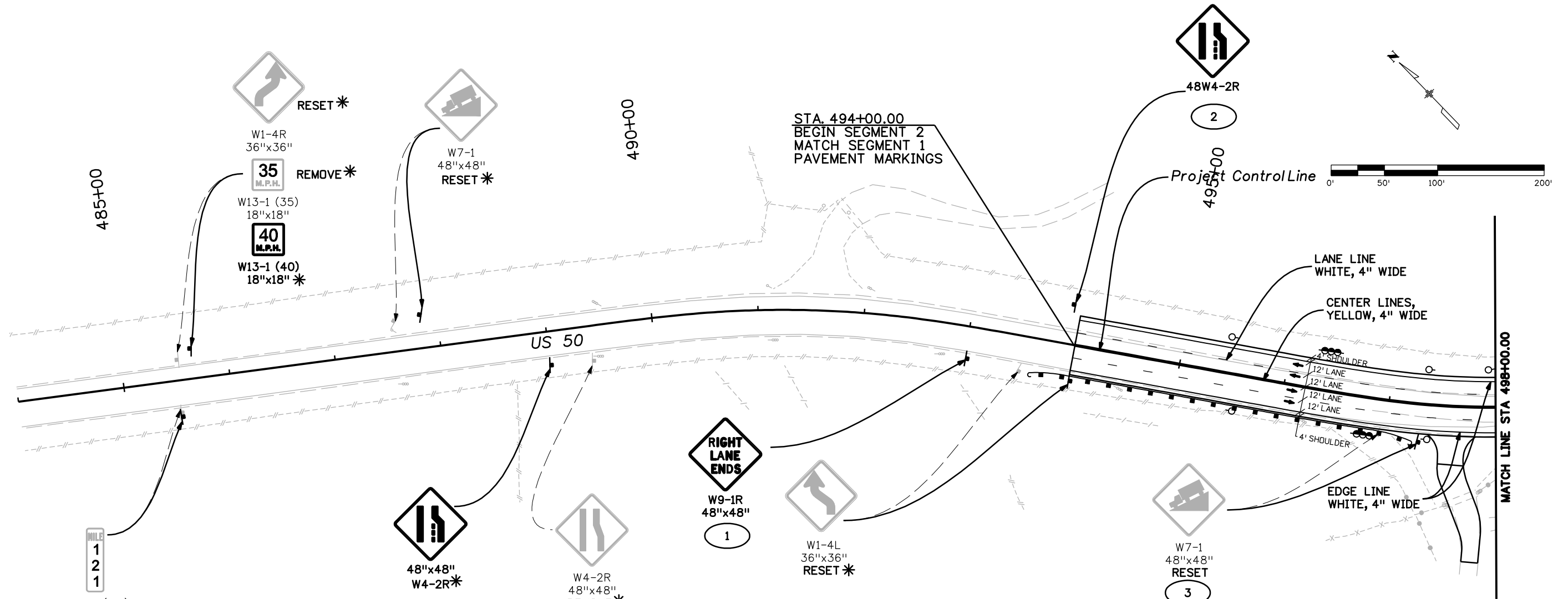
**TABULATION OF SIGNS**

SIGN NO.	SIGN CODE	LEGEND	STATION	SIDE	SIGN PANEL SIZE	BACKGROUND COLOR	SIGN PANEL (SF)			REMOVE GROUND SIGN	REMOVE SIGN PANEL	RESET MARKER	RESET GROUND SIGN	RESET SIGN PANEL	RESET FLASHING BEACON	NO. POSTS	SIGN STEEL POST		POST BASE (EA)		COMMENTS
							CLASS I	CLASS II	CLASS III								2" P	2.5" P2	2" P	2.5" P2	
					W" x H"		EA	EA	EA	EA	EA	EA	EA	EA	EA		EA	EA	EA	EA	
1	W9-1R	RIGHT LANE ENDS	493+00	RT	48 x 48	YELLOW		16							1		11		1		
2	W4-2R	(RIGHT LANE ENDS)	493+95	LT	48 x 48	YELLOW		16							1		11		1		
3	W7-1		497+00	RT								1							1		
4	SPECIAL	HUNTER UNITS 66-67	498+40	RT								1							1		
5	W1-8L		498+95	RT					1												
6	W1-8L		499+65	RT					1												
7	W4-2R	(RIGHT LANE ENDS)	500+00	RT	48 x 48	YELLOW		16							1		11		1		
8	W9-1R	RIGHT LANE ENDS	500+00	LT	48 x 48	YELLOW		16							1		11		1		
9	W8-4		500+35	RT					1												
10	W7-1		502+50	LT								1							1		
11	W1-4L		506+60	RT								1							1		
12	W1-4L		508+80	LT								1							1		
13	SPECIAL	ROAD DAMAGE	516+75	RT					1												
14	W8-4		520+60	RT					1												
15	W1-2R		520+85	LT								1						1			
16	SPECIAL	SNOW PLOWS ENTERING HIGHWAY	524+60	RT					1												
17	SPECIAL	LOW VISIBILITY BLOWING SNOW	524+95	LT								1							1		
18	R4-50	KEEP RIGHT EXCEPT TO PASS	532+80	LT	36 x 48	WHITE		12							1		11		1		
19	D10-3 (122)		534+65	RT							1							1			
20	SPECIAL	5280	535+00	RT										1							
21		TELEPHONE MARKER	535+00	RT							1										
22	SPECIAL	5290	535+00	RT										1							
23	SPECIAL	PRIVATE ROAD STOP	535+05	RT										2							
24	R51-3	\$1000 FINE FOR LITTERING	536+60	RT	24 x 30	WHITE	5								1	9.5		1			
25	R51-3		537+00	RT					1												
26	SPECIAL	SNOW PLOWS ENTERING HIGHWAY	546+20	LT					1												
27	W1-5L	(WINDING ROAD)	550+00	RT								1		1					1		
28	SPECIAL	FISHERMANS PARADISE	551+15	RT																RESET BY OTHERS	
29	SPECIAL	ARROWHEAD	552+65	RT																RESET BY OTHERS	
30A	W1-2L		561+35	RT								1							1		
30B	W13-1 (35)											1									
30C	W13-1 (40)	40 MPH																			
31	W1-2R		573+95	LT								1							1		
32	W8-52		576+35	RT								1							1		
33	R4-50	KEEP RIGHT EXCEPT TO PASS	578+20	LT	36 x 48	WHITE		12							1		11		1		
34	R2-1 (35)	SPEED LIMIT 35	580+50	RT	36 x 48	WHITE		12							1		11		1		
35	R2-1 (40)	SPEED LIMIT 40	581+45	LT	36 x 48	WHITE		12							1		11		1		
36	SPECIAL	ICY CONDITIONS	584+00	RT																	
<b>TOTALS</b>							<b>5</b>	<b>112</b>	<b>0</b>	<b>8</b>	<b>1</b>	<b>2</b>	<b>11</b>	<b>4</b>	<b>1</b>		<b>9.5</b>	<b>88</b>	<b>3</b>	<b>18</b>	

- NOTES:**
- TRAFFIC SIGN INVENTORY COMPLETED ON 5/31/07. CONDITIONS OF SIGNS MAY HAVE CHANGED SINCE INVENTORY COMPLETION.
  - LOCATIONS OF SIGNS AND POST LENGTHS ARE APPROXIMATE. SEE STANDARDS S-614-1 AND S-614-8.

Print Date: 3/26/2010	 <b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS P: 06-065.01/14933/Traffic ITS/Drawings 303-988-4939	<b>Sheet Revisions</b>			Colorado Department of Transportation			<b>As Constructed</b>		<b>TABULATION OF SIGNS</b>				<b>Project No./Code</b>	
Drawing File Name: 14933Seg2-TabSigning01.dgn		Date:	Comments	Init.	 2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018			No Revisions:		NH 0501-046				14933	
Horiz. Scale: 1:1      Vert. Scale: N/A					Region 3			Revised:		Designer: NJL				14933	
Unit Leader Information      Unit Leader Initials					RBA			Void:		Detailer: MAM				14933	
									Sheet Subset: SIGNING	Subset Sheets: 1 of 1			Sheet Number 92		





MILE  
1  
2  
1  
D10-3 (121)  
10"x30"  
RESET \*

\* THIS WORK PERFORMED IN SEGMENT 1

**LEGEND**

	NEW SIGN OR LOCATION
	EXISTING SIGN OR LOCATION
	DELINEATOR (TYPE I)
	DELINEATOR (TYPE II)
	DELINEATOR (TYPE III)

NOTE:  
THE COLOR OF DELINEATORS INSTALLED NEAR PAVED SHOULDERS SHALL BE CRYSTAL.  
DELINEATORS INSTALLED NEAR CULVERTS SHALL BE YELLOW.

NOTES:  
LANE USE ARROWS SHOWN FOR REFERENCE ONLY.  
NO PAVEMENT MARKING ARROWS ARE TO BE INSTALLED.

Print Date: 3/26/2010

Drawing File Name: 14933Seg2-Signing01.dgn

Horiz. Scale: 1:100

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
P: 06-065.01/14933/Traffic ITS/Drawings

777 S. Wadsworth Blvd.  
#4 - 100  
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303-988-4939

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation



2424 North Townsend Avenue  
Montrose, CO 81401  
Phone: 972-249-5285 FAX: 970-249-6018

Region 3

RBA

As Constructed

No Revisions:

Revised:

Void:

**SIGNING AND STRIPING PLAN**  
STA. 494+00 to STA. 498+00

Designer:

NJL

Detailer:

MAM

Sheet Subset: SIGNING

Subset Sheets: 1 OF 8

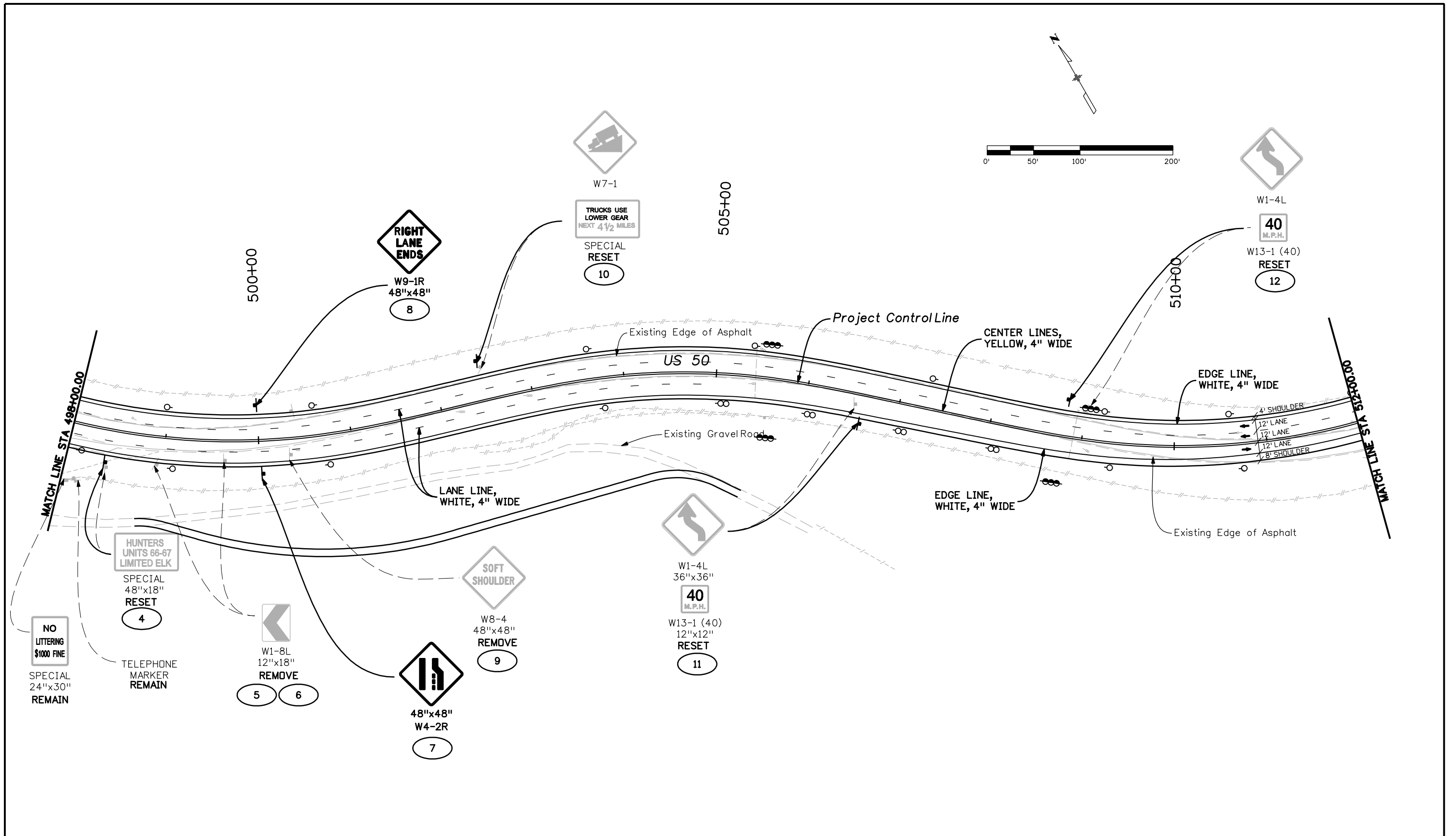
Project No./Code

NH 0501-046

14933

Sheet Number

94



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Signing02.dgn  
 Horiz. Scale: 1:100    Vert. Scale: N/A  
 Unit Leader Information    Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01/14933/Traffic ITS/Drawings Lakewood, CO 80226  
 303-988-4939

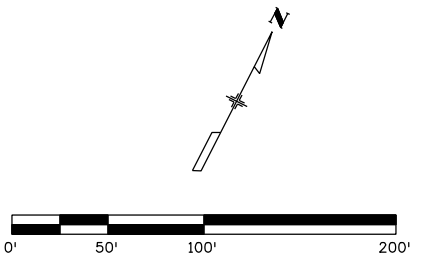
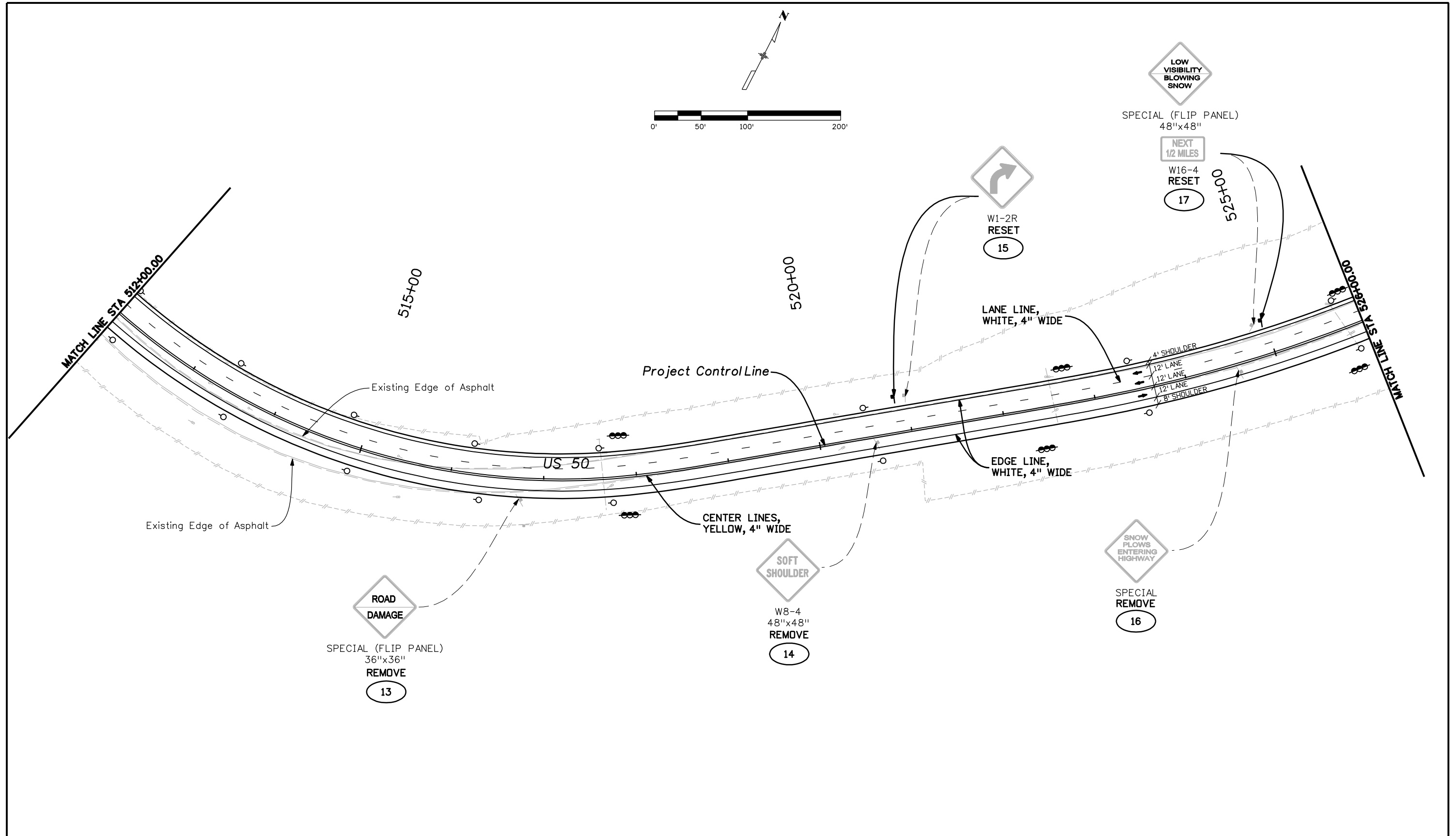
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3    RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:

**SIGNING AND STRIPING PLAN**  
 STA. 498+00 to STA. 512+00  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: SIGNING    Subset Sheets: 2 OF 8

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 95



SPECIAL (FLIP PANEL)  
48"x48"

NEXT  
1/2 MILES  
W16-4  
RESET  
17



W1-2R  
RESET  
15

LANE LINE,  
WHITE, 4" WIDE

4' SHOULDER  
12' LANE  
12' LANE  
8' SHOULDER

EDGE LINE,  
WHITE, 4" WIDE

CENTER LINES,  
YELLOW, 4" WIDE



W8-4  
48"x48"  
REMOVE  
14



SPECIAL  
REMOVE  
16



SPECIAL (FLIP PANEL)  
36"x36"  
REMOVE  
13

Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Signing03.dgn  
 Horiz. Scale: 1:100      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01/14933/Traffic ITS/Drawings Lakewood, CO 80226  
 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

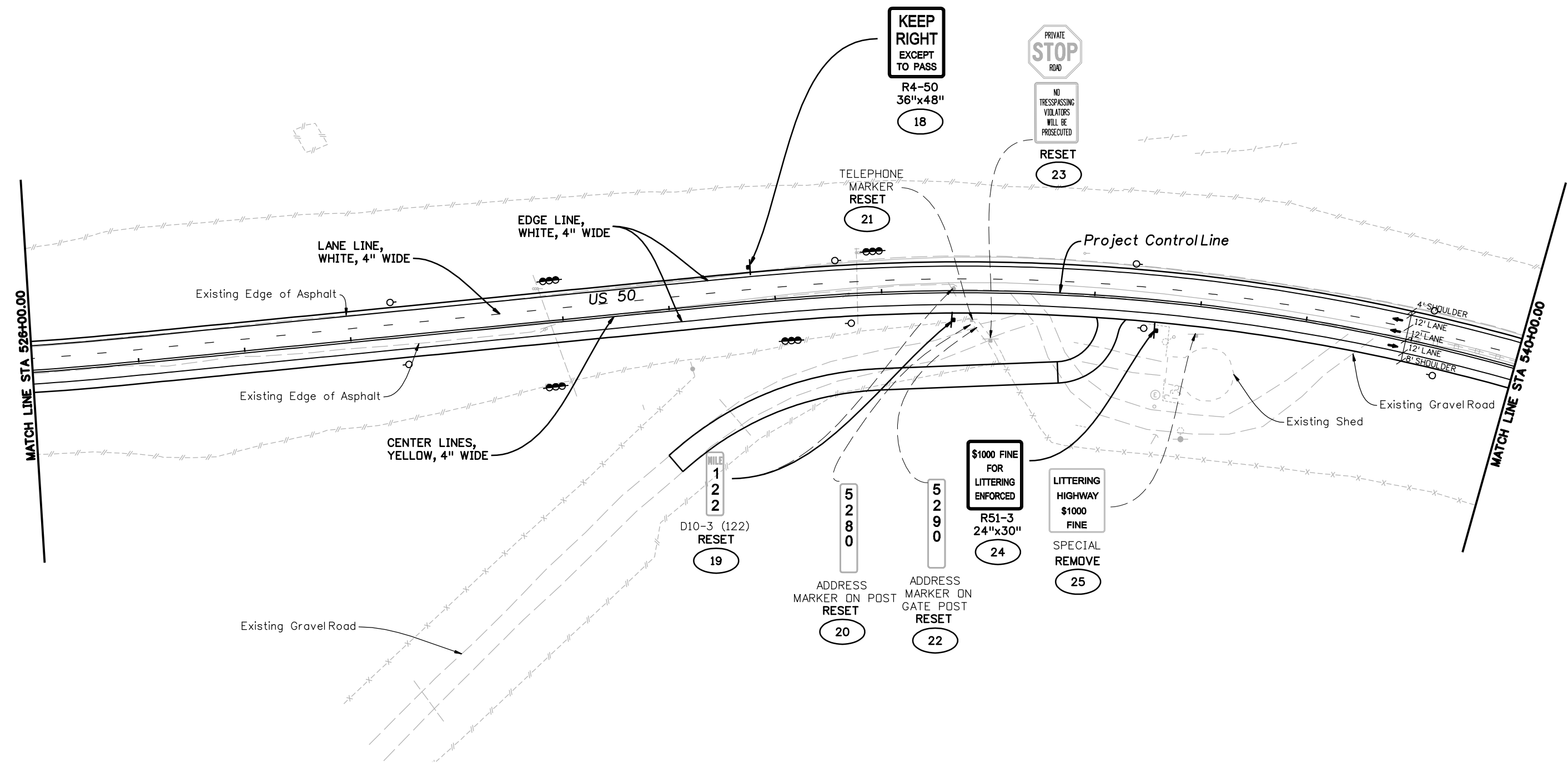
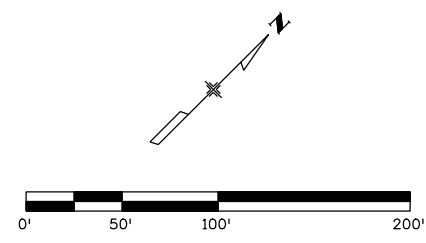
Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3      RBA

As Constructed
No Revisions:
Revised:
Void:

**SIGNING AND STRIPING PLAN**  
 STA. 512+00 to STA. 526+00  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: SIGNING      Subset Sheets: 3 OF 8

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 96





Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Signing04.dgn  
 Horiz. Scale: 1:100      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 P: 06-065.01/14933/Traffic ITS/Drawings

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 Lakewood, CO 80226  
 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

**DOT**  
 DEPARTMENT OF TRANSPORTATION

2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018

Region 3      RBA

As Constructed

No Revisions:

Revised:

Void:

**SIGNING AND STRIPING PLAN**  
 STA. 526+00 to STA. 540+00

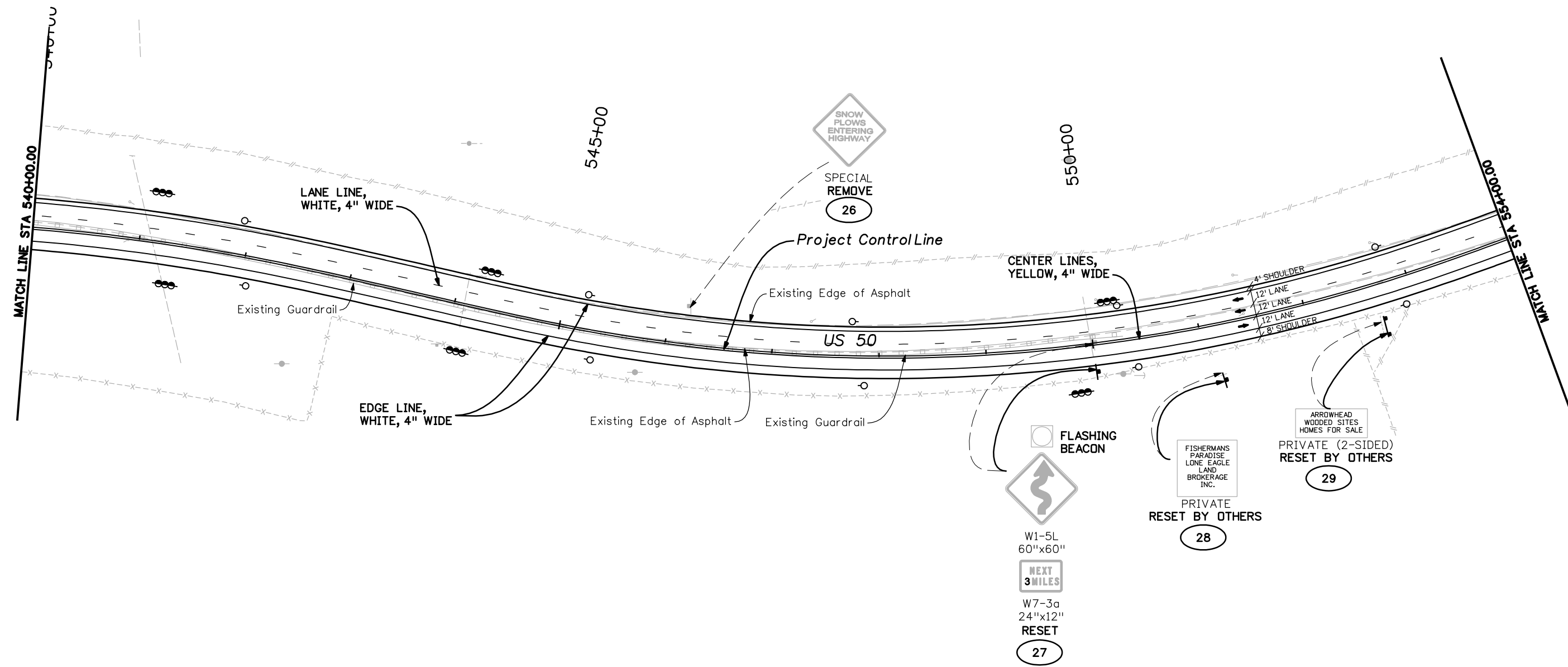
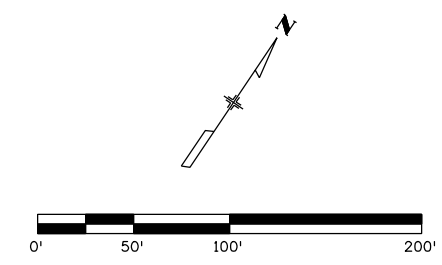
Designer: NJL  
 Detailer: MAM  
 Sheet Subset: SIGNING      Subset Sheets: 4 OF 8

Project No./Code

NH 0501-046

14933

Sheet Number 97



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Signing05.dgn  
 Horiz. Scale: 1:100      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 P: 06-065.01/14933/Traffic ITS/Drawings

777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018

**Region 3**      **RBA**

**As Constructed**

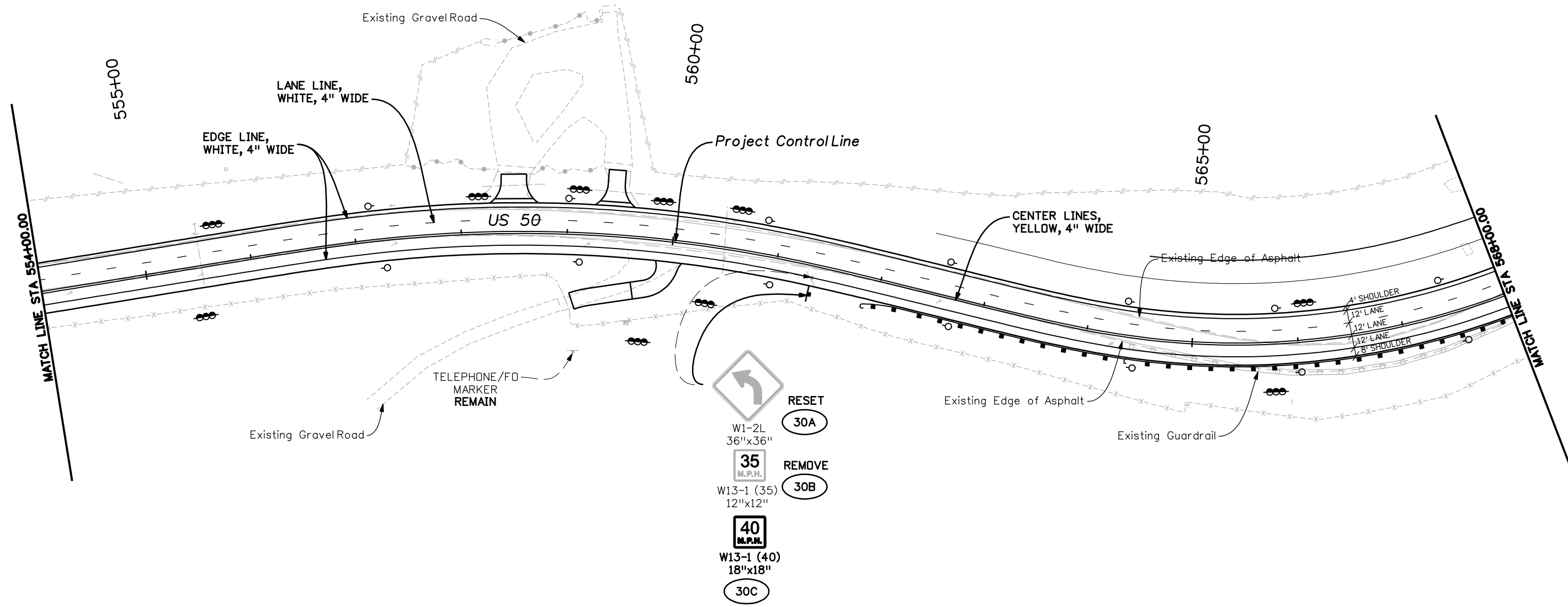
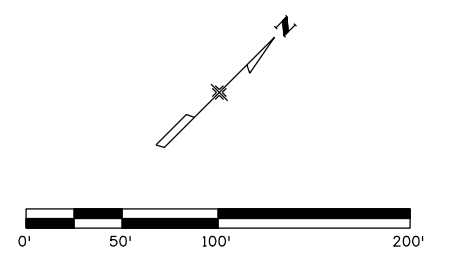
No Revisions:  
 Revised:  
 Void:

**SIGNING AND STRIPING PLAN**  
**STA. 540+00 to STA. 554+00**

Designer: NJL  
 Detailer: MAM  
 Sheet Subset: SIGNING      Subset Sheets: 5 OF 8

**Project No./Code**

NH 0501-046  
 14933  
 Sheet Number **98**



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Signing06.dgn  
 Horiz. Scale: 1:100      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01/14933/Traffic ITS/Drawings Lakewood, CO 80226  
 303-988-4939

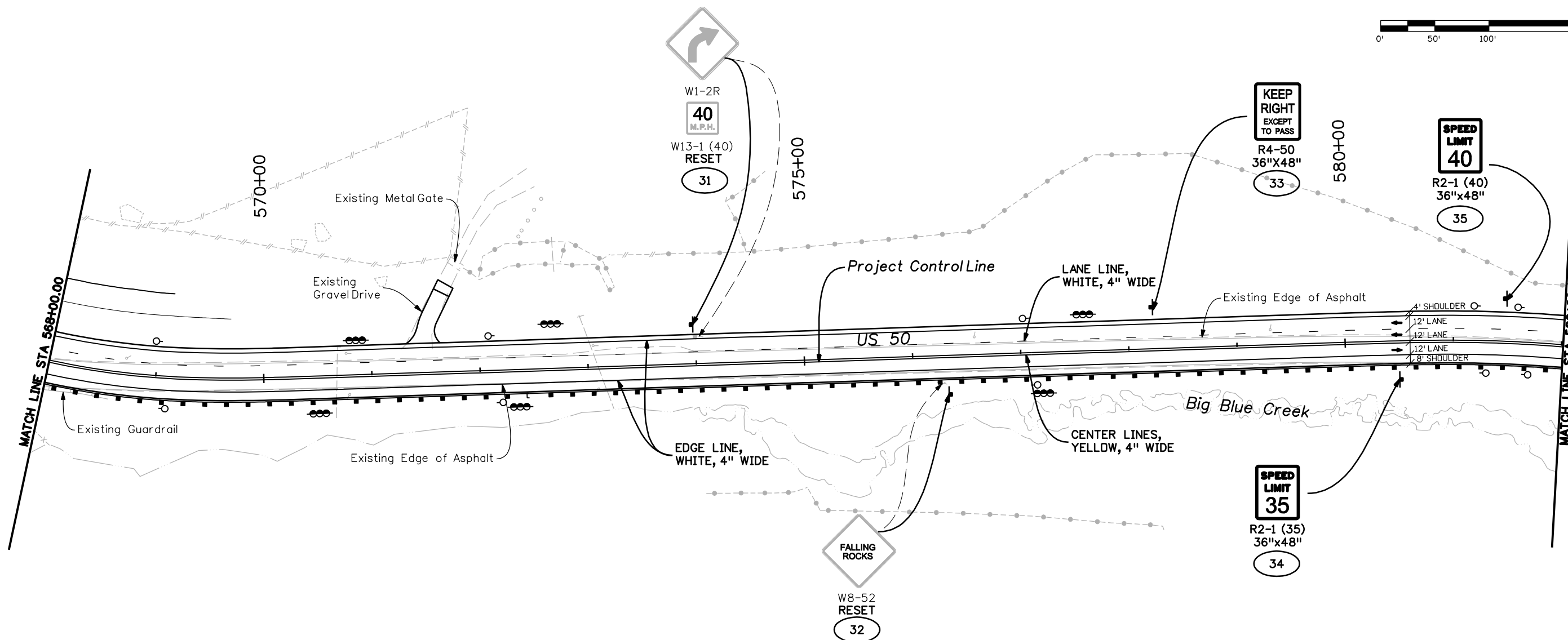
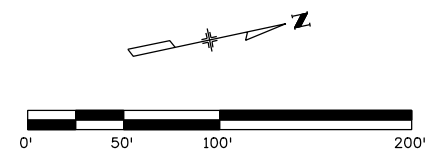
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3      RBA

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:


**SIGNING AND STRIPING PLAN**  
 STA. 554+00 to STA. 568+00  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: SIGNING      Subset Sheets: 6 OF 8

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number 99



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Signing07.dgn  
 Horiz. Scale: 1:100      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 P: 06-065.01/14933/Traffic ITS/Drawings

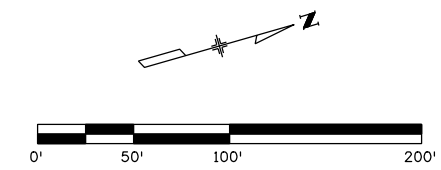
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Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3      RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:

SIGNING AND STRIPING PLAN  
 STA. 568+00 to STA. 582+00  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: SIGNING      Subset Sheets: 7 OF 8

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 100



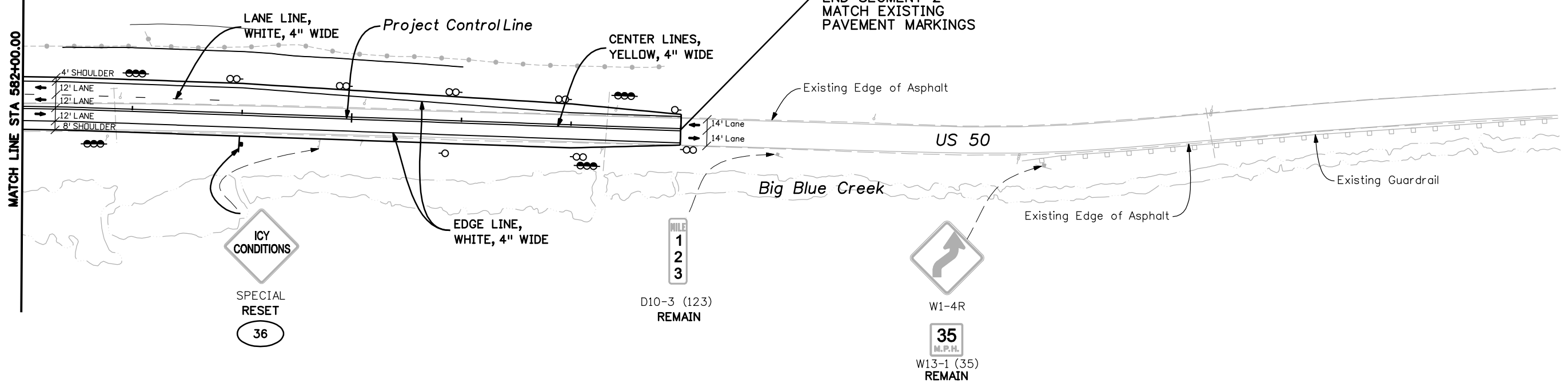
15+00

90+00

585+00

STA. 588+00.00  
END SEGMENT 2  
MATCH EXISTING  
PAVEMENT MARKINGS

MATCH LINE STA. 582+00.00



Print Date: 3/26/2010  
 Drawing File Name: 14933Seg2-Signing08.dgn  
 Horiz. Scale: 1:100    Vert. Scale: N/A  
 Unit Leader Information    Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100 Lakewood, CO 80226  
 P: 06-065.01/14933/Traffic ITS/Drawings 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3    RBA

As Constructed
No Revisions:
Revised:
Void:

**SIGNING AND STRIPING PLAN**  
 STA. 582+00 to STA. 588+00  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: SIGNING    Subset Sheets: 8 OF 8

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 101

**TABULATION OF TRAFFIC ENGINEERING ITEMS**

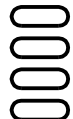


ITEM	UNIT	TOTALS
FLAGGING	HOURL	6000
TRAFFIC CONTROL INSPECTION	DAY	60
TRAFFIC CONTROL MANAGEMENT	DAY	150
FLASHING BEACON (SOLAR)	EA	4
CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EA	14
CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EA	40
CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EA	8
PORTABLE MESSAGE SIGN PANEL	DAY	210
DRUM CHANNELIZING DEVICE	EA	200
DRUM CHANNELIZING DEVICE (WITH LIGHT) (FLASHING)	EA	20
CONCRETE BARRIER (TEMPORARY)	LF	1000
TRAFFIC CONE	EA	50
IMPACT ATTENUATOR (SAND FILLED PLASTIC BARREL) (TEMPORARY)	EA	2

**SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES**

SIGNS						
SIGN CODE	LEGEND	DIMENSION	PANEL SIZE			
			A	B	C	Special
			EA	EA	EA	SF
G20-1	ROAD WORK/NEXT 2 MILES	60 x 24		2		
G20-5	WORK ZONE	36 x 12	12			
G20-10	XYZ/CONSTRUCTION/THANKS YOU/555-555-5555	48 x 48			2	
G20-11	ROAD WORK/MMM YY-MMM-YY/FOR INFORMATION	48 x 48			2	
R2-1(35)	SPEED/LIMIT/35	36 x 48		4		
R2-1(45)	SPEED/LIMIT/45	36 x 48		2		
R2-6	FINES DOUBLE	36 x 36		8		
R4-1	DO/NOT/PASS	36 x 48		4		
R52-6a	BEGIN/FINES/DOUBLE/IN WORK/ZONE	48 x 60		2		
R52-6b	END/FINES/DOUBLE/IN WORK/ZONE	48 x 60		2		
W1-4(L)	REVERSE CURVE LEFT (SYMBOL)	48 x 48		2		
W1-4( R)	REVERSE CURVE LEFT (SYMBOL)	48 x 48		2		
W8-3	PAVEMENT ENDS	36 x 36	2			
W8-7	LOOSE GRAVEL	48 x 48		2		
W8-9a	SHOULDER/DROP OFF	48 x 48		2		
W8-11	UNEVEN/LANES	48 x 48		2		
W20-1	ROAD/WORK/(DIST)	48 x 48			4	
W20-4	ONE LANE/ROAD/AHEAD	48 x 48		2		
W20-7a	FLAGGER (SYMBOL)	48 x 48		2		
W21-5	SHOULDER/WORK	48 x 48		2		
<b>TOTALS</b>			<b>14</b>	<b>40</b>	<b>8</b>	<b>0</b>

**CONSTRUCTION TRAFFIC CONTROL NOTES**

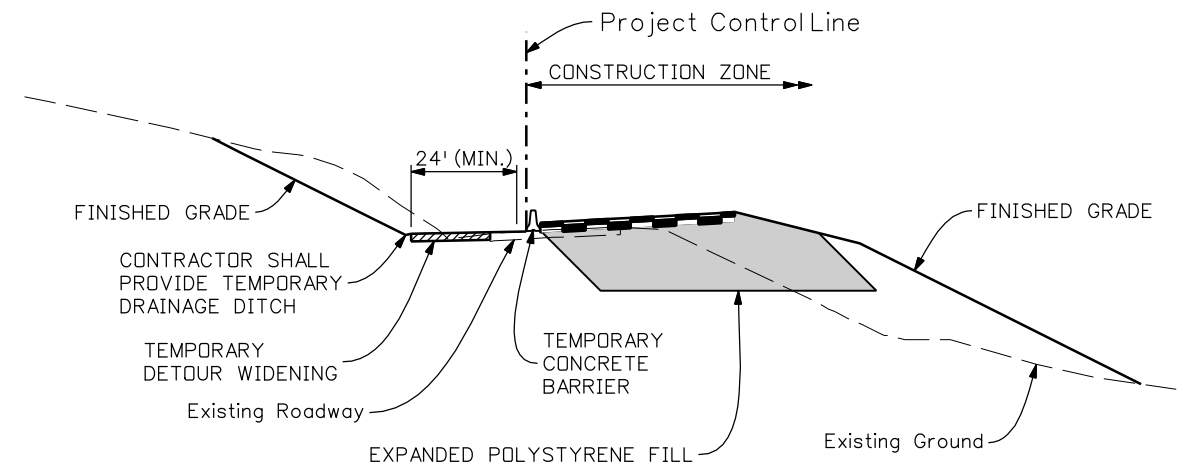
1. ALL TRAFFIC CONTROL DEVICES SHALL BE PLACED IN ACCORDANCE WITH STANDARD PLAN S-630-1.
2. CONTRACTOR SHALL REMOVE ANY CONFLICTING PAVEMENT MARKINS AND SHALL INSTALL TEMPORARY PAVEMENT MARKINGS IS ACCORDANCE WITH MUTCD GUIDELINES. SEE TABULATION OF PAVEMENT MARKINGS FOR ESTIMATED QUANTITIES.

Print Date: 3/26/2010		<b>Sheet Revisions</b>			Colorado Department of Transportation  2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018 <b>Region 3</b>	<b>As Constructed</b>	<b>TABULATION OF CONSTRUCTION TRAFFIC CONTROL DEVICES</b> Designer: NJL Detailer: NJL Sheet Subset: PHASING Subst Sheets: 1 OF 2		Project No./Code
Drawing File Name: 14933Seg2-TrafficControl01.dgn		Date:	Comments	Init.		No Revisions:			NH 0501-046
Horiz. Scale: 1:1 Vert. Scale: N/A						Revised:			14933
Unit Leader Information Unit Leader Initials						Void:			Sheet Number 102
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**CONSTRUCTION PHASING GENERAL NOTES**

1. REFER TO STANDARD PLAN S-630-1 FOR STANDARD TRAFFIC CONTROL CASES THAT WILL BE REQUIRED TO IMPLEMENT PHASES AND OTHER TRAFFIC CONTROL CONDITIONS.
2. A MINIMUM SHOULDER WIDTH OF 1 FOOT SHALL BE PROVIDED BETWEEN EDGE OF CONCRETE BARRIER (TEMP.) AND EDGE OF TRAVEL LANE AT ALL TIMES.
3. CHANNELIZING DEVICES SHALL BE PLACED AT SPACING BASED ON A DESIGN SPEED OF 45 MPH. REFER TO STANDARD PLANS S-630-1 & S-630-2.
4. MINIMUM LANE WIDTHS ALLOWED ON US 50 DURING CONSTRUCTION SHALL BE 11 FEET FOR ALL THROUGH LANES, UNLESS OTHERWISE NOTED. 12 FOOT THROUGH LANES ARE PREFERRED WHERE FEASIBLE.
5. EXISTING SIGNS SHALL BE RESET AS CONDITIONS REQUIRE FOR EACH CONSTRUCTION PHASE, AND AS DIRECTED BY THE ENGINEER.
6. DRUM CHANNELIZING DEVICES MAY BE USED IN PLACE OF CONCRETE BARRIER (TEMP.) BETWEEN THE CONSTRUCTION AREA AND THE TRAFFIC WHEN THE SHOULDER WIDTH IS AT LEAST 8 FEET OR AS APPROVED BY THE ENGINEER.
7. SPEED POSTED FOR DETOURS SHALL BE EQUIVALENT TO 35 MPH. ROADWAY DESIGN FOR DETOURS SHALL ADHERE TO 45 MPH DESIGN STANDARDS.
8. APPROPRIATE ADVANCE WARNING SIGNS SHALL BE PLACED AS NEEDED. THESE SHALL BE SHOWN IN THE TCP TO BE APPROVED BY THE ENGINEER.
9. THE CONTRACTOR SHALL BEAR ALL RESPONSIBILITY AND EXPENSE FOR PROVIDING TEMPORARY DITCHES AND PIPES TO ENSURE ADEQUATE DRAINAGE AND SAFE DRIVING CONDITIONS DURING PROJECT PHASING.
10. TEMPORARY DETOUR WIDENING SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.



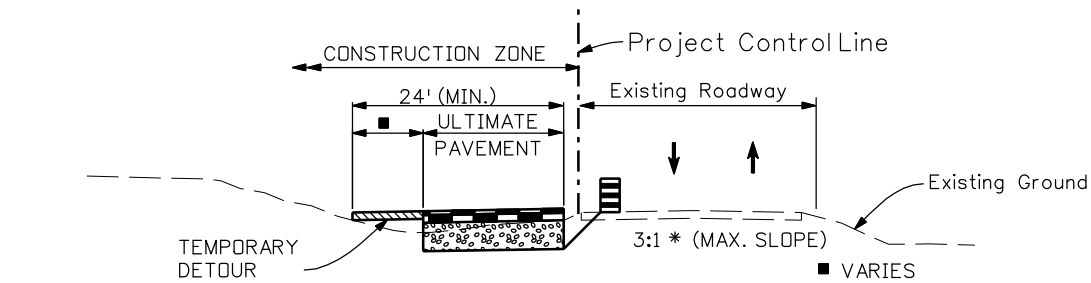
**PHASE I CONSTRUCTION**

MAINTAIN TRAFFIC ON EXISTING PAVEMENT AND TEMPORARY WIDENING WHILE CONSTRUCTING EPS FILL AND EASTBOUND PAVEMENT.

**PHASE II CONSTRUCTION**

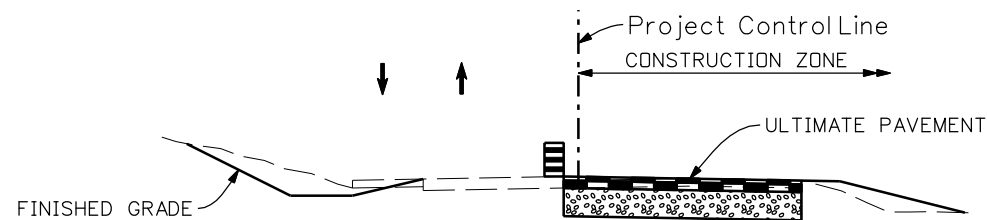
RUN TRAFFIC ON NEW PAVEMENT WHILE CONSTRUCTING WESTBOUND PAVEMENT SECTION.

STA. 505+00 TO 505+00  
N.T.S.



**PHASE I CONSTRUCTION**

MAINTAIN TRAFFIC ON EXISTING PAVEMENT WHILE CONSTRUCTING WESTBOUND PAVEMENT SECTION AND ANY TEMPORARY WIDENING NECESSARY TO SHIFT TRAFFIC.

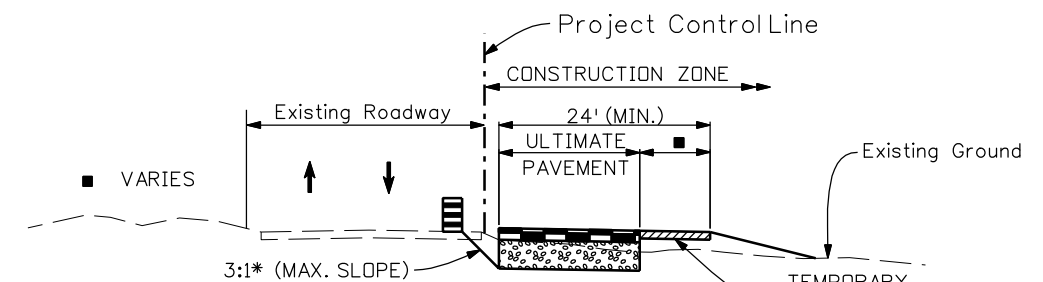


**PHASE II CONSTRUCTION**

RUN TRAFFIC ON NEW PAVEMENT AND DETOUR IF NECESSARY WHILE CONSTRUCTING EASTBOUND PAVEMENT SECTION.

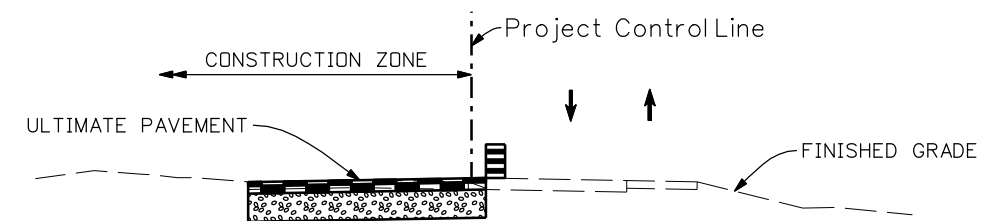
STA. 494+00 TO 500+00  
STA. 509+50 TO 517+50  
STA. 562+50 TO 588+00\*

\*THIS SECTION INCLUDES THE CONSTRUCTION OF GUARDRAIL AND TIERED ROCKERY WALLS



**PHASE I CONSTRUCTION**

MAINTAIN TRAFFIC ON EXISTING PAVEMENT WHILE CONSTRUCTING EASTBOUND PAVEMENT SECTION AND ANY TEMPORARY WIDENING NECESSARY TO SHIFT TRAFFIC.



**PHASE II CONSTRUCTION**

RUN TRAFFIC ON NEW PAVEMENT AND DETOUR IF NECESSARY WHILE CONSTRUCTING WESTBOUND PAVEMENT SECTION.

STA. 505+00 TO 509+50  
STA. 517+50 TO 562+50

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Drawing File Name: 14933Seg2-TrafficControl02.dgn		Date:	Comments	Init.		No Revisions:			NH 0501-046	
Horiz. Scale: 1:20 Vert. Scale: N/A						Revised:	Designer: NJL	14933		
Unit Leader Information Unit Leader Initials						Void:	Detailer: MAM	Sheet Number 103		
MULLER ENGINEERING CO., INC. CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Design/Drawings 303-988-4939	777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226				Sheet Subset: ROADWAY	Subset Sheets: 2 OF 2				

**1. Site Description**

Additional information for permitted projects. For information only to fulfill the CDPS-SCP (Colorado Discharge Permit – Stormwater Construction Permit)

- A. Project Site Description: Reconstruction and addition of climbing lanes to a rural interstate highway. Work includes the construction of: terraced rock cut slopes, rock trench to stabilize a large landslide, asphalt pavement, concrete and metal drainage structures, and the removal and relocation of a CDOT salt dome. Final stabilization will consist of native seeding and mulching.
- B. Proposed Sequencing For Major Activities: 1) Construction will commence with the construction of the terraced rock cut slopes by blasting and removal of large rock and boulders. 2) The landslide area near Station 523+00 will be excavated and filled with excess material from the rock cuts. 3) Other earthwork and grading associated with the US-50 realignment will be completed and permanent drainage infrastructure will be installed. 4) New pavement, or in some cases, pavement overlays, will be completed. 5) Final stabilization of the disturbed areas will be completed by the contractor.
- C. Acres Of Disturbance:  
 Total area of construction site: 61.9 Acres  
 Total area of disturbance: 30.0 Acres  
 Acreage of seeding: 16.1 Acres
- D. Existing Soil Data: Around 5-feet of gravelly-clay over a stiff or very stiff clay. Mancos Formation shale encountered between 20-feet and 40-feet below the existing ground surface. Topsoils are non-cohesive and subject to erosion, and are not well draining.
- E. Existing Vegetation, Including Percent Cover: Existing vegetation consists of native grasses and shrubs with 70-80% cover outside of existing asphalt. date of survey: MEC Survey: May 31, 2007
- F. Potential Pollutants Sources: See First Construction Activities under Potential Pollutant Sources. The ECS shall prepare a list of all potential pollutants and their locations in accordance with subsection 107.25.  
  
 The CDOT Salt Dome (to be relocated as part of this project) and maintenance yard activities are readily apparent pollutant sources.
- G. Receiving Water:
  - 1. Outfall locations: Overland swales convey storm runoff to receiving waters. Outfall locations are numerous and are typically at the toe of the existing roadway fill. Certain locations discharge directly to the banks of Big Blue Creek.
  - 2. Names of receiving water(s) on site and the ultimate receiving water: Stumpy Creek OR Big Blue Creek; Ultimate Receiving Water is the Gunnison River.
  - 3. Distance ultimate receiving water is from project: 2-4 miles
  - 4. Does the receiving water have an approved TMDL: Stumpy Creek and Big Blue Creek do not have approved TMDL's. The Gunnison River does not have an approved TMDL in this reach.
- H. Allowable Non-Stormwater Discharges: An existing well structure frequently discharges groundwater onto adjacent farm property near Station 721+00 (LT.) Flow from this structure should not be impeded during construction.
  - 1. Groundwater and stormwater dewatering: Discharge to the ground of water from construction dewatering activities may be authorized provided that:
    - a. The source is groundwater and/or groundwater combined with stormwater that does not contain pollutants.
    - b. The source and BMPs are identified in the SWMP.
    - c. Discharges do not leave the site as surface runoff or to surface waters.

If discharges do not meet the above criteria a separate permit from the Department of Health will be required. Contaminated groundwater requiring coverage under a separate permit may include groundwater contaminated with

- 1. pollutants from a landfill, mining activities, industrial pollutant plumes, underground storage tank, etc.

I. Environmental Impacts:

- 1. Wetland Impacts: Yes
- 2. Stream Impacts: Yes
- 3. Threatened and Endangered Species: Unknown

**2. Site Map Components**

Pre-construction

- A. Construction Site Boundaries – Shown as ROW Boundaries
- B. All Areas Of Ground Surface Disturbance – Shown as Cut/Fill Boundaries
- C. Areas Of Cut And Fill
- D. Location Of All Structural BMPs Identified In The SWMP
- E. Location Of Non-Structural BMPs As Applicable In The SWMP
- F. Springs, Stream, Wetlands And Other Surface Water
- G. Protection Of Trees, Shrubs, Cultural Resources And Mature Vegetation

**3. SWMP Administrator For Design:**

Andy Pul torak at Muller Engineering Company, Inc.

**4. Stormwater Management Controls First Construction Activities**

The Contractor Shall Perform The Following:

- A. Designate A SWMP Administrator/Erosion Control Supervisor  
 (To be filled out at time of construction; designate the individual(s) responsible for implementing, maintaining and revising SWMP, including the title and contact information. The activities and responsibilities of the administrator shall address all aspects of the projects SWMP.)
- B. Potential Pollutant Sources  
 Evaluate, identify and describe all potential sources of pollutants at the site in accordance with subsection 107.25 and place in the SWMP notebook. All BMPs related to potential pollutants shall be shown on the SWMP site map by the contractor's ECS.
- C. Best Management Practices (BMPs) For Stormwater Pollution Prevention Phased BMP Implementation  
 During design: fields are marked when used in the SWMP. During construction: the ECS shall update the checked boxes to match site conditions. Clearly describe the relationship between the phases of construction and the implementation of BMP controls. Add a narrative to the table or to the site map describing why the BMPs are being used in specific locations  
  
 Structural BMP practices for erosion and sediment control; practices may include, but are not limited to:  
  
CHECK DAM (EC-9): Check dams shall be used downstream of major grading operations and large storm sewer outfalls to capture sediment-laden run-off. The check dams shall be placed in to locations indicated on the SWMP plans prior to the commencement of work. Check dams shall be removed following the final stabilization of the surrounding areas.  
  
EROSION LOGS (EC-2): Erosion logs are used to capture and filter sediment laden run-off from disturbed areas during construction. Erosion logs shall be placed as directed in the SWMP plans to prevent sediment from exiting the project site or reaching the roadway. Erosion Logs used for the protection/stabilization of ditches shall be placed in the areas indicated on the plans or as directed as soon as possible, immediately after the ditch grading has been completed in most cases.

INLET PROTECTION (EC-4): Inlet protection (in accordance with details shown in the plans and CDOT M-Standards) shall be placed at existing and proposed inlets or open-ended pipes where disturbance adjacent to the pipe may cause sediment laden runoff to enter the pipe or culvert. The inlet protection must be placed prior to the start of work. For proposed pipes and culverts, inlet protection should be placed as soon as the pipe or culvert is installed.

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Horiz. Scale: 1:100      Vert. Scale: N/A						Revised:	Designer:		14933		
Unit Leader Information      Unit Leader Initials						Void:	Detailer:		Sheet Number      104		
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939				<b>Region 3</b> 	2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018	<b>RBA</b>		Sheet Subset: SWMP      Subset Sheets: 1 OF 4			

**EROSION CONTROL BLANKET (EC-5):** Erosion control blankets shall be installed in the bottoms of all proposed ditches, as well as existing ditches which are disturbed during the construction process. Erosion control blankets are temporary and bio-degradable, and generally disappear within 1-2 years after placement. During this time, vegetation within the ditch matures, such that the blanket is no longer required to prevent erosion. When erosion control blanket is specified on the SWMP plans, the blanket shall be installed using the method detailed in the construction plans. The area under the blanket shall be seeded prior to blanket installation, and the blanket shall be installed and secured in place as soon as possible following the completion of ditch grading.

**OUTLET PROTECTION (EC-10):** Void-filled riprap outlet protection shall be installed downstream of all proposed and existing culverts in the locations shown on the construction plans and in accordance with the details contained in the construction plans. Outlet protection seeks to create turbulent flow patterns and reduce the velocity of the storm runoff and to spread the runoff over a greater area such that the potential for erosion downstream of a pipe or culvert is reduced. Outlet protection shall be installed in conjunction with the pipe or culvert construction, such that the pipe or culvert is not left without protection for an appreciable amount of time.

**CONCRETE WASHOUT STRUCTURES (WM-1):** Concrete washout structures shall be provided in close proximity to all concrete placement locations in accordance with the CDOT M-Standard detail and subsections 208.02(k) and 208.05(n) of the specifications.

**STABILIZED CONSTRUCTION ENTRANCE (SC-8):** Stabilized construction entrances shall be provided in accordance with the CDOT M-Standard details and subsections 208.02(l) and 208.05(o) of the specifications.

**DEWATERING (SC-7):** Sediment shall be removed from dewatering operation runoff by routing runoff through a sediment trap/dewatering structure in accordance with the CDOT M-Standard details prior to releasing to dewatering runoff. Other methods (such as overl and dispersion) may be used, so long as they are sufficient to remove any sediment from the dewatering runoff and are added to the SWMP plan by the administrator prior to use.

BMP	TYPE OF CONTROL	BMP as Designed	In use on site	FIRST CONSTRUCTION ACTIVITIES	DURING CONSTRUCTION	INTERIM/FINAL STABILIZATION
Earth Berm/Diversi on	Erosi on					
Check Dams	Sedi ment	X		X	X	
Silt Fence	Sedi ment					
Erosi on Logs	Sedi ment	X		X	X	
Temporary Sedi ment Trap/Basi n	Sedi ment					
Permanent Sedi ment Trap/Basi n	Sedi ment					
Embankment Protector	Erosi on					
Inlet Protection	Erosi on	X		X	X	
Outlet Protection	Erosi on	X			X	X
Concrete Washouts	Constructi on	X			X	
Stabi lized Constructi on Entrance	Constructi on	X		X	X	
Dewatering	Sedi ment	X			X	
Temporary Stream Crossi ng	Erosi on					
Other						

NON-STRUCTURAL BMP practices for erosion and sediment control; practices may include, but are not limited to:

**SEEDING PERMANENT:** Seeding is used to control runoff and erosion on disturbed areas. Drill seeding shall occur within the native seeding areas designated on the

plans, along the contour of the slope. Completed areas shall be seeded within 48 hours during seeding seasons. Seeded areas shall be inspected frequently for areas of failure. Seeding in ditch lines shall follow the contour, drill rows running down a ditch line shall not be allowed.

**MULCH AND MULCH TACKIFIER:** Mulch and mulch tackifier shall be in accordance with subsection 213.03 (a). Crimping in ditch lines shall follow the contour, crimp rows running down a ditch line shall not be allowed.

**PROTECTION OF TREES & PRESERVATION OF MATURE VEGETATION:** Existing trees and bushes not designated for removal per the general notes, plans, and specs shall be protected per Special Provision 107 "Protection of Existing Vegetation". Protected areas of existing vegetation aid with erosion and sediment control, and protect water quality.

BMP	Type Of Control	BMP As Designed	In Use On Site	First Construction Activities	During Construction	Interim/Final Stabilization
Surface Rougheni ng/Gradi ng Techni ques	Erosi on				X	
Seedi ng Permanent	Erosi on					X
Seedi ng Temporary	Erosi on					
Mul ch/Mul ch Tacki fi er	Erosi on				X	X
Soi l Bi nder	Erosi on					
Soi l Retenti on Bl anket	Erosi on					
Vegetati ve Buffer Stri ps	Erosi on					
Protecti on Of Trees	Erosi on			X	X	
Preservati on Of Mature Vegetati on	Erosi on			X	X	X
Other						

- Erosion control devices are used to limit the amount of erosion on site.
- Sediment control devices are designed to capture sediment on the project site.
- Construction control are BMPs related to construction access and staging.
- BMP locations are indicated on the site map.
- BMP installation details and general narratives are in the SWMP notebook.

**D. Offsite Drainage (Run On Water)**

1. Describe and record BMPs on the SWMP site map that has been implemented to address run-on water in accordance with subsection 208.03.

**E. Stabilized Construction Entrance/Vehicle Tracking Control**

1. BMPs shall be implemented in accordance with subsection 208.04.

**F. Perimeter Control**

1. Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters.
2. Perimeter control may consist of vegetation buffers, berms, silt fence, erosion logs, existing landforms, or other BMPs as approved.
3. Perimeter control shall be in accordance with subsection 208.04.

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Drawing File Name: 14933-Seg2-SWMP02.dgn		Date:	Comments	Init.		No Revisions:			NH 0501-046
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**5. During Construction**

Responsibilities of the SWMP administrator/erosion control supervisor during construction.

The SWMP should be considered a "living document" that is continuously reviewed and modified. During construction, the following items shall be added, updated, or amended as needed by the SWMP Administrator/Erosion Control Supervisor (ECS) in accordance with section 208.

- A. Materials Handling And Spill Prevention
- B. Stockpile Management
- C. Grading And Slope Stabilization
- D. Surface Roughening
- E. Vehicle Tracking
- F. Temporary Stabilization
- G. Concrete Washout
  - 1. Concrete washout water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.05.
- H. Saw Cutting
- I. New Inlet/Culvert Protection
- J. Street Cleaning

**6. Inspections**

- A. Inspections shall be in accordance with subsection 208.03 (c).

**7. BMP Maintenance**

- A. Maintenance shall be in accordance with subsection 208.04 (e).

**8. Record Keeping**

- A. Records shall be in accordance with subsection 208.03 (c).

**9. Interim And Final Stabilization**

- A. Seeding Plan  
Soil preparation, soil conditioning or topsoil, seeding (native), mulching (weed free), and mulch tackifier will be required for an estimated 16.1 acres of disturbed area within the right-of-way limits which are not surfaced. The following types and rates shall be used:

Common Name	Botanical Name	Pounds PLS/Acre
'Sodar' Streambank Wheatgrass *	Elymus lanceolatus v. 'Sodar'	6
'Arriba' Western Wheatgrass *	Pascopyrum smithii v. 'Arriba'	8
Muttongrass	Poa fendleriana	4
Prairie Junegrass	Koeleria cristata	2
'San Luis' Slender Wheatgrass *	Elymus trachycaulus v. 'San Luis'	6
'Covar' Sheep Fescue *	Festuca ovina v. 'Covar'	2
'Bandera' Rocky Mountain Penstemon *	Penstemon strictus v. 'Bandera'	2
'Appar' Lewis Blue Flax *	Linum lewisii v. 'Appar'	1
Showy Goldeneye	Viguiera multiflora	0.25
Total		31.25

- B. Seeding Application: Drill seed 0.25 inch to 0.5 inch into the soil. In small areas not accessible to a drill, hand broadcast at double the rate and rake 0.25 inch to 0.5 inch into soil.
- C. Mulching Application: Apply 1 ½ tons of certified weed free hay per acre mechanically crimped into the soil in combination with an organic mulch tackifier.
- D. Special Requirements: Due to high failure rates, hydromulching and/or hydroseeding will not be allowed.
- E. Soil Conditioning And Fertilizer Requirements: Fertilizer will not be required on the project.
- F. Blanket Application: On slopes and ditches requiring a blanket, the blanket shall be placed in lieu of mulch and mulch tackifier. See SWMP for blanket locations.
- G. Reseeding Operations/Corrective Stabilization Prior To Final Acceptance.
  - 1. Seeded areas shall be reviewed during the 14 day inspections by the Erosion Control Supervisor for bare soils caused by surface or wind erosion. Bare areas caused by surface or gully erosion, blown away mulch, etc., shall be regraded, seeded, mulched and have mulch tackifier (or blanket) applied as necessary.
  - 2. Areas where seed has not germinated after one season shall be evaluated by the Engineer and CDOT Landscape Architect. Areas that have not germinated shall have seed, mulch and mulch tackifier (or blanket) applied. Work shall be paid for by the appropriate bid item.
  - 3. The Contractor shall maintain seeding/mulch/tackifier, mow to control weeds or apply herbicide to control weeds in the seeded areas until final acceptance.

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Drawing File Name: 14933-Seg2-SWMP03.dgn


Horiz. Scale: 1:100 Vert. Scale: N/A

Unit Leader Information Unit Leader Initials

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Date:	Comments	Init.

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Region 3 RBA

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No Revisions:			NH 0501-046
Revised:	Designer:		14933
Void:	Detailer:		
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10. Prior To Final Acceptance

A. Final acceptance shall be in accordance with subsection 208.061.

11. Tabulation Of Stormwater Quantities


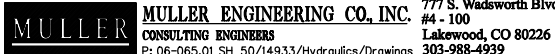

Pay Item	Description	Unit	Quantity
203	Blading	Hour	10
203	Dozing	Hour	10
203	Combination Loader	Hour	10
203	Laborer	Hour	10
208	Erosion Log (12 Inch)*	Lf	10,525
208	Temporary Diversion	Lf	1,360
208	Check Dam	Each	3
208	Concrete Washout Structure	Each	4
208	Storm Drain Inlet Protection (Type II)	Lf	270
208	Stabilized Construction Entrance	Each	4
208	Removal and Disposal of Sediment(Labor)	Hour	10
208	Erosion Control Supervisor	Day	210
212	Seeding (Native)	Acre	16.1**
213	Mulching (Weed Free Straw)	Acre	15.1***
213	Mulch Tackifier	Lb	4,530***
216	Soil Reten Blanket (S/C)	Sy	4,650

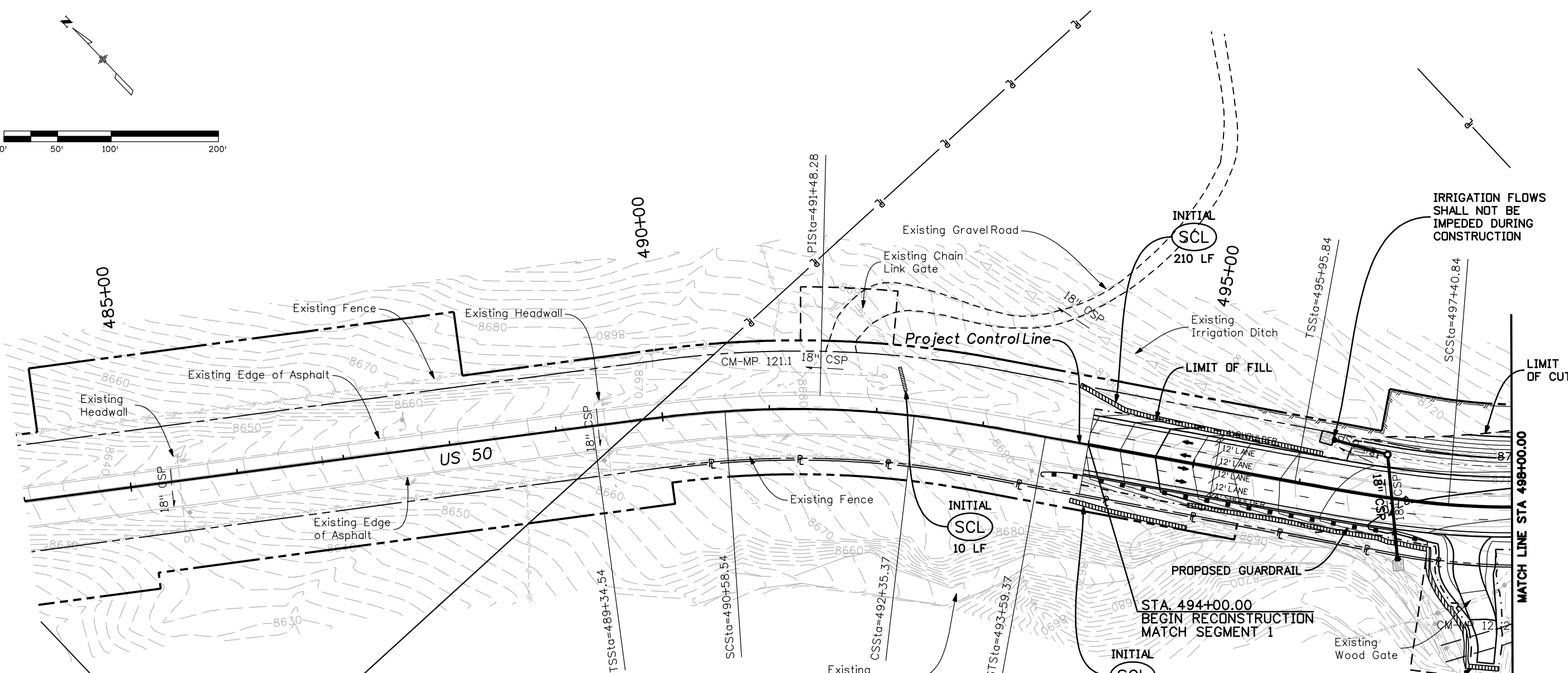
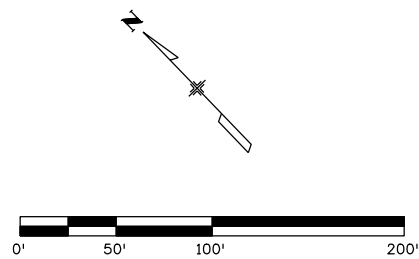
\*Includes quantity for Erosion Log (Culvert)

\*\*Excludes areas of rock cut.

\*\*\*Excludes blanketed areas (see Section 9.F) as well as areas of rock cut.

- BMP maintenance shall be paid for as: 208 Removal and Disposal of Sediment (Labor) (Hour)
- It is estimated that 4 concrete washout structures will be required on the project. One concrete washout structure shall be used for the field laboratories.
- It is estimated that 40 hours of labor, blading (130 horsepower), dozing (200 horsepower), and/or combination loader (130 horsepower) may be required for miscellaneous erosion control work as directed by the Engineer. Work shall be paid for as: 203 Labor, 203 Blading, 203 Dozing, or 203 Combination Loader.
- It is estimated that 4 stabilized construction entrance(s) will be required as directed to minimize vehicle tracking control. Erosion control supervisor will locate these BMP's on the SWMP map.
- Maintenance of seeded areas shall be paid for as: Included in the cost of the work.

Print Date: 3/26/2010		<table border="1"> <thead> <tr> <th colspan="3">Sheet Revisions</th> </tr> <tr> <th>Date:</th> <th>Comments</th> <th>Init.</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Sheet Revisions			Date:	Comments	Init.										<table border="1"> <thead> <tr> <th colspan="2">As Constructed</th> </tr> </thead> <tbody> <tr> <td>No Revisions:</td> <td> </td> </tr> <tr> <td>Revised:</td> <td> </td> </tr> <tr> <td>Void:</td> <td> </td> </tr> </tbody> </table>		As Constructed		No Revisions:		Revised:		Void:		<table border="1"> <thead> <tr> <th colspan="2">SWMP CONSTRUCTION PLAN SHEET</th> </tr> </thead> <tbody> <tr> <td>Designer:</td> <td> </td> </tr> <tr> <td>Detailer:</td> <td> </td> </tr> <tr> <td>Sheet Subset:</td> <td>SWMP</td> </tr> <tr> <td>Subset Sheets:</td> <td>4 OF 4</td> </tr> </tbody> </table>		SWMP CONSTRUCTION PLAN SHEET		Designer:		Detailer:		Sheet Subset:	SWMP	Subset Sheets:	4 OF 4	Project No./Code	
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Drawing File Name:14933-Seg2-SWMP04.dgn		 Colorado Department of Transportation 2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018 Region 3 RBA		NH 0501-046																																							
Horiz. Scale: 1:100 Vert. Scale: N/A		 MULLER ENGINEERING CO., INC. CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939		14933																																							
Unit Leader Information Unit Leader Initials				Sheet Number 107																																							



John W. Leonard

**LEGEND**

- (SCL)** EROSION LOG (SPECIAL) (12-INCH) PER M-208-1
- (IP)** INLET PROTECTION PER M-208-1
- (ECB)** SOIL RETENTION BLANKET (STRAW-COCONUT) PER M-208-1 (NOTE 7)
- (CD)** CHECK DAM PER M-208-1
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- (DD)** DIVERSION DITCH SEE DRAINAGE DETAILS NOTE 6

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5. PROVIDE CONCRETE WASHOUTS IN CLOSE PROXIMITY TO CONCRETE WORK (NOT SHOWN).
6. PAYMENT FOR DIVERSION DITCH (RIPRAP-LINED) AND DIVERSION DITCH (ECB-LINED) SHALL BE MADE UNDER 208 TEMPORARY DIVERSION.
7. CONTRACTOR SHALL SUBSTITUTE 12" LONG WOODEN STAKES WHERE STAPLES ARE SHOWN IN M-208-1 AT INTERVALS OF 36" O.C. STAKES SHALL BE INSTALLED LEAVING 1-1/2" EXPOSED ABOVE GROUND. NO SEPARATE PAYMENT SHALL BE MADE FOR STAKES.

**ABBREVIATIONS**

- L = LENGTH
- D = DEPTH OF PONDING
- W = WIDTH OF PROTECTION

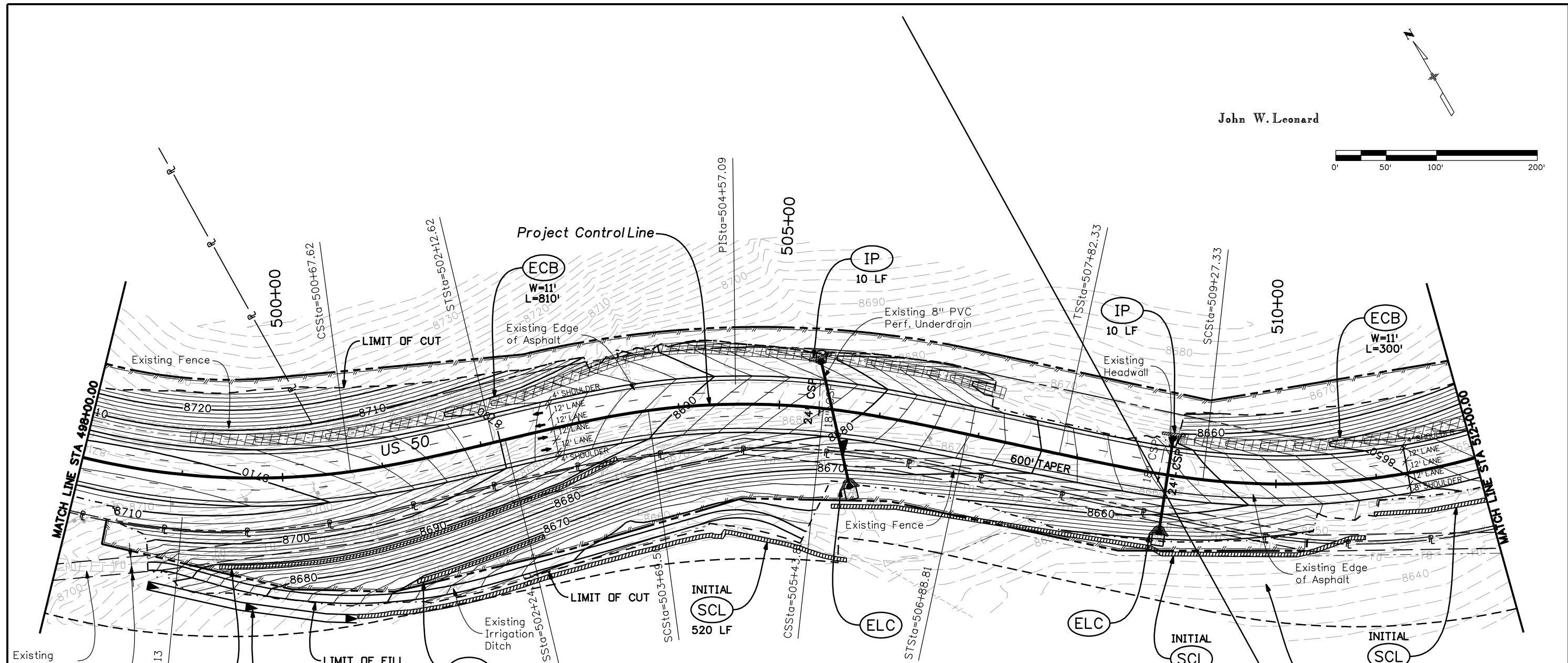
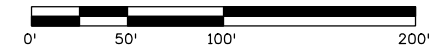


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Horiz. Scale: 1:100    Vert. Scale: N/A			<b>Region 3</b>	Revised:	Designer:    ASP	14933
Unit Leader Information    Unit Leader Initials			<b>RBA</b>	Void:	Detailer:    MAM	Sheet Number    108
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 CONSULTING ENGINEERS    P: 06-065,01 SH 50/14933/Hydraulics/Drawings 303-988-4939	<b>0000</b>				Sheet Subset:    SWMP    Subset Sheets:    1 of 10	



John W. Leonard



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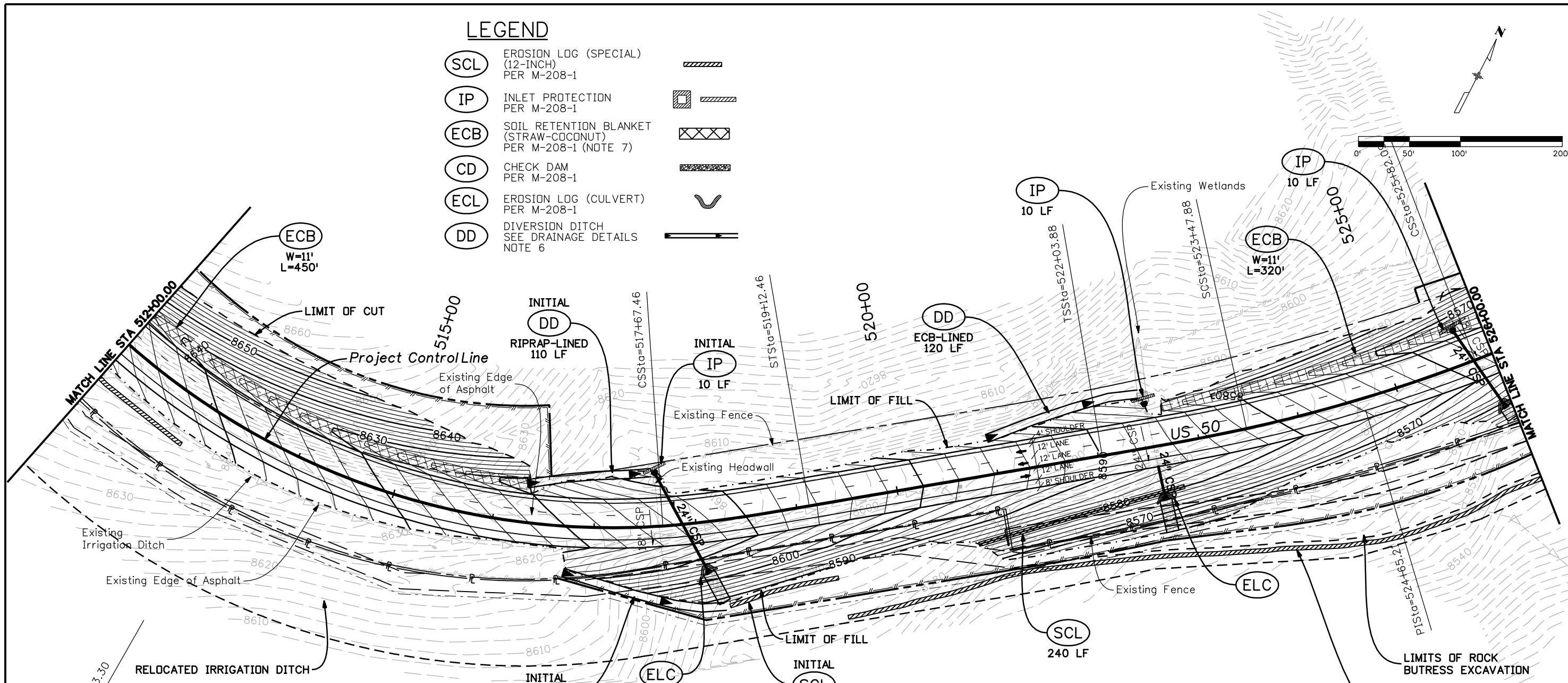
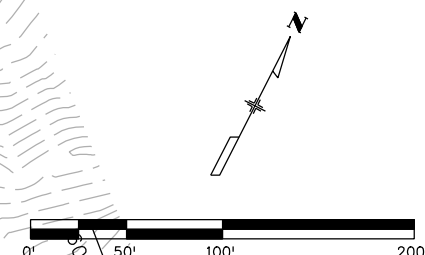


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777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 303-988-4939								

### LEGEND

- |  |  |
|--|--|
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- INITIAL (SCL) 700 LF**  
NOTE: FOLLOWING COMPLETION OF THE ROCK BUTTRESS, THIS SCL SHALL BE MOVED NORTH TO THE LOCATION OF THE PROPOSED TOE-OF-FILL.









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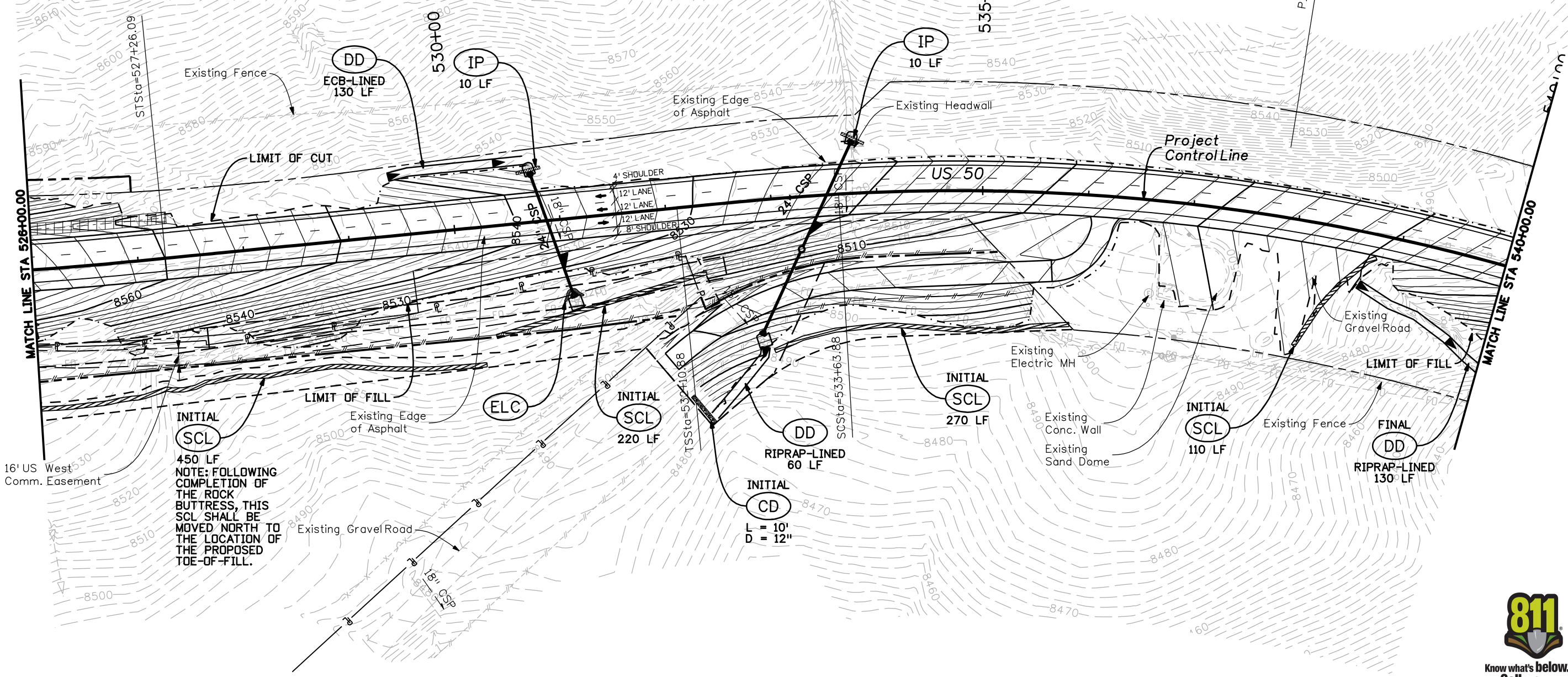
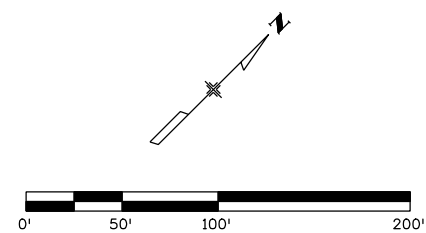


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16' US West Comm. Easement

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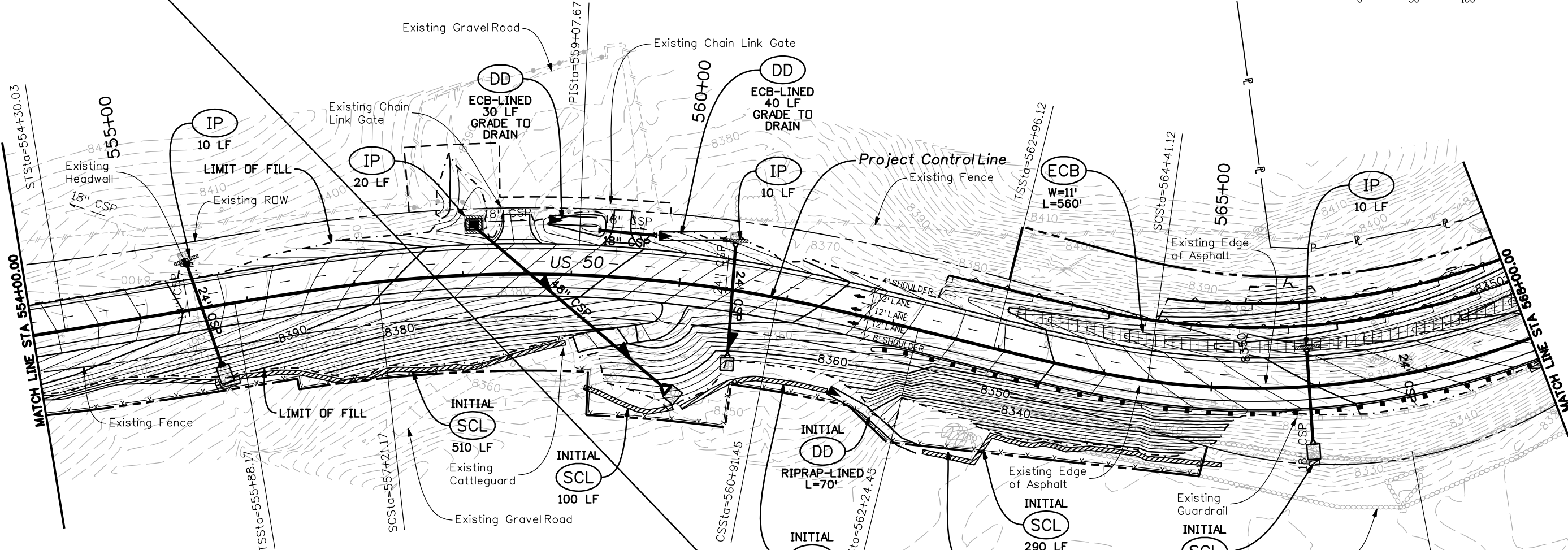
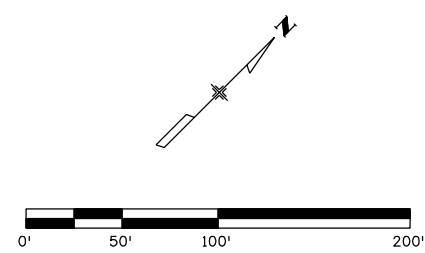


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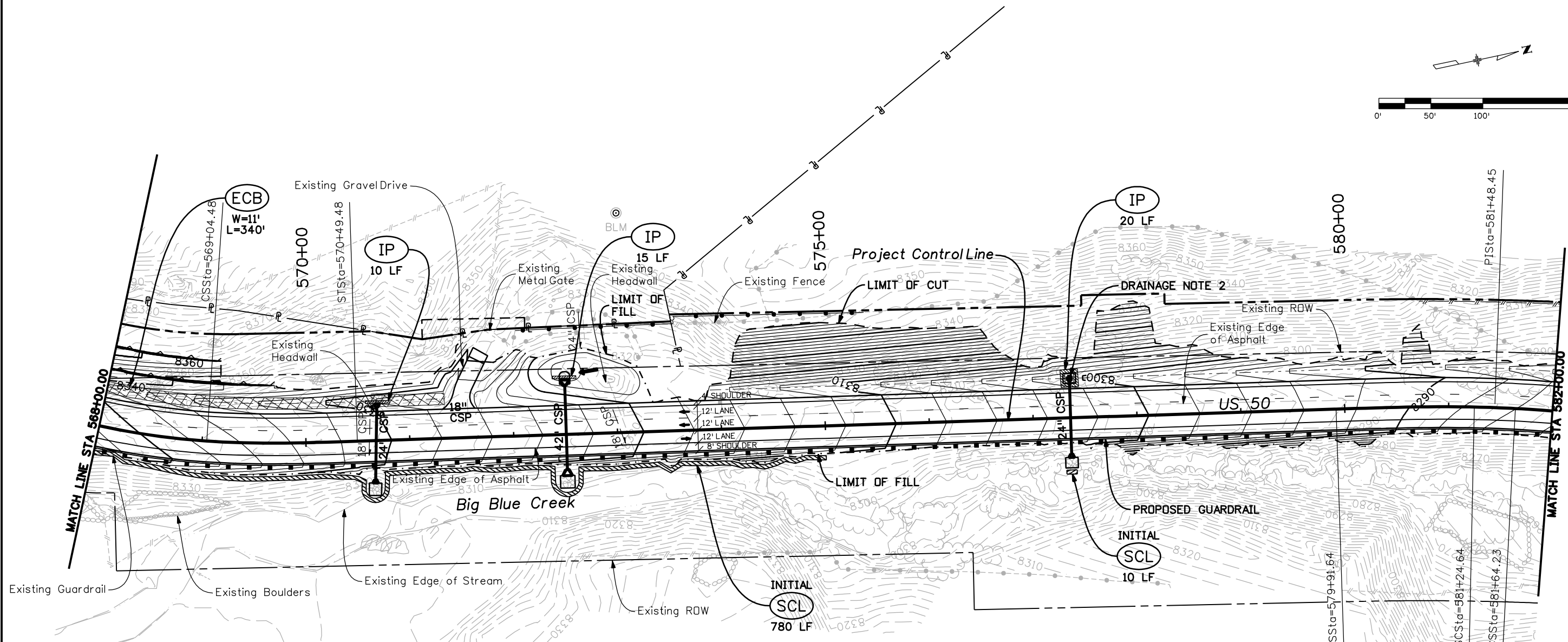
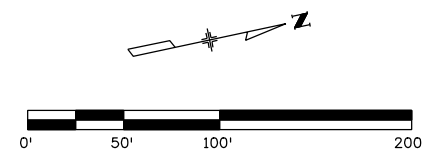
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Horiz. Scale: 1:100    Vert. Scale: N/A			<b>Region 3</b> <b>RBA</b>	Revised:	Designer:    ASP	NH 0501-046
Unit Leader Information    Unit Leader Initials				Void:	Detailer:    MAM	14933
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**LEGEND**

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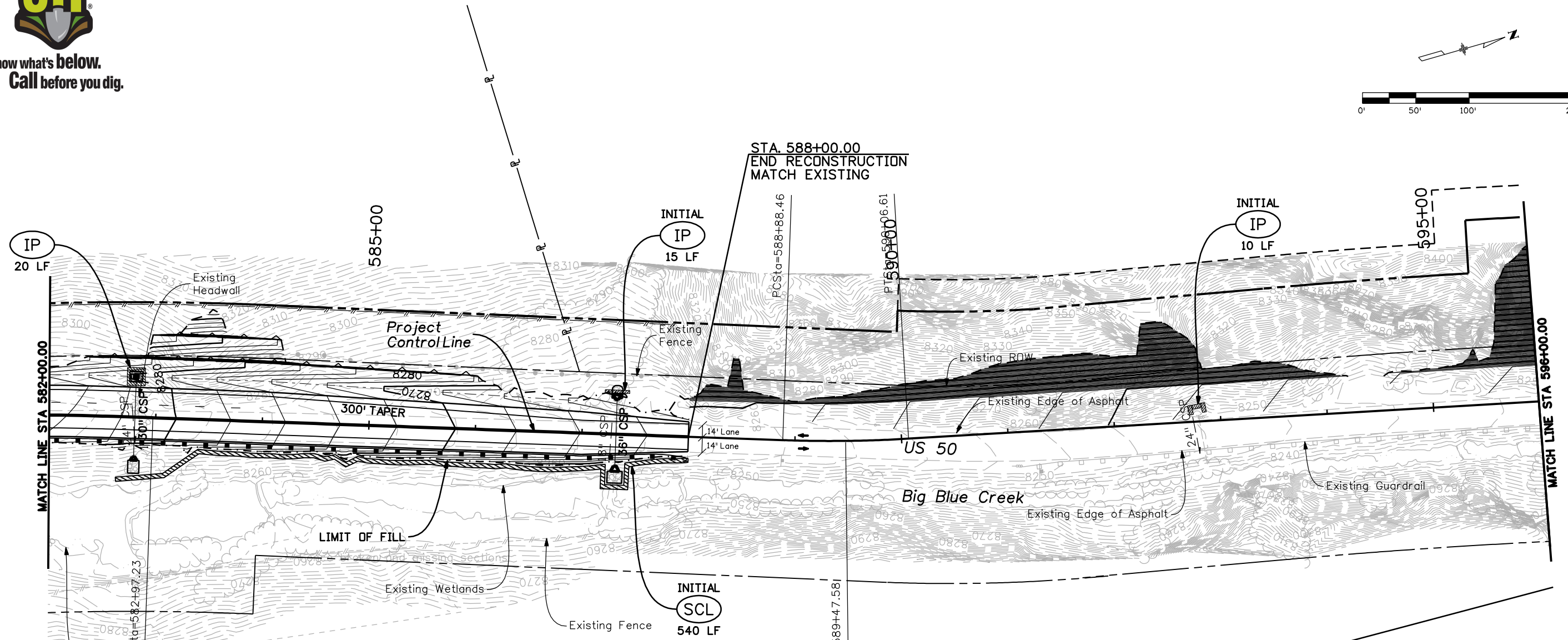
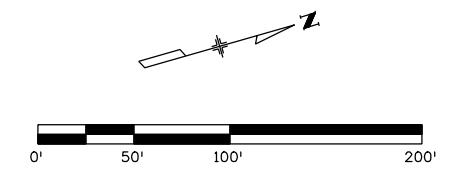
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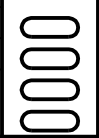
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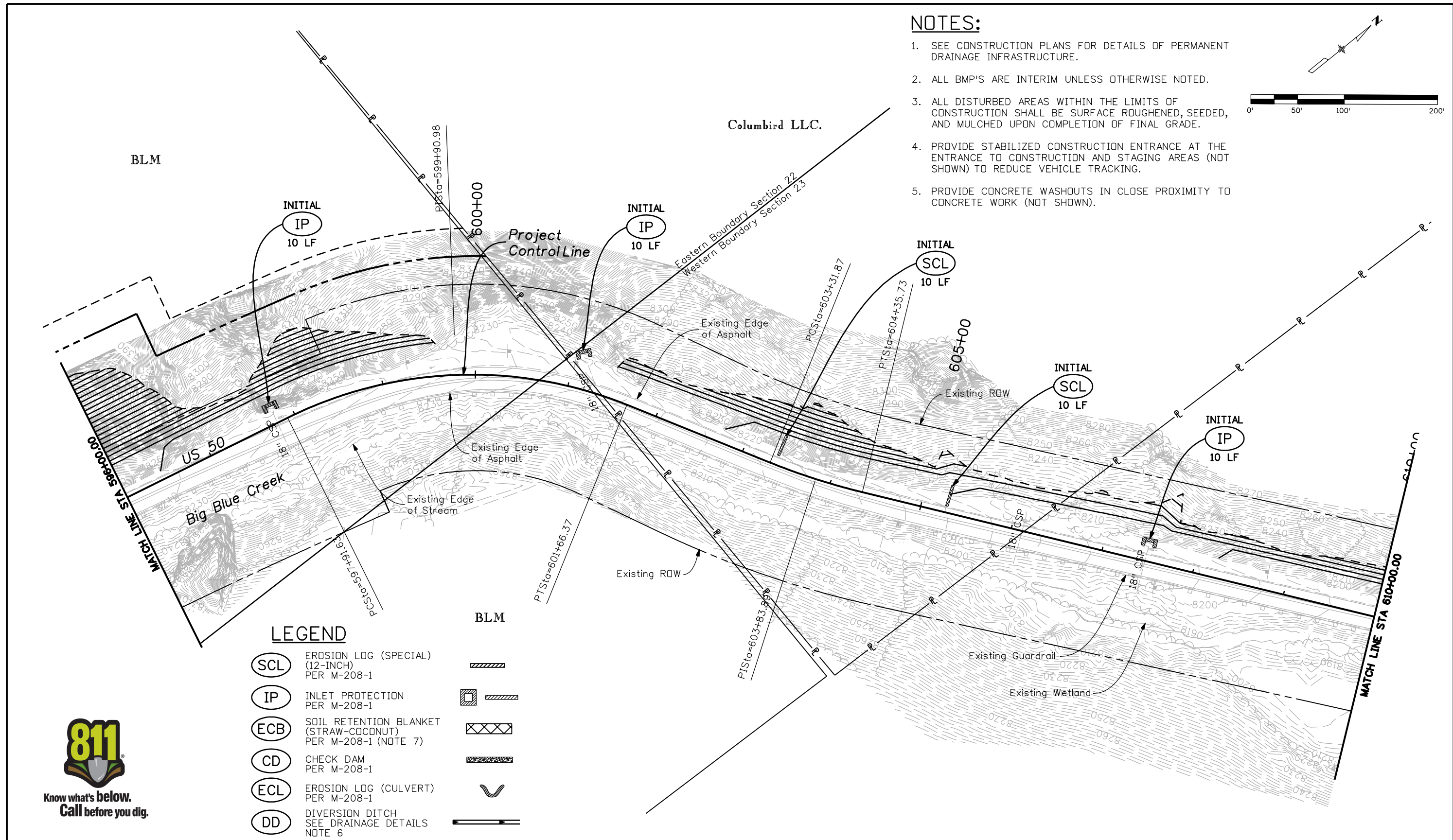
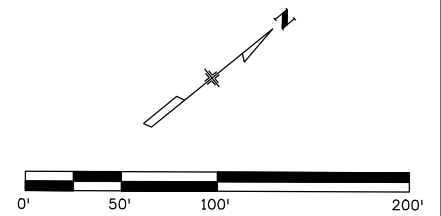
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Horiz. Scale: 1:100    Vert. Scale: N/A						Revised:		Designer: ASP		14933	
Unit Leader Information    Unit Leader Initials				Region 3    RBA		Void:		Detailer: MAM		Sheet Number 115	
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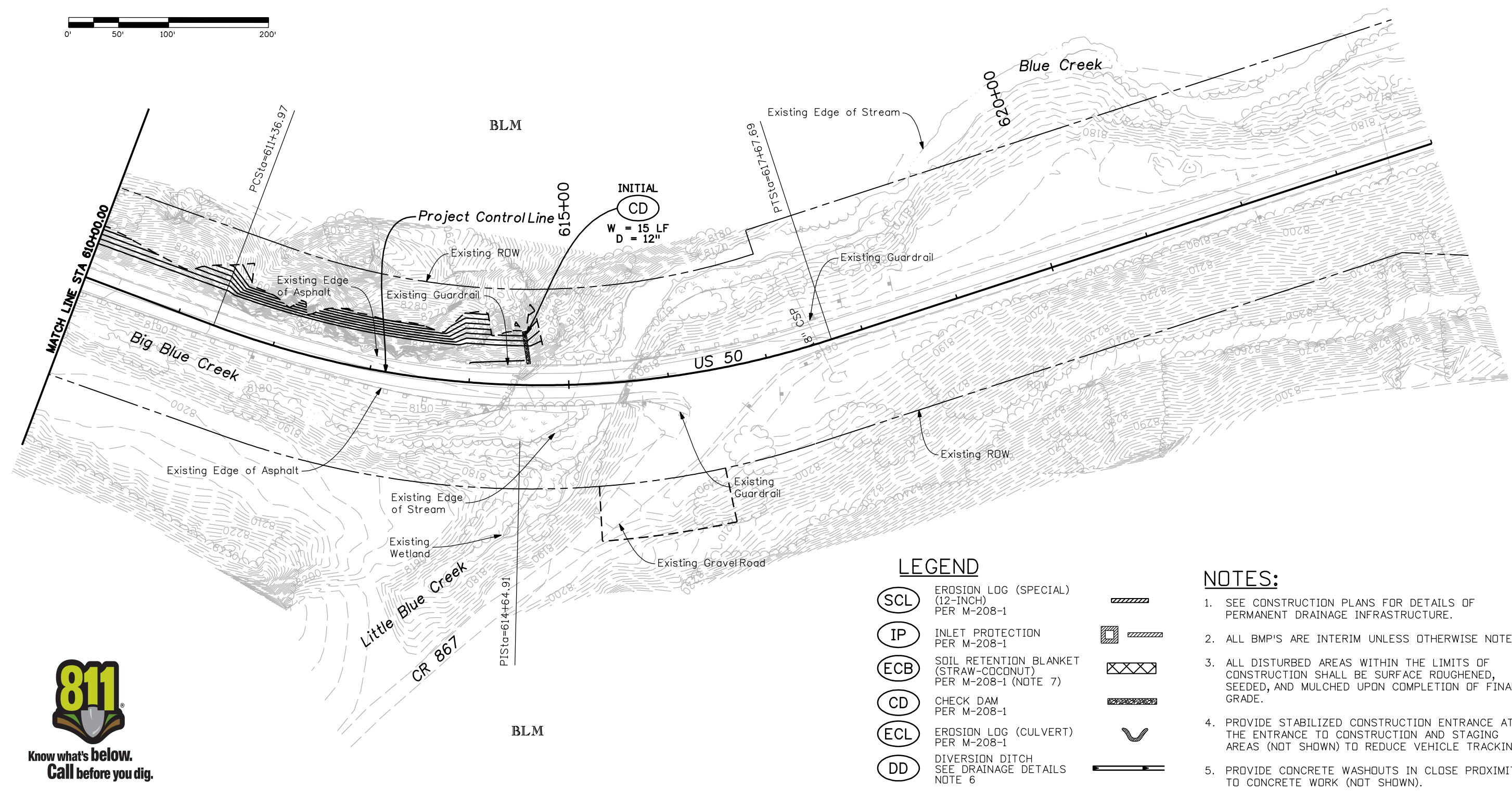
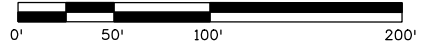
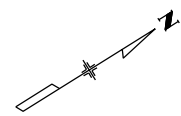
**LEGEND**

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|-------|---|--|-----|
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| (CD)  | CHECK DAM<br>PER M-208-1  |  |     |
| (ECL) | EROSION LOG (CULVERT)<br>PER M-208-1                              |  |     |
| (DD)  | DIVERSION DITCH<br>SEE DRAINAGE DETAILS<br>NOTE 6                 |  |     |



Print Date: 3/26/2010		<b>Sheet Revisions</b>		Colorado Department of Transportation		<b>As Constructed</b>		SWMP PLAN STA. 596+00 to STA. 610+00		Project No./Code	
Drawing File Name: 14933-Seg2-SWMPPlan09.dgn		Date:	Comments	Init.	2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018		No Revisions:		NH 0501-046		
Horiz. Scale: 1:100 Vert. Scale: N/A					Region 3 RBA		Revised:		14933		
Unit Leader Information Unit Leader Initials							Void:		Sheet Number 116		
<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939		777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226		DEPARTMENT OF TRANSPORTATION		Designer: ASP Detailer: MAM Sheet Subset: SWMP		Subset Sheets: 9 of 10			





**LEGEND**

- (SCL) EROSION LOG (SPECIAL) (12-INCH) PER M-208-1
- (IP) INLET PROTECTION PER M-208-1
- (ECB) SOIL RETENTION BLANKET (STRAW-COCONUT) PER M-208-1 (NOTE 7)
- (CD) CHECK DAM PER M-208-1
- (ECL) EROSION LOG (CULVERT) PER M-208-1
- (DD) DIVERSION DITCH SEE DRAINAGE DETAILS NOTE 6

**NOTES:**


1. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE INFRASTRUCTURE.
2. ALL BMP'S ARE INTERIM UNLESS OTHERWISE NOTED.
3. ALL DISTURBED AREAS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE SURFACE ROUGHENED, SEEDED, AND MULCHED UPON COMPLETION OF FINAL GRADE.
4. PROVIDE STABILIZED CONSTRUCTION ENTRANCE AT THE ENTRANCE TO CONSTRUCTION AND STAGING AREAS (NOT SHOWN) TO REDUCE VEHICLE TRACKING.
5. PROVIDE CONCRETE WASHOUTS IN CLOSE PROXIMITY TO CONCRETE WORK (NOT SHOWN).

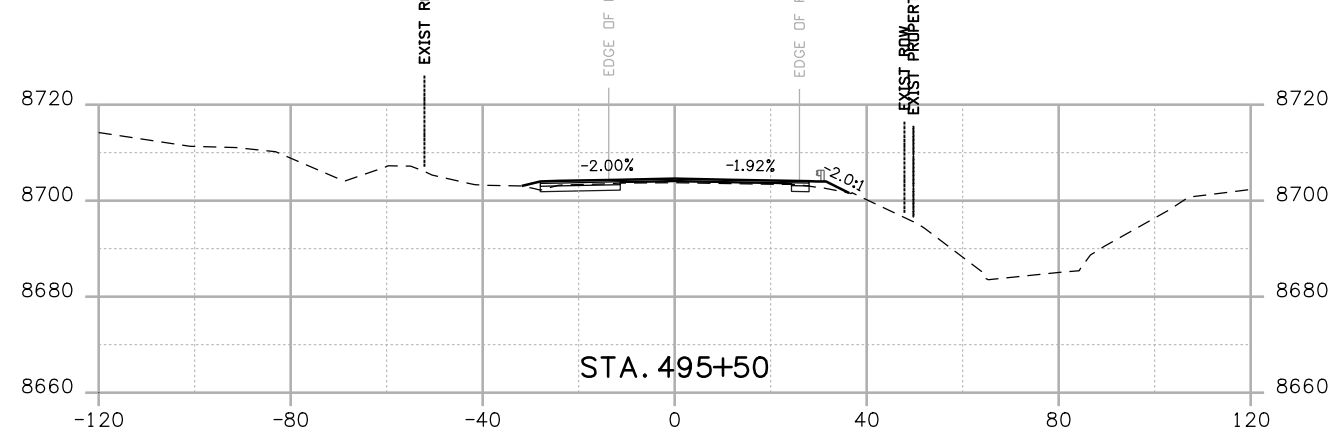
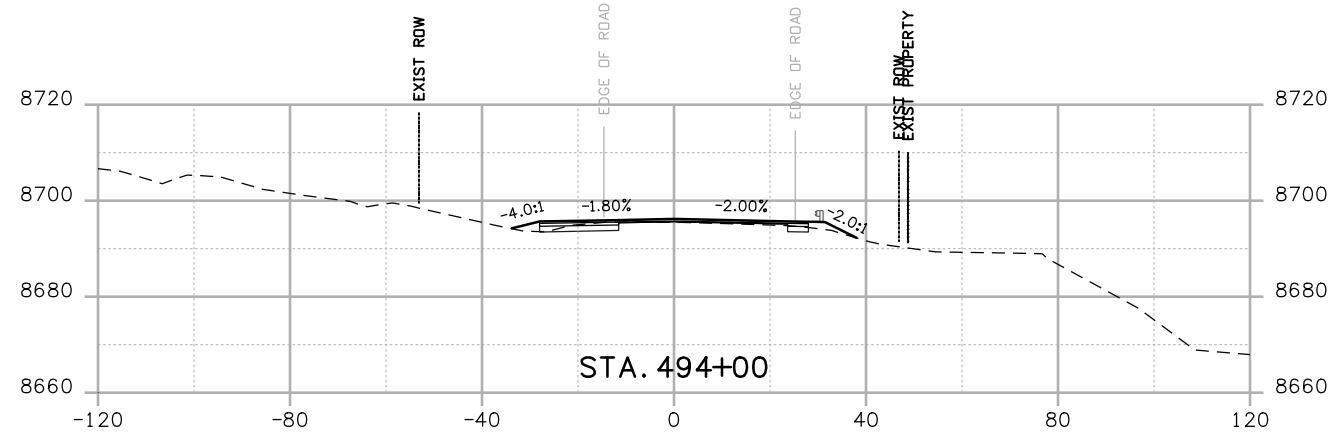
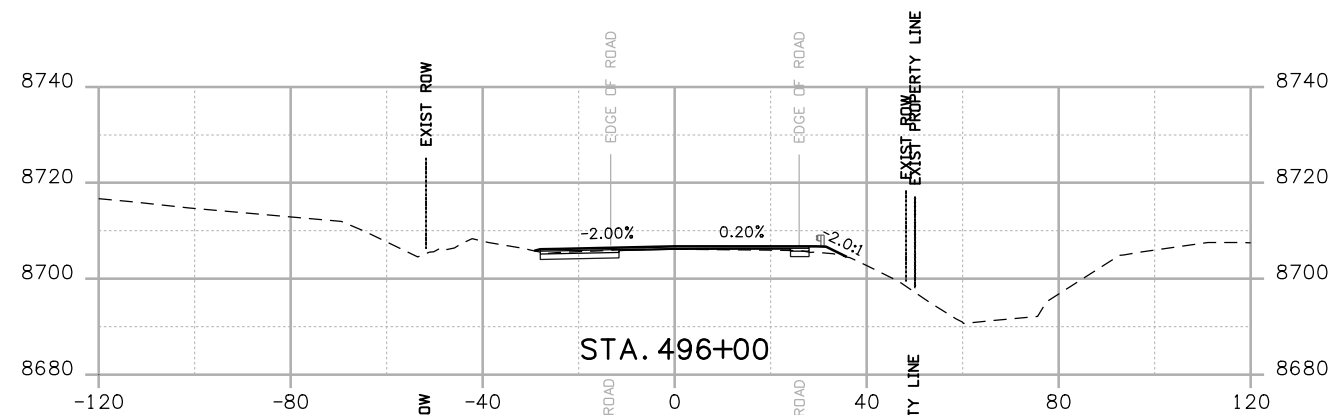
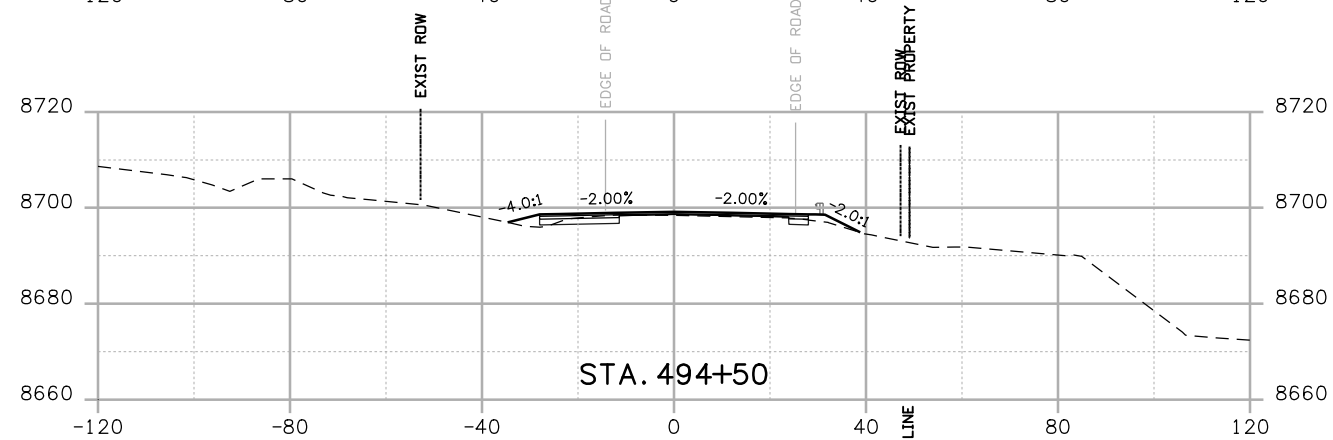
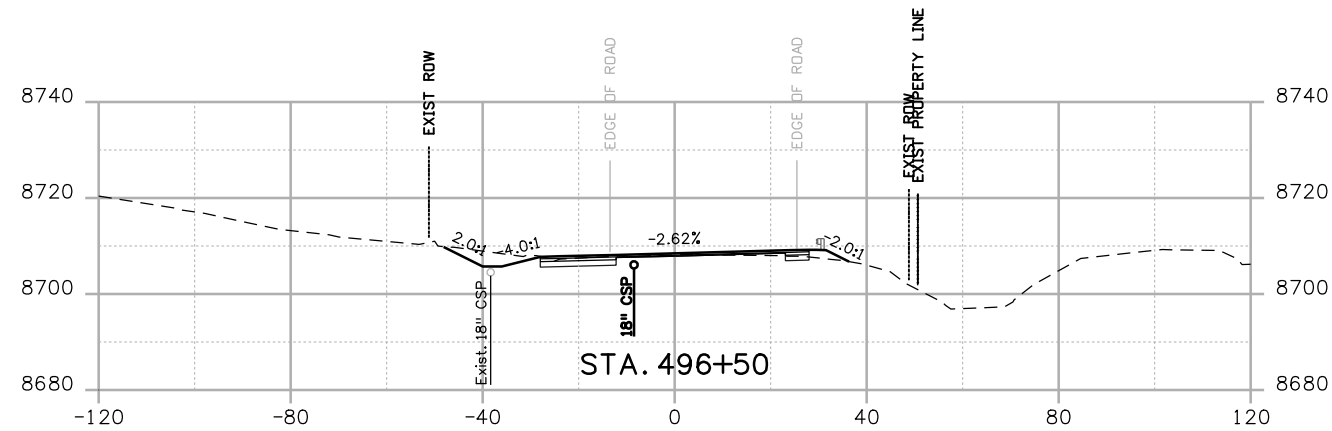
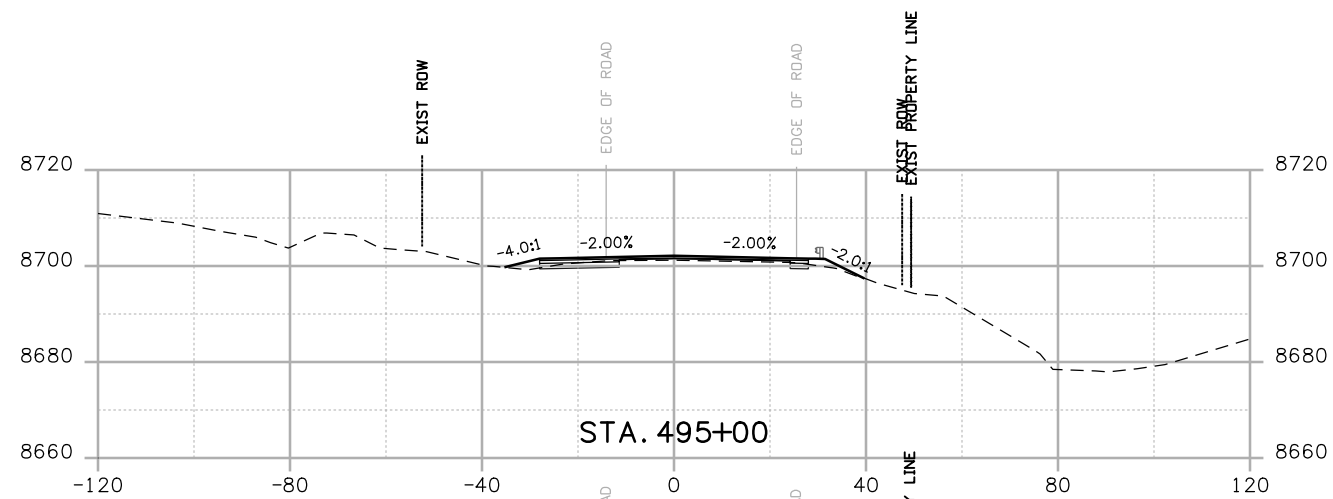


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Drawing File Name: 14933-Seg2-SWMPPlan10.dgn		Date:	Comments	Init.	2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018		No Revisions:		STA. 610+00 to STA. 615+00		NH 0501-046
Horiz. Scale: 1:100 Vert. Scale: N/A					DEPARTMENT OF TRANSPORTATION		Revised:		Designer: ASP		14933
Unit Leader Information Unit Leader Initials					Region 3 RBA		Void:		Detailer: MAM		Sheet Number 117
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Hydraulics/Drawings 303-988-4939							Sheet Subset: SWMP		Subset Sheets: 10 of 10		

# CROSS SECTIONS U.S. HIGHWAY 50

ROADWAY - 36 SHEETS  
ROCK EXCAVATION - 20 SHEETS

Print Date: 3/26/2010 Drawing File Name: US 50 XSections02-CVR01.dgn Horiz. Scale: 1:1      Vert. Scale: N/A Unit Leader Information      Unit Leader Initials	0000 0000 0000	<b>Sheet Revisions</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Date:</th> <th style="width: 55%;">Comments</th> <th style="width: 30%;">Init.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Date:	Comments	Init.													Colorado Department of Transportation  2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018 <b>Region 3</b>	<b>As Constructed</b> No Revisions: Revised: Void:	<b>CROSS SECTIONS</b> Designer: NJL Detailer: MAM Sheet Subset: X-SECTIONS      Subset Sheets:	<b>Project No./Code</b> NH 0501-046 14933 Sheet Number      118
Date:	Comments	Init.																			
<b>MULLER ENGINEERING CO., INC.</b> 777 S. Wadsworth Blvd. CONSULTING ENGINEERS      #4 - 100 Lakewood, CO 80226 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections      303-988-4939		DEPARTMENT OF TRANSPORTATION		RBA																	



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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**Sheet Revisions**

Date:	Comments	Init.

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No Revisions:

Revised:

Void:

**CROSS SECTIONS**

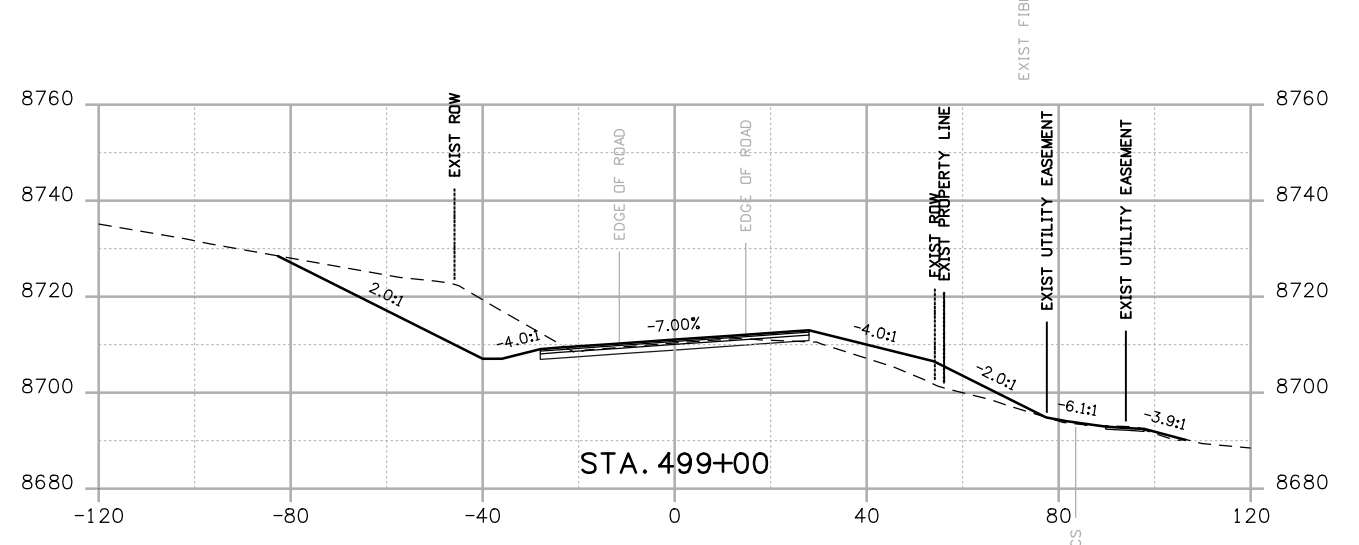
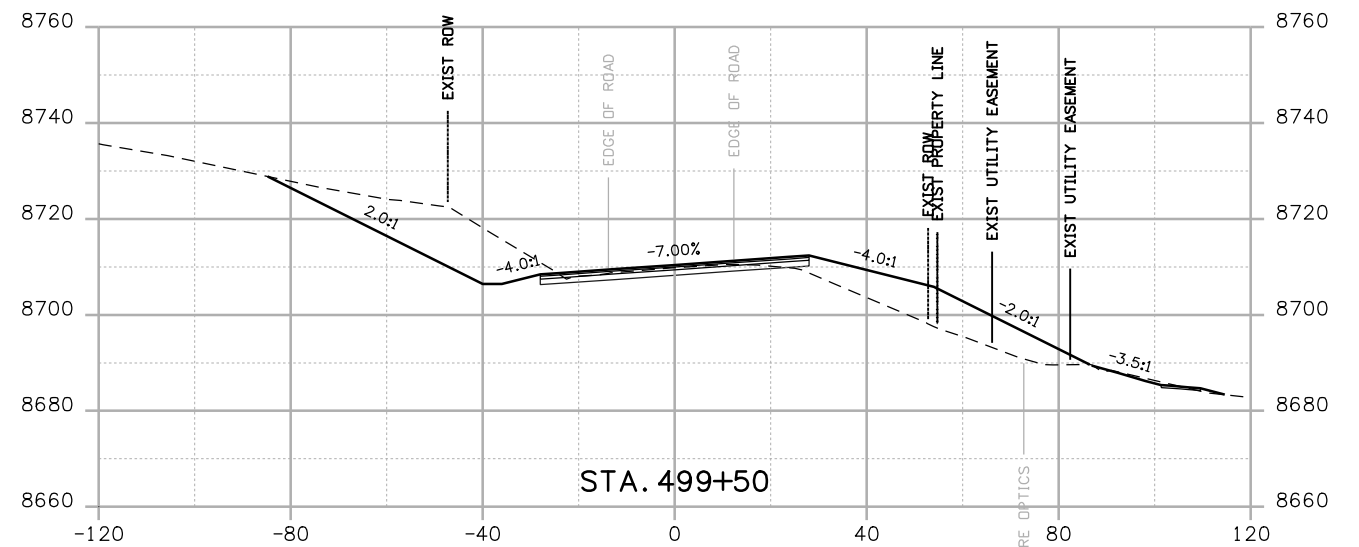
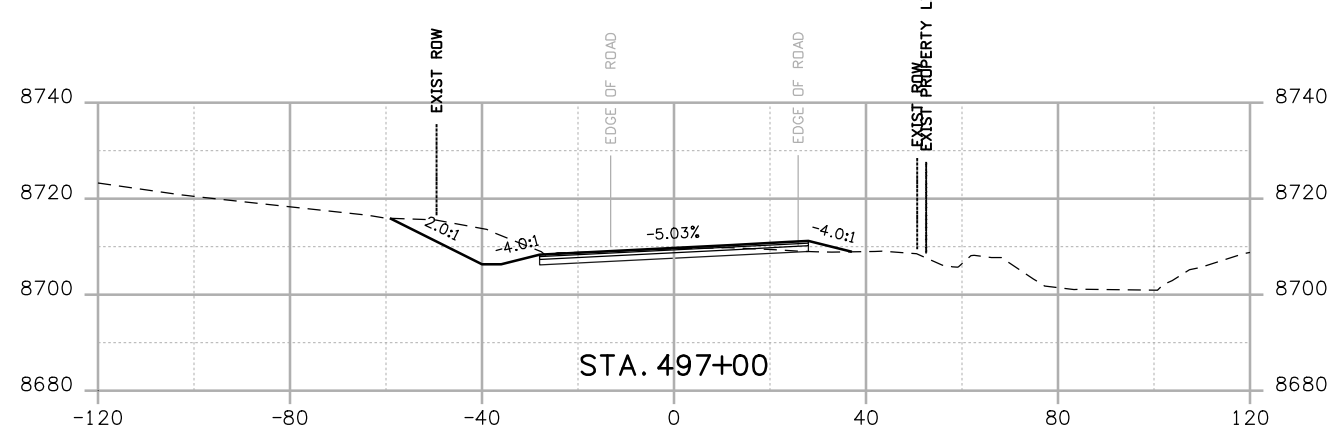
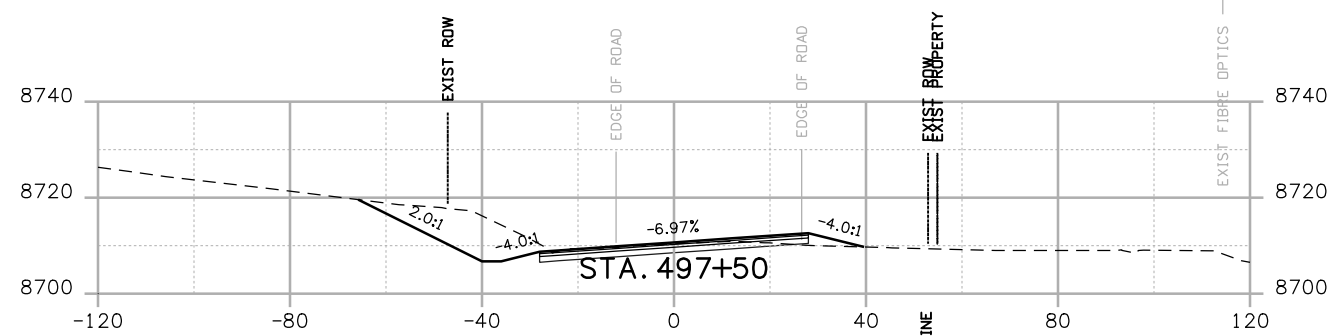
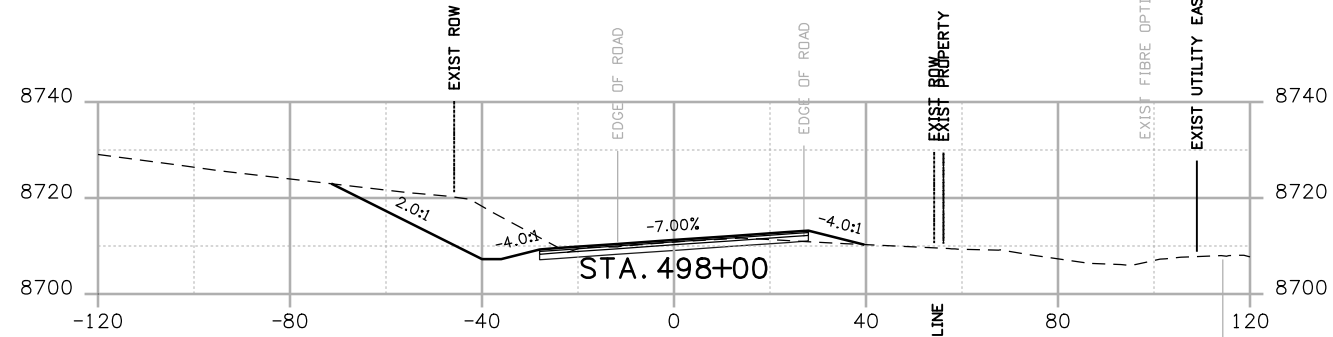
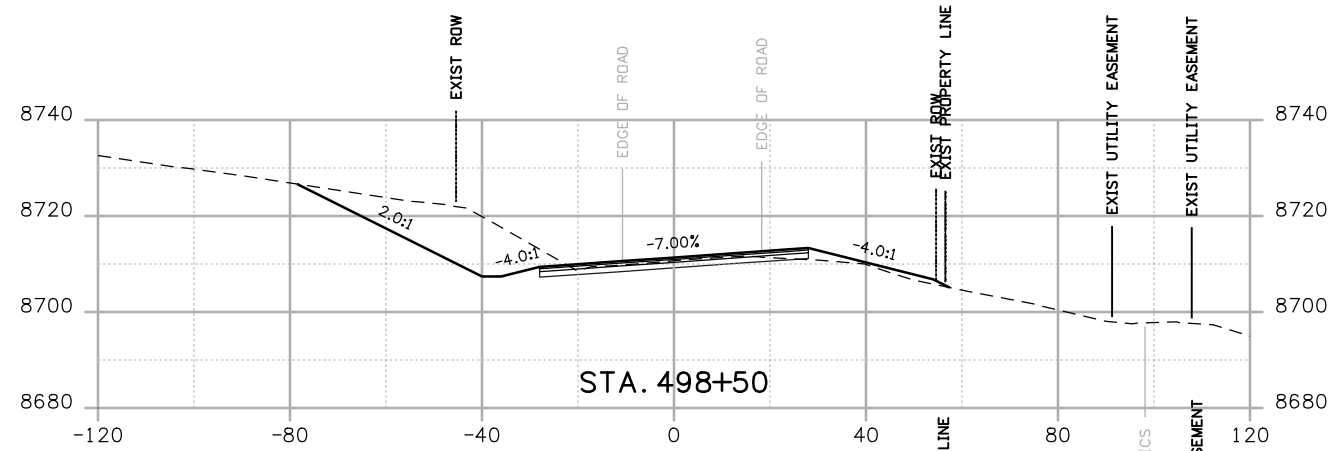
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Detailer:	MAM
Sheet Subset: X-SECTIONS	Subset Sheets: 1 of 36

**Project No./Code**

NH 0501-046


14933

Sheet Number 119



Print Date: 3/26/2010  
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 CONSULTING ENGINEERS #4 - 100  
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 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

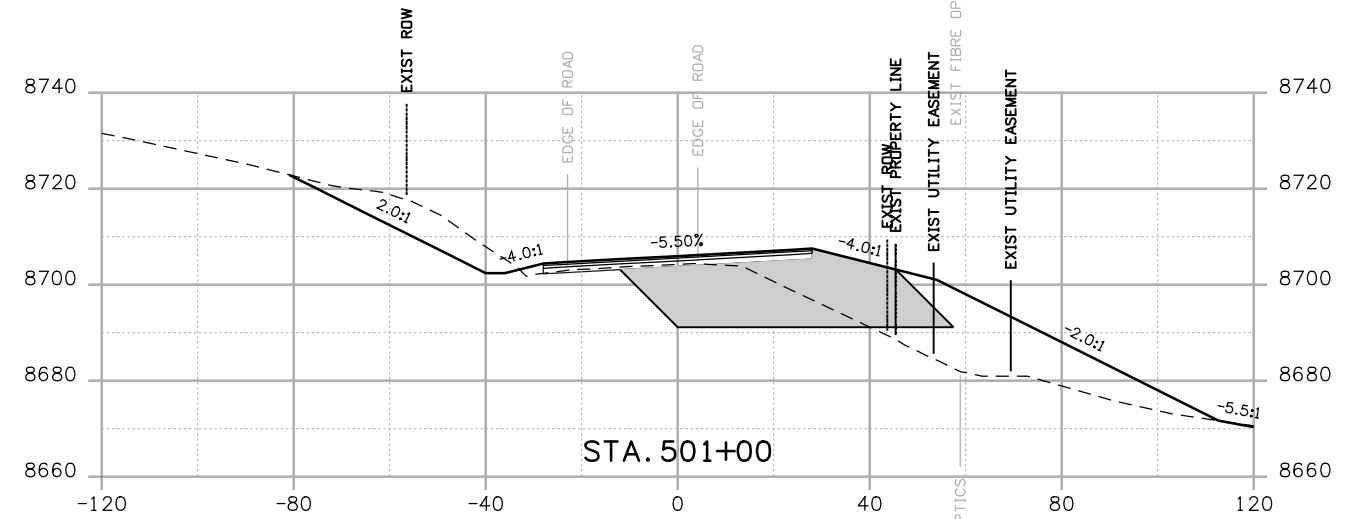
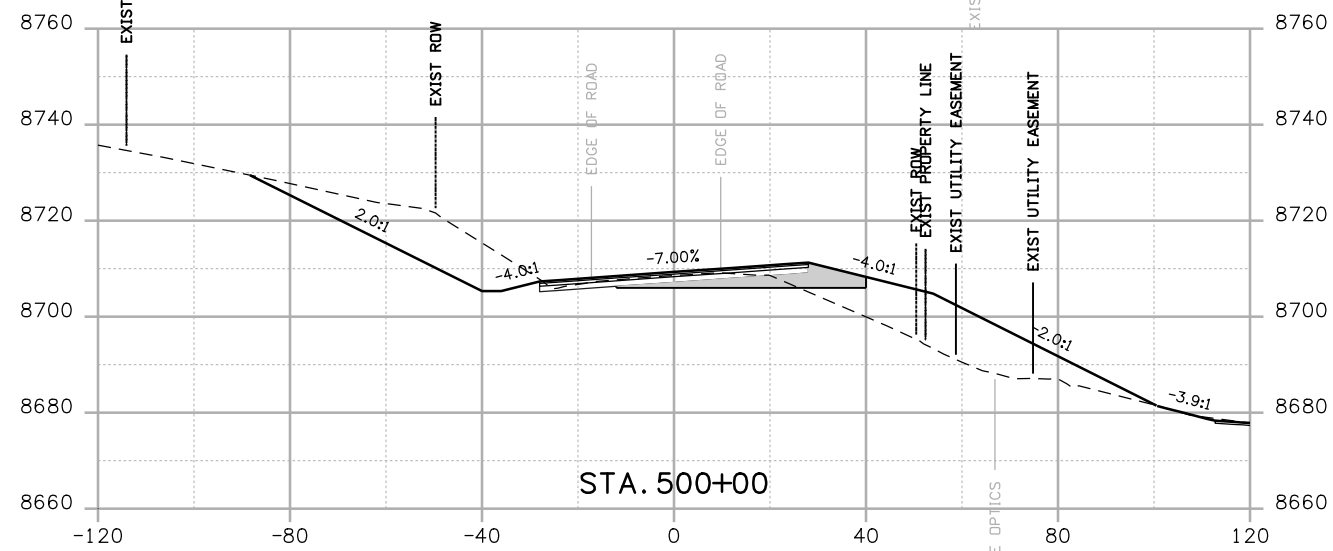
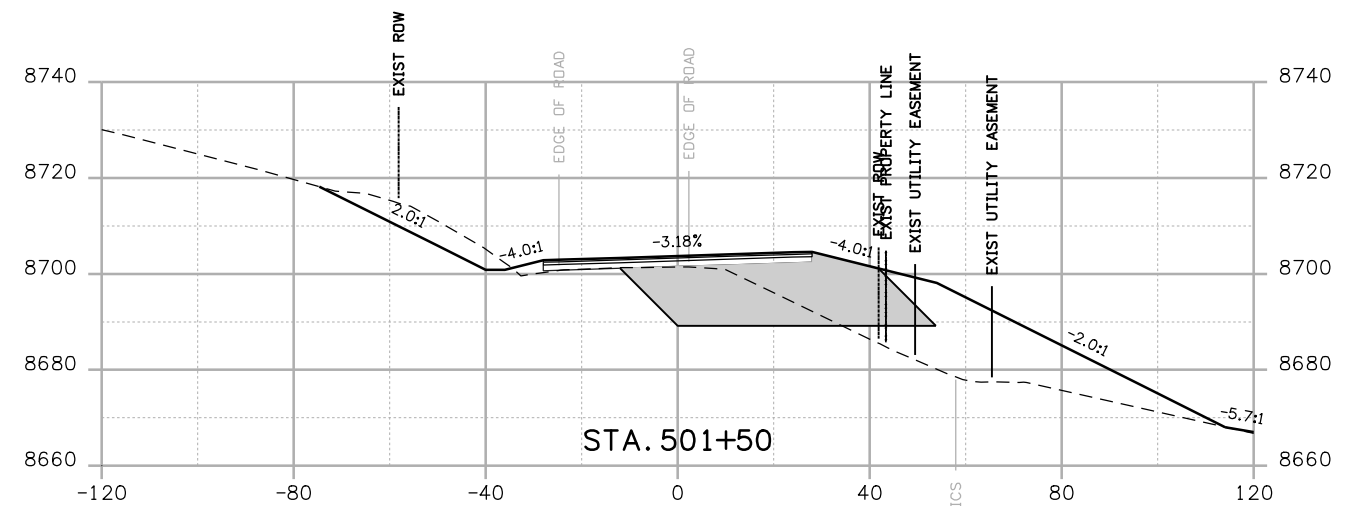
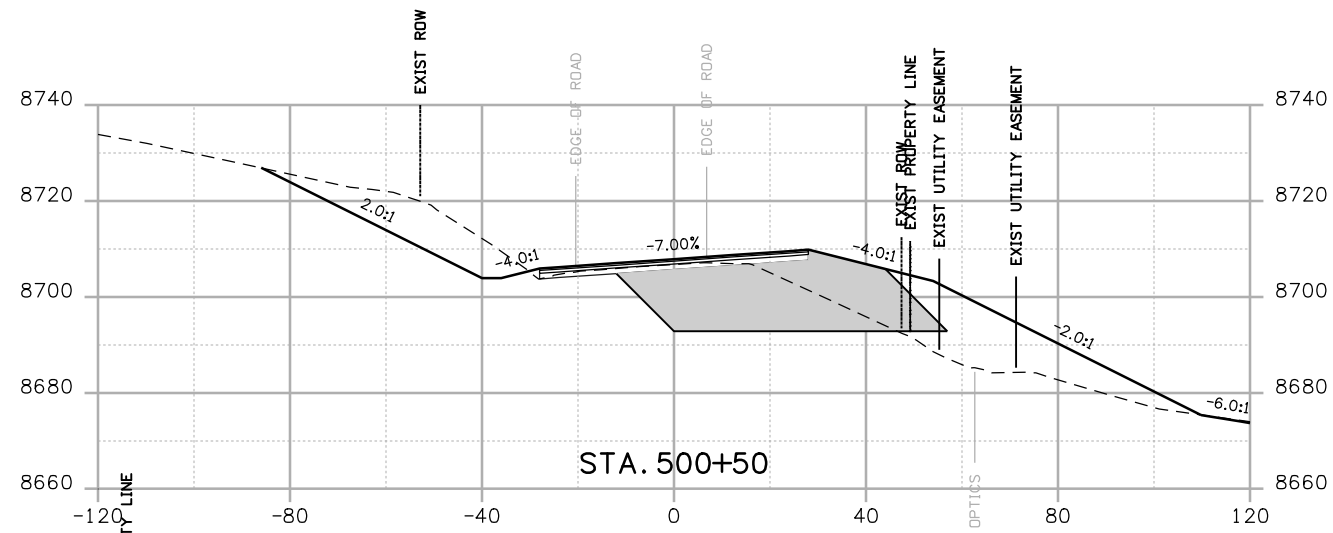
Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
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 No Revisions:  
 Revised:  
 Void:

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 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS  
 Subset Sheets: 2 of 36

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 120





Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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Date:	Comments	Init.

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Revised:

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Designer:

NJL

Detailer:

MAM

Sheet Subset: X-SECTIONS

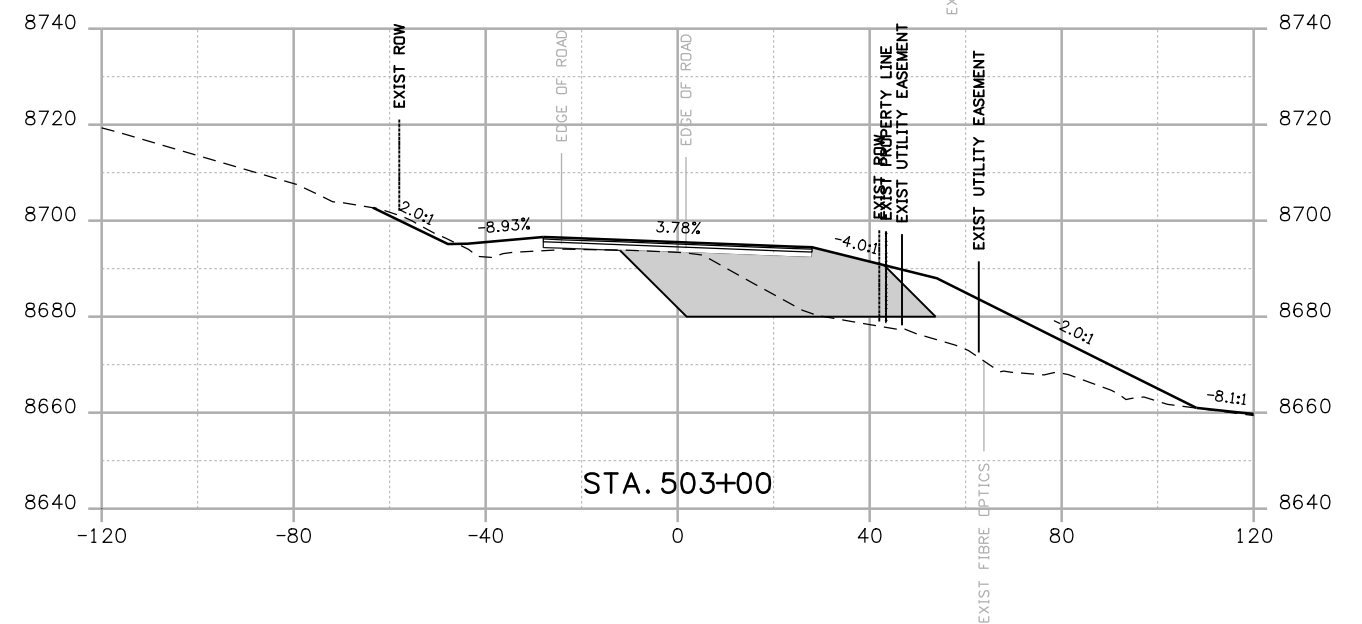
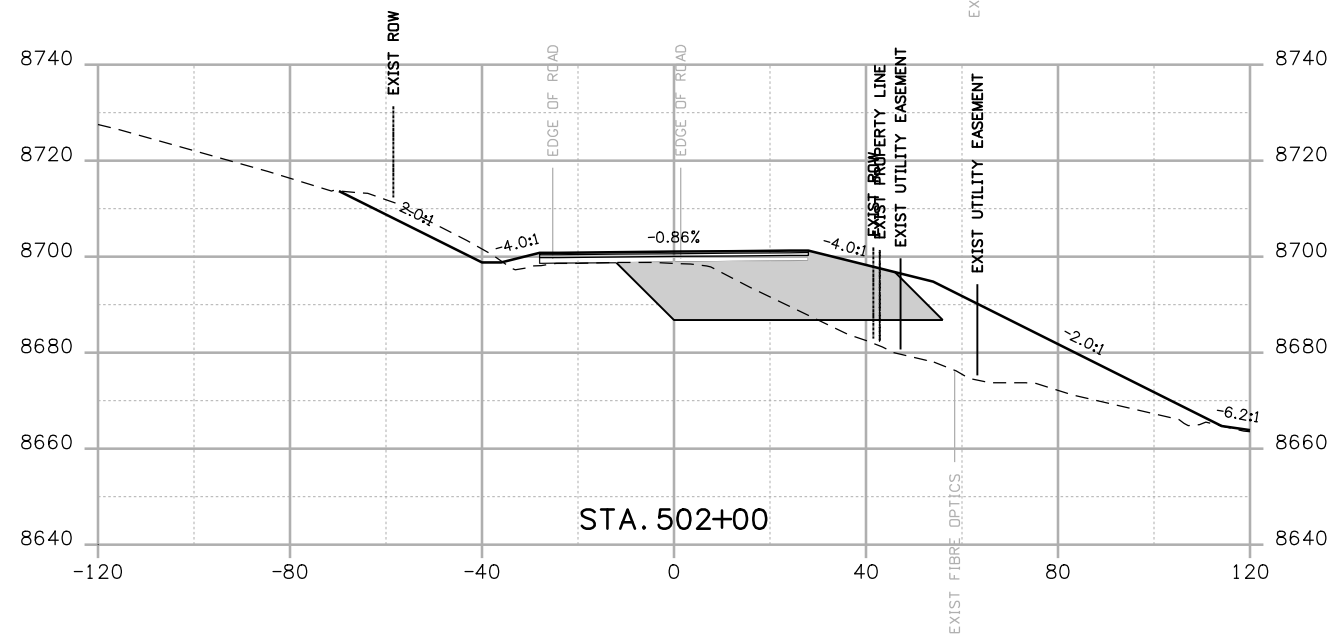
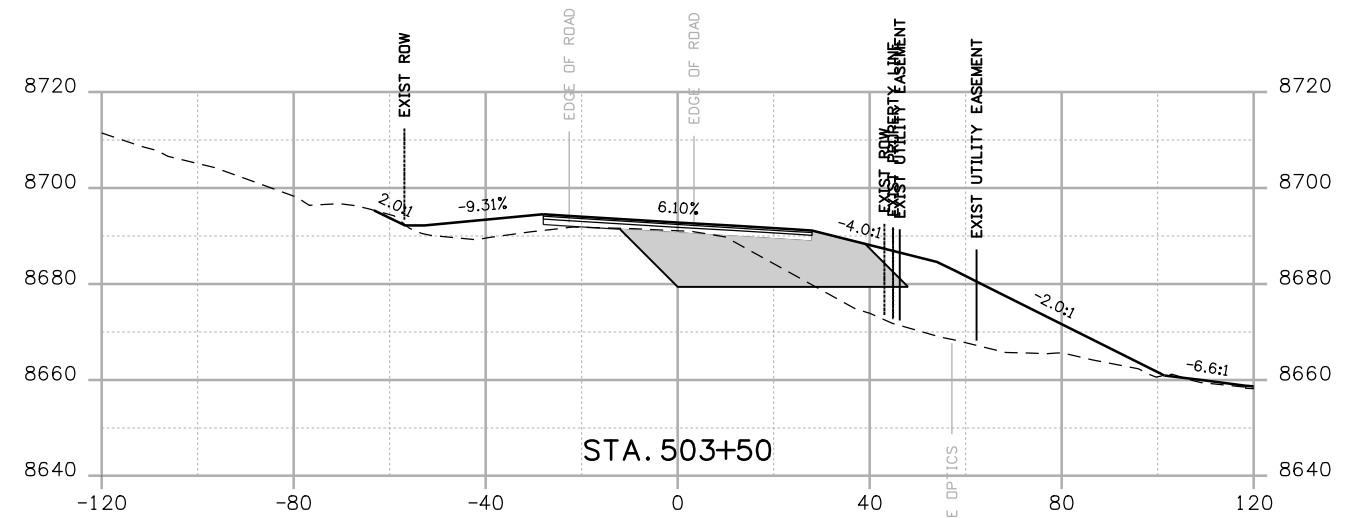
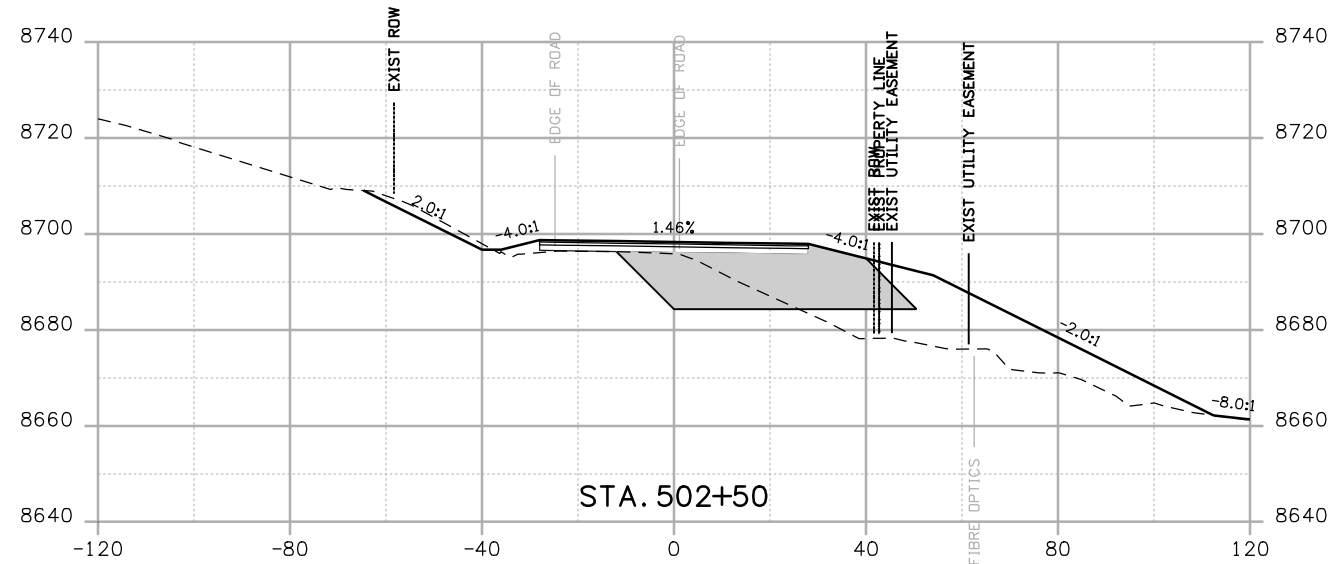
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14933

Sheet Number 121



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

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Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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Void:

CROSS SECTIONS

Designer:

NJL

Detailer:

MAM

Sheet Subset: X-SECTIONS

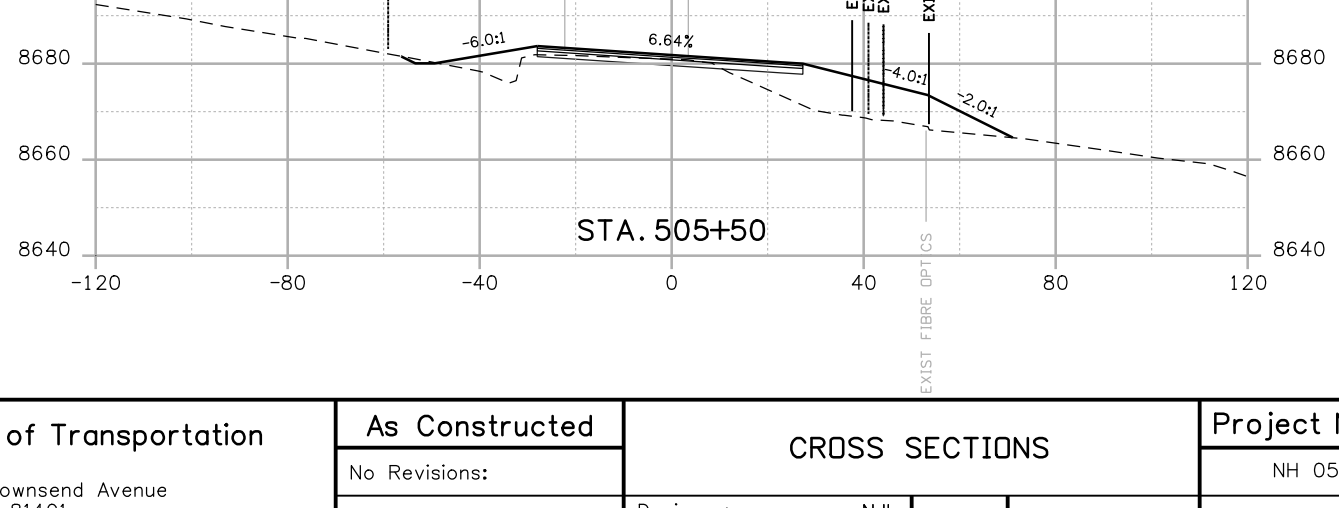
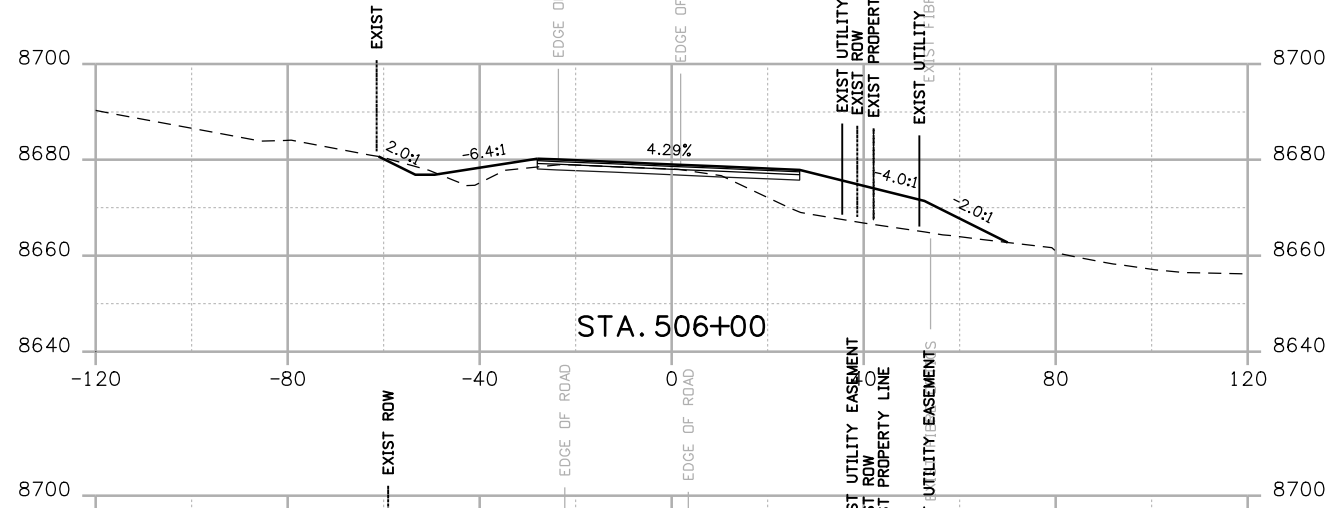
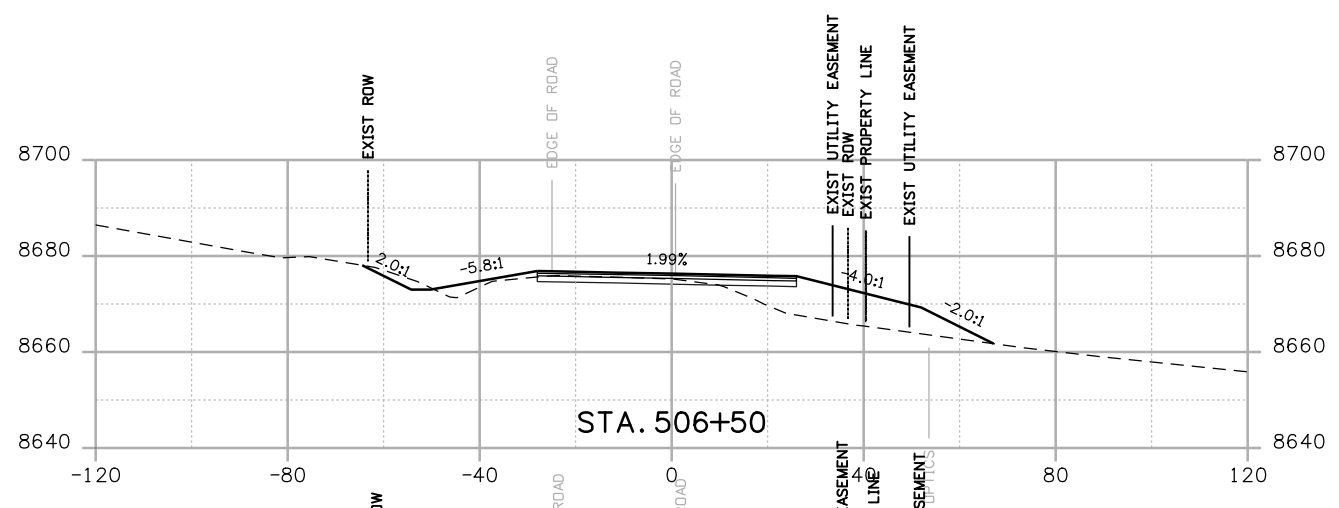
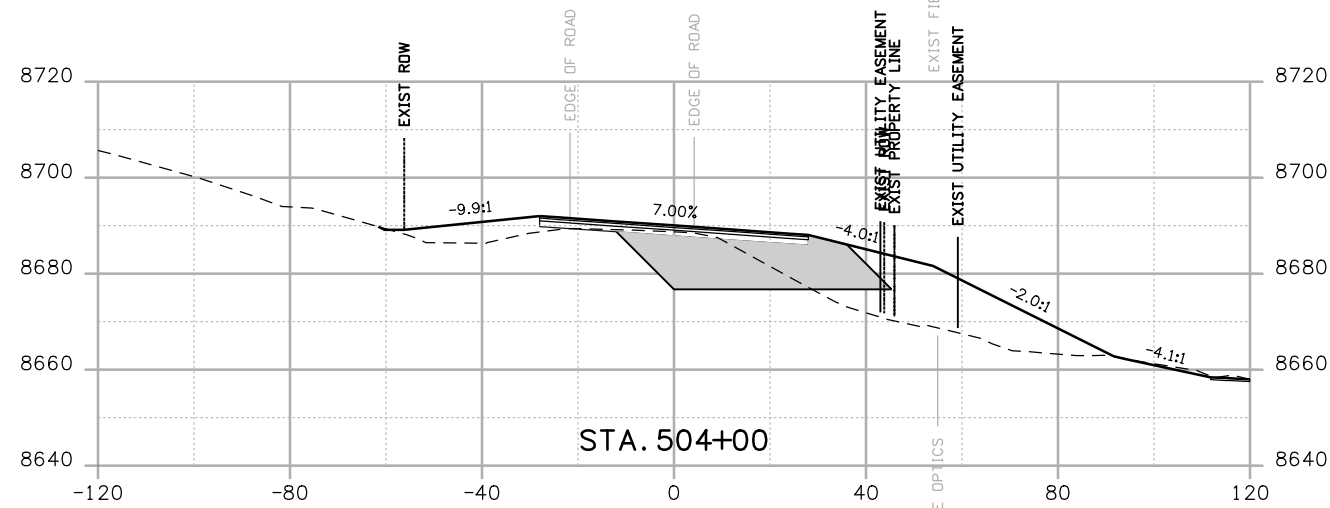
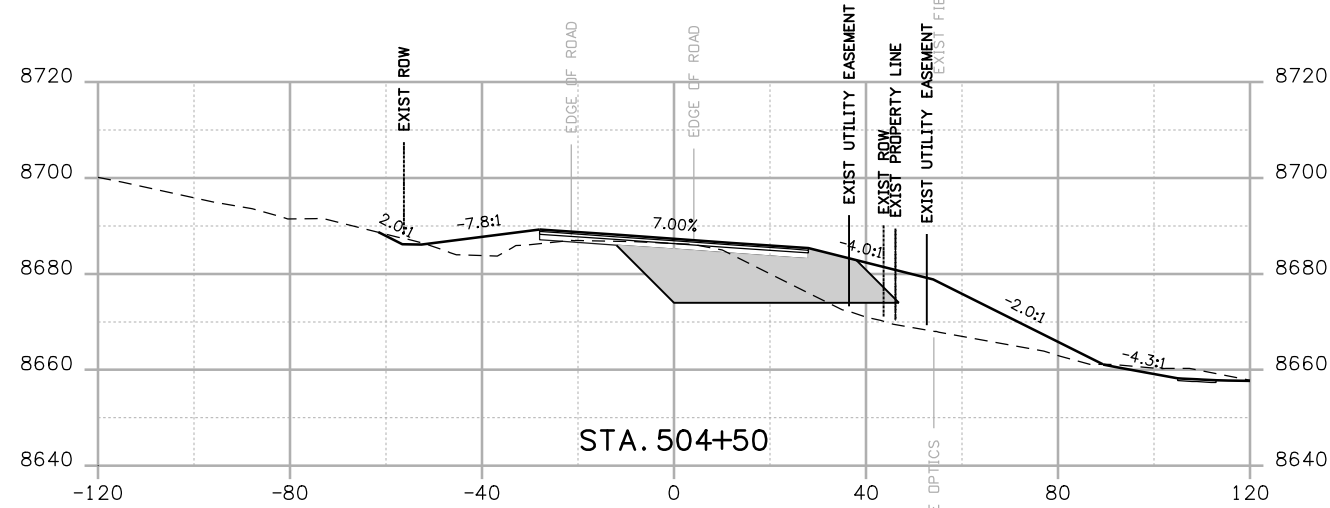
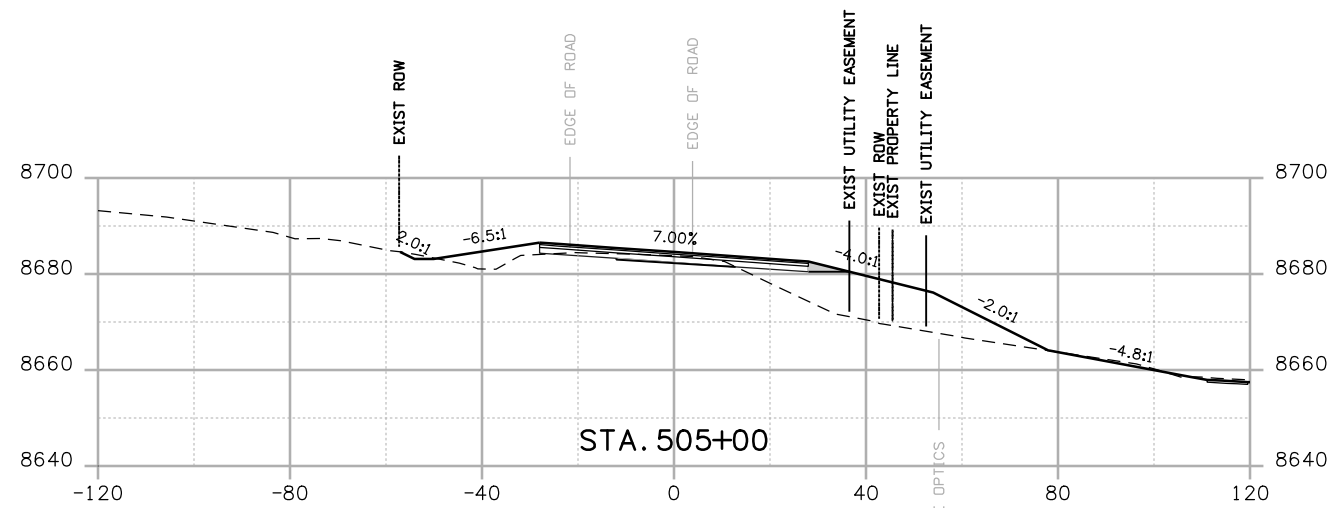
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Project No./Code

NH 0501-046

14933

Sheet Number 122



Print Date: 3/26/2010

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Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

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Revised:

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Designer:

NJL

Detailer:

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Sheet Subset: X-SECTIONS

Subset Sheets:

5 of 36

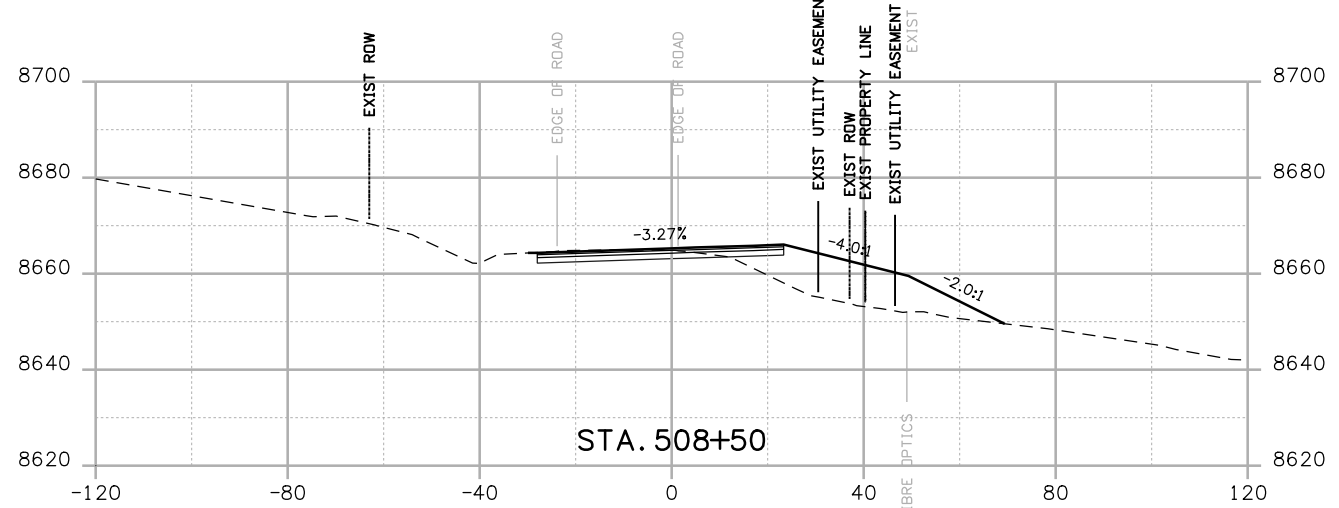
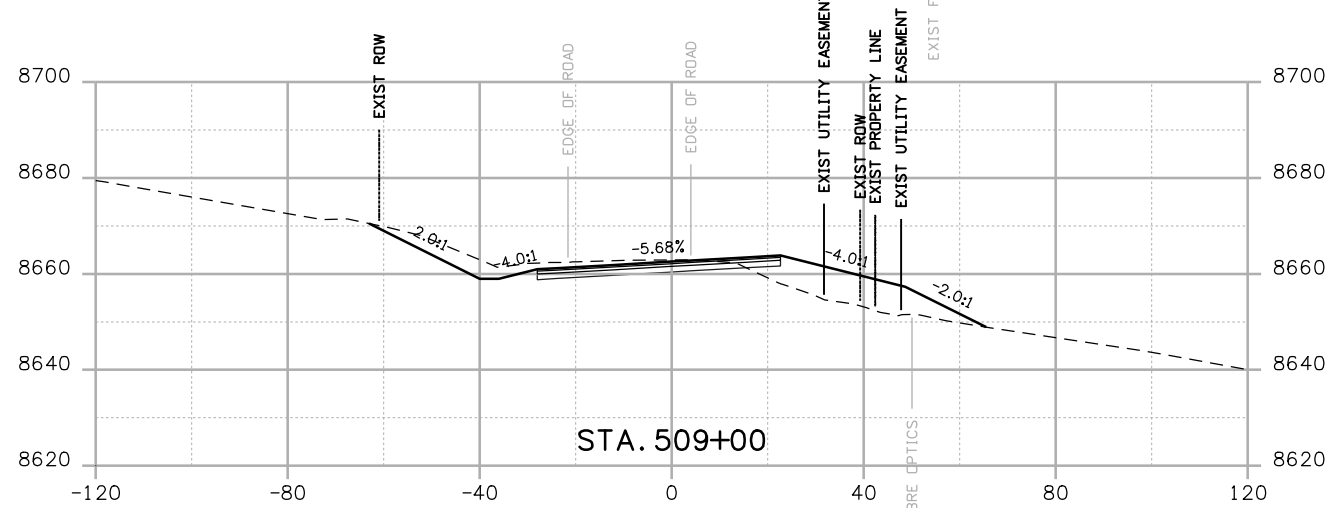
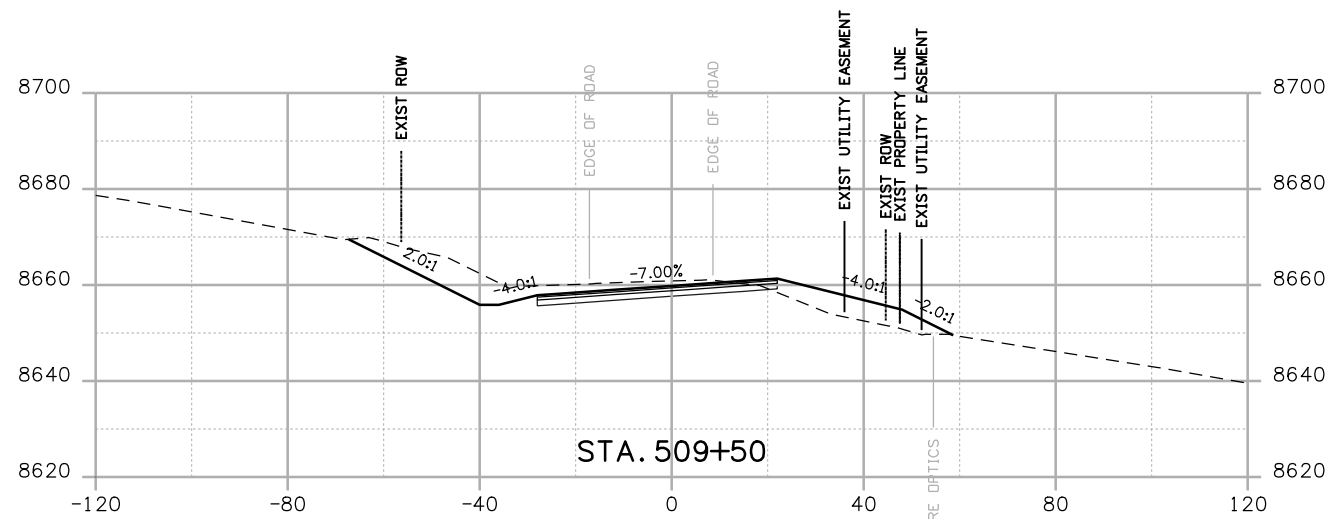
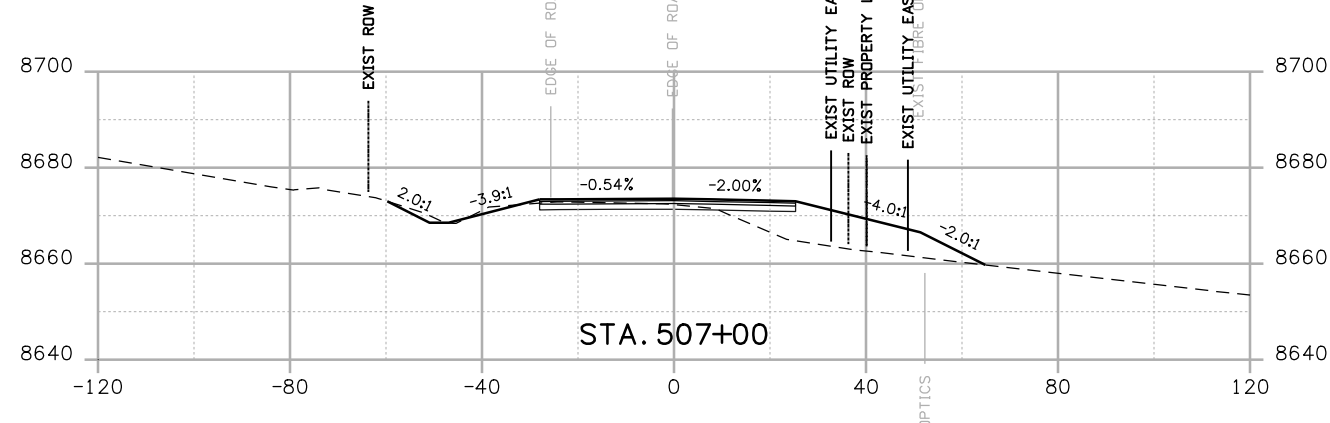
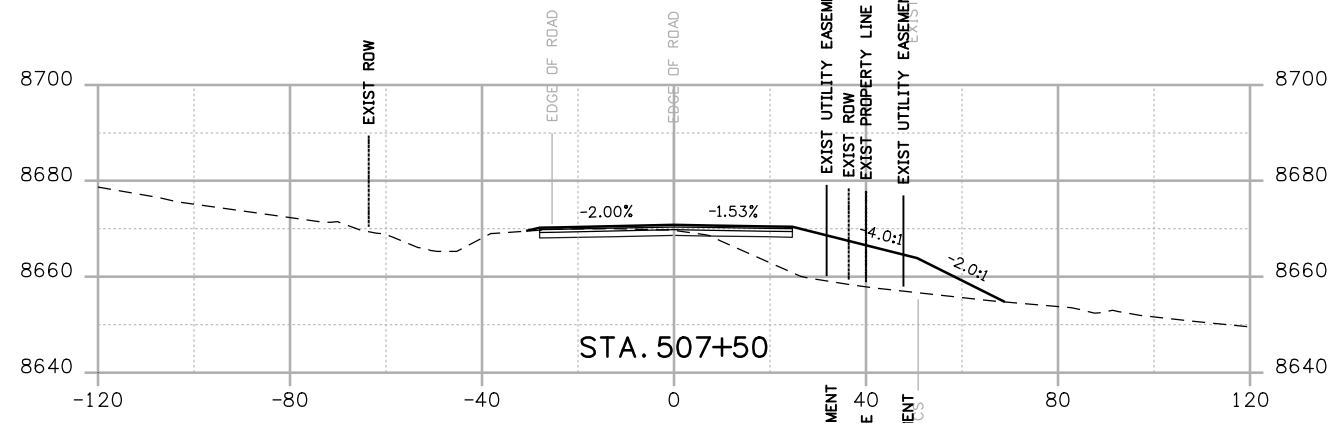
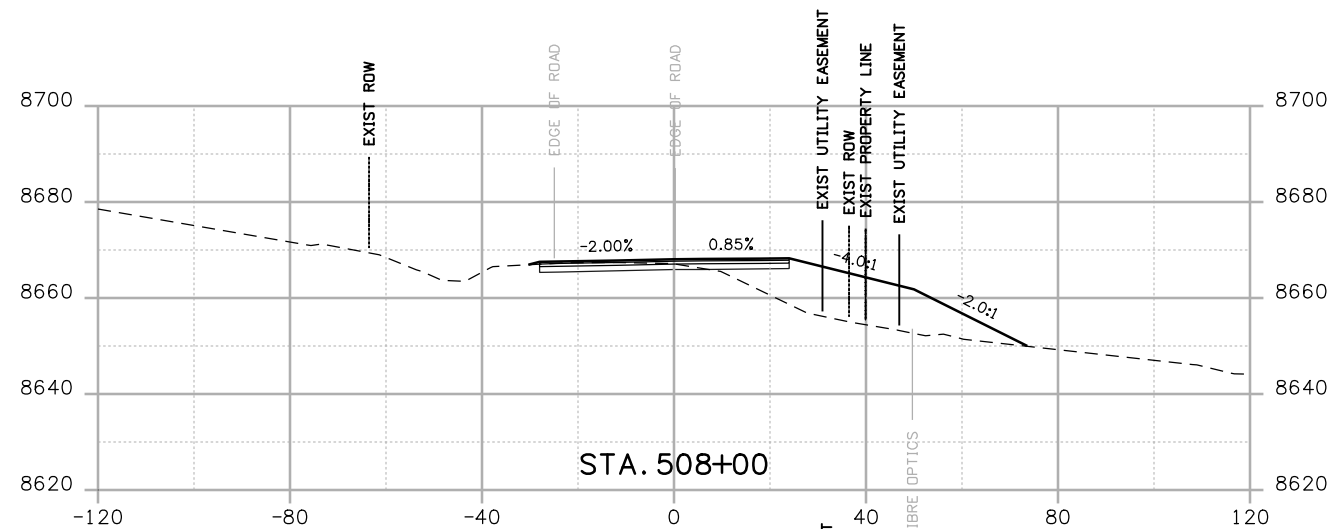
Project No./Code

NH 0501-046

14933


Sheet Number

123



Print Date: 3/26/2010  
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**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
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 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections Lakewood, CO 80226  
 303-988-4939

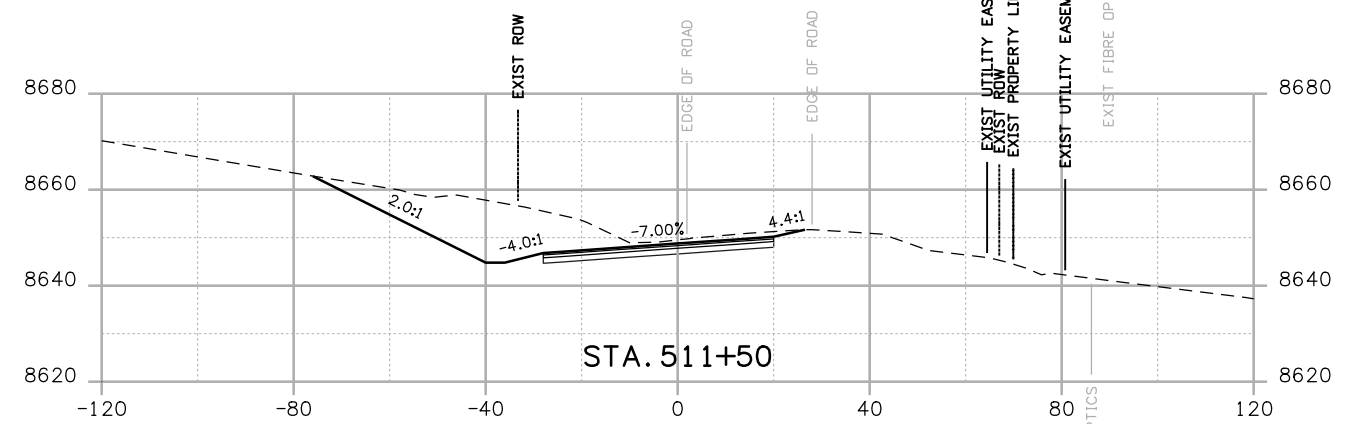
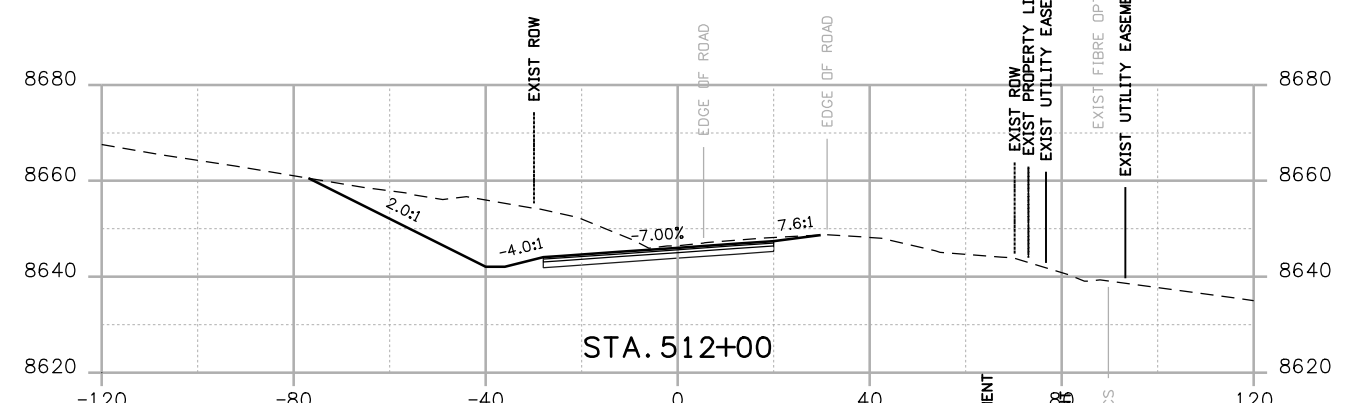
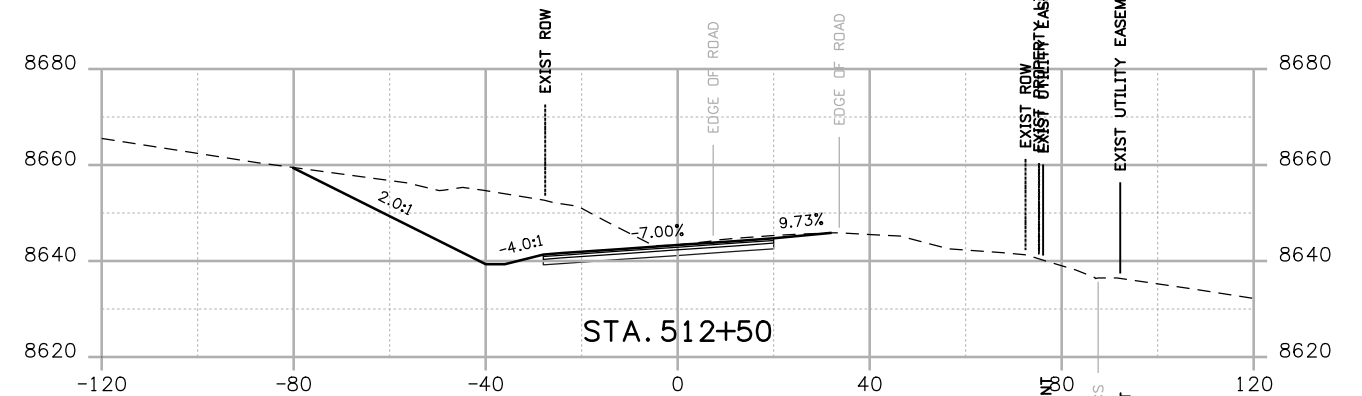
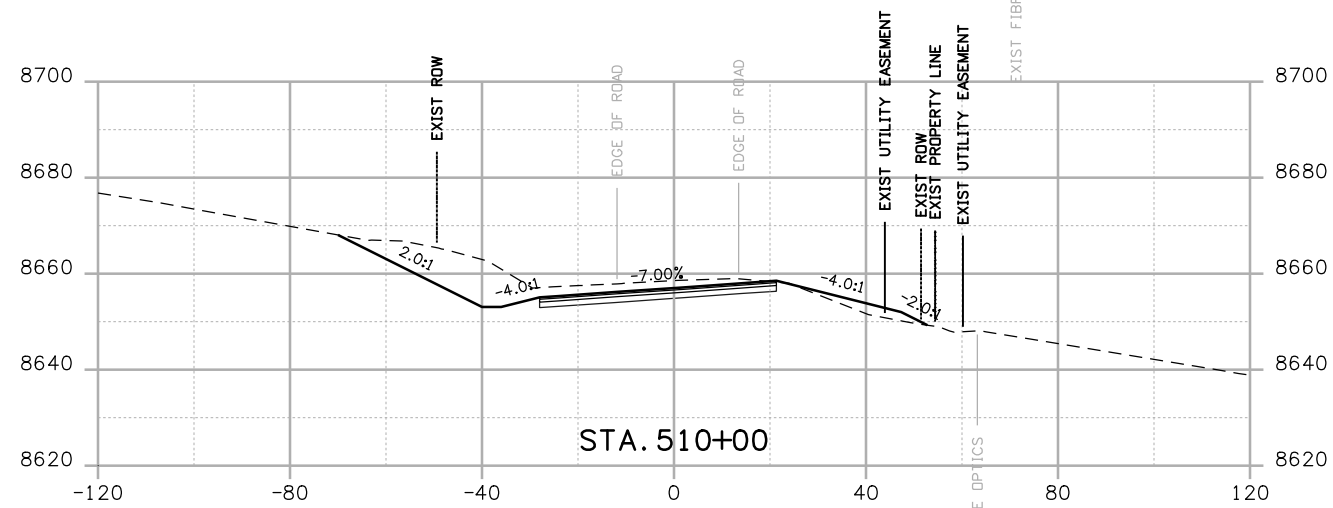
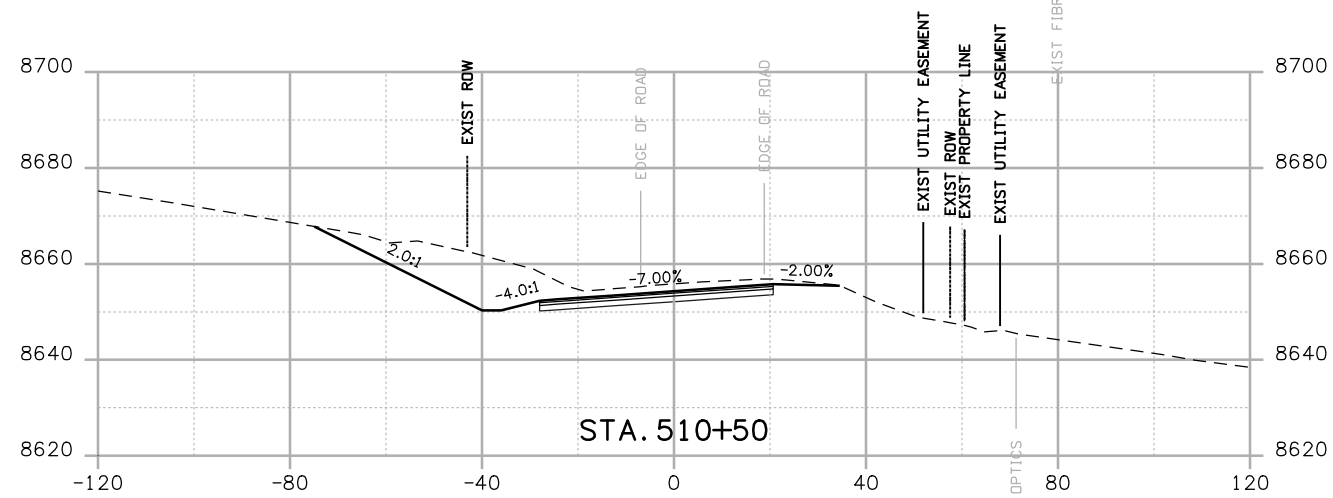
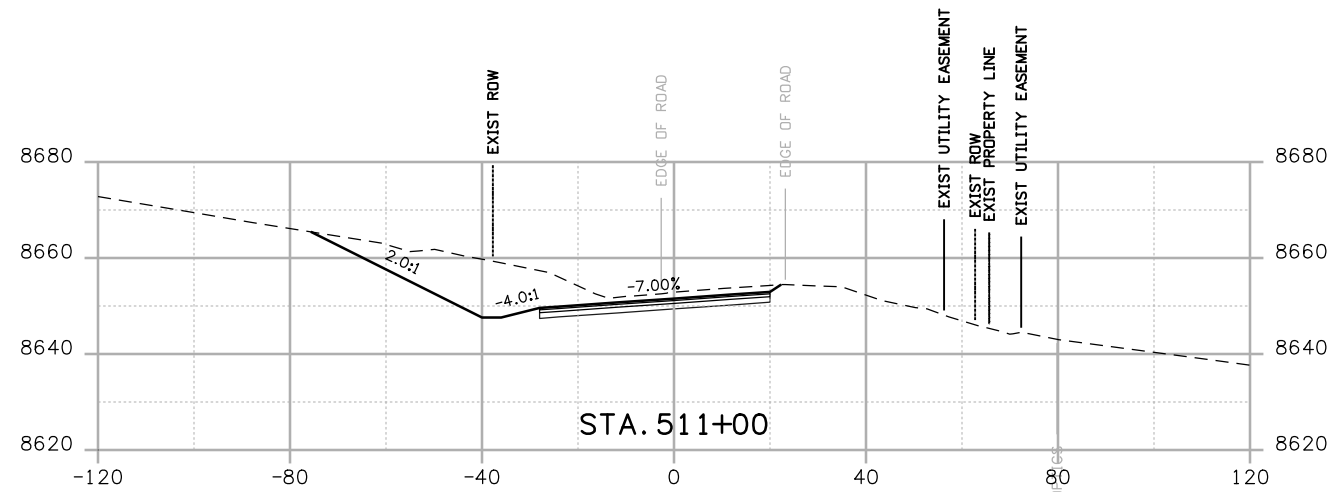
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Date:	Comments	Init.

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 Revised:  
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**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 6 of 36

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 124



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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Void:

**CROSS SECTIONS**

Designer:

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Detailer:

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Sheet Subset: X-SECTIONS

Subset Sheets: 7 of 36

Project No./Code

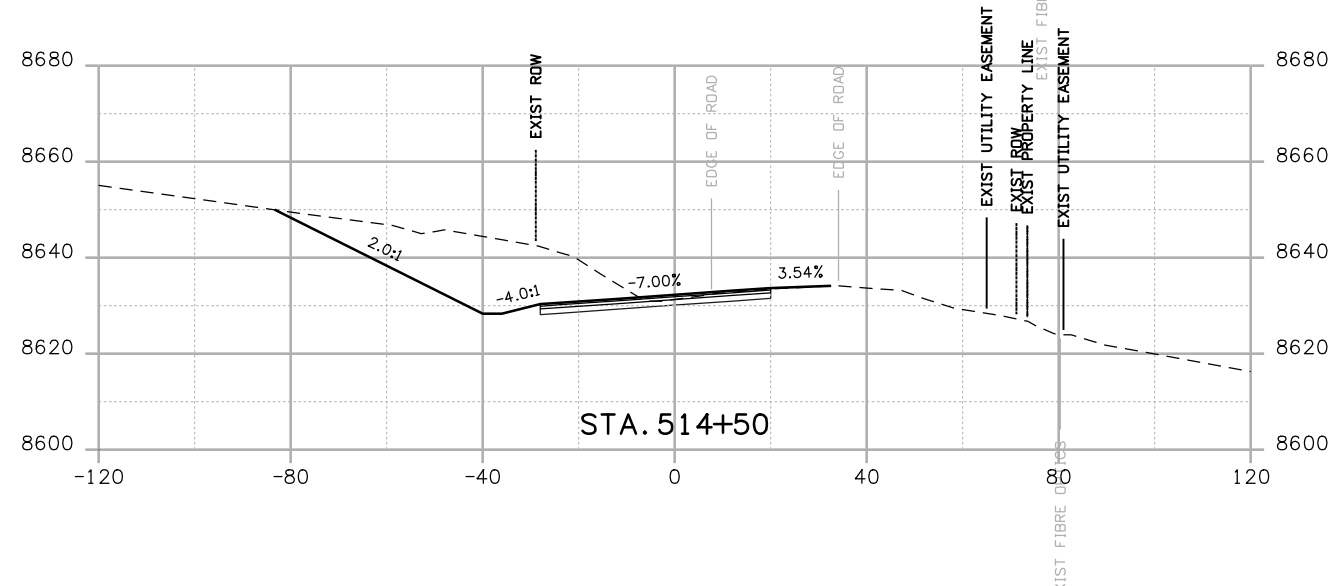
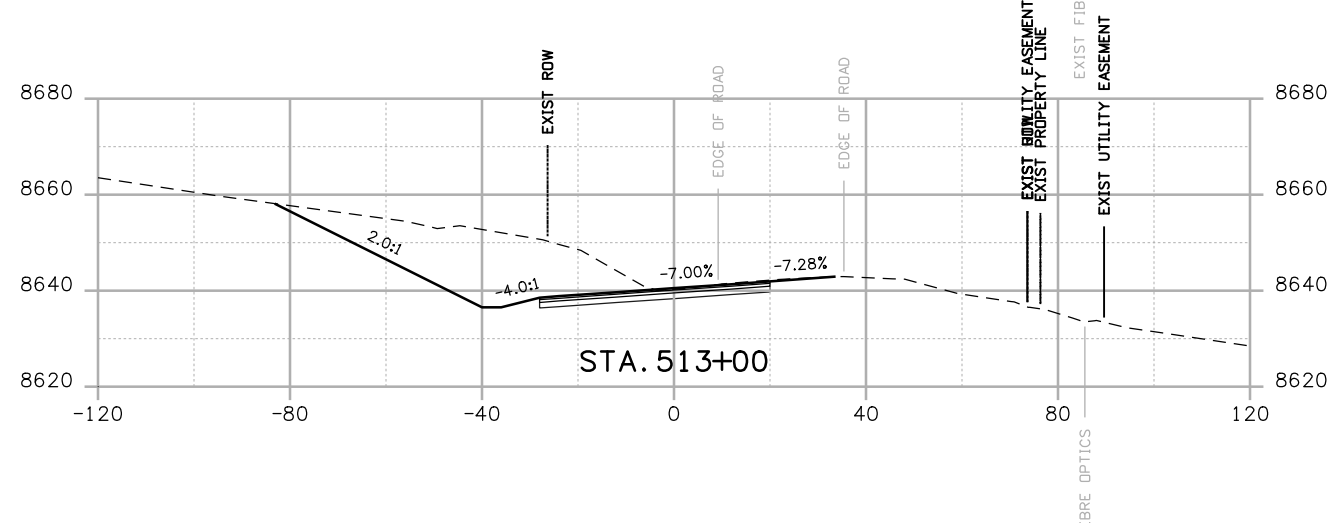
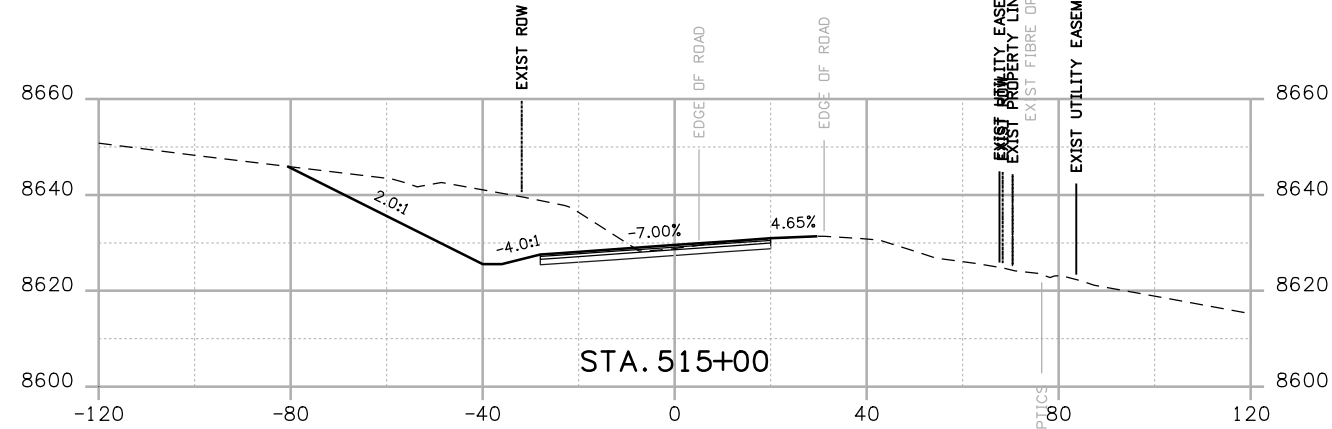
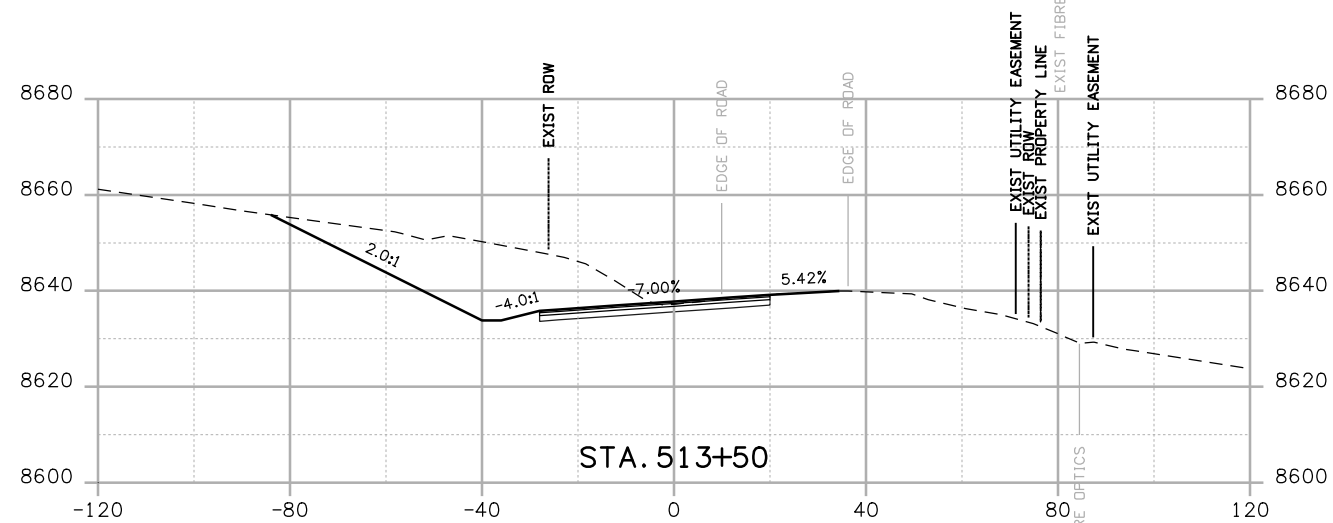
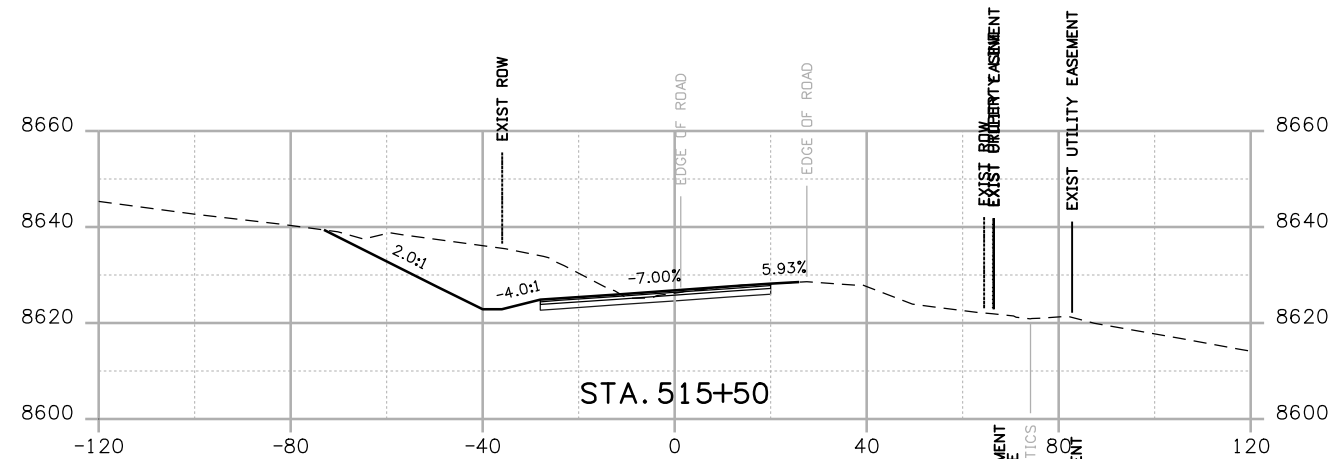
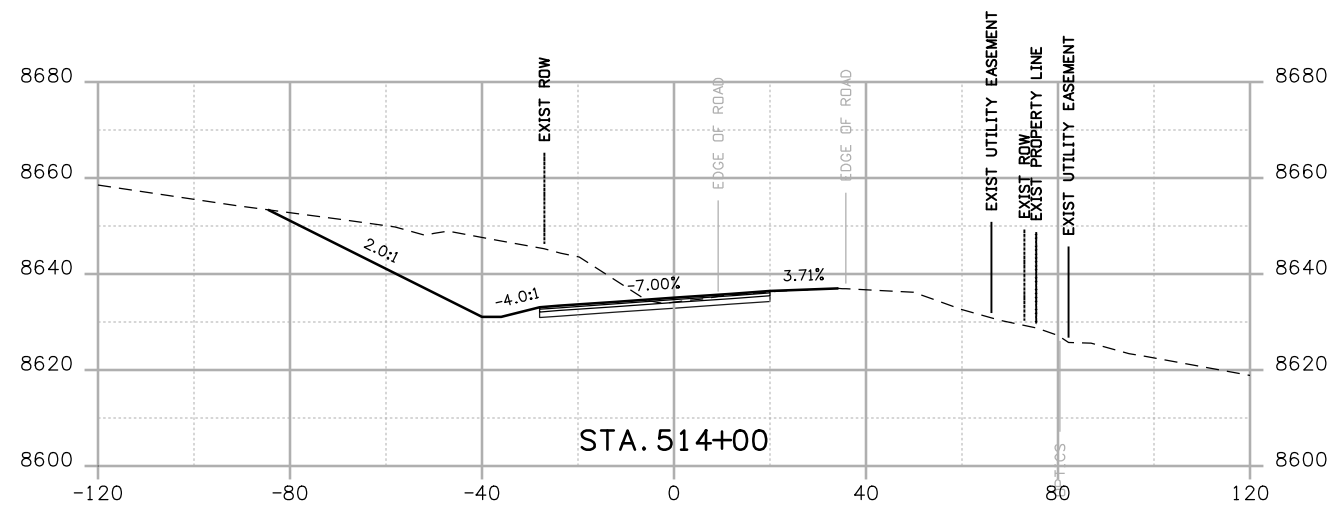
NH 0501-046

14933

Sheet Number


125





Print Date: 3/26/2010  
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**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 303-988-4939

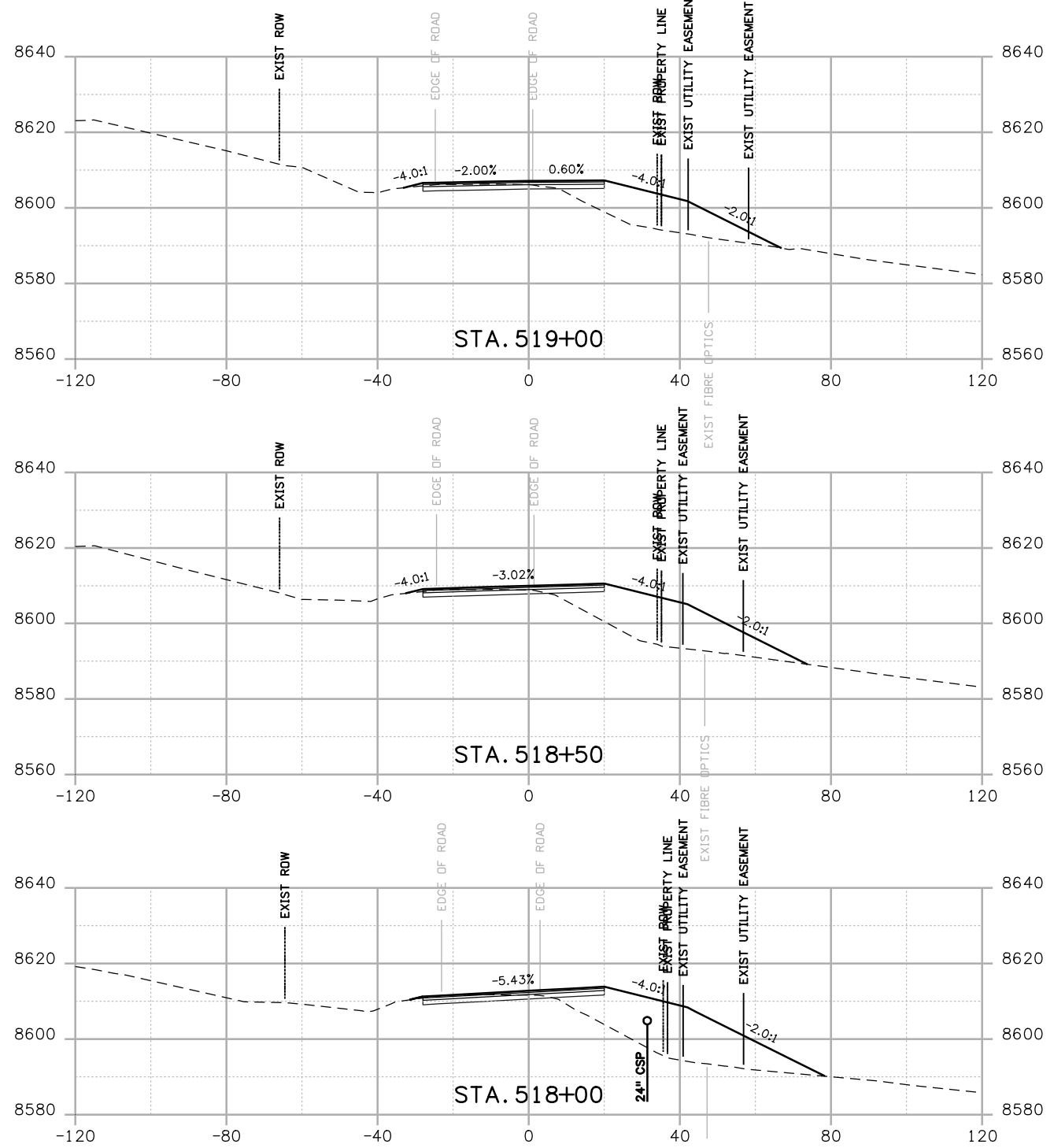
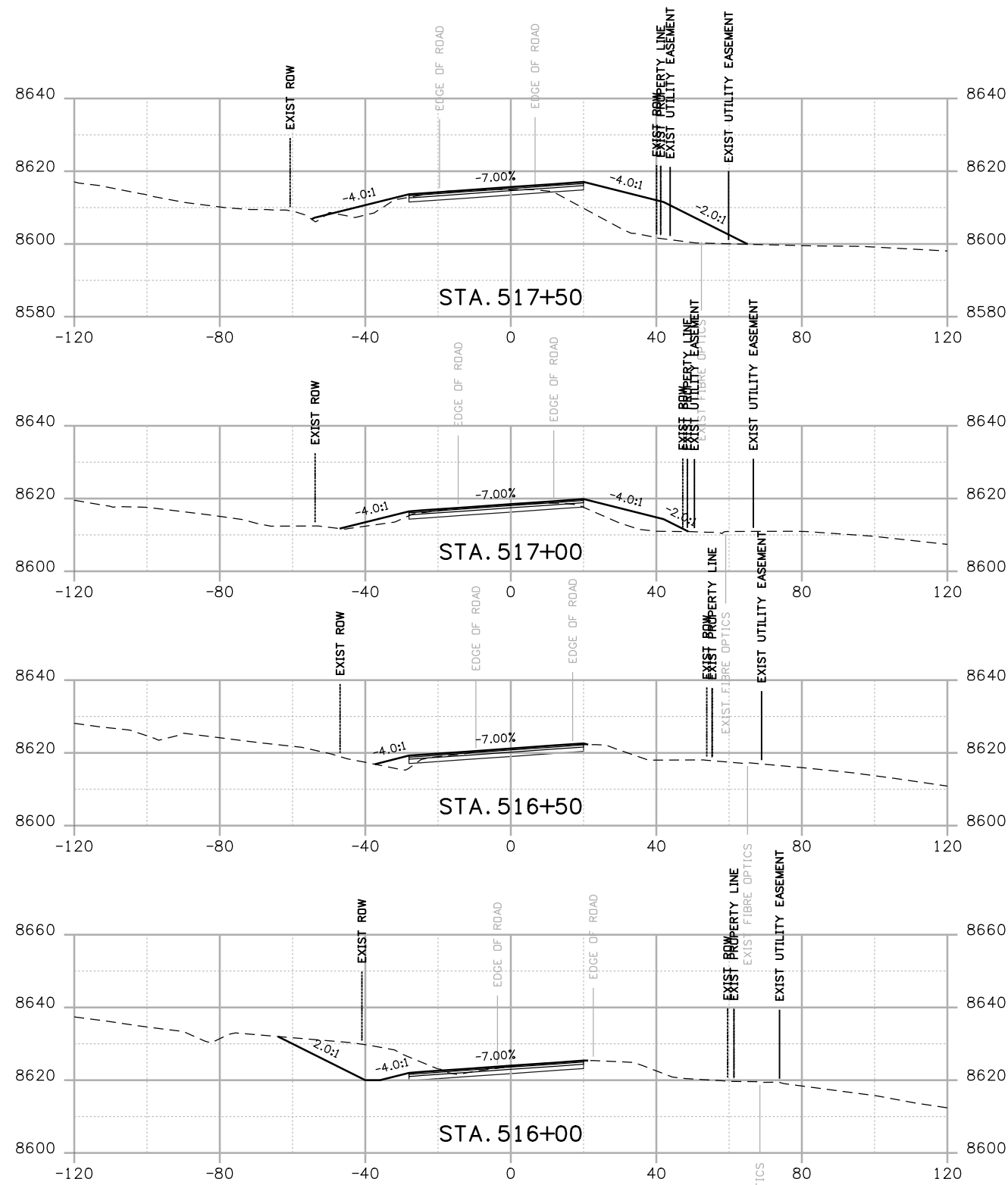
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**Region 3**      **RBA**

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 Revised:  
 Void:

**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS      Subset Sheets: 8 of 36

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number 126



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections02.dgn  
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**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100 Lakewood, CO 80226  
 CONSULTING ENGINEERS 303-988-4939  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

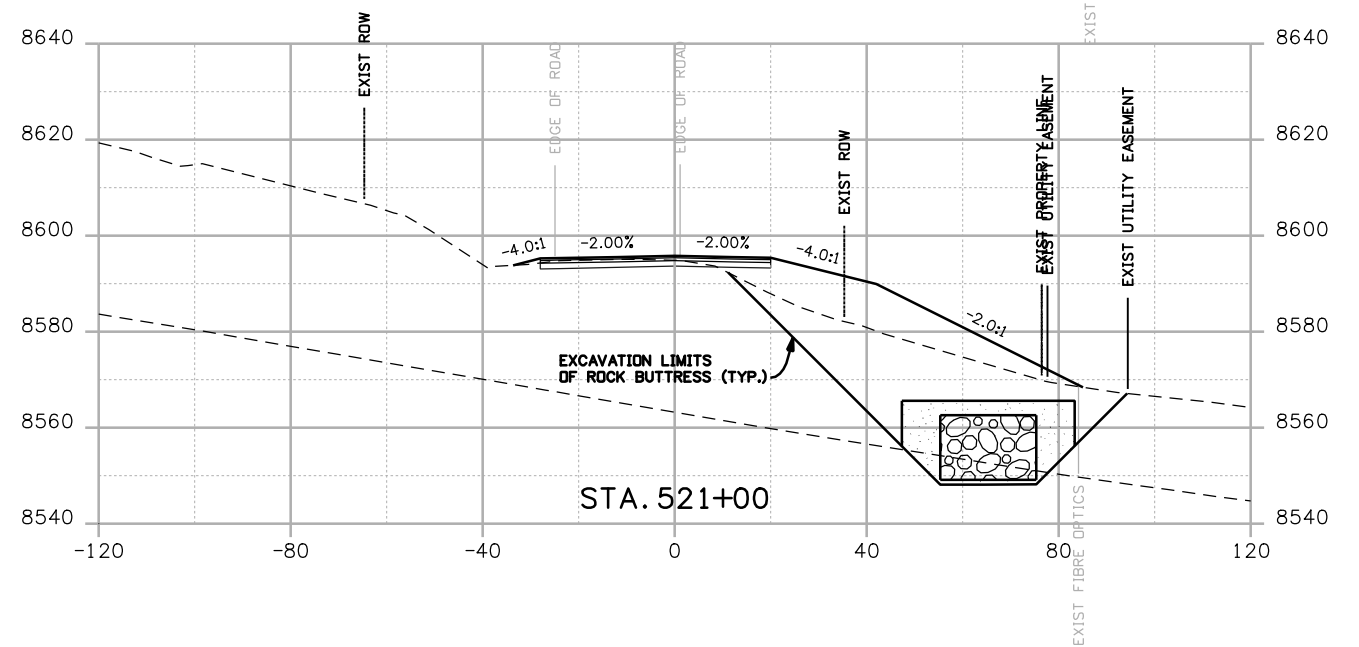
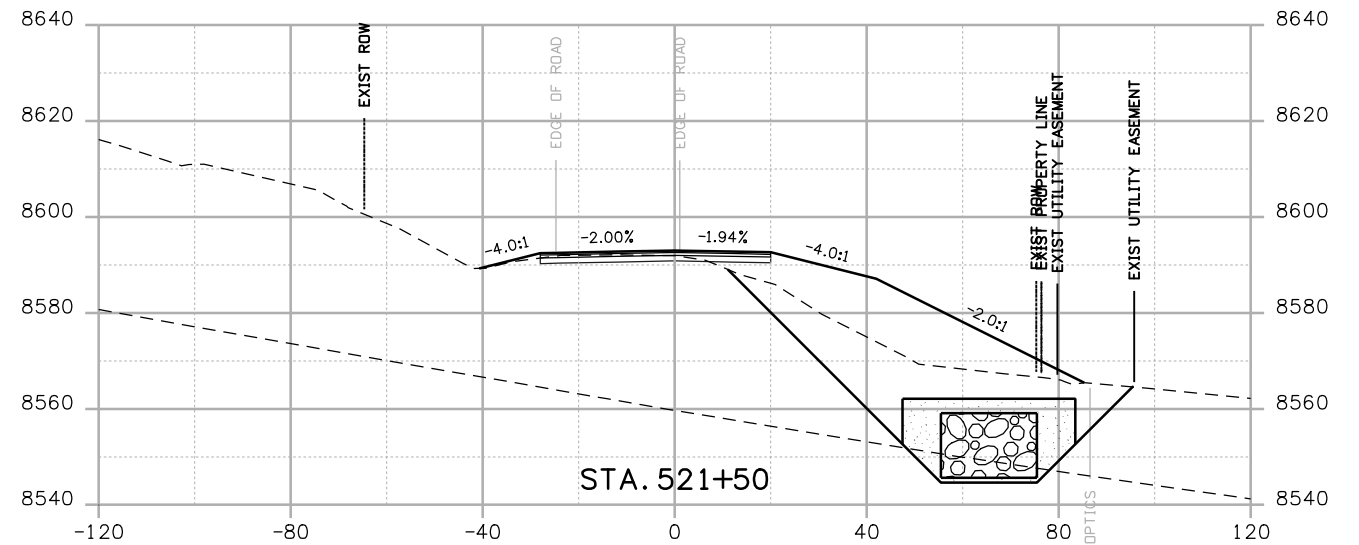
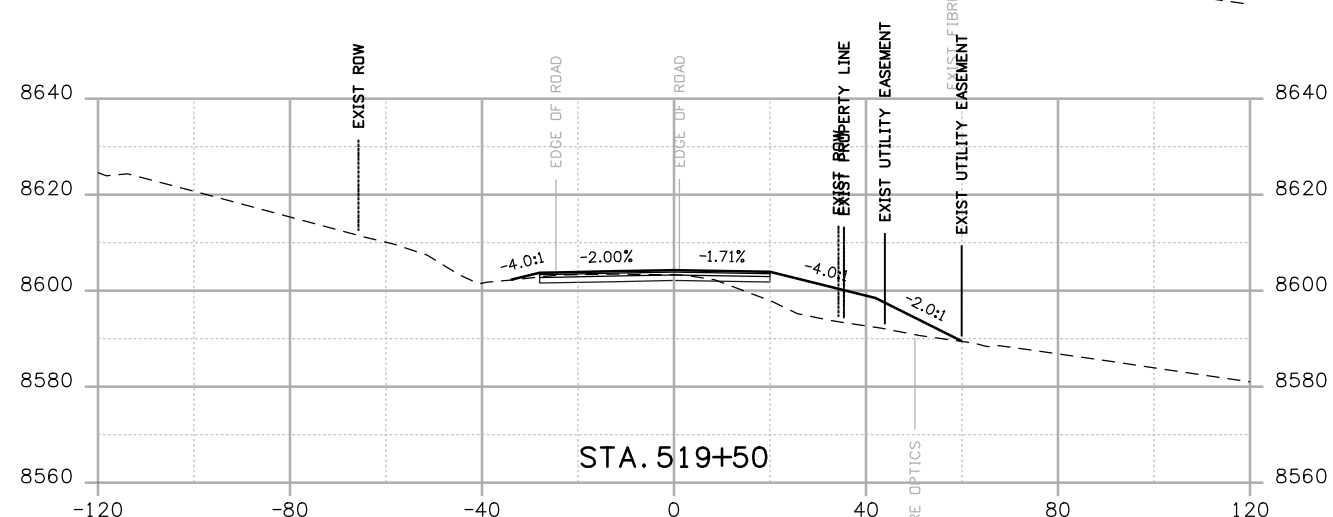
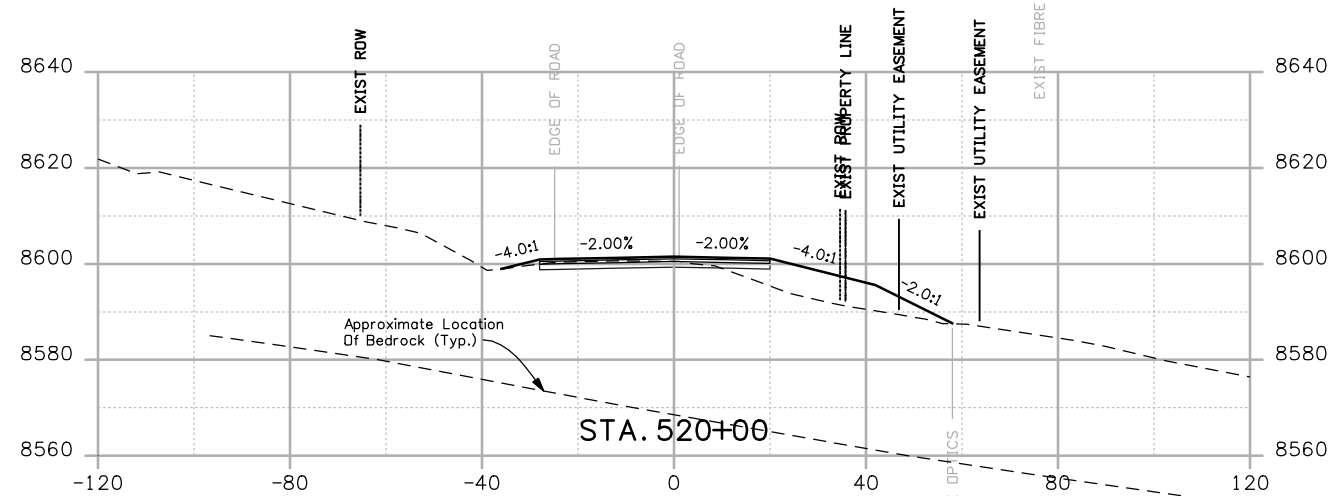
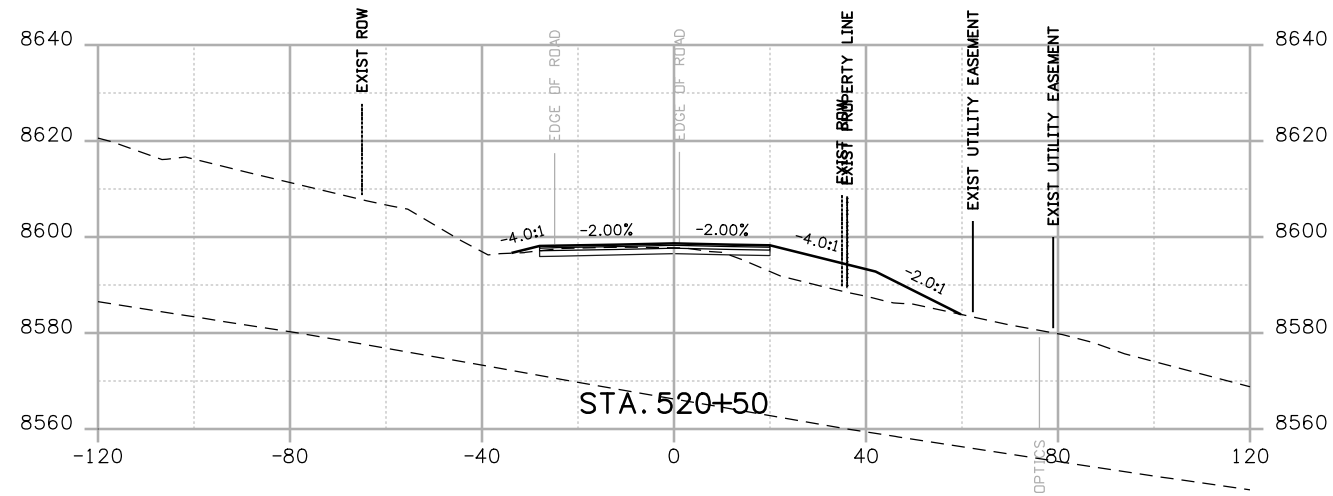
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Date:	Comments	Init.

Colorado Department of Transportation  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3** RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:

**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 9 of 36

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 127



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 303-988-4939



**Sheet Revisions**

Date:	Comments	Init.

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Region 3

RBA

**As Constructed**

No Revisions:

Revised:

Void:

**CROSS SECTIONS**

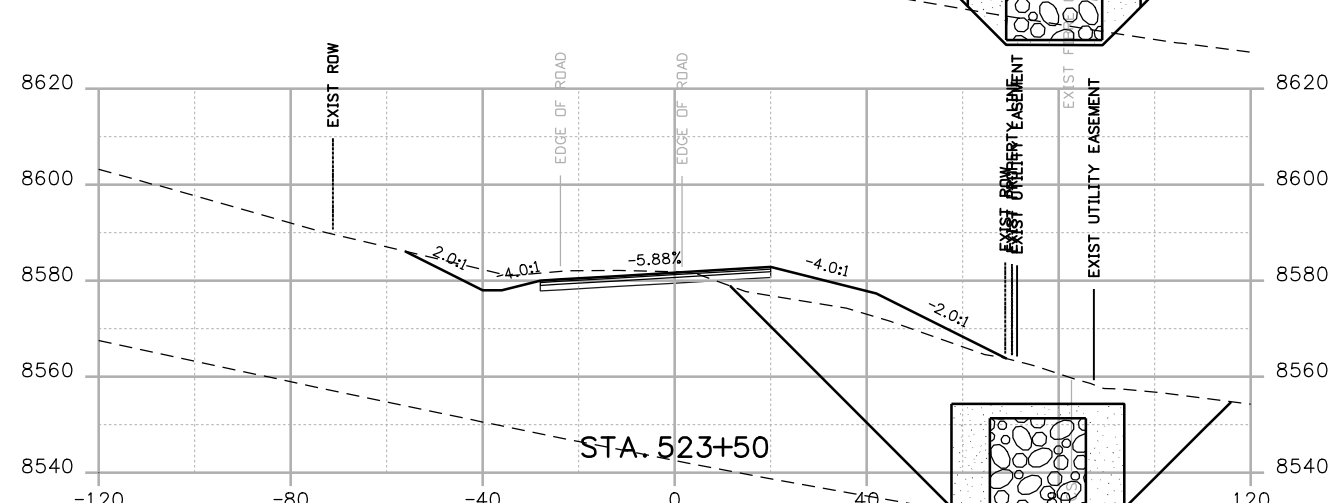
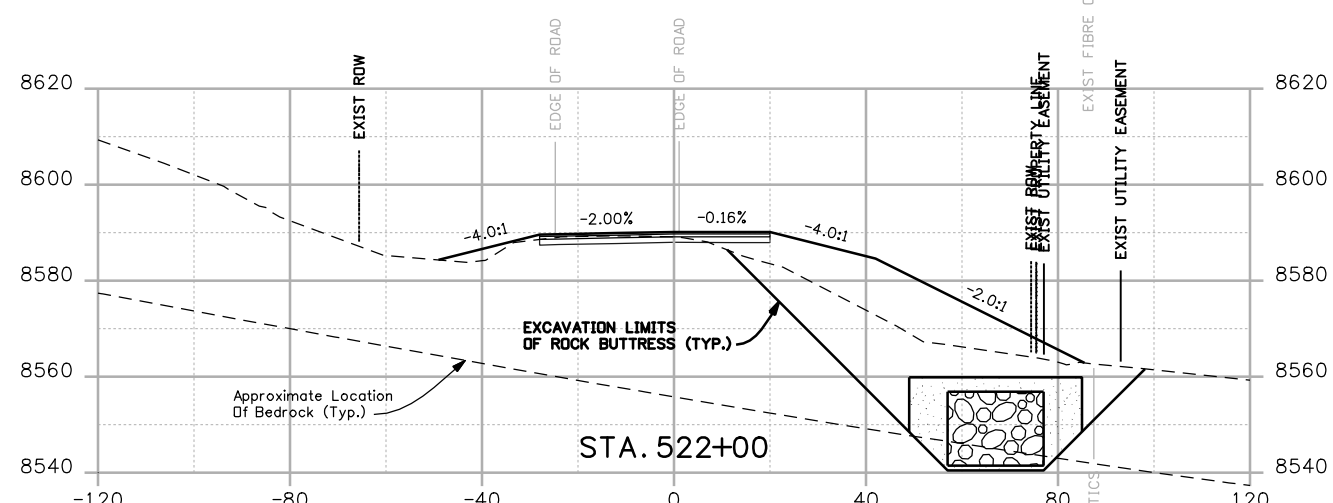
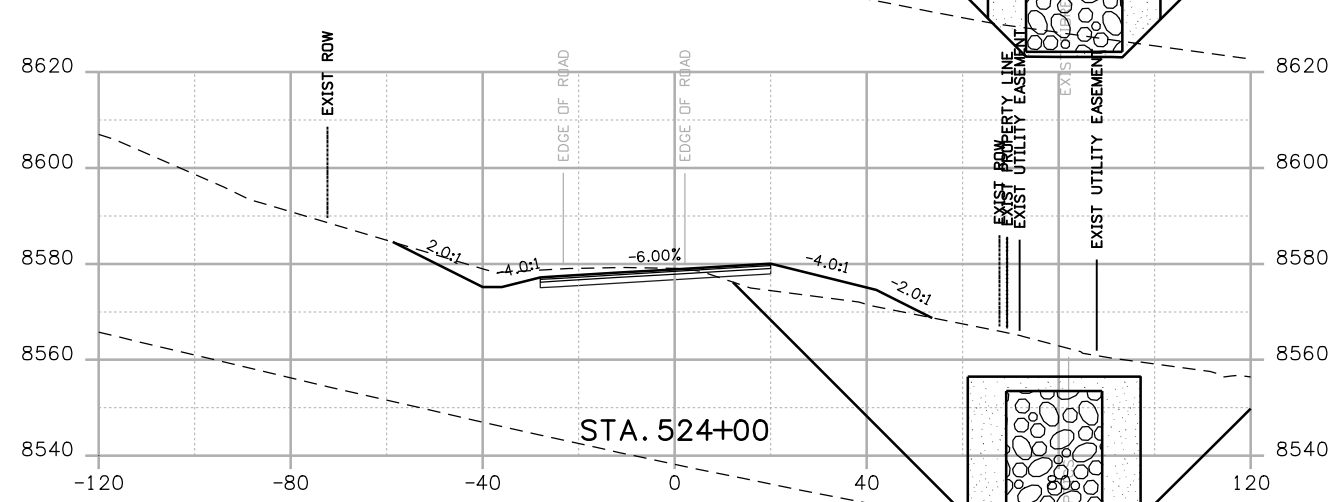
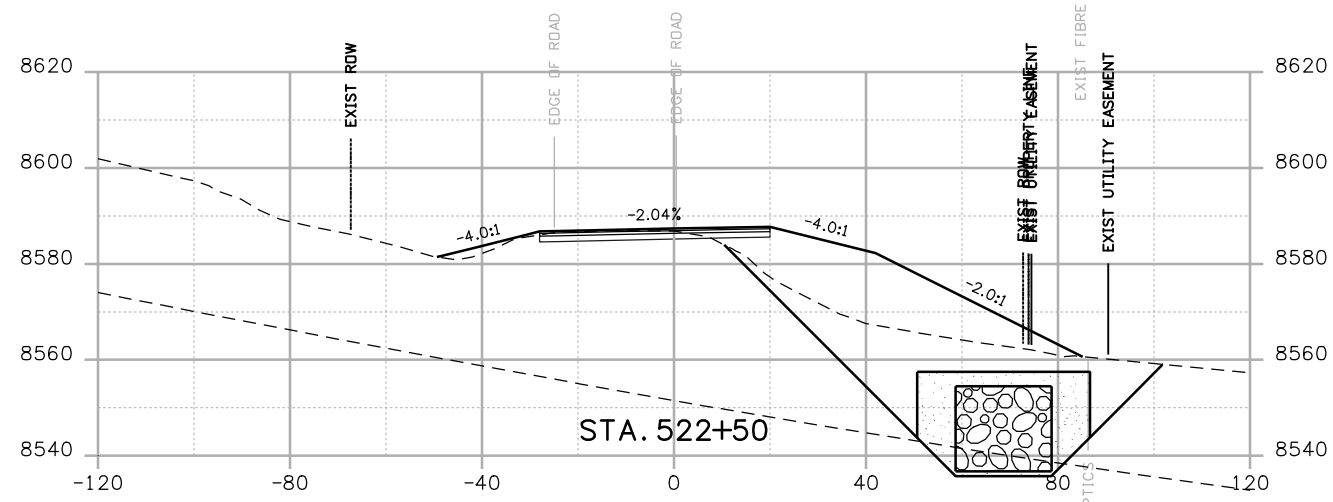
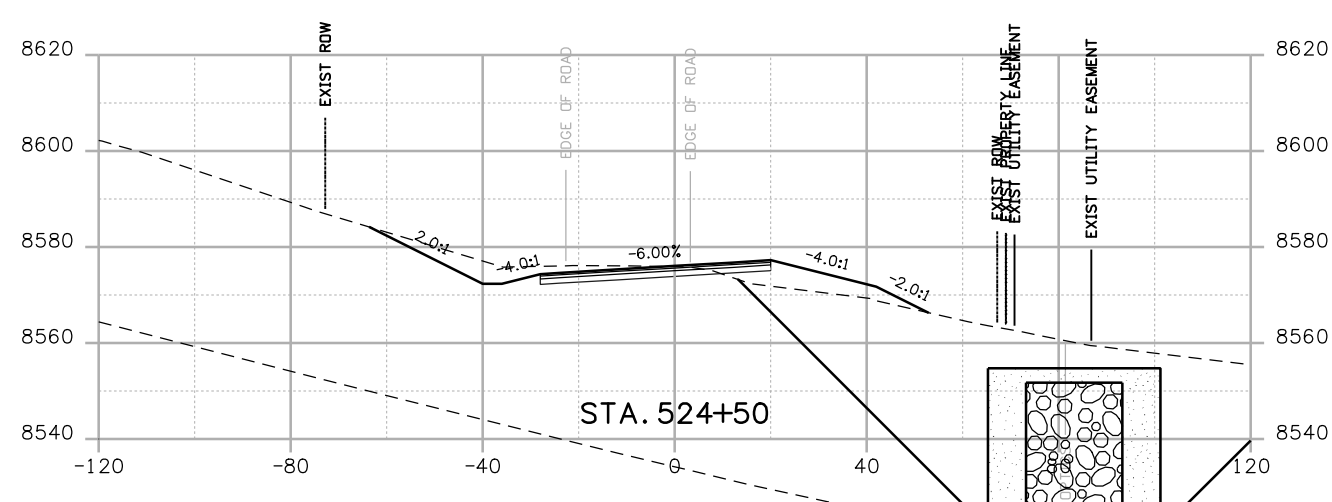
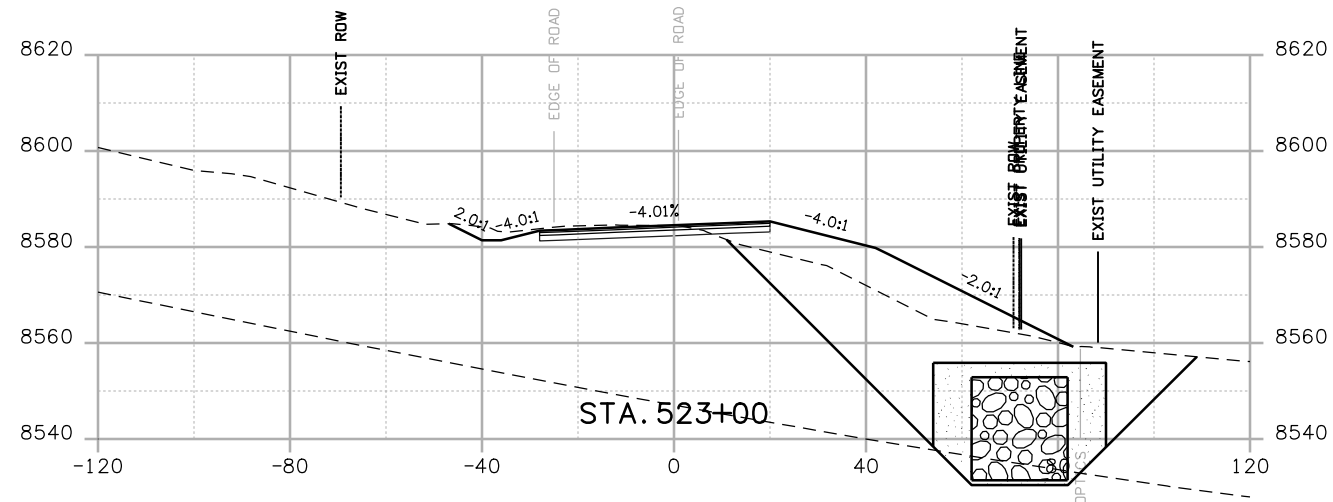
Designer:	NJL
Detailer:	MAM
Sheet Subset: X-SECTIONS	Subset Sheets: 10 of 36

**Project No./Code**

NH 0501-046

14933

Sheet Number 128



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 303-988-4939



Sheet Revisions

Date:	Comments	Init.

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Region 3

RBA

As Constructed

No Revisions:

Revised:

Void:

CROSS SECTIONS

Designer:

NJL

Detailer:

MAM

Sheet Subset: X-SECTIONS

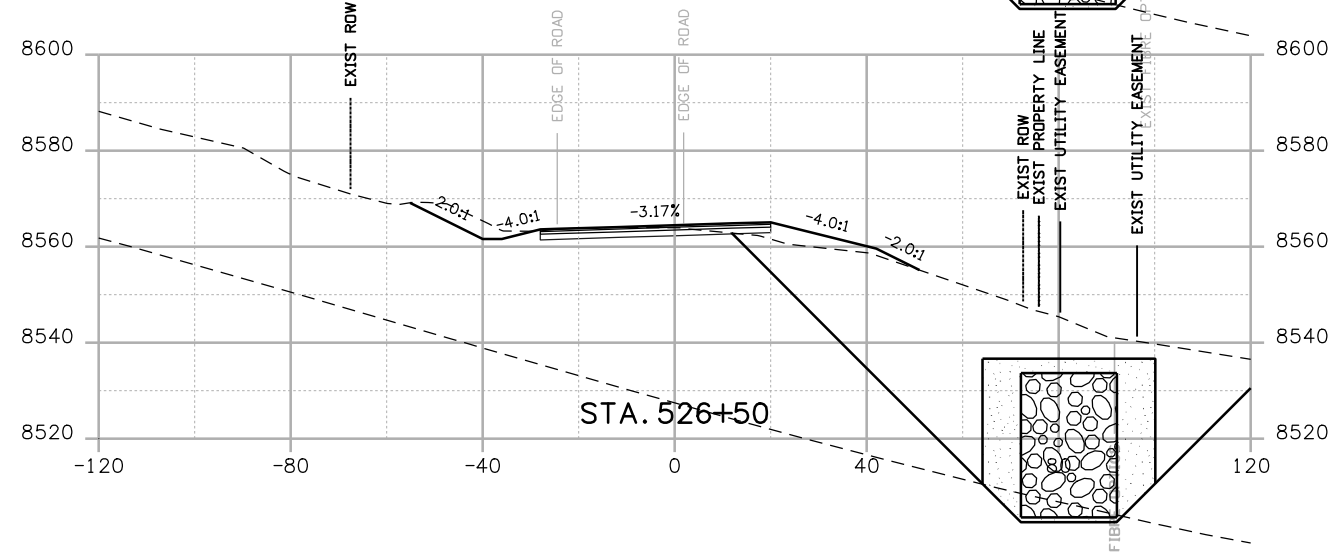
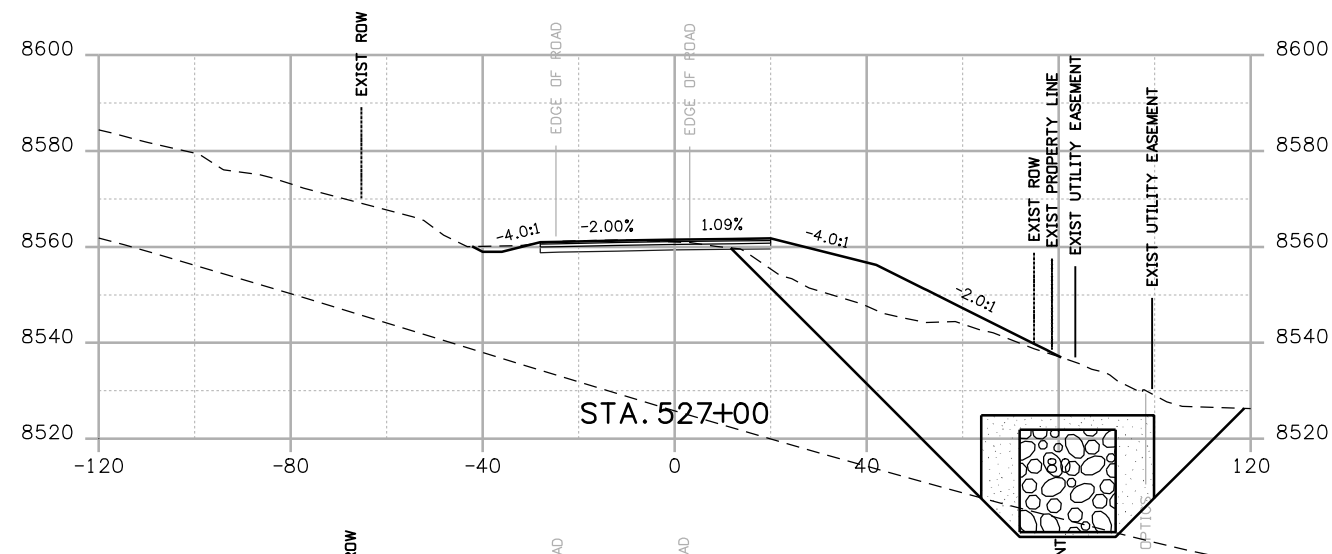
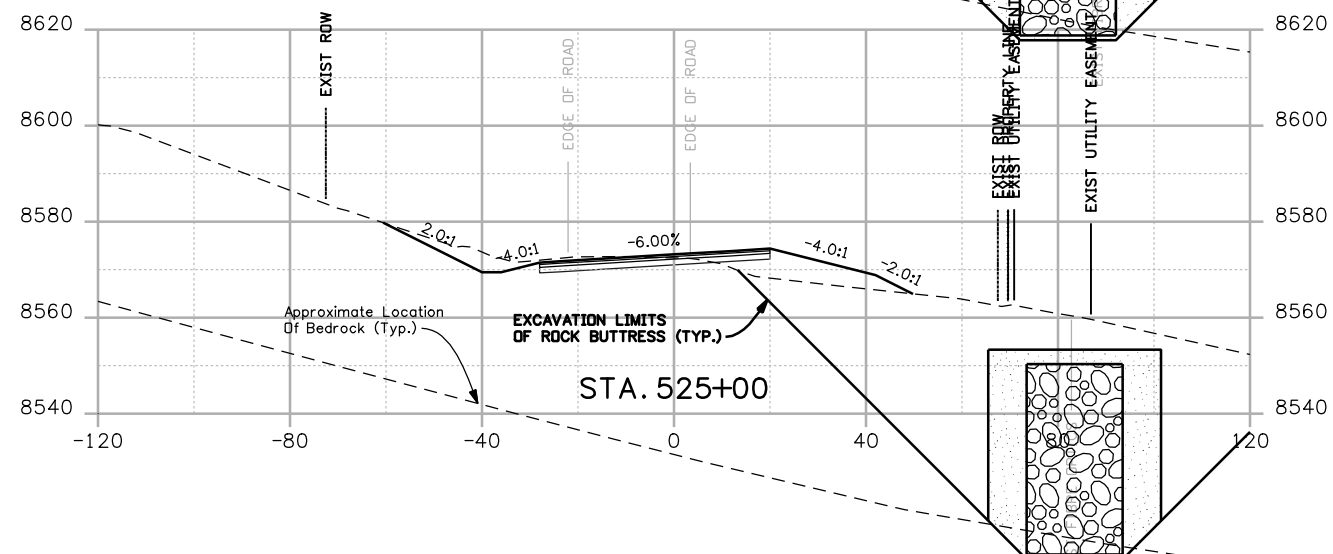
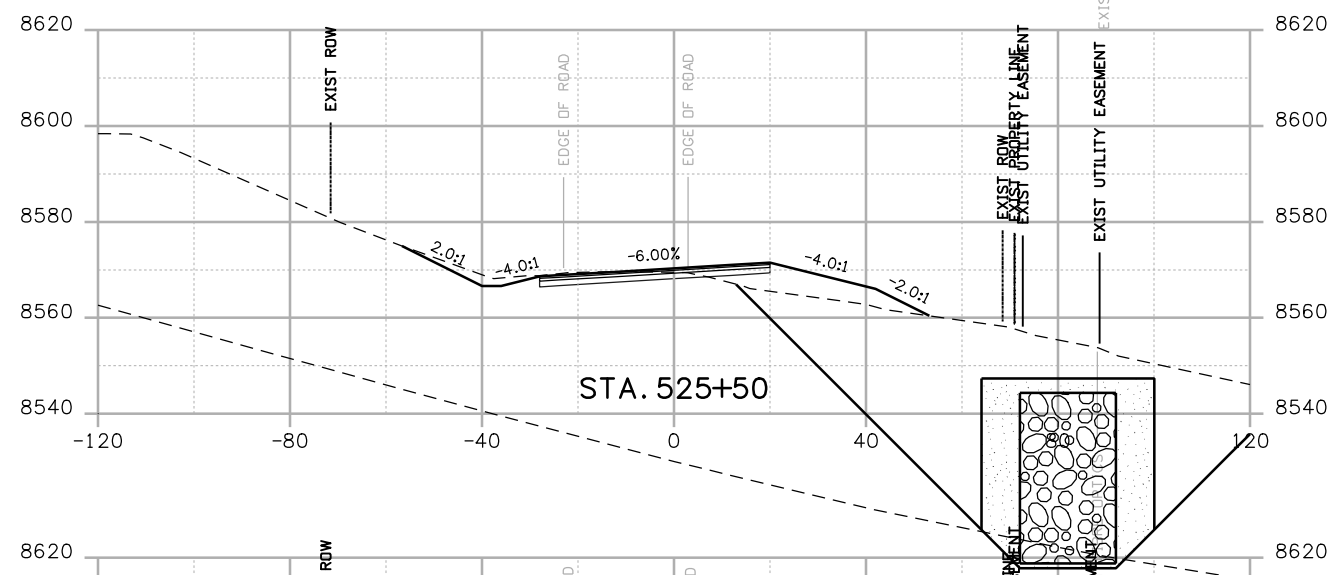
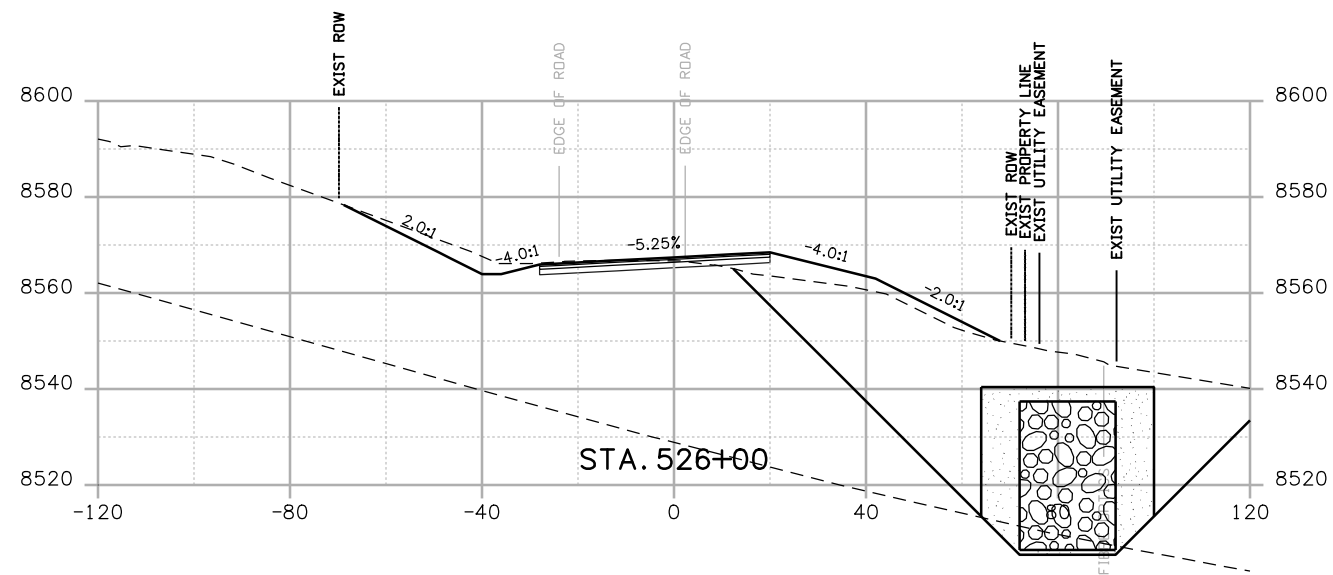
Subset Sheets: 11 of 36

Project No./Code

NH 0501-046

14933

Sheet Number 129



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

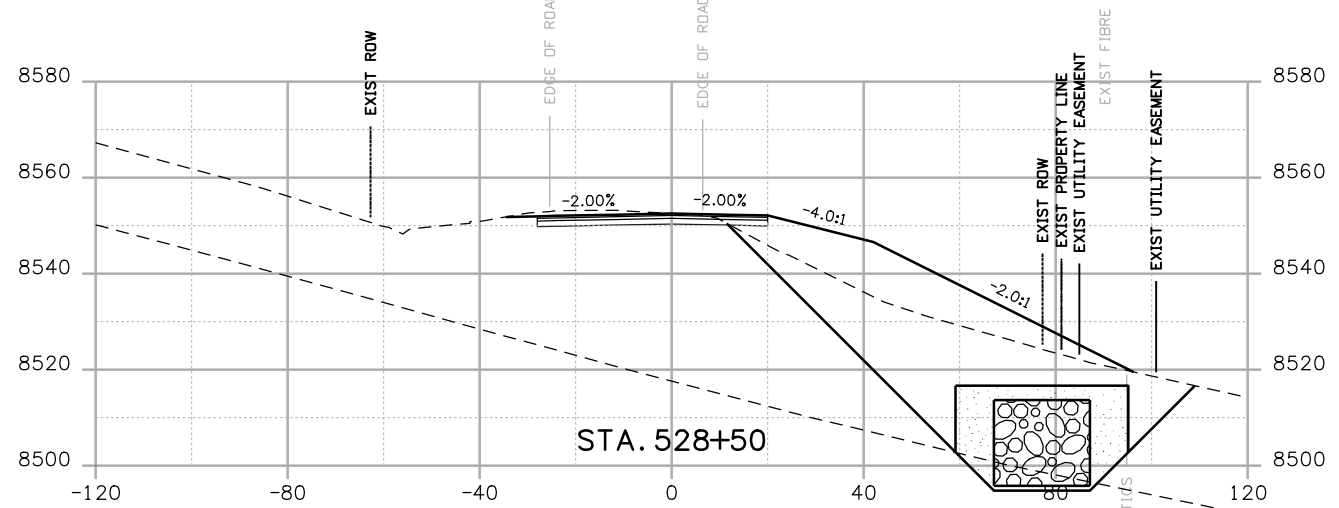
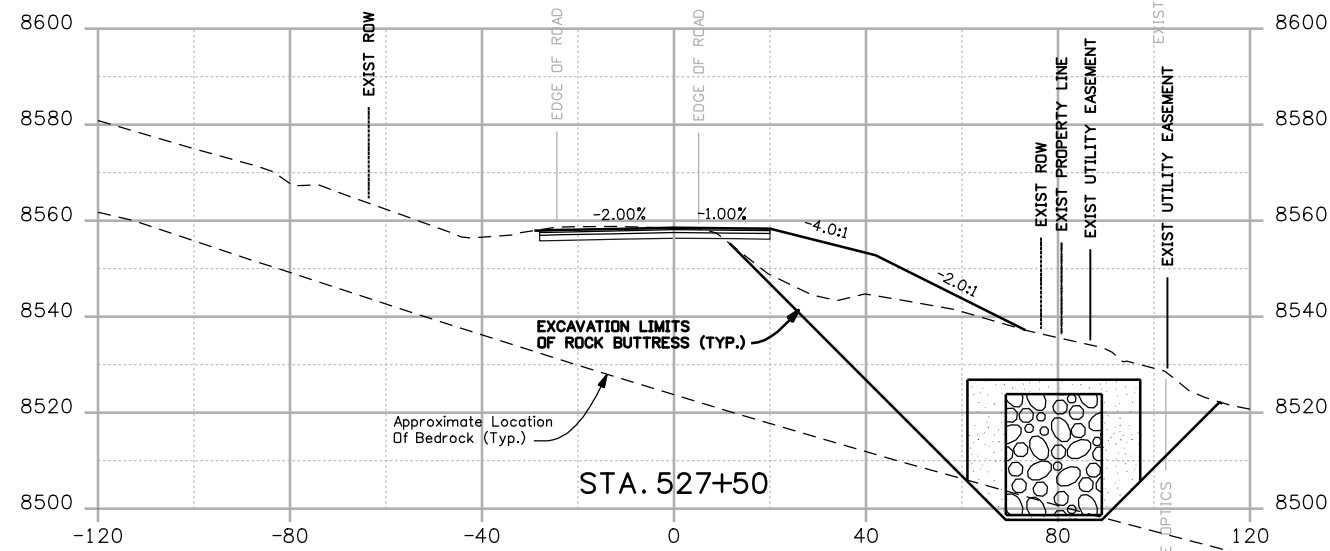
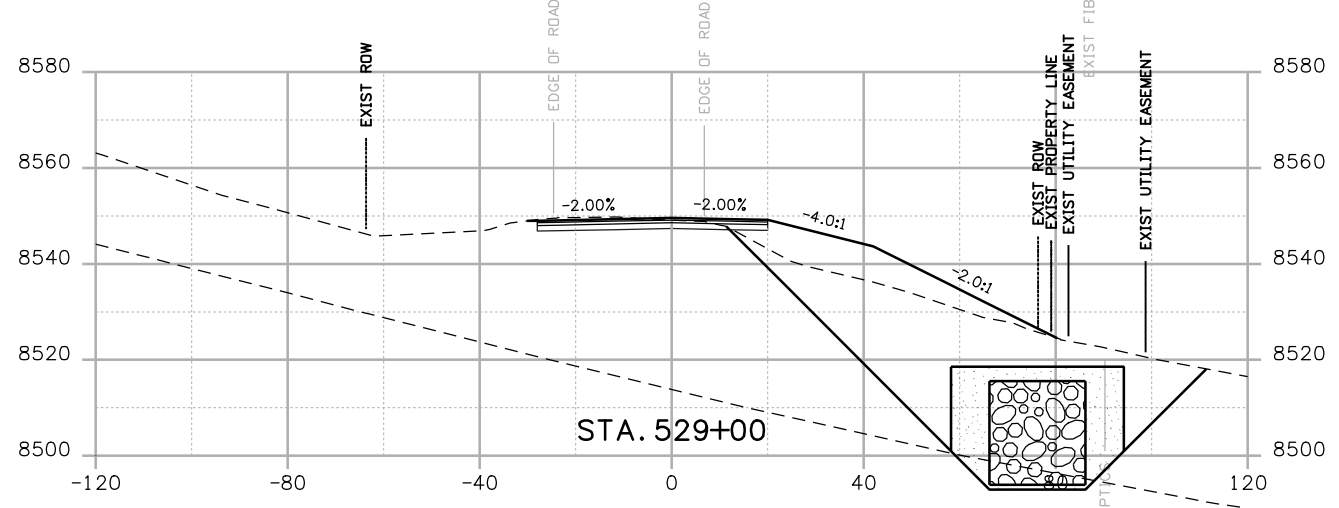
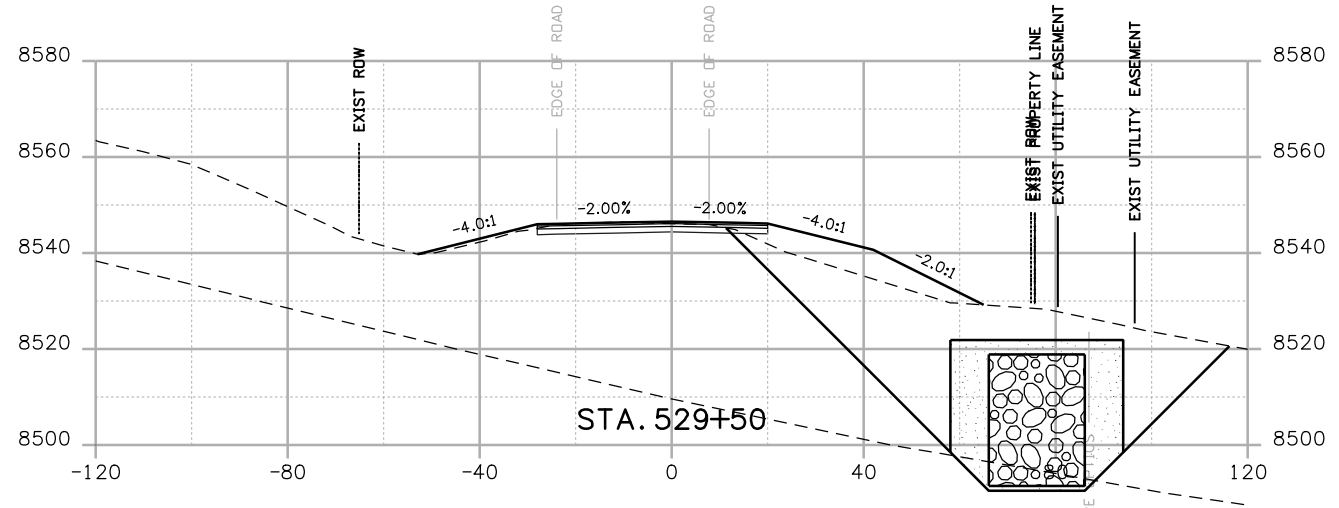
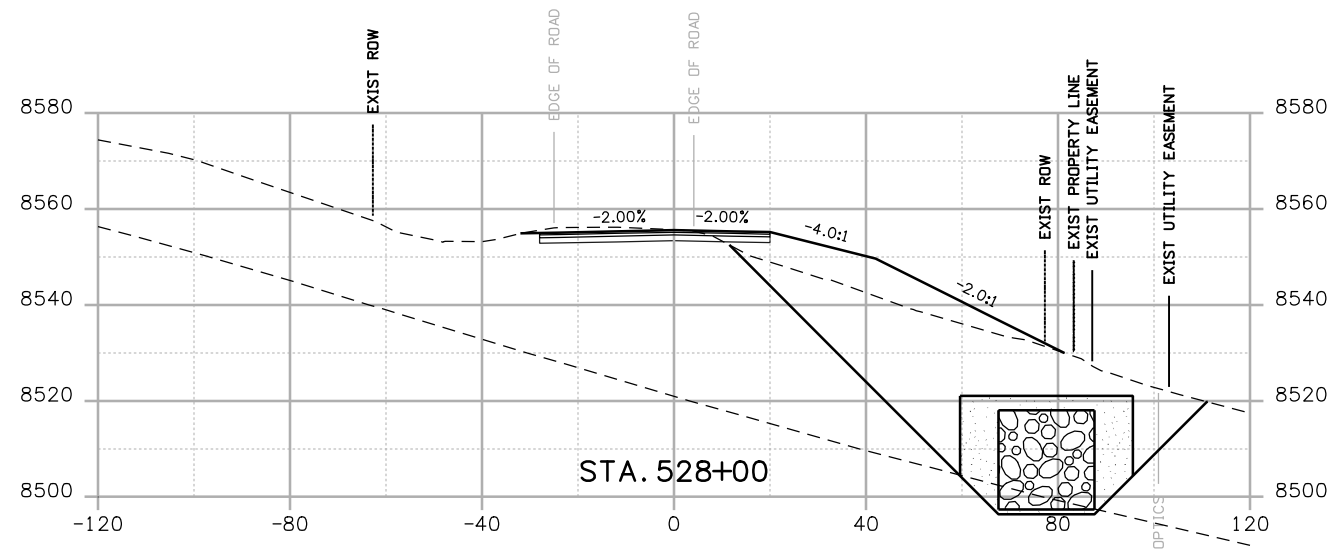
Colorado Department of Transportation  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:

CROSS SECTIONS

Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS  
 Subset Sheets: 12 of 36

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 130



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 303-988-4939



**Sheet Revisions**

Date:	Comments	Init.

Colorado Department of Transportation



2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018

Region 3

RBA

**As Constructed**

No Revisions:

Revised:

Void:

**CROSS SECTIONS**

Designer:

NJL

Detailer:

MAM

Sheet Subset: X-SECTIONS

Subset Sheets: 13 of 36

**Project No./Code**

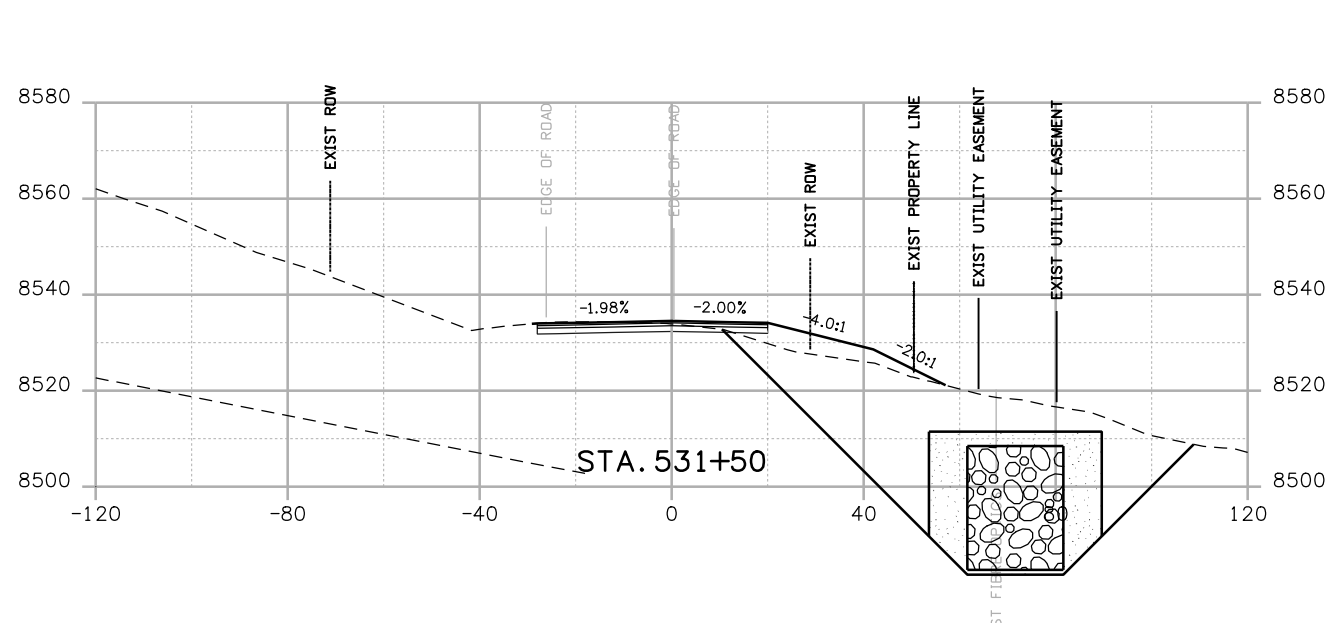
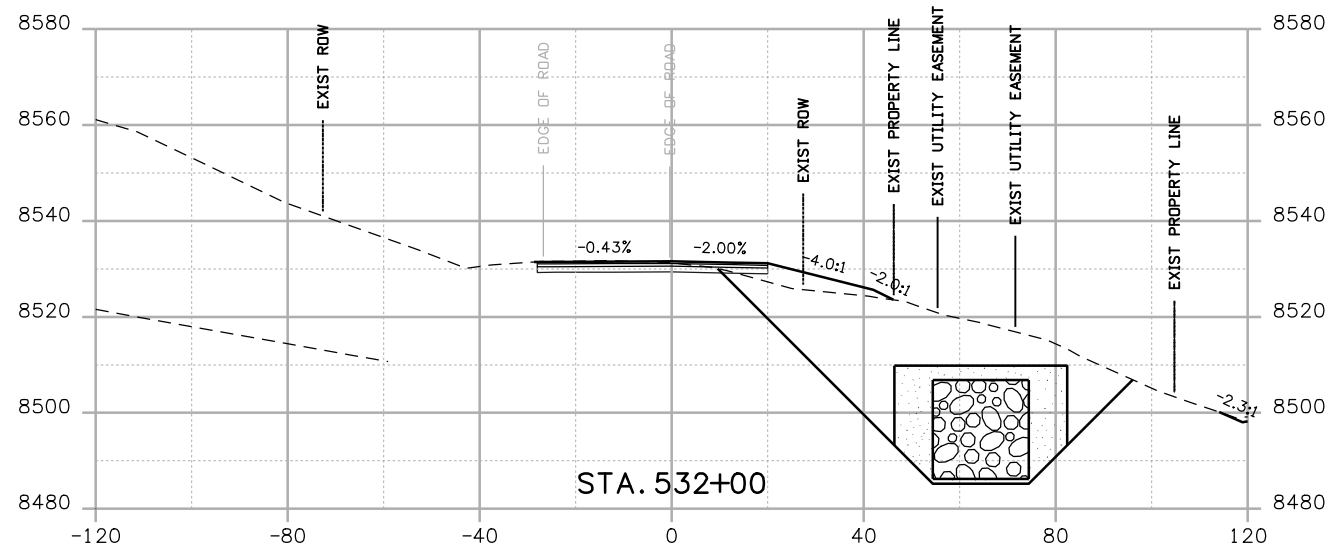
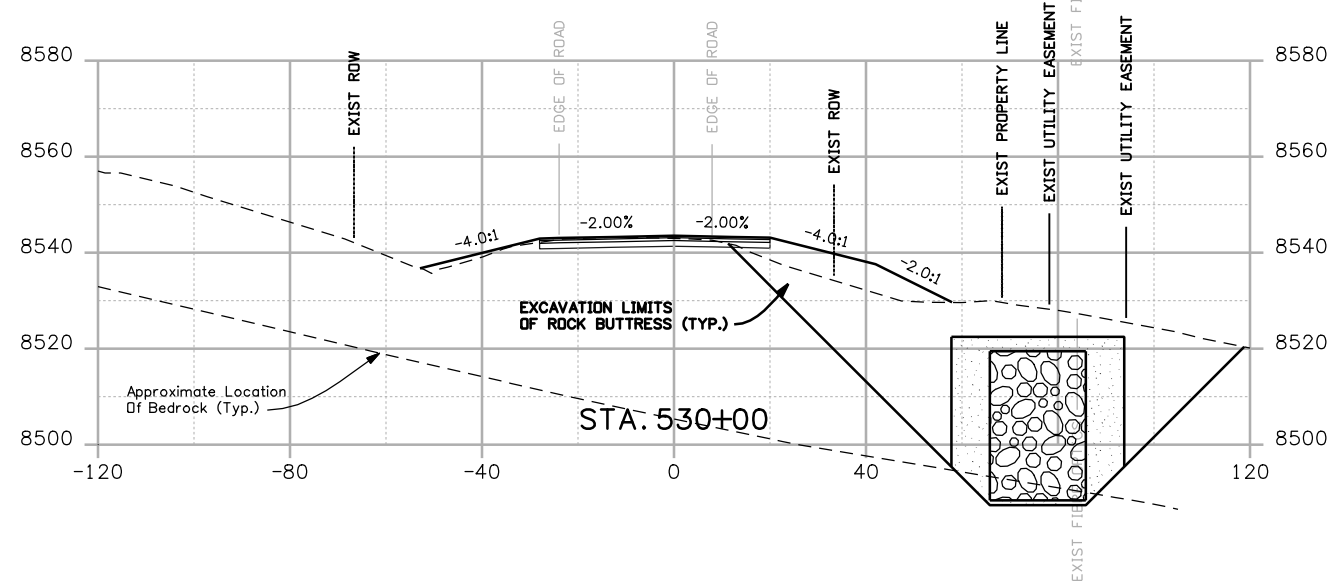
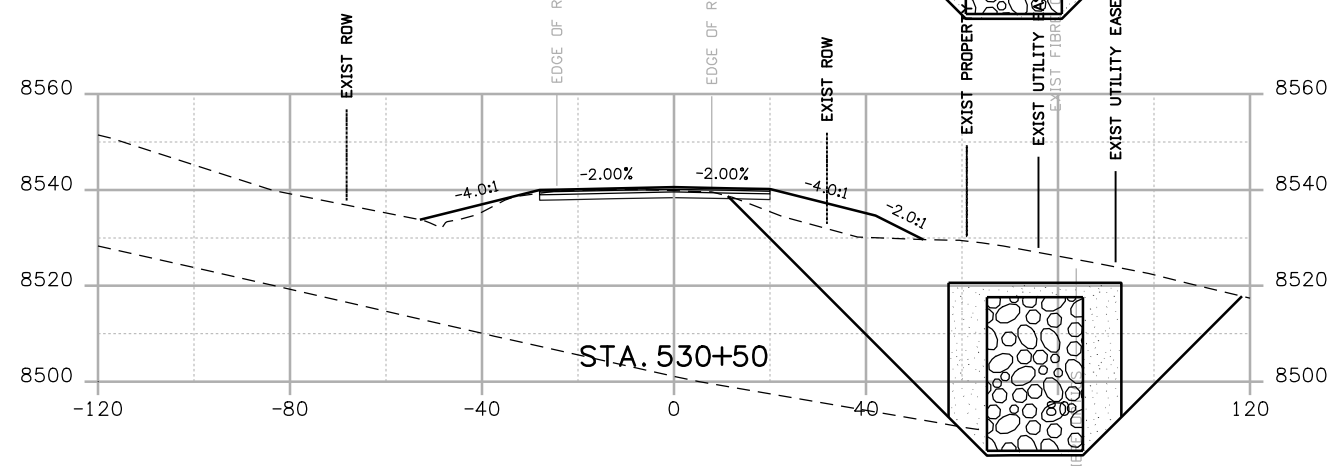
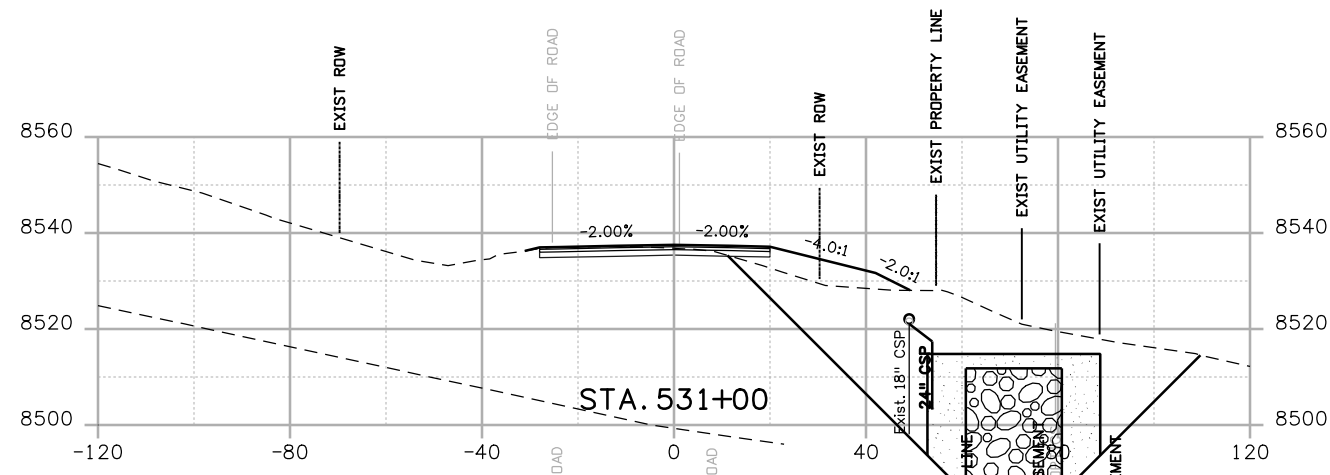
NH 0501-046

14933

Sheet Number

131





Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections02.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 303-988-4933 303-988-4939

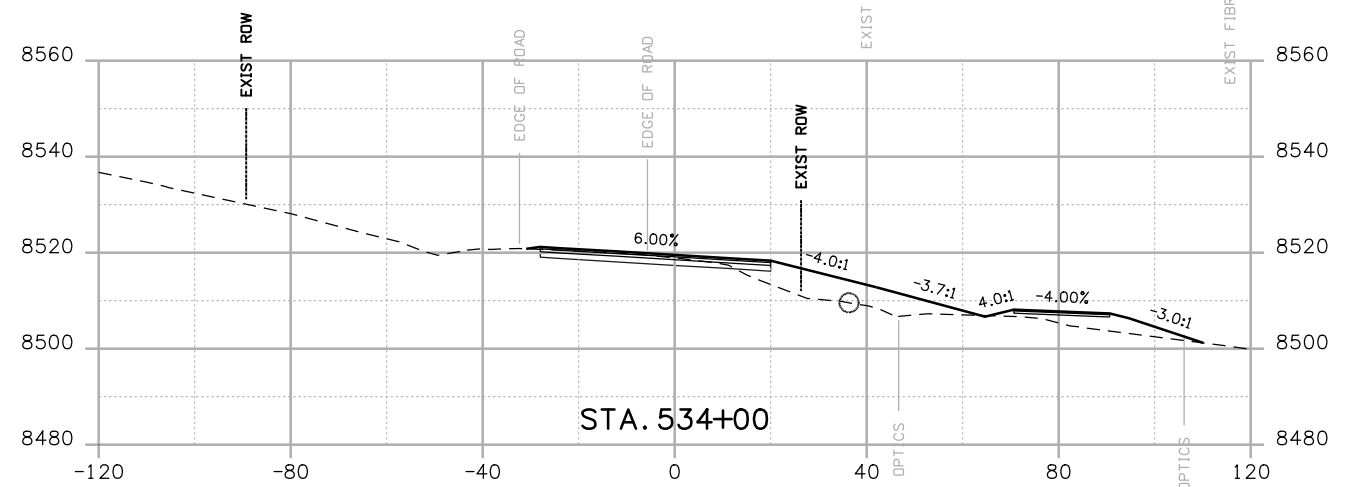
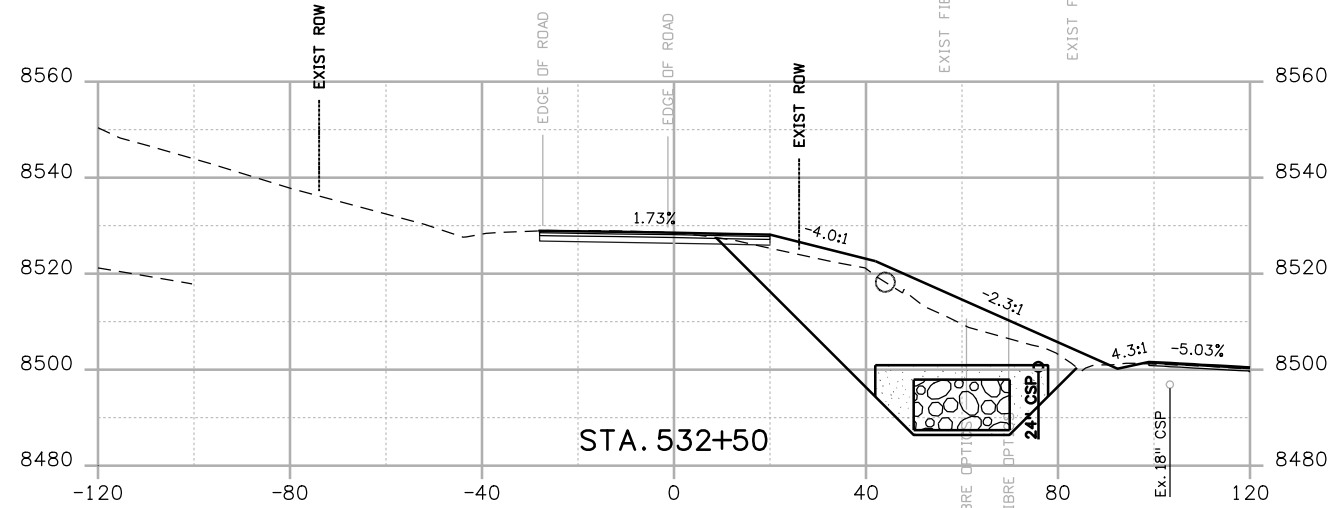
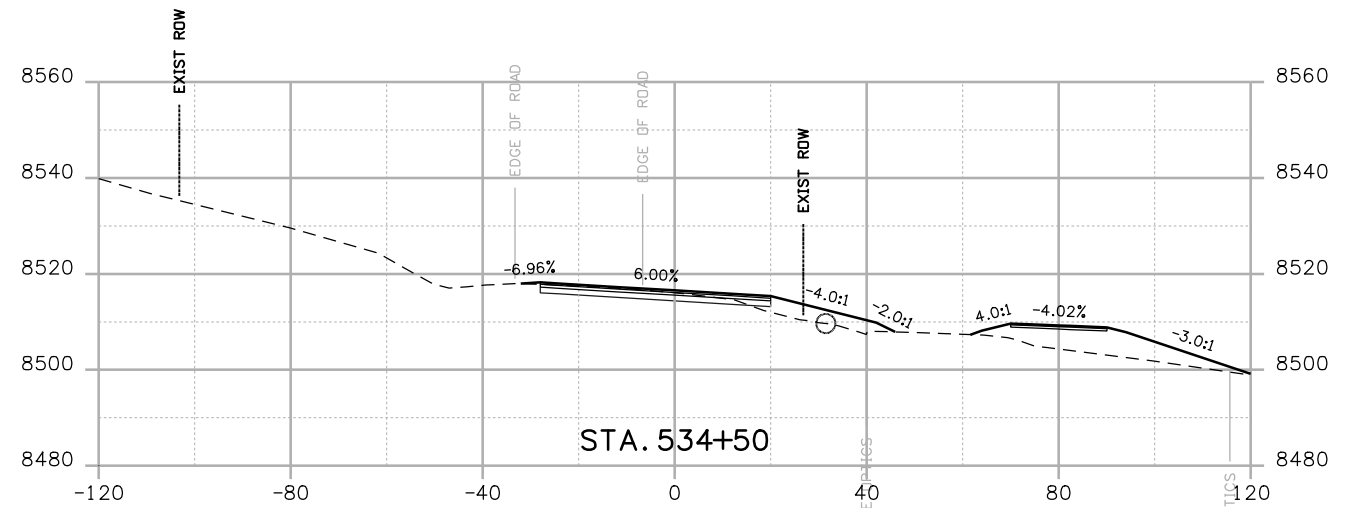
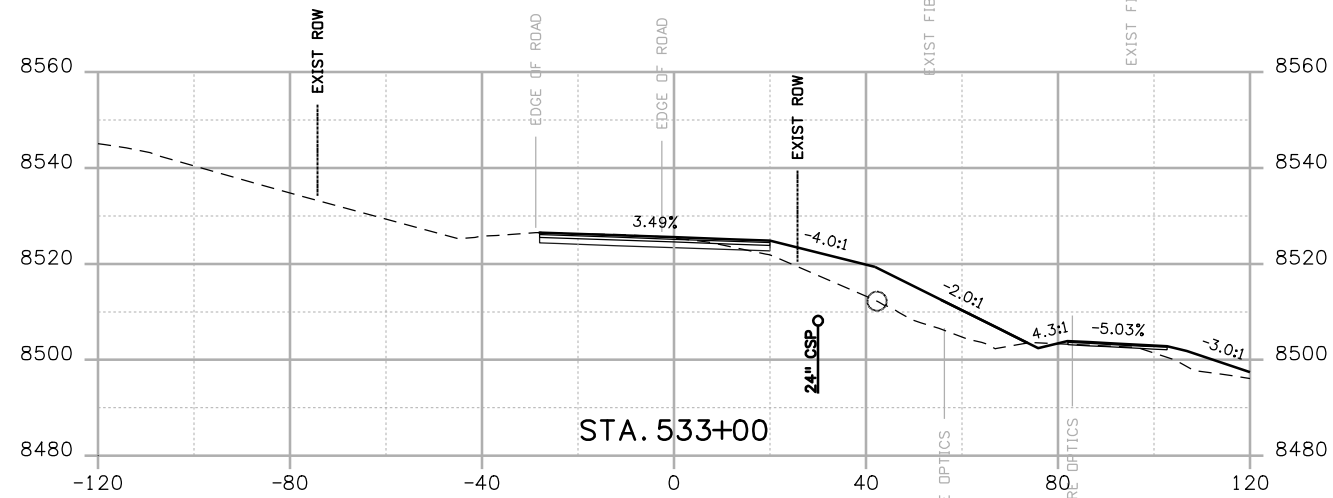
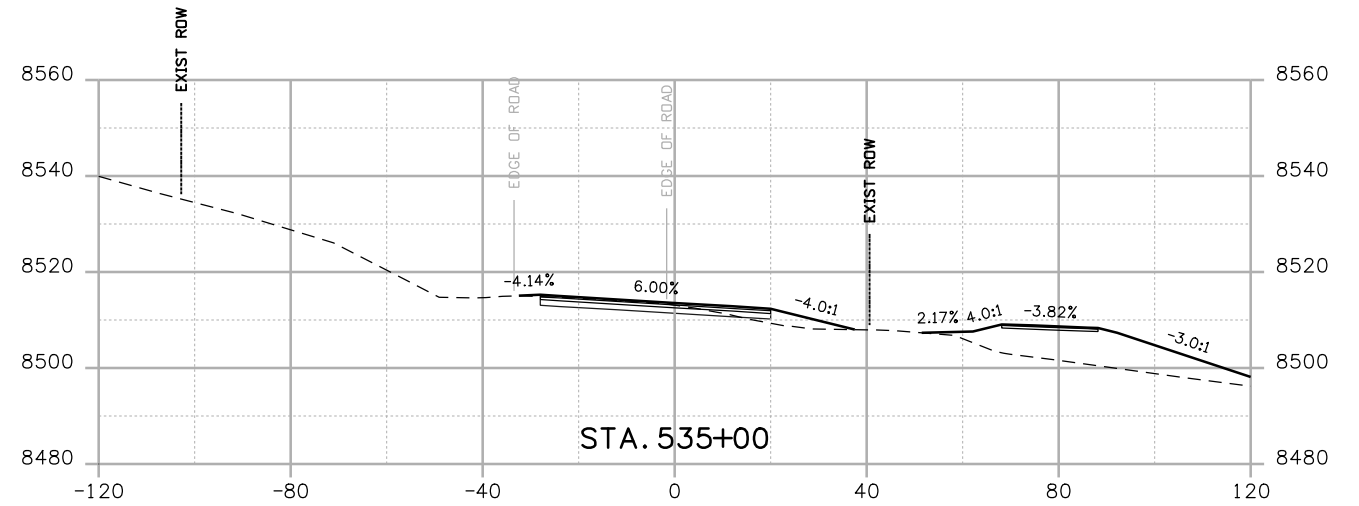
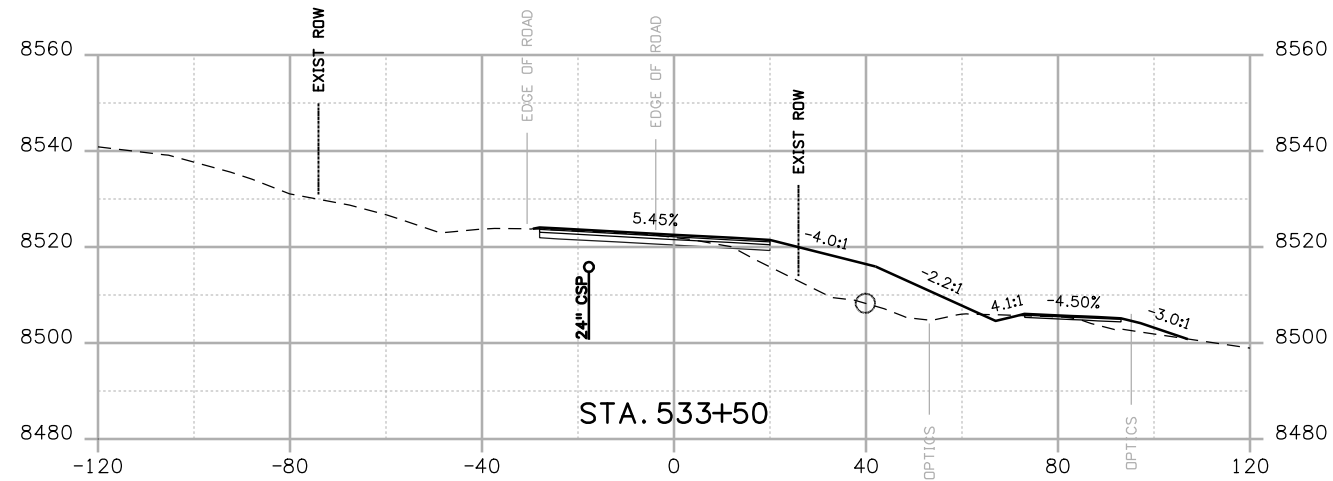
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:


**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 14 of 36

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 132



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections02.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections Lakewood, CO 80226  
 303-988-4939

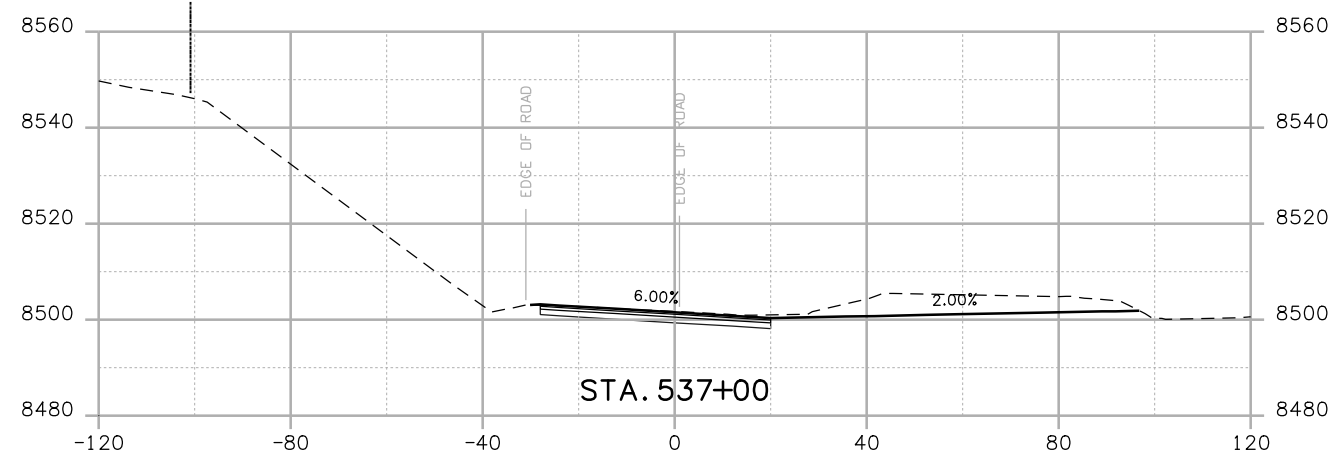
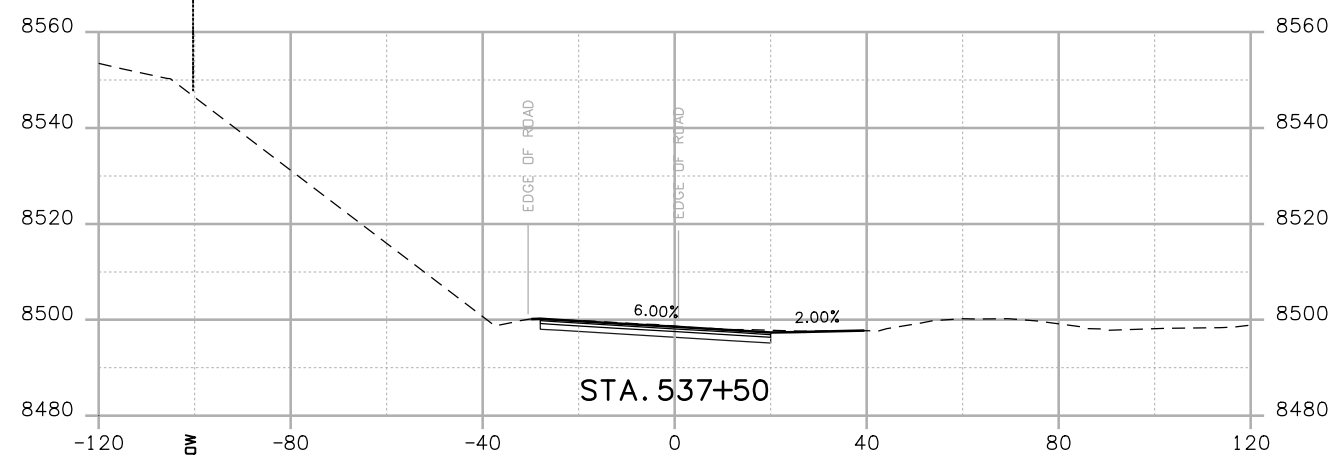
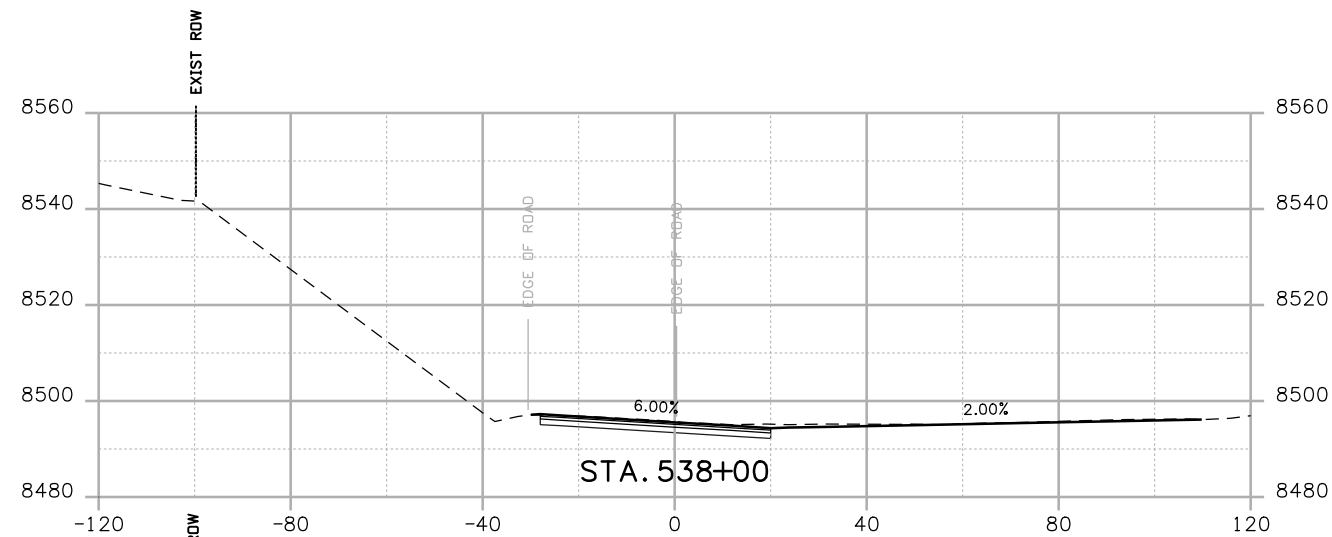
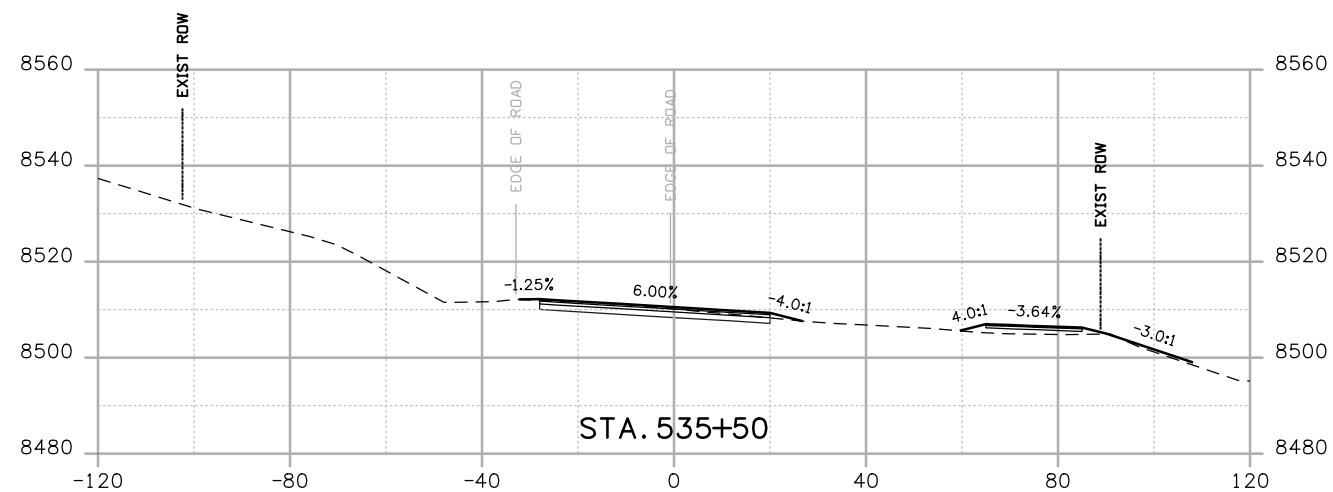
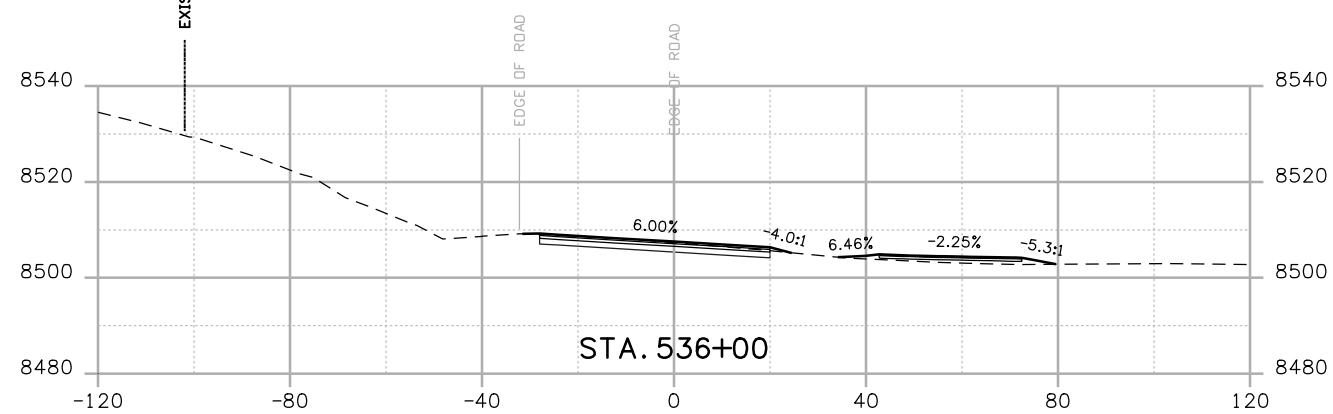
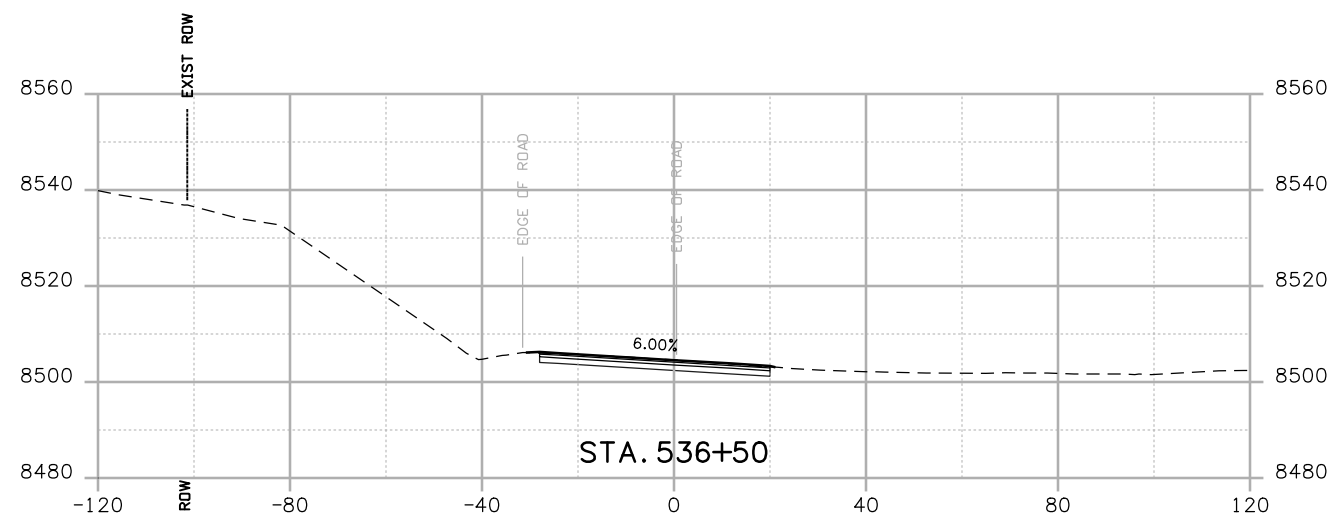
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:

CROSS SECTIONS  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 15 of 36

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 133



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 303-988-4939



**Sheet Revisions**

Date:	Comments	Init.

Colorado Department of Transportation



Region 3

2424 North Townsend Avenue  
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 Phone: 972-249-5285 FAX: 970-249-6018

RBA

**As Constructed**

No Revisions:

Revised:

Void:

**CROSS SECTIONS**

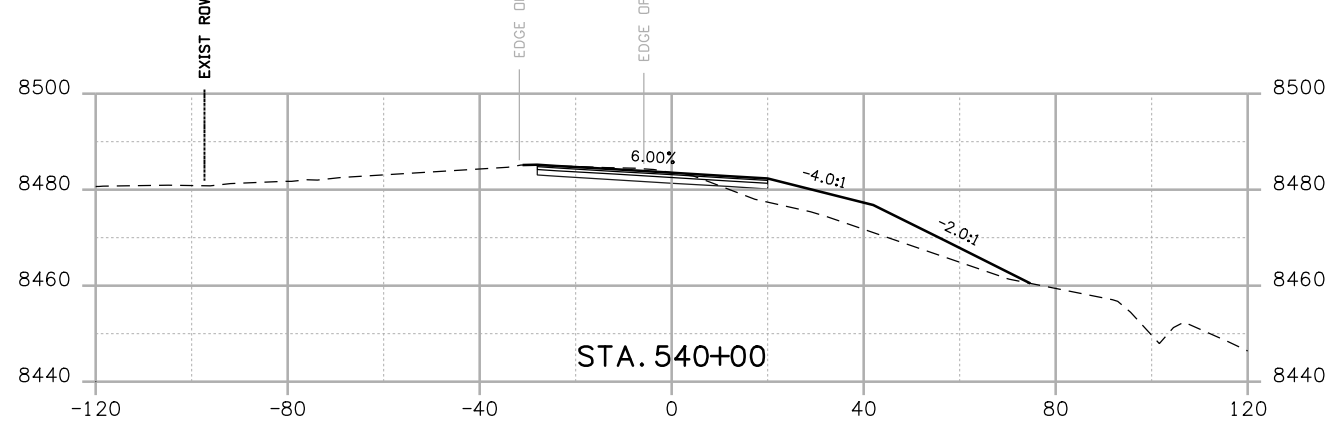
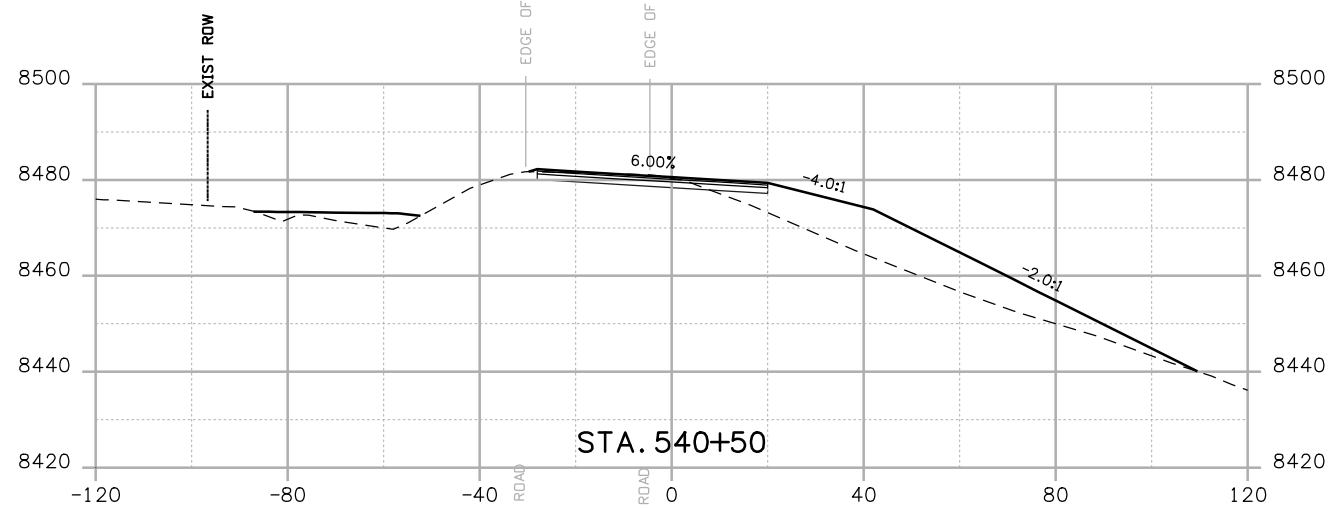
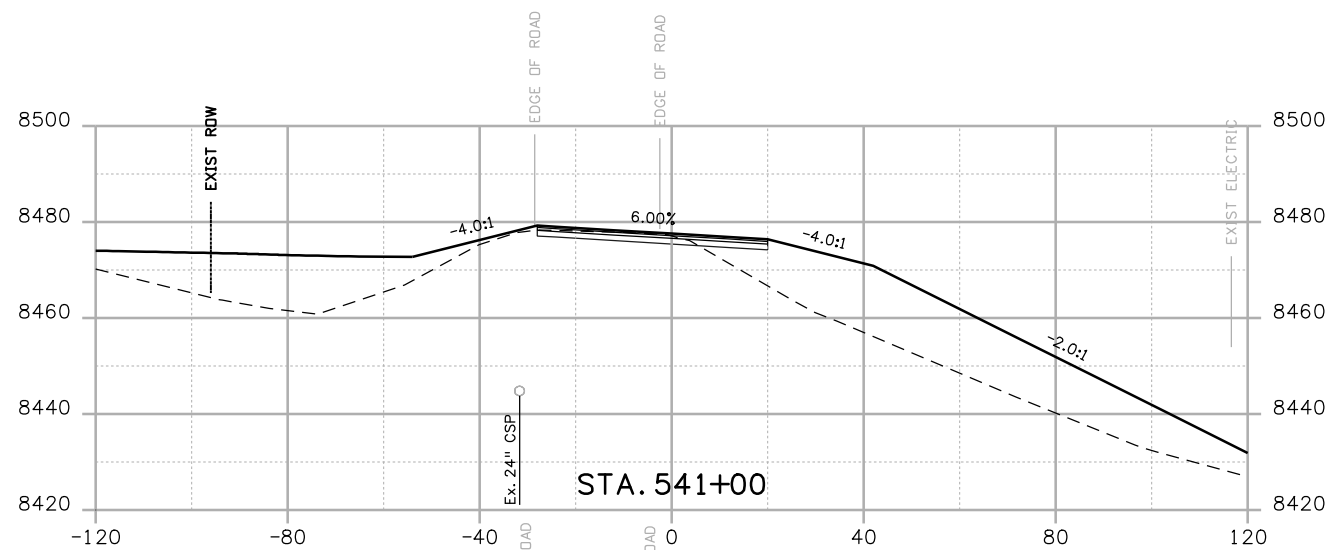
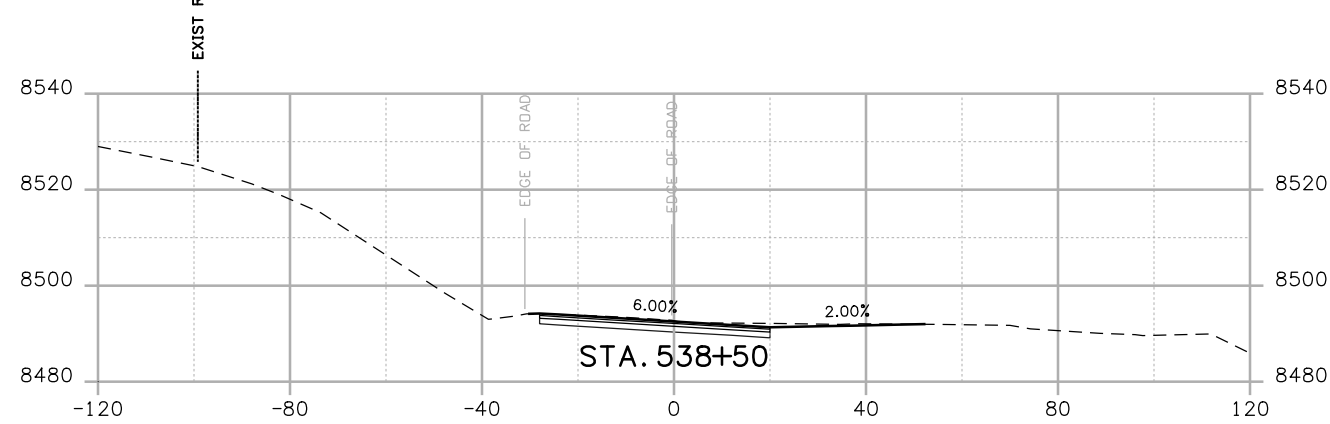
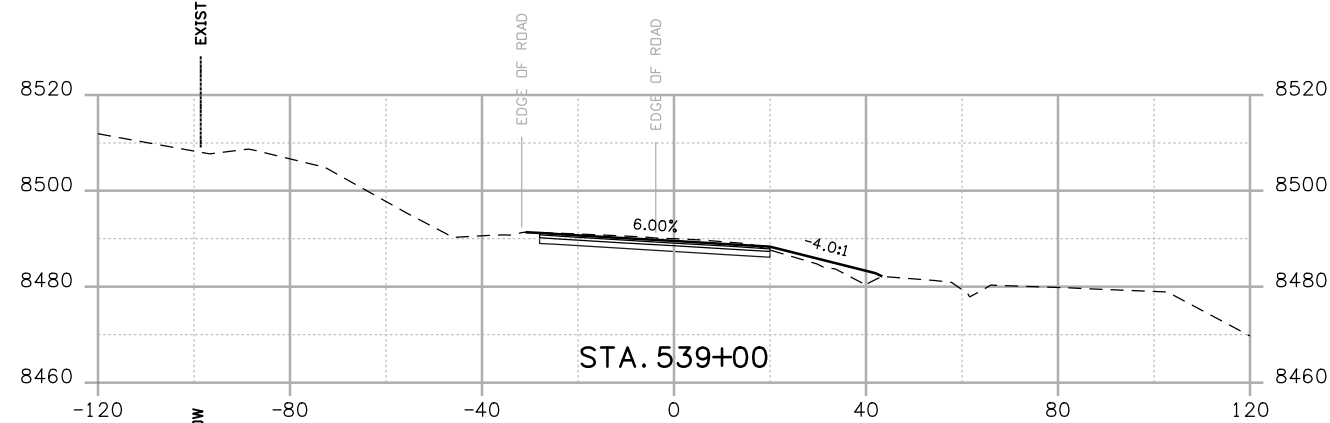
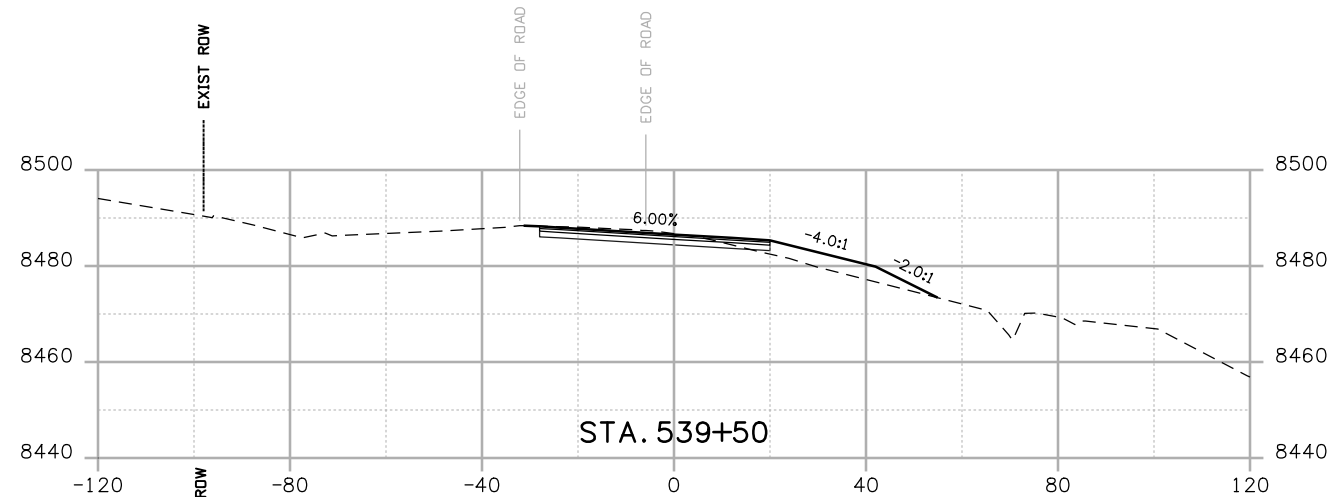
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 Detailer: MAM  
 Sheet Subset: X-SECTIONS  
 Subset Sheets: 16 of 36

**Project No./Code**

NH 0501-046

14933

Sheet Number 134



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
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 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

777 S. Wadsworth Blvd.  
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Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation



2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018

Region 3

RBA

As Constructed

No Revisions:

Revised:

Void:

CROSS SECTIONS

Designer:

NJL

Detailer:

MAM

Sheet Subset: X-SECTIONS

Subset Sheets: 17 of 36

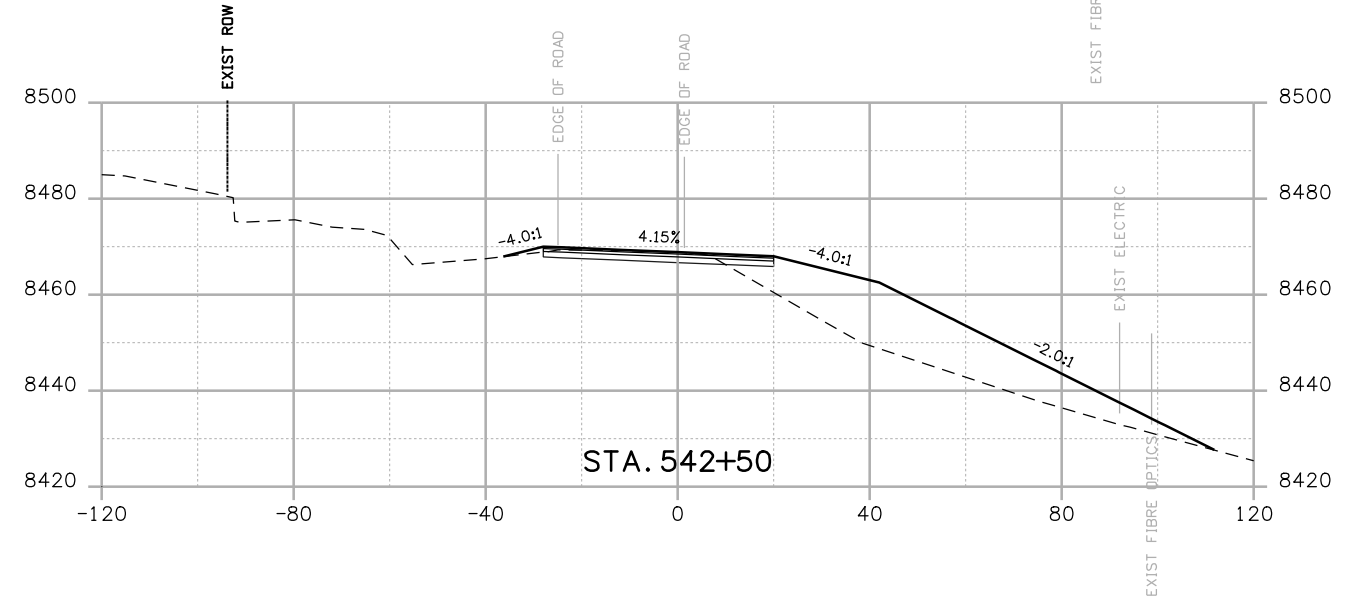
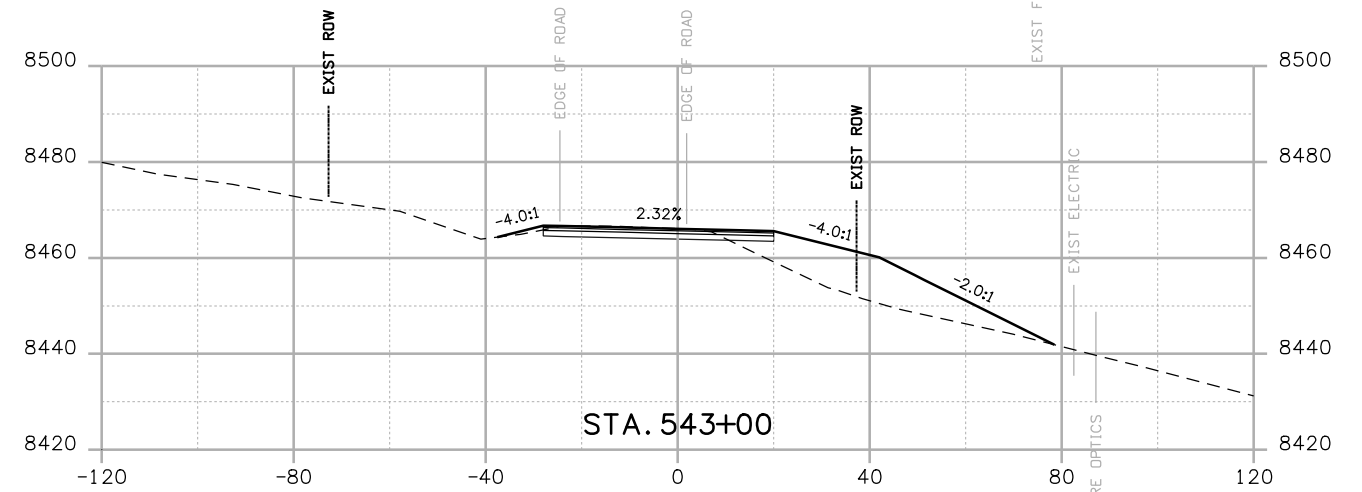
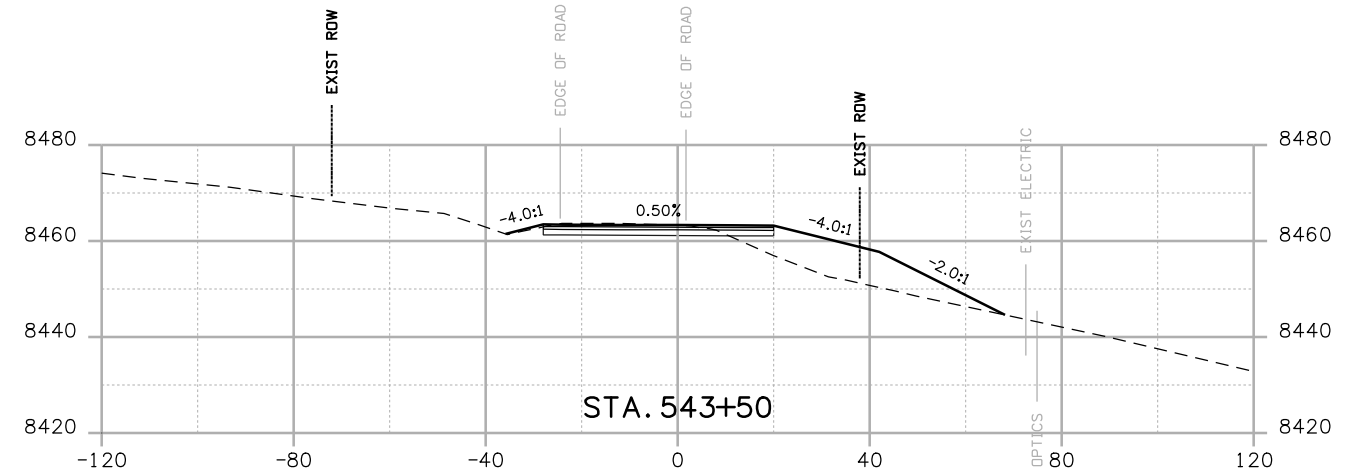
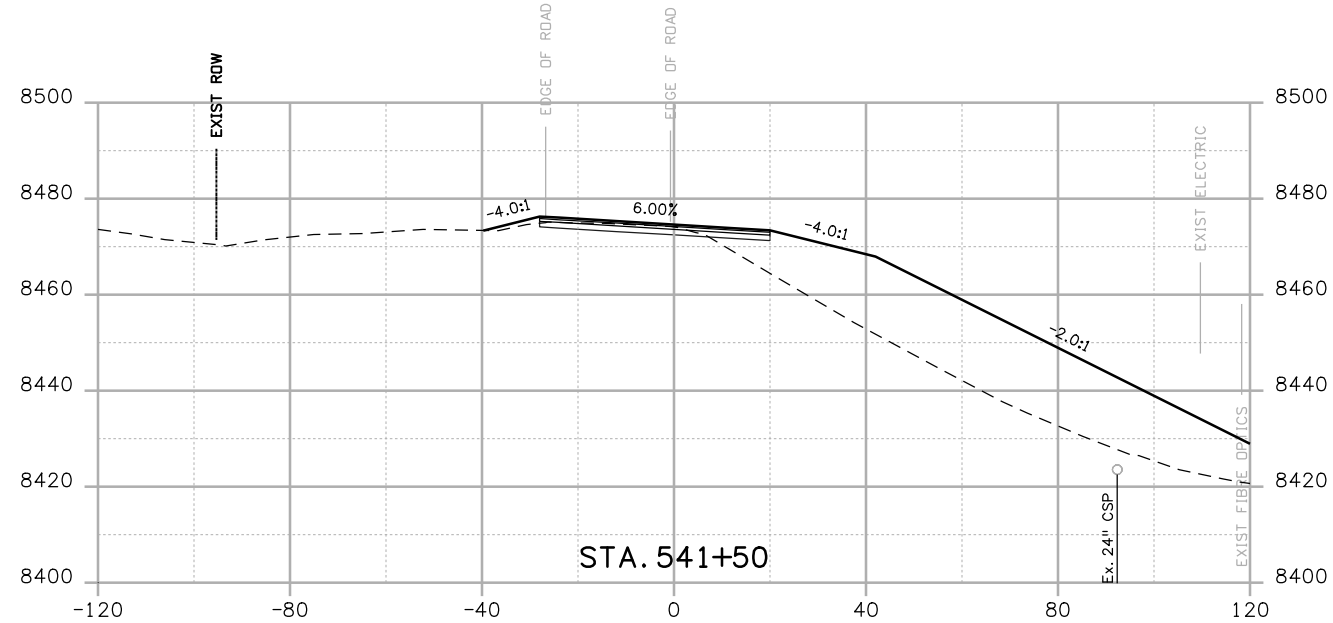
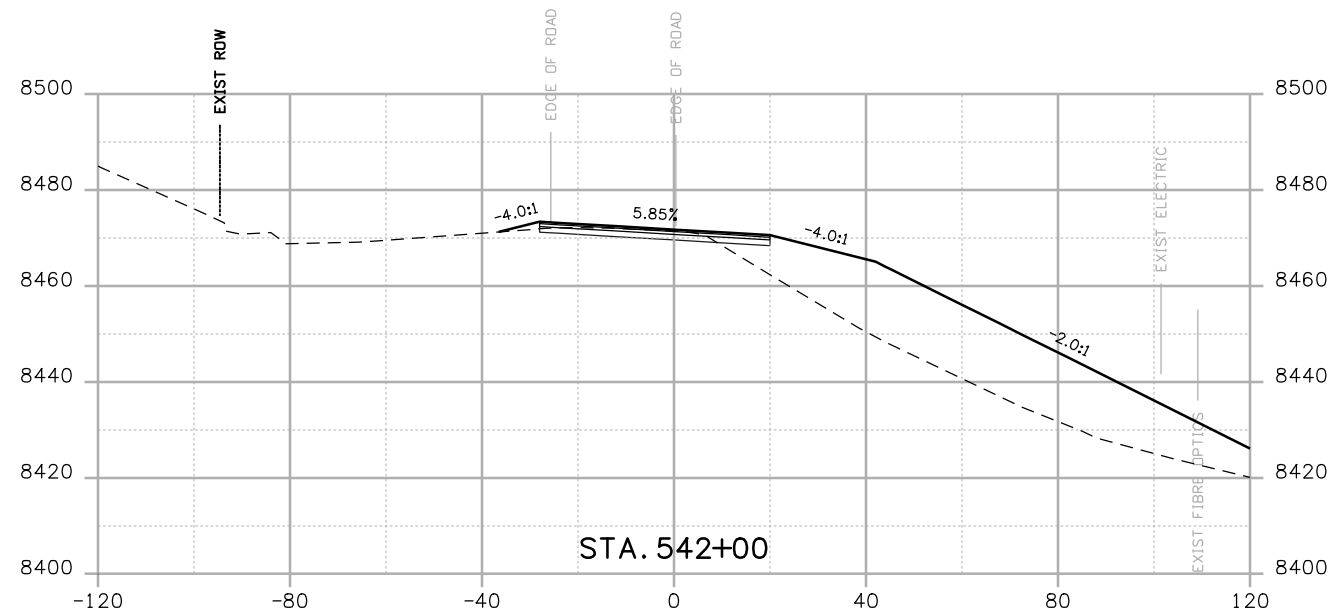
Project No./Code

NH 0501-046

14933

Sheet Number

135



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
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Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation



Region 3

2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018

RBA

As Constructed

No Revisions:

Revised:

Void:

CROSS SECTIONS

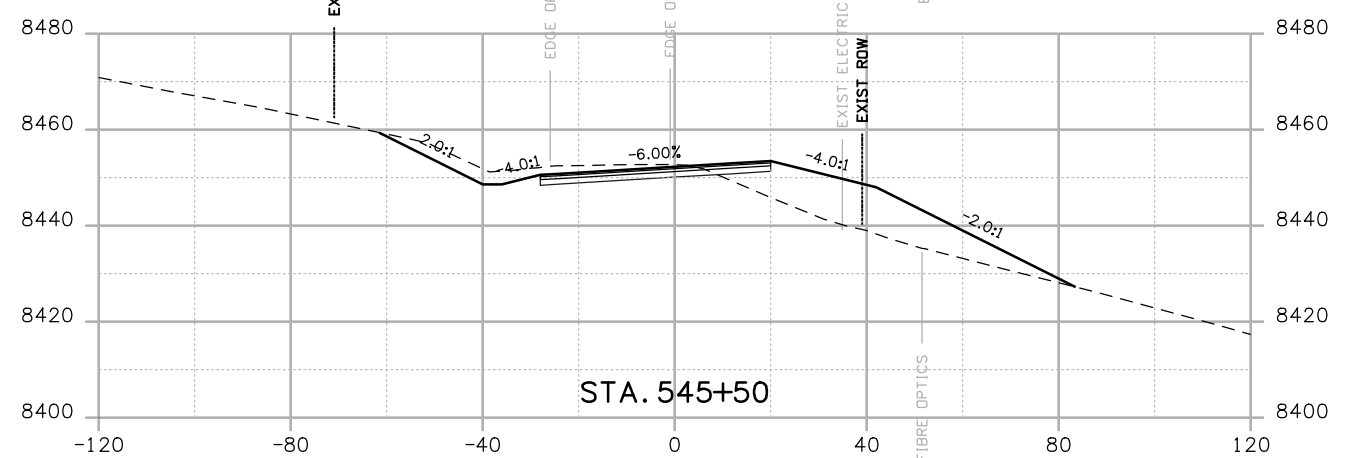
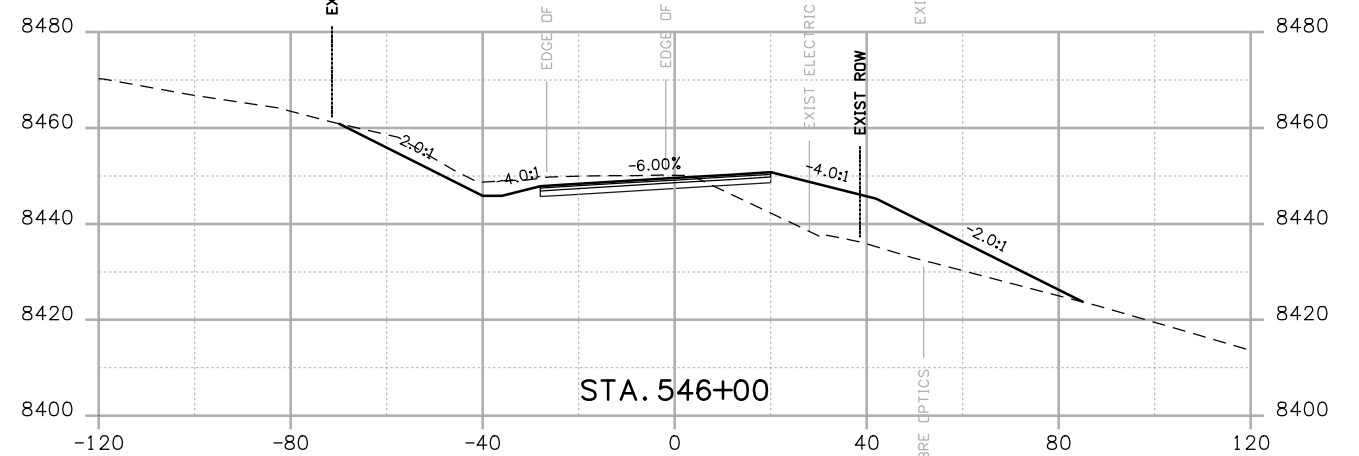
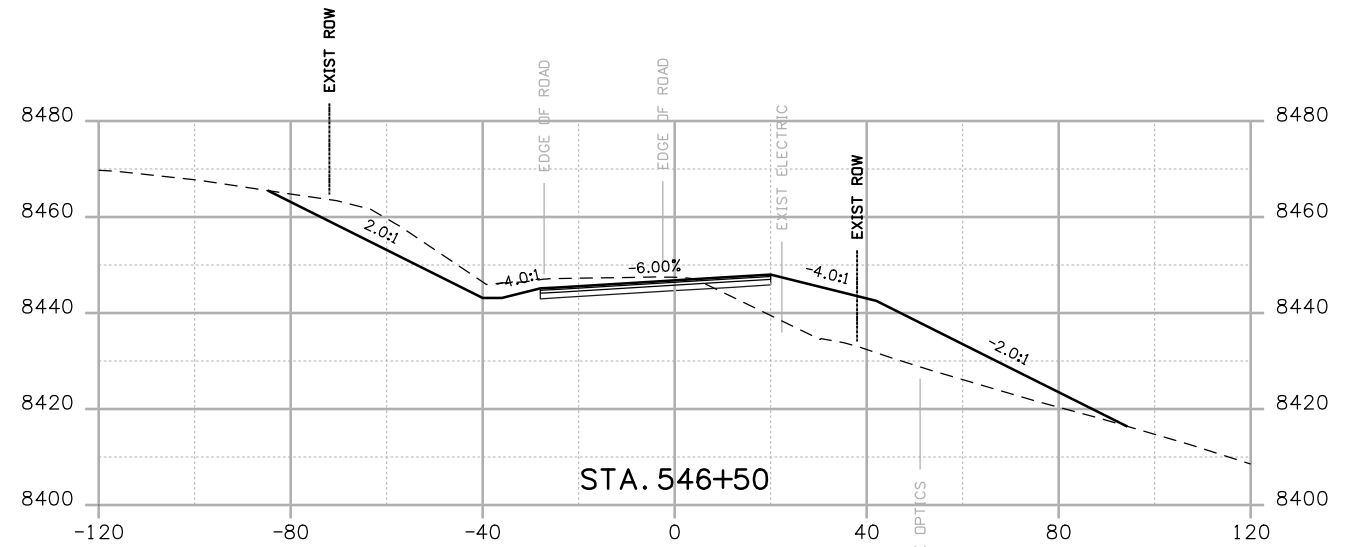
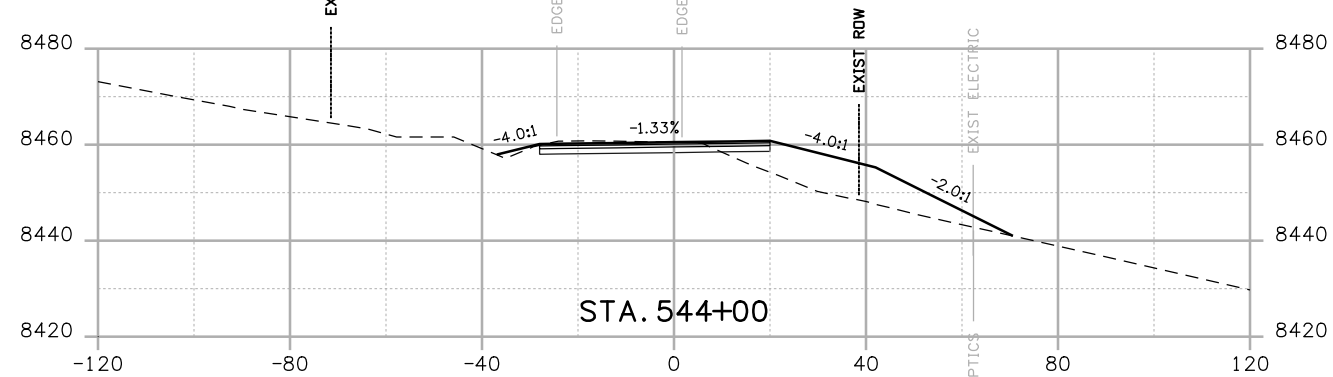
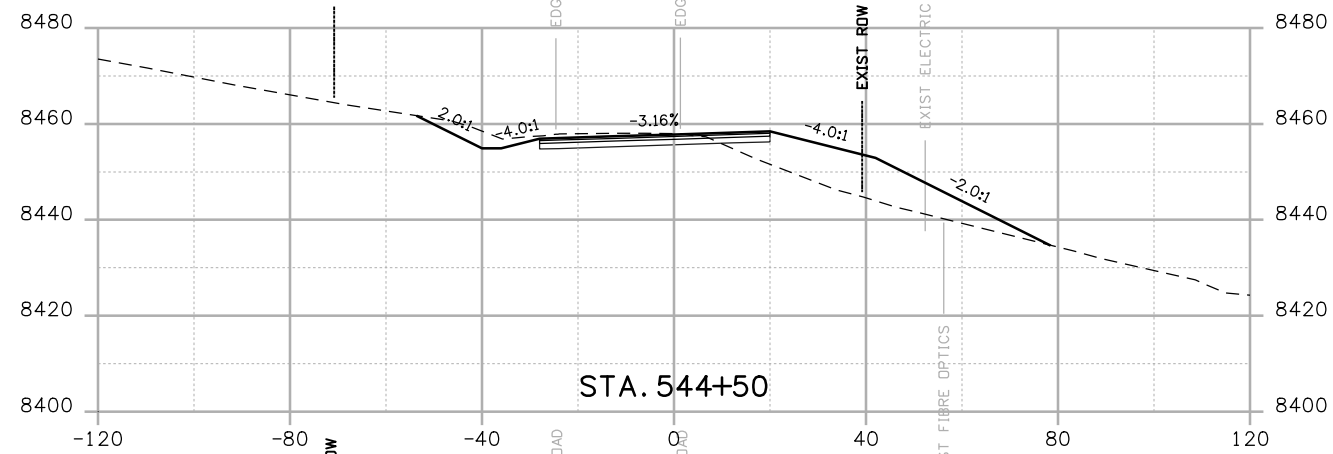
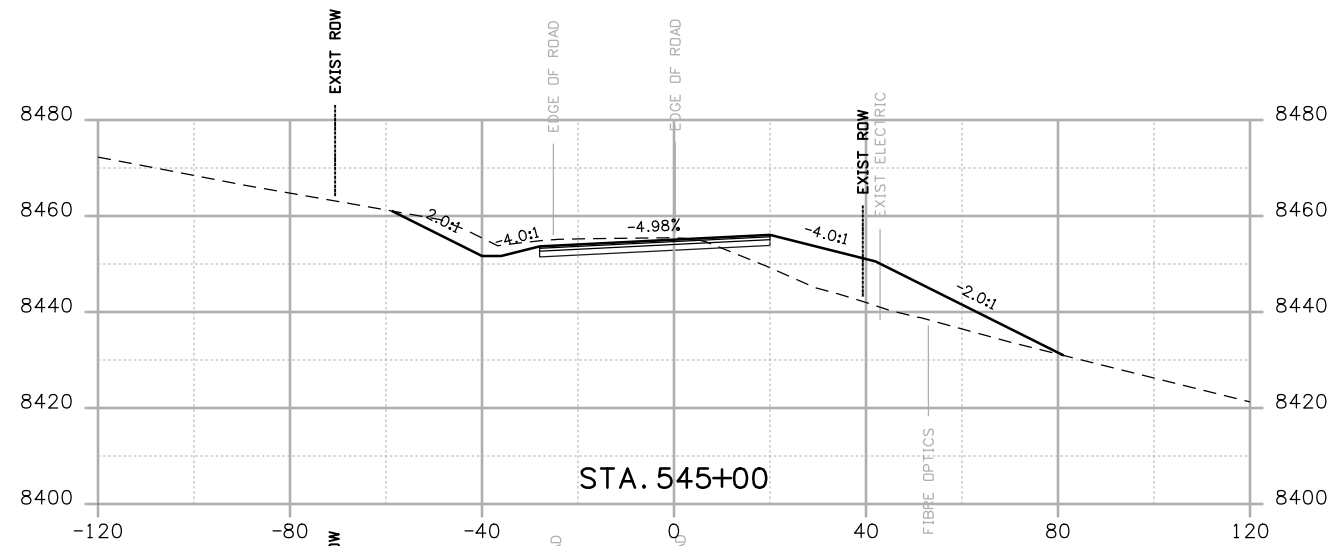
Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS  
 Subset Sheets: 18 of 36

Project No./Code

NH 0501-046


14933

Sheet Number 136



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections02.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100 Lakewood, CO 80226  
 CONSULTING ENGINEERS 303-988-4939  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

Sheet Revisions		
Date:	Comments	Init.

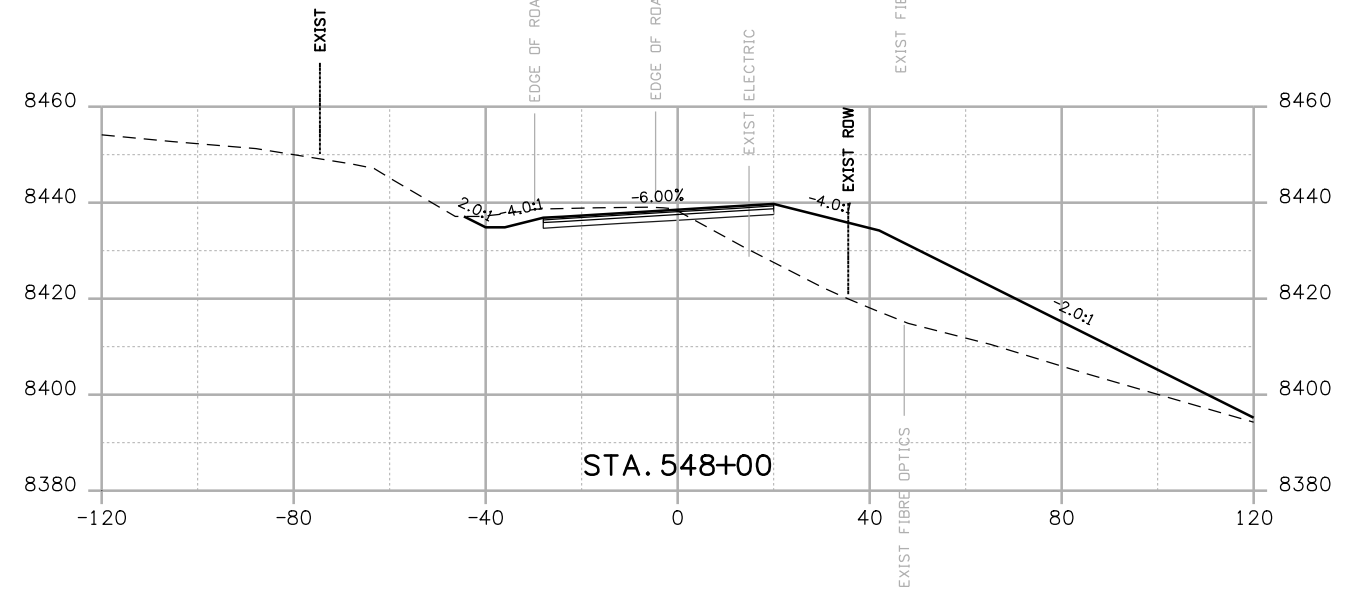
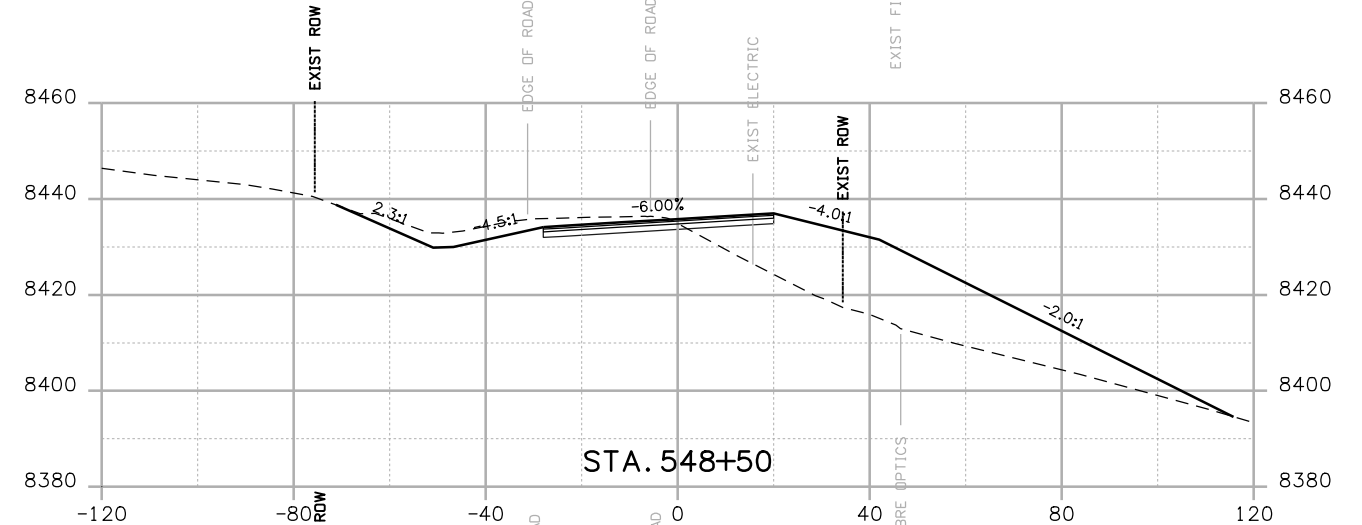
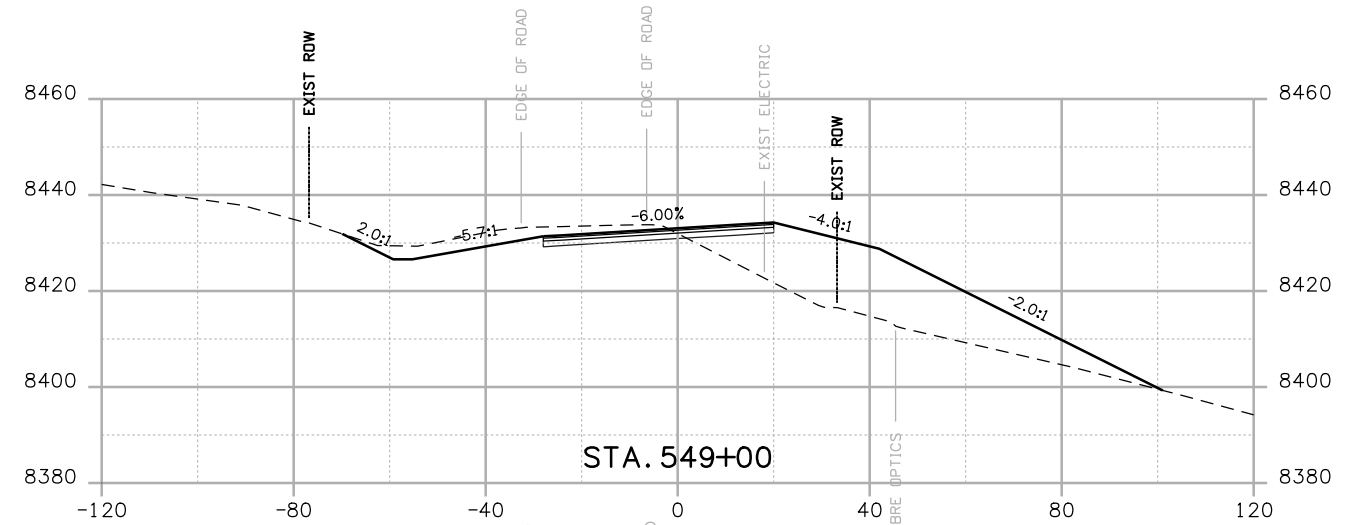
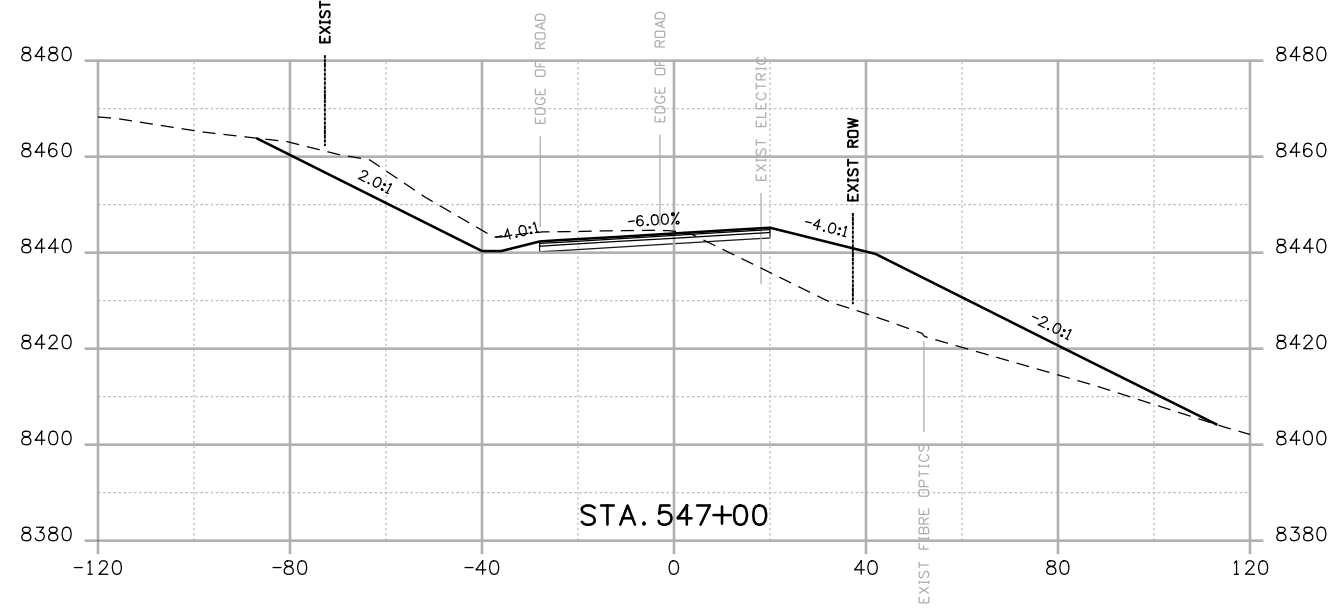
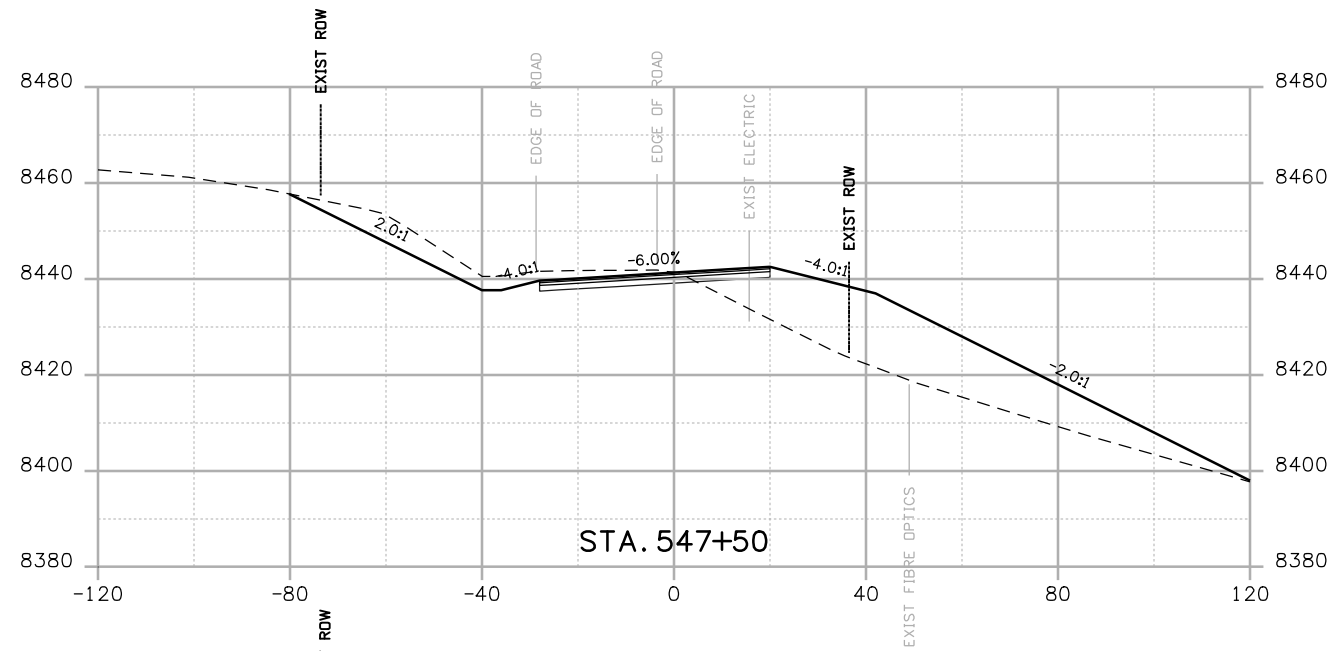
Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:

CROSS SECTIONS  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 19 of 36

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 137





Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

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Region 3

RBA

As Constructed

No Revisions:

Revised:

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CROSS SECTIONS

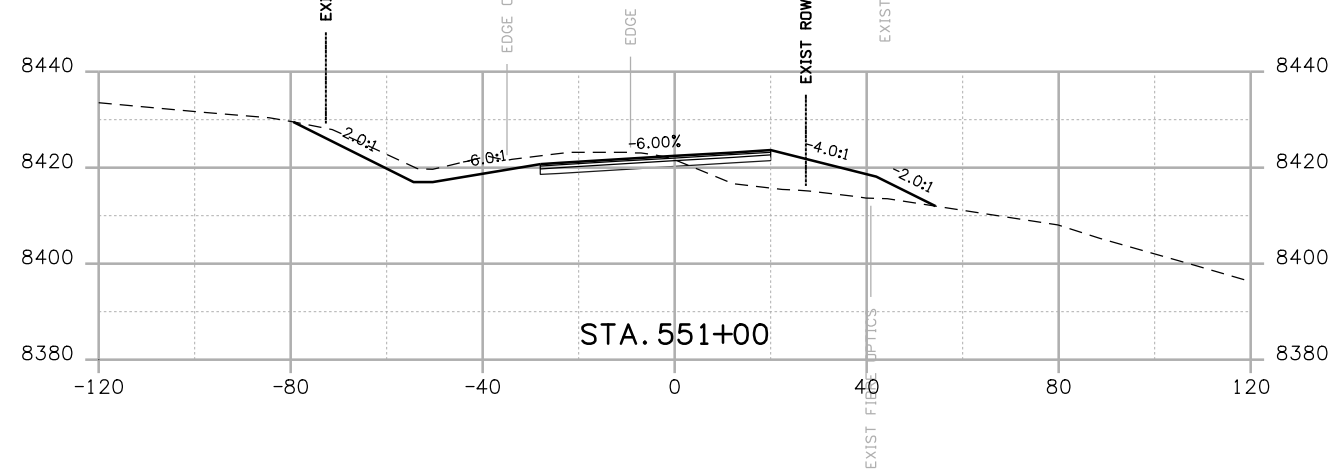
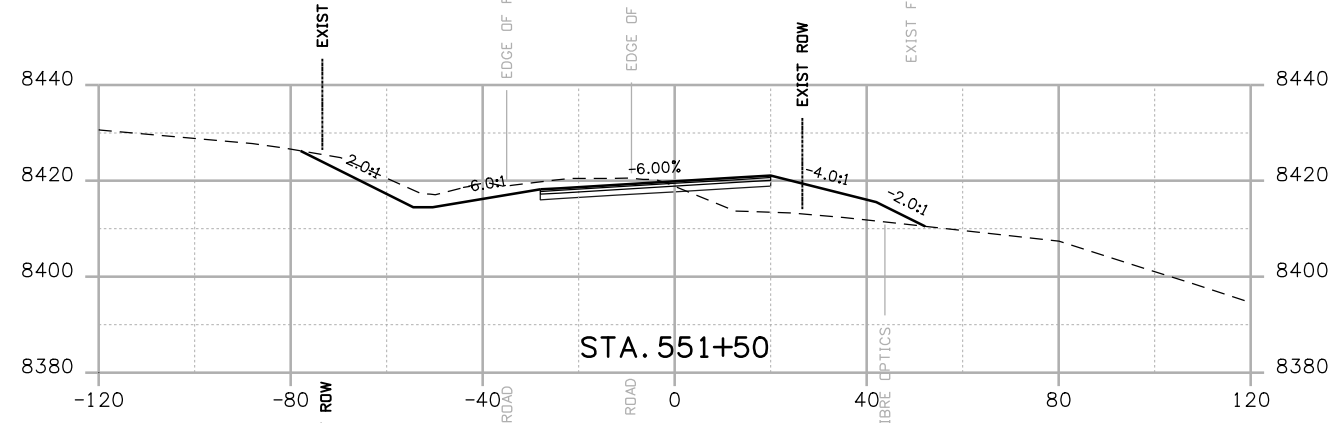
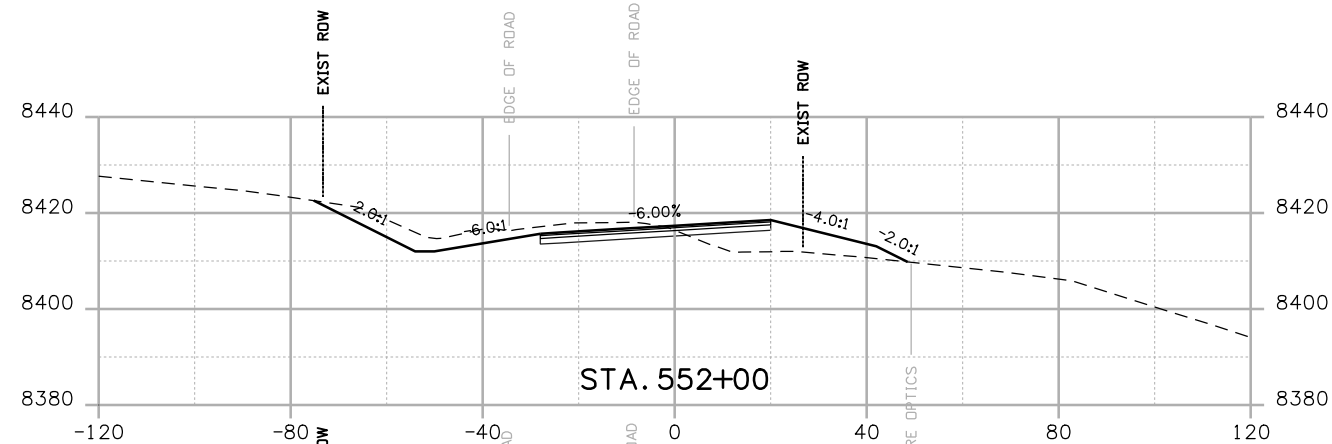
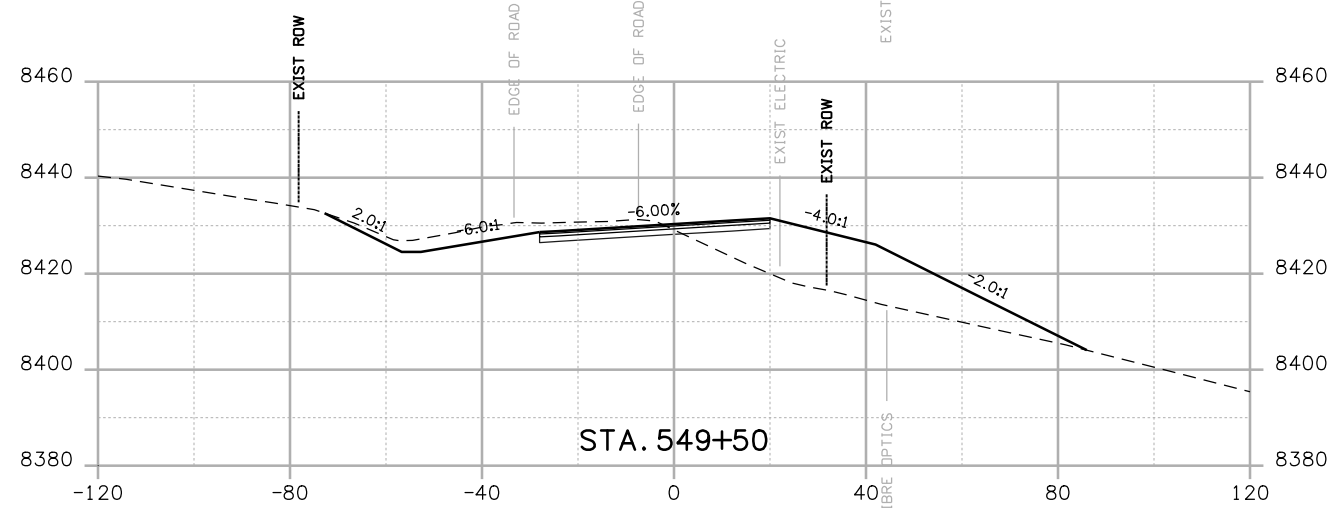
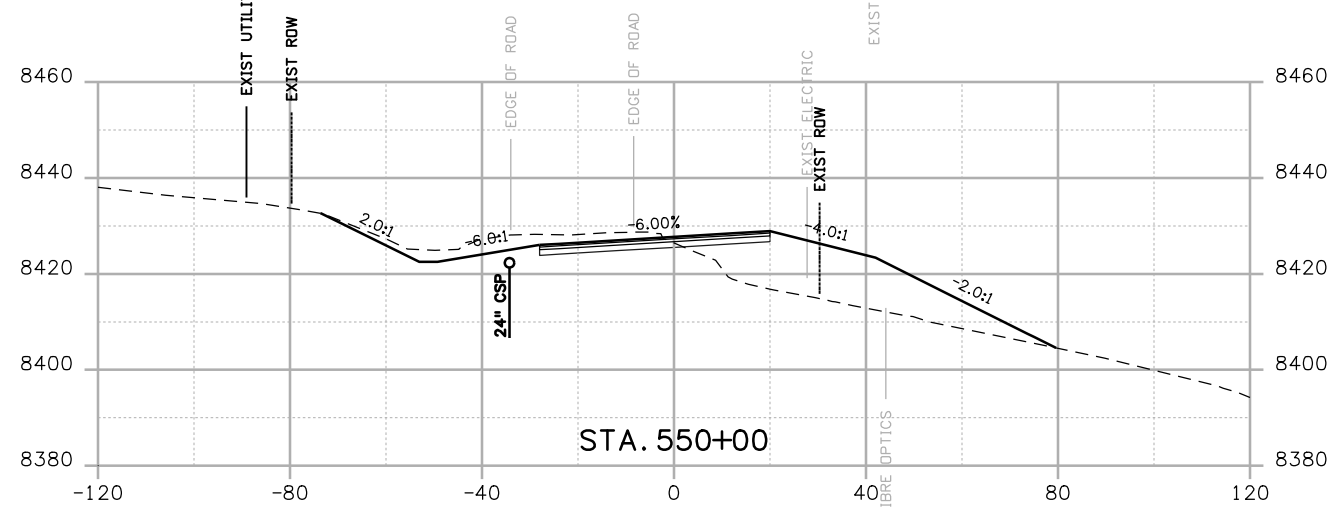
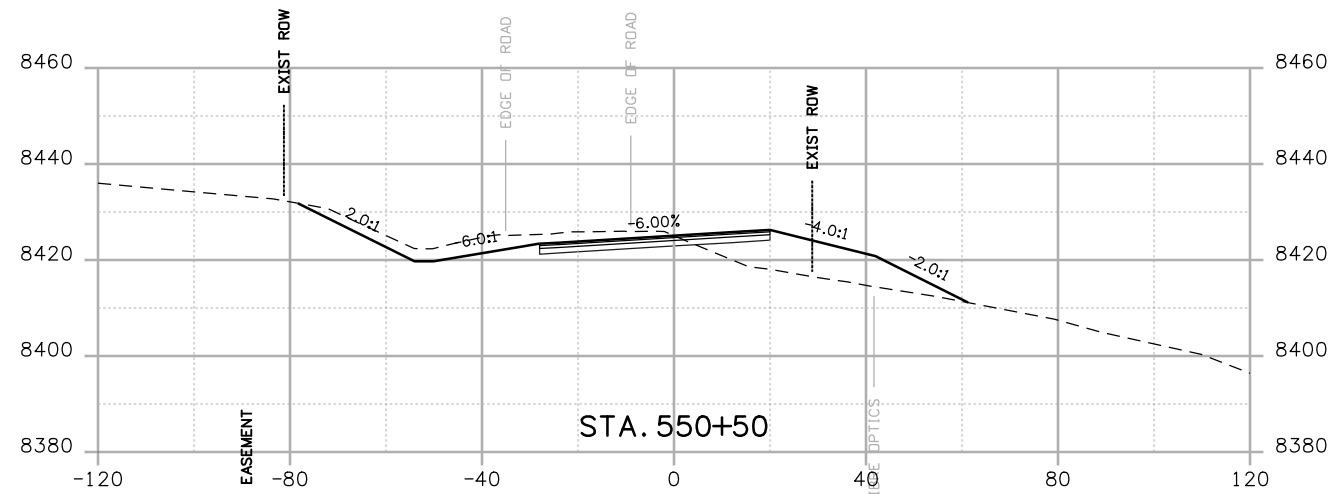
Designer:	NJL
Detailer:	MAM
Sheet Subset: X-SECTIONS	Subset Sheets: 20 of 36

Project No./Code

NH 0501-046

14933

Sheet Number 138



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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Revised:

Void:

**CROSS SECTIONS**

Designer:

NJL

Detailer:

MAM

Sheet Subset: X-SECTIONS

Subset Sheets: 21 of 36

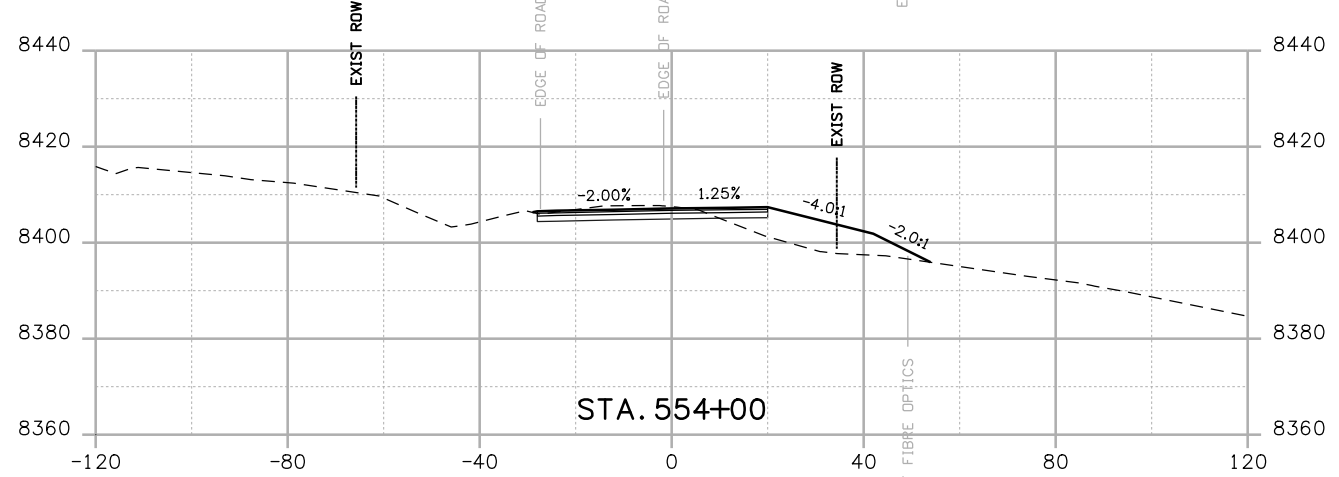
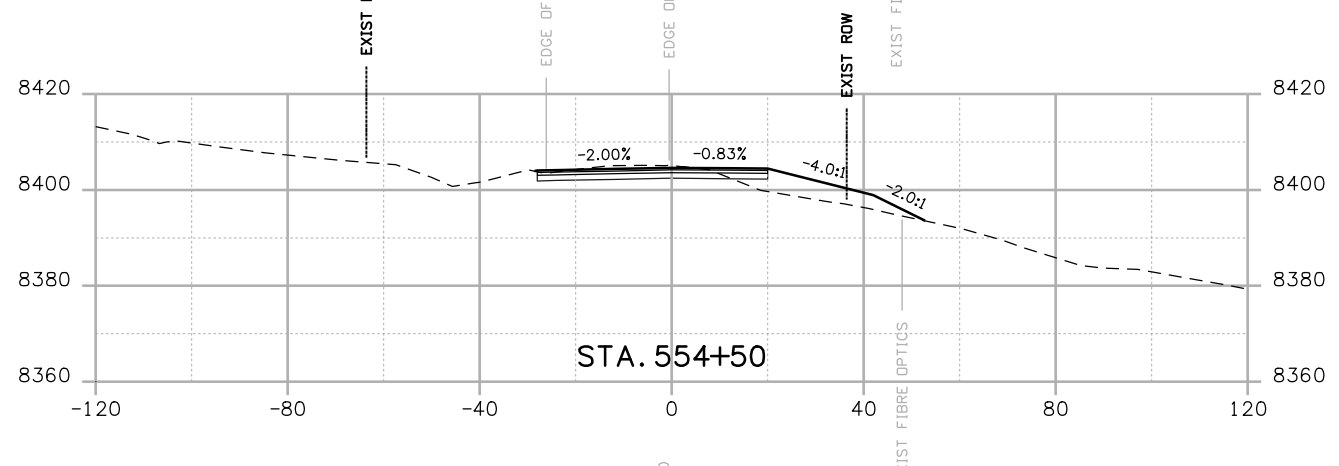
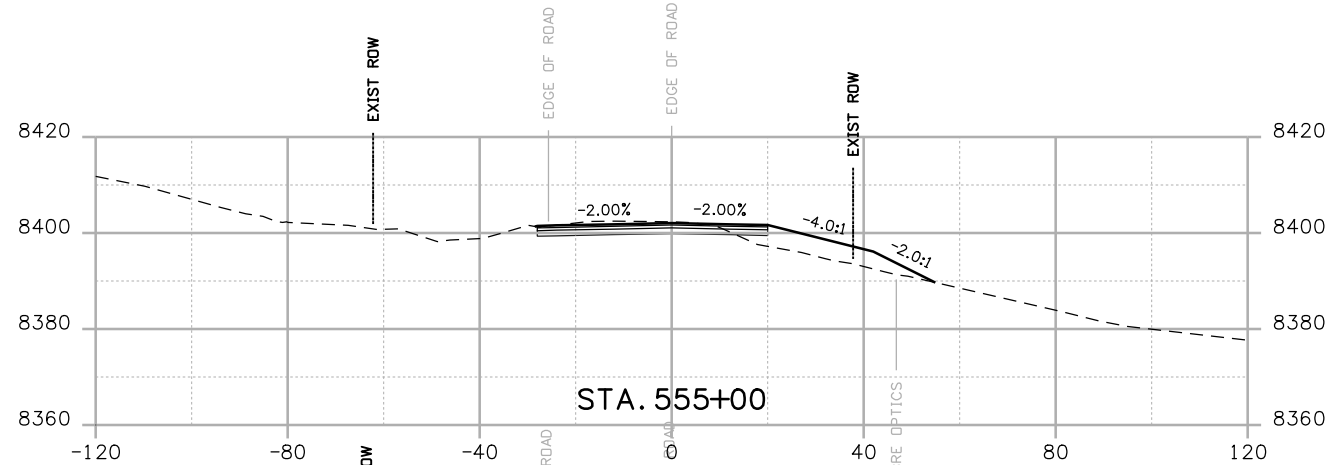
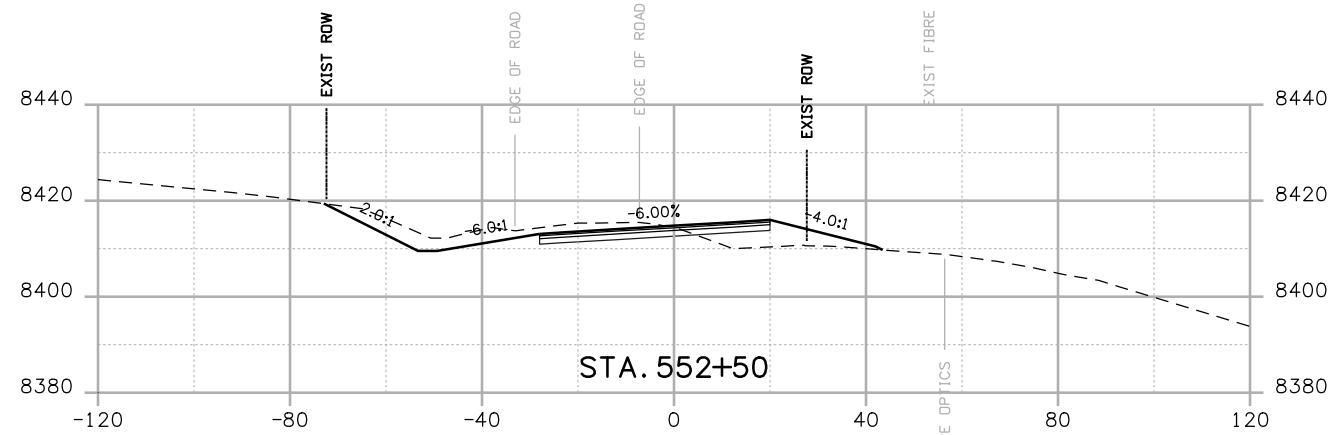
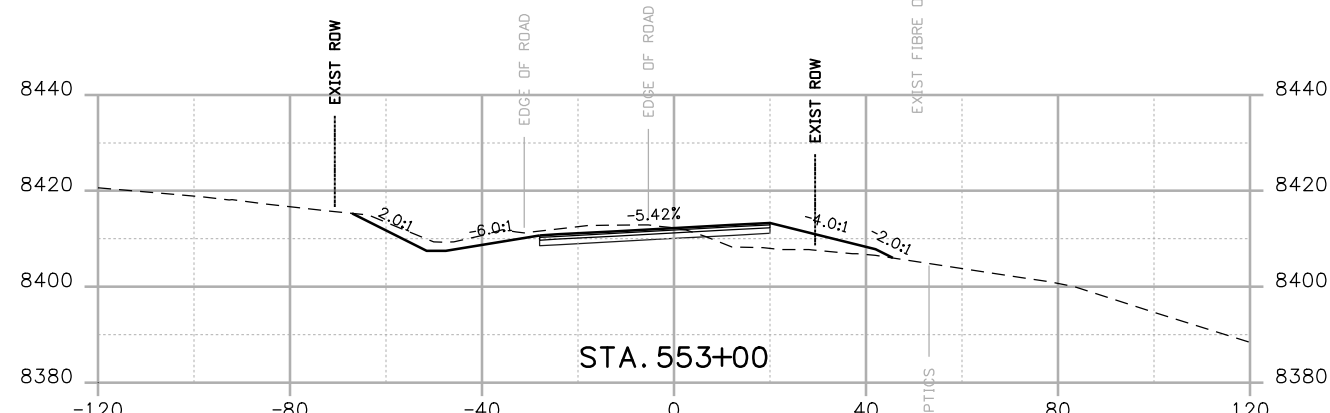
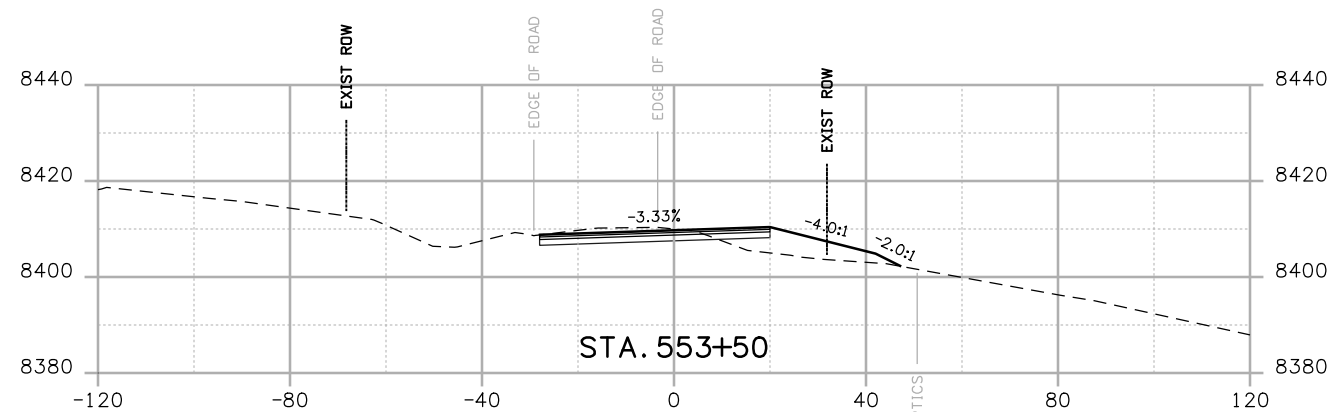
**Project No./Code**

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14933

Sheet Number

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Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections02.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
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 #4 - 100  
 Lakewood, CO 80226  
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 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

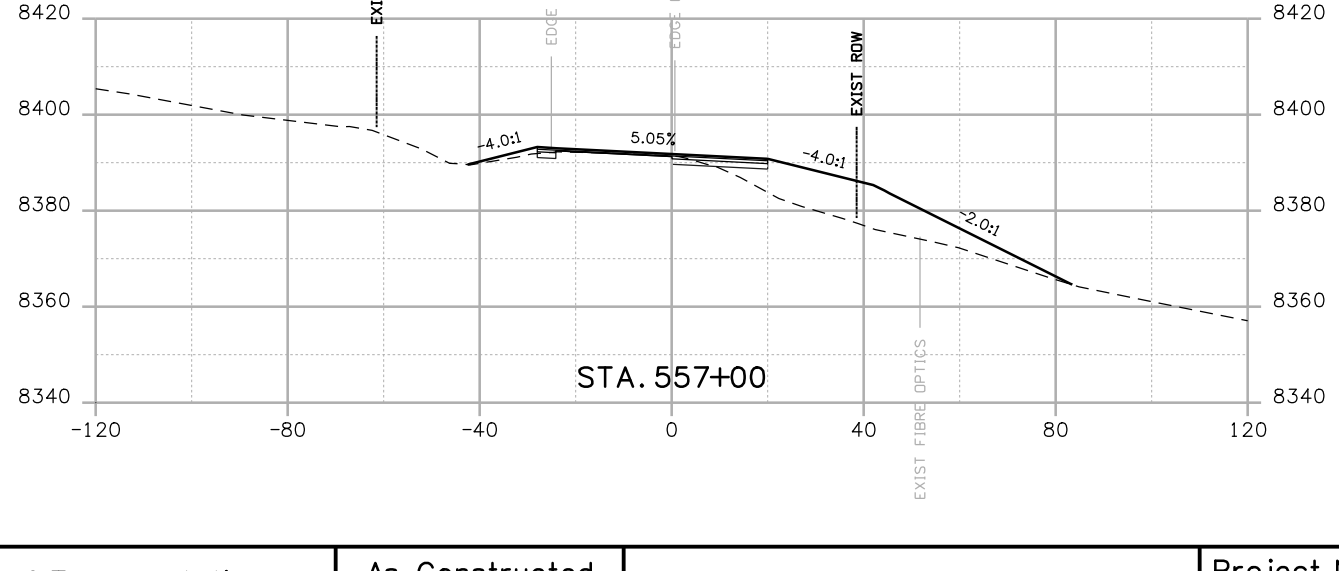
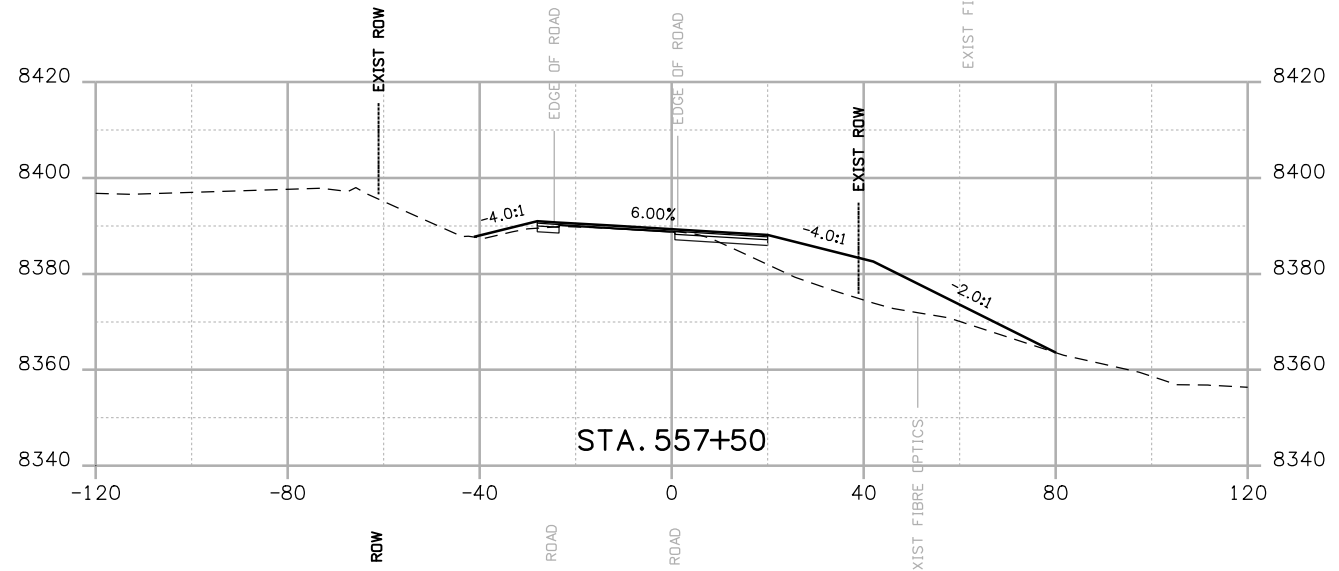
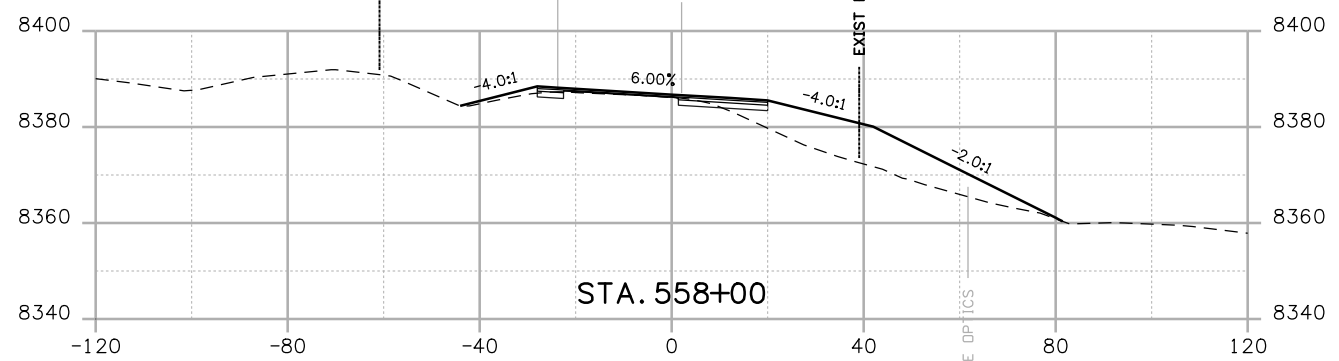
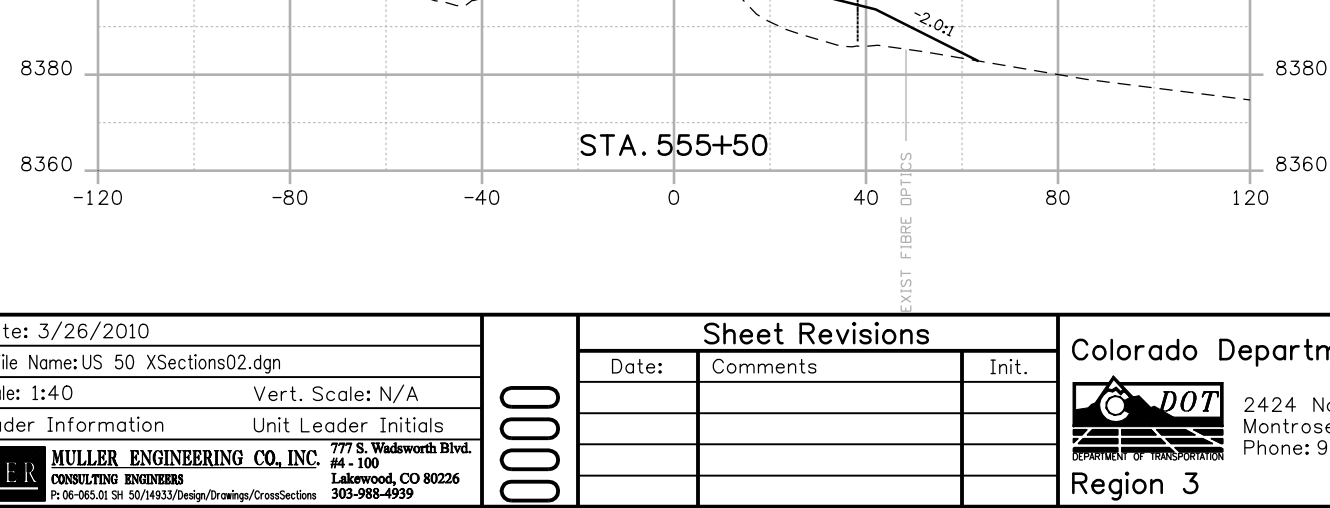
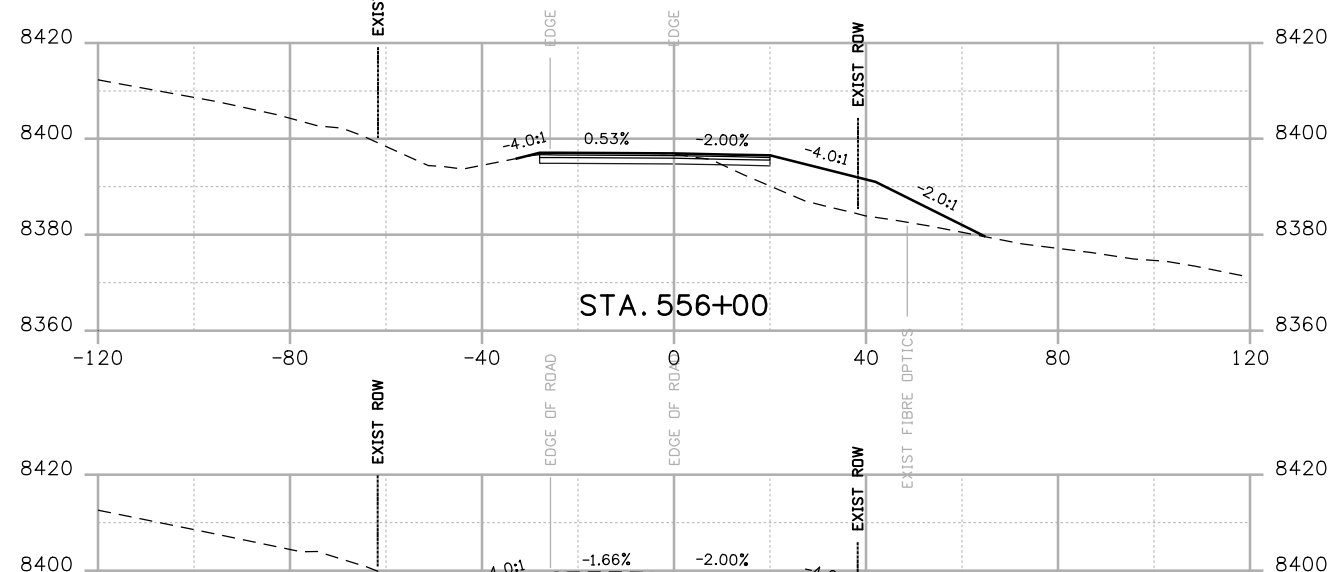
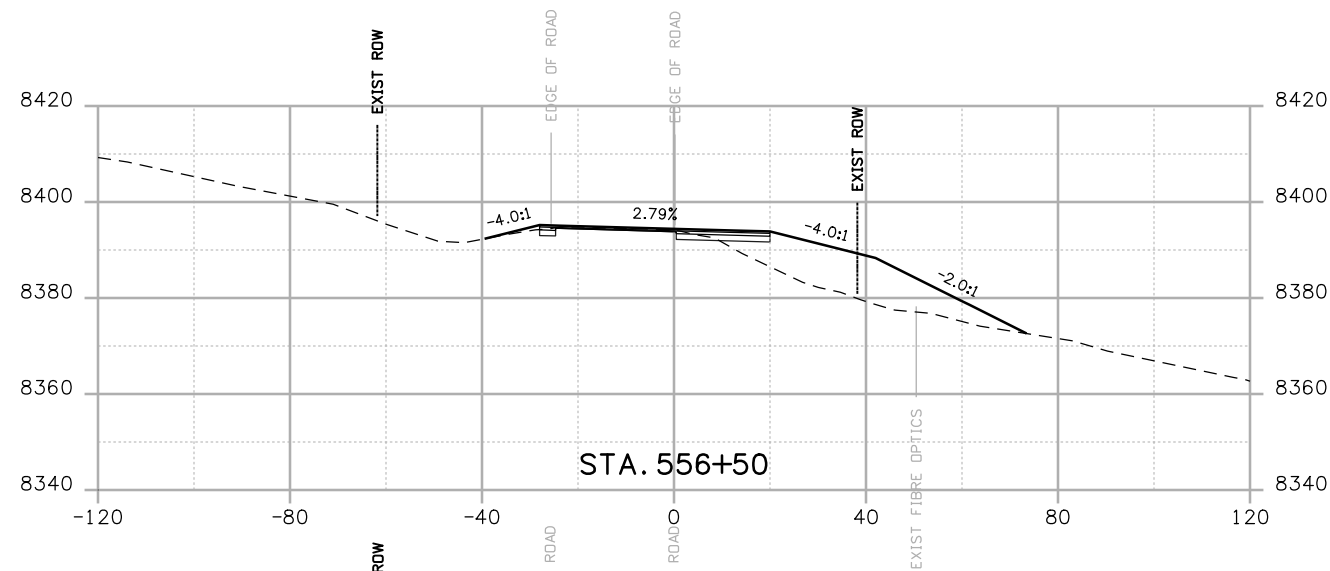
Sheet Revisions		
Date:	Comments	Init.

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 No Revisions:  
 Revised:  
 Void:


**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS      Subset Sheets: 22 of 36

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **140**



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections02.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections Lakewood, CO 80226  
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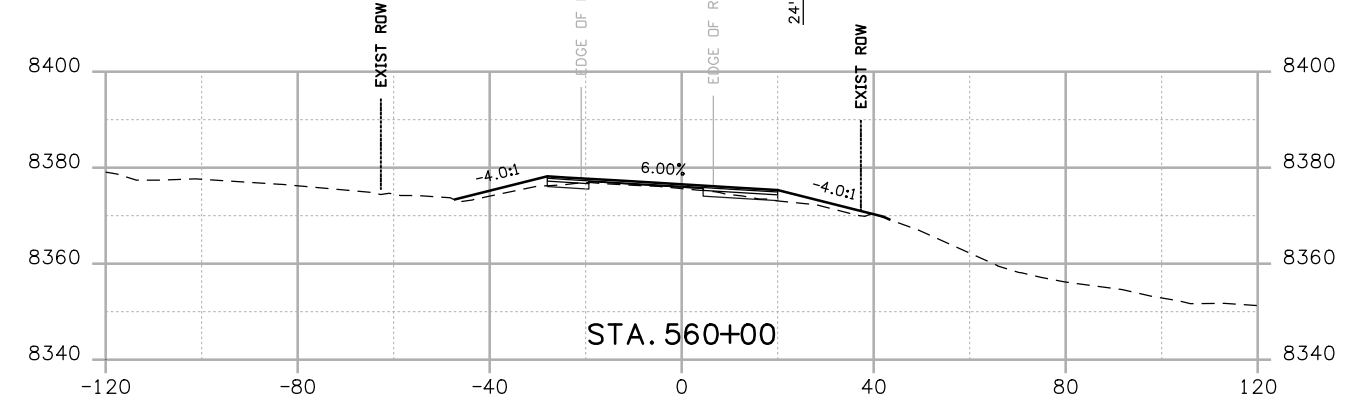
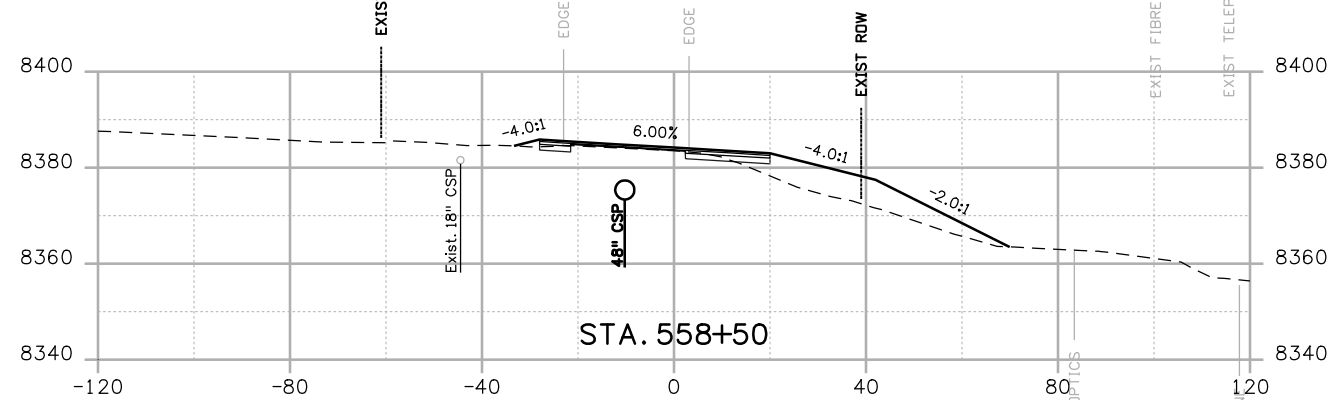
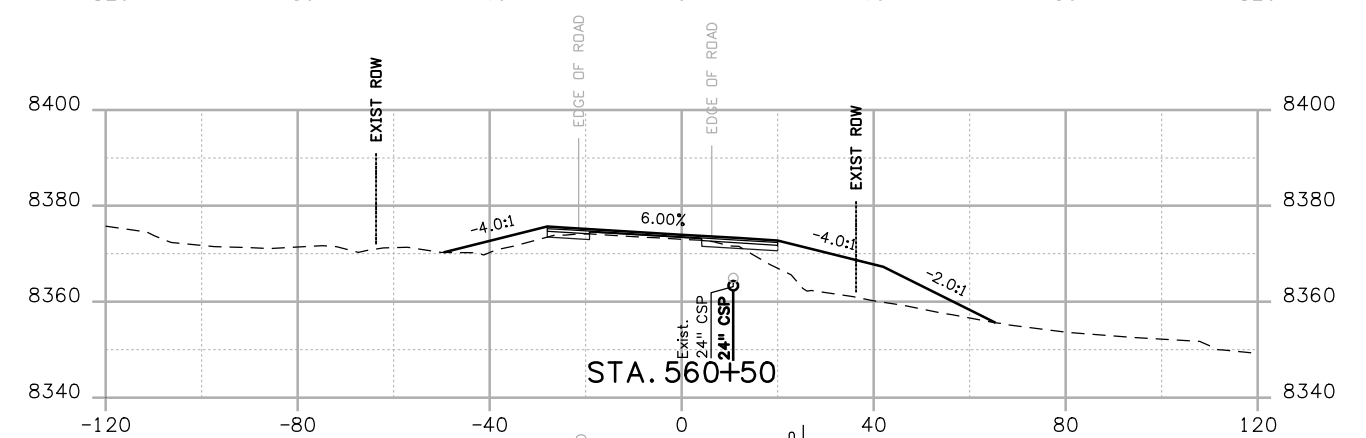
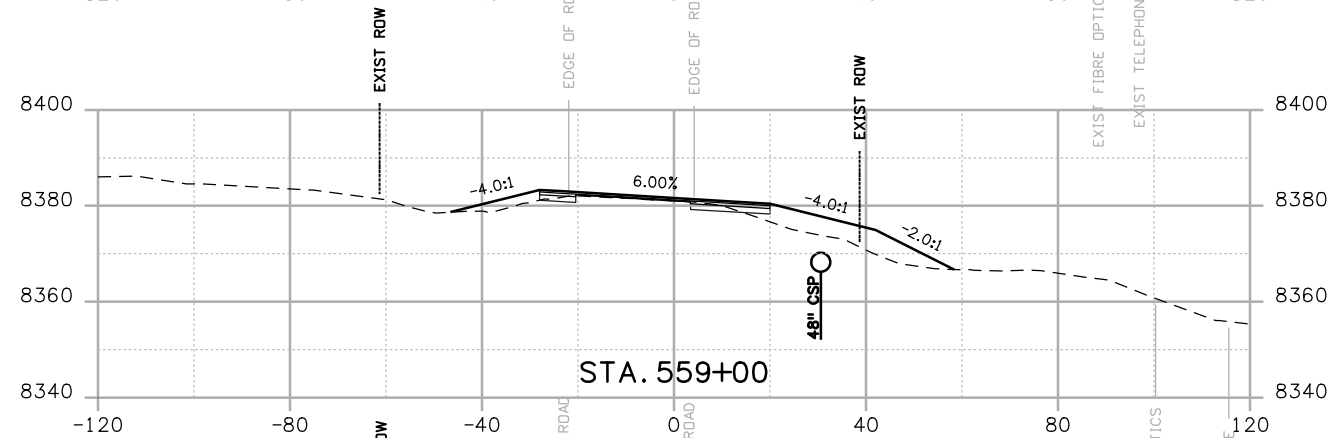
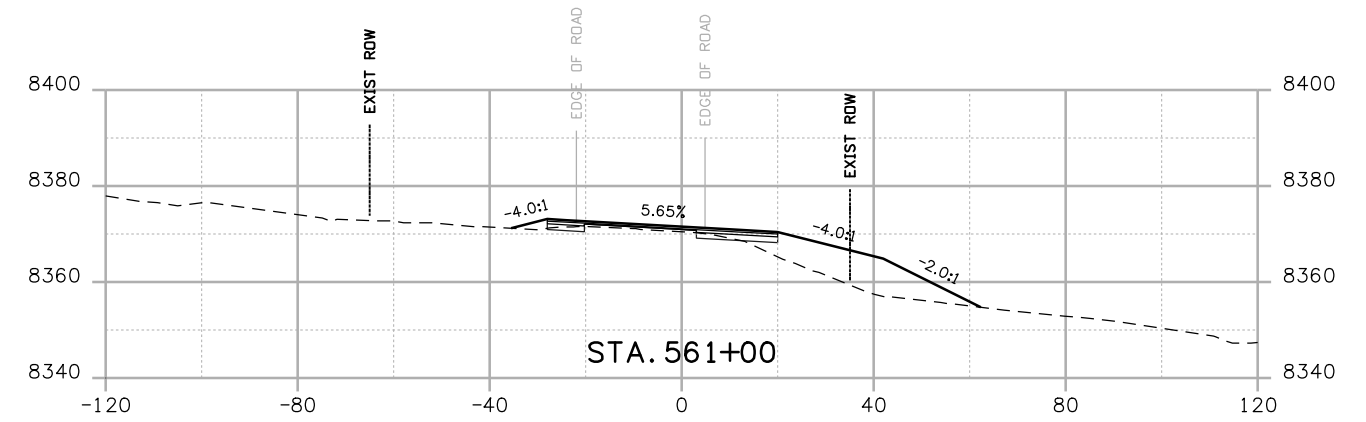
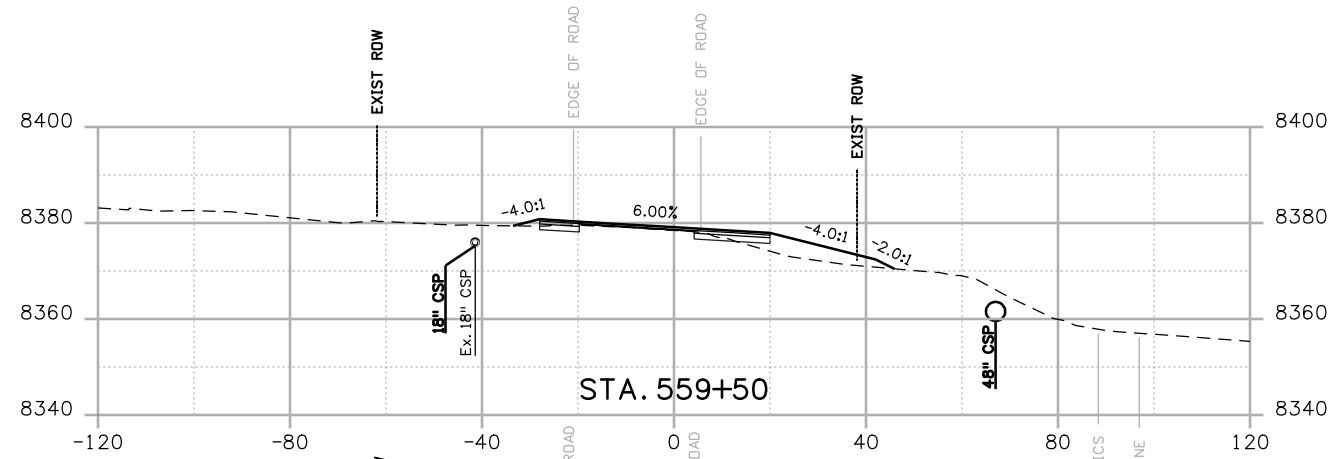
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
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 Phone: 972-249-5285 FAX: 970-249-6018  
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As Constructed  
 No Revisions:  
 Revised:  
 Void:

**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 23 of 36

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 141



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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CROSS SECTIONS

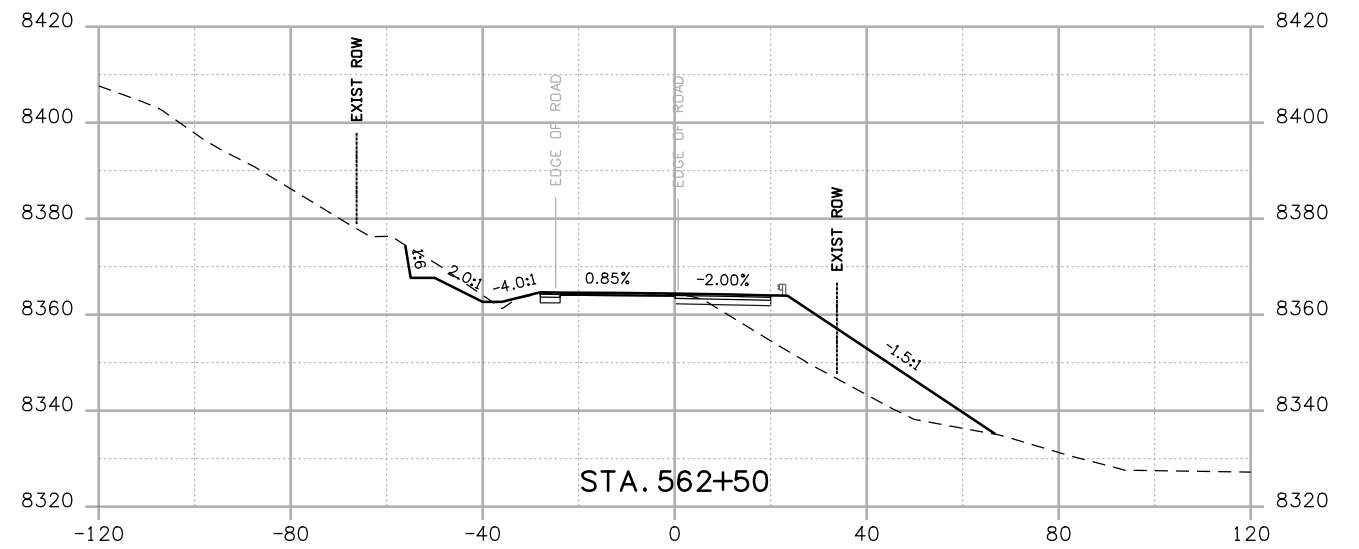
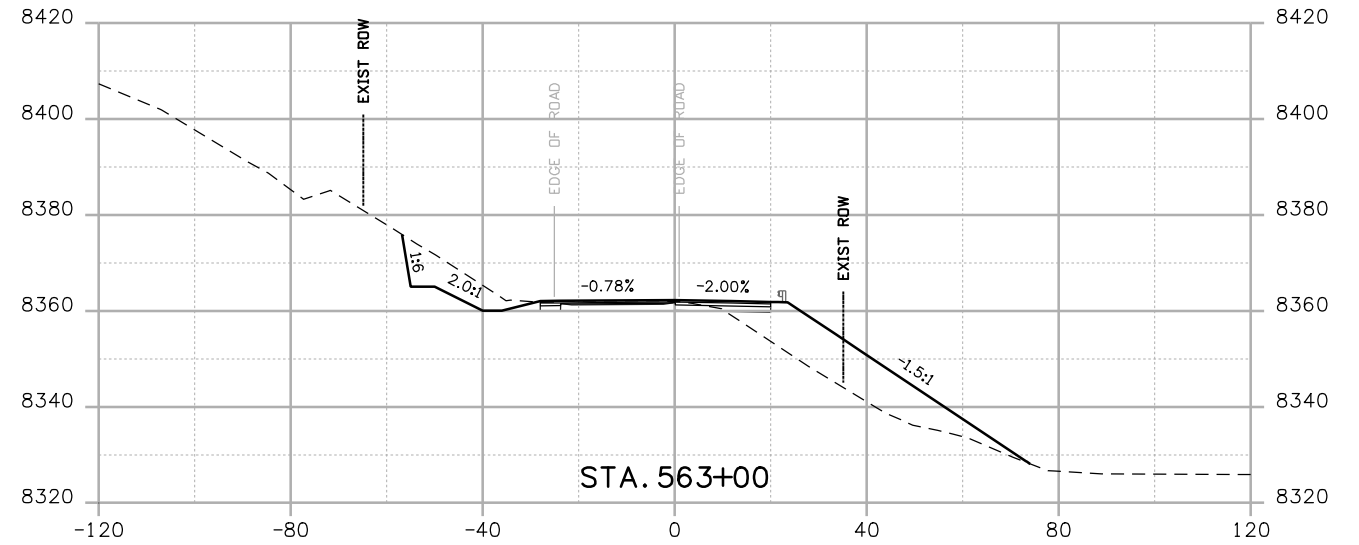
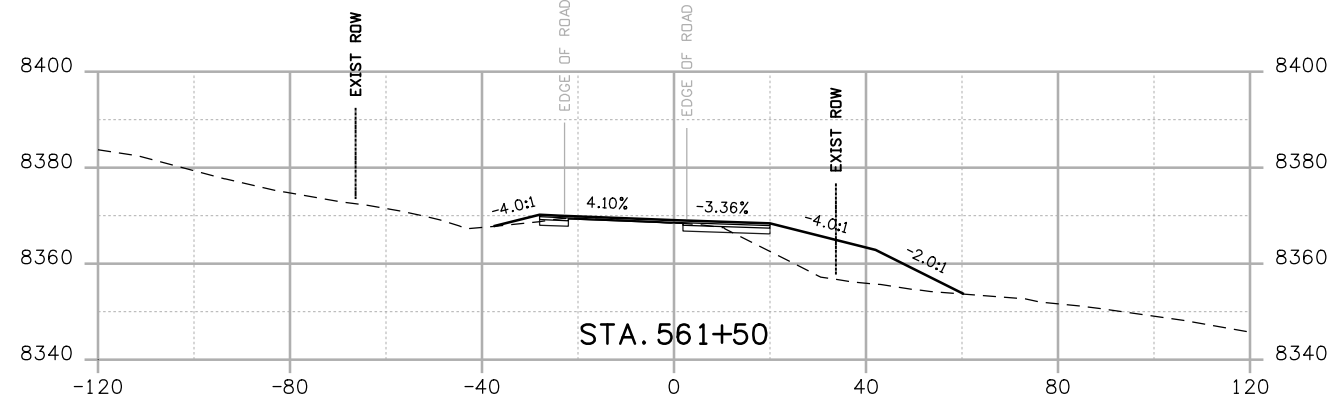
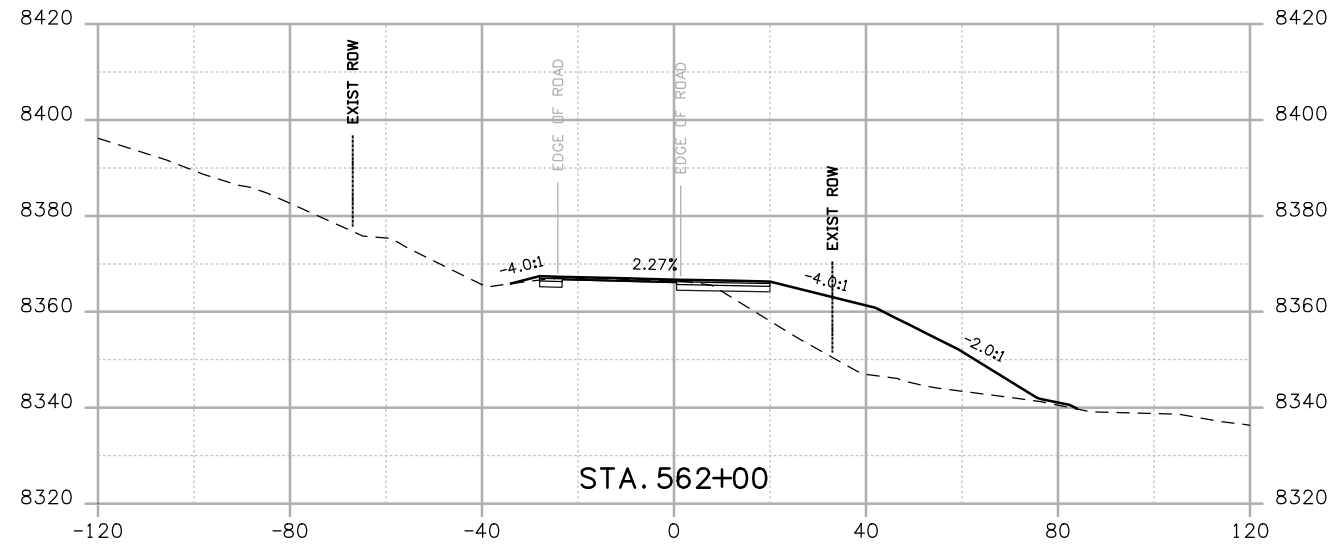
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Sheet Subset: X-SECTIONS	Subset Sheets: 24 of 36

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NH 0501-046

14933

Sheet Number 142



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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**CROSS SECTIONS**

Designer:

NJL

Detailer:

MAM

Sheet Subset: X-SECTIONS

Subset Sheets: 25 of 36

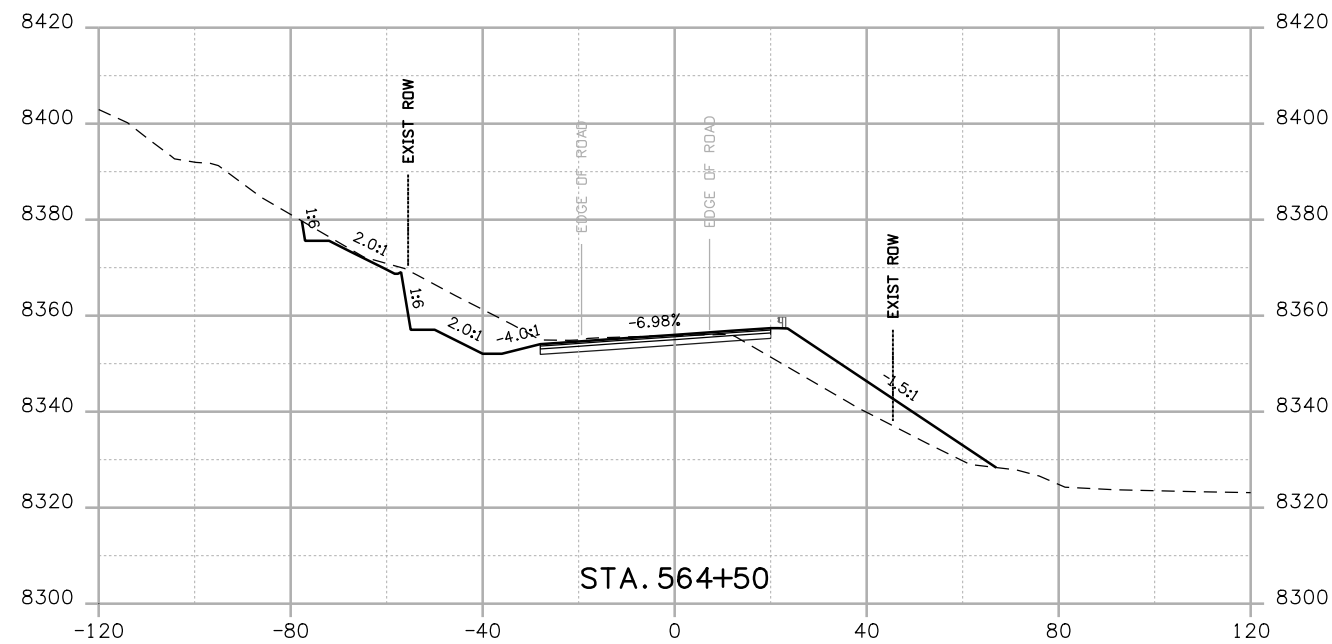
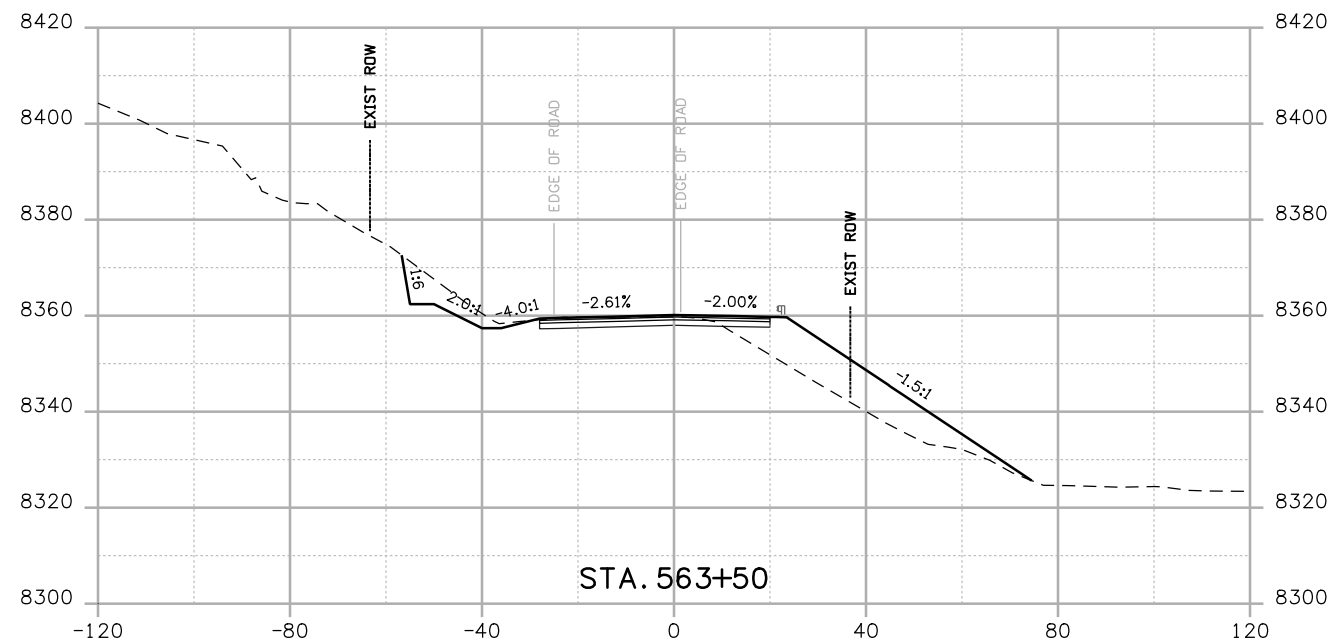
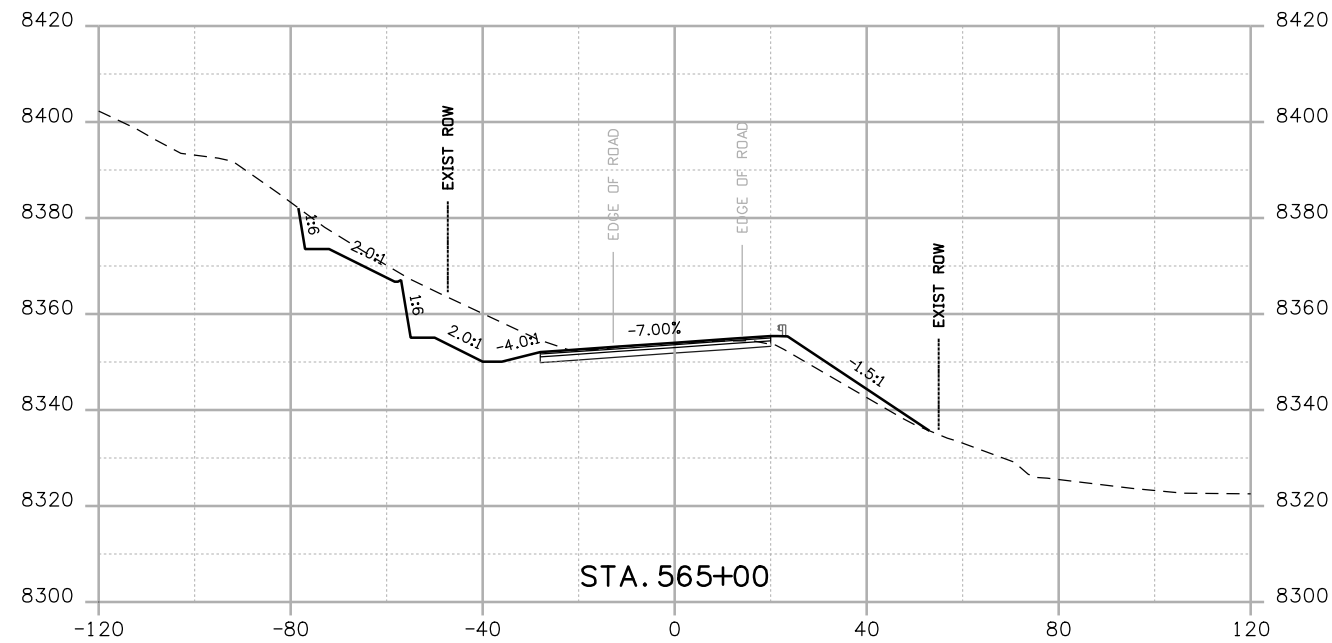
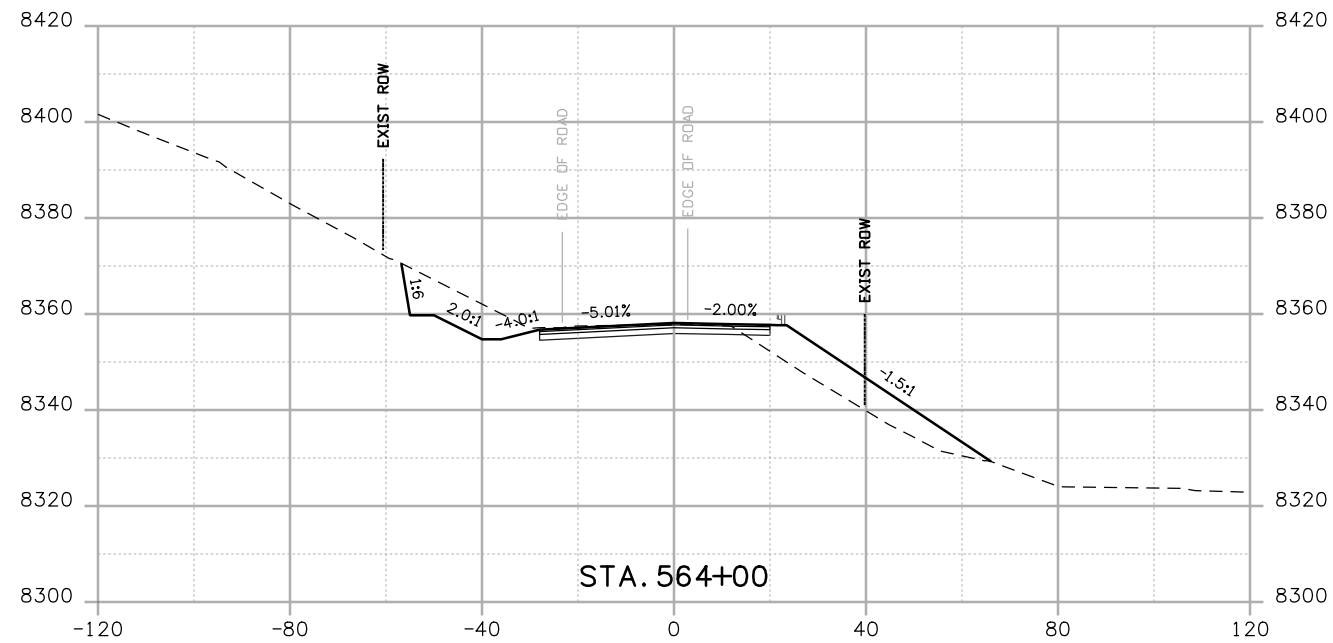
**Project No./Code**

NH 0501-046

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Sheet Number 143





Print Date: 3/26/2010

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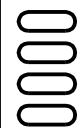
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Unit Leader Information

Unit Leader Initials

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Void:

**CROSS SECTIONS**

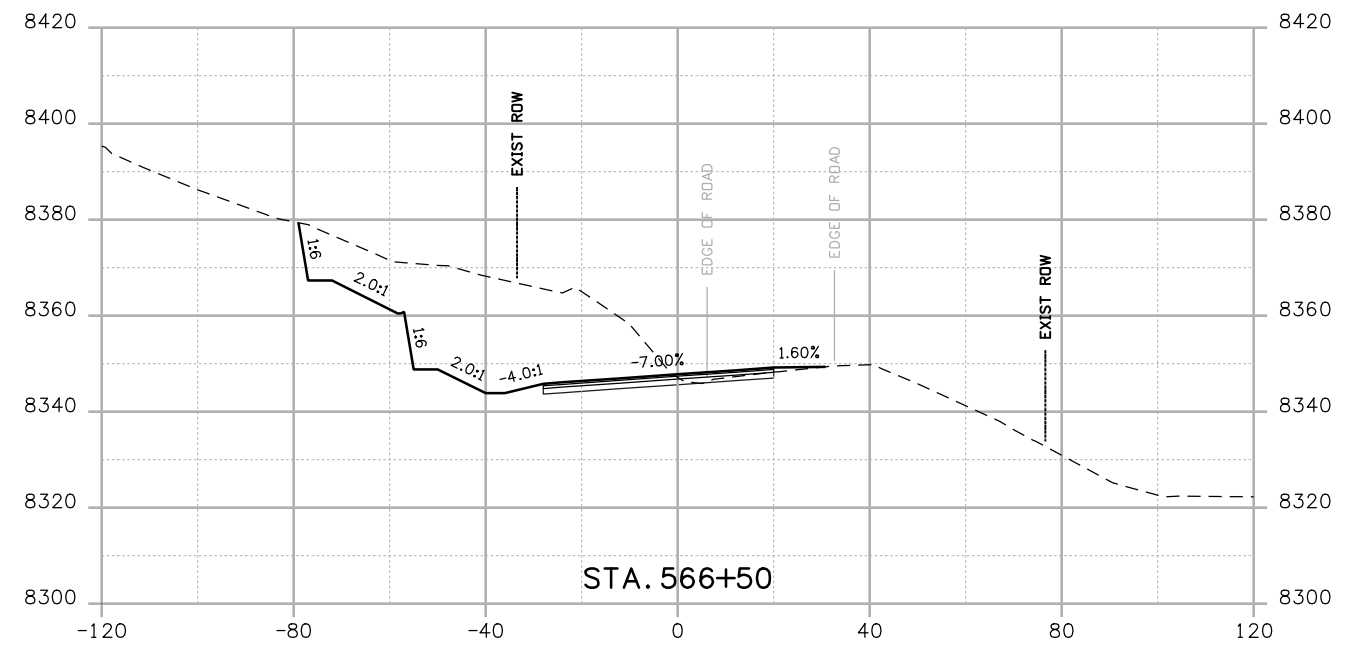
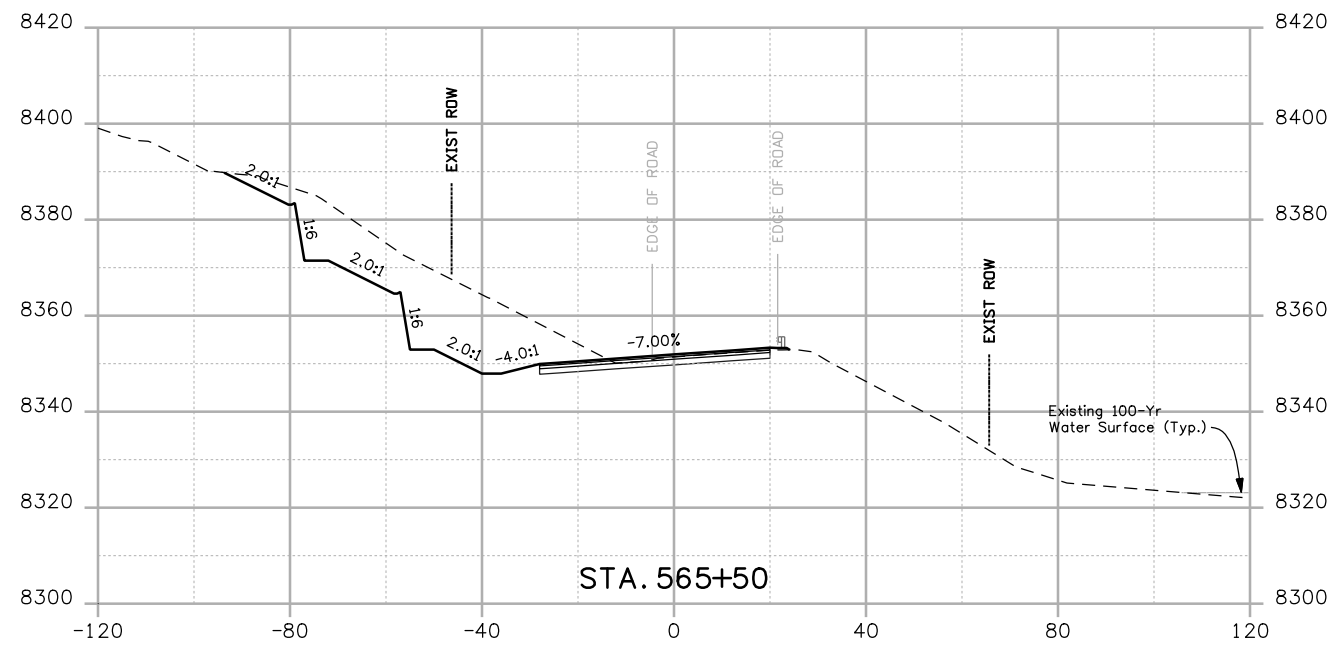
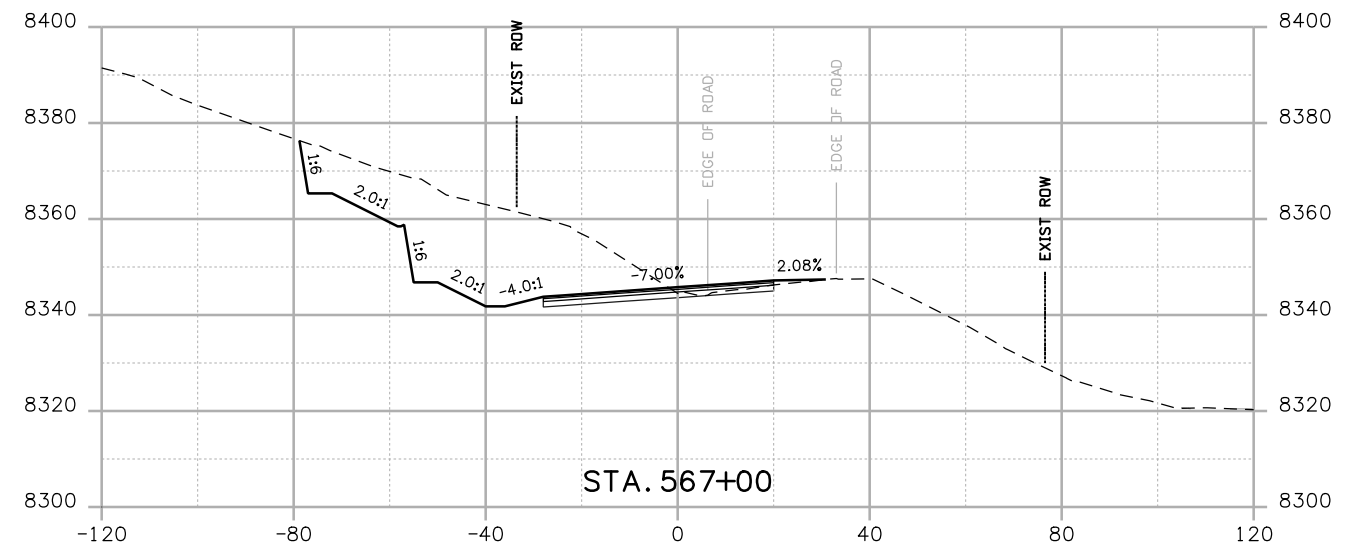
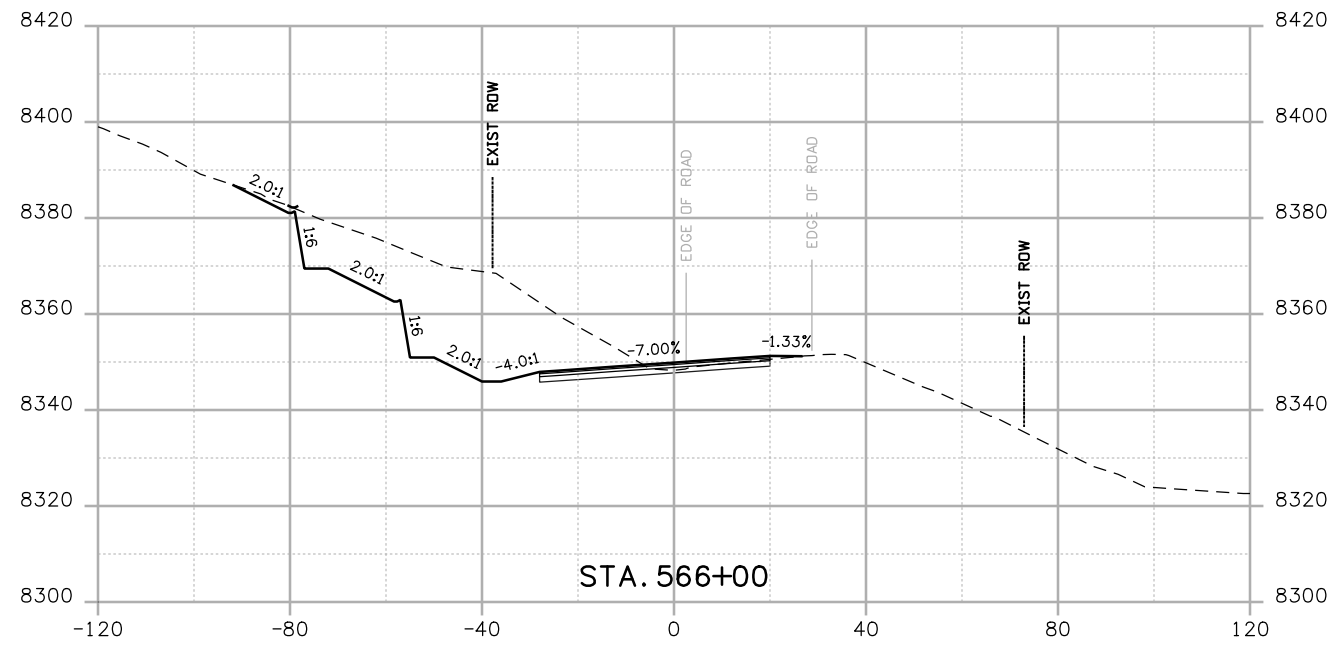
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 Detailer: MAM  
 Sheet Subset: X-SECTIONS  
 Subset Sheets: 26 of 36

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Sheet Number 144



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections02.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
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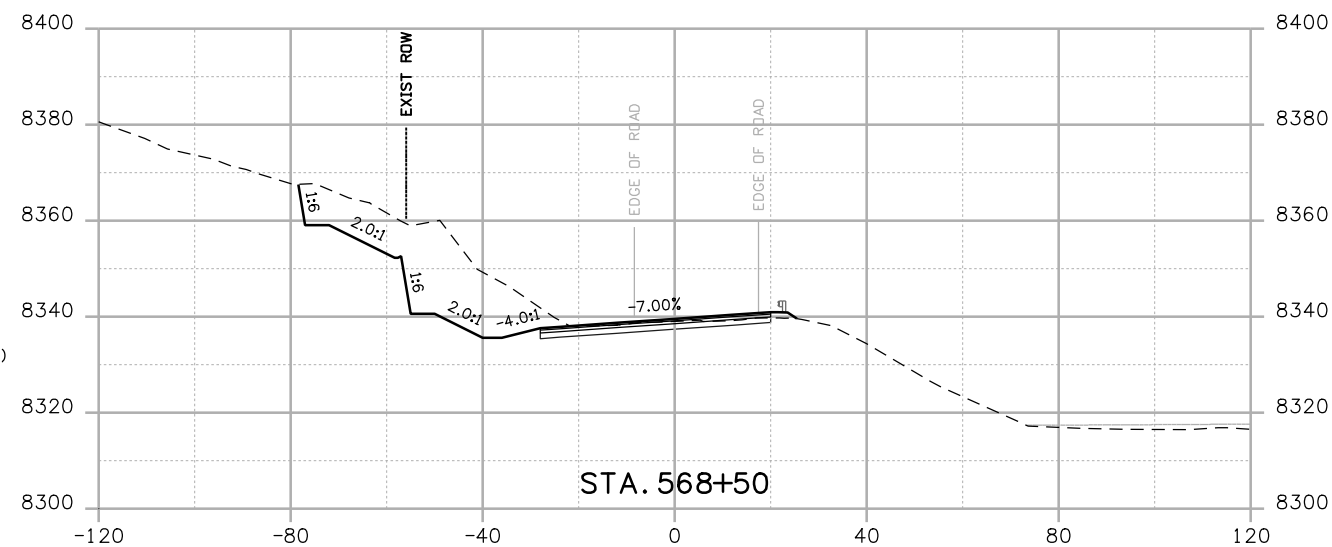
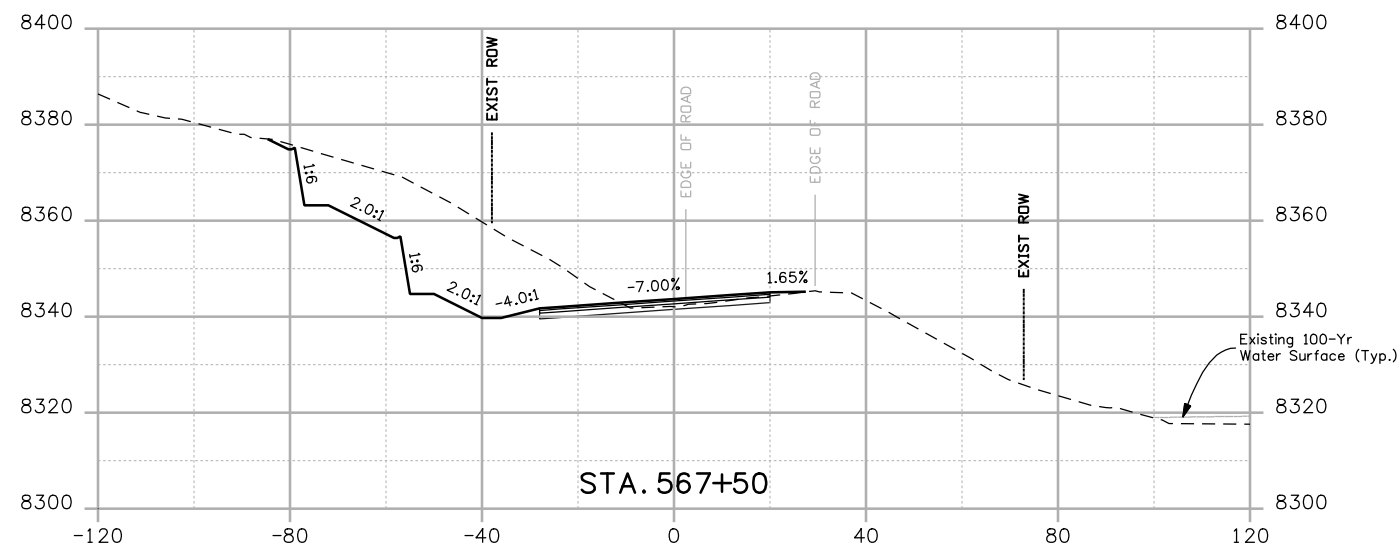
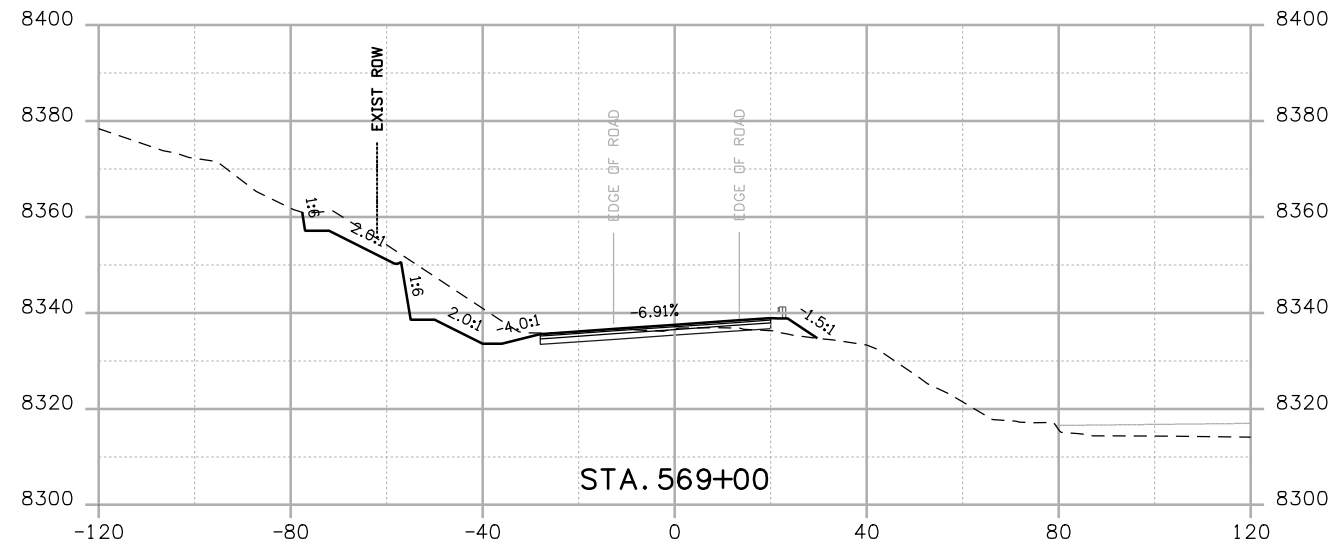
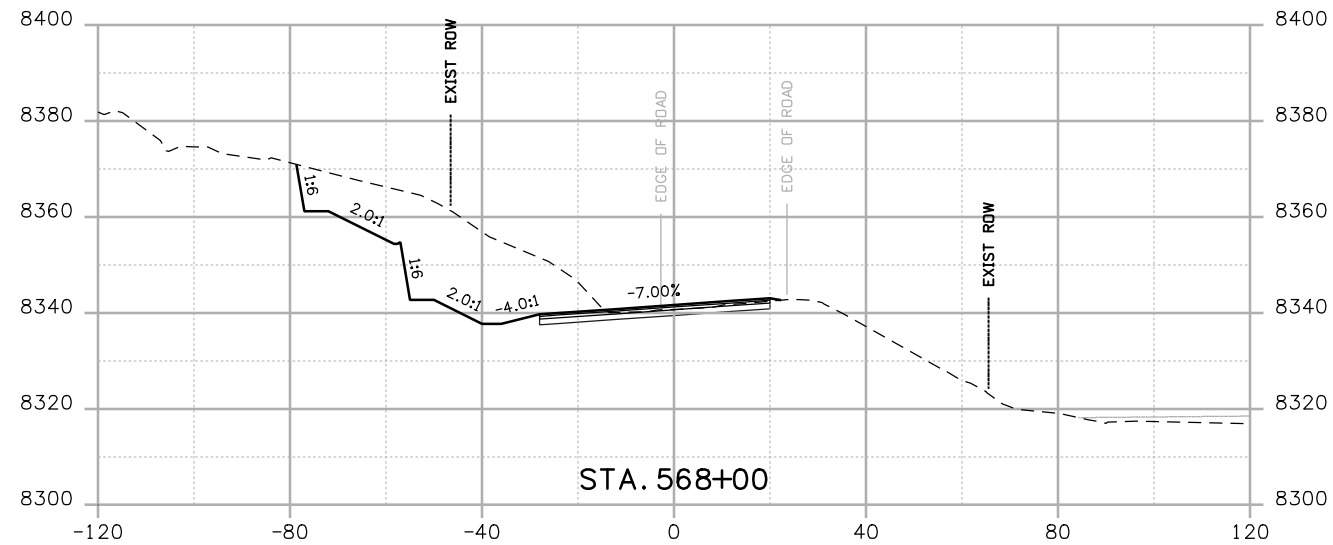
Sheet Revisions		
Date:	Comments	Init.

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CROSS SECTIONS  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS      Subset Sheets: 27 of 36

Project No./Code  
 NH 0501-046  
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 Sheet Number 145



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

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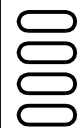
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Unit Leader Information

Unit Leader Initials

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No Revisions:

Revised:

Void:

**CROSS SECTIONS**

Designer:

NJL

Detailer:

MAM

Sheet Subset: X-SECTIONS

Subset Sheets: 28 of 36

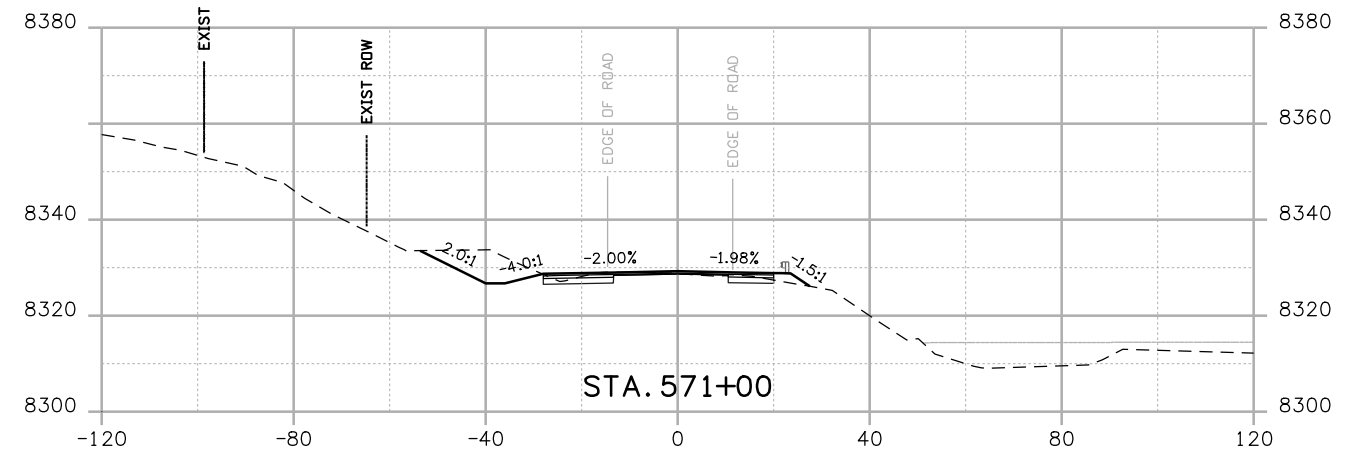
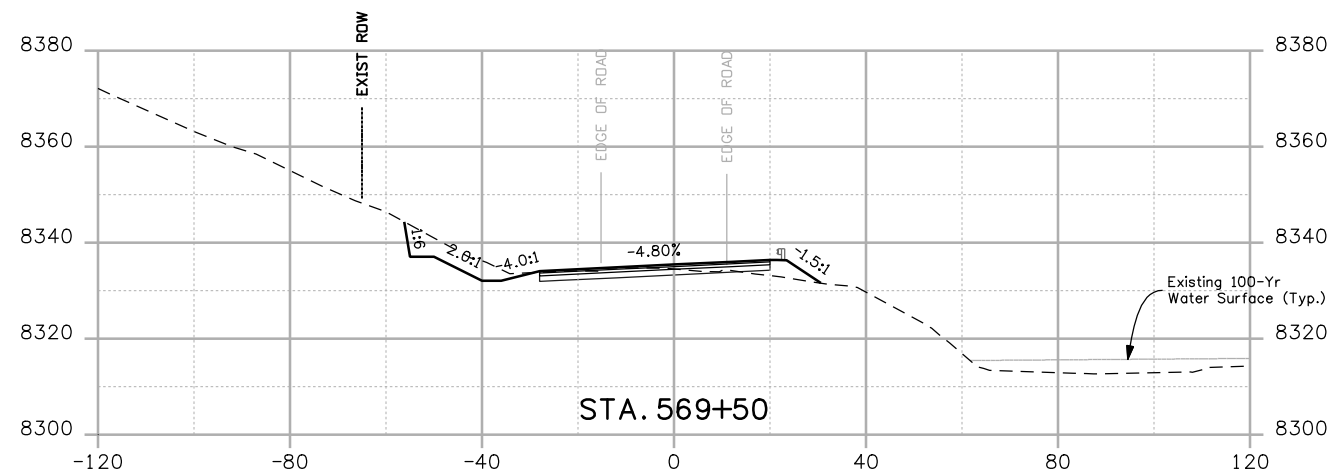
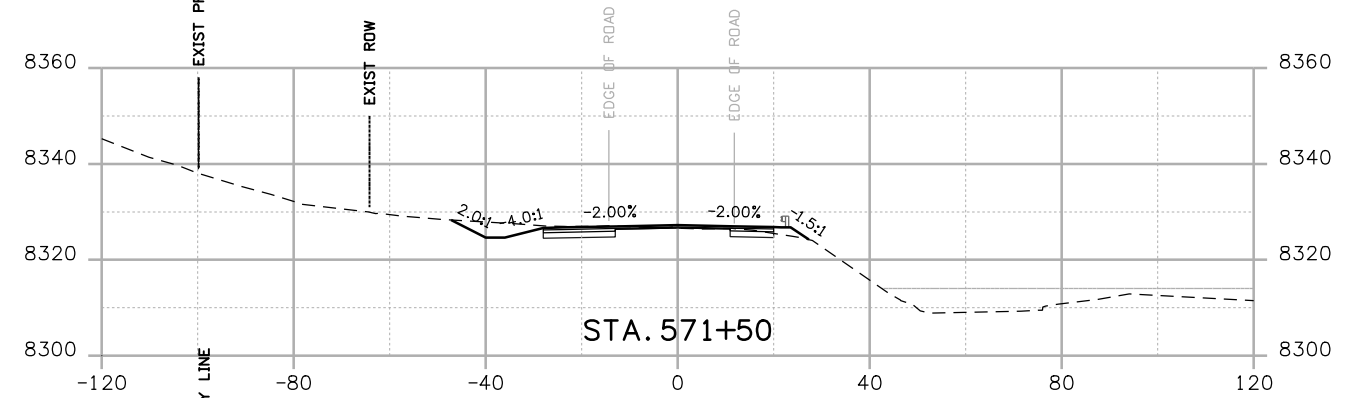
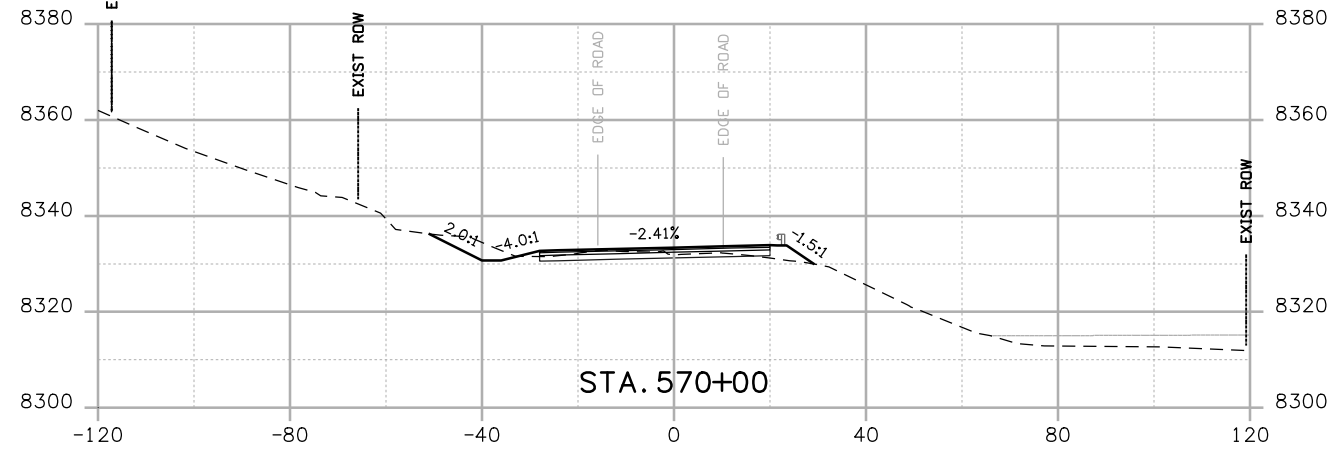
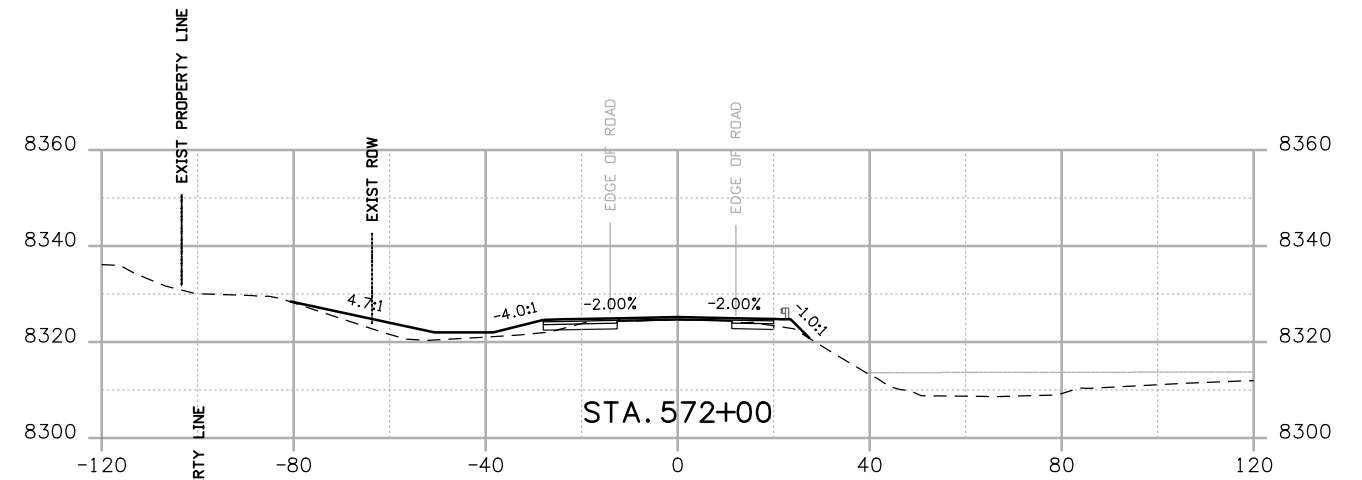
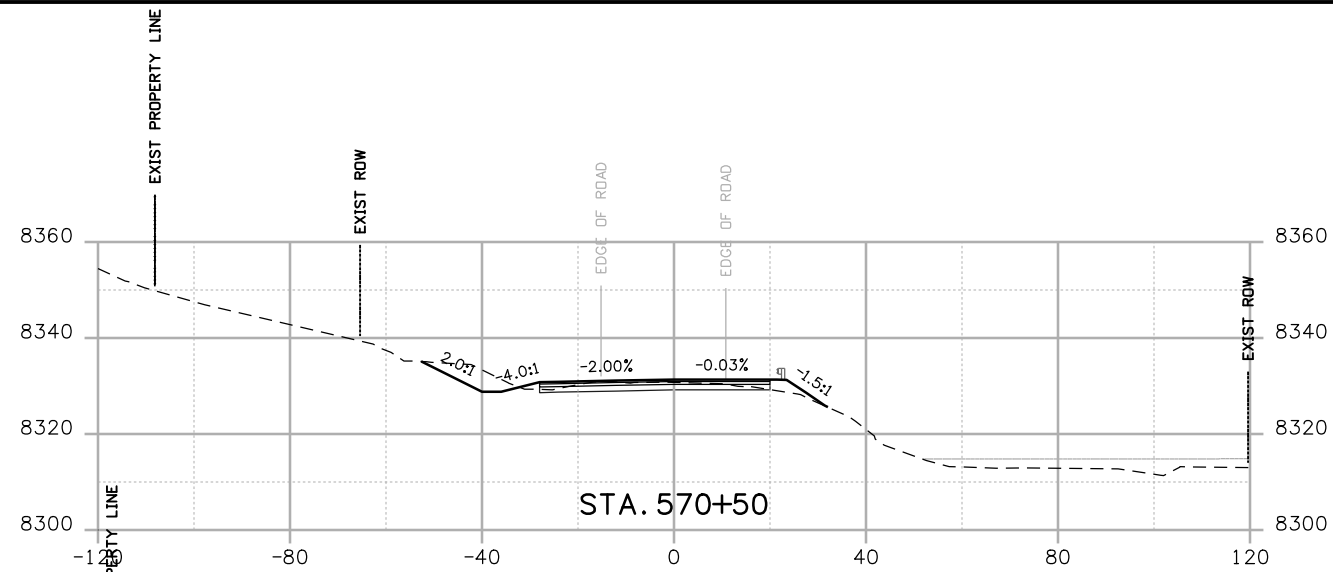
**Project No./Code**

NH 0501-046

14933

Sheet Number

146



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

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**CROSS SECTIONS**

Designer:

NJL

Detailer:

MAM

Sheet Subset: X-SECTIONS

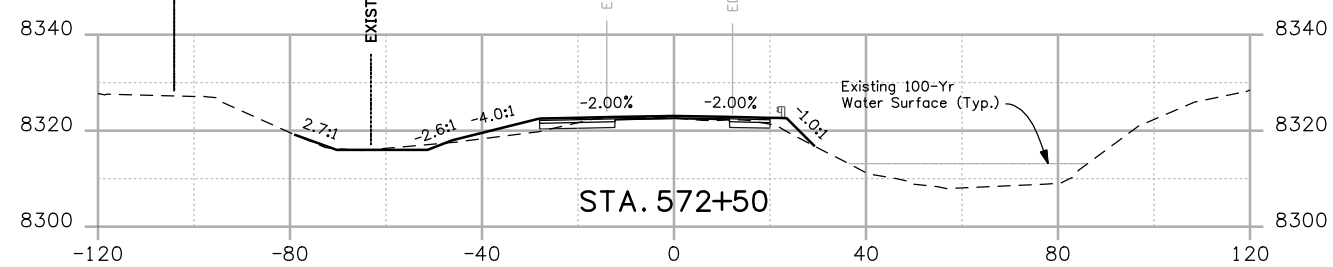
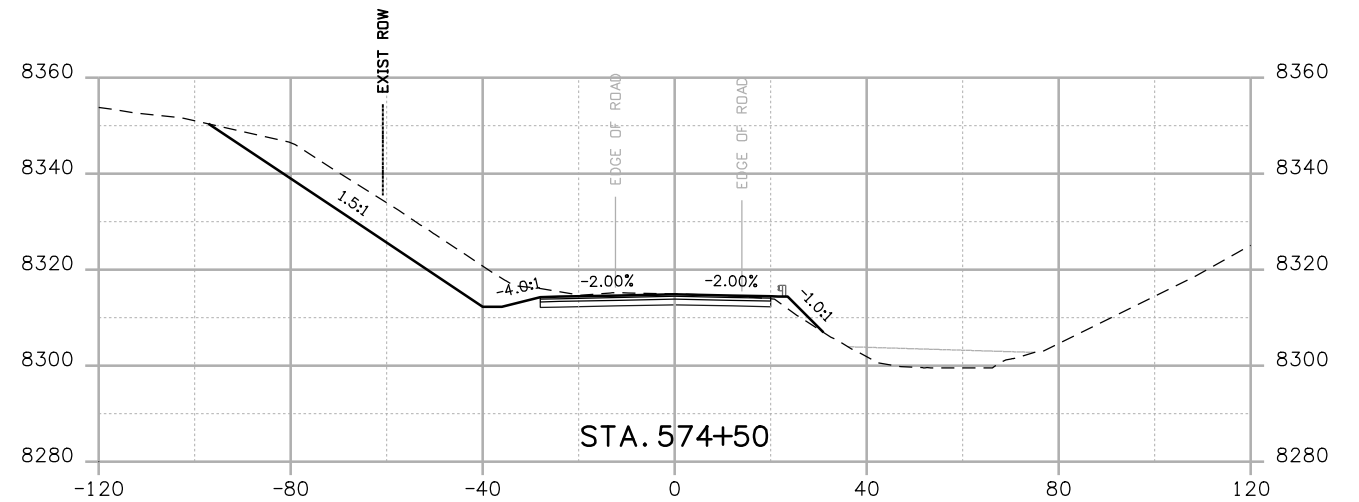
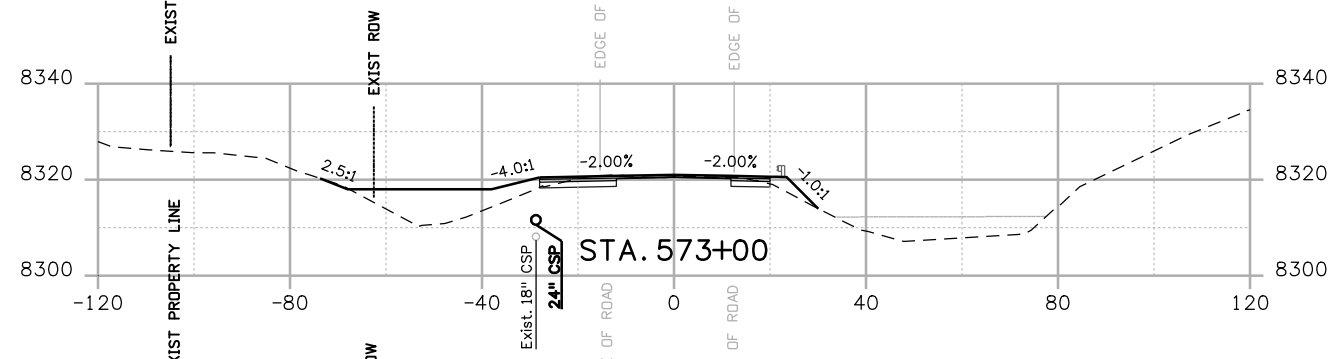
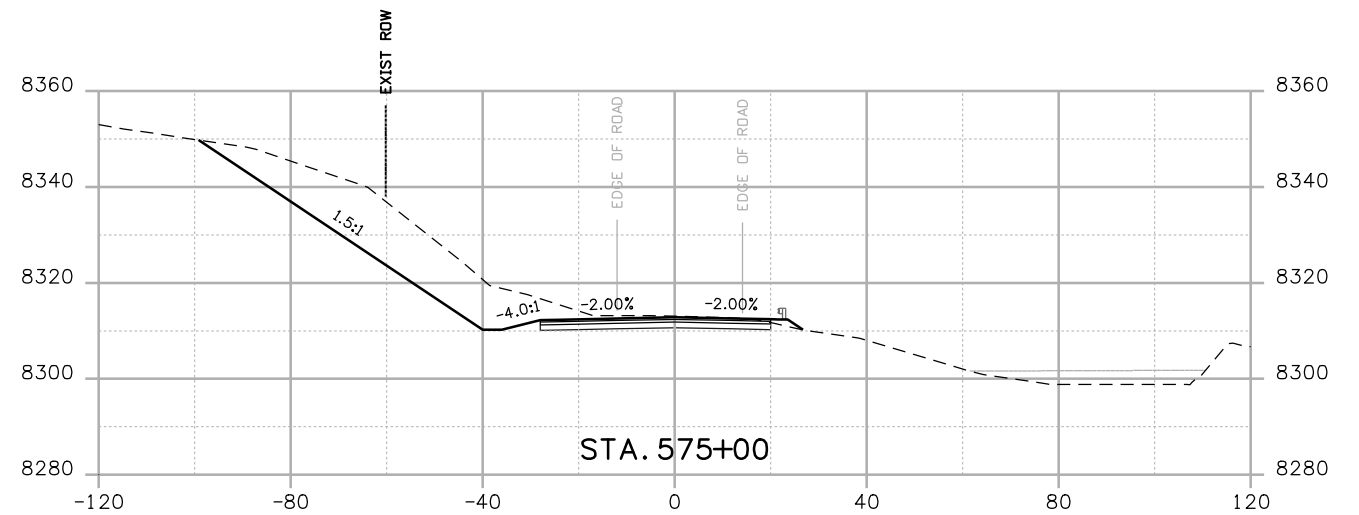
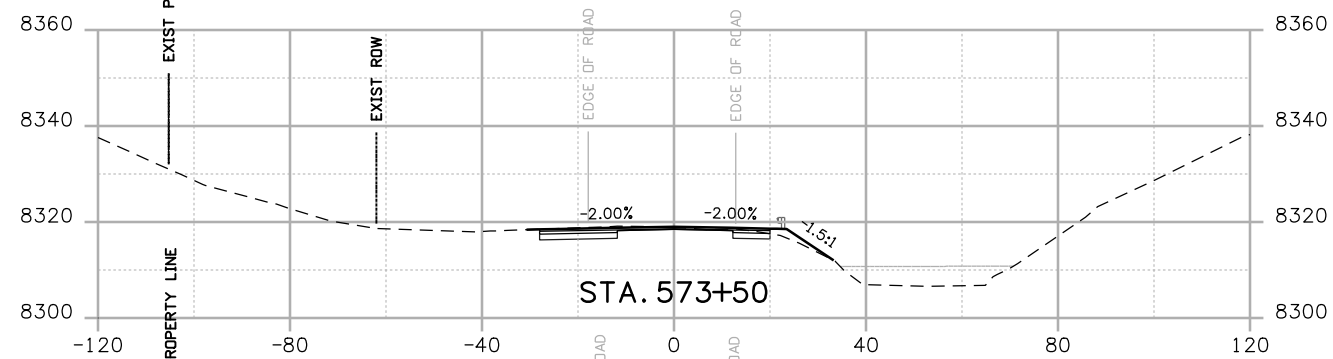
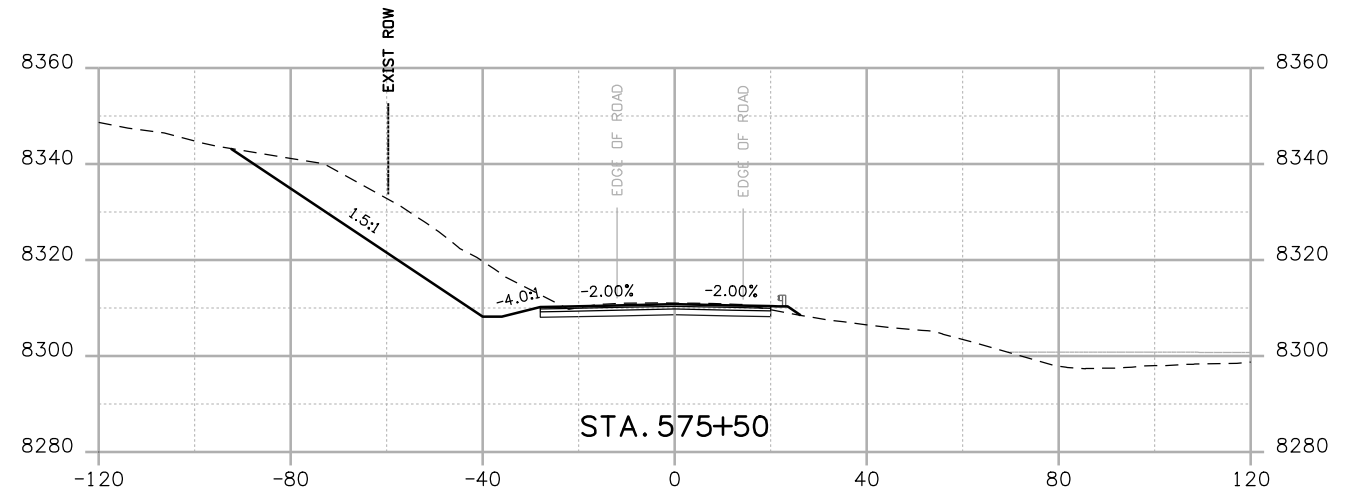
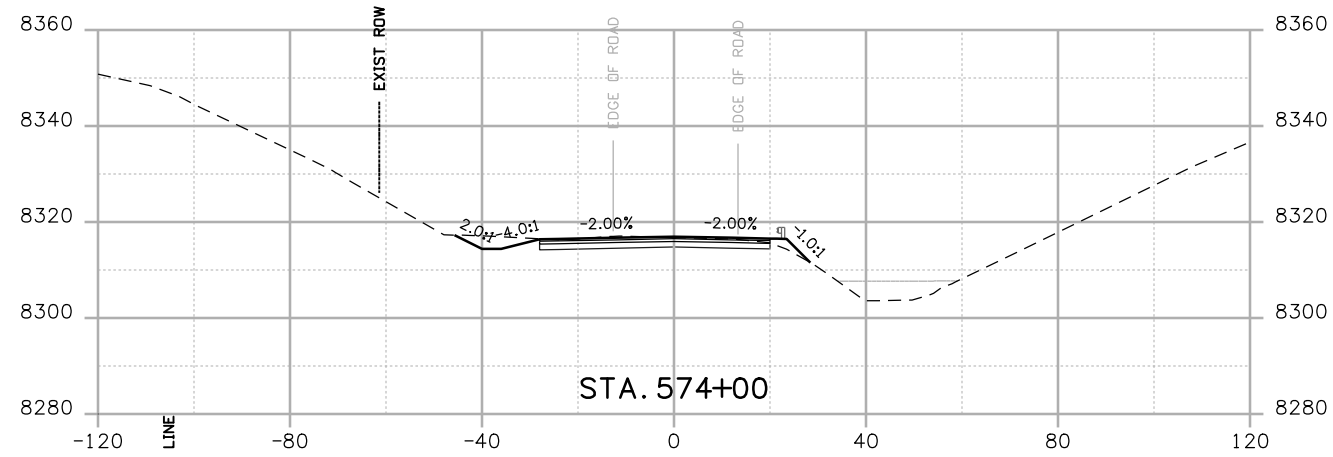
Subset Sheets: 29 of 36

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14933

Sheet Number 147



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

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 CONSULTING ENGINEERS  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

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Region 3

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No Revisions:

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Void:

**CROSS SECTIONS**

Designer:

NJL

Detailer:

MAM

Sheet Subset: X-SECTIONS

Subset Sheets: 30 of 36

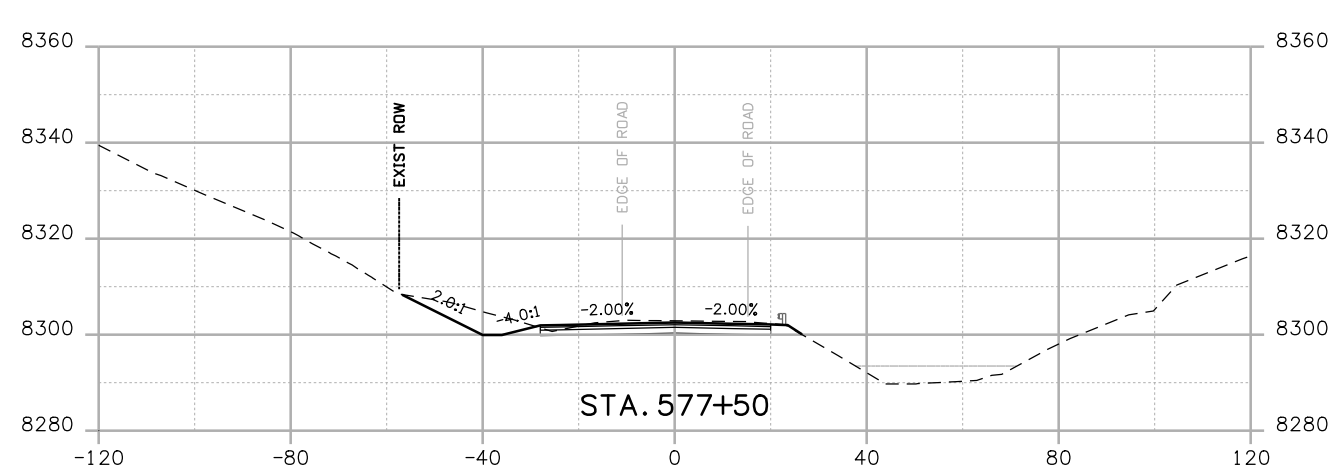
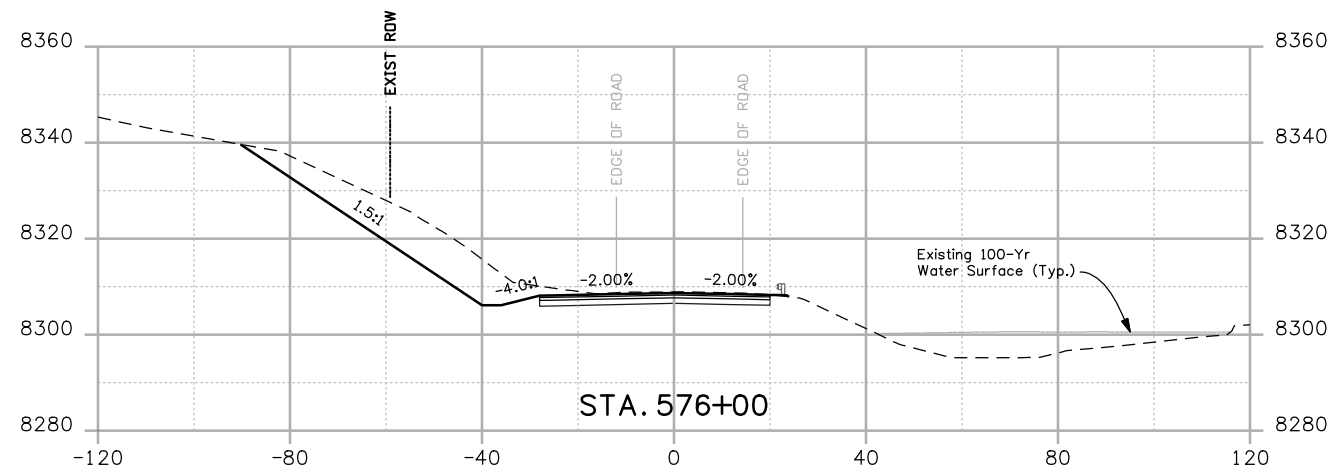
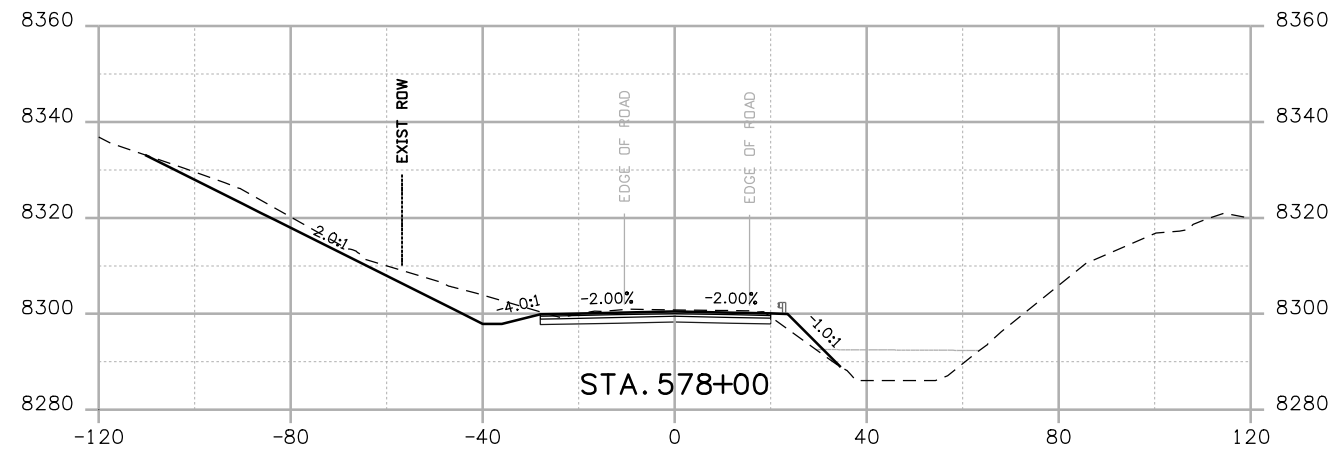
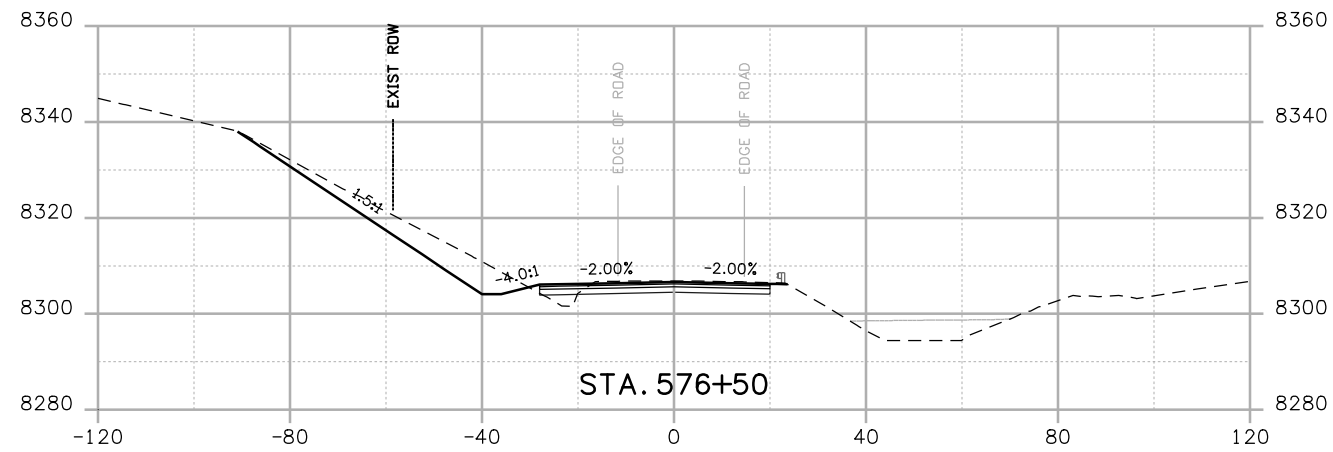
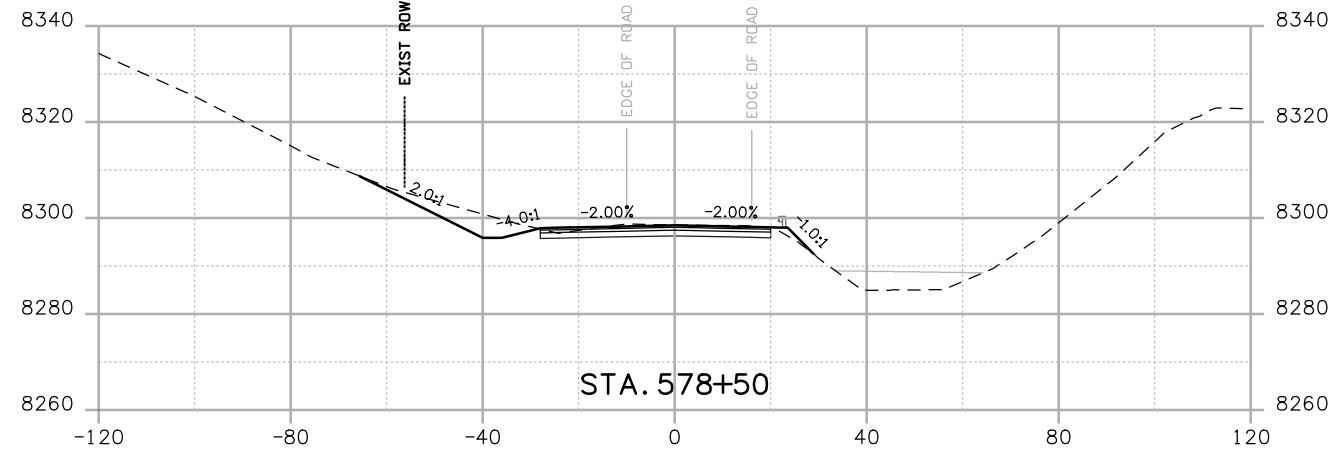
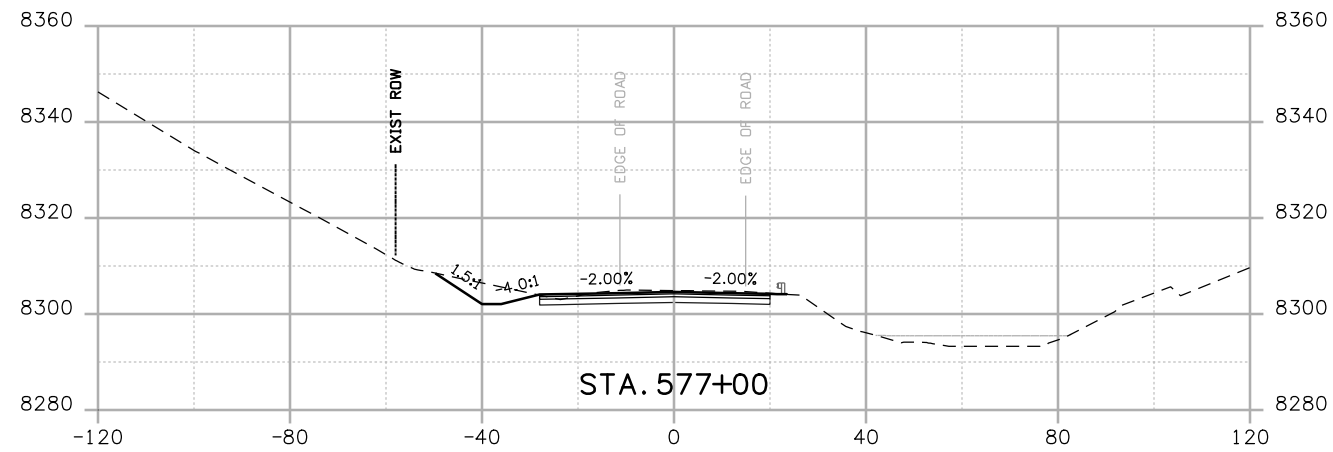
**Project No./Code**

NH 0501-046

14933

Sheet Number

148



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections02.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

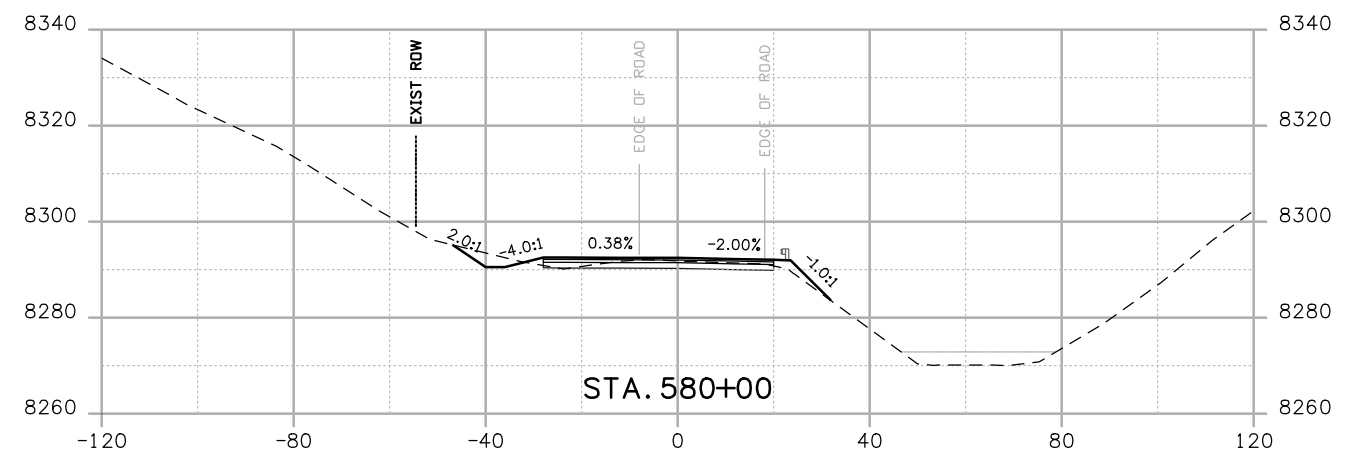
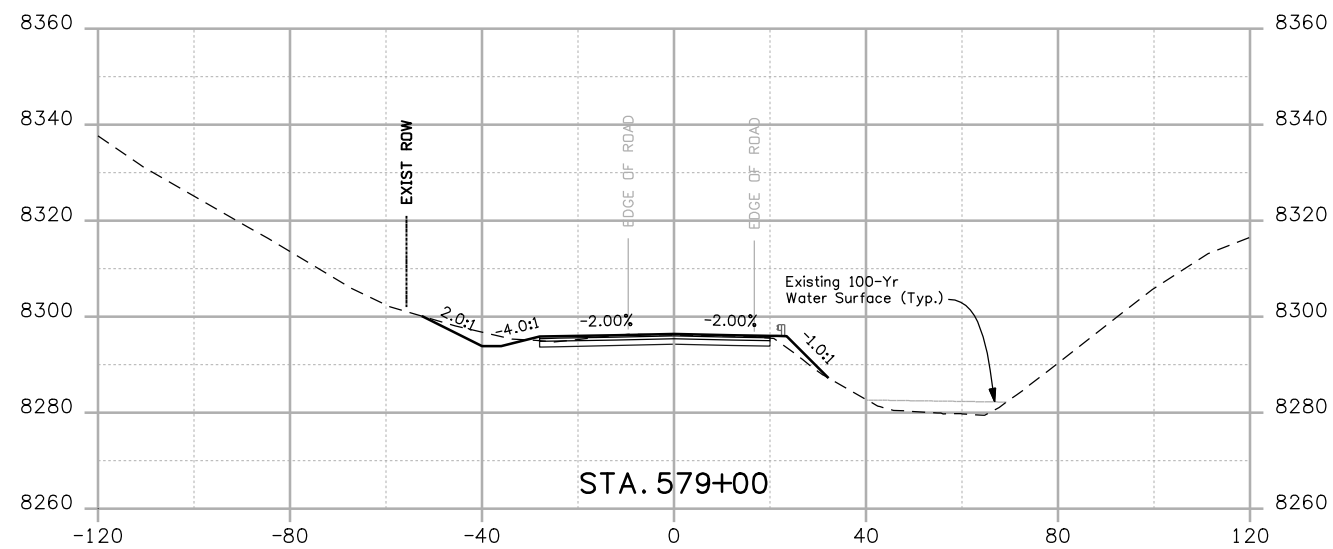
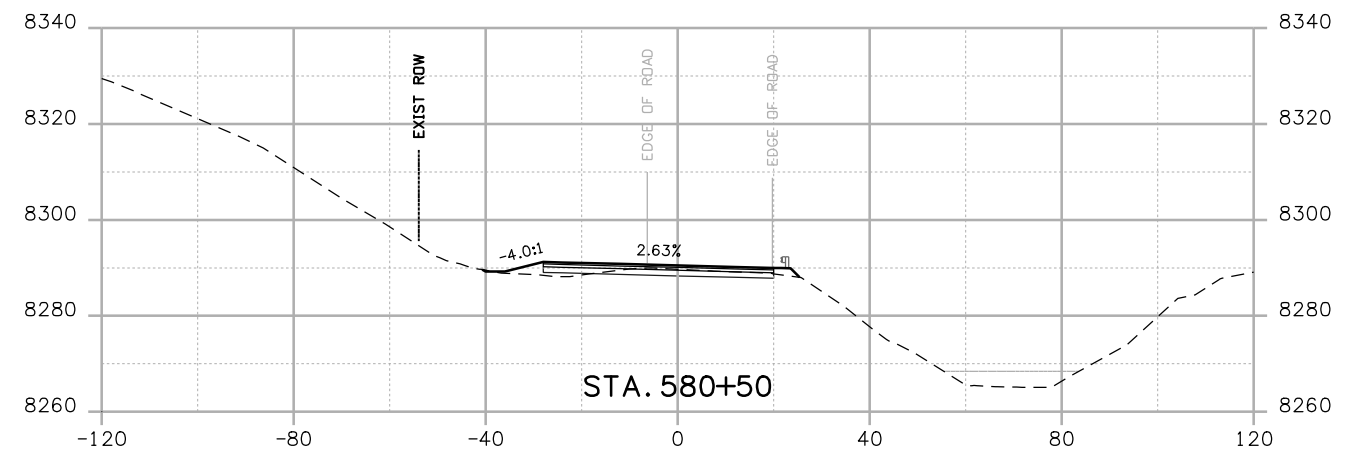
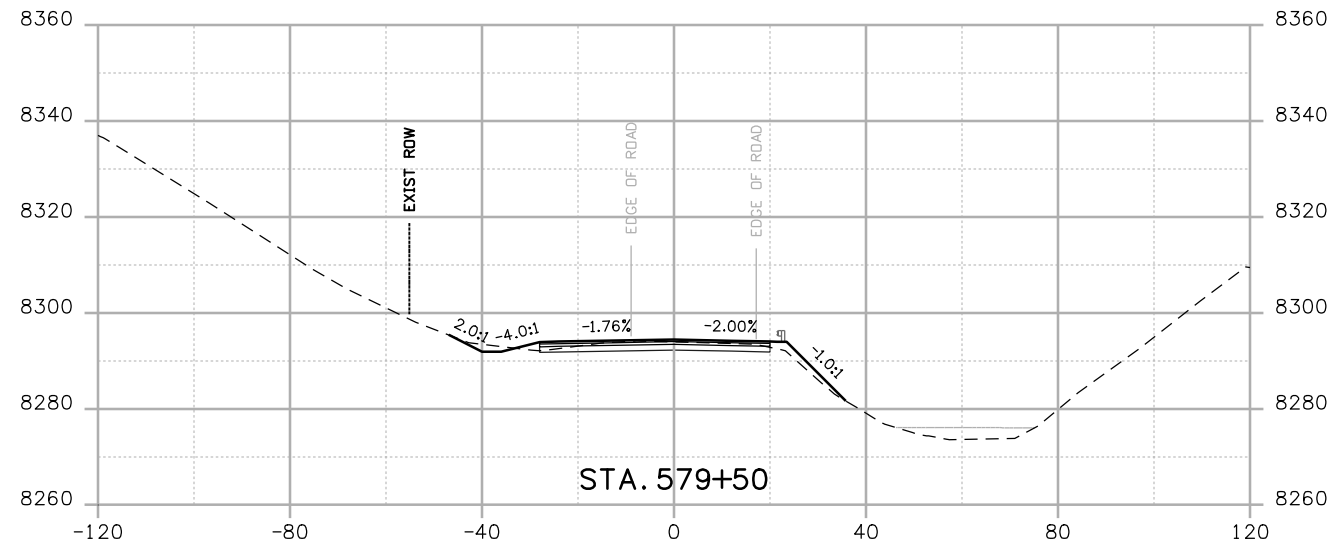
Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3**      **RBA**

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS      Subset Sheets: 31 of 36


**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **149**





Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections02.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections Lakewood, CO 80226  
 303-988-4939

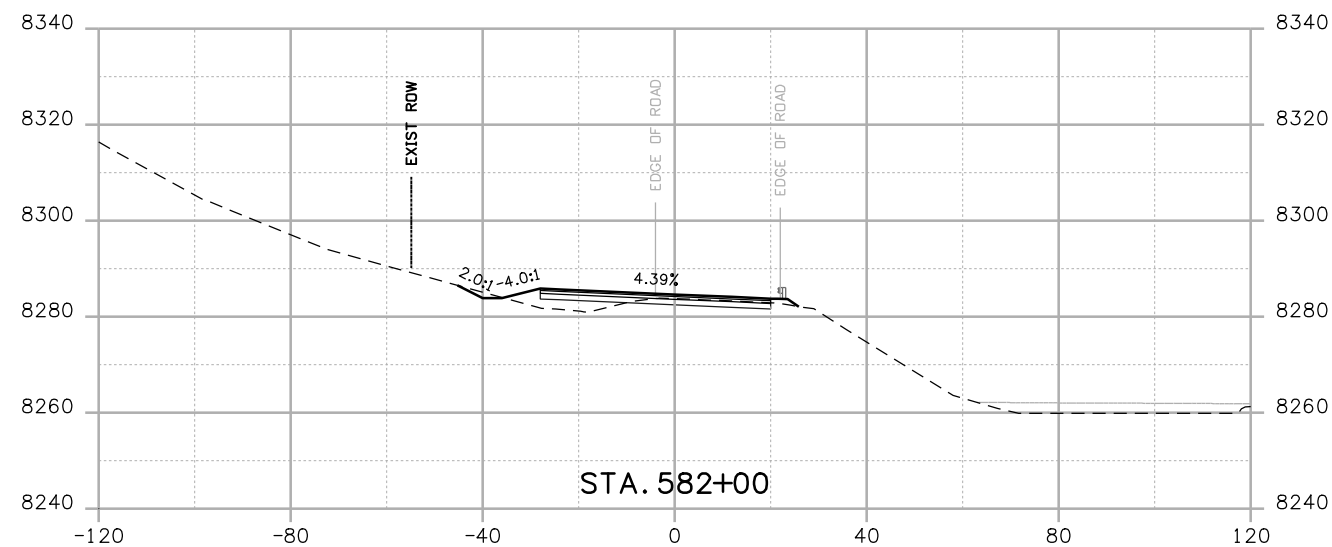
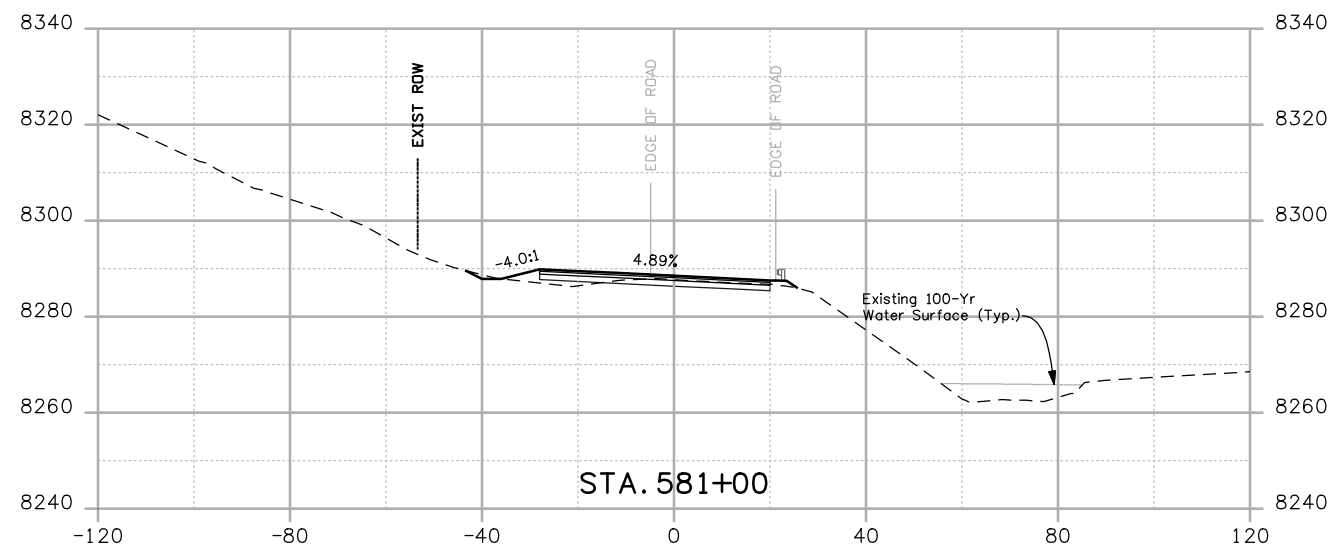
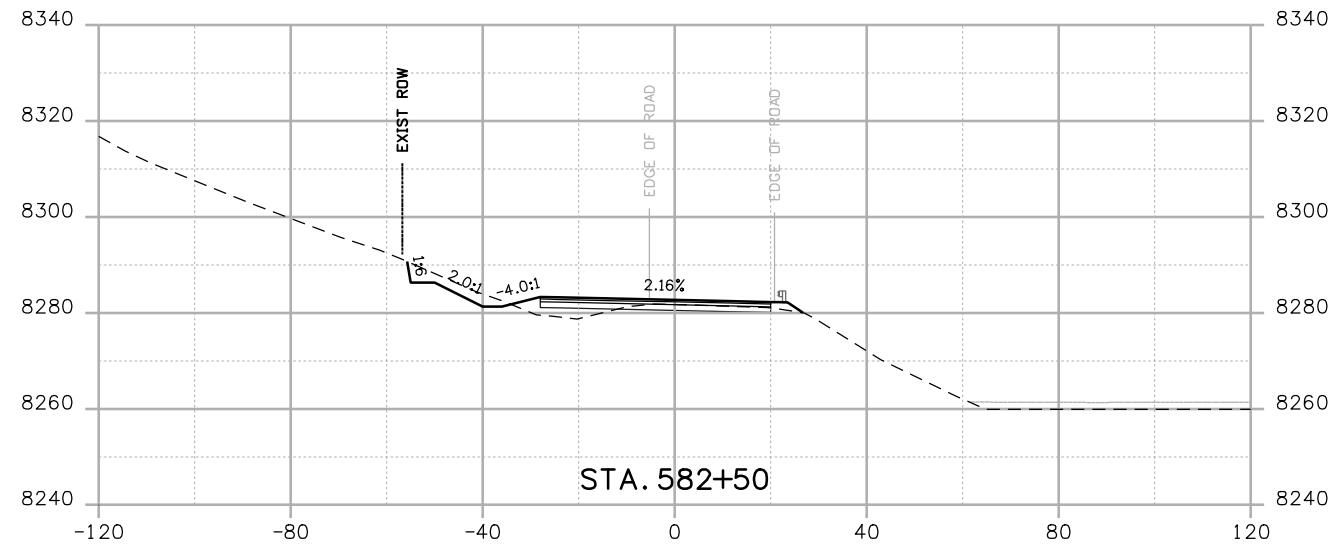
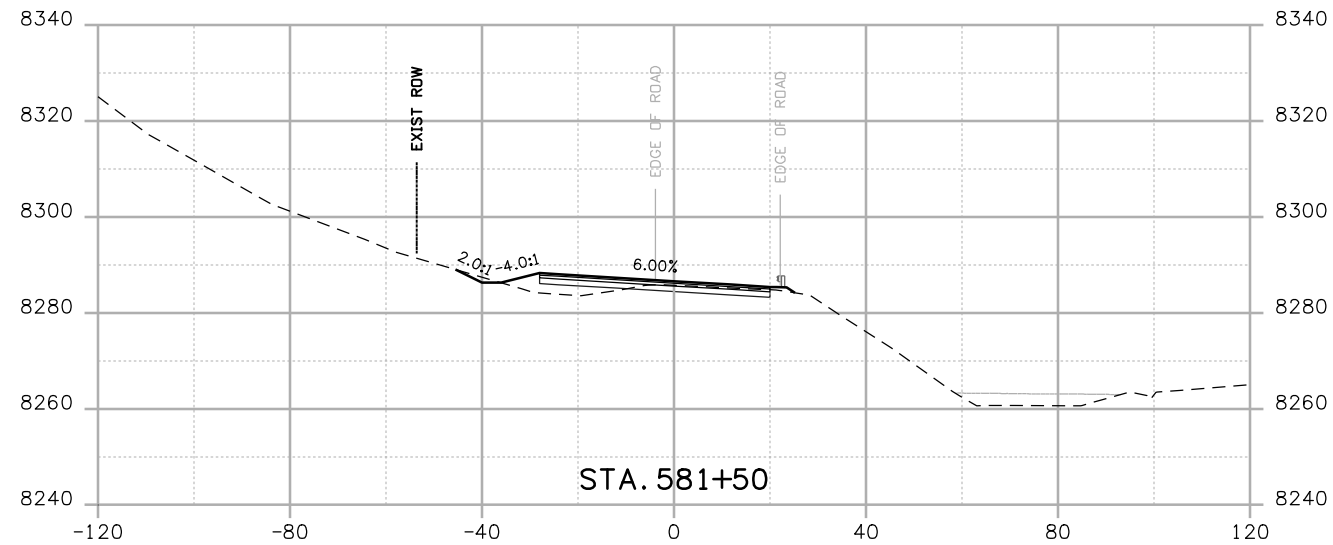
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3**      **RBA**

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS      Subset Sheets: 32 of 36

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **150**



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
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**Sheet Revisions**

Date:	Comments	Init.

Colorado Department of Transportation



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RBA

**As Constructed**

No Revisions:

Revised:

Void:

**CROSS SECTIONS**

Designer:

NJL

Detailer:

MAM

Sheet Subset: X-SECTIONS

Subset Sheets: 33 of 36

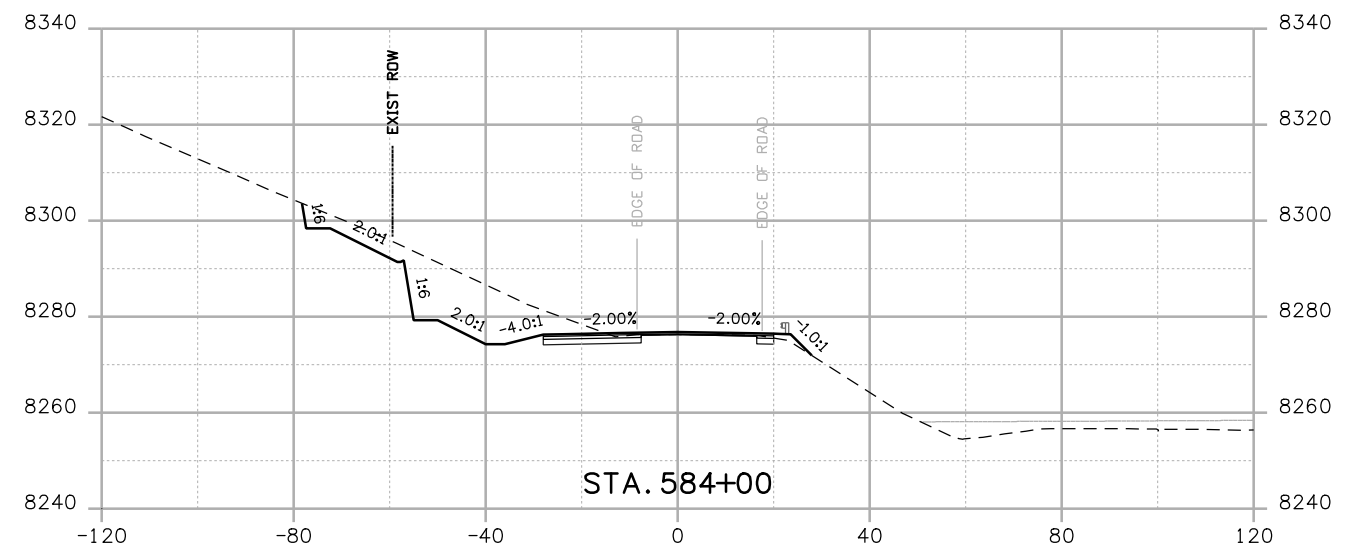
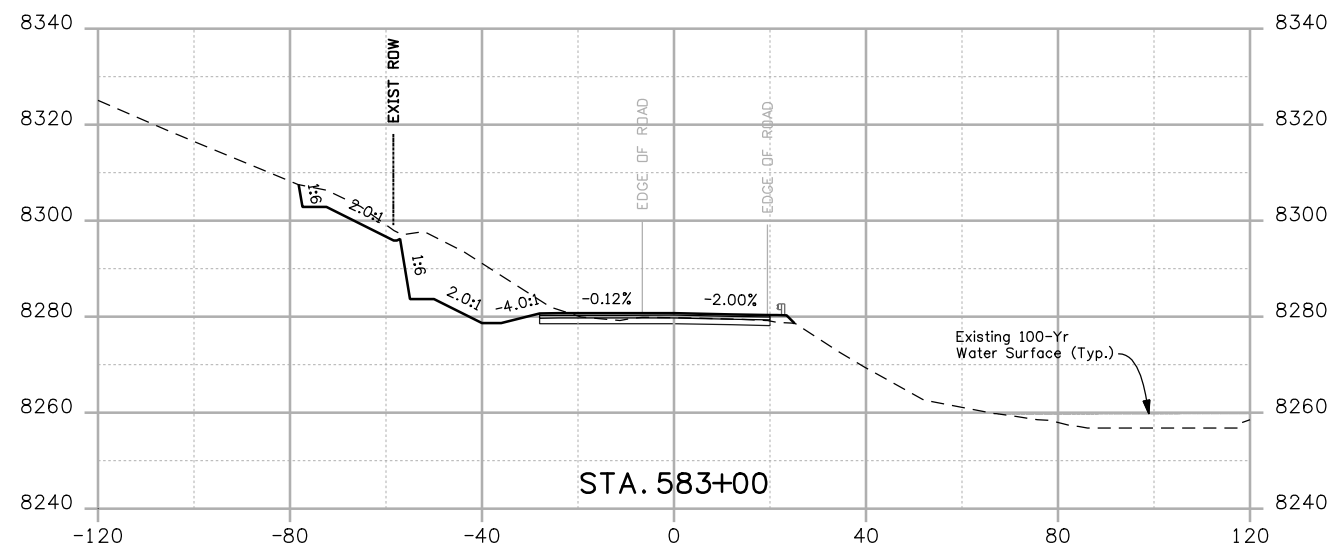
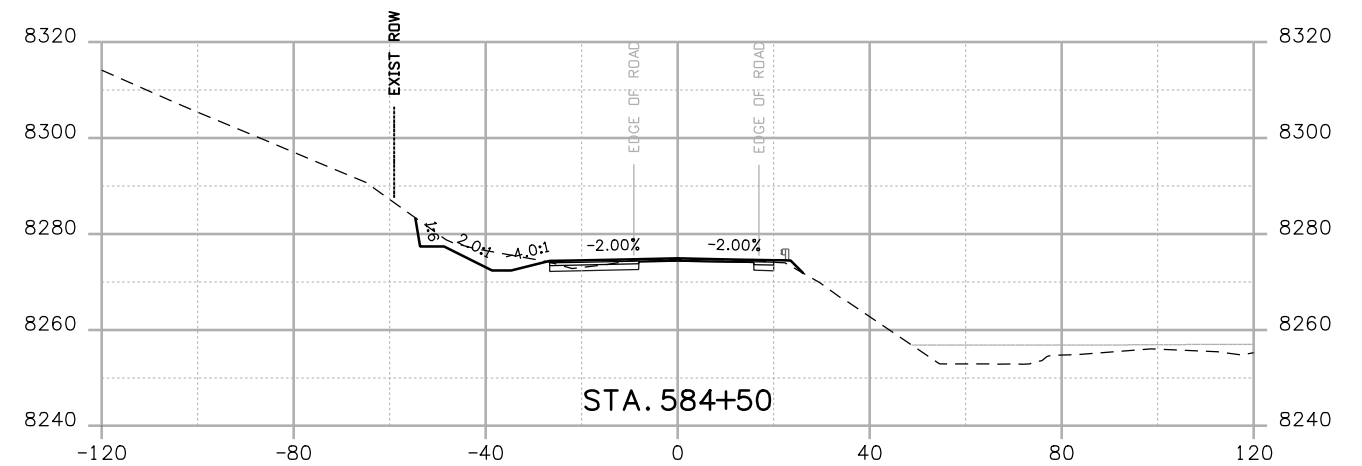
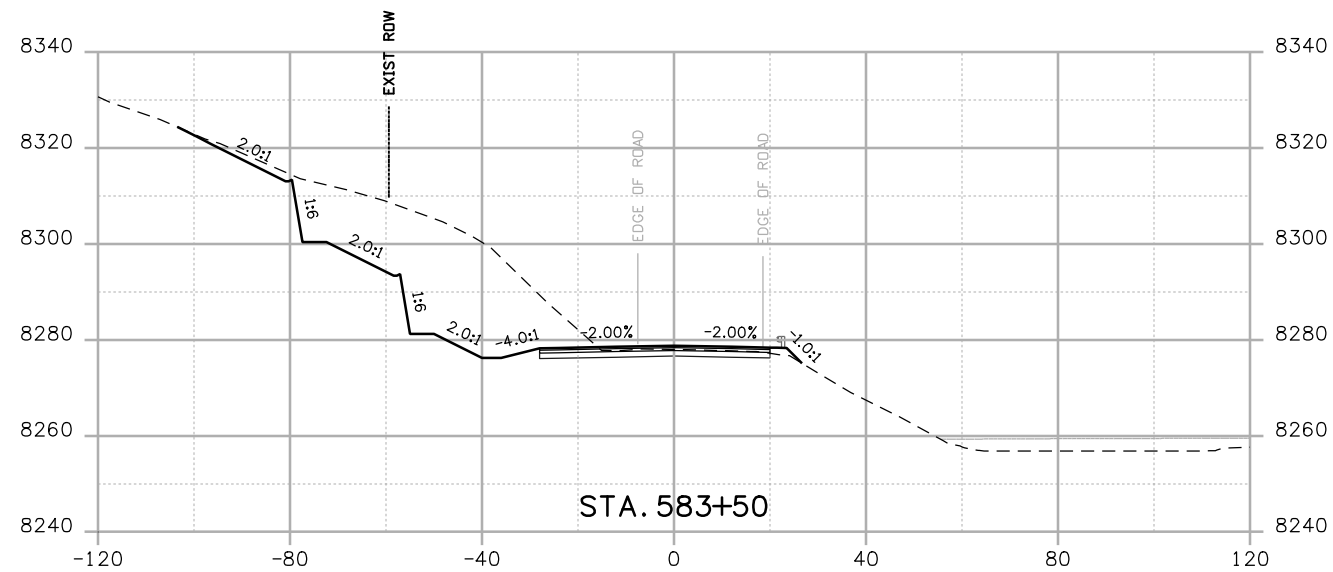
**Project No./Code**

NH 0501-046

14933


Sheet Number

151



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections02.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections Lakewood, CO 80226  
 303-988-4939

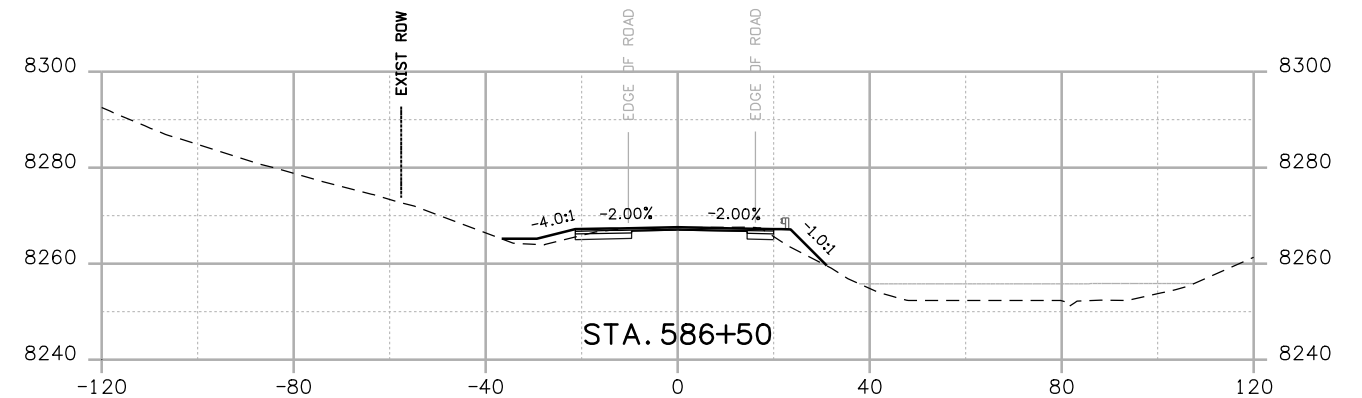
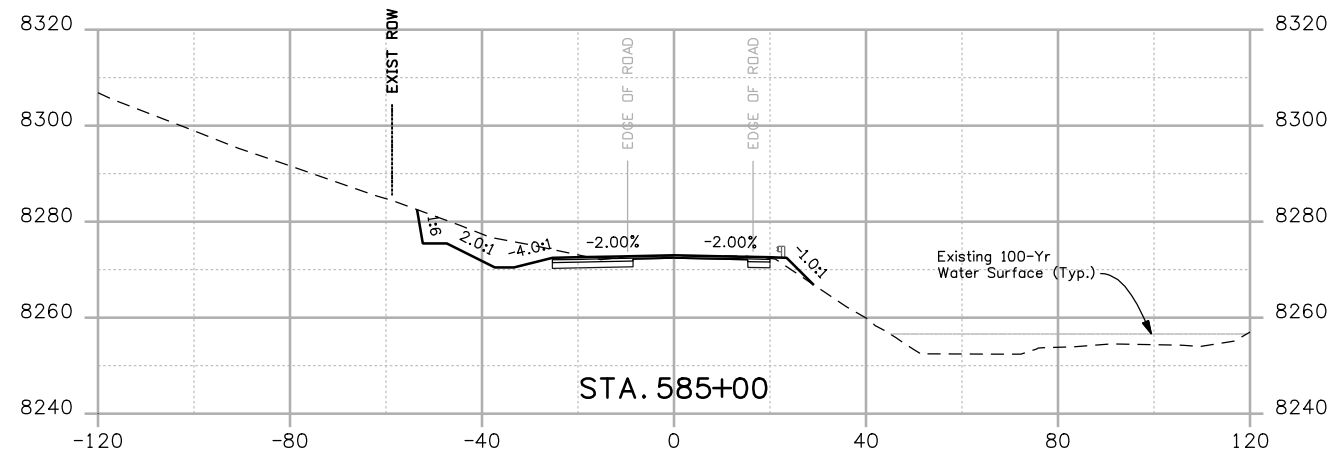
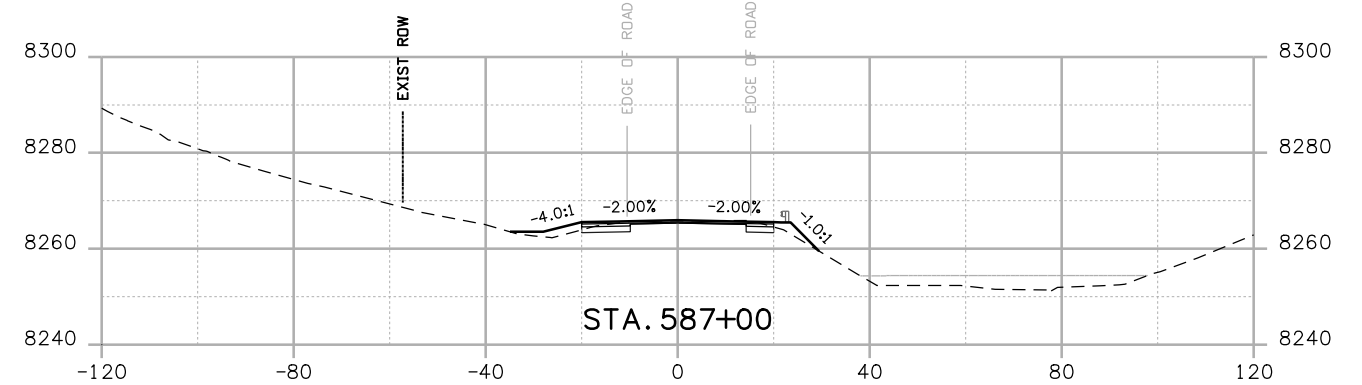
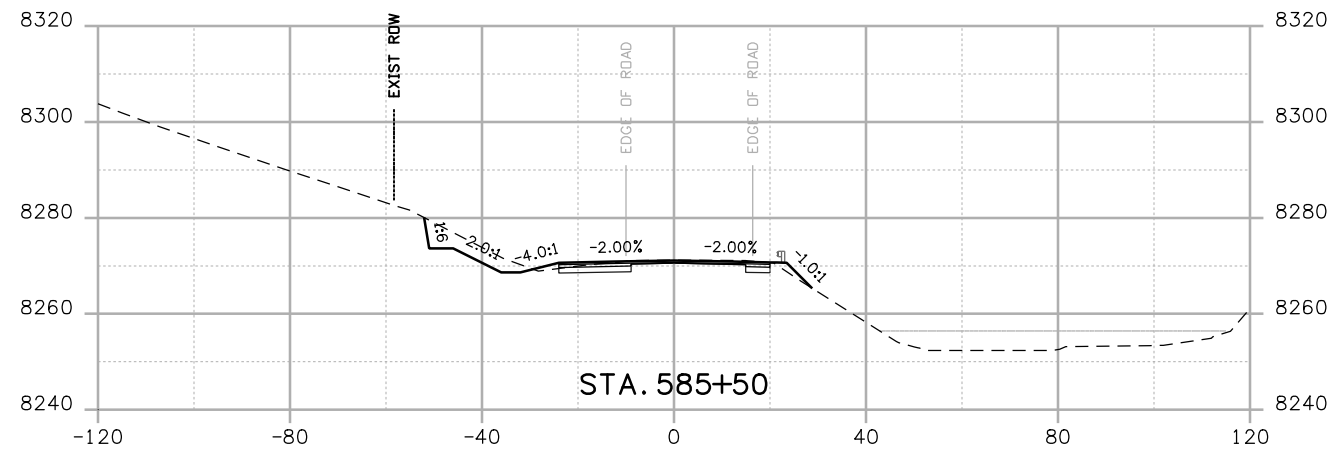
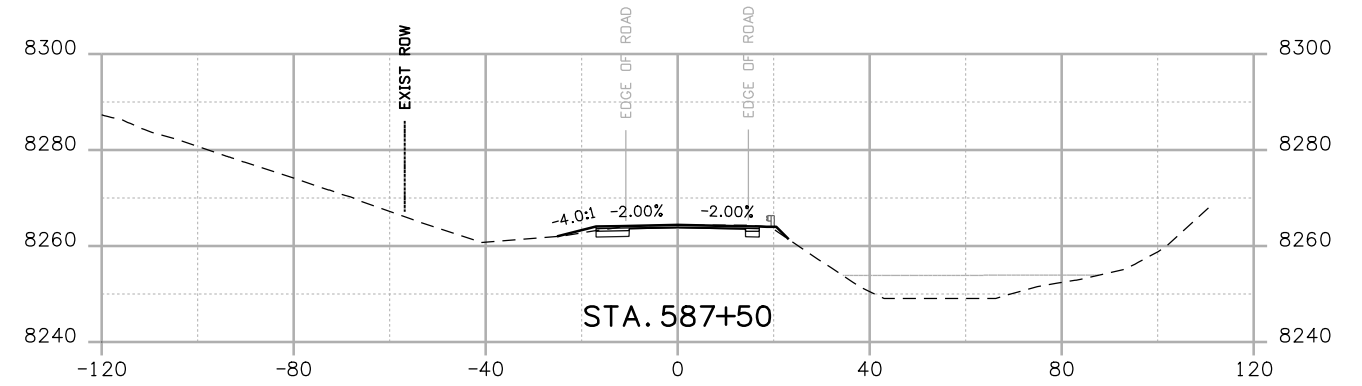
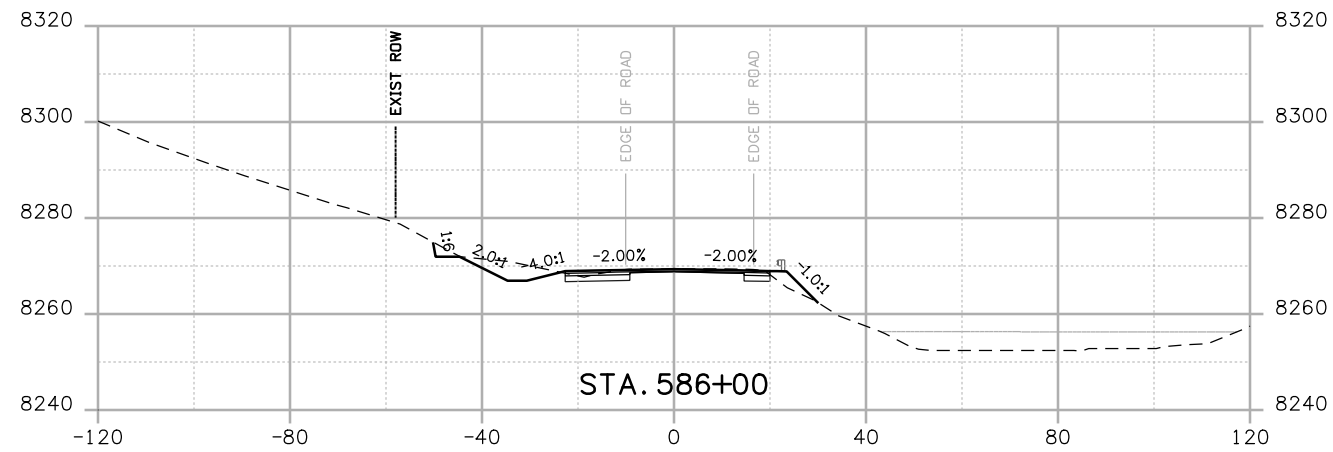
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
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 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3      RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:


CROSS SECTIONS  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS      Subset Sheets: 34 of 36

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 152



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections02.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 303-988-4939

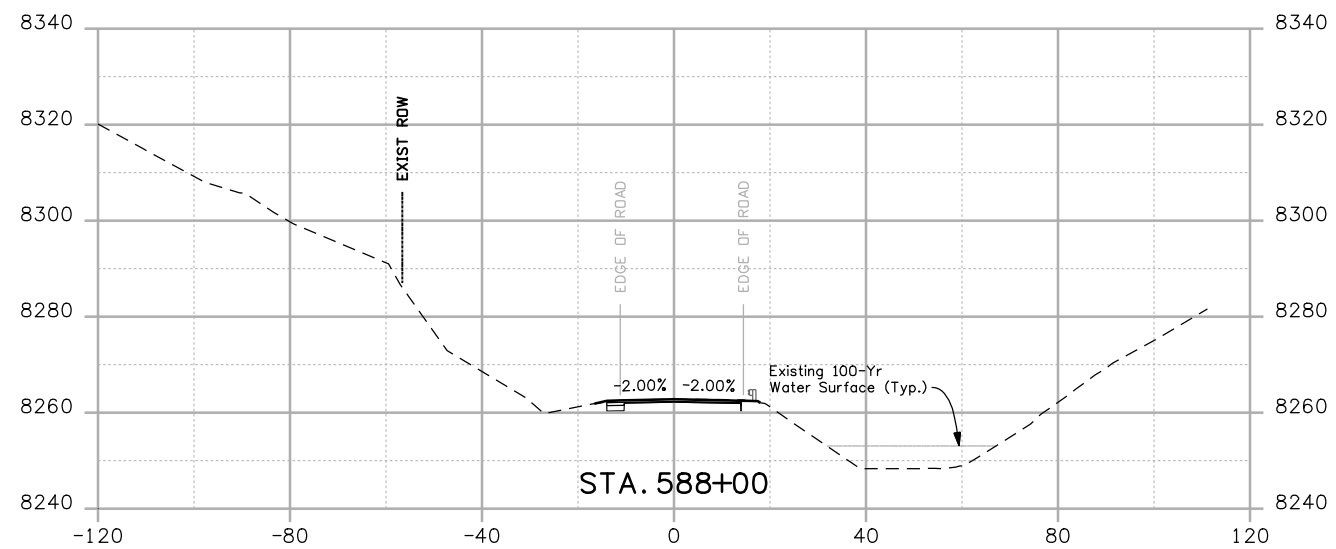
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3**      **RBA**

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS      Subset Sheets: 35 of 36

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **153**



Print Date: 3/26/2010

Drawing File Name: US 50 XSections02.dgn

Horiz. Scale: 1:40

Vert. Scale: N/A

Unit Leader Information

Unit Leader Initials

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

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**Sheet Revisions**

Date:	Comments	Init.

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Region 3

RBA

**As Constructed**

No Revisions:

Revised:

Void:

**CROSS SECTIONS**

Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS

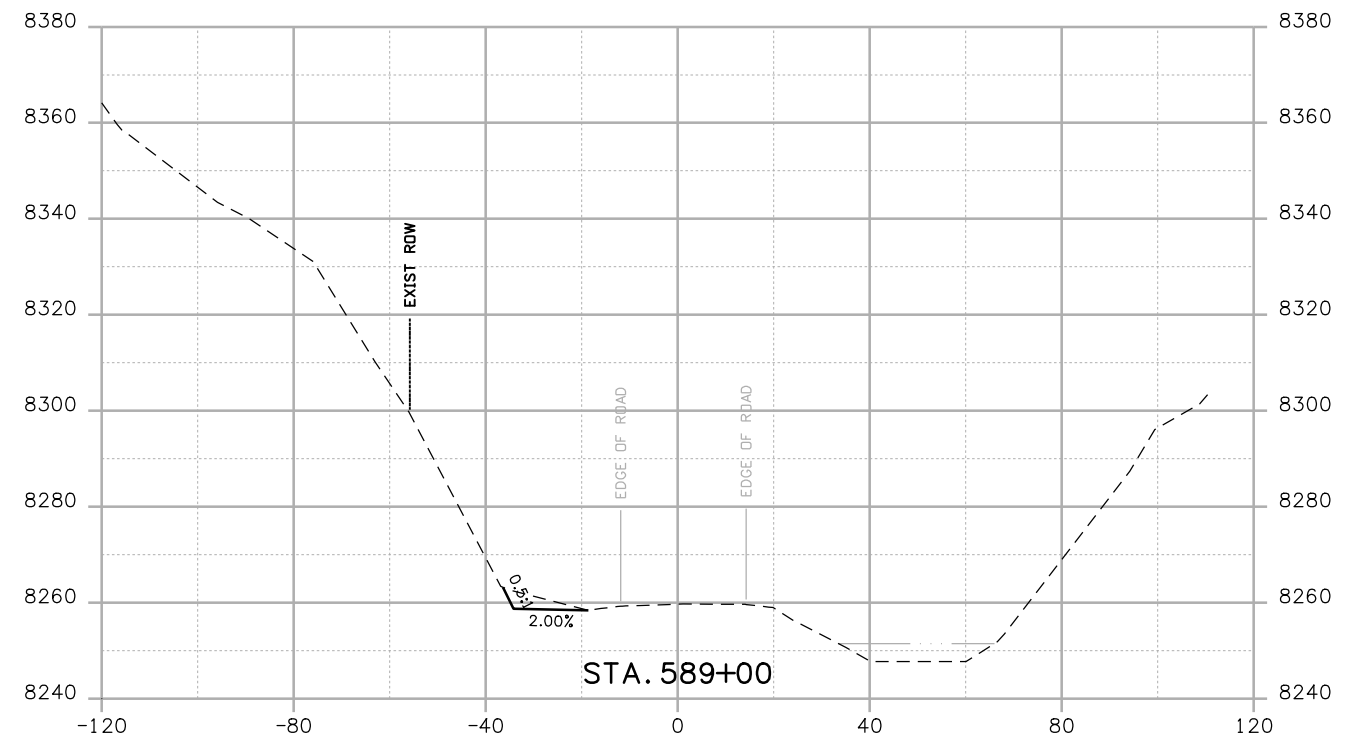
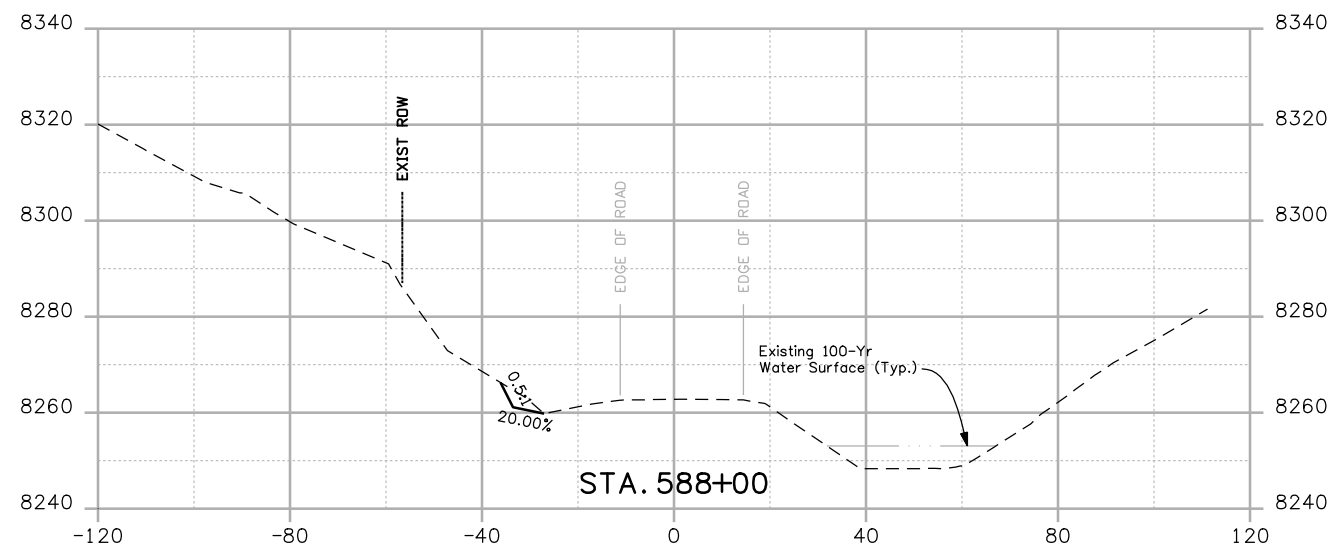
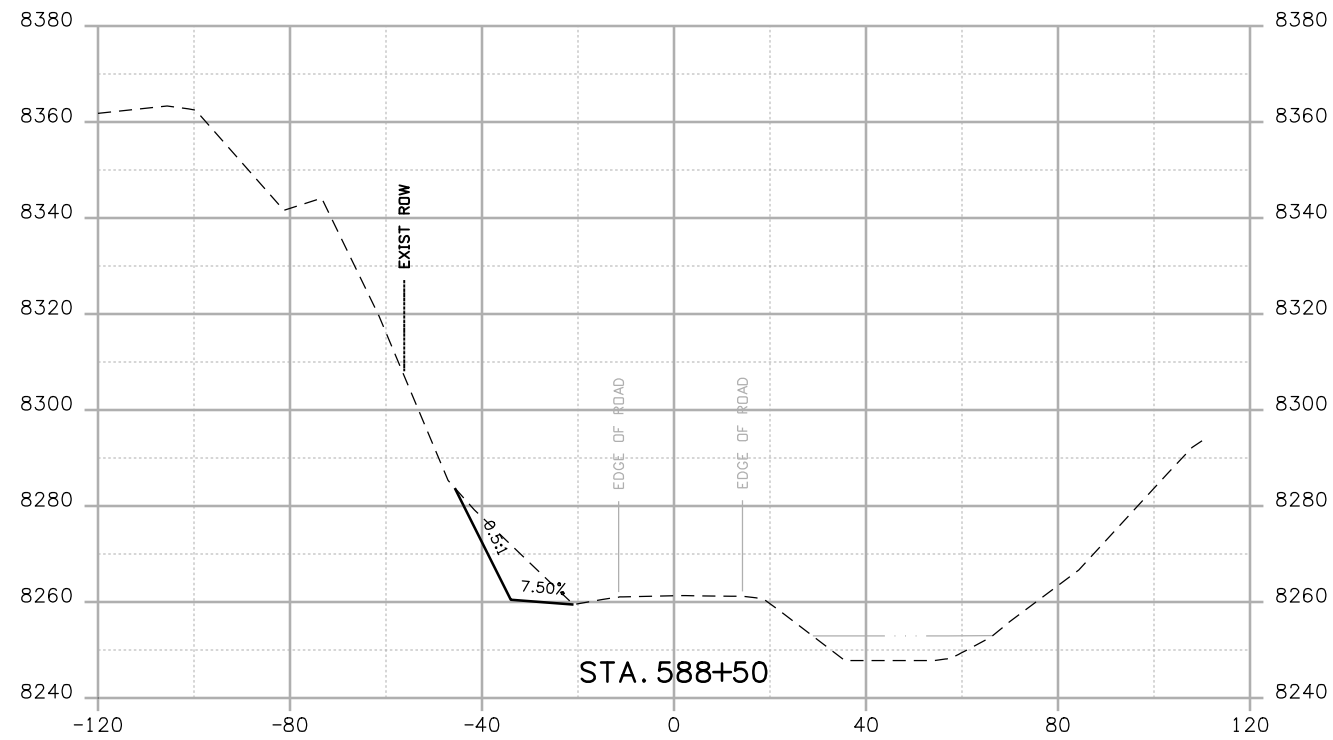
Subset Sheets: 36 of 36

**Project No./Code**

NH 0501-046


14933

Sheet Number 154



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100 Lakewood, CO 80226  
 CONSULTING ENGINEERS 303-988-4939  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

Sheet Revisions		
Date:	Comments	Init.

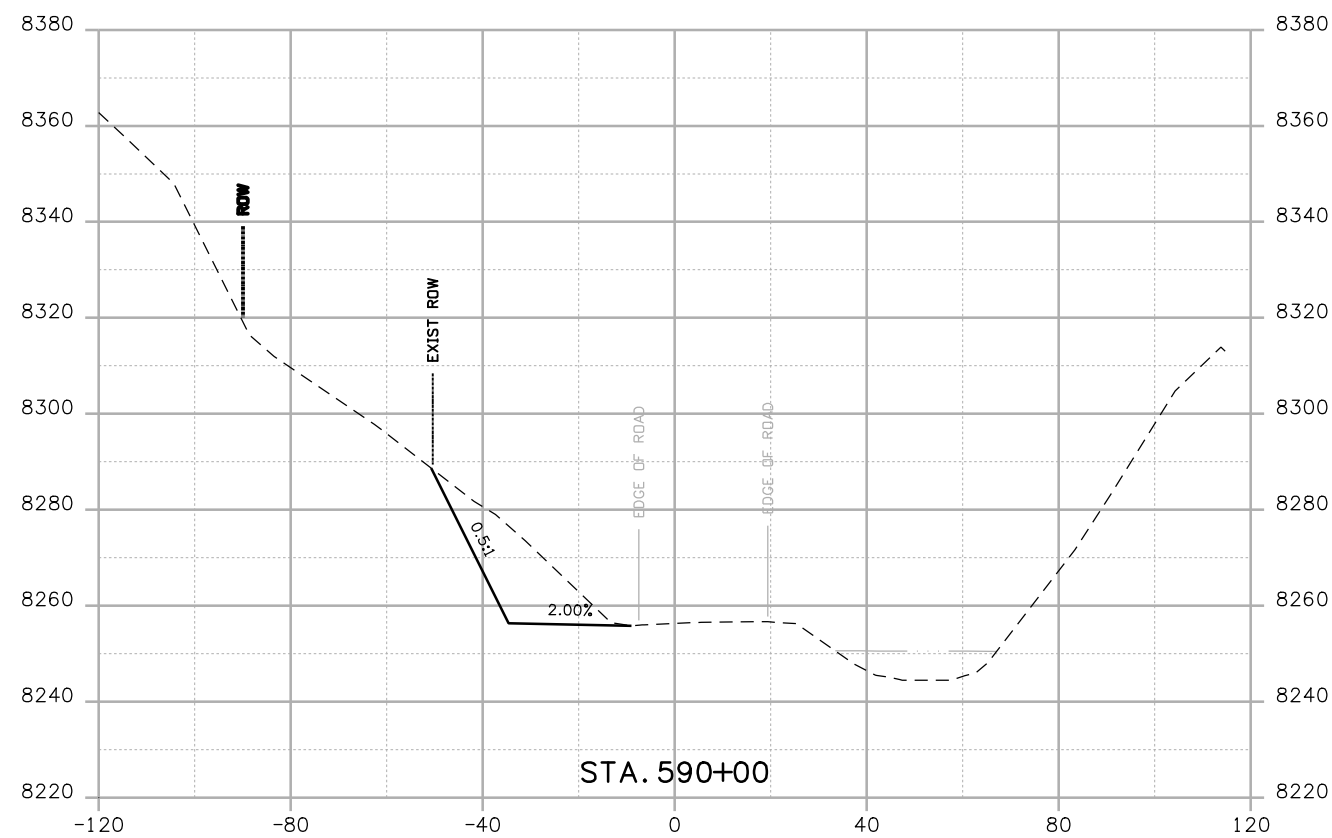
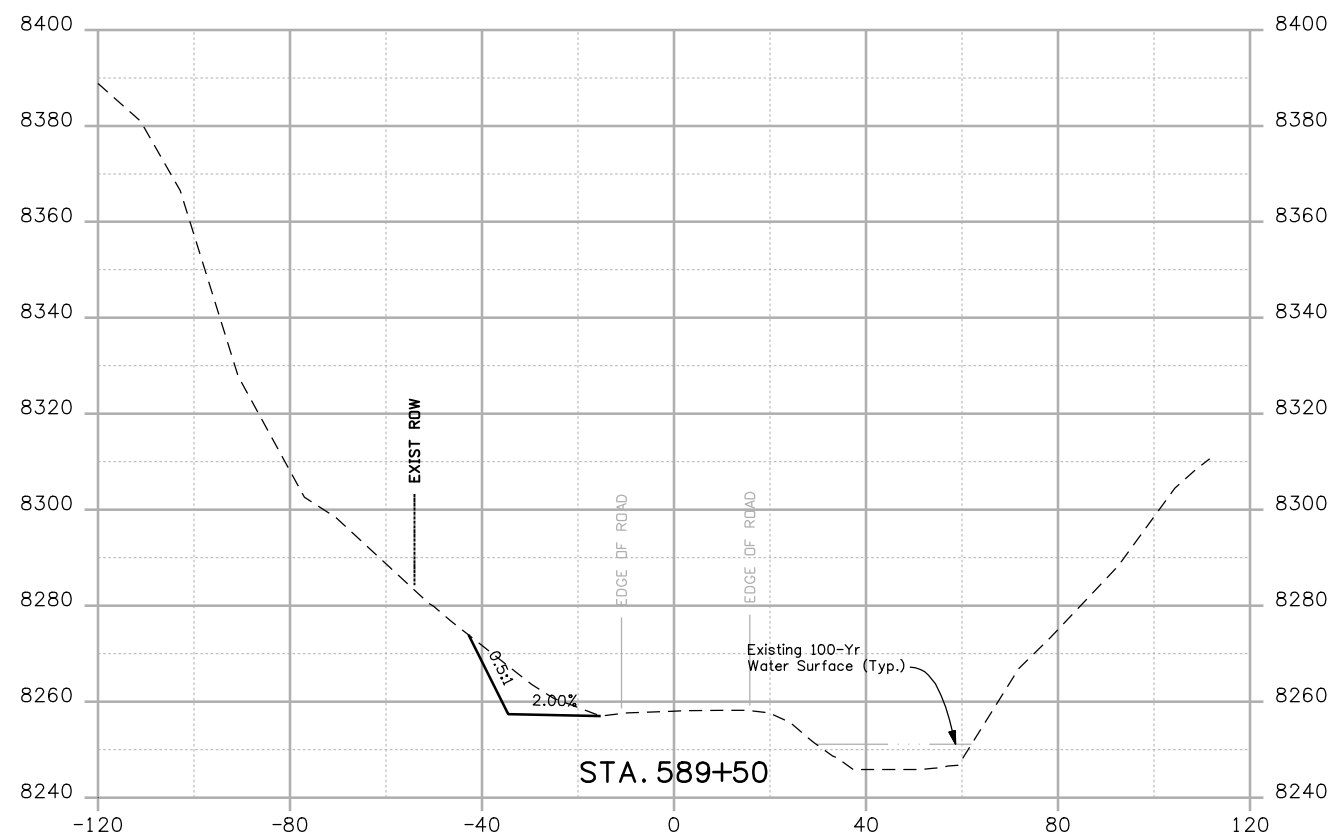
Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3** RBA

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 1 of 20


**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number 155





Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER** **MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections Lakewood, CO 80226  
 303-988-4939

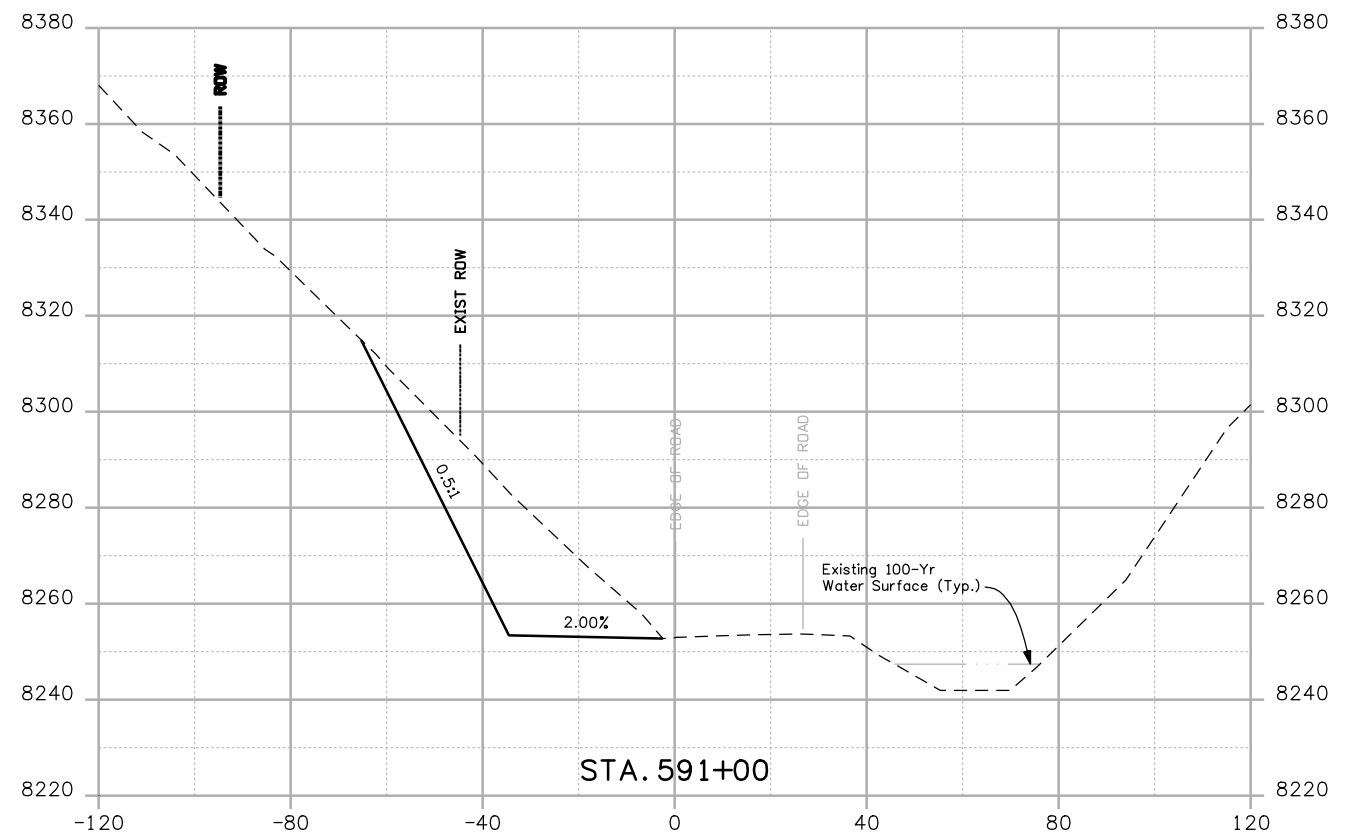
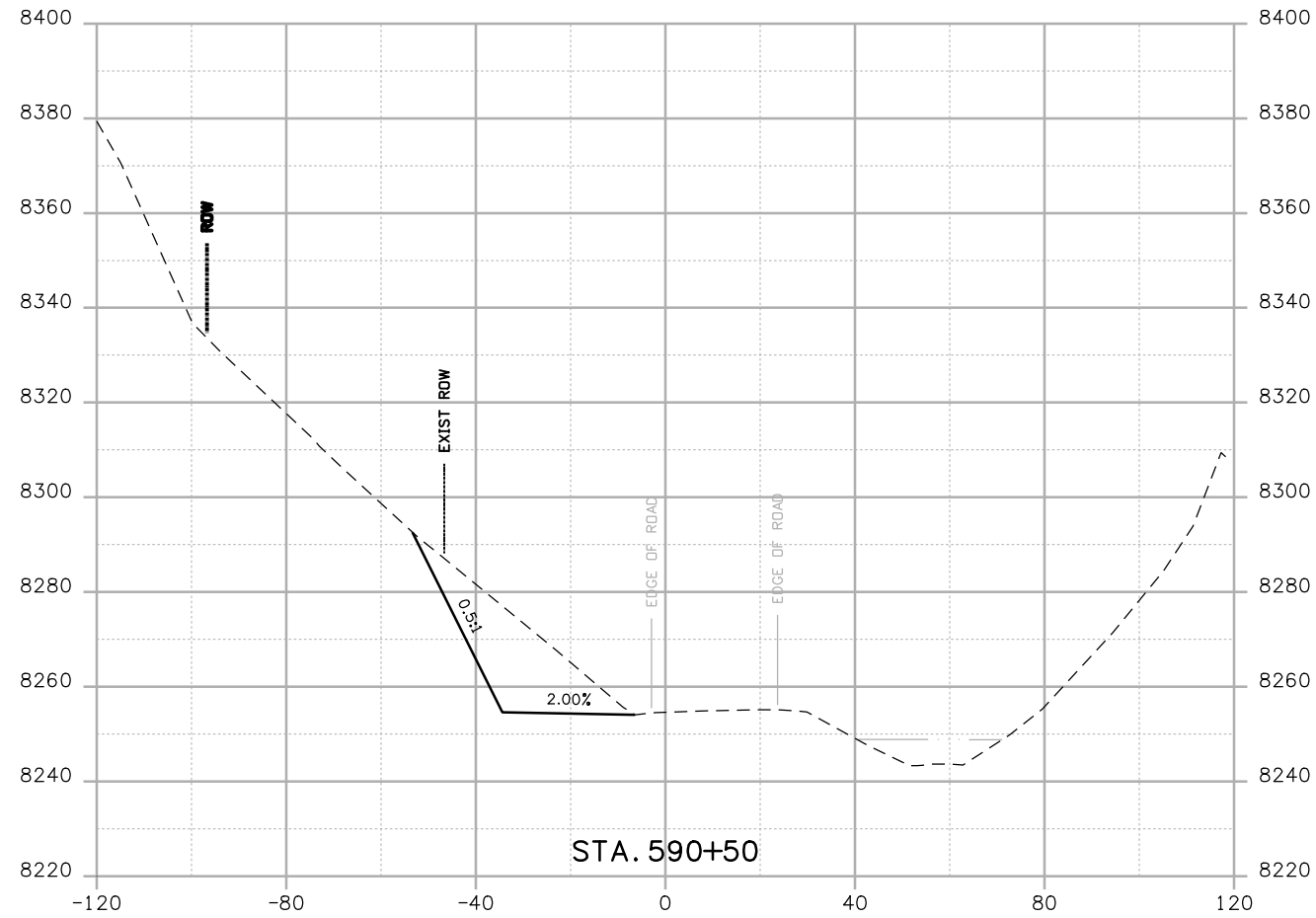
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3** **RBA**

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:


**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 2 of 20

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **156**



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER** **MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections 303-988-4939

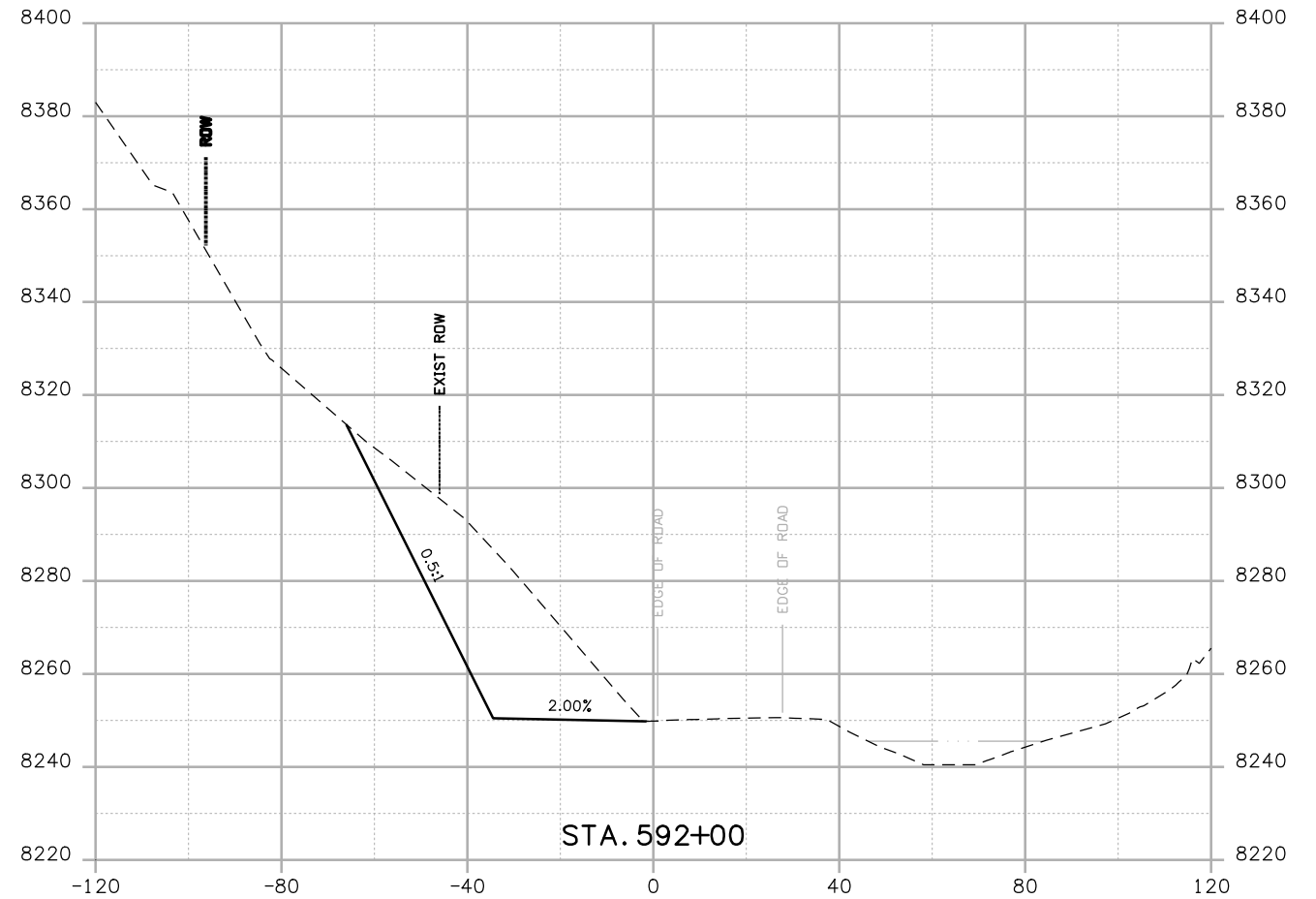
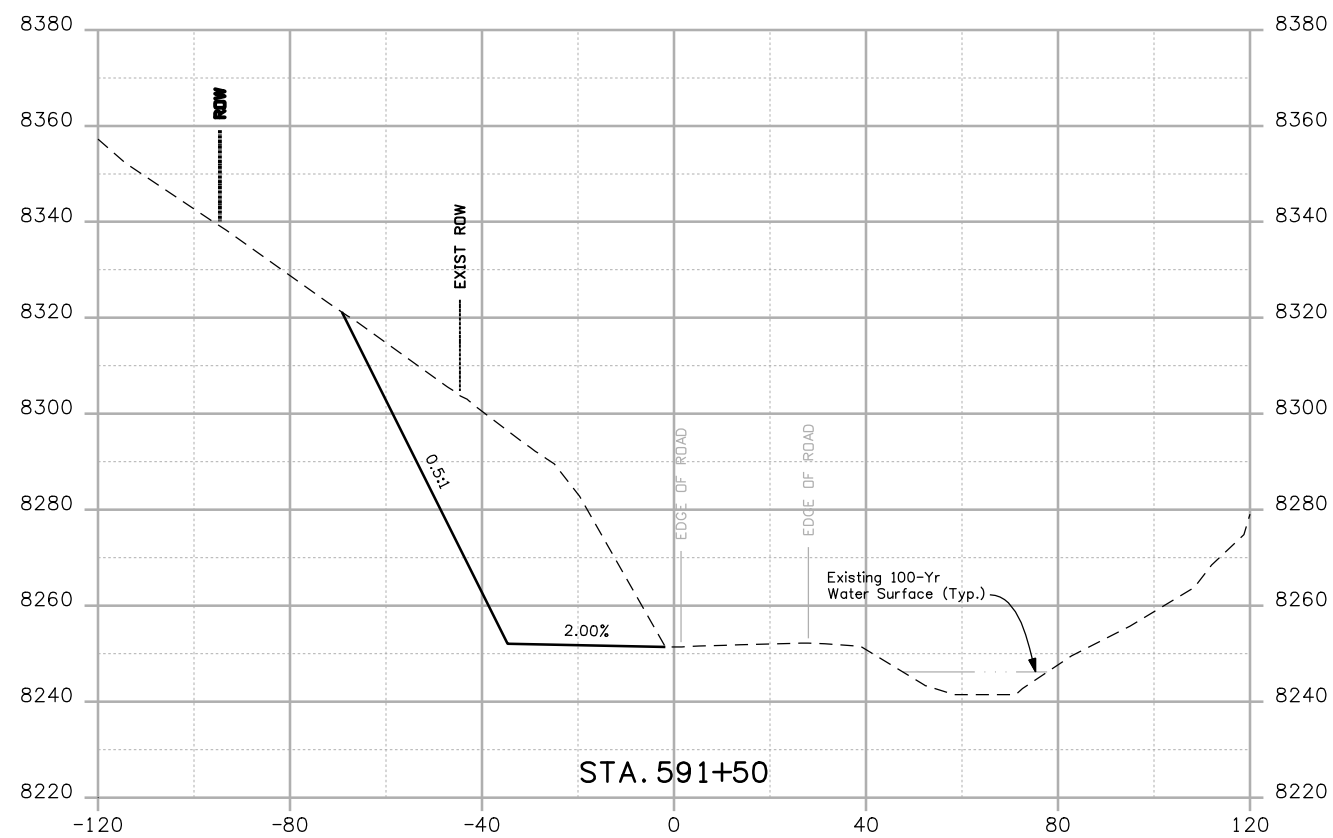
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:


CROSS SECTIONS	
Designer:	NJL
Detailer:	MAM
Sheet Subset: X-SECTIONS	Subset Sheets: 3 of 20

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 157



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100 Lakewood, CO 80226  
 CONSULTING ENGINEERS 303-988-4939  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

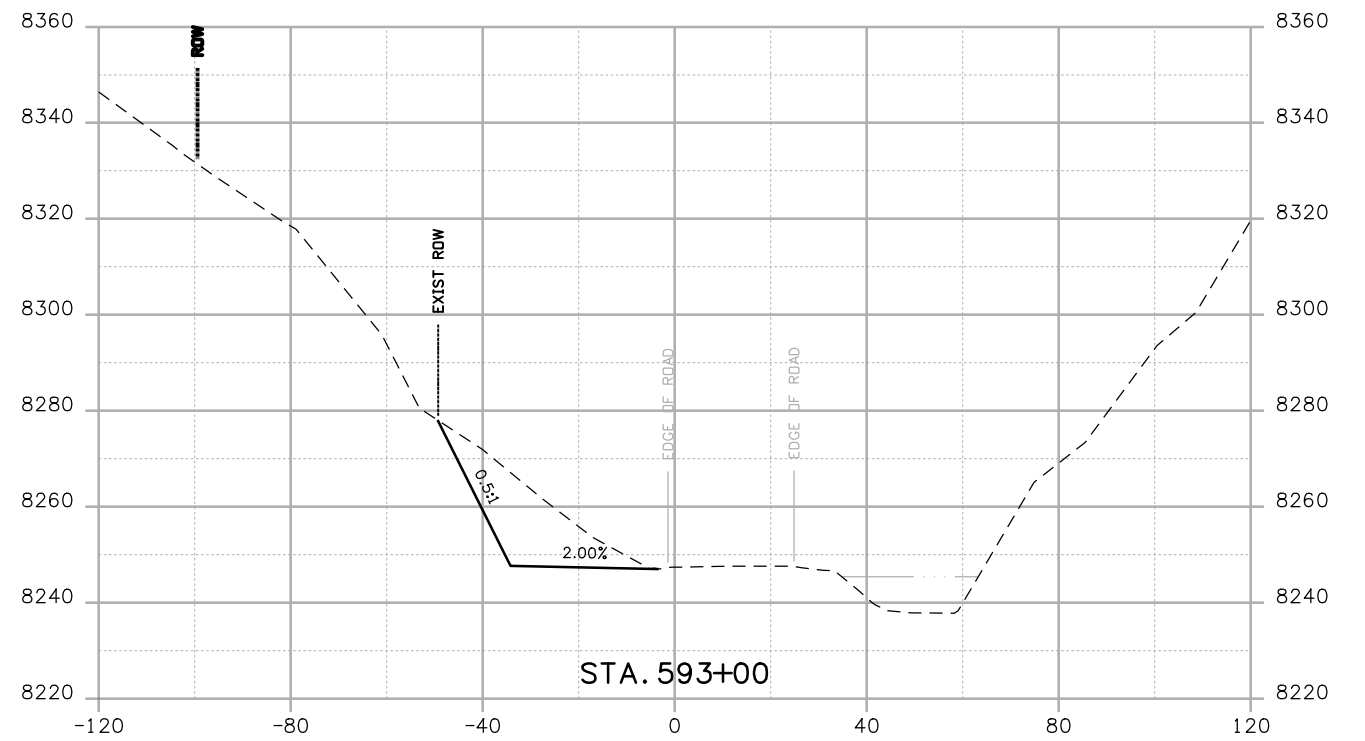
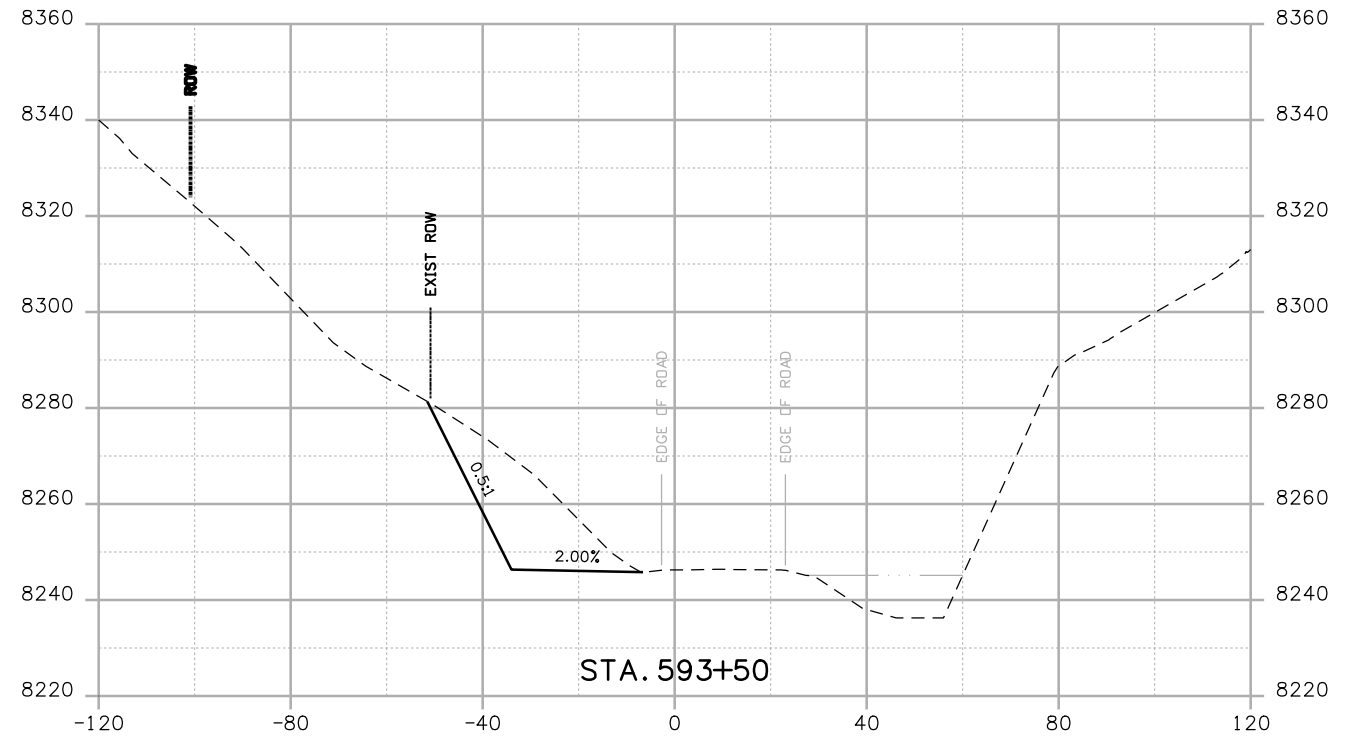
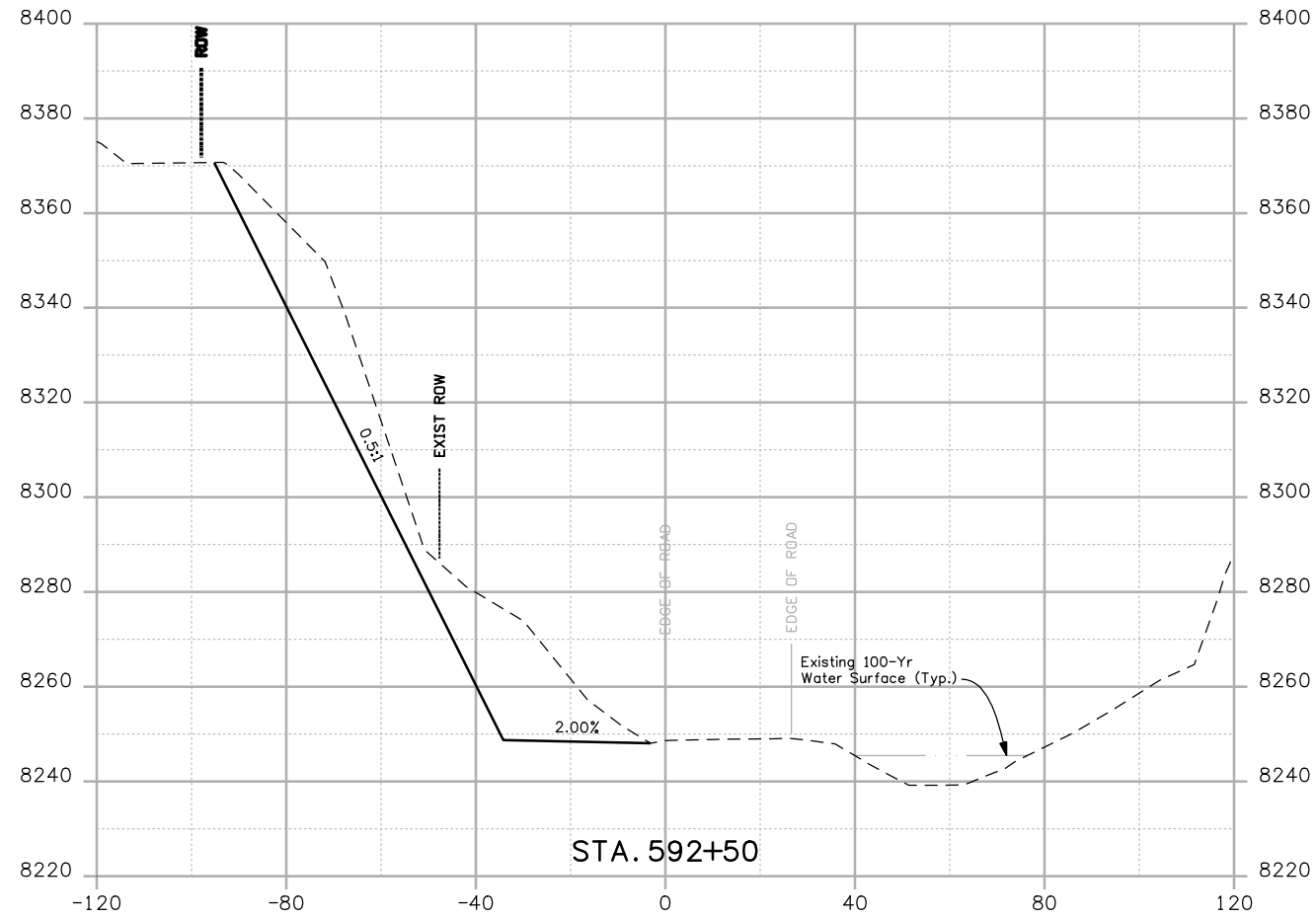
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:


CROSS SECTIONS	
Designer:	NJL
Detailer:	MAM
Sheet Subset: X-SECTIONS	Subset Sheets: 4 of 20

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 158



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100 Lakewood, CO 80226  
 CONSULTING ENGINEERS 303-988-4939  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

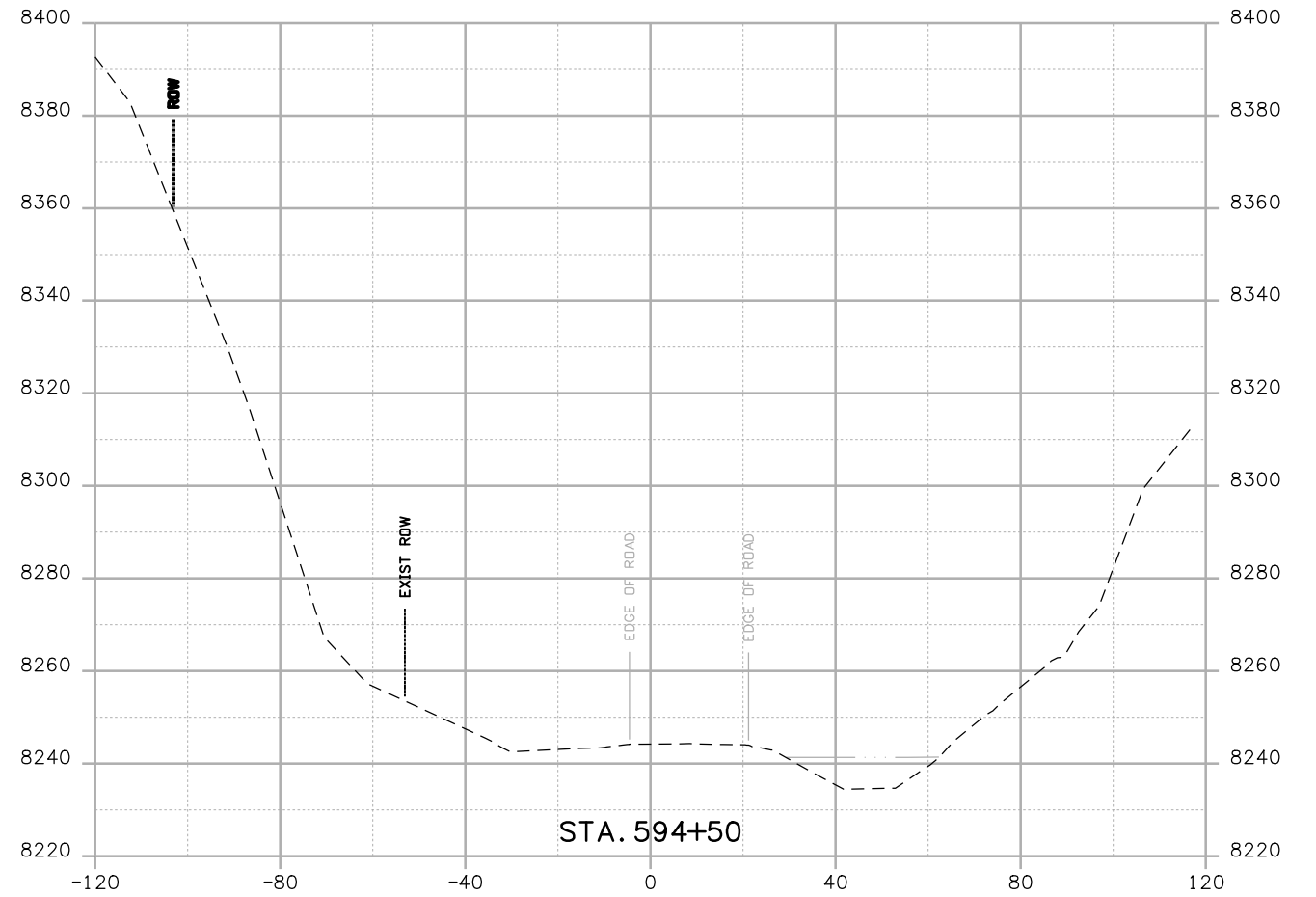
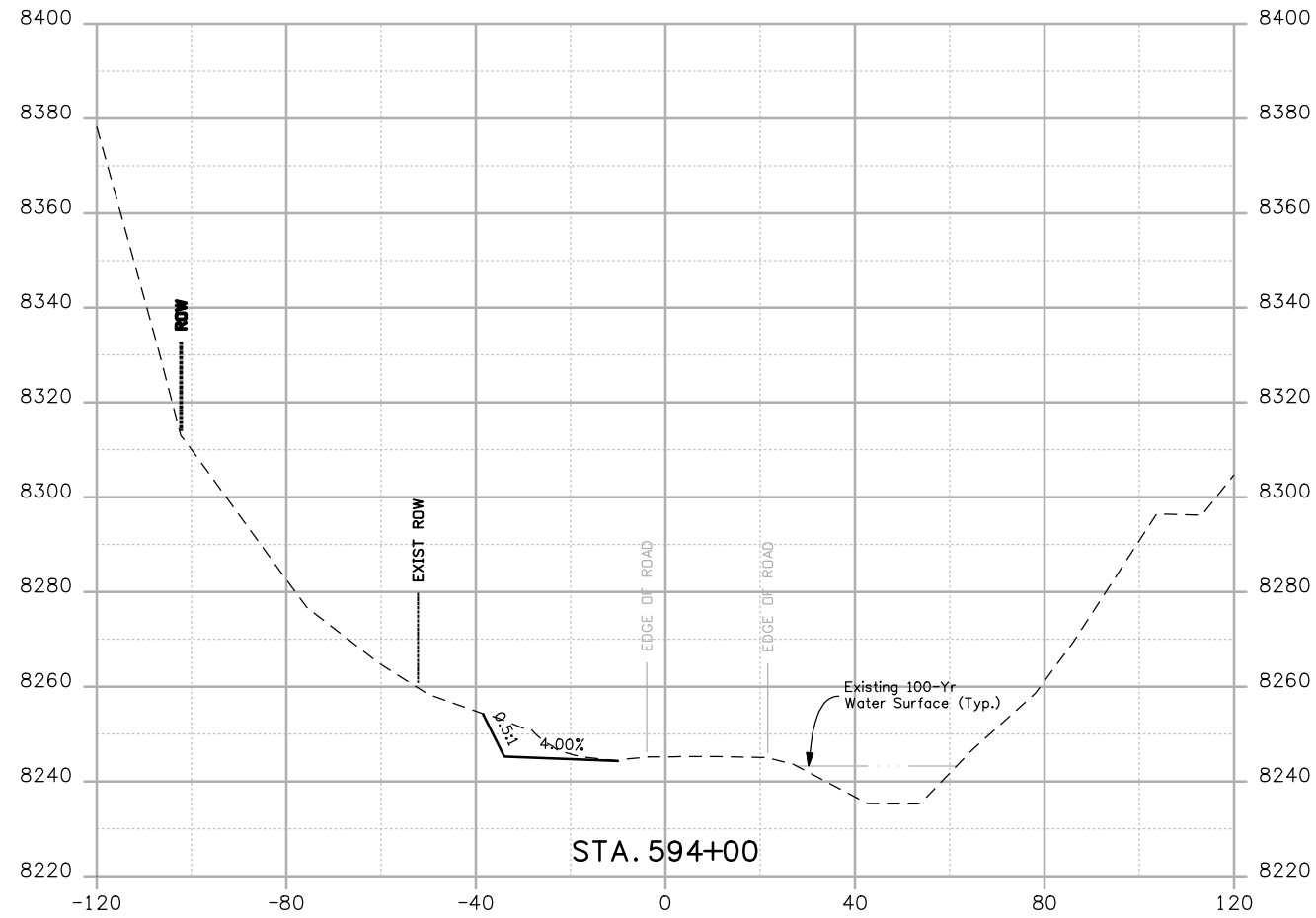
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:


CROSS SECTIONS  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 5 of 20

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 159



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 303-988-4939 303-988-4939

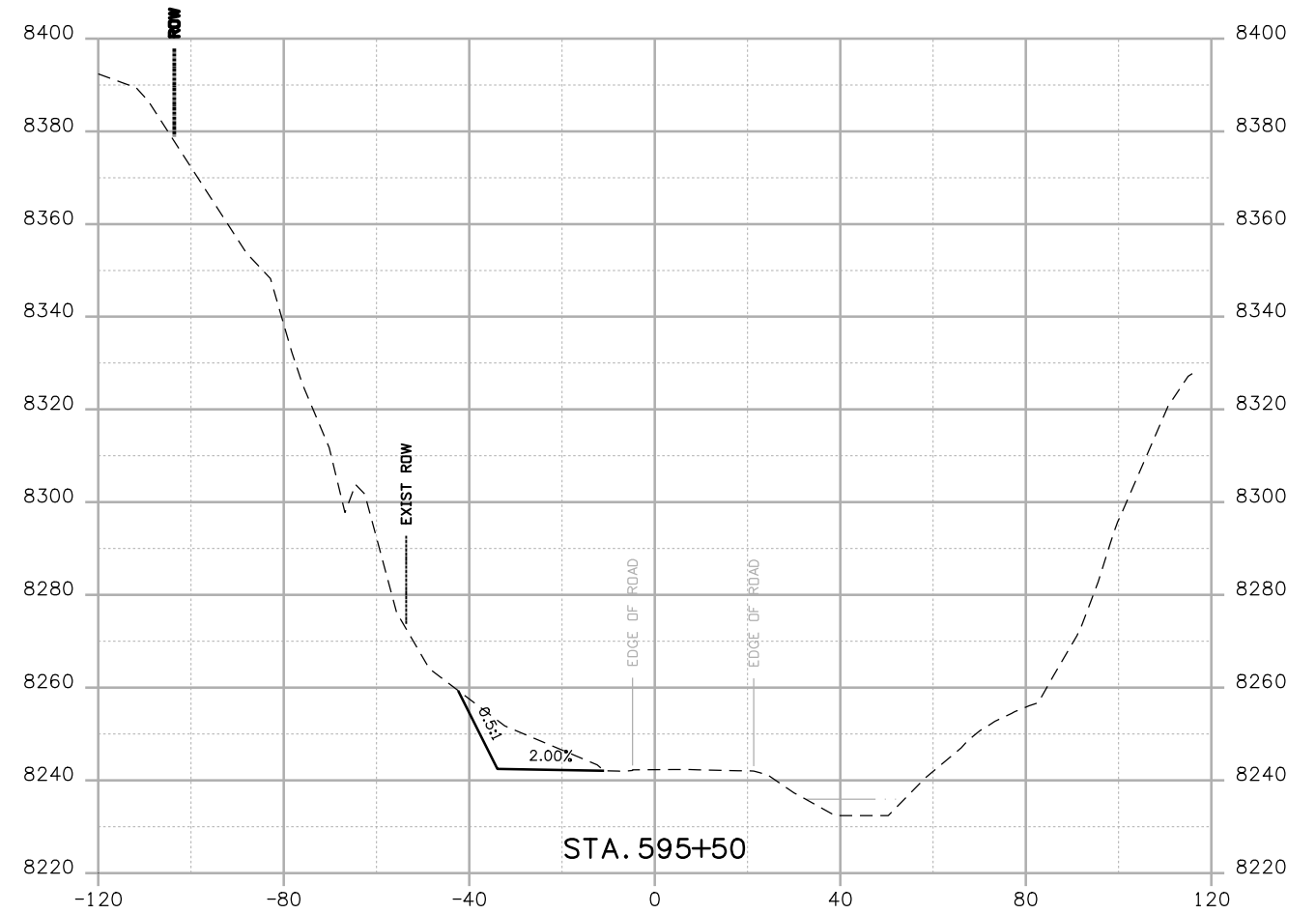
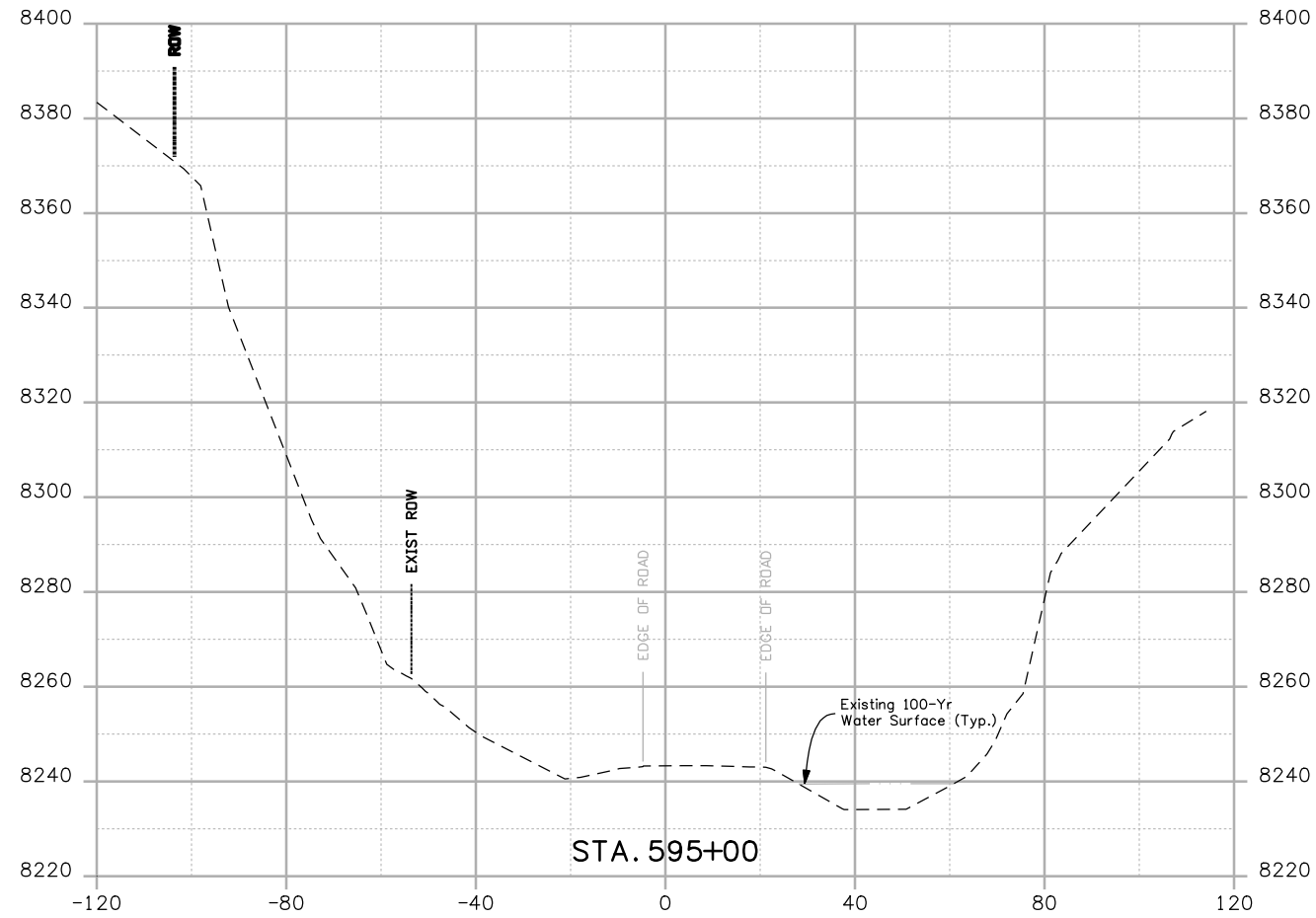
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3** RBA

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:


CROSS SECTIONS	
Designer:	NJL
Detailer:	MAM
Sheet Subset: X-SECTIONS	Subset Sheets: 6 of 20

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number 160



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 303-988-4939 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

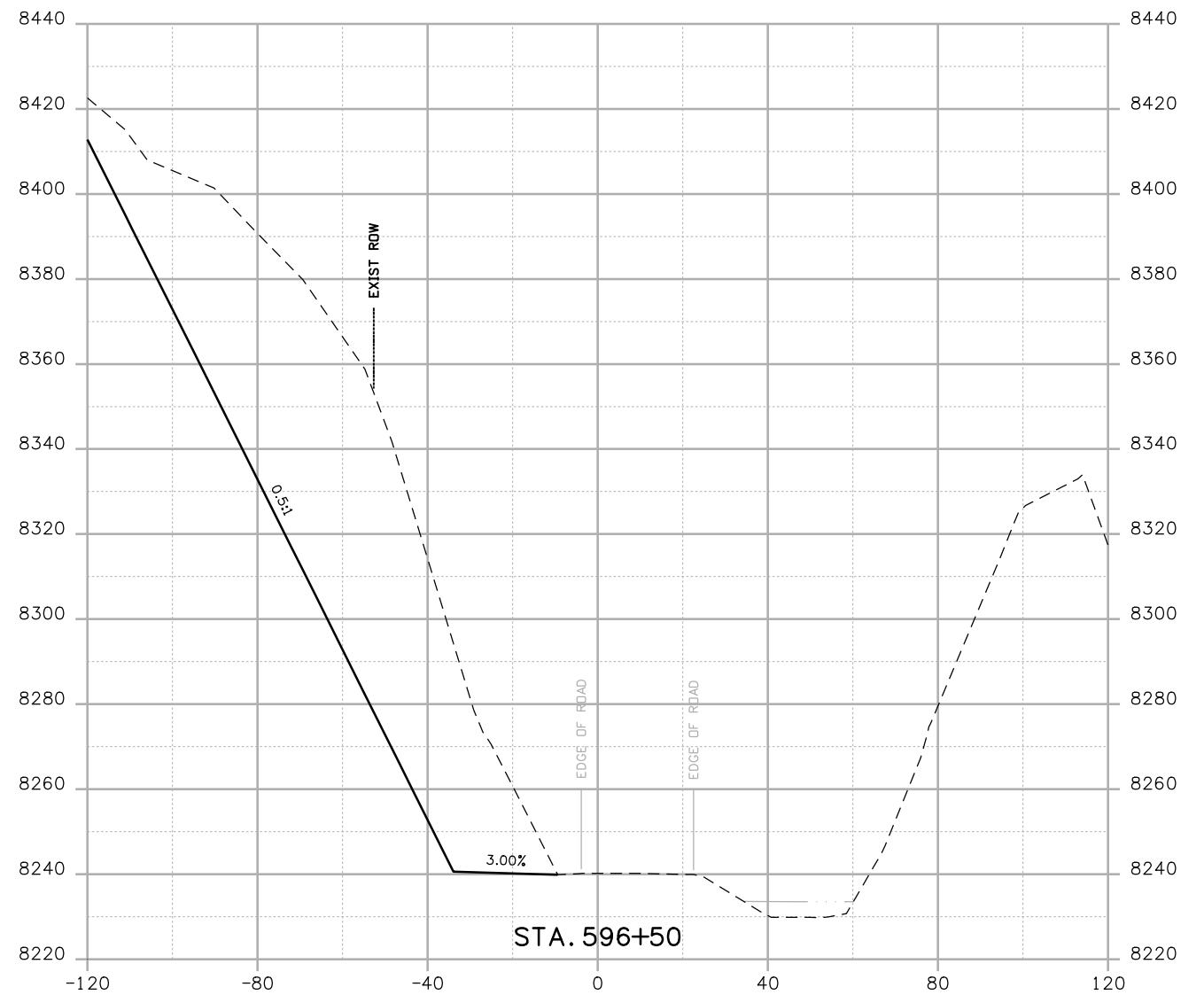
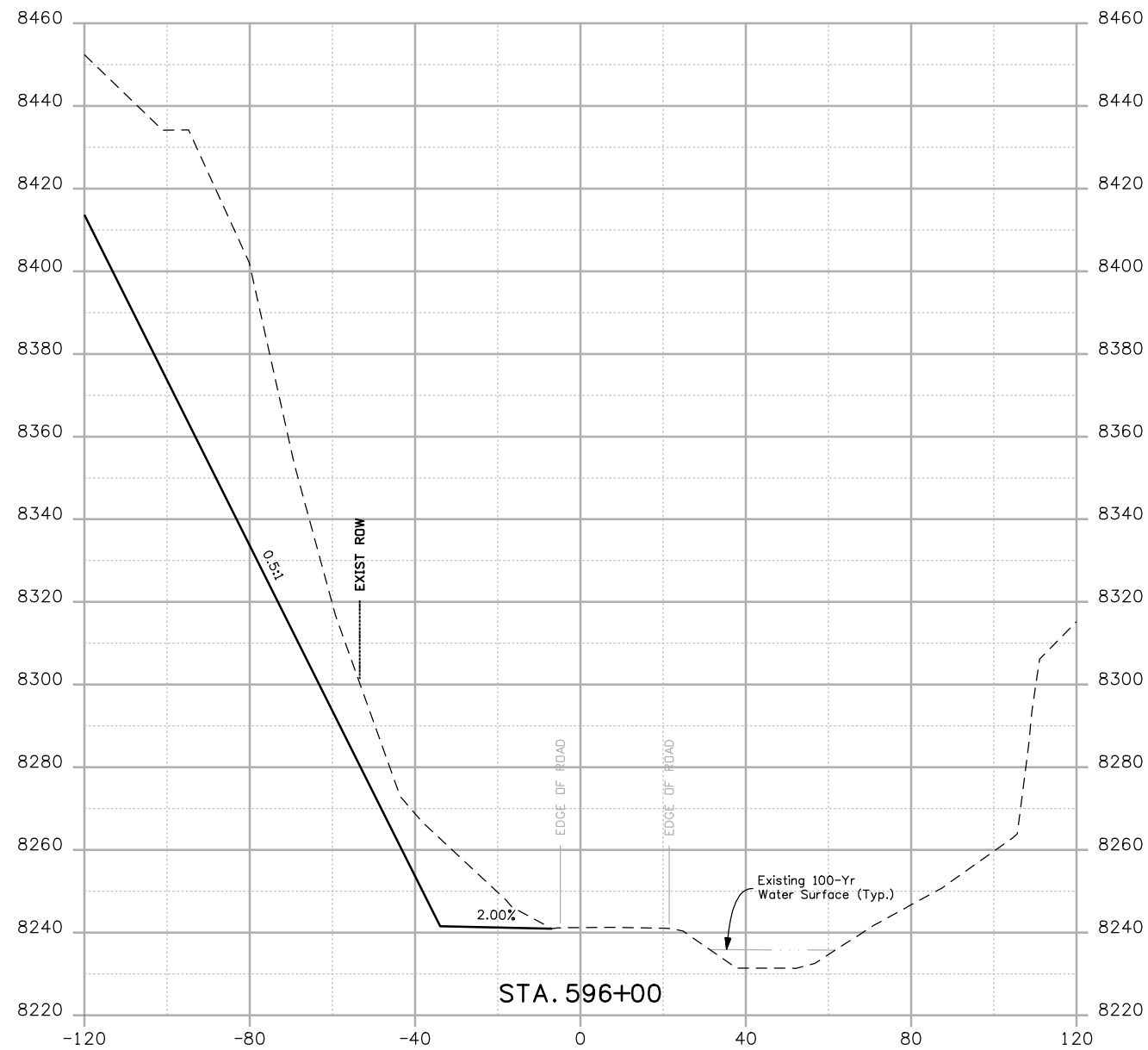
Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3** RBA

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:

CROSS SECTIONS	
Designer:	NJL
Detailer:	MAM
Sheet Subset: X-SECTIONS	Subset Sheets: 7 of 20


**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number 161





Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40      Vert. Scale: N/A  
 Unit Leader Information      Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections 303-988-4939

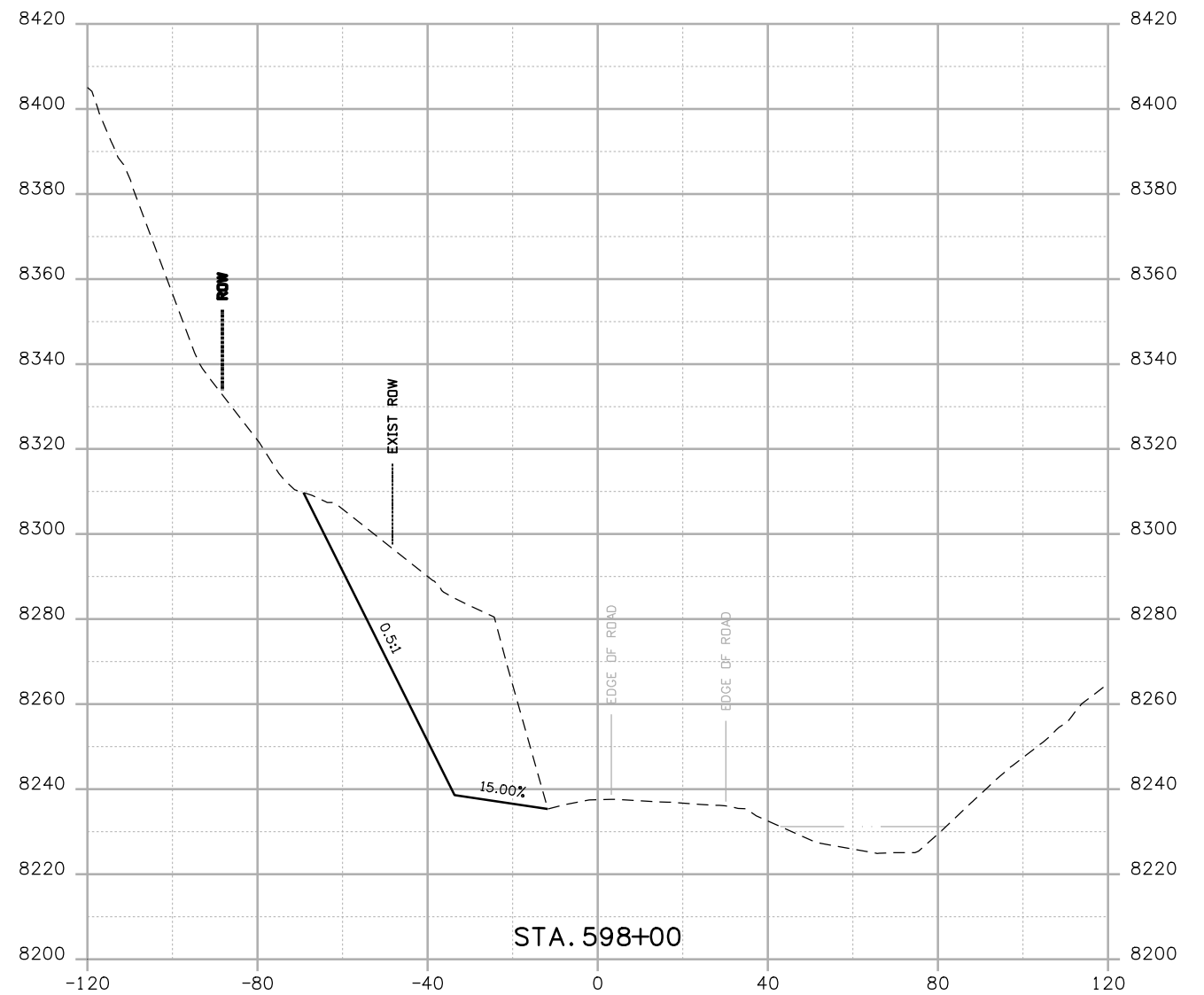
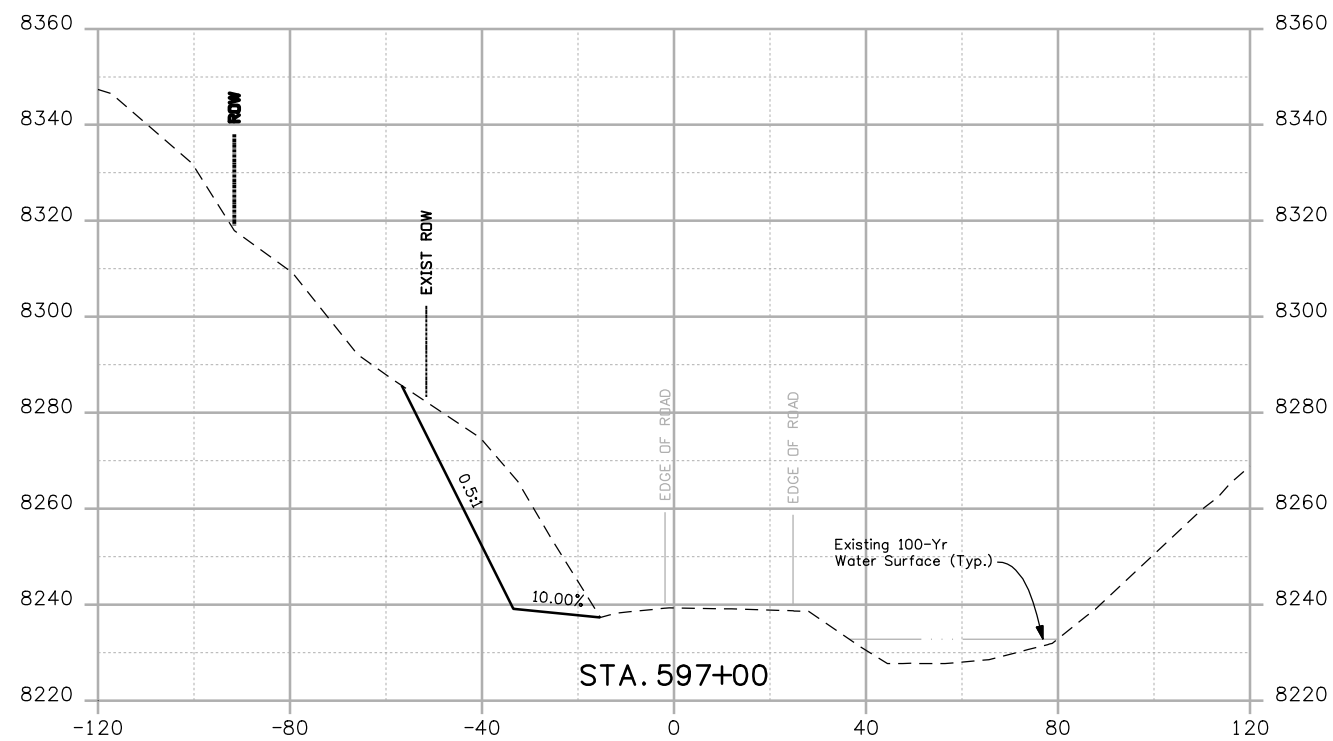
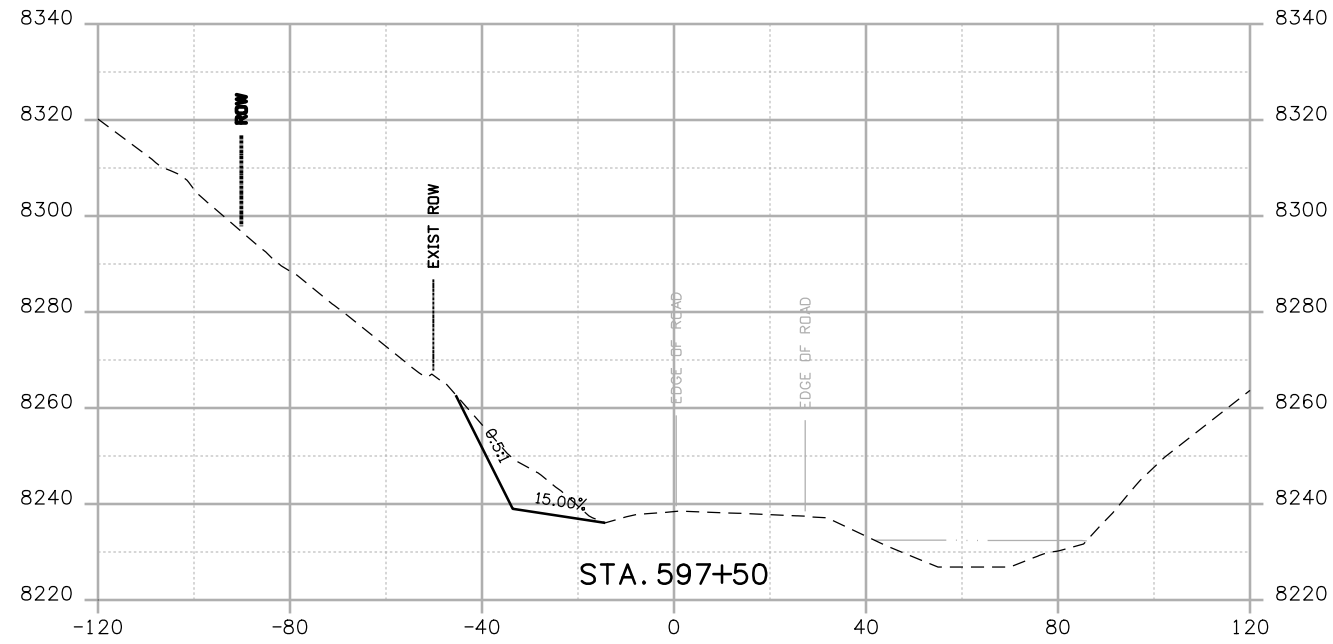
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3**      **RBA**

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:


**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS      Subset Sheets: 8 of 20

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **162**



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections Lakewood, CO 80226  
 303-988-4939

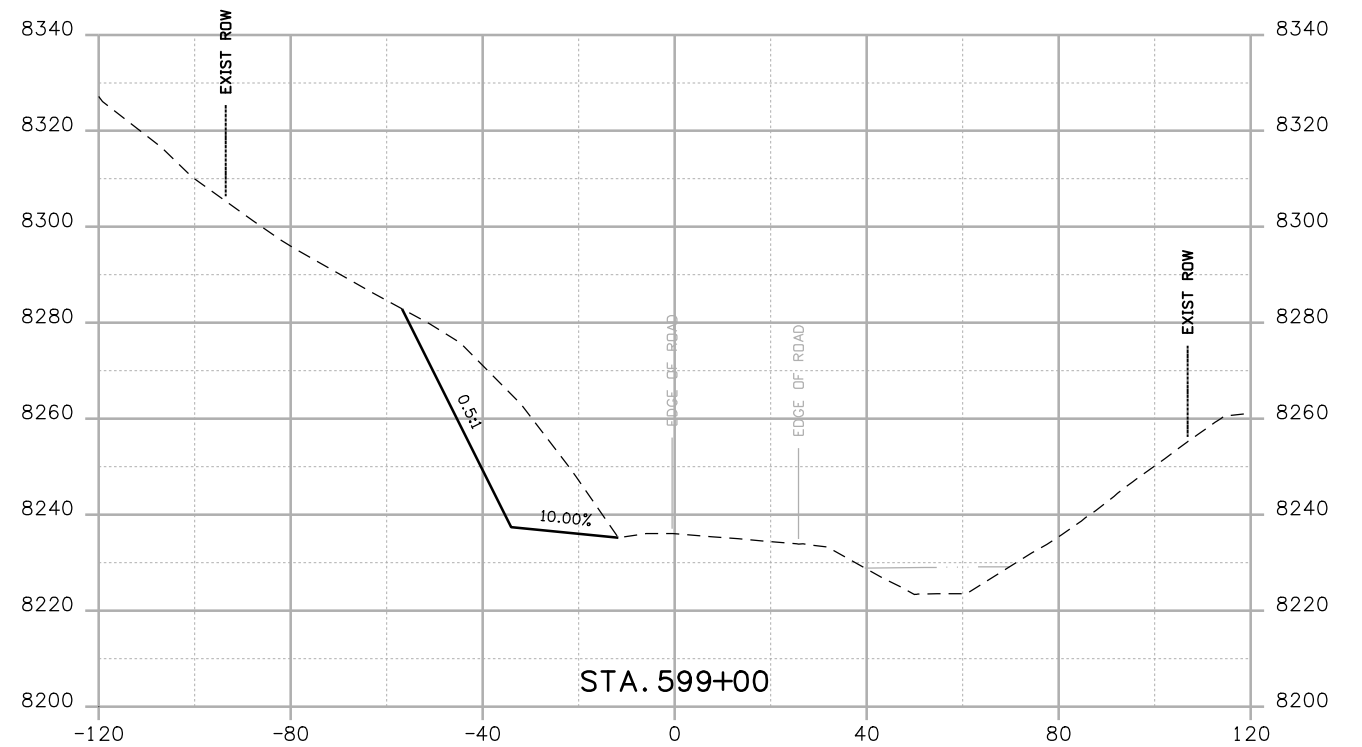
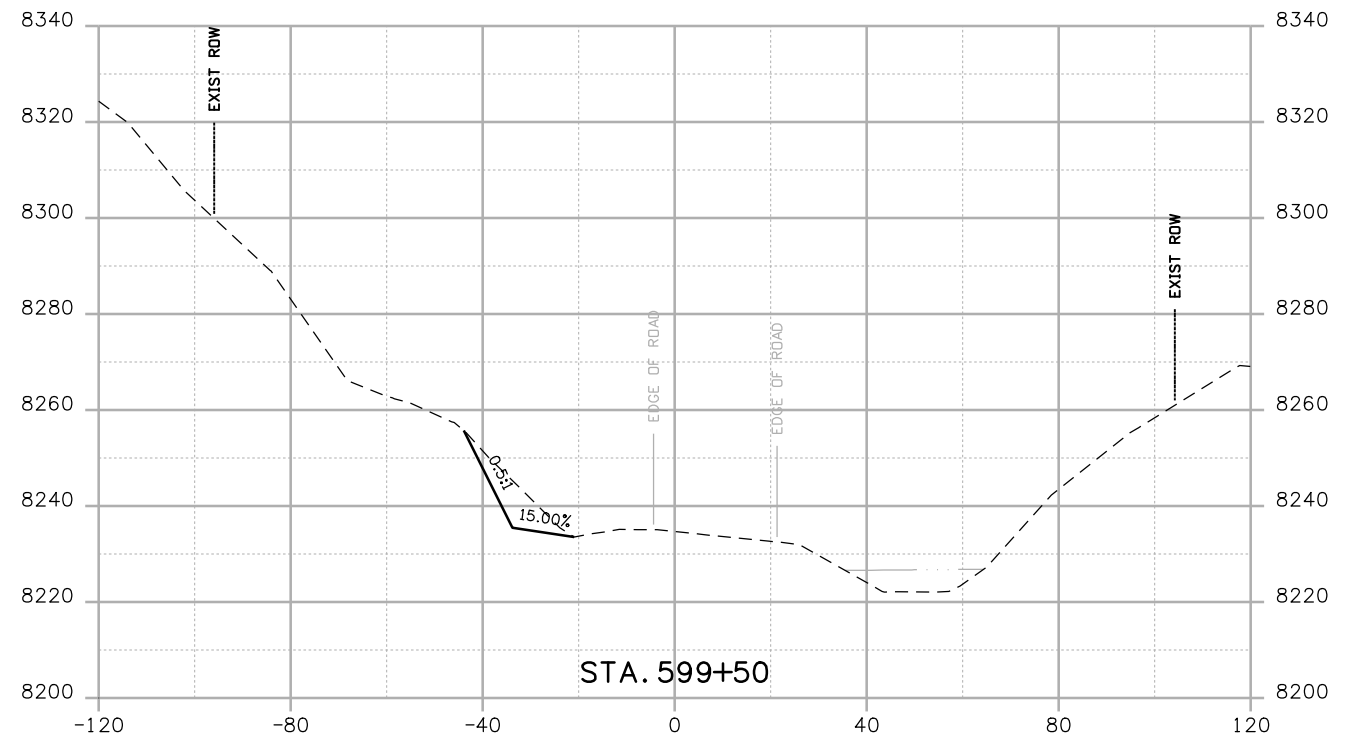
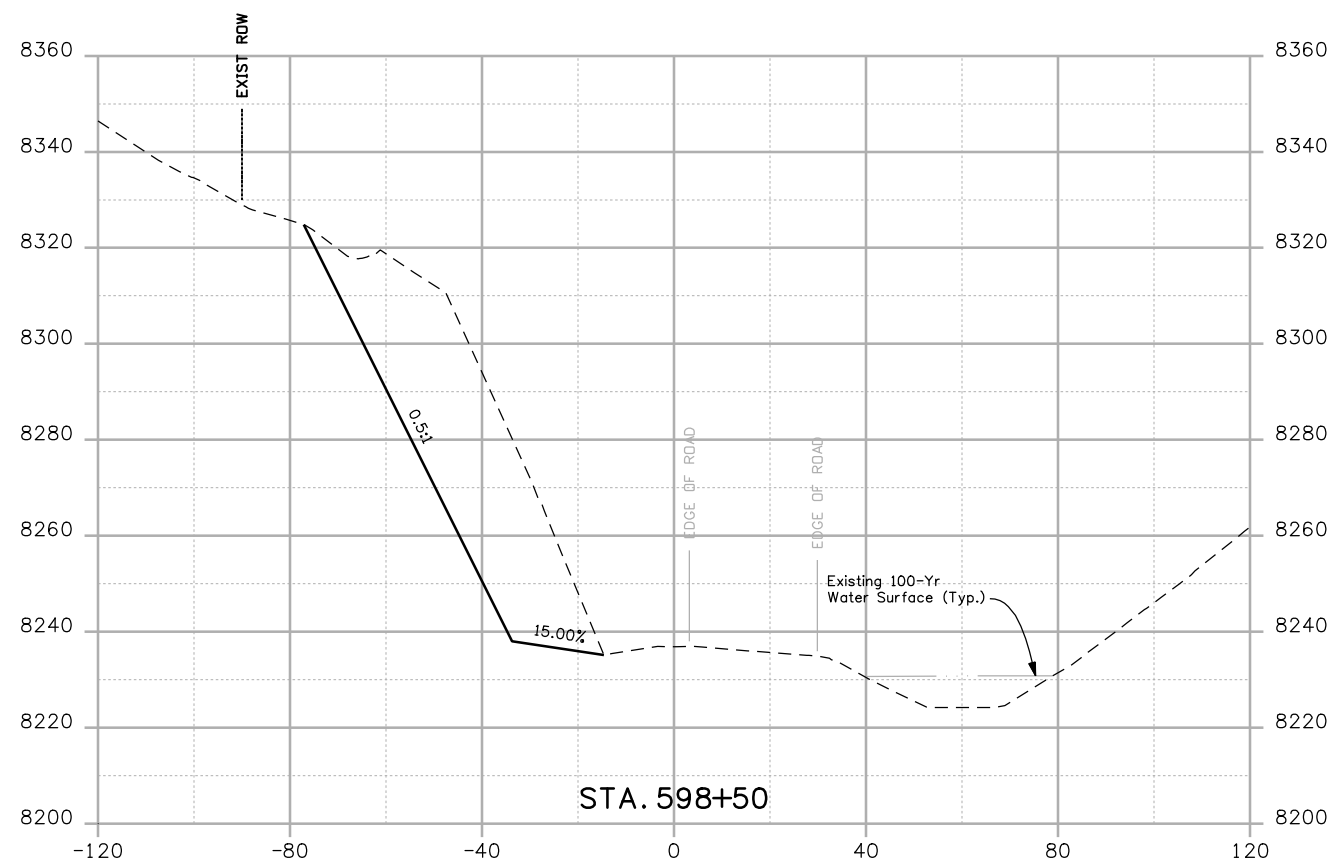
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:


CROSS SECTIONS  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 9 of 20

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 163



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100 Lakewood, CO 80226  
 CONSULTING ENGINEERS 303-988-4939  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

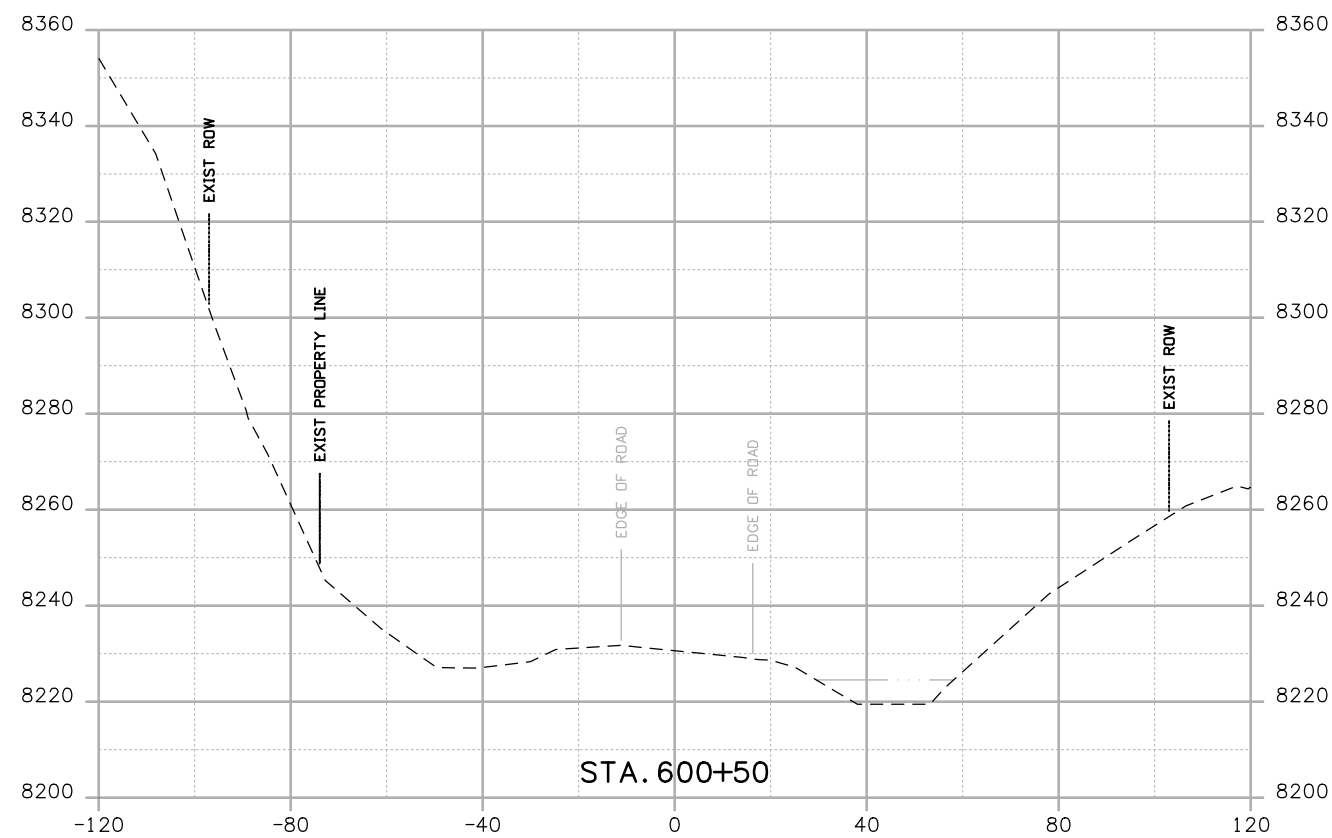
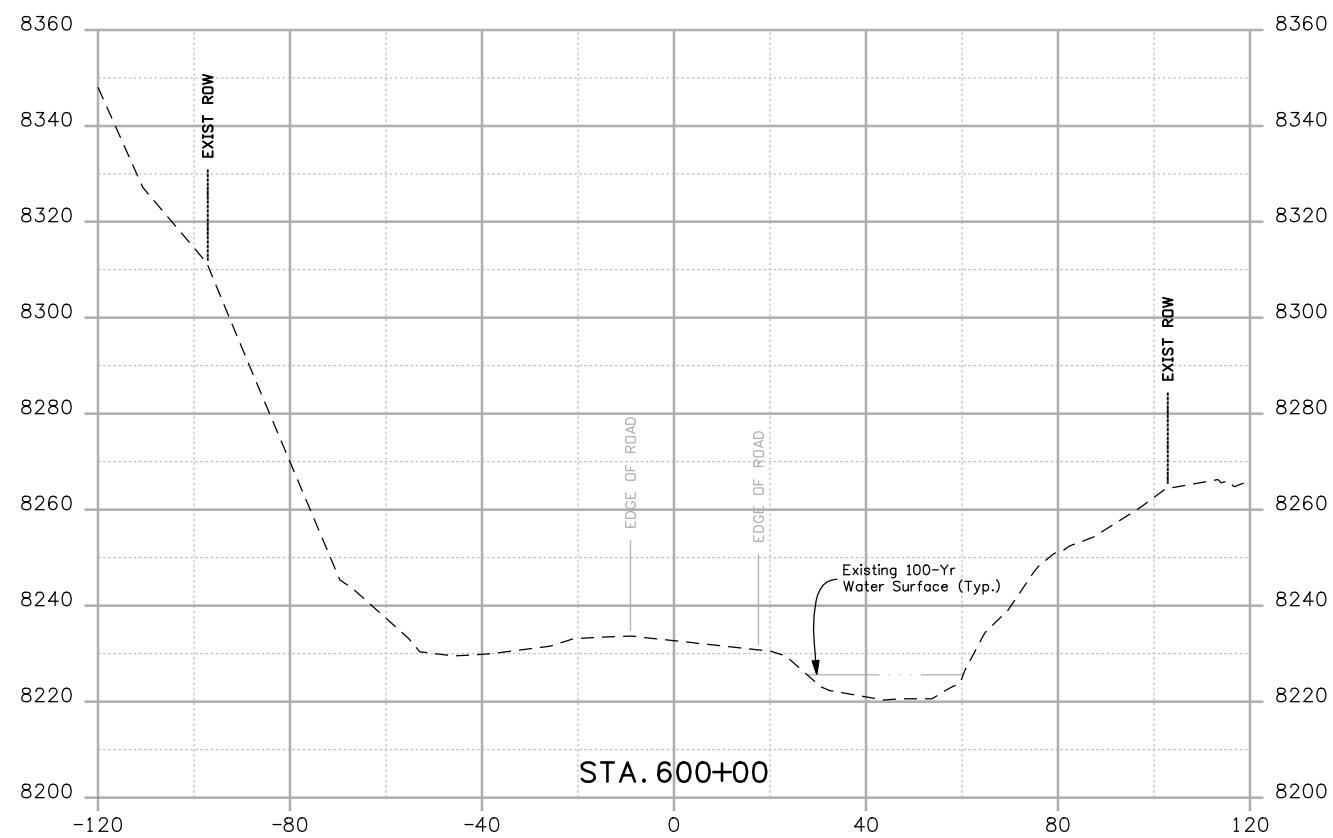
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:


CROSS SECTIONS  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 10 of 20

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 164



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections 303-988-4939

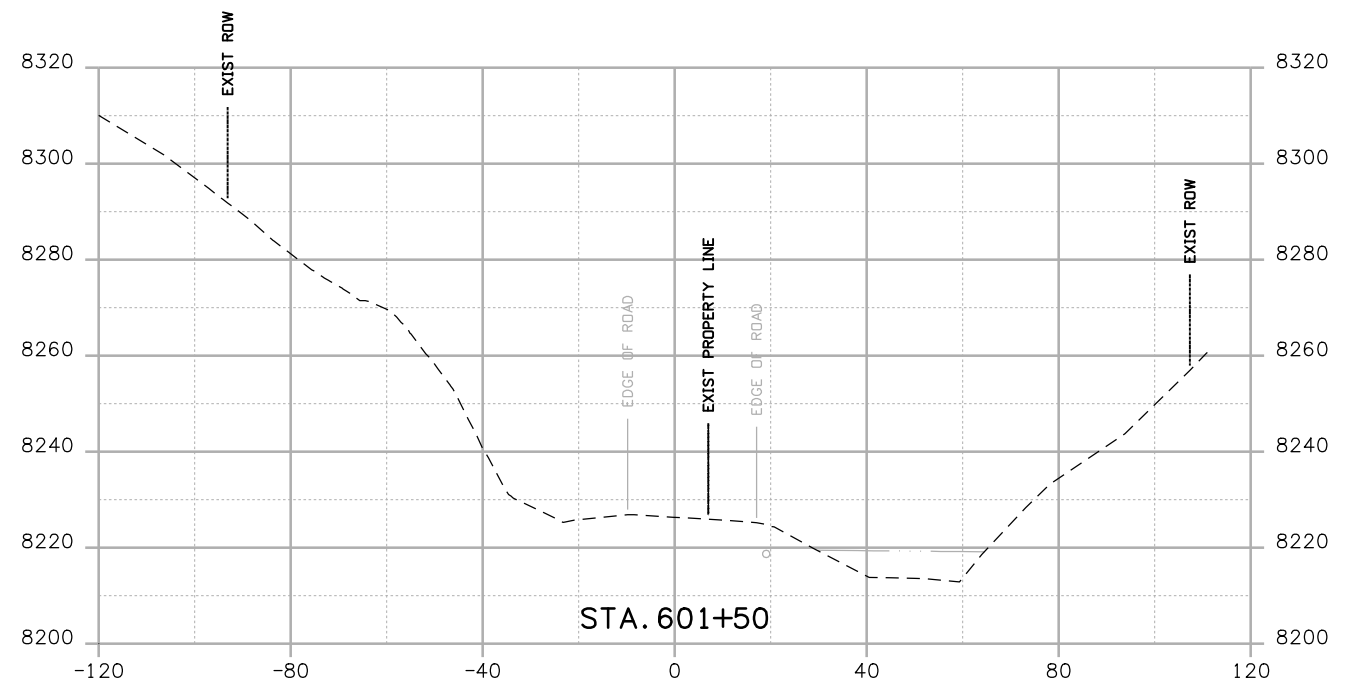
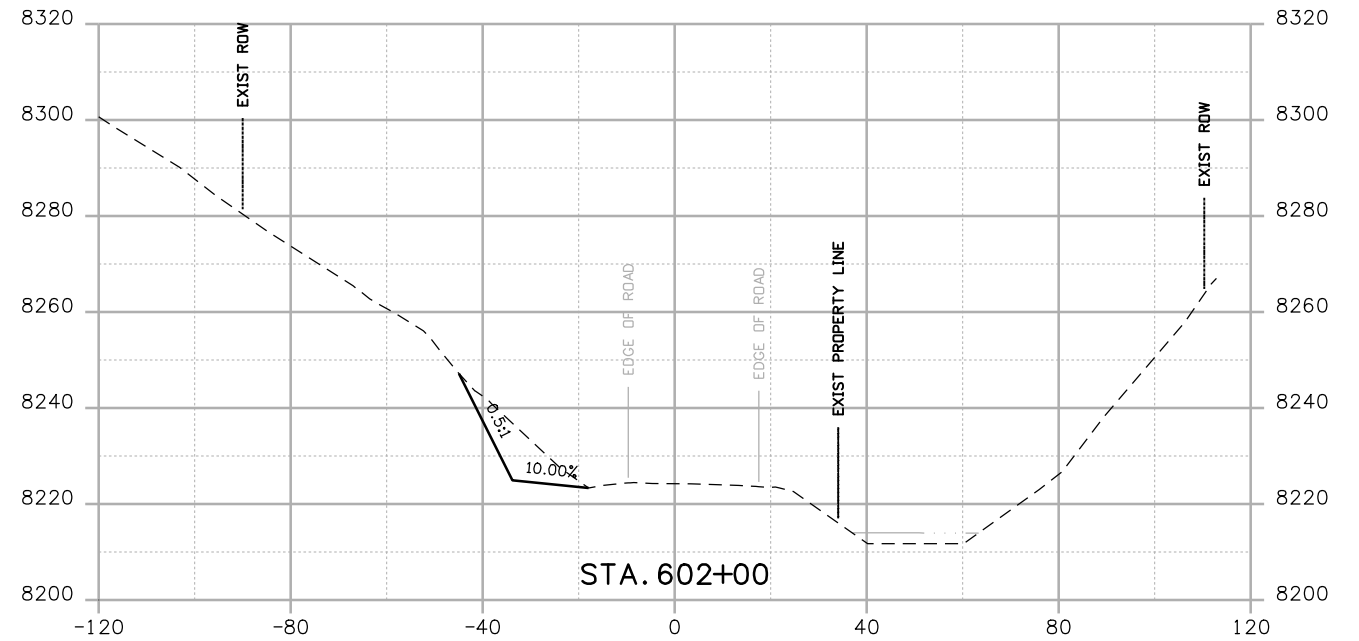
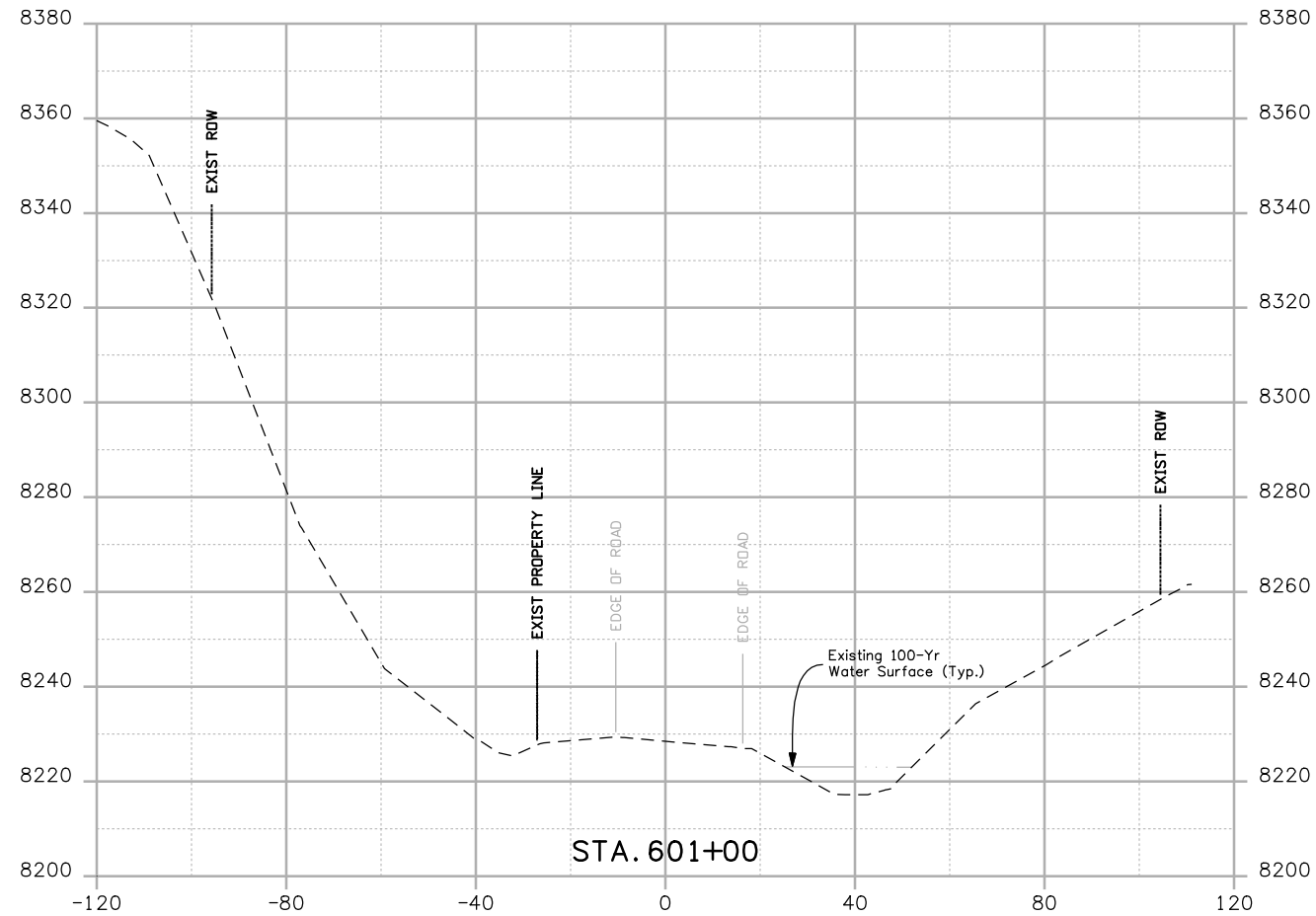
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3** **RBA**

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:


**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 11 of 20

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **165**



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections 303-988-4939

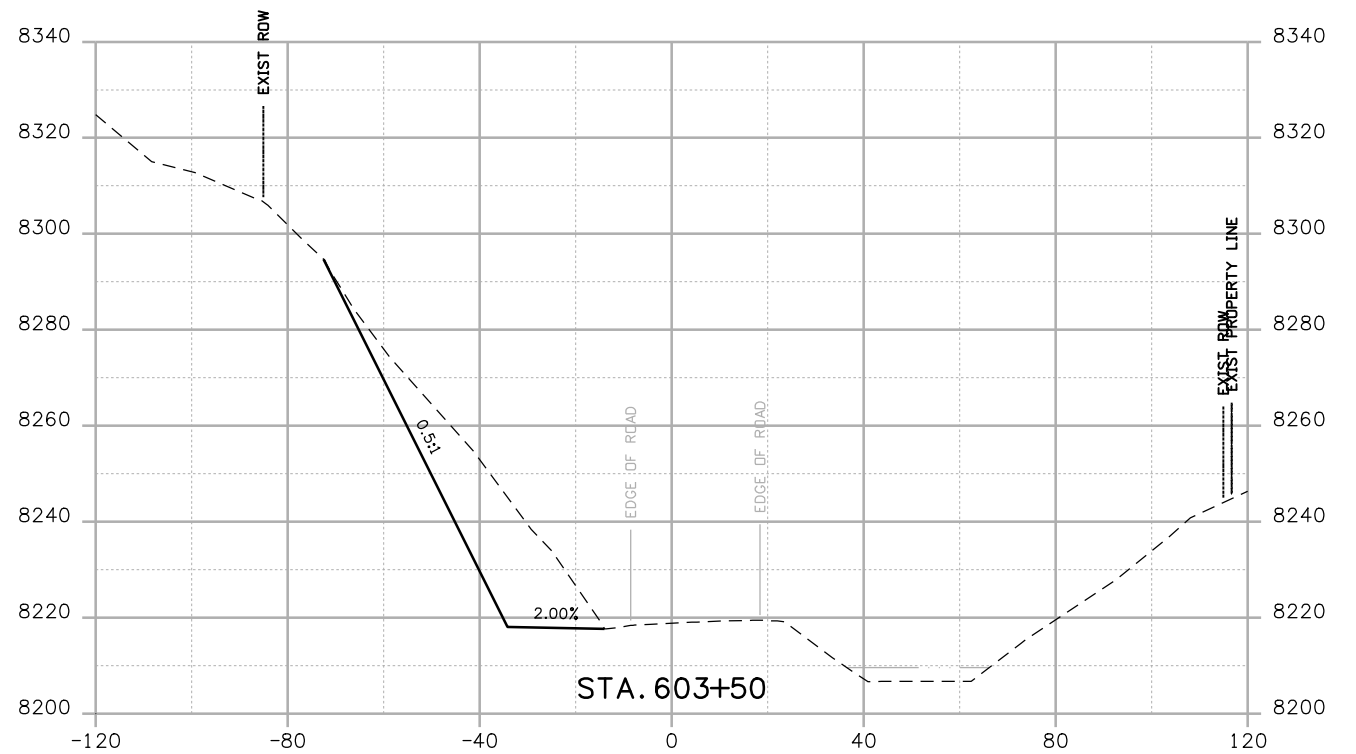
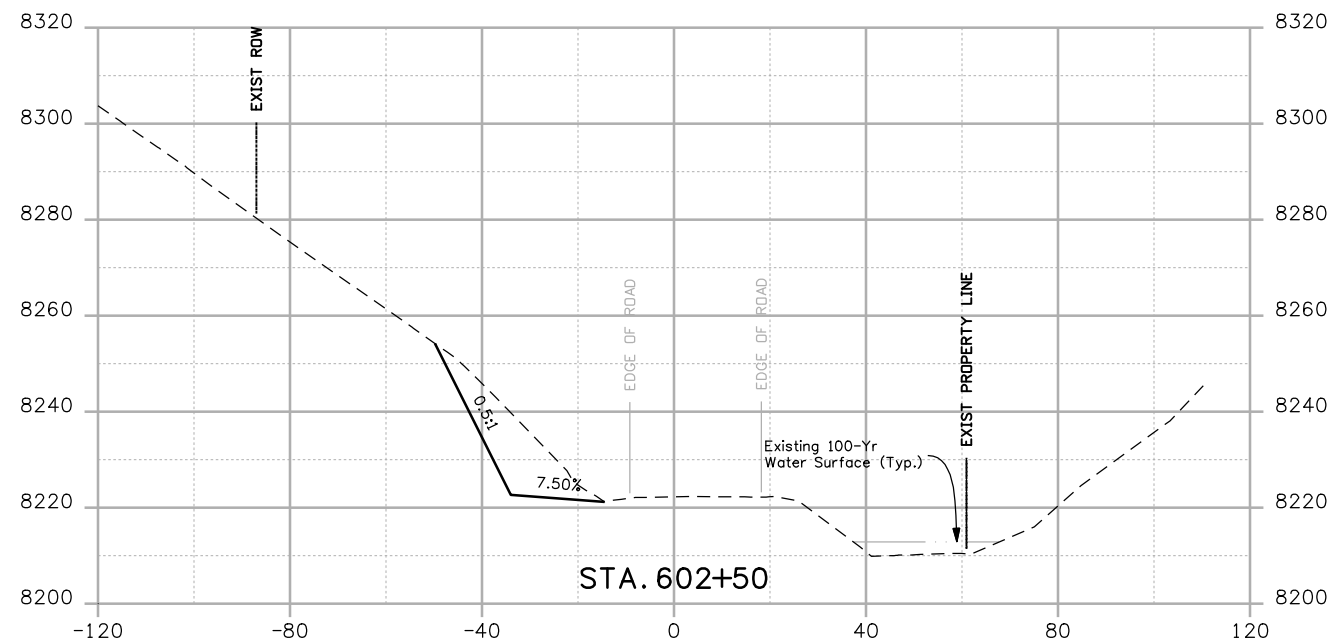
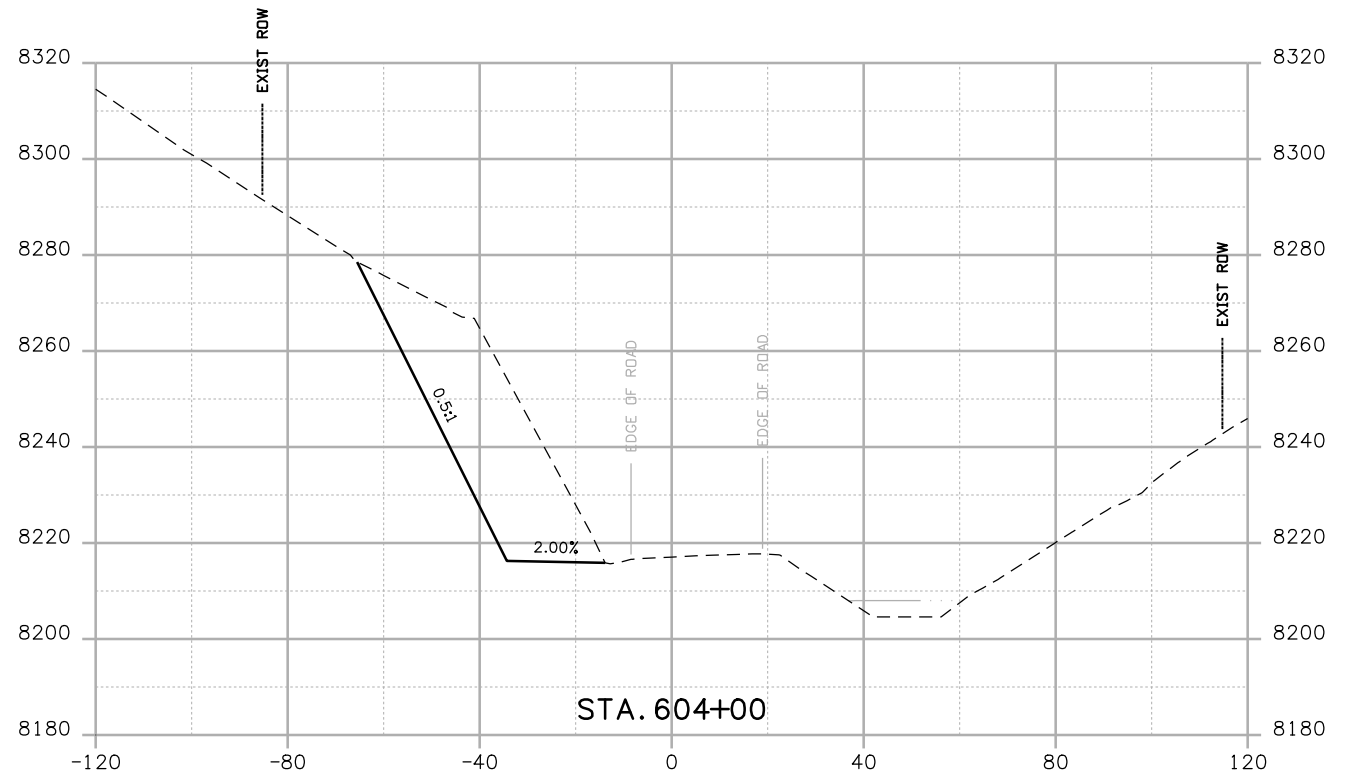
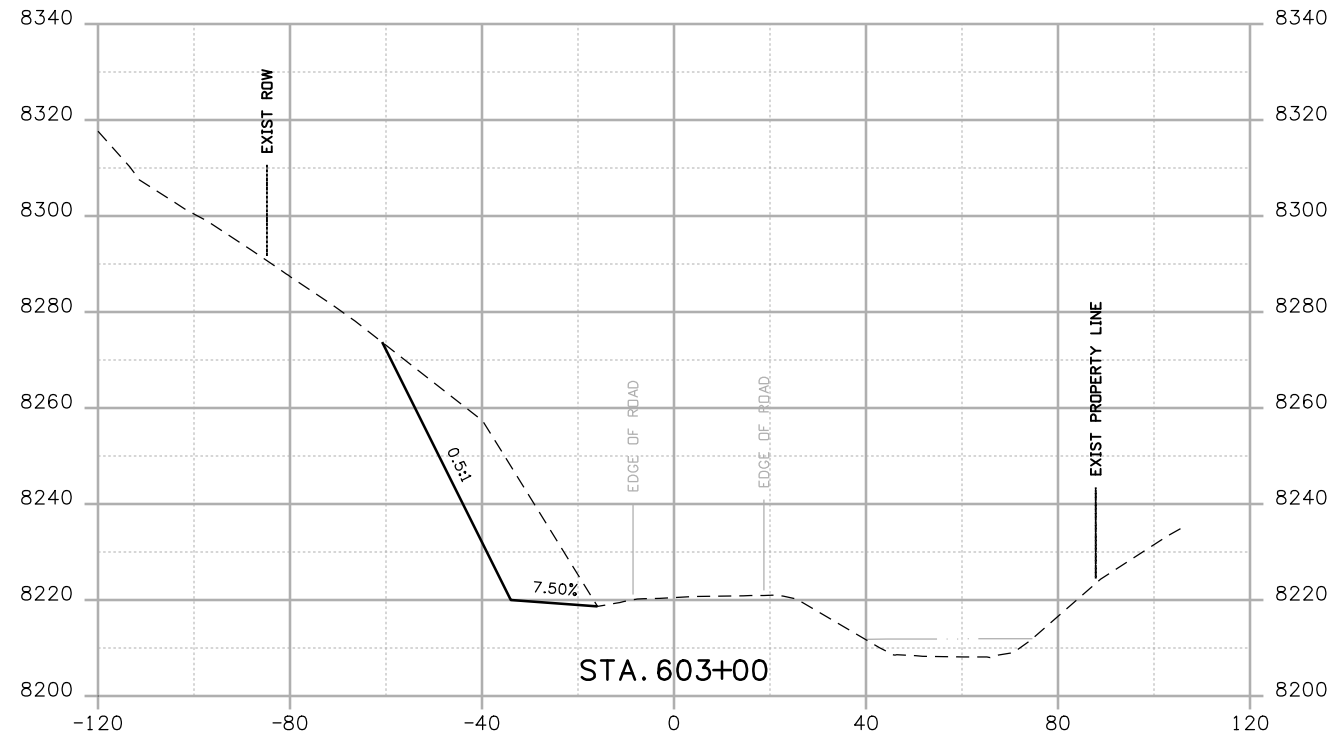
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
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 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3** **RBA**

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:


**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 12 of 20

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number **166**



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 303-988-4939 303-988-4939

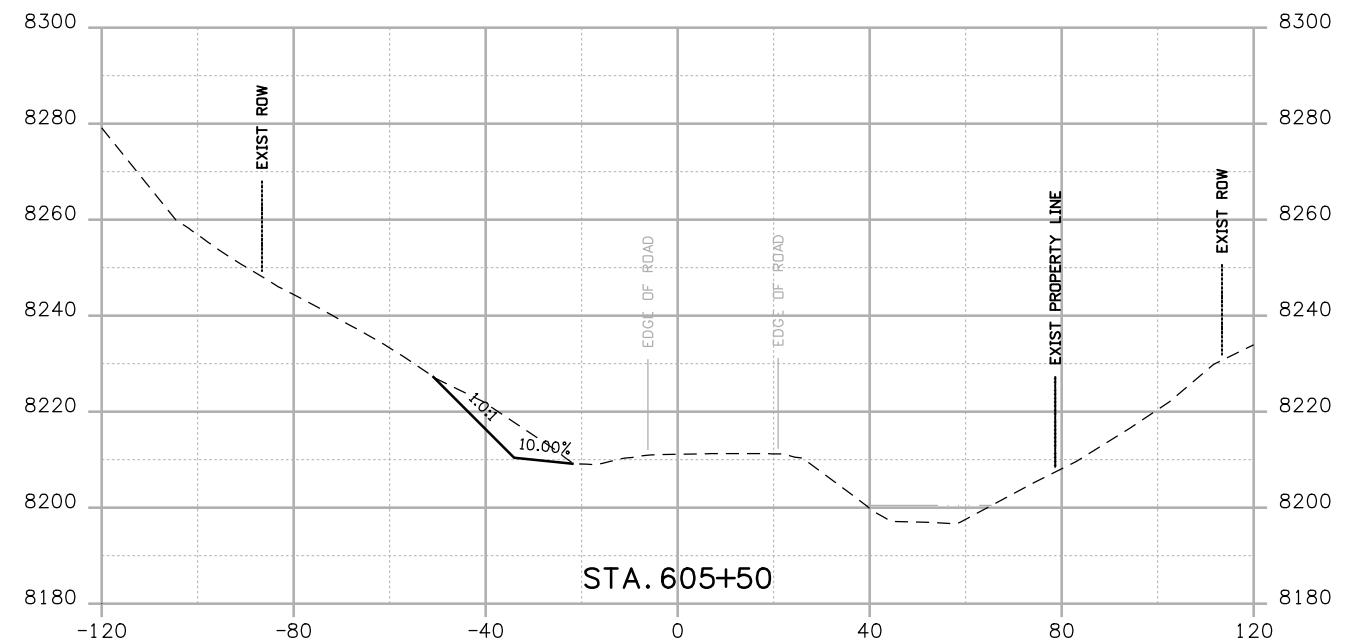
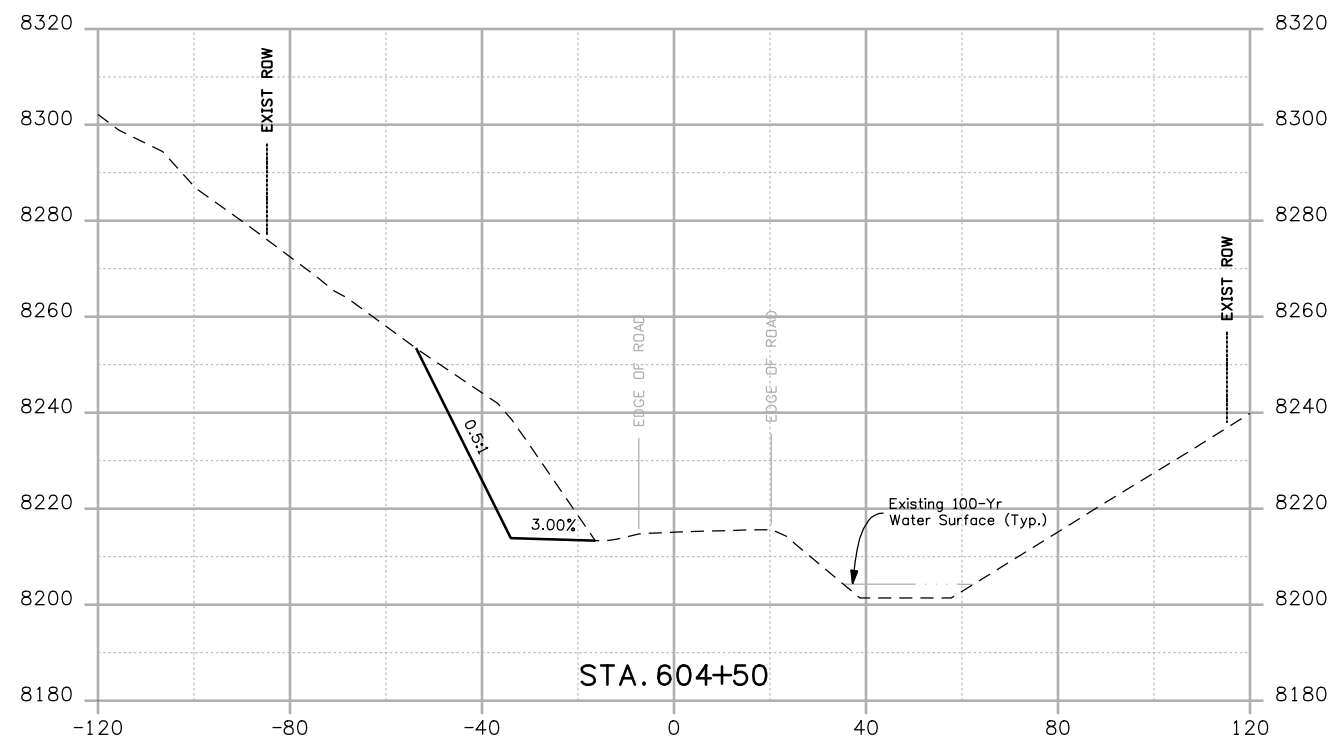
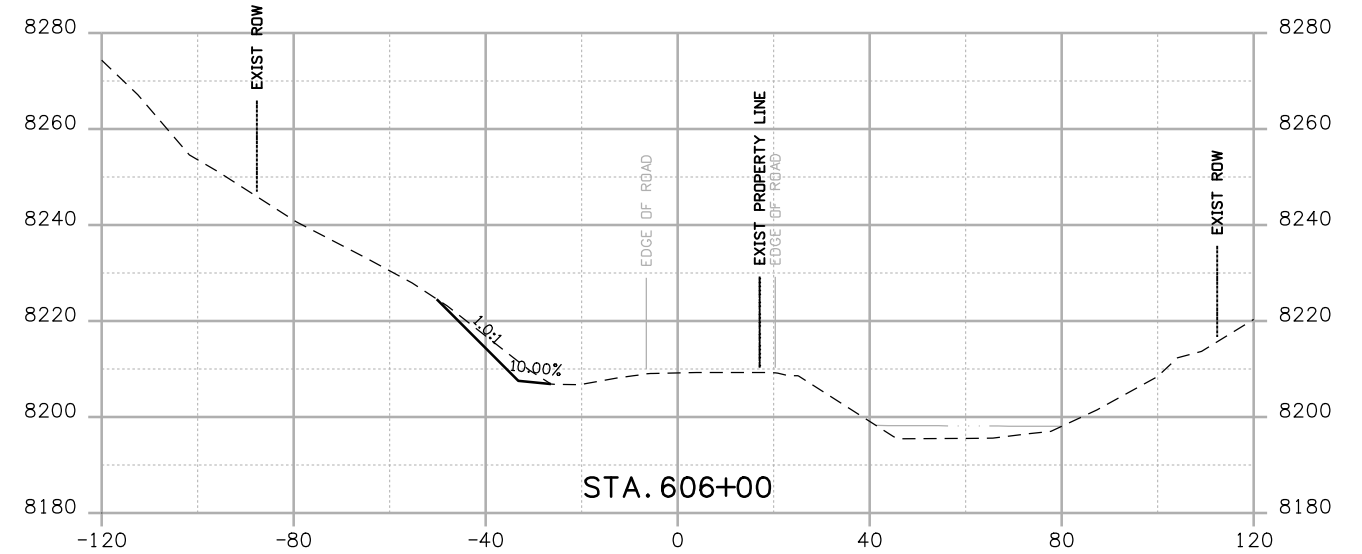
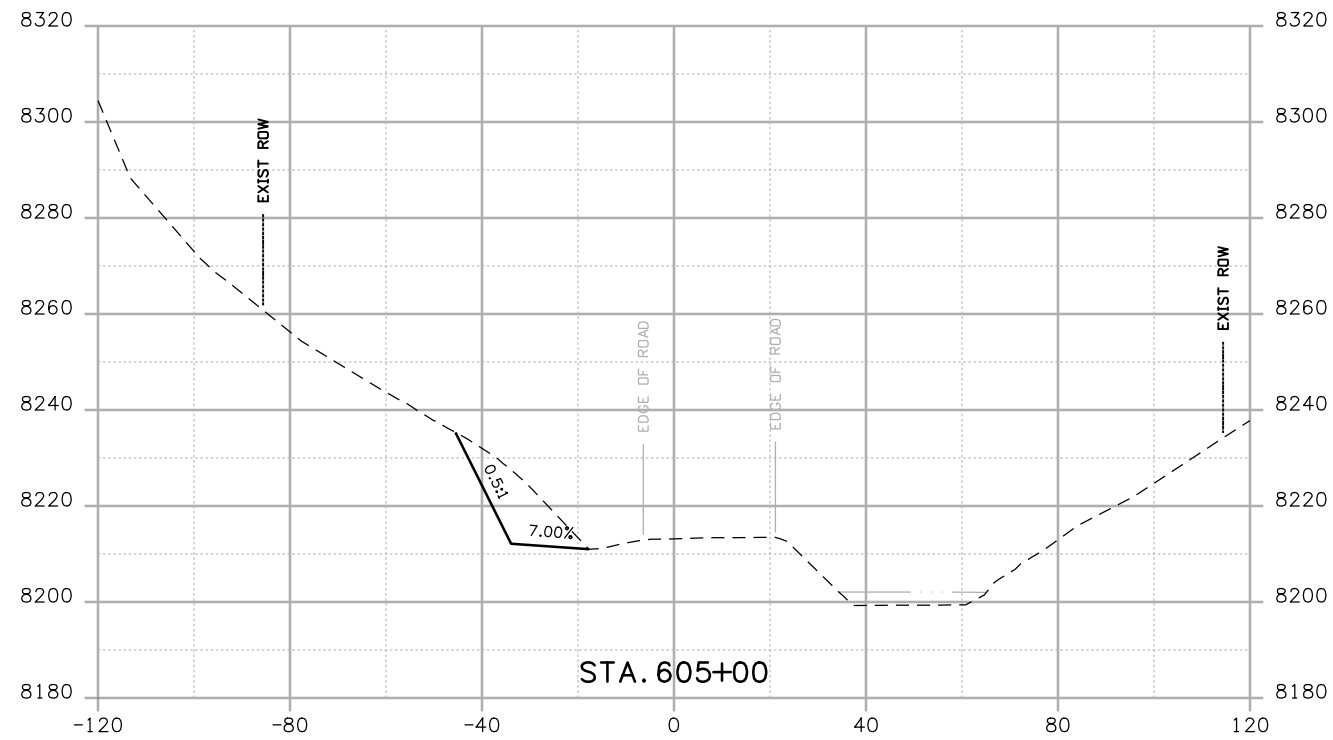
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:


CROSS SECTIONS  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 13 of 20

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 167



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 303-988-4939 303-988-4939

Sheet Revisions		
Date:	Comments	Init.

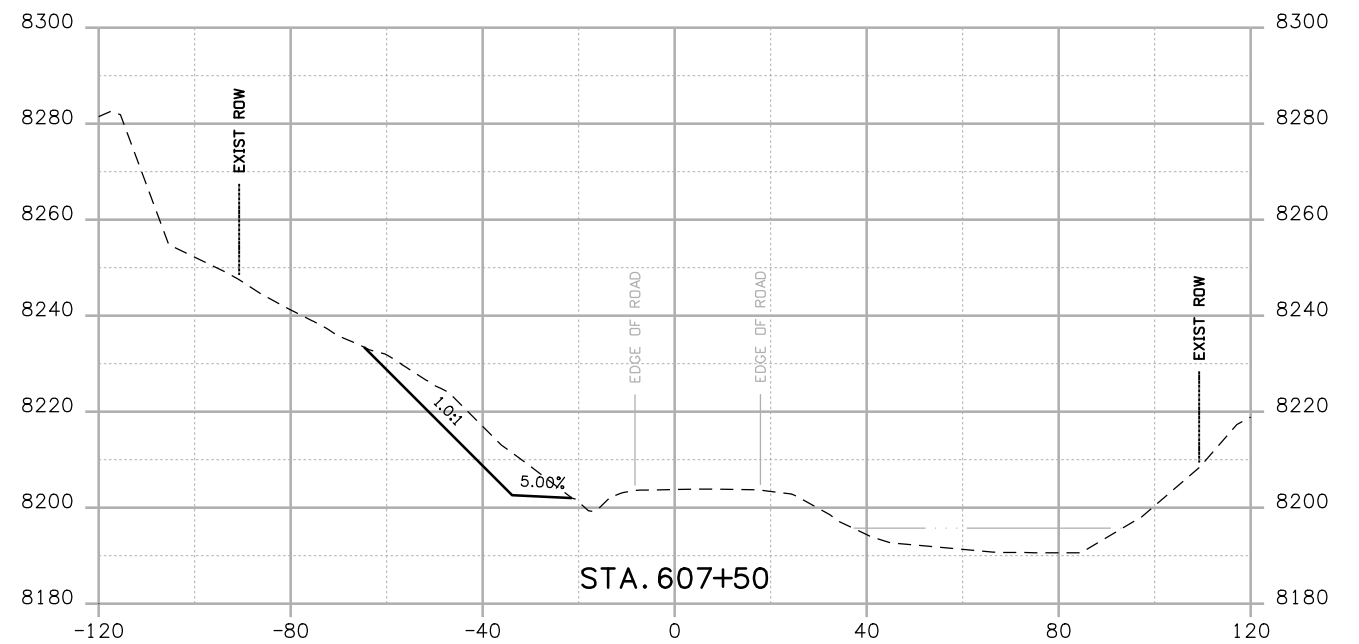
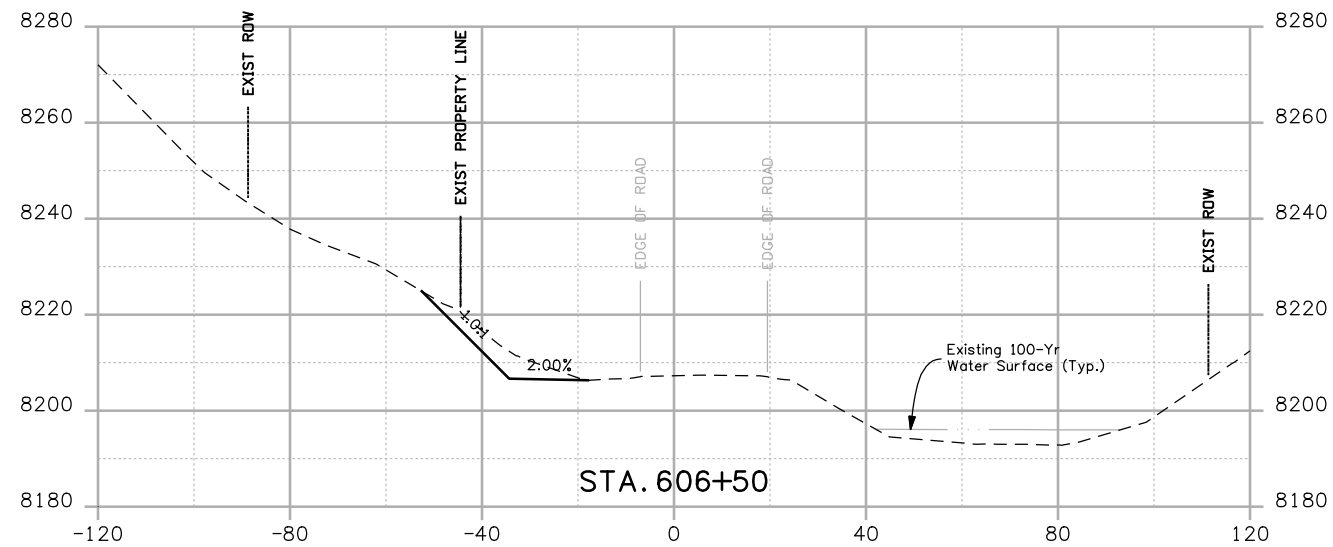
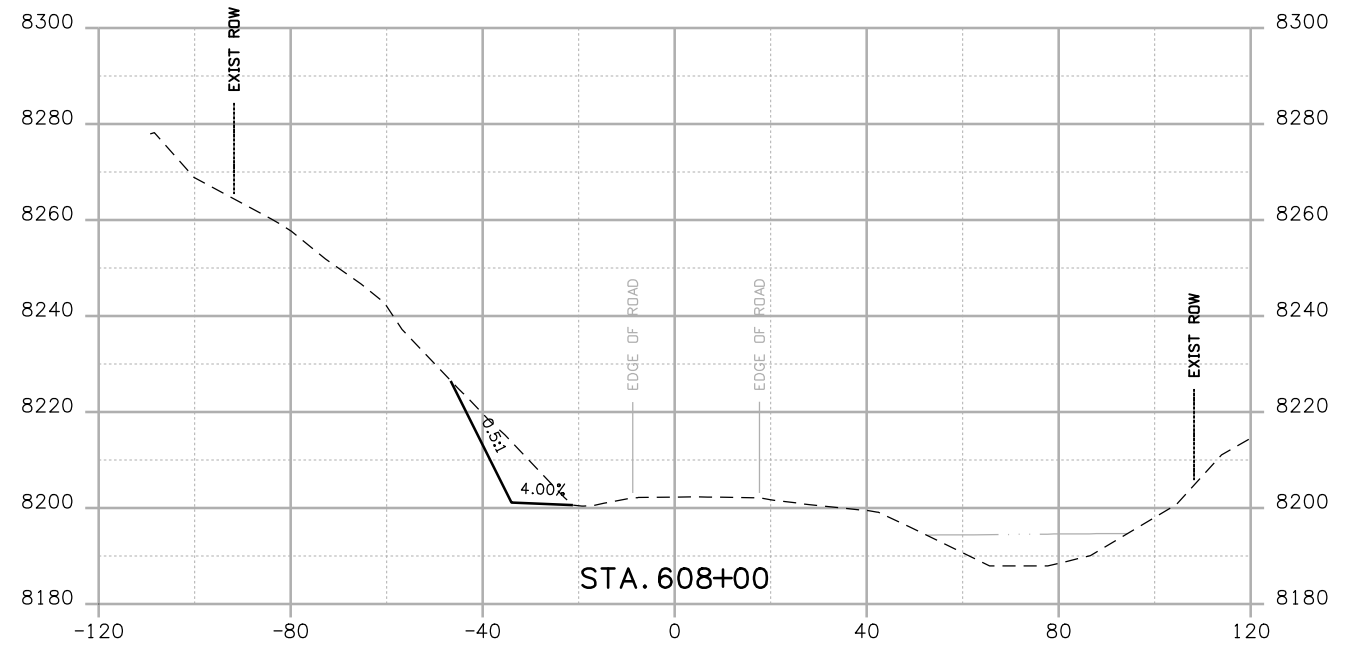
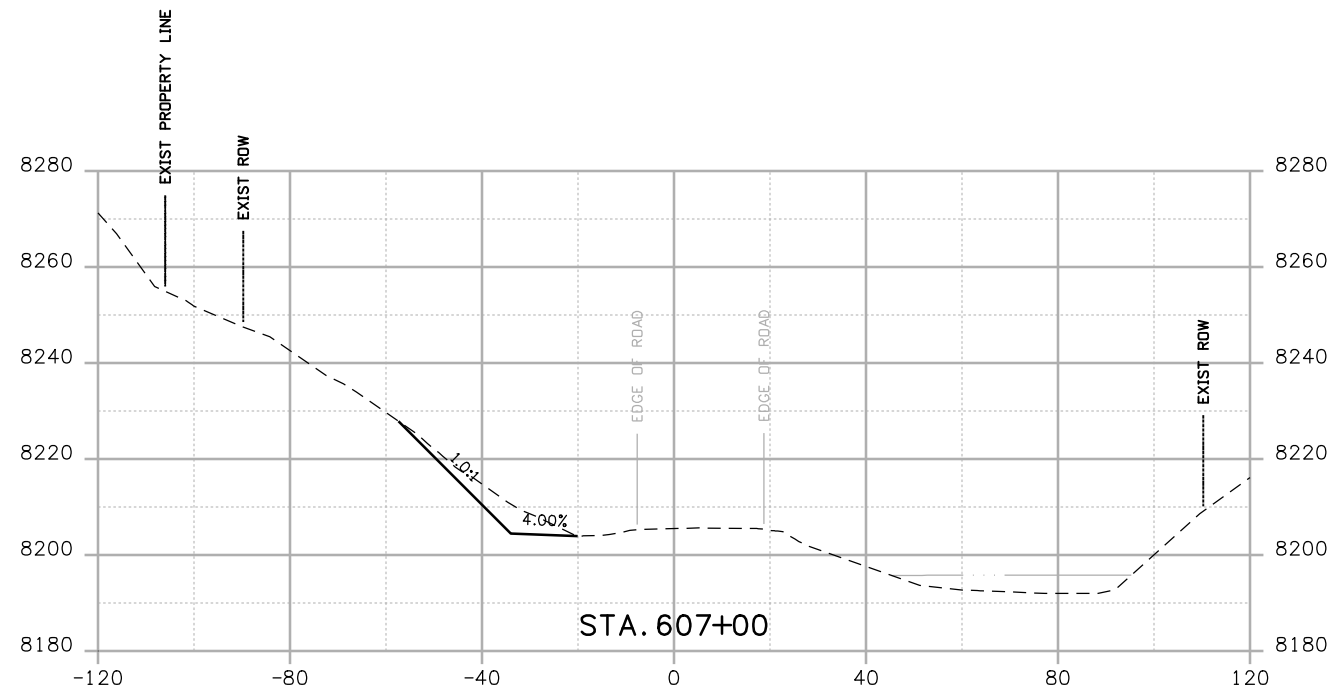
Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:

CROSS SECTIONS  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 14 of 20


Project No./Code  
 NH 0501-046  
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 Sheet Number 168





Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 303-988-4939 303-988-4939

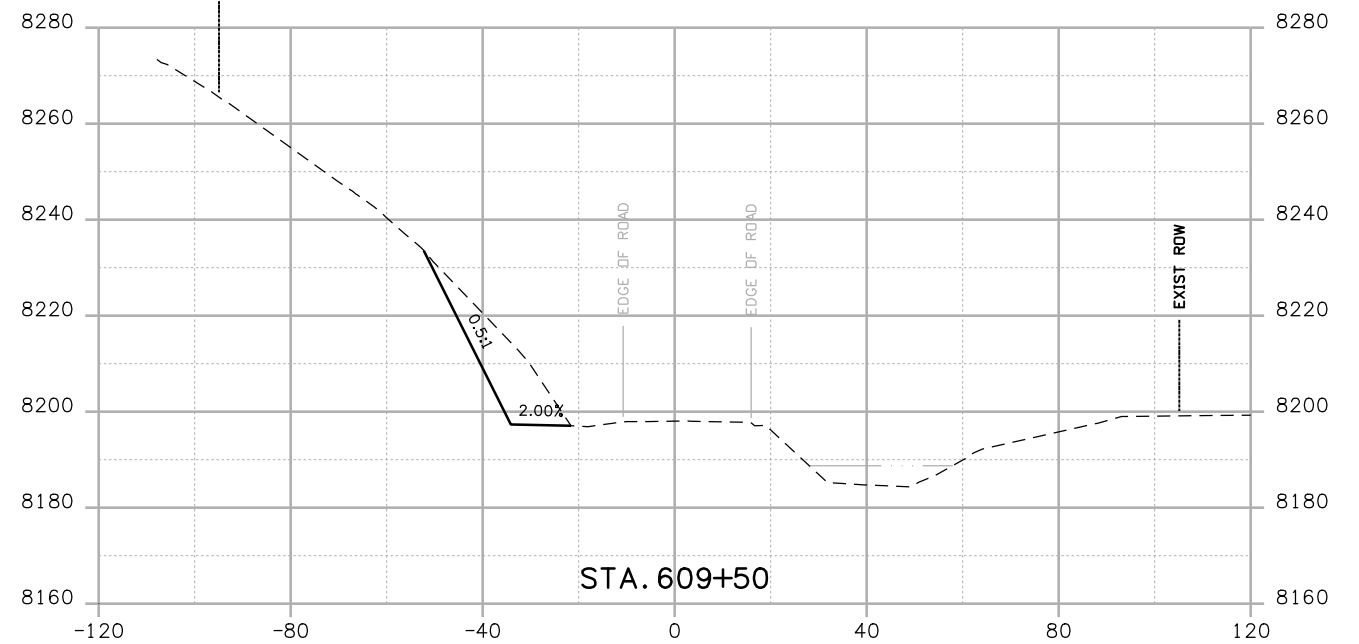
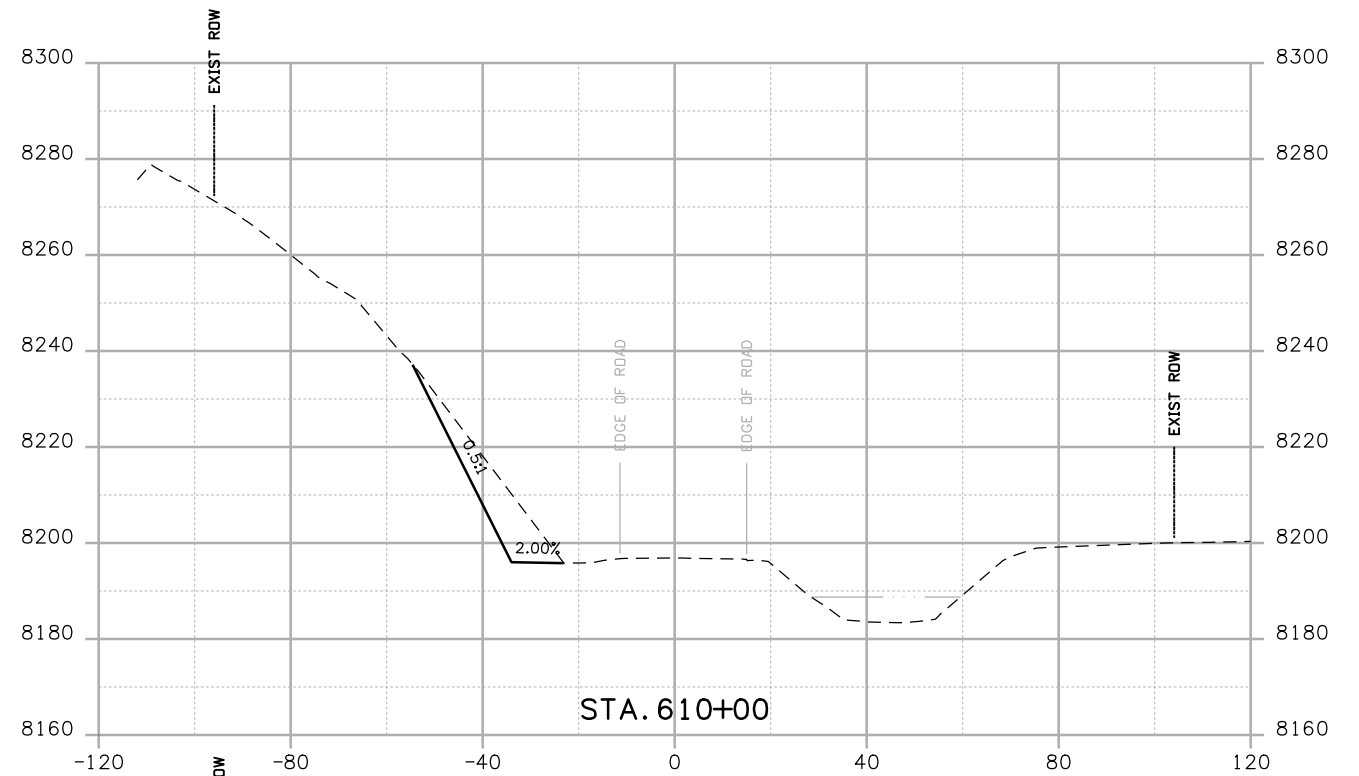
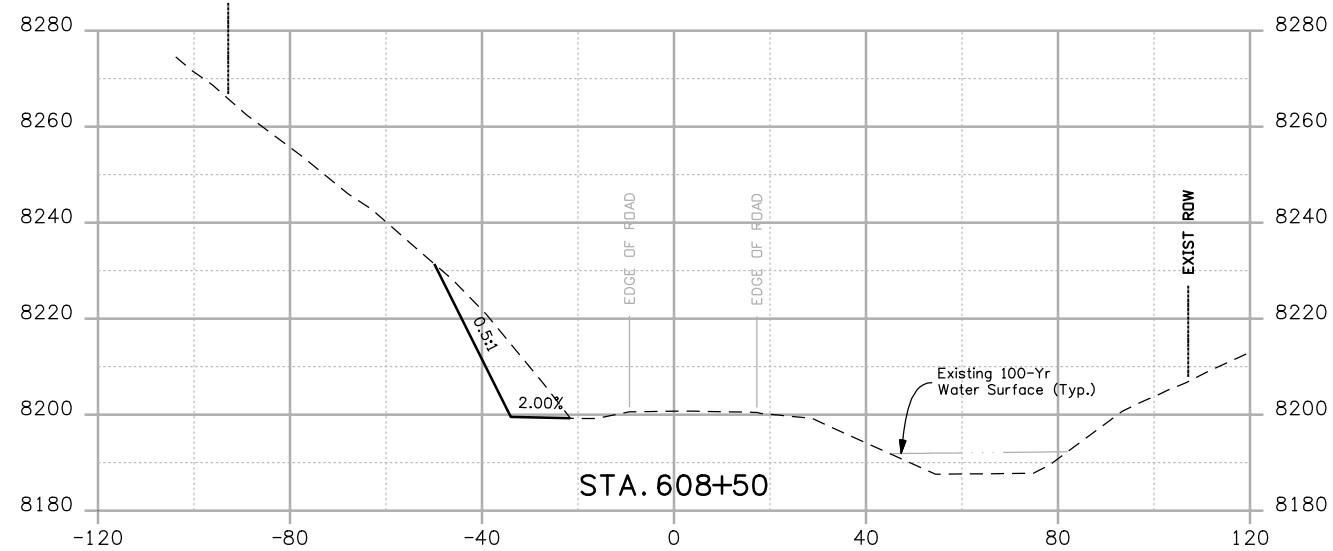
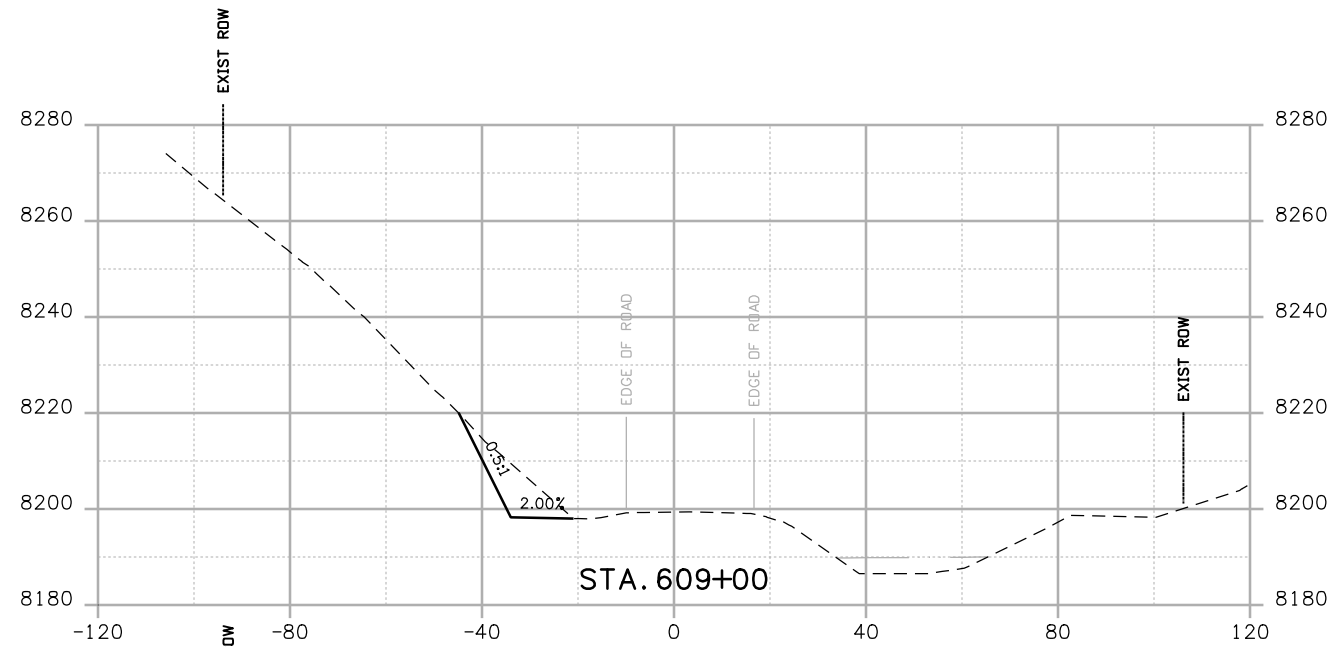
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
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 Phone: 972-249-5285 FAX: 970-249-6018  
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As Constructed  
 No Revisions:  
 Revised:  
 Void:


CROSS SECTIONS  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS  
 Subset Sheets: 15 of 20

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 169



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100 Lakewood, CO 80226  
 CONSULTING ENGINEERS 303-988-4939  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

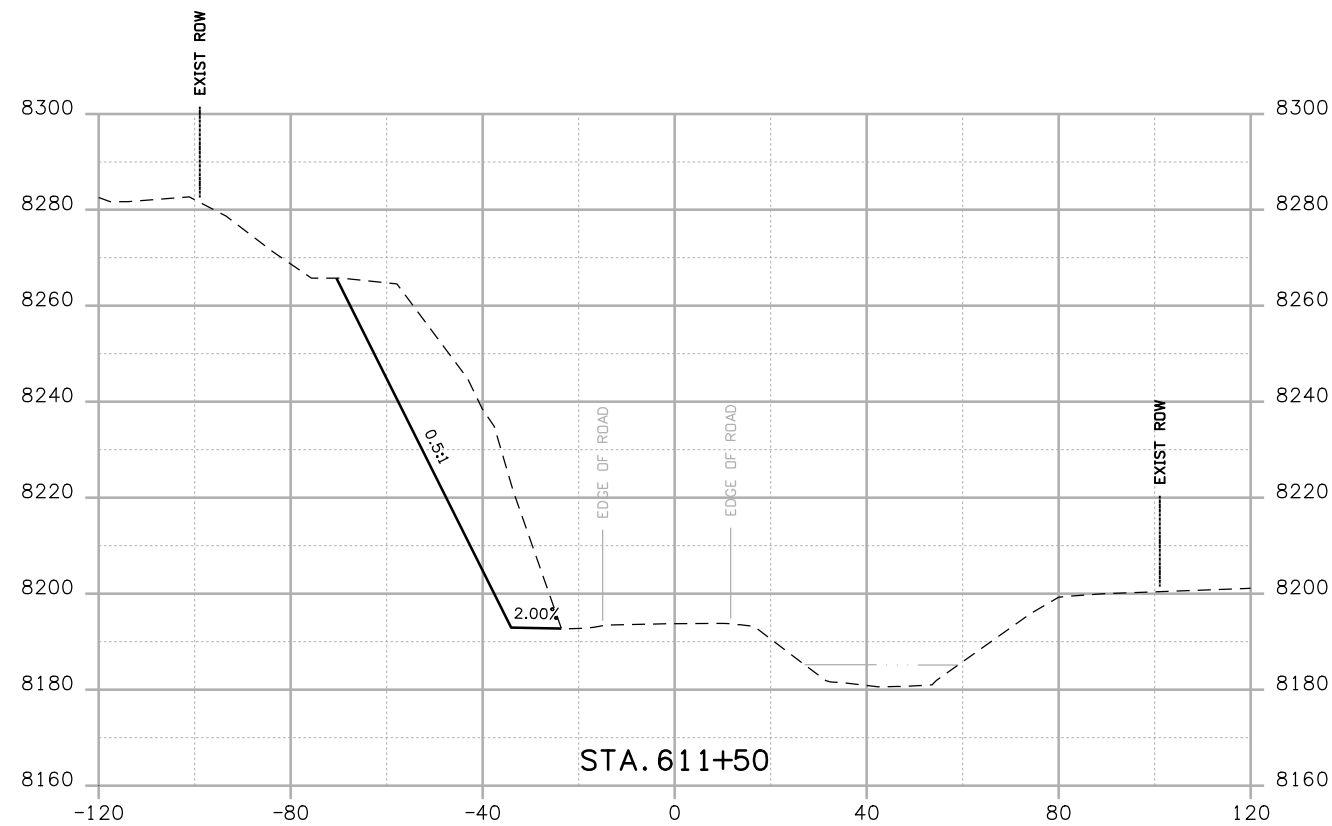
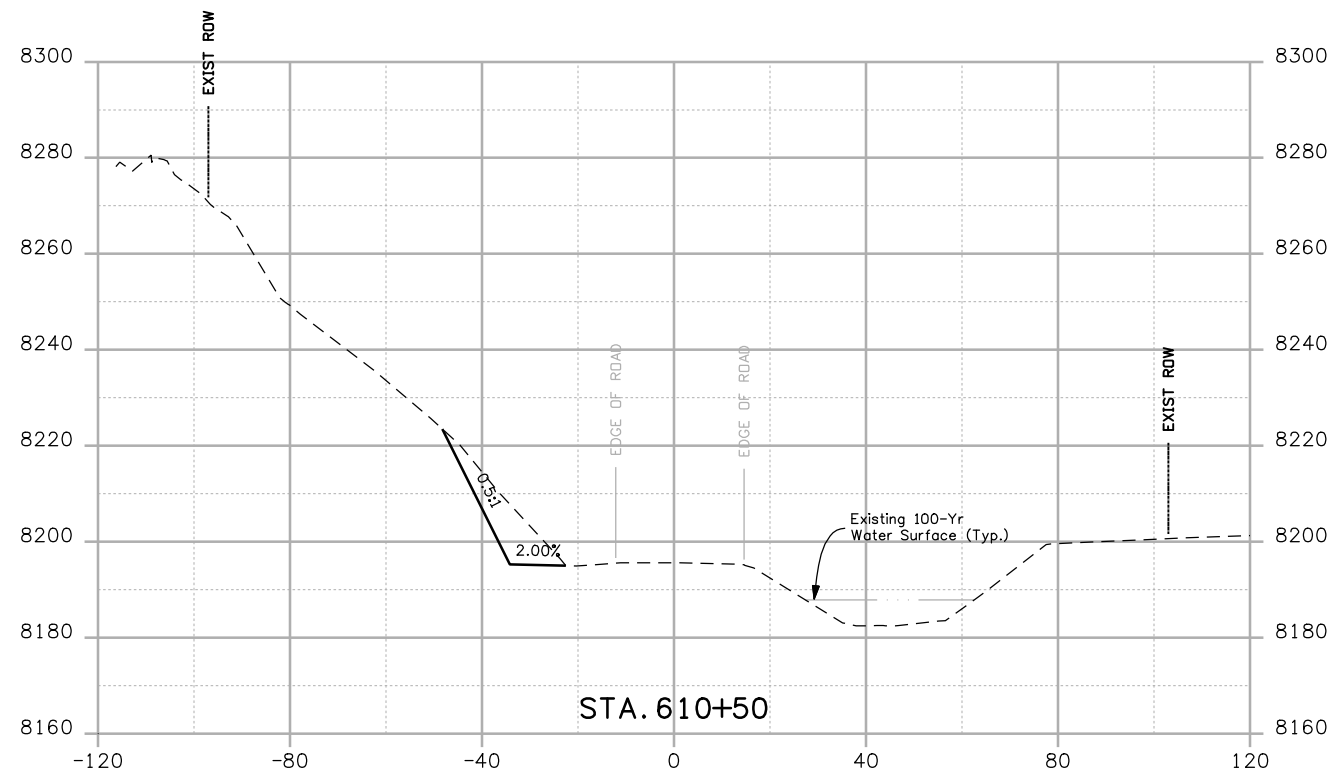
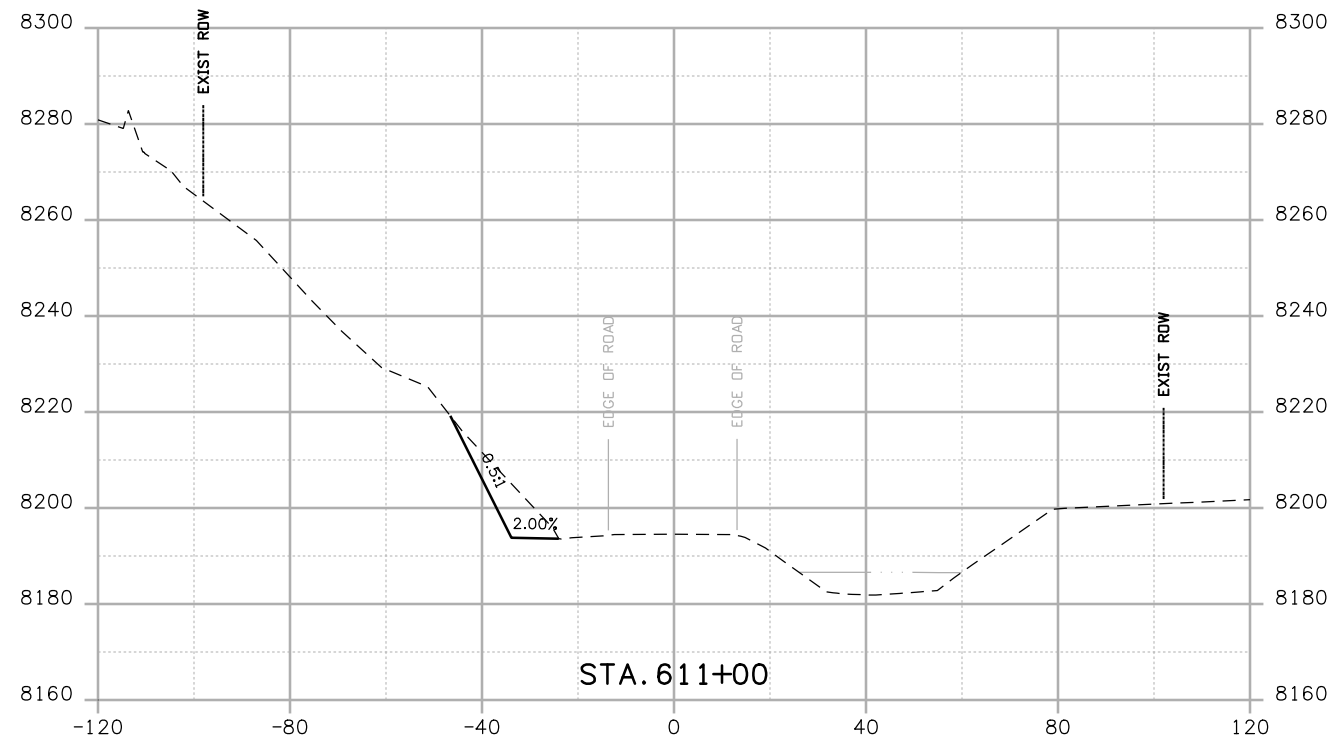
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
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 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3** **RBA**

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:


**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS  
 Subset Sheets: 16 of 20

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number 170



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100 Lakewood, CO 80226  
 P: 303-988-4939 303-988-4939

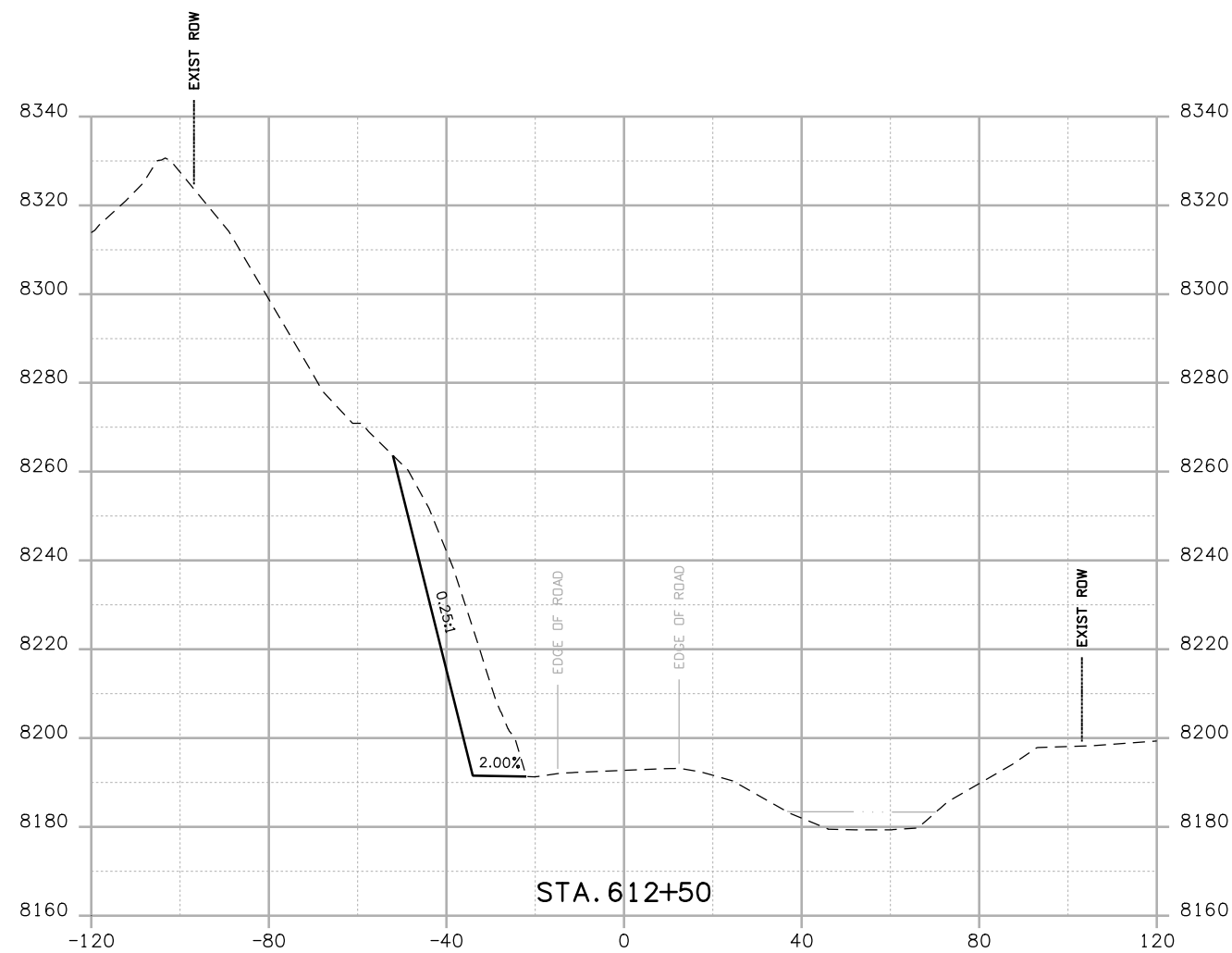
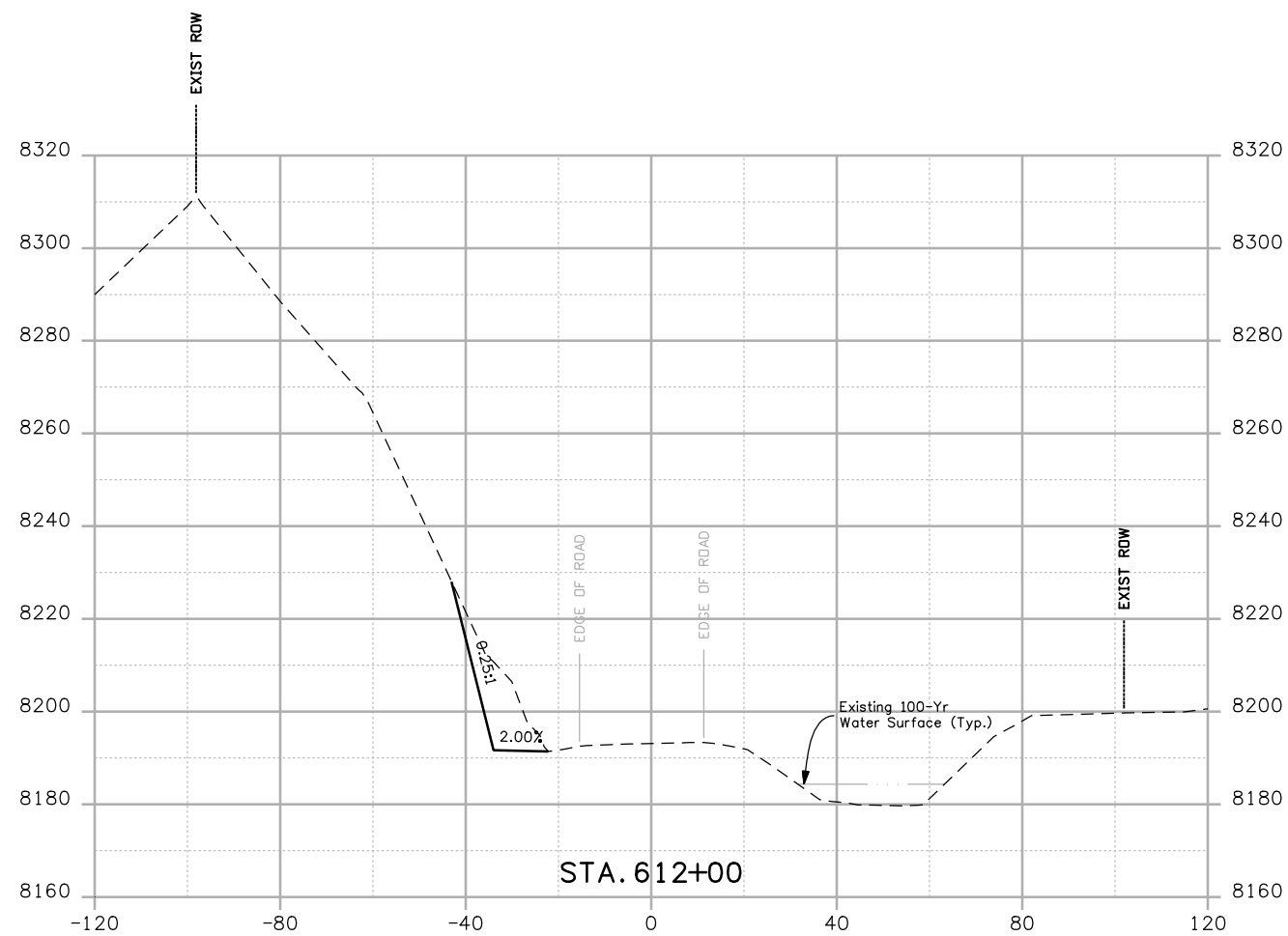
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
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 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:


CROSS SECTIONS  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 17 of 20

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 171



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 303-988-4939

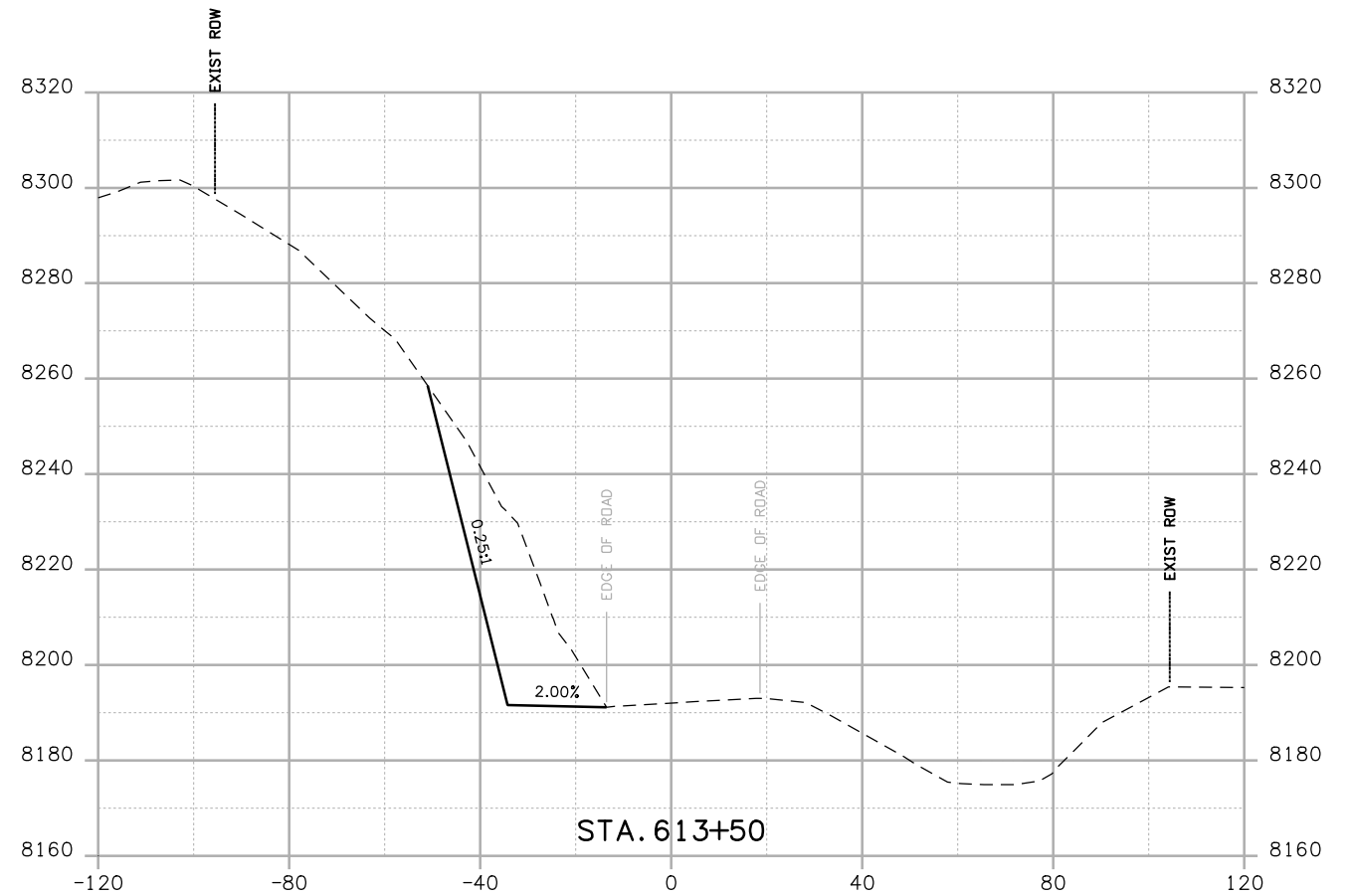
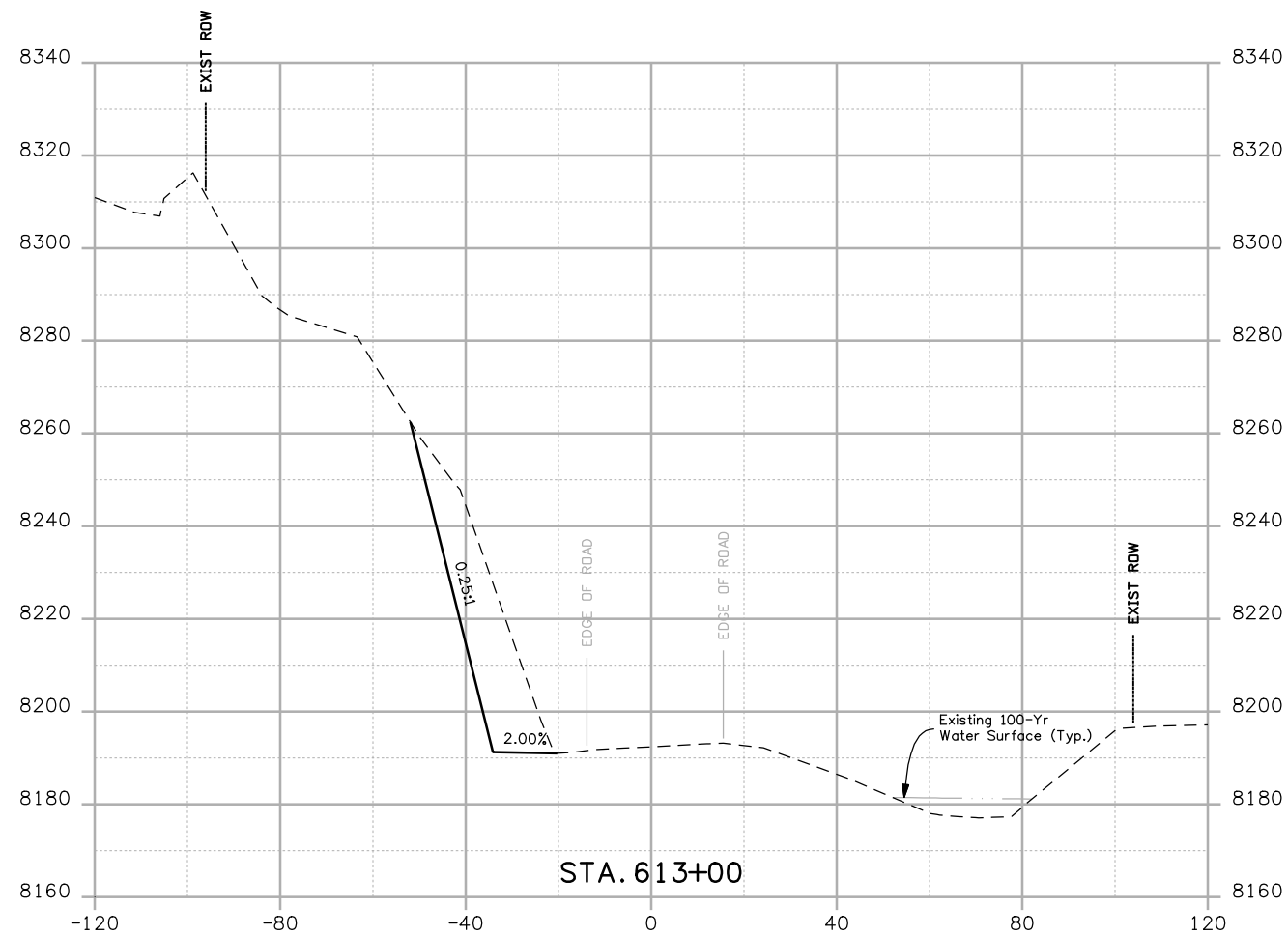
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
 Montrose, CO 81401  
 Phone: 972-249-5285 FAX: 970-249-6018  
**Region 3** **RBA**

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:


**CROSS SECTIONS**  
 Designer: NJL  
 Detailer: MAM  
 Sheet Subset: X-SECTIONS Subset Sheets: 18 of 20

**Project No./Code**  
 NH 0501-046  
 14933  
 Sheet Number 172



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 CONSULTING ENGINEERS #4 - 100  
 Lakewood, CO 80226  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections 303-988-4939

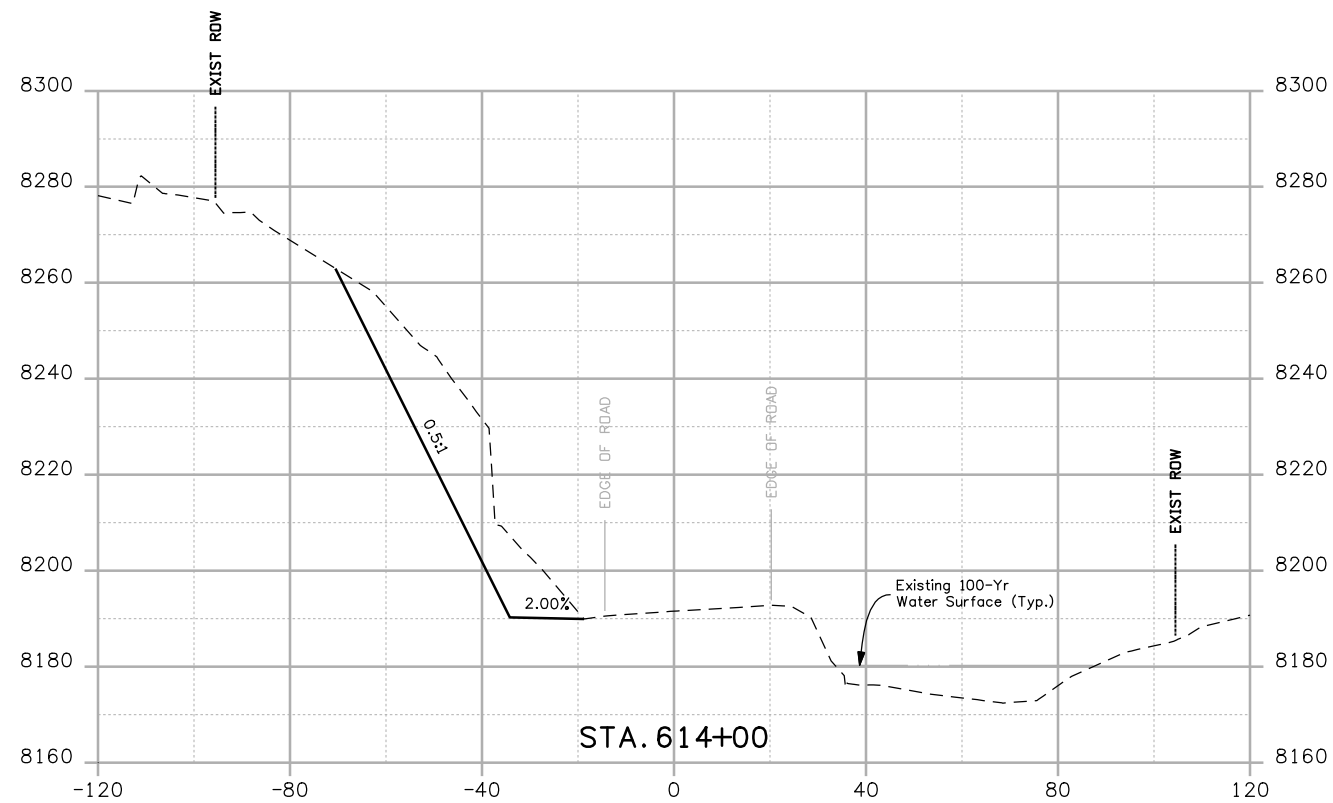
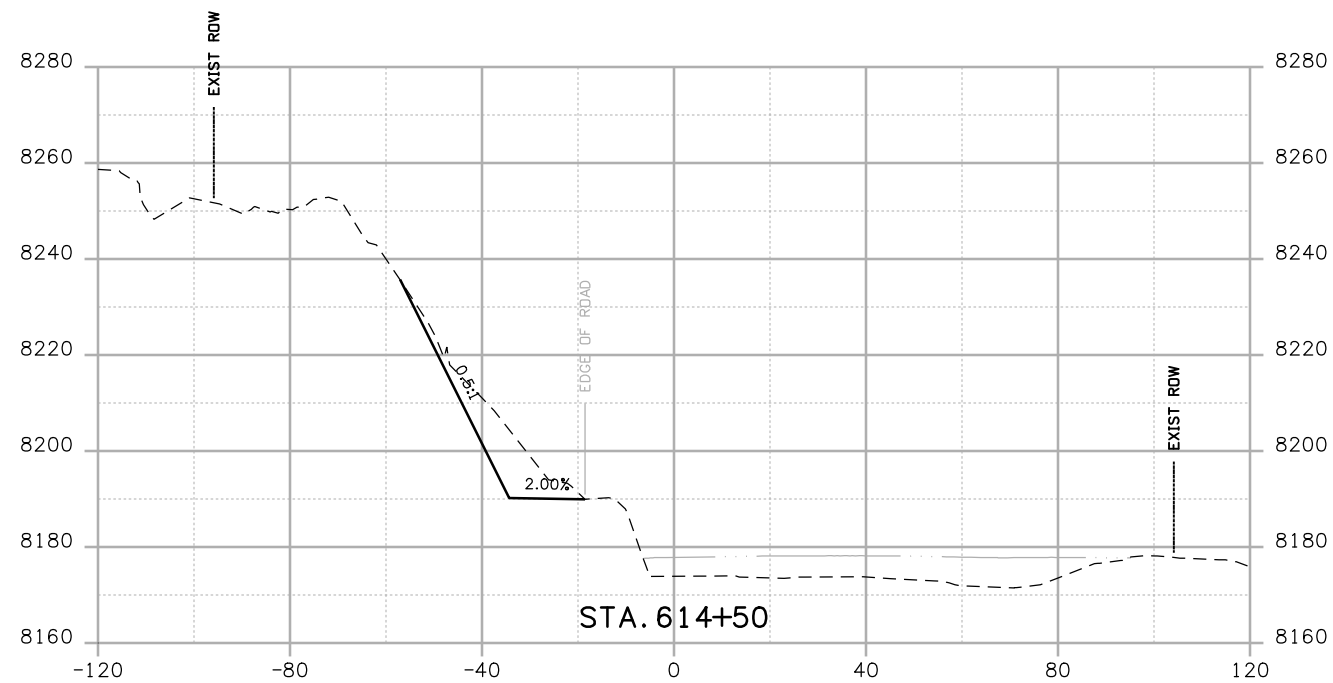
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
 2424 North Townsend Avenue  
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 Phone: 972-249-5285 FAX: 970-249-6018  
 Region 3 RBA

As Constructed  
 No Revisions:  
 Revised:  
 Void:


CROSS SECTIONS	
Designer:	NJL
Detailer:	MAM
Sheet Subset: X-SECTIONS	Subset Sheets: 19 of 20

Project No./Code  
 NH 0501-046  
 14933  
 Sheet Number 173



Print Date: 3/26/2010  
 Drawing File Name: US 50 XSections03 Segment 2.dgn  
 Horiz. Scale: 1:40 Vert. Scale: N/A  
 Unit Leader Information Unit Leader Initials  
**MULLER ENGINEERING CO., INC.** 777 S. Wadsworth Blvd.  
 #4 - 100  
 Lakewood, CO 80226  
 303-988-4939  
 P: 06-065.01 SH 50/14933/Design/Drawings/CrossSections

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation  
  
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 Region 3 RBA

<b>As Constructed</b>
No Revisions:
Revised:
Void:

CROSS SECTIONS	
Designer: NJL	
Detailer: MAM	
Sheet Subset: X-SECTIONS	Subset Sheets: 20 of 20

<b>Project No./Code</b>
NH 0501-046
14933
Sheet Number 174