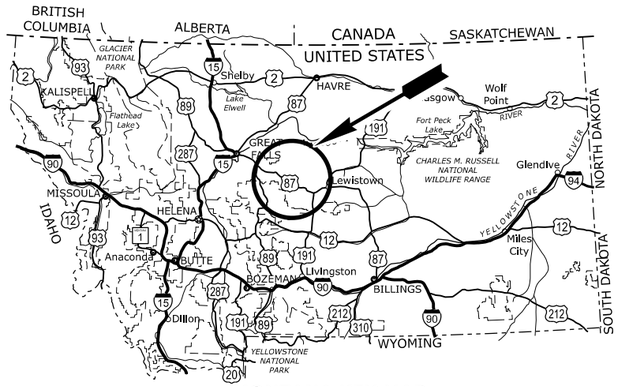
PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	A.1

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



MONTANA KEY MAP

PLANS FOR PROPOSED PROJECT

MT DAR MALM 2026(1)

DEFENSE ACCESS ROADS FY 2026

JUDITH BASIN COUNTY
MONTANA

SCHEDULE A LENGTH 18.05 MILES
SCHEDULE B LENGTH 23.00 MILES
SCHEDULE C LENGTH 32.49 MILES
SCHEDULE D LENGTH 37.38 MILES
SCHEDULE E LENGTH 41.77 MILES
SCHEDULE F LENGTH 52.12 MILES

MONTANA NEAL BELL 23776PE 5/27/26 LICENSED PROFESSIONAL ENGINEER

TYPE OF CONSTRUCTION:

Drainage, roadway reconditioning, aggregate surfacing, and aggregate stabilization.

DESIGN DESIGNATION:

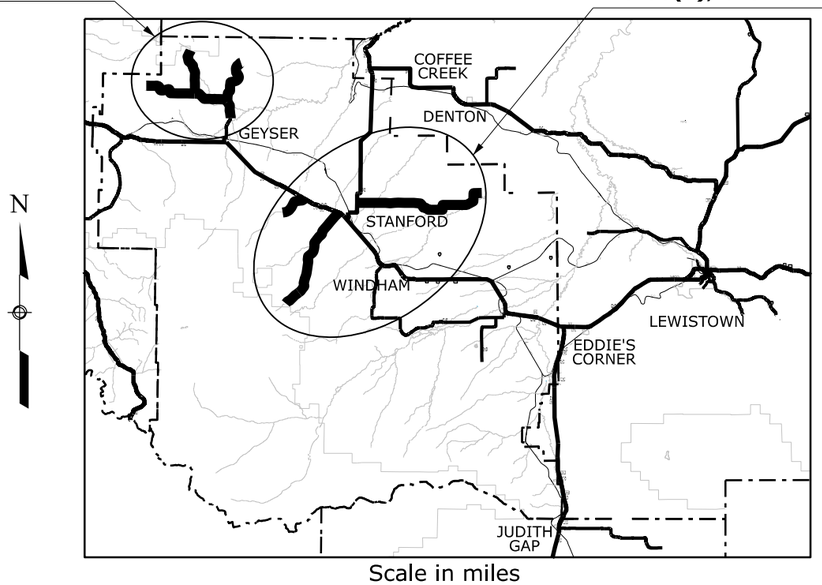
ADT (2026)	*<250*
ADT (2046)	*<250*
V	*35 MPH*
e (max)	*8%*

SPECIFICATION:

Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-24

A-03, B-09, B-10, & B-11 ROADS

B-06, C-02, C-03, C-08(a), & C-10 ROADS



Scale in miles

10 0 10 20 30 40

SHEET INDEX

A. GENERAL INFORMATION
A.1 TITLE SHEET
A.2 PLAN SYMBOLS AND ABBREVIATIONS
A.3-5 VICINITY MAPS

B. SUMMARY OF QUANTITIES
B.1-6 SUMMARY OF QUANTITIES

C. TYPICAL SECTIONS
C.1-2 TYPICAL SECTIONS
C.3-4 TYPICAL DETAILS

D. LINE GRAPHS
D.1 TABULATION OF PLAN QUANTITIES
D.2-12 LINE GRAPHS

E. SOIL EROSION AND SEDIMENT CONTROL
E.1 EROSION CONTROL PLAN
E.2-3 STANDARD DRAWINGS

F. DRAINAGE
F.1 TABULATION OF DRAINAGE QUANTITIES
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G. TEMPORARY TRAFFIC CONTROL
G.1 TABULATION OF TEMPORARY TRAFFIC CONTROL QUANTITIES
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G.3 ROAD CLOSURE SIGNING DETAIL
G.4 DETOUR SIGN DETAILS
G.5-9 STANDARD DRAWINGS

SCHEDULE INDEX

SCHEDULE	ROAD NUMBER	M.P.	M.P.	LENGTH	VICINITY MAP
A, B, C, D, E, & F	B-09	0.00	1.68	1.68	SHEET A.3
A, B, C, D, E, & F	B-11	0.00	6.80	6.80	SHEET A.3
A, B, C, D, E, & F	A-03	0.00	9.57	9.57	SHEET A.3
B, C, D, E, & F	B-10	0.00	4.95	4.95	SHEET A.3
C, D, E, & F	B-06	0.00	2.77	2.77	SHEET A.4
C, D, E, & F	C-10	0.00	6.72	6.72	SHEET A.4
D, E, & F	C-08(a)	0.00	4.89	4.89	SHEET A.4
E & F	C-02	0.00	4.39	4.39	SHEET A.5
F	C-03	0.00	10.35	10.35	SHEET A.5

PLANS PREPARED BY

RPA

ROBERT PECCIA AND ASSOCIATES
HELENA, MONTANA

FOR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION
VANCOUVER, WASHINGTON

APPROVED:

KIRK R LOFTSGAARDEN Digitally signed by KIRK R LOFTSGAARDEN Date: 2026.05.28 15:06:08 -07'00'

For Chief of Engineering, Western Federal Lands Highway Division — *DATE*

PROJECT MANAGER
J. KEY

\\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\General Information\mt-d-malm202601_pln_gen_01.dgn [Title Sheet]
26 February 2026 12:01 PM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	A.2

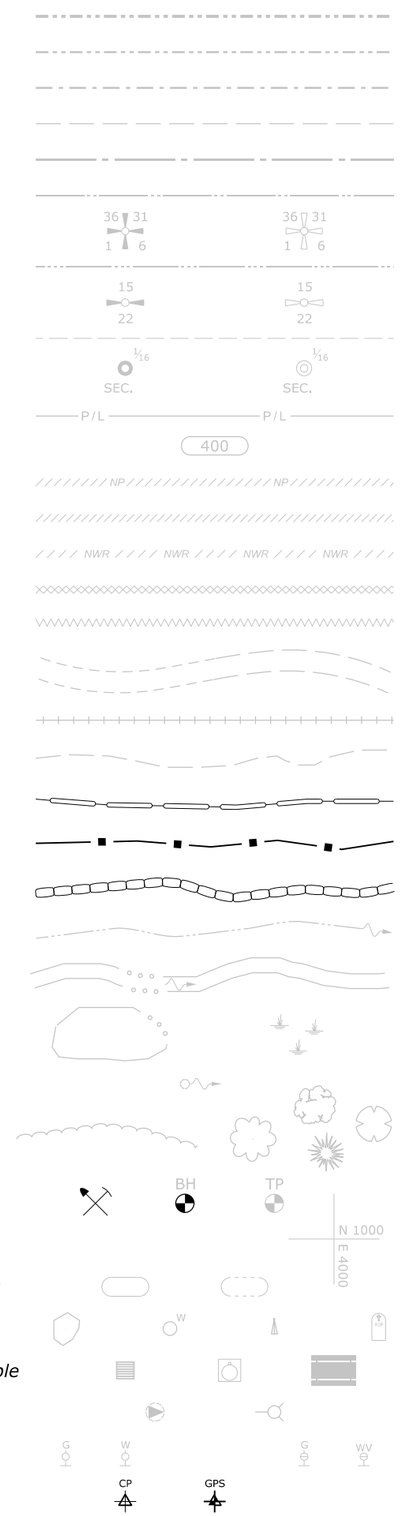
Δ	total central angle
Δc	curve central angle
Ø	diameter
θs	spiral central angle
abut.	abutment
ADT	average daily traffic
AH	ahead
appr.	approach
BK	back
b.f.	back face
BM	bench mark
BP	balance point
br.	bridge
brg.	bearing
btwn	between
cc or c. to c.	center to center
℄	centerline
clr.	clear
CMP	corrugated metal pipe
col.	column
conc.	concrete
conn.	connection
constr. jt.	construction joint
cont.	continuous
CS	point of curve to spiral
ctrs.	centers
CUFT	cubic foot (feet)
culv.	culvert
CUYD	cubic yard(s)
D	diameter
DHV	design hourly volume
dia.	diameter
diaph.	diaphragm
dist.	distance
drwg(s).	drawing(s)
E	east
e	superelevation rate
e.f.	each face
El. 94.16	elevation in feet
elev.	elevation
emb.	embankment
EOP	edge of pavement
EQ or eq.	equation
EW	edge of water
exc.	excavation
exp. jt.	expansion joint
f.f.	front face
fin.	finish
flg.	flange
ftg.	footing
ga.	gage (gauge)
galv.	galvanized
ID	inside diameter
IE	invert elevation
jt.	joint
KSI	thousand pounds per square inch
L	length of curve
lat.	latitude
LNFT	linear foot (feet)
long.	longitudinal
LPSM	lump sum
Ls	length of spiral
lt. or LT	left
LW	low water

M.L.	main line
M.P.	mile post
matl.	material
max.	maximum
MGAL	thousand gallon
min.	minimum
mon.	monument
N	north
NC	normal crown
o.c.	on center
o. to o.	out to out
OD	outside diameter
OG	original ground
OHWM	ordinary high water mark
PC	point of curve
PCC	point of compound curve
PCS	point of curve to spiral
PI	point of intersection
pl.	plate
POC	point on curve
POS	point on spiral
POT	point on tangent
PS	point of tangent to spiral
PSF	pounds per square foot
PSI	pounds per square inch
PSC	point of spiral to curve
PST	point of spiral to tangent
PT	point of tangent
pvmt.	pavement
R	radius
R.	range
R/W	right-of-way
rdwy.	roadway
reinf.	reinforcement
reqd.	required
rt. or RT	right
rte.	route
S	south
SADT	seasonal average daily traffic
SC	point of spiral to curve
sect.	section
shldr.	shoulder
SLRY	slurry unit
spa.	spacing, spaces or spaced
SQFT	square foot
SQYD	square yard
SRS	point of spiral to reverse spiral
SS	point of spiral to spiral (no curve)
ST	point of spiral to tangent
STA, Sta.	station
std.	standard
stgr.	stringer
stiff.	stiffener
struc.	structural
STS	point of spiral to tangent spiral
T	tangent distance
T.	township
TBM	temporary bench mark
thd.	thread
TS	point of tangent to spiral
Ts	tangent distance (spiraled curve)
typ.	typical
V	design speed (velocity)
vph	vehicles per hour
VPI	vertical point of intersection
W	west

NOTE:

1. Other symbols used in the plans will be shown in a legend on the appropriate plan sheet.

National Boundary
State Boundary
County Boundary
City Boundary
Township or Range Line
Section Line
Section Corner (Found, Projected)
¼ Section Line
¼ Section Corner (Found, Projected)
1/16 Section Line
1/16 Section Corner (Found, Projected)
Property Line
Parcel Number
National Park Boundary
National Forest Boundary
National Wildlife Refuge Boundary
BLM Lands Boundary
Indian Reservation Boundary
Existing Roadway (Paved, Gravel)
Railroad
Trail
Fiber Roll
Silt Fence
Sandbag
Intermittent Drainage or Small Creek
Large Creek or River
Lake, Pond or Reservior; Marshland
Spring or Seep
Treeline; Individual Trees
Material Source; Bore Hole; Test Pit
Spot Elevation; Coordinate Grid Tick
Above Ground Tank; Underground Tank
Boulder; Well; Antenna; Grave
Cooking Grate; Garbage Can; Picnic Table
Flagpole; Fire Hydrant
Gas & Water Meter; Gas & Water Valve
Control Point (Terrestrial and GPS)



	EXISTING	PROPOSED
North Arrow	N	
Slope Stake Limits	Top of Cut / Toe of Fill	
Construction Limits	- no symbol -	
Bottom of Ditch		
Fence		
Gate with Fence		
Cattleguard		
Guardrail		
Concrete Barrier and Guard Wall		
Retaining Wall	wall face	
Signs (single, double post; portable)		
Delineators		
Pipe Culvert (arrow shows flow)		
Pipe Culvert with End Section		
Pipe Culvert with Headwall		
Pipe Culvert with Drop Inlet	DI	DI
Box Culvert		
Underdrain	UD	UD
Overhead/Above Ground Utilities	P	P
Underground Utilities	W	W

FM = force main, FO = fiber optic, G = gas, IRR = irrigation, O = oil, P = power, SA = sanitary sewer, SD = storm drain, SS = storm sewer, STEAM = steam, T = telephone, TV = CATV, W = water

Poles (Power, Telephone, Joint Use, Light, Support w/Anchor)

Miscellaneous Utility Features (TP)

EM = electric meter, TP = telephone pedestal, TV = CATV pedestal, UP = transformer or junction box, WF = water fountain

Building

Right-of-Way Line — r/w — R/W

Permanent Easement — P/E — P/E

Construction Easement — - no symbol - — TCE

Riprap

Section A-A — A A

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD DETAIL

PLAN SYMBOLS AND ABBREVIATIONS

DETAIL APPROVED FOR USE 11/2001

REVISED: 9/2005 1/2007 10/2009 10/2014 6/2022

DETAIL W101-1

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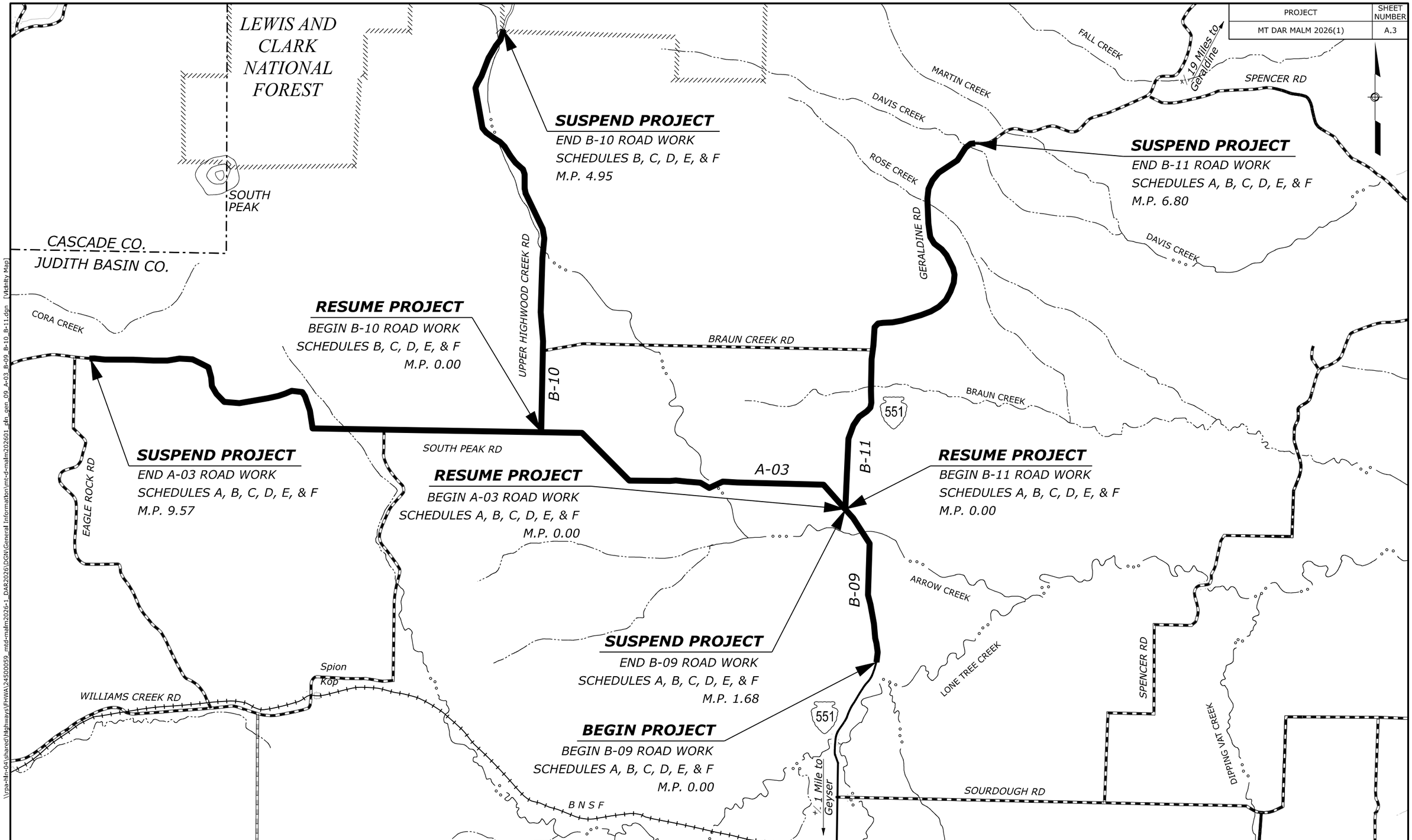
12 August 2025 3:15 PM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	A.3



VICINITY MAP
B-09, A-03, B-11, & B-10 ROADS

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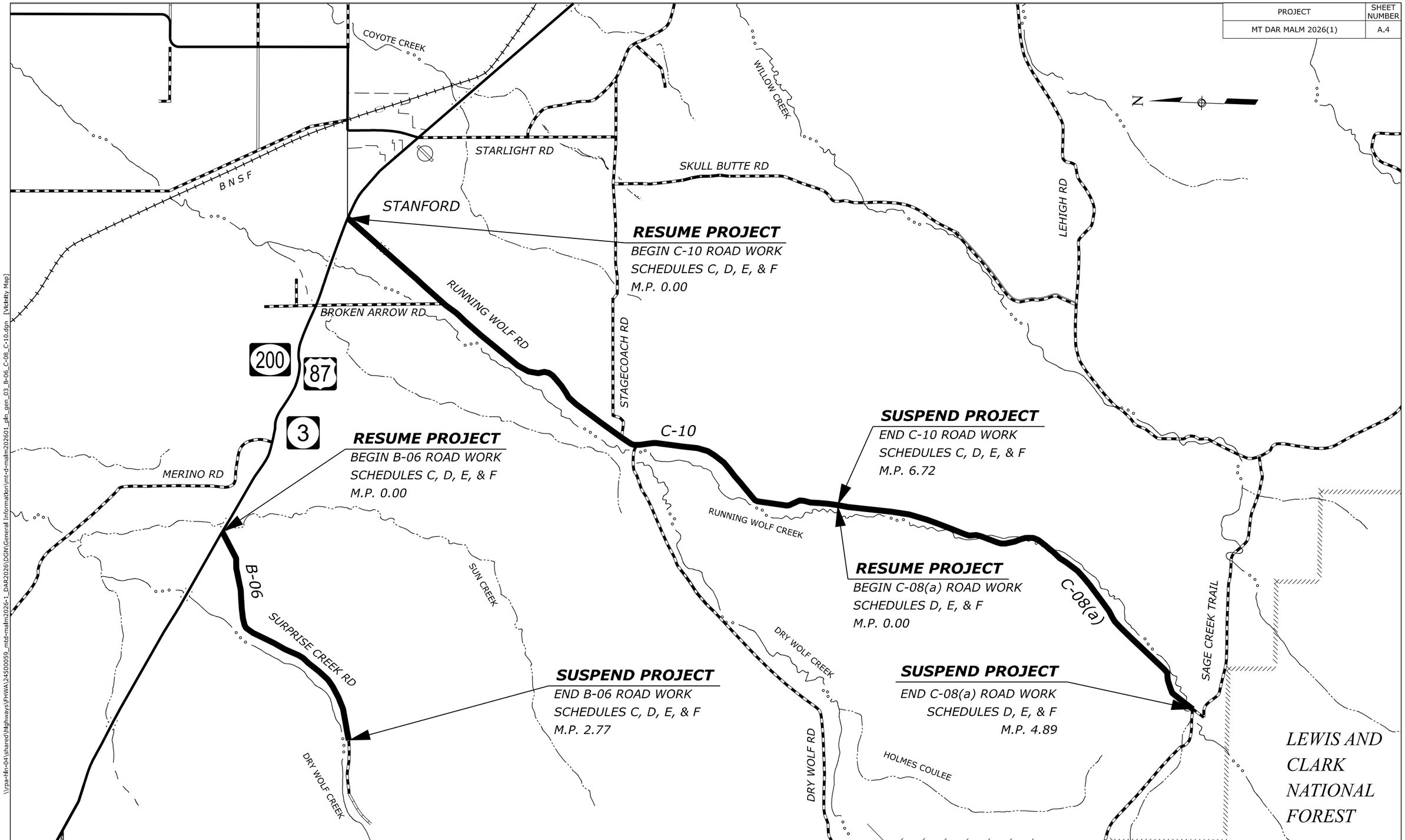
23 December 2025 2:26 PM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	A.4



Scale in miles

1 0 1 2 3

VICINITY MAP
B-06, C-10, & C-08(a) ROADS

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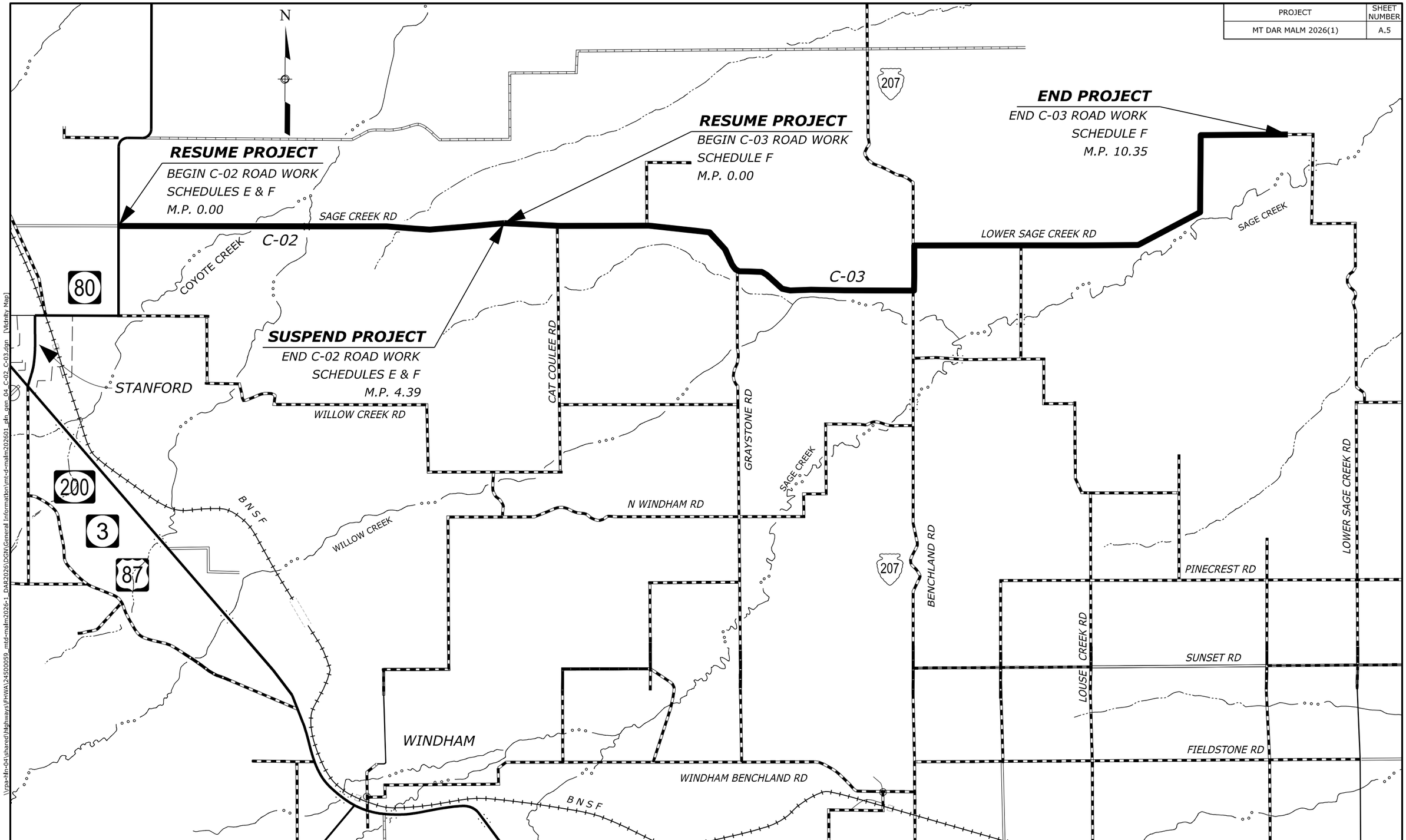
PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	A.5



Scale in miles

1 0 1 2 3

VICINITY MAP
C-02 & C-03 ROADS

\\rpa-hln-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\General Information\mt-d-malm202601_dln_gen_04_C-02_C-03.dgn [Vicinity Map]

23 December 2025 2:33 PM

SUMMARY OF QUANTITIES - Schedule A

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	B.1

AMEND	Line Item No.	Pay Item Number	Pay Item Description	Unit	Road Number A-03	B-06	B-09	B-10	B-11	C-02	C-03	C-08(a)	C-10	Estimated Quantities Bid Schedule	Remarks and/or Determination of Estimated Quantity
	A1000	15101-0000	MOBILIZATION	LPSM										ALL	
	A1020	15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM										ALL	
	A1040	15301-0000	CONTRACTOR QUALITY CONTROL	LPSM										ALL	
	A1060	15401-0000	CONTRACTOR TESTING	LPSM										ALL	
	A1080	15501-0000	CONSTRUCTION SCHEDULE	LPSM										ALL	
	A1100	15705-1400	SOIL EROSION CONTROL, FIBER ROLL	LNFT	300		140		260					700	
	A1120	15802-0000	WATERING FOR DUST CONTROL	LPSM										ALL	
	A1140	20301-1900	REMOVAL OF PIPE CULVERT, (5 FEET SPAN, 7 FEET RISE CMP ARCH)	EACH	1									1	
	A1160	20403-0000	UNCLASSIFIED BORROW	CUYD	60									60	
	A1180	25101-0200	PLACED RIPRAP, CLASS 2, (RIPRAP HEADWALL)	CUYD	5									5	
	A1200	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON	870		80		285					1,235	
	A1220	30301-6000	ROADWAY RECONDITIONING	MILE	9.57		1.68		6.80					18.05	Contract Quantity
	A1240	31103-3000	STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE	TON	27,118		5,243		18,431					50,792	
	A1260	31110-0000	CALCIUM CHLORIDE	TON	470		91		319					880	
	A1280	60201-0800	24-INCH PIPE CULVERT	LNFT	78									78	
	A1300	60201-1000	36-INCH PIPE CULVERT	LNFT	46									46	
	A1320	60704-0000	CLEANING CULVERT IN PLACE	EACH	2									2	
	A1340	62201-0300	DUMP TRUCK, 12 CUBIC YARD MINIMUM CAPACITY	HOUR										50	
	A1360	62201-0550	BACKHOE LOADER, 6 CUBIC FOOT MINIMUM RATED CAPACITY BUCKET, 24-INCH WIDTH	HOUR										50	
	A1380	62201-2850	MOTOR GRADER, 12 FOOT MINIMUM BLADE	HOUR										50	
	A1400	62301-0000	GENERAL LABOR	HOUR										50	
	A1420	62405-0300	PLACING CONSERVED TOPSOIL, 4-INCH DEPTH	SQYD	270									270	
	A1440	62502-0000	TURF ESTABLISHMENT, (DRY METHOD)	SQYD	270				397					667	
	A1460	63501-0000	TEMPORARY TRAFFIC CONTROL	LPSM										ALL	
	A1480	63503-1000	TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE	LNFT					1,120					1,120	

MileStone: Signoff
Date Completed: In Progress
Report Date: 05/14/2026

14 May 2026 10:48 AM \\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Summary of Quantities\B-Sheets\mtd-malm202601_pln_qtab_summary.dgn [Summary-1]

SUMMARY OF QUANTITIES - Schedule B

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	B.2

AMEND	Line Item No.	Pay Item Number	Pay Item Description	Unit	Road Number A-03	B-06	B-09	B-10	B-11	C-02	C-03	C-08(a)	C-10	Estimated Quantities Bid Schedule	Remarks and/or Determination of Estimated Quantity
	B2000	15101-0000	MOBILIZATION	LPSM										ALL	
	B2020	15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM										ALL	
	B2040	15301-0000	CONTRACTOR QUALITY CONTROL	LPSM										ALL	
	B2060	15401-0000	CONTRACTOR TESTING	LPSM										ALL	
	B2080	15501-0000	CONSTRUCTION SCHEDULE	LPSM										ALL	
	B2100	15705-1400	SOIL EROSION CONTROL, FIBER ROLL	LNFT	300		140	180	260					880	
	B2120	15706-0200	SOIL EROSION CONTROL, CHECK DAM, (FILTER ROCK)	EACH				41						41	
	B2140	15802-0000	WATERING FOR DUST CONTROL	LPSM										ALL	
	B2160	20301-1900	REMOVAL OF PIPE CULVERT, (5 FEET SPAN, 7 FEET RISE CMP ARCH)	EACH	1									1	
	B2180	20403-0000	UNCLASSIFIED BORROW	CUYD	60									60	
	B2200	25101-0200	PLACED RIPRAP, CLASS 2, (RIPRAP HEADWALL)	CUYD	5									5	
	B2220	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON	870		80	280	285					1,515	
	B2240	30301-6000	ROADWAY RECONDITIONING	MILE	9.57		1.68	4.95	6.80					23.00	Contract Quantity
	B2260	31103-3000	STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE	TON	27,118		5,243	12,807	18,431					63,599	
	B2280	31110-0000	CALCIUM CHLORIDE	TON	470		91	222	319					1,102	
	B2300	60201-0800	24-INCH PIPE CULVERT	LNFT	78									78	
	B2320	60201-1000	36-INCH PIPE CULVERT	LNFT	46									46	
	B2340	60704-0000	CLEANING CULVERT IN PLACE	EACH	2			2						4	
	B2360	62201-0300	DUMP TRUCK, 12 CUBIC YARD MINIMUM CAPACITY	HOUR										60	
	B2380	62201-0550	BACKHOE LOADER, 6 CUBIC FOOT MINIMUM RATED CAPACITY BUCKET, 24-INCH WIDTH	HOUR										60	
	B2400	62201-2850	MOTOR GRADER, 12 FOOT MINIMUM BLADE	HOUR										60	
	B2420	62301-0000	GENERAL LABOR	HOUR										60	
	B2440	62405-0300	PLACING CONSERVED TOPSOIL, 4-INCH DEPTH	SQYD	270									270	
	B2460	62502-0000	TURF ESTABLISHMENT, (DRY METHOD)	SQYD	270			833	397					1,500	
	B2480	62901-0800	ROLLED EROSION CONTROL PRODUCT, TYPE 2.D	SQYD				833						833	
	B2500	63501-0000	TEMPORARY TRAFFIC CONTROL	LPSM										ALL	
	B2520	63503-1000	TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE	LNFT					1,120					1,120	

MileStone: Signoff
Date Completed: In Progress
Report Date: 05/14/2026

14 May 2026 10:48 AM \\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Summary of Quantities\B-Sheets\mt-d-malm202601_pln_qtab_summary.dgn [Summary-2]

SUMMARY OF QUANTITIES - Schedule C

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	B.3

AMEND	Line Item No.	Pay Item Number	Pay Item Description	Unit	Road Number A-03	B-06	B-09	B-10	B-11	C-02	C-03	C-08(a)	C-10	Estimated Quantities Bid Schedule	Remarks and/or Determination of Estimated Quantity
	C3000	15101-0000	MOBILIZATION	LPSM										ALL	
	C3020	15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM										ALL	
	C3040	15301-0000	CONTRACTOR QUALITY CONTROL	LPSM										ALL	
	C3060	15401-0000	CONTRACTOR TESTING	LPSM										ALL	
	C3080	15501-0000	CONSTRUCTION SCHEDULE	LPSM										ALL	
	C3100	15705-1400	SOIL EROSION CONTROL, FIBER ROLL	LNFT	300	40	140	180	260				60	980	
	C3120	15706-0200	SOIL EROSION CONTROL, CHECK DAM, (FILTER ROCK)	EACH				41						41	
	C3140	15802-0000	WATERING FOR DUST CONTROL	LPSM										ALL	
	C3160	20301-1900	REMOVAL OF PIPE CULVERT, (5 FEET SPAN, 7 FEET RISE CMP ARCH)	EACH	1									1	
	C3180	20403-0000	UNCLASSIFIED BORROW	CUYD	60									60	
	C3200	25101-0200	PLACED RIPRAP, CLASS 2, (RIPRAP HEADWALL)	CUYD	5									5	
	C3220	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON	870		80	280	285					1,515	
	C3240	30301-6000	ROADWAY RECONDITIONING	MILE	9.57	2.77	1.68	4.95	6.80				6.72	32.49	Contract Quantity
	C3260	31103-3000	STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE	TON	27,118		5,243	12,807	18,431					63,599	
	C3280	31103-3000	STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE, (IN-PLACE STABILIZATION)	TON		3,839							10,142	13,981	
	C3300	31110-0000	CALCIUM CHLORIDE	TON	470	135	91	222	319				355	1,592	
	C3320	60201-0800	24-INCH PIPE CULVERT	LNFT	78									78	
	C3340	60201-1000	36-INCH PIPE CULVERT	LNFT	46									46	
	C3360	60704-0000	CLEANING CULVERT IN PLACE	EACH	2			2						4	
	C3380	60705-0000	REPAIRING DRAINAGE STRUCTURE	EACH		1								1	
	C3400	62201-0300	DUMP TRUCK, 12 CUBIC YARD MINIMUM CAPACITY	HOUR										70	
	C3420	62201-0550	BACKHOE LOADER, 6 CUBIC FOOT MINIMUM RATED CAPACITY BUCKET, 24-INCH WIDTH	HOUR										70	
	C3440	62201-2850	MOTOR GRADER, 12 FOOT MINIMUM BLADE	HOUR										70	
	C3460	62301-0000	GENERAL LABOR	HOUR										70	
	C3480	62405-0300	PLACING CONSERVED TOPSOIL, 4-INCH DEPTH	SQYD	270	45								315	
	C3500	62502-0000	TURF ESTABLISHMENT, (DRY METHOD)	SQYD	270	45		833	397					1,545	
	C3520	62901-0800	ROLLED EROSION CONTROL PRODUCT, TYPE 2.D	SQYD				833						833	
	C3540	63501-0000	TEMPORARY TRAFFIC CONTROL	LPSM										ALL	
	C3560	63503-1000	TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE	LNFT					1,120					1,120	

MileStone: Signoff
Date Completed: In Progress
Report Date: 05/14/2026

\\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Summary of Quantities\B-Sheets\mt-d-malm202601_pln_qtab_summary.dgn [Summary-3]
14 May 2026 10:48 AM

SUMMARY OF QUANTITIES - Schedule D

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	B.4

AMEND	Line Item No.	Pay Item Number	Pay Item Description	Unit	Road Number A-03	B-06	B-09	B-10	B-11	C-02	C-03	C-08(a)	C-10	Estimated Quantities Bid Schedule	Remarks and/or Determination of Estimated Quantity
	D4000	15101-0000	MOBILIZATION	LPSM										ALL	
	D4020	15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM										ALL	
	D4040	15301-0000	CONTRACTOR QUALITY CONTROL	LPSM										ALL	
	D4060	15401-0000	CONTRACTOR TESTING	LPSM										ALL	
	D4080	15501-0000	CONSTRUCTION SCHEDULE	LPSM										ALL	
	D4100	15705-1400	SOIL EROSION CONTROL, FIBER ROLL	LNFT	300	40	140	180	260			180	60	1,160	
	D4120	15706-0200	SOIL EROSION CONTROL, CHECK DAM, (FILTER ROCK)	EACH				41						41	
	D4140	15802-0000	WATERING FOR DUST CONTROL	LPSM										ALL	
	D4160	20301-1900	REMOVAL OF PIPE CULVERT, (5 FEET SPAN, 7 FEET RISE CMP ARCH)	EACH	1									1	
	D4180	20403-0000	UNCLASSIFIED BORROW	CUYD	60									60	
	D4200	25101-0200	PLACED RIPRAP, CLASS 2, (RIPRAP HEADWALL)	CUYD	5									5	
	D4220	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON	870		80	280	285					1,515	
	D4240	30301-6000	ROADWAY RECONDITIONING	MILE	9.57	2.77	1.68	4.95	6.80			4.89	6.72	37.38	Contract Quantity
	D4260	31103-3000	STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE	TON	27,118		5,243	12,807	18,431					63,599	
	D4280	31103-3000	STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE, (IN-PLACE STABILIZATION)	TON		3,839						6,778	10,142	20,759	
	D4300	31110-0000	CALCIUM CHLORIDE	TON	470	135	91	222	319			237	355	1,829	
	D4320	60201-0800	24-INCH PIPE CULVERT	LNFT	78									78	
	D4340	60201-1000	36-INCH PIPE CULVERT	LNFT	46									46	
	D4360	60704-0000	CLEANING CULVERT IN PLACE	EACH	2			2				1		5	
	D4380	60705-0000	REPAIRING DRAINAGE STRUCTURE	EACH		1						3		4	
	D4400	62201-0300	DUMP TRUCK, 12 CUBIC YARD MINIMUM CAPACITY	HOUR										80	
	D4420	62201-0550	BACKHOE LOADER, 6 CUBIC FOOT MINIMUM RATED CAPACITY BUCKET, 24-INCH WIDTH	HOUR										80	
	D4440	62201-2850	MOTOR GRADER, 12 FOOT MINIMUM BLADE	HOUR										80	
	D4460	62301-0000	GENERAL LABOR	HOUR										80	
	D4480	62405-0300	PLACING CONSERVED TOPSOIL, 4-INCH DEPTH	SQYD	270	45						135		450	
	D4500	62502-0000	TURF ESTABLISHMENT, (DRY METHOD)	SQYD	270	45		833	397			135		1,680	
	D4520	62901-0800	ROLLED EROSION CONTROL PRODUCT, TYPE 2.D	SQYD				833						833	
	D4540	63501-0000	TEMPORARY TRAFFIC CONTROL	LPSM										ALL	
	D4560	63503-1000	TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE	LNFT					1,120					1,120	

MileStone: Signoff
Date Completed: In Progress
Report Date: 05/14/2026

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14 May 2026 10:48 AM

SUMMARY OF QUANTITIES - Schedule E

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	B.5

AMEND	Line Item No.	Pay Item Number	Pay Item Description	Unit	Road Number A-03	B-06	B-09	B-10	B-11	C-02	C-03	C-08(a)	C-10	Estimated Quantities Bid Schedule	Remarks and/or Determination of Estimated Quantity
	E5000	15101-0000	MOBILIZATION	LPSM										ALL	
	E5020	15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM										ALL	
	E5040	15301-0000	CONTRACTOR QUALITY CONTROL	LPSM										ALL	
	E5060	15401-0000	CONTRACTOR TESTING	LPSM										ALL	
	E5080	15501-0000	CONSTRUCTION SCHEDULE	LPSM										ALL	
	E5100	15705-1400	SOIL EROSION CONTROL, FIBER ROLL	LNFT	300	40	140	180	260	60		180	60	1,220	
	E5120	15706-0200	SOIL EROSION CONTROL, CHECK DAM, (FILTER ROCK)	EACH				41						41	
	E5140	15802-0000	WATERING FOR DUST CONTROL	LPSM										ALL	
	E5160	20301-1900	REMOVAL OF PIPE CULVERT, (5 FEET SPAN, 7 FEET RISE CMP ARCH)	EACH	1									1	
	E5180	20403-0000	UNCLASSIFIED BORROW	CUYD	60									60	
	E5200	25101-0200	PLACED RIPRAP, CLASS 2, (RIPRAP HEADWALL)	CUYD	5									5	
	E5220	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON	870		80	280	285					1,515	
	E5240	30301-6000	ROADWAY RECONDITIONING	MILE	9.57	2.77	1.68	4.95	6.80	4.39		4.89	6.72	41.77	Contract Quantity
	E5260	31103-3000	STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE	TON	27,118		5,243	12,807	18,431					63,599	
	E5280	31103-3000	STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE, (IN-PLACE STABILIZATION)	TON		3,839				6,625		6,778	10,142	27,384	
	E5300	31110-0000	CALCIUM CHLORIDE	TON	470	135	91	222	319	232		237	355	2,061	
	E5320	60201-0800	24-INCH PIPE CULVERT	LNFT	78									78	
	E5340	60201-1000	36-INCH PIPE CULVERT	LNFT	46									46	
	E5360	60704-0000	CLEANING CULVERT IN PLACE	EACH	2			2				1		5	
	E5380	60705-0000	REPAIRING DRAINAGE STRUCTURE	EACH		1						3		4	
	E5400	62201-0300	DUMP TRUCK, 12 CUBIC YARD MINIMUM CAPACITY	HOUR										90	
	E5420	62201-0550	BACKHOE LOADER, 6 CUBIC FOOT MINIMUM RATED CAPACITY BUCKET, 24-INCH WIDTH	HOUR										90	
	E5440	62201-2850	MOTOR GRADER, 12 FOOT MINIMUM BLADE	HOUR										90	
	E5460	62301-0000	GENERAL LABOR	HOUR										90	
	E5480	62405-0300	PLACING CONSERVED TOPSOIL, 4-INCH DEPTH	SQYD	270	45						135		450	
	E5500	62502-0000	TURF ESTABLISHMENT, (DRY METHOD)	SQYD	270	45		833	397			135		1,680	
	E5520	62901-0800	ROLLED EROSION CONTROL PRODUCT, TYPE 2.D	SQYD				833						833	
	E5540	63501-0000	TEMPORARY TRAFFIC CONTROL	LPSM										ALL	
	E5560	63503-1000	TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE	LNFT					1,120	80				1,200	

MileStone: Signoff
Date Completed: In Progress
Report Date: 05/14/2026

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14 May 2026 10:48 AM

SUMMARY OF QUANTITIES - Schedule F

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	B.6

AMEND	Line Item No.	Pay Item Number	Pay Item Description	Unit	Road Number A-03	B-06	B-09	B-10	B-11	C-02	C-03	C-08(a)	C-10	Estimated Quantities Bid Schedule	Remarks and/or Determination of Estimated Quantity
	F6000	15101-0000	MOBILIZATION	LPSM										ALL	
	F6020	15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM										ALL	
	F6040	15301-0000	CONTRACTOR QUALITY CONTROL	LPSM										ALL	
	F6060	15401-0000	CONTRACTOR TESTING	LPSM										ALL	
	F6080	15501-0000	CONSTRUCTION SCHEDULE	LPSM										ALL	
	F6100	15705-1400	SOIL EROSION CONTROL, FIBER ROLL	LNFT	300	40	140	180	260	60	200	180	60	1,420	
	F6120	15706-0200	SOIL EROSION CONTROL, CHECK DAM, (FILTER ROCK)	EACH				41						41	
	F6140	15802-0000	WATERING FOR DUST CONTROL	LPSM										ALL	
	F6160	20301-1900	REMOVAL OF PIPE CULVERT, (5 FEET SPAN, 7 FEET RISE CMP ARCH)	EACH	1									1	
	F6180	20403-0000	UNCLASSIFIED BORROW	CUYD	60									60	
	F6200	25101-0200	PLACED RIPRAP, CLASS 2, (RIPRAP HEADWALL)	CUYD	5									5	
	F6220	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON	870		80	280	285					1,515	
	F6240	30301-6000	ROADWAY RECONDITIONING	MILE	9.57	2.77	1.68	4.95	6.80	4.39	10.35	4.89	6.72	52.12	Contract Quantity
	F6260	31103-3000	STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE	TON	27,118		5,243	12,807	18,431					63,599	
	F6280	31103-3000	STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE, (IN-PLACE STABILIZATION)	TON		3,839				6,625	14,345	6,778	10,142	41,729	
	F6300	31110-0000	CALCIUM CHLORIDE	TON	470	135	91	222	319	232	503	237	355	2,564	
	F6320	60201-0800	24-INCH PIPE CULVERT	LNFT	78									78	
	F6340	60201-1000	36-INCH PIPE CULVERT	LNFT	46									46	
	F6360	60704-0000	CLEANING CULVERT IN PLACE	EACH	2			2			3	1		8	
	F6380	60705-0000	REPAIRING DRAINAGE STRUCTURE	EACH		1						3		4	
	F6400	62201-0300	DUMP TRUCK, 12 CUBIC YARD MINIMUM CAPACITY	HOUR										100	
	F6420	62201-0550	BACKHOE LOADER, 6 CUBIC FOOT MINIMUM RATED CAPACITY BUCKET, 24-INCH WIDTH	HOUR										100	
	F6440	62201-2850	MOTOR GRADER, 12 FOOT MINIMUM BLADE	HOUR										100	
	F6460	62301-0000	GENERAL LABOR	HOUR										100	
	F6480	62405-0300	PLACING CONSERVED TOPSOIL, 4-INCH DEPTH	SQYD	270	45						135		450	
	F6500	62502-0000	TURF ESTABLISHMENT, (DRY METHOD)	SQYD	270	45		833	397			135		1,680	
	F6520	62901-0800	ROLLED EROSION CONTROL PRODUCT, TYPE 2.D	SQYD				833						833	
	F6540	63501-0000	TEMPORARY TRAFFIC CONTROL	LPSM										ALL	
	F6560	63503-1000	TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE	LNFT					1,120	80				1,200	

MileStone: Signoff
Date Completed: In Progress
Report Date: 05/14/2026

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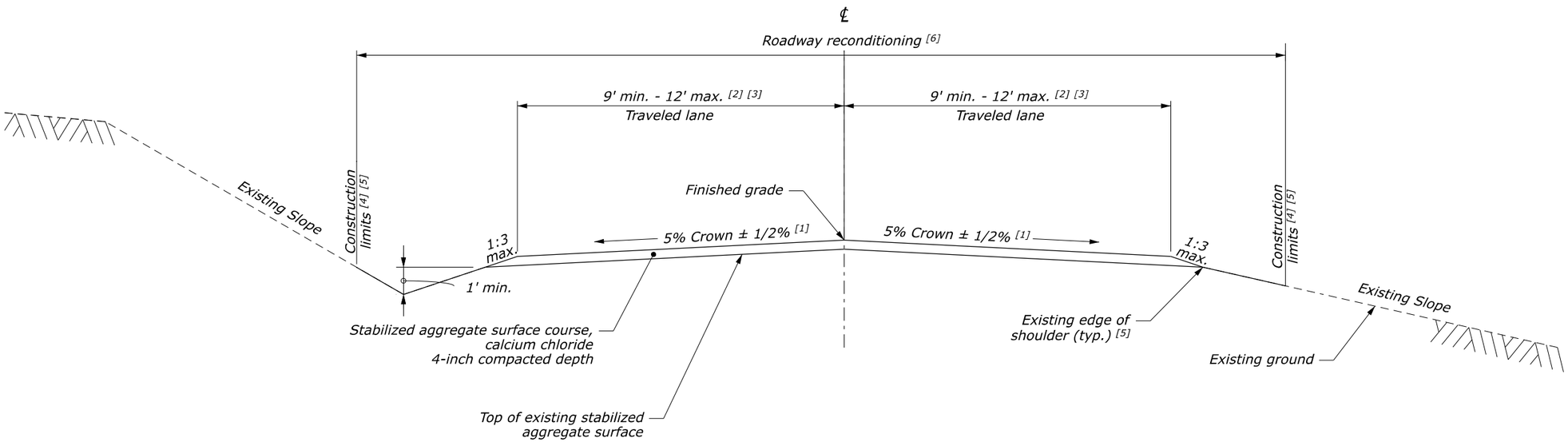
14 May 2026 10:48 AM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	C.1



TYPICAL SECTION NO. 1
(4-INCH AGGREGATE WITH 4-INCH AGGREGATE STABILIZATION)

TYPICAL SECTION TABLE

SCHEDULE	ROAD	MILE POST
A, B, C, D, E, & F	B-09	0.00 - 1.68
A, B, C, D, E, & F	B-11	0.00 - 6.80
A, B, C, D, E, & F	A-03	0.00 - 9.57
B, C, D, E, & F	B-10	0.00 - 4.95

NOTE:

1. See Sheet D.1 for estimated pay quantities.
2. Conserve topsoil and re-establish vegetation along all slopes disturbed during culvert repair or replacement. Re-establish vegetation on slopes disturbed for check dam installation.

FOOTNOTE:

[1] Superelevate roadway on curves to a minimum of 5% and a maximum of 8% superelevation as approved.

[2] Adjust to match existing aggregate surface width as approved. Taper at a rate of 25:1 or greater between widths.

[3] Do not exceed 12' maximum lane width. Where directed, remove excess shoulder material according to Section 622 in areas where existing aggregate surface width exceeds 28'.

[4] Limit ground disturbances to within the existing fencelines or 30 feet maximum from the existing centerline of the road.

[5] Limit ground disturbance to the existing edge of shoulder on B-11 Road from M.P. 0.00 to M.P. 0.50 and from M.P. 1.40 to 1.60.

[6] Adjust aggregate surface during roadway reconditioning to protect culverts within horizontal curves where aggregate migration is threatening culvert function. See Sheet C.4 for details.

NO SCALE

TYPICAL SECTIONS
SHEET 1 of 2

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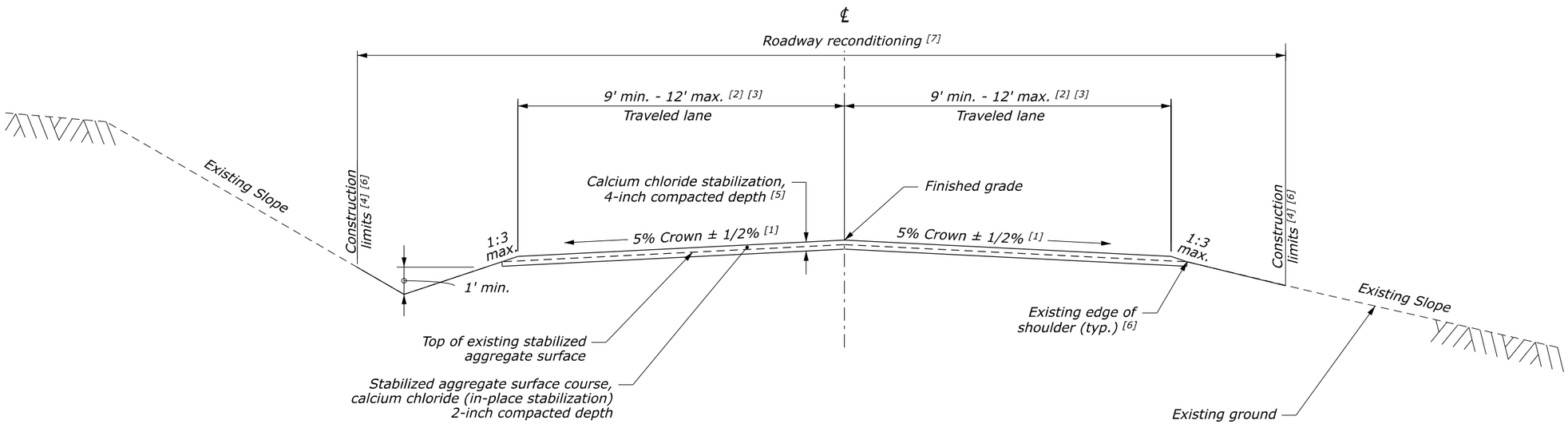
14 May 2026 9:03 AM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	C.2



TYPICAL SECTION NO. 2
(2-INCH AGGREGATE WITH 4-INCH AGGREGATE STABILIZATION)

TYPICAL SECTION TABLE

SCHEDULE	ROAD	MILE POST
C, D, E, & F	B-06	0.00 - 2.77
C, D, E, & F	C-10	0.00 - 6.72
D, E, & F	C-08(a)	0.00 - 4.89
E & F	C-02	0.00 - 4.39
F	C-03	0.00 - 10.35

NOTE:

1. See Sheet D.1 for estimated pay quantities.
2. Conserve topsoil and re-establish vegetation along all slopes disturbed during culvert repair or replacement. Re-establish vegetation on slopes disturbed for check dam installation.

FOOTNOTE:

[1] Superelevate roadway on curves to a minimum of 5% and a maximum of 8% superelevation as approved.

[2] Adjust to match existing aggregate surface width as approved. Taper at a rate of 25:1 between widths.

[3] Do not exceed 12' maximum lane width. Where directed, remove excess shoulder material according to Section 622 in areas where existing aggregate surface width exceeds 26'.

[4] Limit ground disturbances to within the existing fencelines or 30 feet maximum from the existing centerline of the road.

[5] Incorporate calcium chloride to a depth of 4 inches from the top of the new imported aggregate layer.

[6] Limit ground disturbance to the existing edge of shoulder on C-02 Road from M.P. 3.22 to M.P. 3.25.

[7] Adjust aggregate surface during roadway reconditioning to protect culverts within horizontal curves where aggregate migration is threatening culvert function. See Sheet C.4 for details.

NO SCALE

TYPICAL SECTIONS
SHEET 2 of 2

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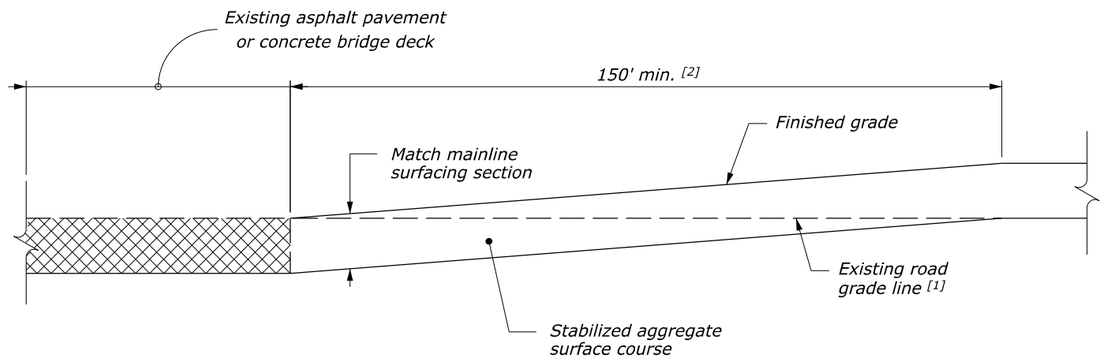
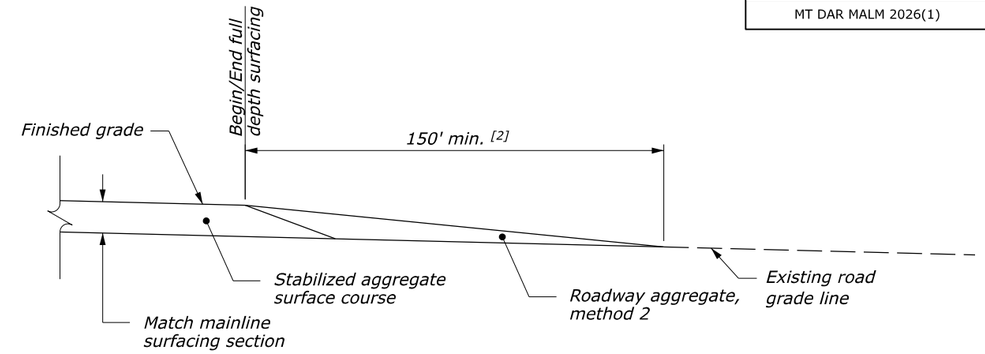
14 May 2026 9:03 AM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	C.3



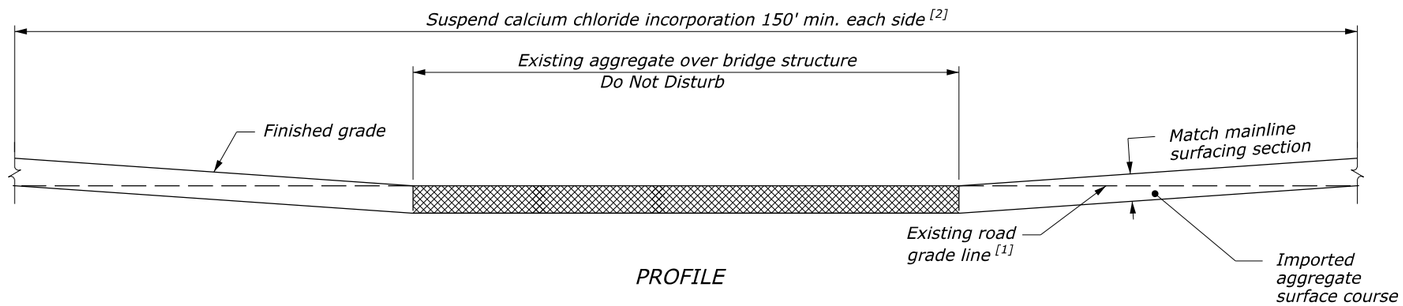
PROFILE

TYPICAL CONNECTION AT PAVED ROAD INTERSECTIONS AND THE B-09 ROAD CONCRETE BRIDGE STRUCTURE [6]



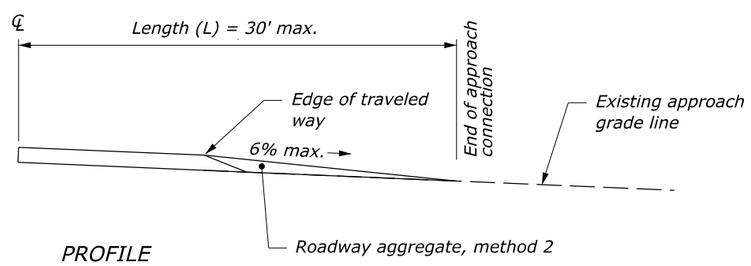
PROFILE

TYPICAL CONNECTION AT UNPAVED PUBLIC ROAD INTERSECTIONS [3]



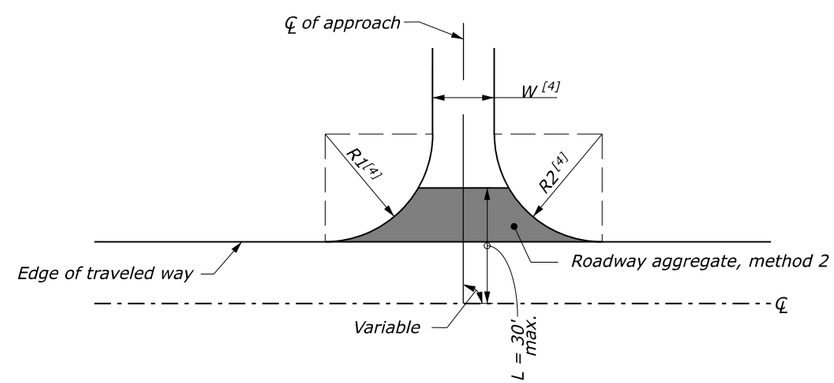
PROFILE

TYPICAL TREATMENT AT EXISTING BRIDGE STRUCTURES WITH AGGREGATE [5]



PROFILE

TYPICAL CONNECTION TO MINOR APPROACH ROAD



TYPICAL MINOR APPROACH ROAD CONNECTION LIMITS

NOTE:

1. Provide roadway aggregate for connection to existing approach roads and turnouts along new stabilized aggregate surface course layers of 4" or more. Do not add roadway aggregate to connect to new stabilized aggregate surface course layers less than 4".

FOOTNOTE:

[1] Excavate existing gravel surfacing from the edge of intersecting roadway or from the structure. Transition finished grade of new stabilized or imported aggregate surface course layer down to existing feature grade. Excavate and dispose of existing gravel surfacing according to Section 622.

[2] Adjust transition length as approved to provide a smooth transition to structures and existing roadways.

[3] For use at beginning/end of project routes and for public road intersections.

[4] Match existing approach dimensions or as approved.

[5] Do not place new stabilized aggregate surface course layer on top of existing bridge structures with aggregate surfacing. See Section D for locations.

[6] Arrow Creek Bridge at M.P. 1.39 of B-09 Road. See Section D for additional work at bridge structure.

NO SCALE

TYPICAL DETAILS
SHEET 1 OF 2

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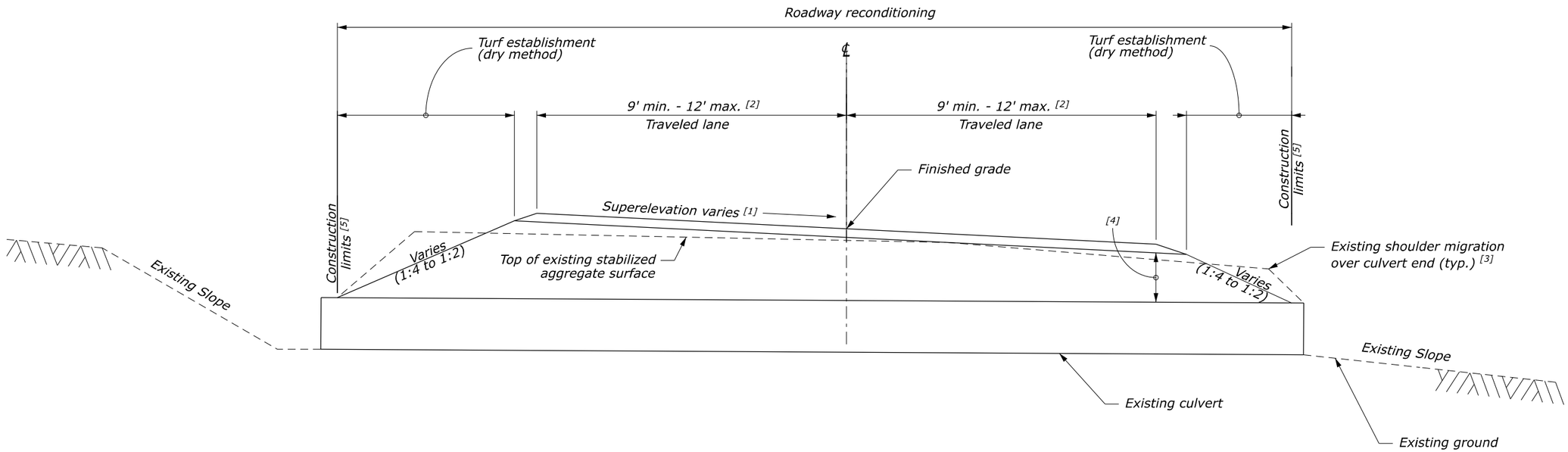
14 May 2026 9:08 AM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	C.4



TYPICAL TREATMENT
FOR HORIZONTAL CURVE ENCROACHMENT AT CULVERTS

ESTIMATED LOCATIONS - FOR INFORMATION ONLY

ROAD	MILE POST	EXISTING CULVERT		
		MATERIAL	EQUIVALENT DIAMETER (IN.)	COMMENTS
B-11	4.92	CMPA	42	Double 49-Inch Span By 33-Inch Rise CMPAs

NOTE:

1. Adjust aggregate surface during roadway reconditioning at locations where horizontal curve surfacing has encroached on existing culvert ends. Adjust locations to match field conditions as approved.
2. Mirror details as appropriate for curve direction and culvert orientation.
3. Re-establish vegetation on all fill slopes disturbed during horizontal curve aggregate surface adjustment.

FOOTNOTE:

[1] Superelevate roadway on curves to a minimum of 5% and a maximum of 8% superelevation as approved.

[2] Do not exceed 12' maximum lane width.

[3] Reuse existing aggregate material stabilized with calcium chloride before reshaping fill slopes. Remove and dispose of excess or unsuitable shoulder material according to Section 622 or 623.

[4] Provide at or above the minimum cover required by Std. 602-1 or as approved.

[5] Limit ground disturbances to within the existing fencelines or 30 feet maximum from the existing centerline of the road.

NO SCALE

TYPICAL DETAILS
SHEET 2 OF 2

\\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Typical Sections\mt-d-malm202601_plh_typ_det_02.dgn [Untitled-1]
14 May 2026 9:01 AM

PLAN QUANTITIES - DEFENSE ACCESS ROADS (DAR) FY 2026

ROAD NUMBER	TYPICAL NO. [1]	MILES	ITEM 20403-0000 UNCLASSIFIED BORROW [7] (CUYD)	ITEM 30202-2000 ROADWAY AGGREGATE, METHOD 2 [4] (TON)	ITEM 30301-6000 ROADWAY RECONDITIONING [6] (MILE)	ITEM 31103-3000 STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE [2] (TON)	ITEM 31103-3000 STABILIZED AGGREGATE SURFACE COURSE, CALCIUM CHLORIDE (IN-PLACE STABILIZATION) [2] (TON)	ITEM 31110-0000 CALCIUM CHLORIDE [3] (TON)	ITEM 62405-0300 PLACING CONSERVED TOPSOIL, 4-INCH DEPTH [5] (SQYD)	ITEM 62502-0000 TURF ESTABLISHMENT (DRY METHOD) [5] (SQYD)
B-09	1	1.68		80	1.68	5,243		91		
B-11	1	6.80		285	6.80	18,431		319		397
A-03	1	9.57	60	870	9.57	27,118		470	270	270
Schedule A Total		**18.05**	**60**	**1,235**	**18.05**	**50,792**	**0**	**880**	**270**	**667**
B-10	1	4.95		280	4.95	12,807		222		833
Schedule B Total		**23.00**	**60**	**1,515**	**23.00**	**63,599**	**0**	**1,102**	**270**	**1,500**
B-06	2	2.77			2.77		3,839	135	45	45
C-10	2	6.72			6.72		10,142	355		
Schedule C Total		**32.49**	**60**	**1,515**	**32.49**	**63,599**	**13,981**	**1,592**	**315**	**1,545**
C-08(a)	2	4.89			4.89		6,778	237	135	135
Schedule D Total		**37.38**	**60**	**1,515**	**37.38**	**63,599**	**20,759**	**1,829**	**450**	**1,680**
C-02	2	4.39			4.39		6,625	232		
Schedule E Total		**41.77**	**60**	**1,515**	**41.77**	**63,599**	**27,384**	**2,061**	**450**	**1,680**
C-03	2	10.35			10.35		14,345	503		
Schedule F Total		**52.12**	**60**	**1,515**	**52.12**	**63,599**	**41,729**	**2,564**	**450**	**1,680**

FOOTNOTE:

[1] *See Section C for typical section details.*

[2] *Quantities are based on 1.89 TON/CUYD.*

[3] *Calcium chloride quantities based on stabilizing the top 4" of aggregate surface and on 1.85% by dry weight of item 31103-3000 and in-place aggregate.*

[4] *Quantities are based on the following:*
1. *15 TON/approach for private approaches.*
2. *10 TON/approach for farm field approaches.*
3. *40 TON/approach for public approaches.*
4. *60 TON/approach for US Air Force approaches.*
5. *100 TON/approach for industrial approaches.*

[5] *For re-establishing vegetation at disturbed areas. Areas of disturbance based on pipe repairs and replacements, check dams, and horizontal curve encroachment repair.*

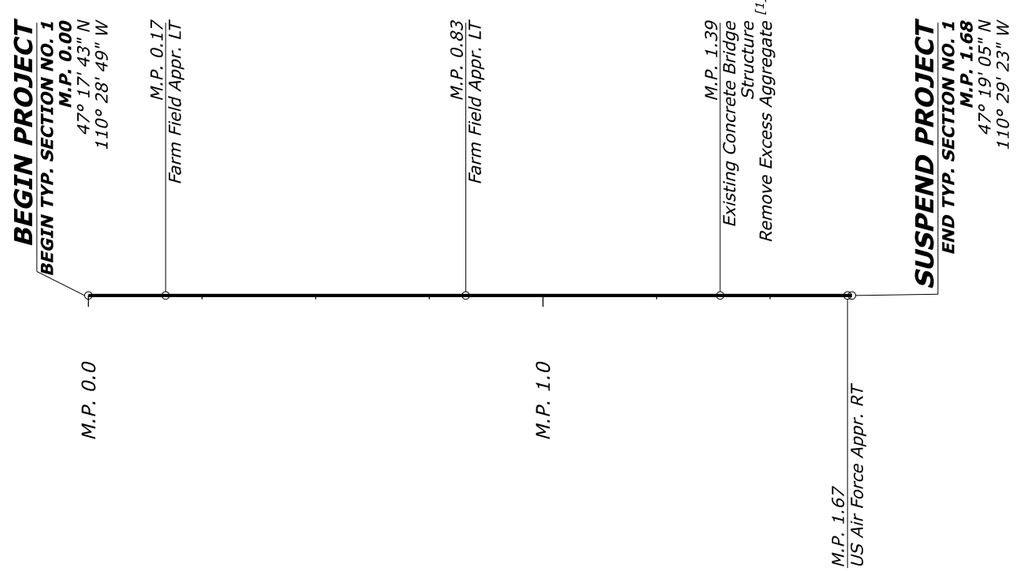
[6] *Contract quantity.*

[7] *Replacement embankment for stockpass removal on A-03 Road.*

TABULATION OF PLAN QUANTITIES

4 September 2025 9:20 AM \\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_plh_qtab_01.dgn [Untitled]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	D.2



NOTE:

1. *All culverts are existing unless otherwise noted.*
2. *See Sheet C.3 for typical roadway connection details.*

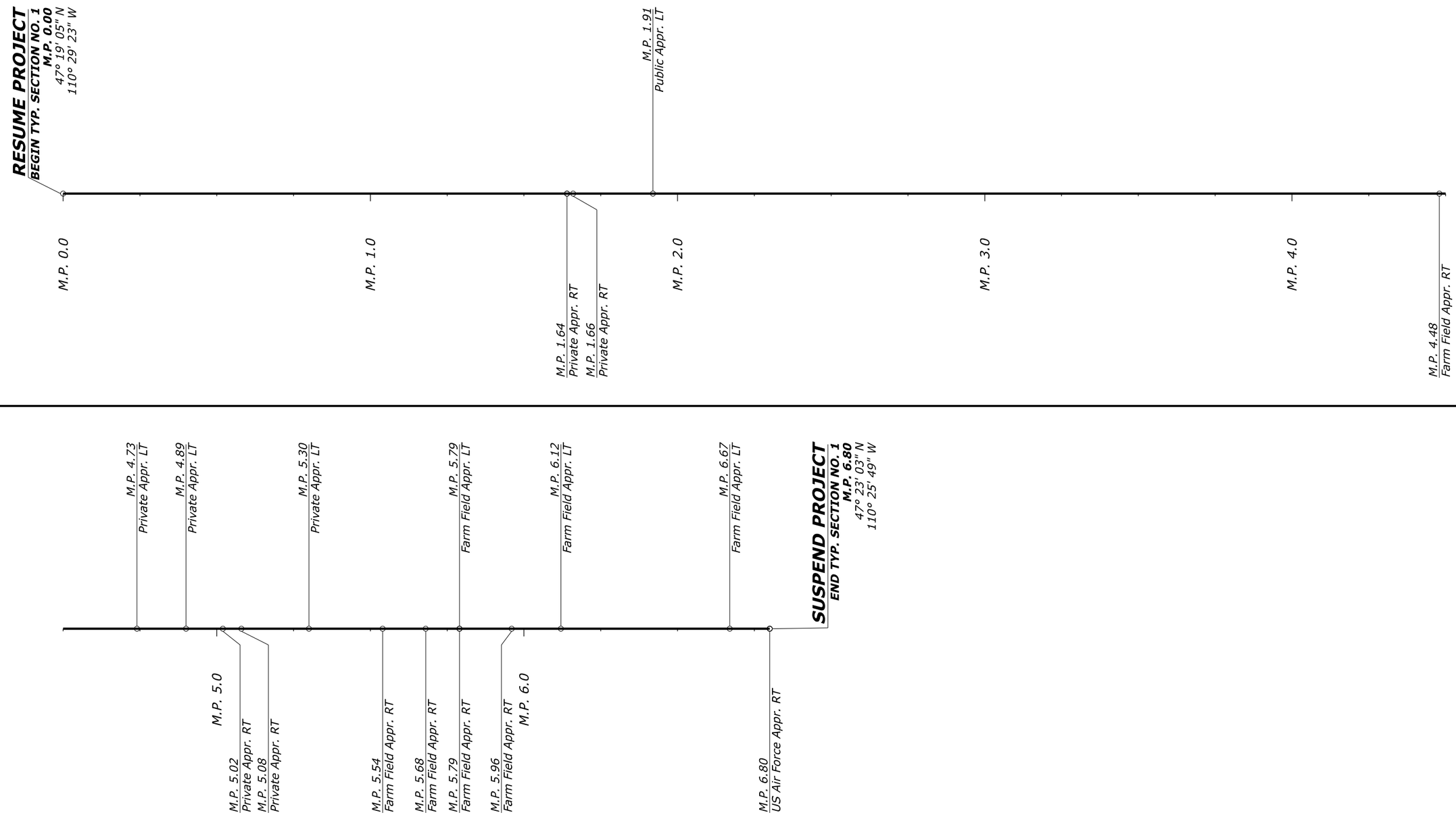
FOOTNOTE:

[1] *Remove excess aggregate that has accumulated in front of approach guardrail and on bridge deck according to Sections 622 and 623. Ensure positive drainage off the road and bridge ends..*

B-09 ROAD
LINE GRAPH
SCHEDULES A, B, C, D, E, & F

5 January 2026 12:21 PM \\rpa-lfn-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_plr_lg_01_B-09.dgn [Untitled]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	D.3



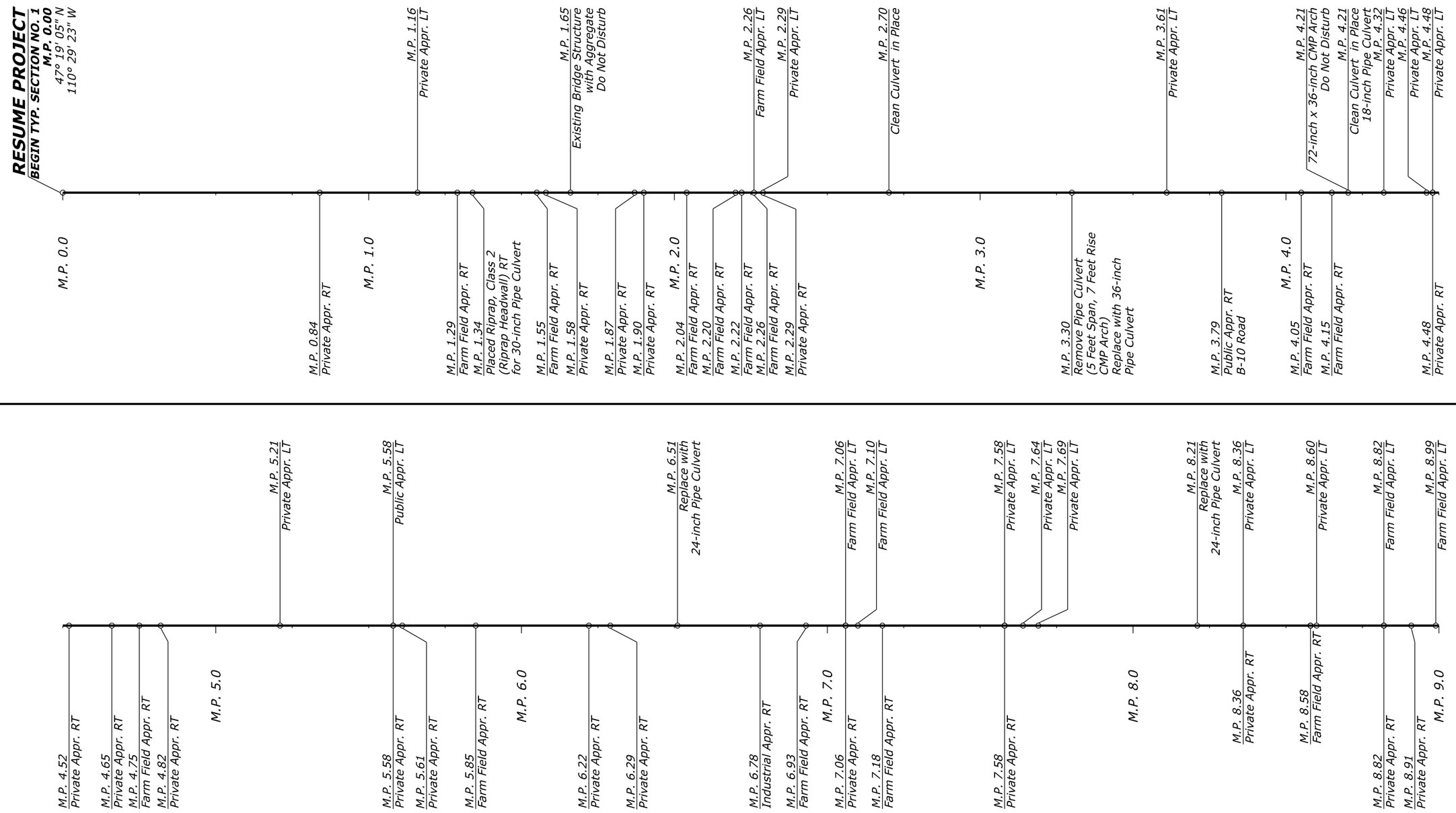
NOTE:

1. *All culverts are existing unless otherwise noted.*
2. *See Sheet C.3 for typical roadway connection details.*

B-11 ROAD
LINE GRAPH
SCHEDULES A, B, C, D, E, & F

\\rpa-lfn-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_plr_lg_02_B-11.dgn [Untitled]
6 January 2026 3:03 PM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	D.4



NOTE:

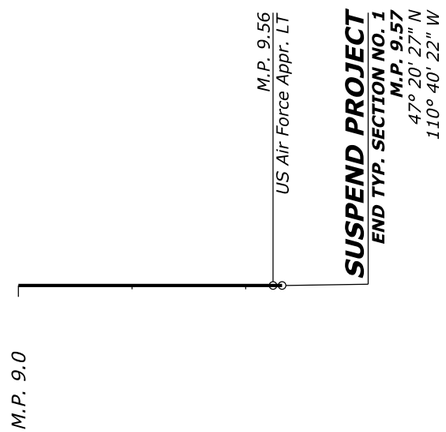
1. *All culverts are existing unless otherwise noted.*
2. *See Sheet C.3 for typical roadway connection details.*

A-03 ROAD
LINE GRAPH
SCHEDULES A, B, C, D, E, & F

SHEET 1 OF 2

4 September 2025 11:10 AM \\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_ph_lg_03_A-03.dgn [Untitled]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	D.5

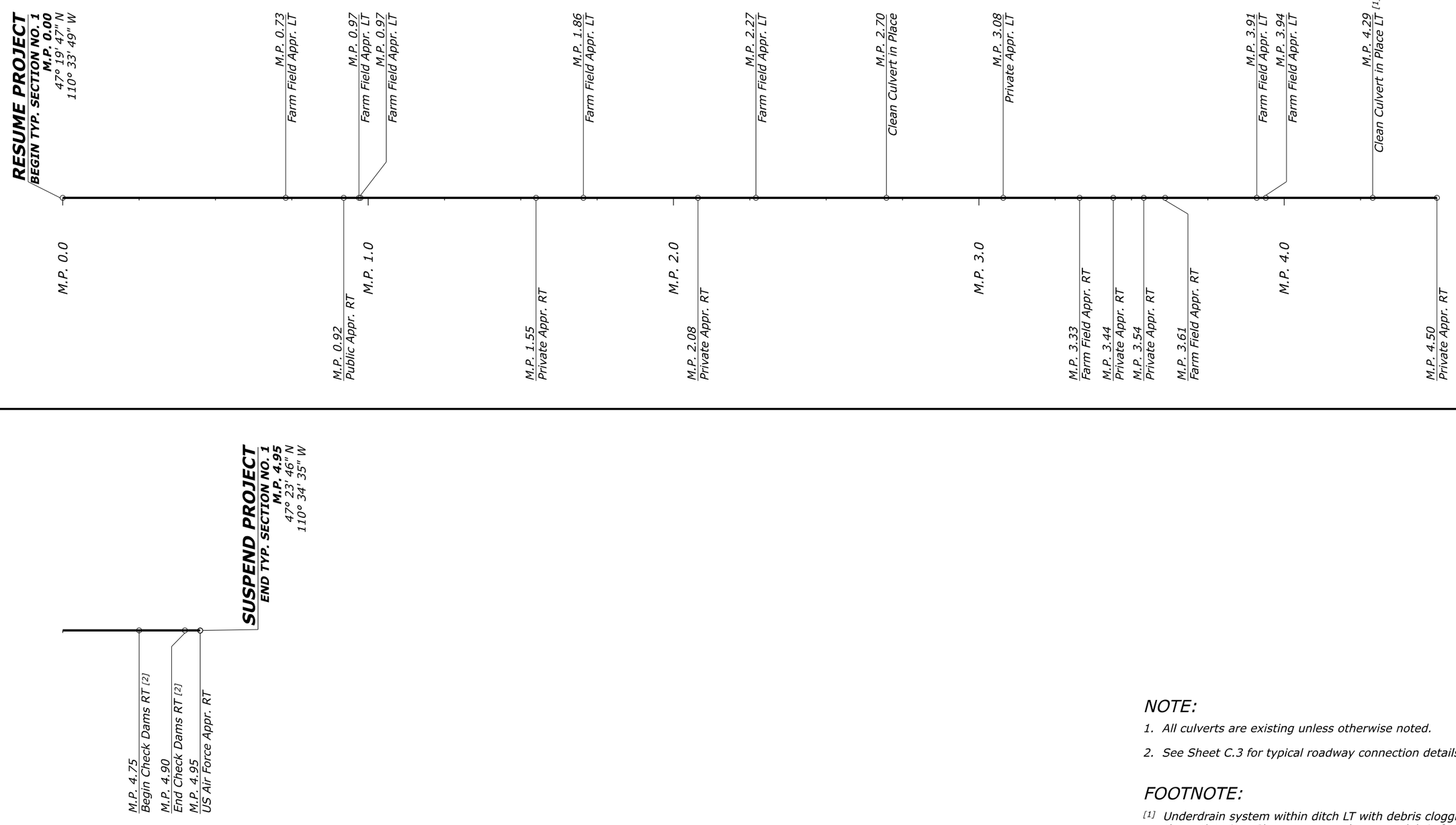


NOTE:

1. *All culverts are existing unless otherwise noted.*
2. *See Sheet C.3 for typical roadway connection details.*

A-03 ROAD
LINE GRAPH
SCHEDULES A, B, C, D, E, & F
SHEET 2 OF 2

23 December 2025 2:41 PM \\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_plh_lg_04_A-03.dgn [Untitled]



NOTE:

1. All culverts are existing unless otherwise noted.
2. See Sheet C.3 for typical roadway connection details.

FOOTNOTE:

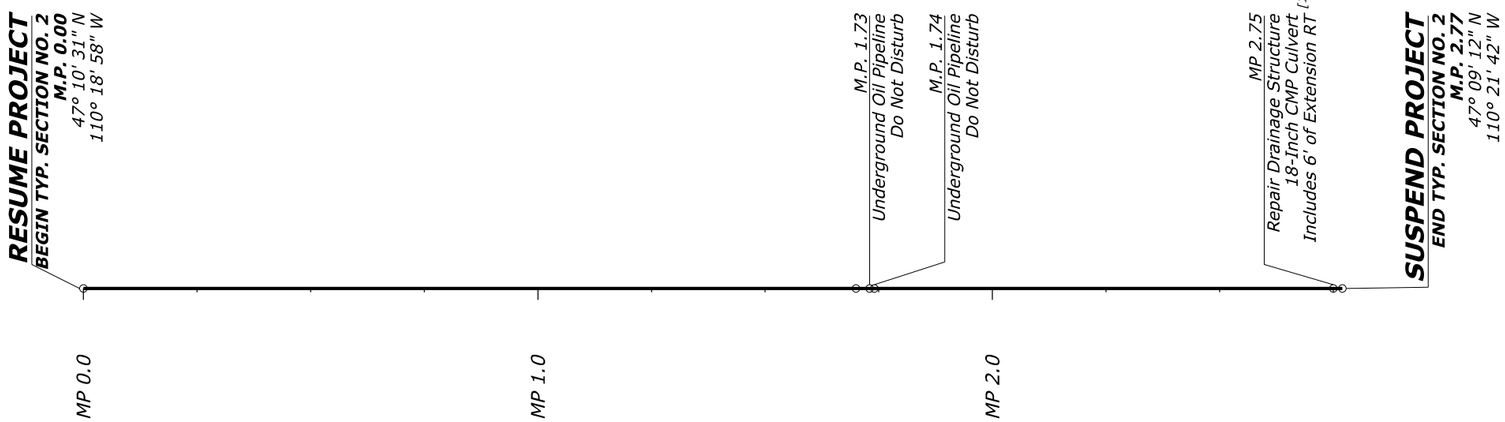
[1] Underdrain system within ditch LT with debris clogging the outlet pipe. Clean screen and remove debris from outlet pipe as approved.

[2] See Sheet E.2 for Check Dam placement along ditch grades. Adjust in field as approved.

B-10 ROAD
LINE GRAPH
SCHEDULE B, C, D, E, & F

23 December 2025 2:49 PM \\rpa-lfn-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_pln_lg_05_B-10.dgn [Untitled]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	D.7



NOTE:

1. *All culverts are existing unless otherwise noted.*
2. *See Sheet C.3 for typical roadway connection details.*

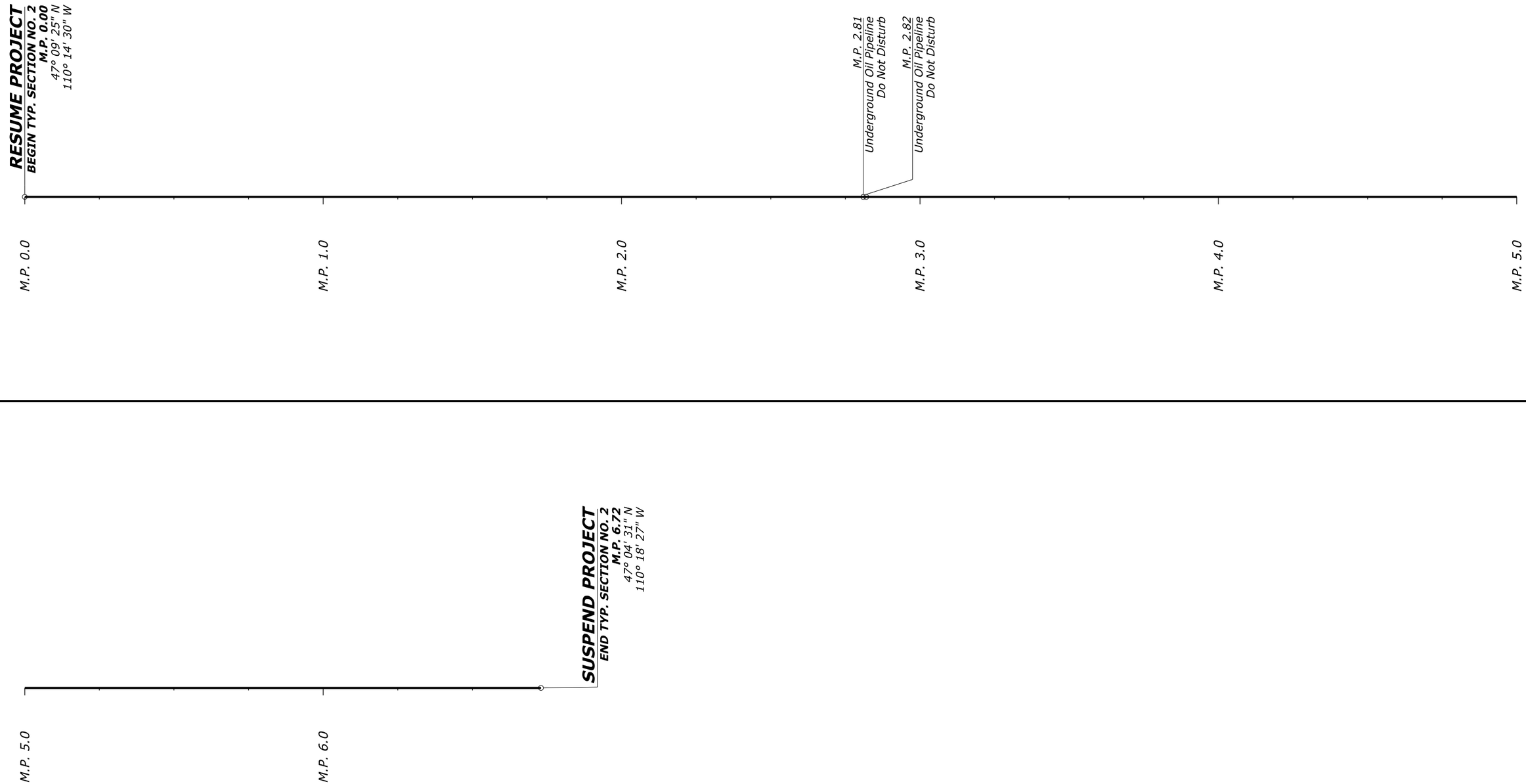
FOOTNOTE:

[1] For information only. Adjust in field as approved.

B-06 ROAD
LINE GRAPH
SCHEDULES C, D, E, & F

23 December 2025 2:51 PM \\rpa-hln-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_plr_lg_06_B-06.dgn [Untitled]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	D.8



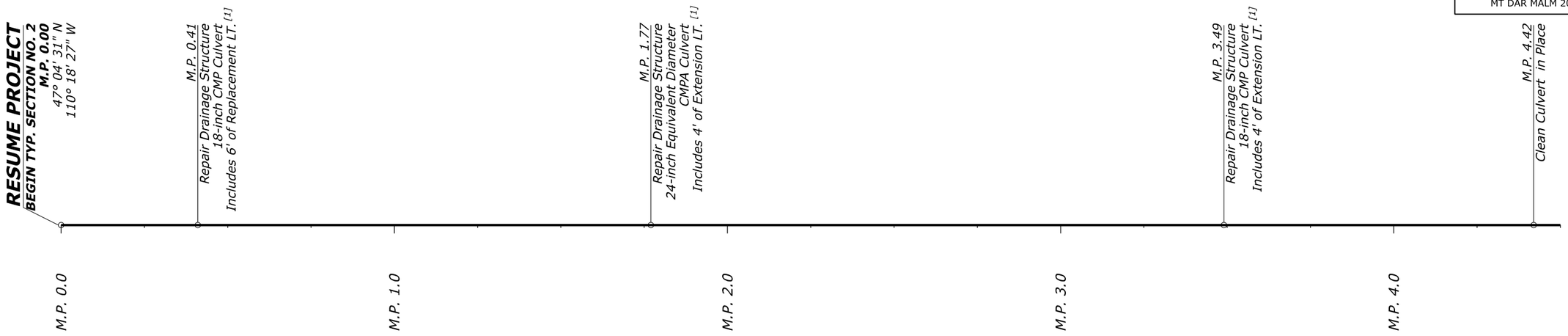
NOTE:

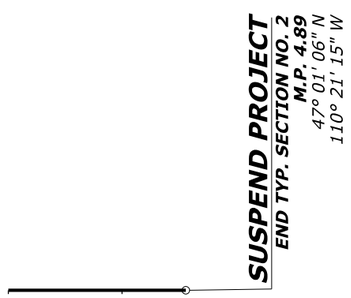
1. *All culverts are existing unless otherwise noted.*
2. *See Sheet C.3 for typical roadway connection details.*

C-10 ROAD
LINE GRAPH
SCHEDULES C, D, E, & F

\\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_plh_lg_07_C-10.dgn [Untitled]
12 May 2026 7:36 AM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	D.9





NOTE:

1. *All culverts are existing unless otherwise noted.*
2. *See Sheet C.3 for typical roadway connection details.*

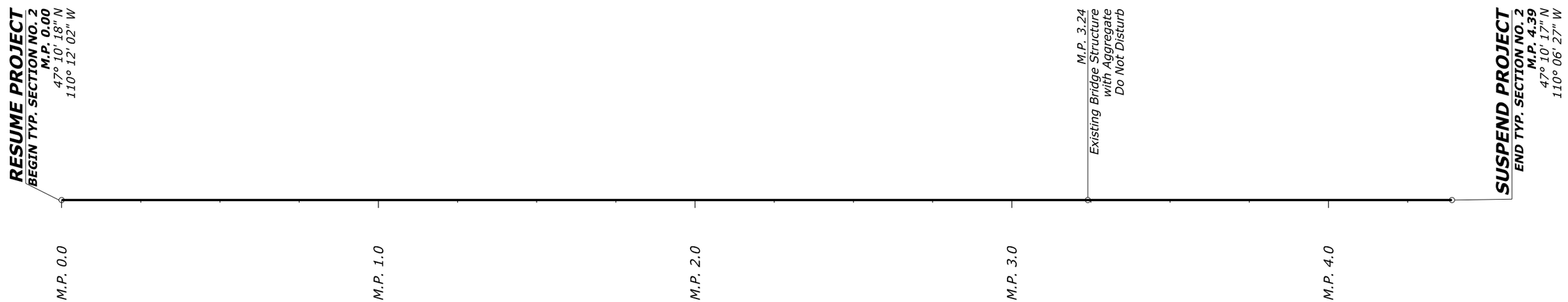
FOOTNOTE:

[1] *For information only. Adjust in field as approved.*

C-08(a) ROAD LINE GRAPH SCHEDULES D, E, & F

23 December 2025 2:58 PM \\rpa-hln-04\shared\Highways\FHWA\24S00059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_plr_lg_08_C-08.dgn [Untitled]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	D.10



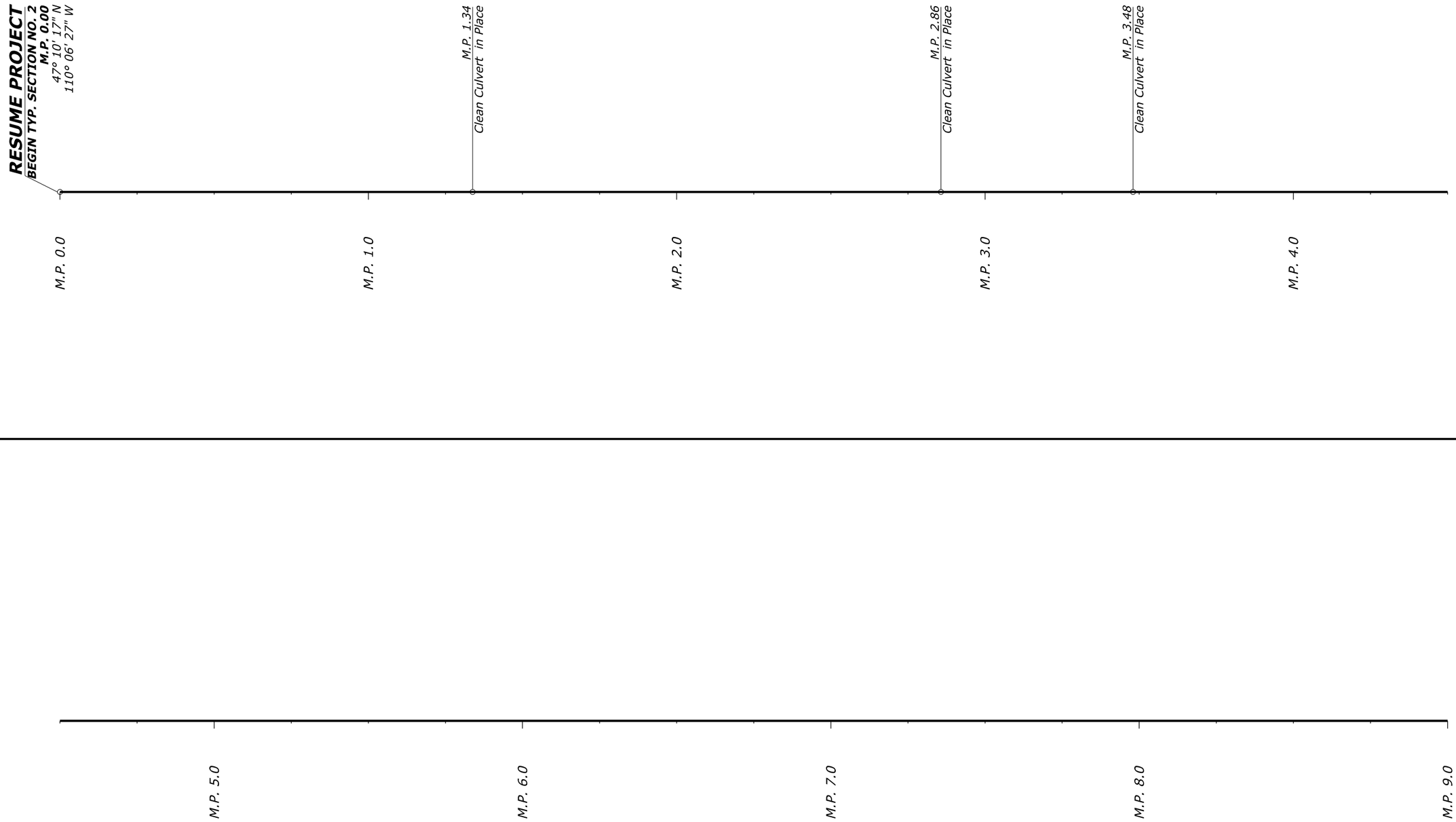
NOTE:

1. *All culverts are existing unless otherwise noted.*
2. *See Sheet C.3 for typical roadway connection details.*

C-02 ROAD
LINE GRAPH
SCHEDULES E & F

5 January 2026 12:10 PM \\rpa-fln-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_plr_lg_09_C-02.dgn [Untitled]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	D.11



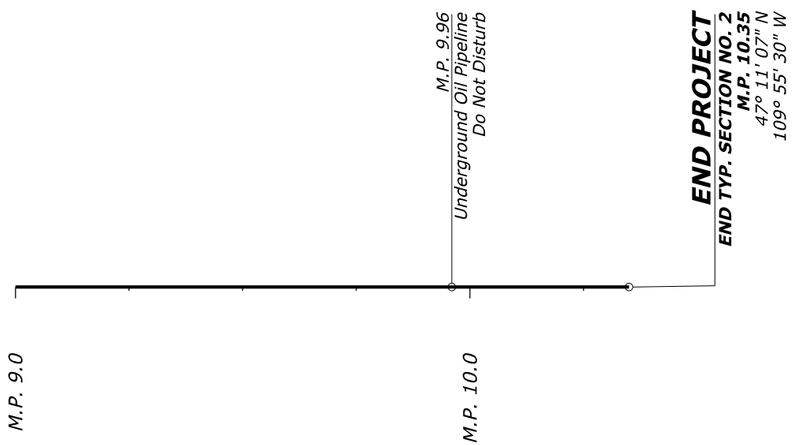
NOTE:

1. *All culverts are existing unless otherwise noted.*
2. *See Sheet C.3 for typical roadway connection details.*

C-03 ROAD
LINE GRAPH
SCHEDULE F
SHEET 1 OF 2

23 December 2025 5:08 PM \\rpa-lfn-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_plr_lg_10_C-03.dgn [Untitled]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	D.12



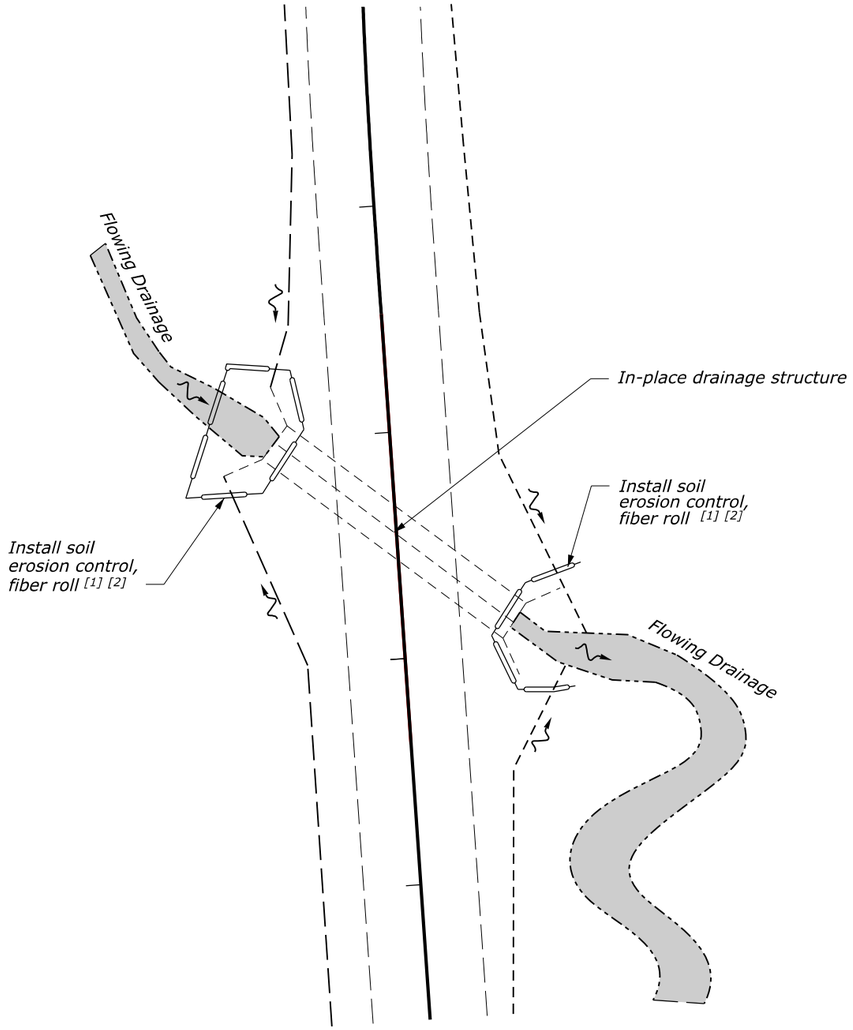
NOTE:

1. *All culverts are existing unless otherwise noted.*
2. *See Sheet C.3 for typical roadway connection details.*

C-03 ROAD
LINE GRAPH
SCHEDULE F
SHEET 2 OF 2

23 December 2025 3:01 PM \\rpa-lfn-04\shared\Highways\FHWA\24S00059_mtd-malm2026-1_DAR2026\DGN\Plan and Profile\mt-d-malm202601_plr_lg_11_C-03.dgn [Untitled]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	E.1



TYPICAL FIBER ROLL PLACEMENT

ITEM 15706-0200 SOIL EROSION CONTROL, CHECK DAM (FILTER ROCK) [4]

Road Number	Mile Post		Quantity (EACH)
	From	To	
B-10	4.75 RT	4.90 RT	41
Schedules B, C, D, E, & F Total			**41**

ITEM 62901-0800 ROLLED EROSION CONTROL PRODUCT, TYPE 2.D [4]

Road Number	Mile Post		Quantity (SQYD)
	From	To	
B-10	4.75 RT	4.90 RT	833
Schedules B, C, D, E, & F Total			**833**

ITEM 15705-1400 SOIL EROSION CONTROL, FIBER ROLL

Road Number	Estimated Number of Flowing Drainages [3]	Length (LNFT)
B-09	2	140
B-11	13	260
A-03	15	300
Schedule A Total		**700**
B-10	9	180
Schedule B Total		**880**
B-06	2	40
C-10	3	60
Schedule C Total		**980**
C-08(a)	9	180
Schedule D Total		**1,160**
C-02	3	60
Schedule E Total		**1,220**
C-03	10	200
Schedule F Total		**1,420**

FOOTNOTE:

[1] *Place fiber rolls around culverts with standing or flowing water as shown. See Sheet E.3 for typical installation details.*

[2] *Ensure fiber rolls extend across any ditches intersecting with culverts with standing or flowing water.*

[3] *For information only. Based on May 2025 runoff conditions. Install erosion control devices as approved based on field conditions at the time of construction.*

[4] *For stabilizing roadside ditches along steep vertical grades. See Sheet E.2 for typical installation details.*

NO SCALE

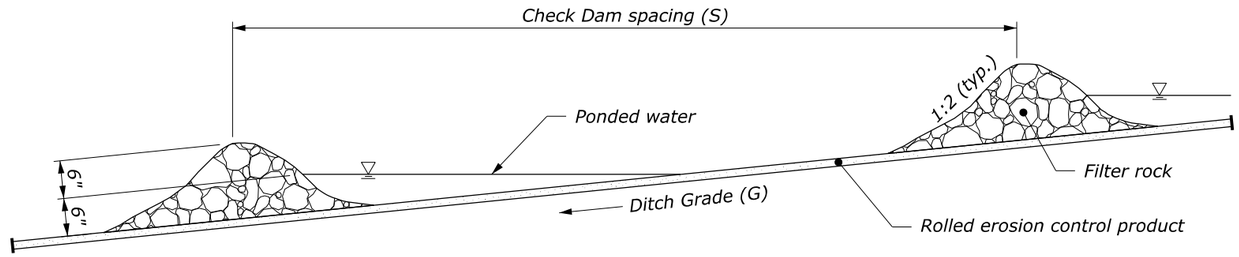
EROSION CONTROL PLAN

\\rpa-hln-04\shared\highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Erosion Control\mt-d-malm202601_plh_ec_01.dgn [Untitled]
2 January 2026 7:34 AM

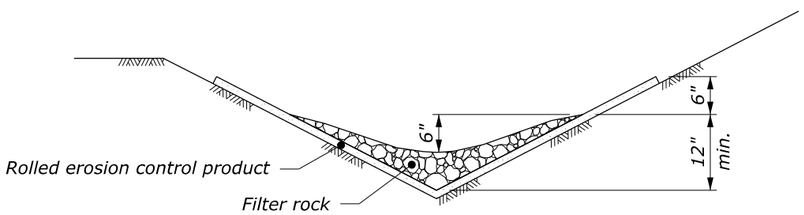
PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	E.2

NOTE:

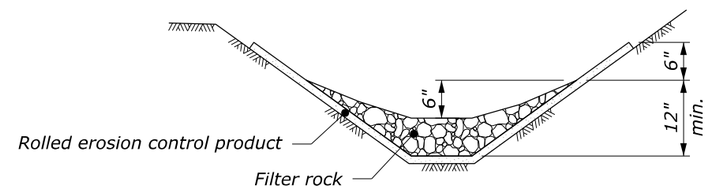
1. Repair all rills or gullies and properly compact prior to installation.
2. Install check dams in ditches perpendicular to the flowline.
3. Adjust check dam spacing based on site-specific conditions.



PROFILE VIEW



CROSS SECTION
V-DITCH



CROSS SECTION
FLAT-BOTTOM DITCH

FILTER ROCK CHECK DAM SPACING (See Note 3)	
DITCH GRADE (G)	MAX. CHECK DAM SPACING (S) (FT)
7%	40
8% and 9%	30
≥10%	20

FILTER ROCK CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY

CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT

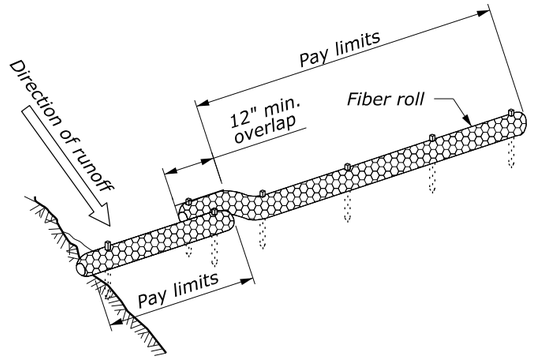
WFL STANDARD
W157-16

SPECIFICATION
FP-24, FP-14

APPROVED FOR USE
7/2016

6 January 2026 4:40 PM \\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Erosion Control\mt-d-malm202601_plh_ec_03.dgn [Std W157-16]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	E.3



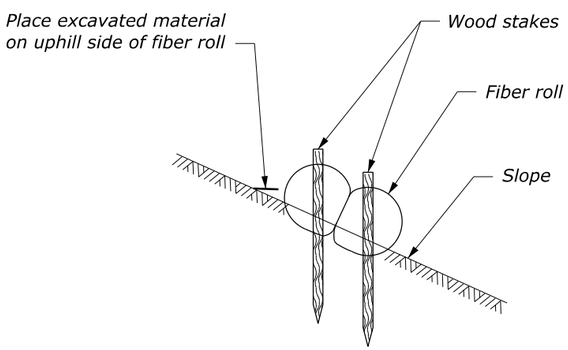
FIBER ROLL JOINT DETAIL

FIBER ROLL SPACING TABLE*	
Slope Gradient	9" ∅ Fiber Roll Maximum spacing (ft)
1V:4H or flatter	60
Between 1V:4H and 1V:3H	45
Between 1V:3H and 1V:2H	30
1V:2H and steeper	15

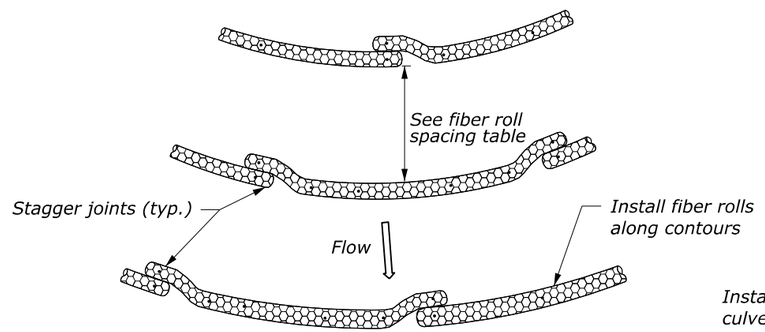
*Approximate spacing shown. Adjust spacing as needed due to site-specific conditions.

NOTE:

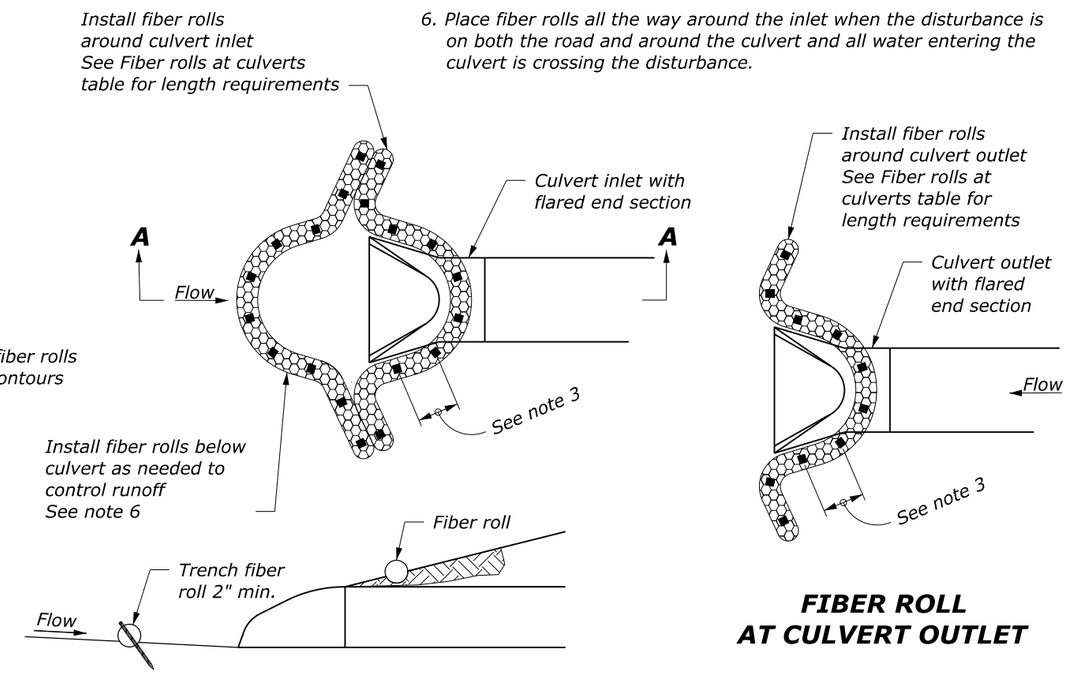
1. Repair all rills and gullies and properly compact before installation.
2. Install fiber rolls along slope contours. For any 20-foot section of fiber roll, do not allow the fiber roll to vary more than 5% from level.
3. Stake fiber rolls in place with 1-inch x 1-inch or 1-inch Ø wood stakes. Space stakes 4-foot o.c. max. on slopes and 2-foot o.c. max. at culverts. Stake fiber rolls 6 inches from each end.
4. Drive stakes into undisturbed soil at least 12 inches deep. Expose stakes 2 inches above top of fiber roll.
5. For fiber rolls on bare soil, construct trenches parallel to the contour. Place fiber rolls in continuous contact with trench bottom and sides. Tamp soil backfill against upstream side of fiber roll to ensure storm water is forced to flow through fiber roll rather than under it.
6. Place fiber rolls all the way around the inlet when the disturbance is on both the road and around the culvert and all water entering the culvert is crossing the disturbance.



FIBER ROLL LAPPING DETAIL

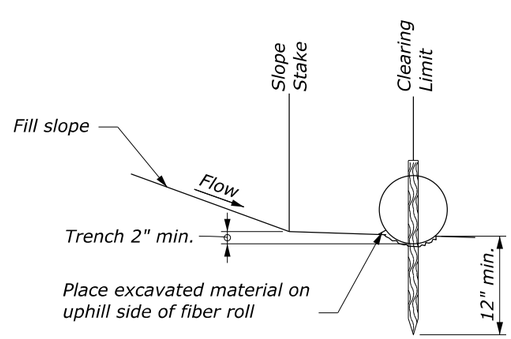


FIBER ROLL SLOPE LAYOUT

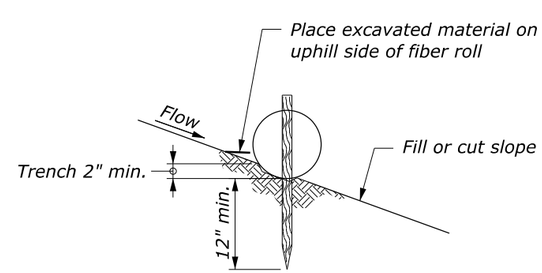


FIBER ROLL AT CULVERT INLET

FIBER ROLL AT CULVERT OUTLET



FIBER ROLL AS PERIMETER CONTROL INSTALLATION DETAIL



STAKE DETAIL

FIBER ROLL AT CULVERTS*	
Culvert Size	9" ∅ Fiber Roll length (ft)
24" or smaller	10
30" to 48"	20
54" or larger	30

*Approximate length shown for rolls across the top of the culvert inlet only. Adjust length as needed due to site-specific conditions.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY

FIBER ROLL

CFLHD DETAIL C157-55

SPECIFICATION FP-24, FP-14

APPROVED FOR USE

DRAFT: 06/2024

23 December 2025 10:50 AM \\rpa-hfn-04\shared\highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Erosion Control\mt-d-malm202601_pln_ec_02.dgn [Det C157-55]

Note: The quantities shown hereon are approximate and are subject to field adjustments.

TABULATION OF DRAINAGE QUANTITIES

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	F.1

PAY ITEM NUMBER			20301 -1900	25101 -0200	60201 -0800	60201 -1000	60704 -0000	60705 -0000					
Road Number Mile Post	ESTIMATED MAXIMUM COVER	STRUCTURAL EXCAVATION (FOR INFORMATION ONLY)	REMOVAL OF PIPE CULVERT (5 FEET SPAN, 7 FEET RISE CMP ARCH)	PLACED RIPRAP, CLASS 2 (RIPRAP HEADWALL)	24-INCH PIPE CULVERT	36-INCH PIPE CULVERT	CLEANING CULVERT IN PLACE	REPAIRING DRAINAGE STRUCTURE	SKEW ANGLE	Allowable Pipe Material (See key below)	BEVELS 1V:nH	BEVELS 1V:nH	REMARKS See below for numbered footnotes
	FEET	CUYD	EACH	CUYD	LNFT	LNFT	EACH	EACH			Lt	Rt	
A-03													
1.34				5									[1]
2.70							1						
3.30	6	146	1			46			0°	A, AS			
4.21							1		10° RT	A, AS			
6.51	3	17			36				15° RT	A, AS			
8.21	4	24			42				0°	A, AS			
Schedule A Total		**187**	**1**	**5**	**78**	**46**	**2**						
B-10													
2.70							1						
4.29							1						[4]
Schedule B Total		**187**	**1**	**5**	**78**	**46**	**4**						
B-06													
2.75								1		x/ C, P			[2]
Schedule C Total		**187**	**1**	**5**	**78**	**46**	**4**	**1**					
C-08(a)													
0.41								1		x/ C, P			[3]
1.77								1		x/ C, P			[2]
3.49								1		x/ C, P			[2]
4.42							1						
Schedules D & E Total		**187**	**1**	**5**	**78**	**46**	**5**	**4**					
C-03													
1.34							1						
2.86							1						
3.48							1						
Schedule F Total		**187**	**1**	**5**	**78**	**46**	**8**	**4**					

NOTE:
1. Aluminized steel pipe and aluminum pipe culvert minimum wall thickness is the thickness as shown on Std. 602-1 fill height table, unless otherwise noted on plans.
2. Provide minimum cover as shown on Std. 602-1 and according to manufacturer recommendations.
3. For CMP culvert repairs, select material and coupling band based on existing corrugations.
4. Structural excavation quantity based on material excavated inside the vertical planes located 18 inches outside and parallel to the limits of culverts.

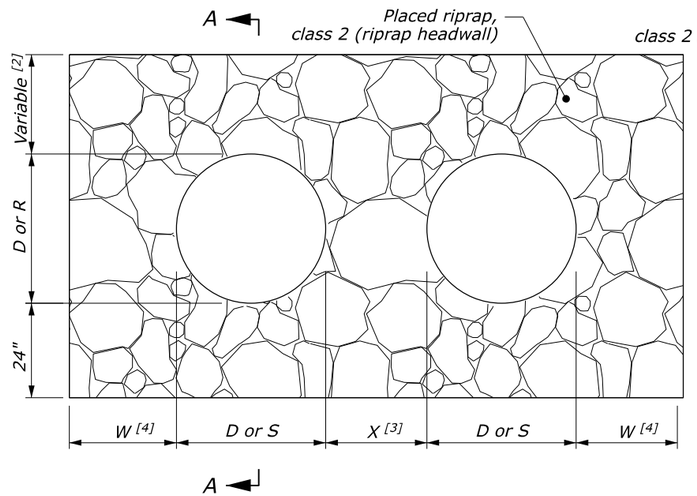
FOOTNOTE:
[1] Class 2 riprap headwall RT. See Sheet F.2.
[2] Repair includes extending pipe end.
[3] Repair includes replacing pipe end.
[4] Standard underdrain outlet pipe LT. Do not use jet truck.

Allowable Pipe Material

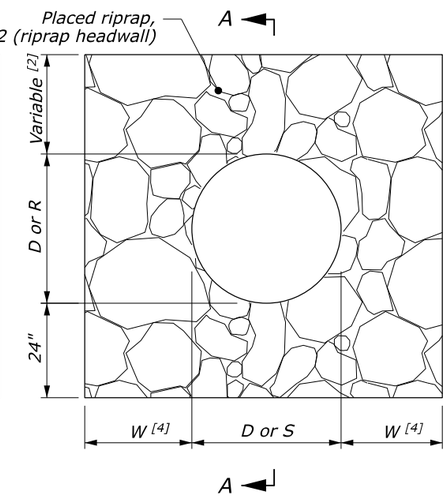
A	Aluminum
AS	Aluminized steel
C	Concrete
GS	Galvanized steel
P	Plastic
(blank)	Any appropriate material
x/__	Any appropriate material except __

\\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Drainage\mt-d-malm202601_pln_hy_qty.dgn [F.1]
13 May 2026 4:22 PM

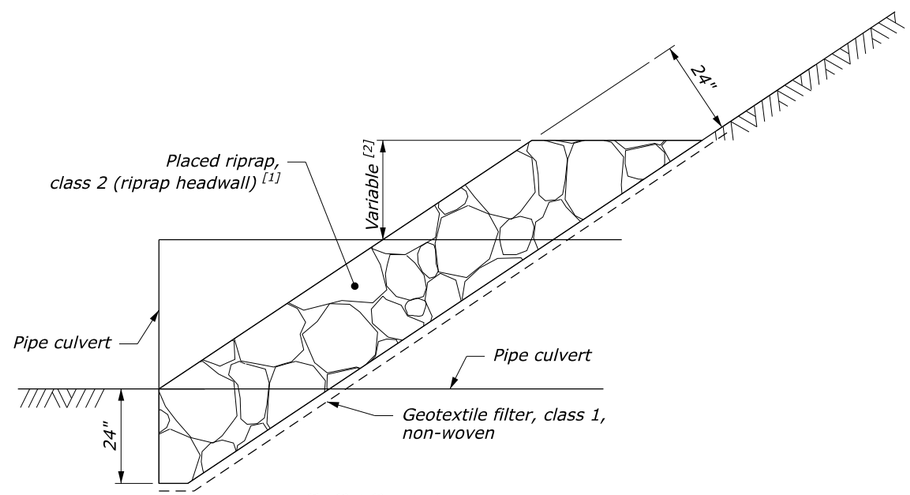
PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	F.2



ELEVATION - DOUBLE PIPE



ELEVATION - SINGLE PIPE



SECTION A-A

CLASS 2 RIPRAP HEADWALL DETAILS

RIPRAP HEADWALL INFORMATION (FOR INFORMATION ONLY)			
M.P.	D (in)	W (in)	Geotextile filter, class 1, non-woven (SQYD)
A-03 Road			
1.34	30	24	8.9

NOTE:

1. See Sheet F.1 for estimated pay quantities.

FOOTNOTE:

[1] Slope to match roadway embankment.

[2] 24" standard, 12" if headwall extends to subgrade.

[3] Existing spacing for headwall installations at existing pipes or minimum pipe spacing as shown on Standard 602-3 for new pipe installations.

[4] ½ diameter, ½ span, or 24" minimum.

Abbreviations:
D = Diameter
R = Rise
S = Span
W = Width

NO SCALE

RIPRAP STABILIZATION DETAILS

\\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Drainage\mt-d-malm202601_pln_hy_01.dgn [Untitled]
7 January 2026 3:47 PM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	F.3

METAL ROUND PIPE CULVERT

FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT

STEEL

PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS					3" x 1" CORRUGATIONS					5" x 1" CORRUGATIONS				
		METAL THICKNESS (INCH/GAGE)														
		0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.064/16	0.079/14	0.109/12	0.138/10	0.168/8
		MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)														
12	12	100	100	100	100	100										
15	12	100	100	100	100	100										
18	12	100	100	100	100	100										
21	12	100	100	100	100	100										
24	12	100	100	100	100	100										
30	12	85	100	100	100	100										
36	12	71	89	100	100	100	81	100	100	100	100					
42	12	61	76	100	100	100	70	87	100	100	100					
48	12	53	66	93	100	100	61	76	100	100	100	54	68	95	100	100
54	12		59	83	100	100	54	68	95	100	100	48	60	85	100	100
60	12			74	97	100	49	61	86	100	100	43	54	76	98	100
66	12				87	100	44	55	78	100	100	39	49	69	89	100
72	12				80	97	40	51	71	92	100	36	45	63	82	100
78	12					87	37	47	66	85	100	33	42	58	75	92
84	12					75	35	43	61	78	96	31	39	54	70	86
90	12						32	40	57	73	90	29	36	51	65	80
96	12							38	53	69	84		34	48	61	75
102	18							36	50	65	79		32	45	57	71
108	18								47	61	75			42	54	67
114	18								45	58	71			40	52	63
120	18								43	55	67			38	49	60
126	18									52	64				47	57
132	18									50	61				44	54
138	18									48	58				42	52
144	18										56					50

ALUMINUM

PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS					3" x 1" CORRUGATIONS				
		METAL THICKNESS (INCH/GAGE)									
		0.060/16	0.075/14	0.105/12	0.135/10	0.164/8	0.060/16	0.075/14	0.105/12	0.135/10	0.164/8
		MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)									
12	12	100	100	100	100	100					
15	12	100	100	100	100	100					
18	12	100	100	100	100	100					
21	12	88	100	100	100	100					
24	12	77	97	100	100	100					
30	12	62	77	100	100	100	71	89	100	100	100
36	12	52	64	90	100	100	59	74	100	100	100
42	12	44	55	77	99	100	51	64	89	100	100
48	12			67	87	100	44	56	78	100	100
54	18			54	71	88	39	50	69	93	100
60	18				57	72	35	45	62	83	98
66	18					58	32	40	56	76	89
72	18					45	30	37	55	70	82
78	24							34	48	64	75
84	24								44	59	70
90	24								41	62	65
96	24								38	51	61
102	24									46	55
108	24									42	50
114	24										45
120	24										40

NOTE:

1. When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.
2. Fill heights exceeding 100 feet require special analysis by the CO.
3. The fill heights in the table are for helical lockseam and welded seam pipe only. Fill heights for culvert pipe with annular corrugations are more restrictive than those of helical lockseam and welded seam pipe. Obtain approval before furnishing annular corrugation pipe.
4. For flexible pavement and aggregate surface roadways, measure minimum cover from the top of the pipe culvert to the bottom of the roadway subgrade. For rigid pavements, measure minimum cover from the top of the pipe culvert to the top of the pavement. For all roadway surface types, measure maximum fill height from the top of the pipe culvert to the top of the pavement.

METAL PIPE ARCH CULVERT

FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT

STEEL

PIPE ARCH SIZE SPAN x RISE INCHES	EQUI-VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS					3" x 1" CORRUGATIONS				5" x 1" CORRUGATIONS			
				METAL THICKNESS (INCH/GAGE)												
				0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.079/14	0.109/12	0.138/10	0.168/8	0.079/14	0.109/12	0.138/10	0.168/8
				MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)												
17 x 13	15	3	12	13												
21 x 15	18	3	12	12												
24 x 18	21	3	12	13												
28 x 20	24	3	12	13												
35 x 24	30	3	12	12												
42 x 29	36	3.5	12	12												
49 x 33	42	4	12		12											
57 x 38	48	5	12			12										
60 x 46	54	8	15							21				21		
64 x 43	54	6	12			12										
66 x 51	60	9	15							21				21		
71 x 47	60	7	12				12									
73 x 55	66	12	18							20				20		
77 x 52	66	8	12					12								
81 x 59	72	14	18						17				17			
83 x 57	72	9	12					12								
87 x 63	78	14	18						17				17			
95 x 67	84	16	18						17				17			
103 x 71	90	16	18							17			17			
112 x 75	96	18	21							16				16		
117 x 79	102	18	21							16				16		
128 x 83	108	18	24								16				16	
137 x 87	114	18	24								16				16	
142 x 91	120	18	24									16				16

ALUMINUM

PIPE ARCH SIZE SPAN x RISE INCHES	EQUI-VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS				3" x 1" CORRUGATIONS			
				METAL THICKNESS (INCH/GAGE)							
				0.060/16	0.075/14	0.105/12	0.135/10	0.060/16	0.075/14	0.105/12	0.135/10
				MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)							
17 x 13	15	3	12	13							
21 x 15	18	3	12	12							
24 x 18	21	3	12	13							
28 x 20	24	3	12		13						
35 x 24	30	3	12		12						
42 x 29	36	3.5	15			12					
49 x 33	42	4	15			12					
57 x 38	48	5	15				12				
60 x 46	54	8	15					21			
64 x 43	54	6	18				12				
66 x 51	60	9	18					21			
73 x 55	66	12	18						20		
81 x 59	72	14	21							17	
87 x 63	78	14	21							17	
95 x 67	84	16	24							17	
103 x 71	90	16	24								17

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY

METAL PIPE CULVERT

FLH STANDARD 602-1

SPECIFICATION FP-24, FP-14

APPROVED FOR USE 8/2024

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6 January 2026 4:17 PM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	F.4

COUPLING BANDS FOR METAL PIPE CULVERT [1]

CORRUGATION SIZE [2] INCHES	ROUND PIPE DIAMETER INCHES	PIPE ARCH SPAN × RISE INCHES	MINIMUM BAND WIDTH (INCHES)		
			ANNULAR CORRUGATED BANDS [3]	HELICALLY CORRUGATED BANDS [4]	SEMI-CORRUGATED BANDS [5]
1½ × ¼	underline [6]	-	10.5	7	10.5
2⅔ × ½	12 to 36	17 × 13 to 42 × 29	7	12	
	42 to 72	49 × 33 to 83 × 57	10.5	12	
	78 to 84	-	10.5	12	10.5
3 × 1	36 to 72	60 × 46 to 81 × 59	12	14	10.5
	78 to 144	87 × 64 to 142 × 91	12	14	10.5
5 × 1	36 to 72	60 × 46 to 81 × 59	20	22	
	78 to 144	87 × 64 to 142 × 91	20	22	

[1] Fabricate annular, helical and semi-corrugated type coupling bands from the same metal as the connecting pipe. Provide coupling bands not more than 3 nominal sheet thicknesses thinner than the thickness of the pipe to be connected, and no thinner than 0.052 inch for steel or 0.048 inch for aluminum. Fasten coupling bands with the following diameter of bolt:
⅜" for 18" round culvert (21" × 15" pipe arch) or less
½" for 21" round culvert (24" × 18" pipe arch) or more

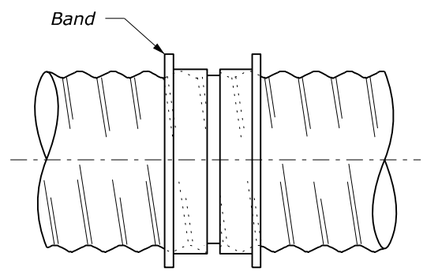
[2] For helically corrugated pipe with rerolled ends, the nominal corrugations size refers to the dimension of the end corrugation in the pipe.

[3] Use annular corrugated bands with pipes having annular corrugations or with helical pipe having rerolled end to form annular corrugations. A 10.5 inch band is acceptable on pipe ends rerolled with 2⅔" × ½" corrugations. A 12 inch band is acceptable on pipe ends rerolled with 3" × 1" pipe corrugations.

[4] Use helical corrugated bands with pipes having helically corrugated ends.

[5] The minimum band widths shown for 3" × 1" and 5" × 1" corrugated sizes apply to 2⅔" × ½" corrugations on rerolled pipe ends.

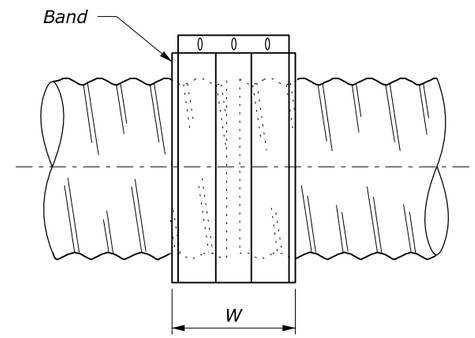
[6] Smooth sleeve-type couplers and flat bands may be used for pipe diameters of 12" or less. Use a matching metal having a nominal thickness of not less than 0.040 inch for steel, or 0.036 inch for aluminum, or a plastic with an equivalent strength to metal.



SLEEVE JOINT

Smoother sleeve with center stop.
Stab type joint

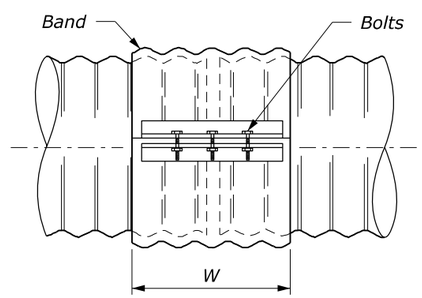
SMOOTH SLEEVE BAND



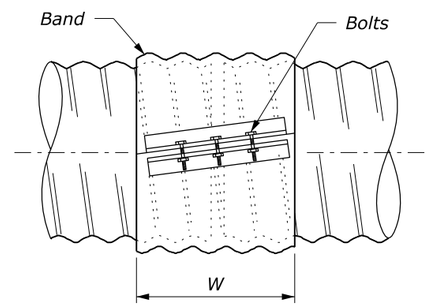
FLAT BAND

NOTE:

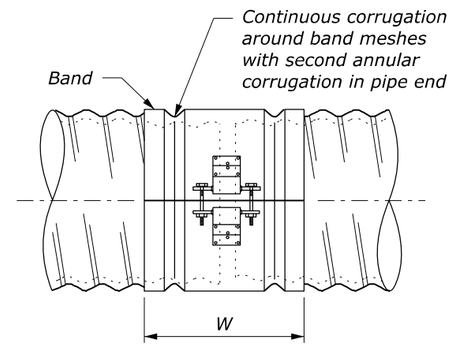
1. Other types of coupling bands or fastening devices that comply with the joint performance criteria of AASHTO Standard specifications for Highway Bridges, Division II Section 26 may be used.



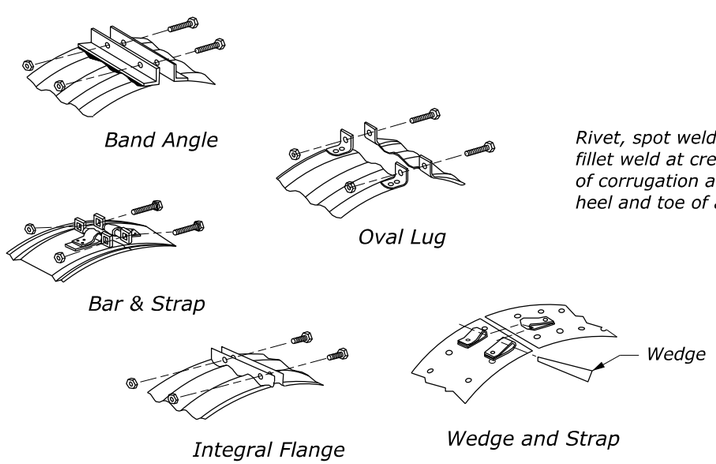
SIDE VIEW



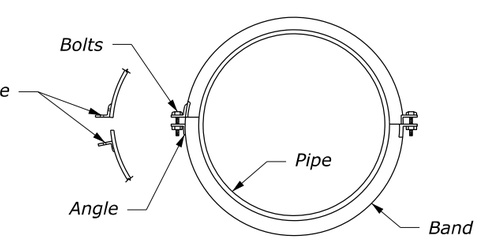
SIDE VIEW



SIDE VIEW



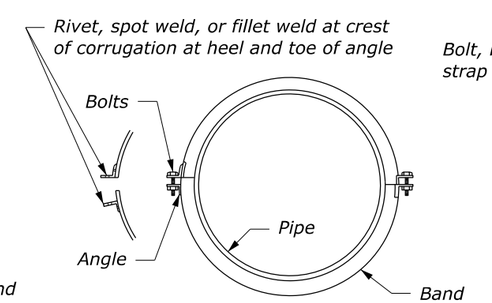
STANDARD BAND CONNECTIONS



END VIEW

Second angle connection optional to 42" diameter, required above 42" diameter

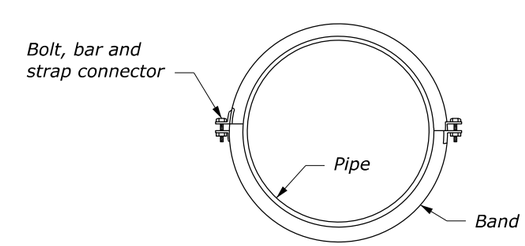
ANNULAR BAND



END VIEW

Second angle connection optional to 42" diameter, required above 42" diameter

HELICAL BAND



END VIEW

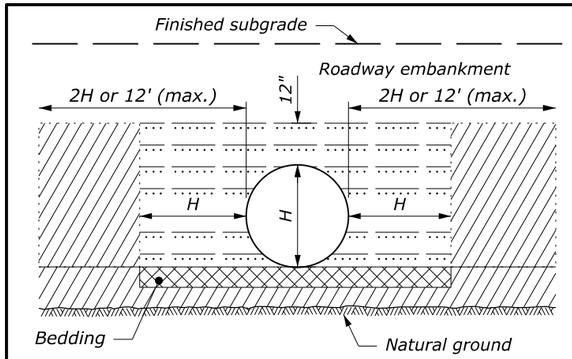
SEMI-CORRUGATED BAND

NO SCALE

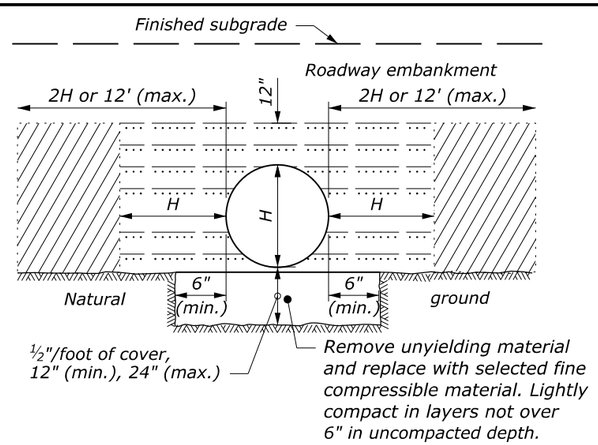
U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	FLH STANDARD 602-2
METAL PIPE CULVERT COUPLING BAND	SPECIFICATION FP-24, FP-14
	APPROVED FOR USE 1/2024

\\rpa-hln-04\shared\highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Drainage\mt-d-malm202601_dh_hy_03.dgn [Std 602-2]
6 January 2026 4:18 PM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	F.5

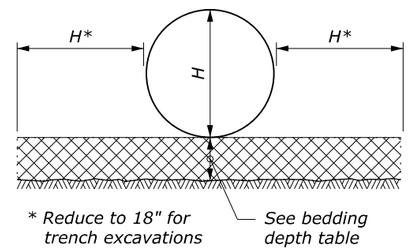


ABOVE NATURAL GROUND



ON UNYIELDING MATERIAL

BEDDING DEPTH	
PIPE SIZE (H)	DEPTH
12" to 54"	4"
> 54"	6"



PIPE BEDDING

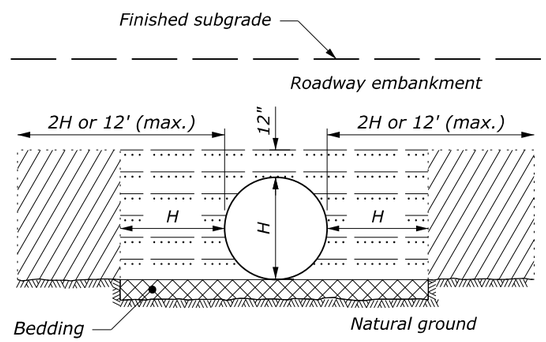
NOTE:

1. When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.

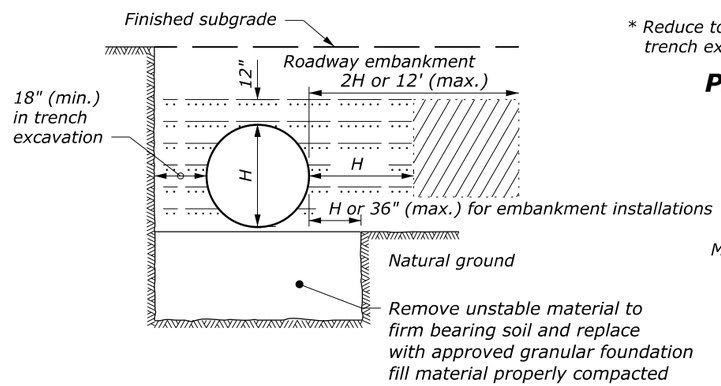
2. H equals the diameter of all round pipe culverts or the rise dimension of all pipe arch culverts.

3. See Section 704 for bedding and backfill requirements.

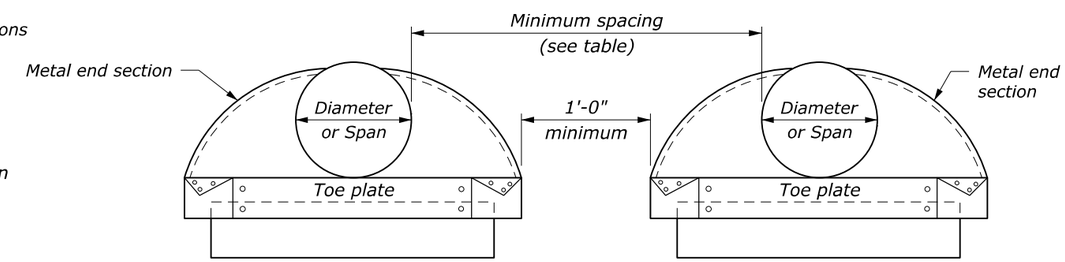
MINIMUM SPACING	
DIAMETER or SPAN	SPACING
UP to 48"	24"
48" and UP	Half diameter or span or 36", whichever is less



ON NATURAL GROUND

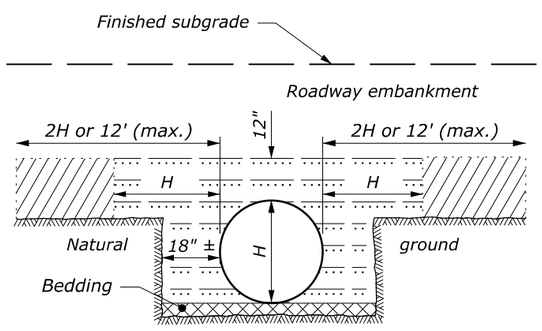


ON UNSTABLE MATERIAL

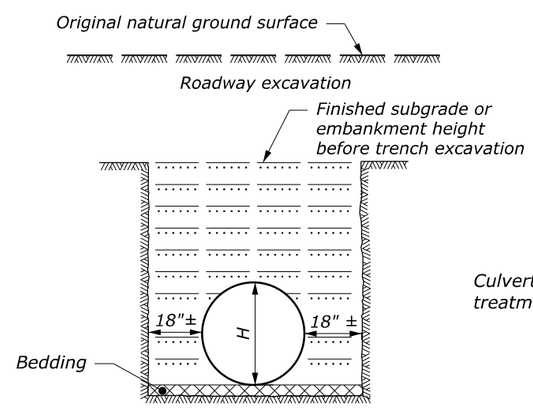


ELEVATION

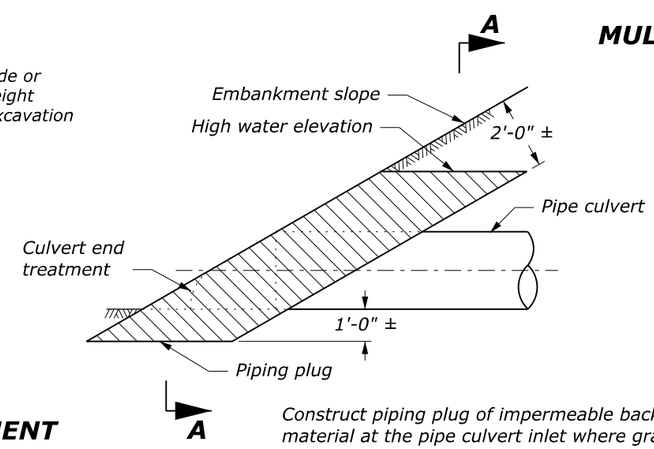
MULTIPLE PIPE INSTALLATION

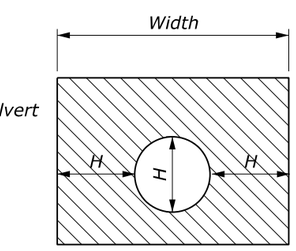


ABOVE AND BELOW NATURAL GROUND



BELOW NATURAL GROUND OR TRENCH EXCAVATION IN EMBANKMENT





SECTION A-A

Construct piping plug of impermeable backfill material at the pipe culvert inlet where granular material is used for backfill. Width may be adjusted to tie into impervious material.

PIPING PLUG

LEGEND:

- Bedding material (uncompacted)
- Embankment material placed in layers not exceeding 6" compacted depth.
- Compacted backfill material placed in layers not exceeding 6" compacted depth; or flowable backfill according to Section 614.
- Impermeable backfill material.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY

METAL AND PLASTIC PIPE CULVERT BEDDING

FLH STANDARD 602-3

SPECIFICATION FP-24

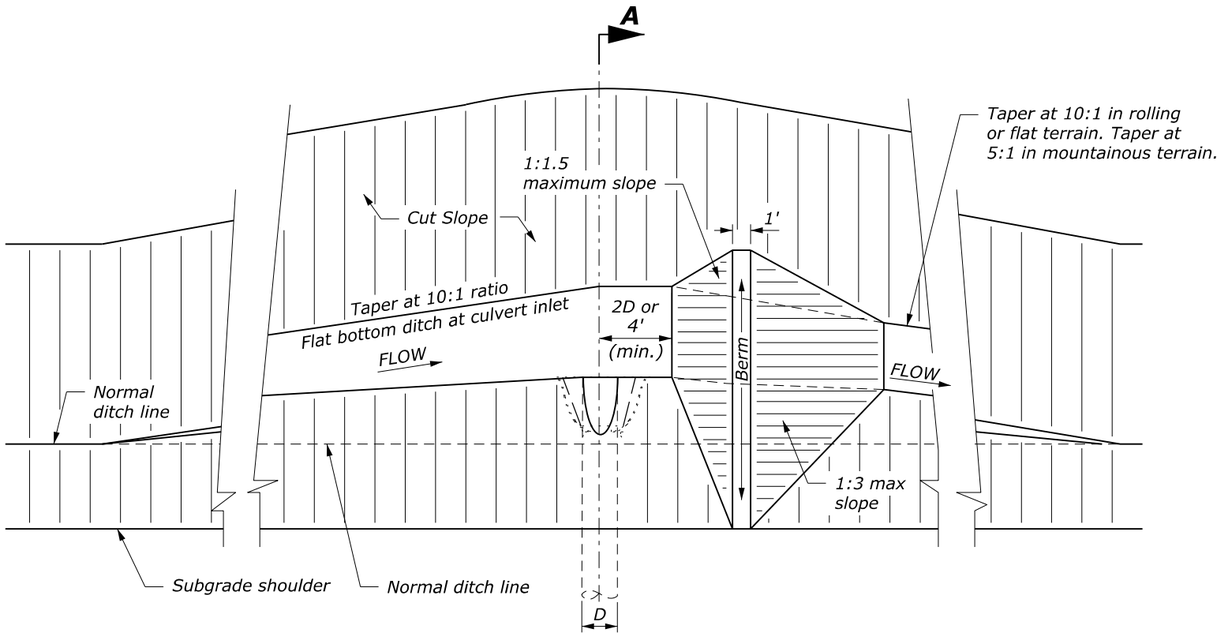
APPROVED FOR USE 1/2024

\\rpa-nhi-04\shared\highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Drainage\mt-d-malm202601_dh_hy_04.dgn [Std 602-3]
6 January 2026 4:20 PM

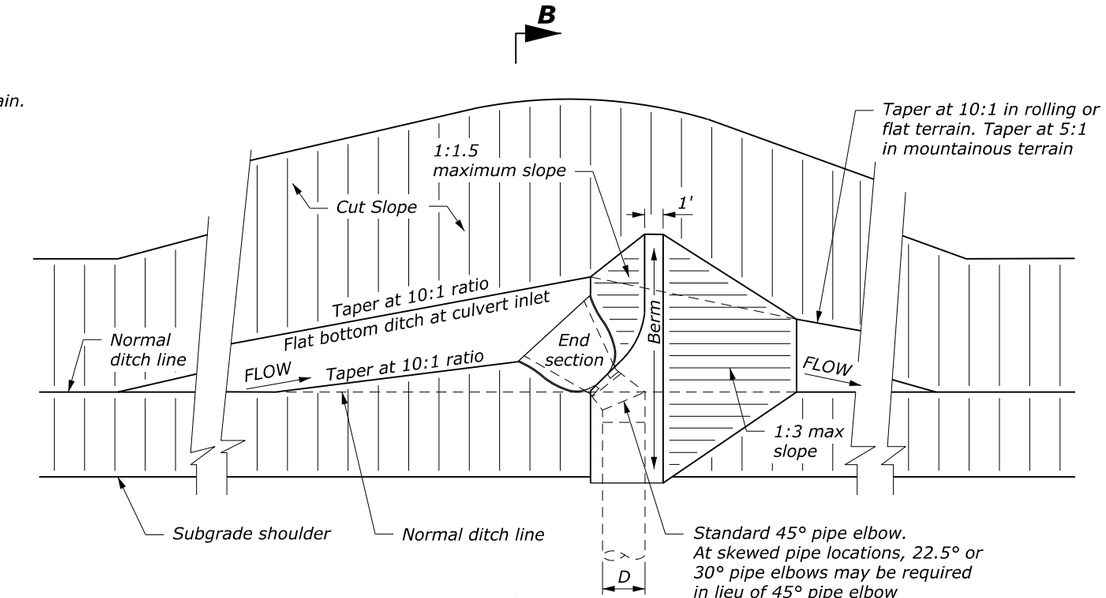
PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	F.6

NOTE:

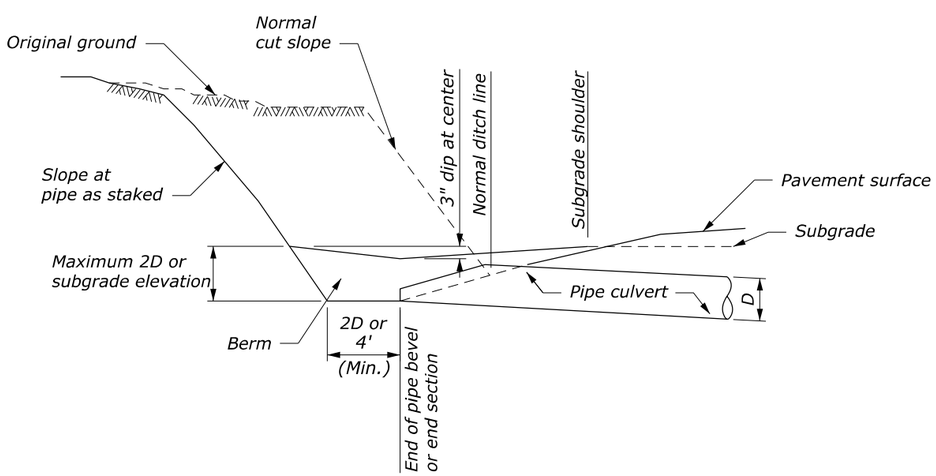
1. D equals the diameter of all round pipe or the rise dimension of all pipe arch culverts.



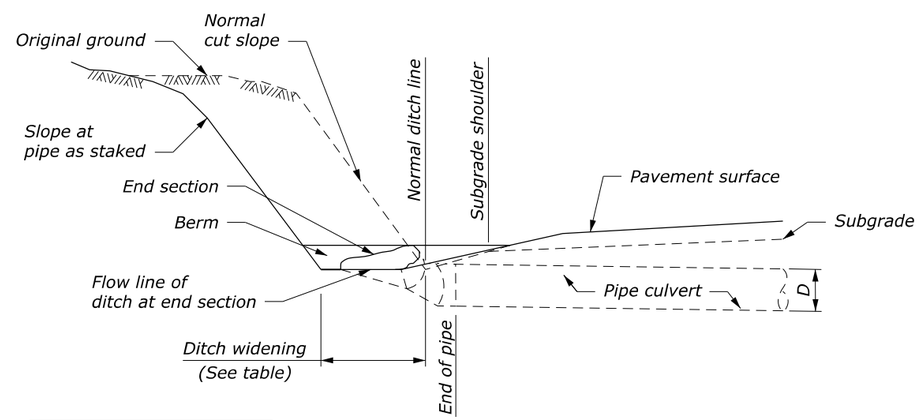
A
PLAN



B
PLAN



SECTION A-A
TYPE I



SECTION B-B
TYPE II

DITCH WIDENING	
PIPE SIZE (D)	WIDENING
18"	5'
24"	6'
30"	7'

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY

PIPE CULVERT INLET TREATMENT IN CUT SLOPES

FLH STANDARD
602-6

SPECIFICATION
FP-24, FP-14

APPROVED FOR USE
1/2024

6 January 2026 4:19 PM \\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Drainage\mt-d-malm202601_pln_hy_05.dgn [Std 602-6]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	G.1

TEMPORARY TRAFFIC CONTROL FOR INFORMATION ONLY [1]

CHANNELIZING DEVICES

DESCRIPTION	UNIT	QUANTITY
TEMPORARY TRAFFIC CONTROL, CONE	EACH	75
TEMPORARY TRAFFIC CONTROL, DRUM	EACH	25

SERVICES

TEMPORARY TRAFFIC CONTROL, TRAFFIC CONTROL SUPERVISOR	DAY	[3]
TEMPORARY TRAFFIC CONTROL, TRAFFIC SIGNAL SYSTEM	DAY	[4]
TEMPORARY TRAFFIC CONTROL, FLAGGER	HOUR	[4]
TEMPORARY TRAFFIC CONTROL, PILOT CAR	DAY	[4]

CONSTRUCTION SIGNS

SIGN NUMBER	MUTCD NUMBER	DESCRIPTION	SIGN SIZE (in x in)	NUMBER OF SIGNS
1	G20-1	ROAD WORK NEXT XX MILES	36 x 18	6
2	G20-2	END ROAD WORK	36 x 18	6
3	G20-4	PILOT CAR FOLLOW ME	36 x 18	6
4	R10-6	STOP HERE ON RED	24 x 36	6
5	W3-3	SIGNAL AHEAD	36 x 36	6
6	W3-4	BE PREPARED TO STOP	36 x 36	8
7	W8-6	TRUCK CROSSING [5]	36 x 36	4
8	W13-1P	25 MPH	18 x 18	8
9	W16-2P	XXX FEET	24 x 18	8
10	W20-1	ROAD WORK AHEAD	36 x 36	12
11	W20-4	ONE LANE ROAD AHEAD	36 x 36	8
12	W20-7	FLAGGER (SYMBOL)	36 x 36	8

TEMPORARY TRAFFIC CONTROL, A-03 ROAD CLOSURE FOR INFORMATION ONLY [2]

CHANNELIZING DEVICES

DESCRIPTION	UNIT	QUANTITY
TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH	6
TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE C	EACH	12

CONSTRUCTION SIGNS

SIGN NUMBER	MUTCD NUMBER	DESCRIPTION	SIGN SIZE (in x in)	NUMBER OF SIGNS
13	M4-8P	DETOUR	24 x 18	1
14	M4-8a	END DETOUR	24 x 18	2
15	M4-9R	DETOUR RIGHT	30 x 24	3
16	M4-9L	DETOUR LEFT	30 x 24	2
17	M4-9La	TO GEYSER DETOUR LEFT [6]	30 x 36	2
18	R11-2	ROAD CLOSED	48 x 30	2
19	R11-3a	ROAD CLOSED 2 MILES AHEAD LOCAL TRAFFIC ONLY	60 x 30	1
20	W20-3	ROAD CLOSED 1000 FT	36 x 36	2
21	W20-3	ROAD CLOSED 500 FT	36 x 36	2
22	Ref-1	SOUTH PEAK RD CLOSED X MILES AHEAD USE ALT ROUTE [6]	60 x 42	3

TEMPORARY TRAFFIC CONTROL, ESTIMATED DURATIONS FOR INFORMATION ONLY

ROAD NUMBER	ESTIMATED TOTAL ACTIVE TRAFFIC CONTROL DAYS [7]	ESTIMATED TEMPORARY ROAD OR LANE CLOSURE TRAFFIC CONTROL DAYS [8]
B-09	11	6
B-11	23	18
A-03	37	27
B-10	19	14
B-06	13	8
C-10	21	16
C-08(a)	20	15
C-02	17	12
C-03	25	20

ITEM 63503-1000 TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE [9]

ROAD NUMBER	LOCATION	QUANTITY (LNFT)
B-11	M.P. 0.0 to M.P. 0.5	1,000
B-11	M.P. 1.4 to M.P. 1.6	120
Schedules A, B, C, & D Total		**1,120**
C-02	M.P. 3.22 to 3.25	80
Schedules E & F Total		**1,200**

NOTE:

1. Informational quantities shown for estimating purposes only. Provide necessary temporary traffic control features and personnel to complete approved temporary traffic control plan.
2. Install all construction signs according to Standard 635-14.

FOOTNOTE:

[1] See Sheets G.5 - G.8 for temporary traffic control requirements. Items estimated based on multiple active work zones on up to 3 roads at a time.

[2] See Sheets G.2 - G.3 for the limits and traffic control requirements of an A-03 Road closure.

[3] See estimated total days with active traffic control for each road.

[4] See estimated days with temporary road or lane closure traffic control for each road.

[5] Install TRUCK CROSSING (W8-6) signs 500 feet on either side of material source entrance roads.

[6] See Sheet G.4 for sign design details.

[7] Estimated total duration of construction activities requiring a traffic control supervisor on each road.

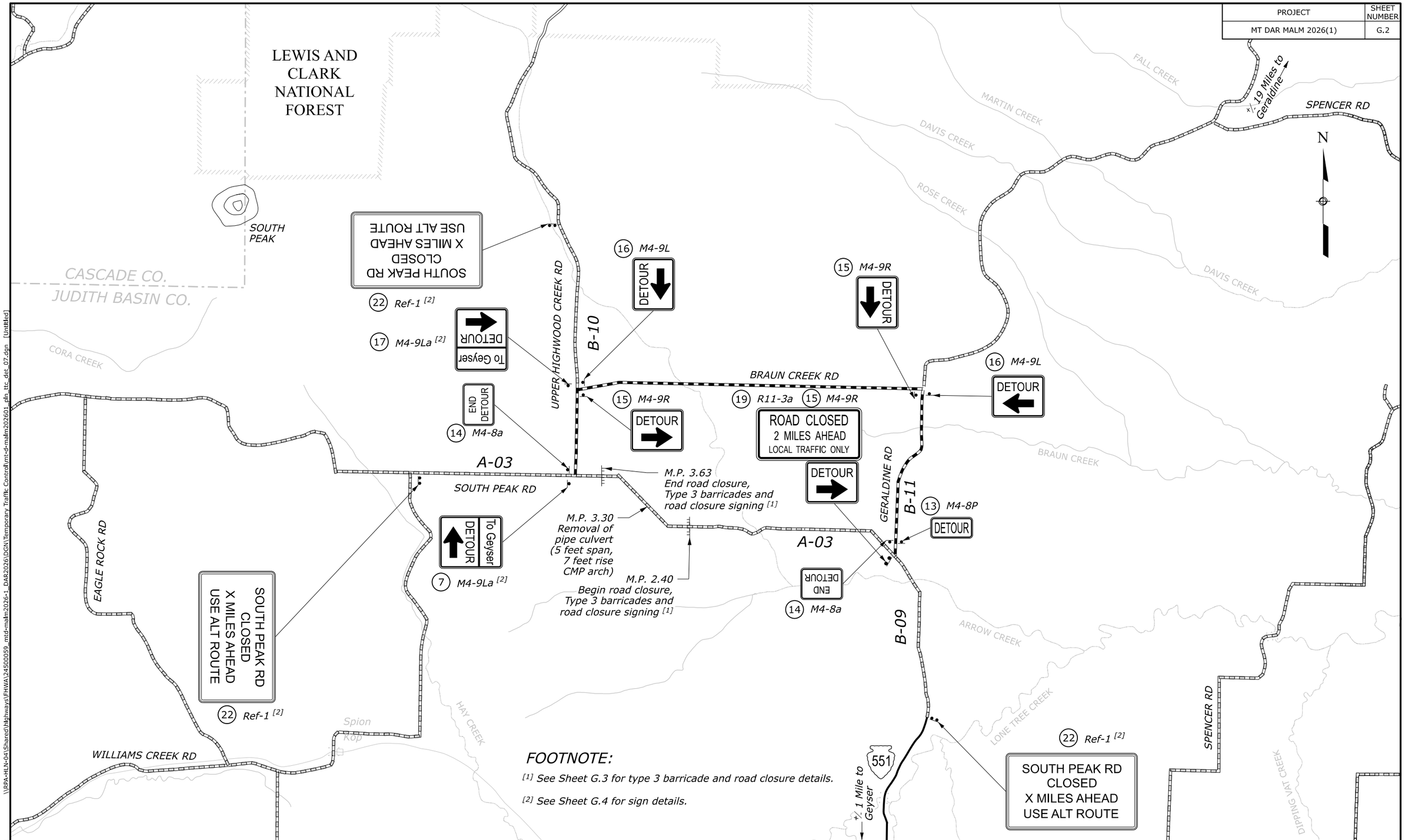
[8] Estimated duration of construction activities requiring temporary road or lane closures on each road. Only A-03 Road may be fully closed (see Sheets G.2 - G.3). Estimated based on days with active drainage, roadway reconditioning, or aggregate stabilization work.

[9] For use to prevent construction impacts to sensitive sites. Place fencing at the edge of existing shoulders. Fencing may not be required for full milepost range noted. Install fencing only where directed.

TABULATION OF TEMPORARY TRAFFIC CONTROL QUANTITIES

\\RPA-HLN-04\Shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Temporary Traffic Control\mt-d-malm202601_pln_ttc_qty_01.dgn [Untitled]
13 May 2026 3:46 PM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	G.2



FOOTNOTE:

[1] See Sheet G.3 for type 3 barricade and road closure details.

[2] See Sheet G.4 for sign details.

1 0.5 0 1 2
SCALE IN MILES

A-03 ROAD DETOUR PLAN SCHEDULES A, B, C, D, E & F

\\RPA-HLN-04\Shared\Highways\FHWA\245000059_mtd-malm2026-1_DAR2026\DGN\Temporary Traffic Control\mt-d-malm2026601_pln_ttc_det_07.dgn [Untitled]
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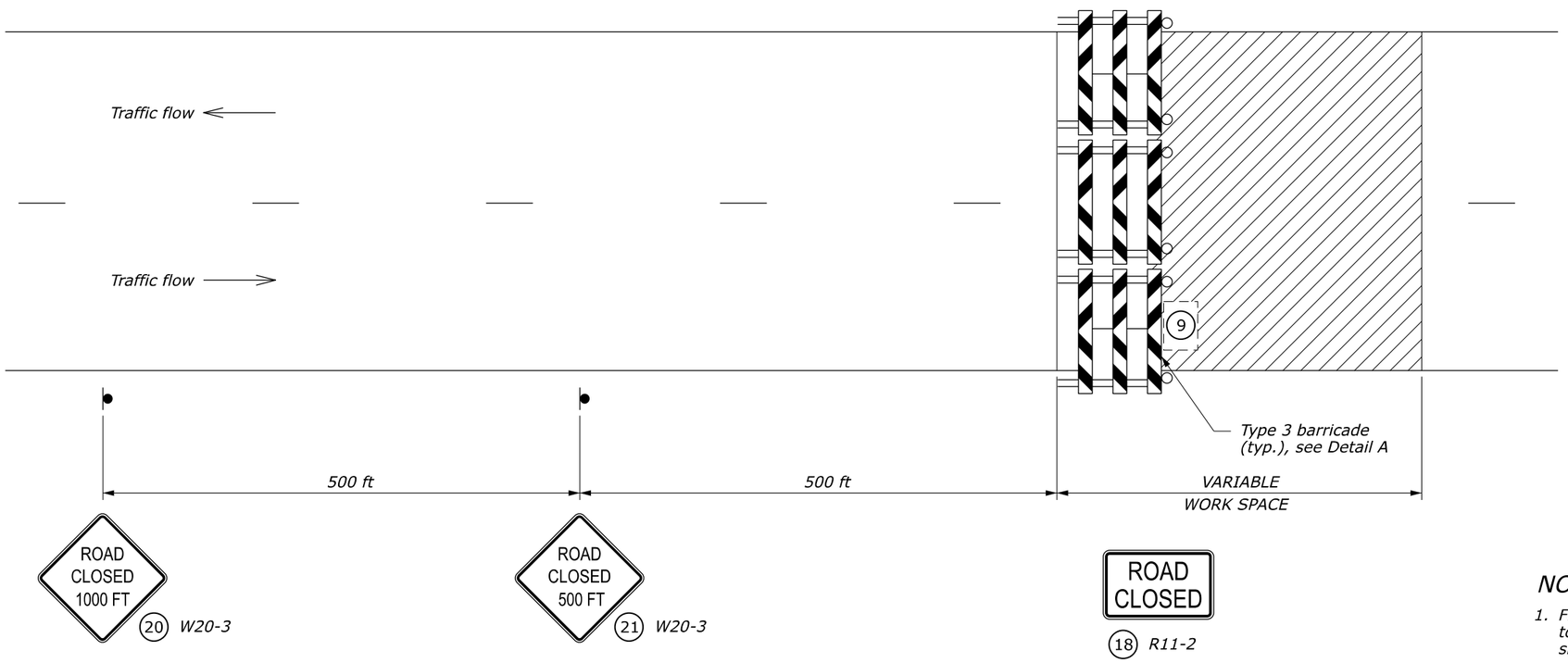
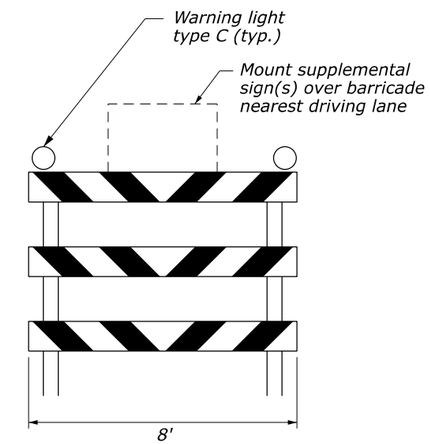
PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	G.3



ROAD CLOSURE SIGNING DETAIL [1]



TYPE 3 BARRICADE DETAIL A

NOTE:

1. Final location and spacing of signs and devices may be changed to fit field conditions as approved. Obtain approval before sign installation.

FOOTNOTE:

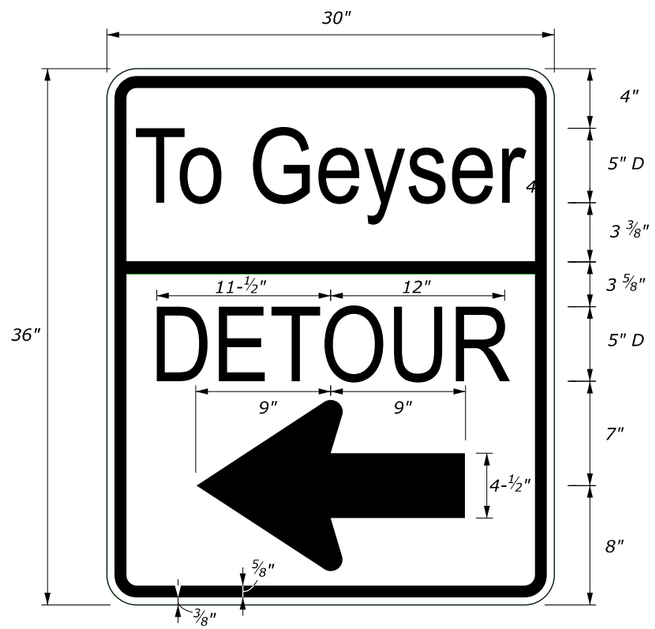
[1] Signs are shown for one direction of travel only. Place devices similar to those depicted for the opposite direction of travel. Ensure adequate room for vehicle turnaround is available at road closure locations.

NO SCALE

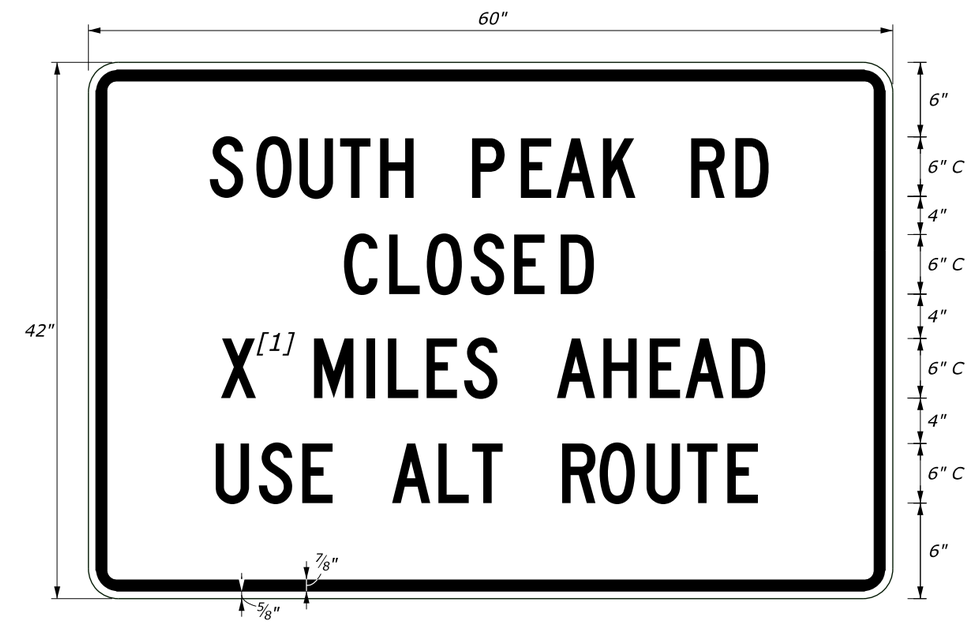
ROAD CLOSURE SIGNING DETAIL

\\rpa-hh-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Temporary Traffic Control\mt-d-malm202601_pln_ttc_det_08.dgn [Untitled]
13 May 2026 2:14 PM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	G.4



17 M4-9La



22 Ref-1

NOTE:

1. Ensure all signing conforms with the current edition of the MUTCD.
2. Sign colors are black legend and border on orange background.

FOOTNOTE:

[1] Determine mileage in field based on final sign locations as approved.

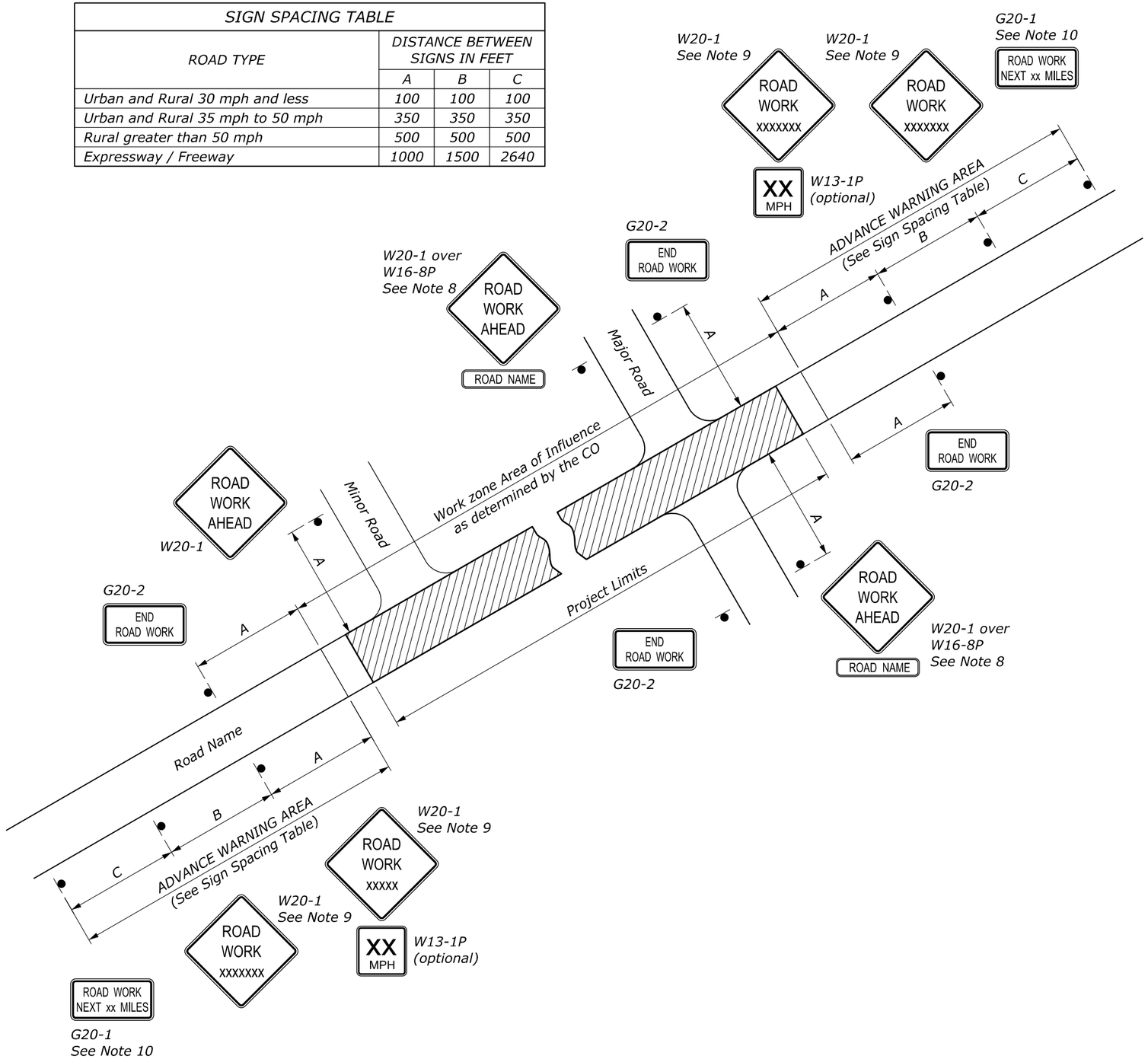
NO SCALE

DETOUR SIGN DETAILS

\\rpa-nln-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Temporary Traffic Control\mt-d-malm202601_pln_ttc_det_09.dgn [Untitled]
13 May 2026 2:15 PM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	G.5

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 mph and less	100	100	100
Urban and Rural 35 mph to 50 mph	350	350	350
Rural greater than 50 mph	500	500	500
Expressway / Freeway	1000	1500	2640



NOTE:

1. Erect all project advance warning signs before starting construction work.
2. Not all details shown on the temporary traffic control sheets may be applicable to this project. The Contractor may add or delete information and details in this traffic control plan as necessary to accommodate actual operations.
3. Where advance warning signs, placed as shown, interfere with permanent signs, locate the warning signs to fit field conditions as approved. Vary messages as required.
4. Install advisory speed plaques under the W20 series warning signs as needed to indicate a maximum recommended speed through the construction area.
5. Ensure all sign supports exposed to traffic are crashworthy.
6. Maintain two-way traffic during all non-work hours except as approved.
7. Do not store traffic control devices along the roadway when not in use. Cover post-mounted signs when not applicable.
8. If W20-1 is placed on a roadway other than that on which the actual construction work occurs, include a supplementary plaque indicating the name of the road on which the construction does occur (applies to major roads only).
9. The message on the W20-1 signs may be ROAD WORK AHEAD or may specify the distance to the work area in feet or in miles. Install an additional W20-1 sign when approach speeds exceed 50 mph. When used, place the two W20-1 signs "B" feet apart according to the Sign Spacing Table.
10. For work zones that are 2 miles or more in length, install G20-1 signs at each end of the project. Show the distance on the G20-1 sign to the nearest whole mile.
11. If signing on a roadway under a jurisdiction other than the client agency, verify that an encroachment permit has been obtained.
12. State standards may be used as an alternative if approved.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	FLH STANDARD 635-1
TEMPORARY TRAFFIC CONTROL ADVANCE SIGNING	SPECIFICATION FP-24, FP-14
	APPROVED FOR USE 2/2024

\\rpa-lfh-04\shared\highways\FHWA\245000059_mtd-malm2026-1_DAR2026\DGN\Temporary Traffic Control\mt-d-malm202601_pln_ttc_det_01.dgn [Std 635-1]
6 January 2026 3:41 PM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	G.6

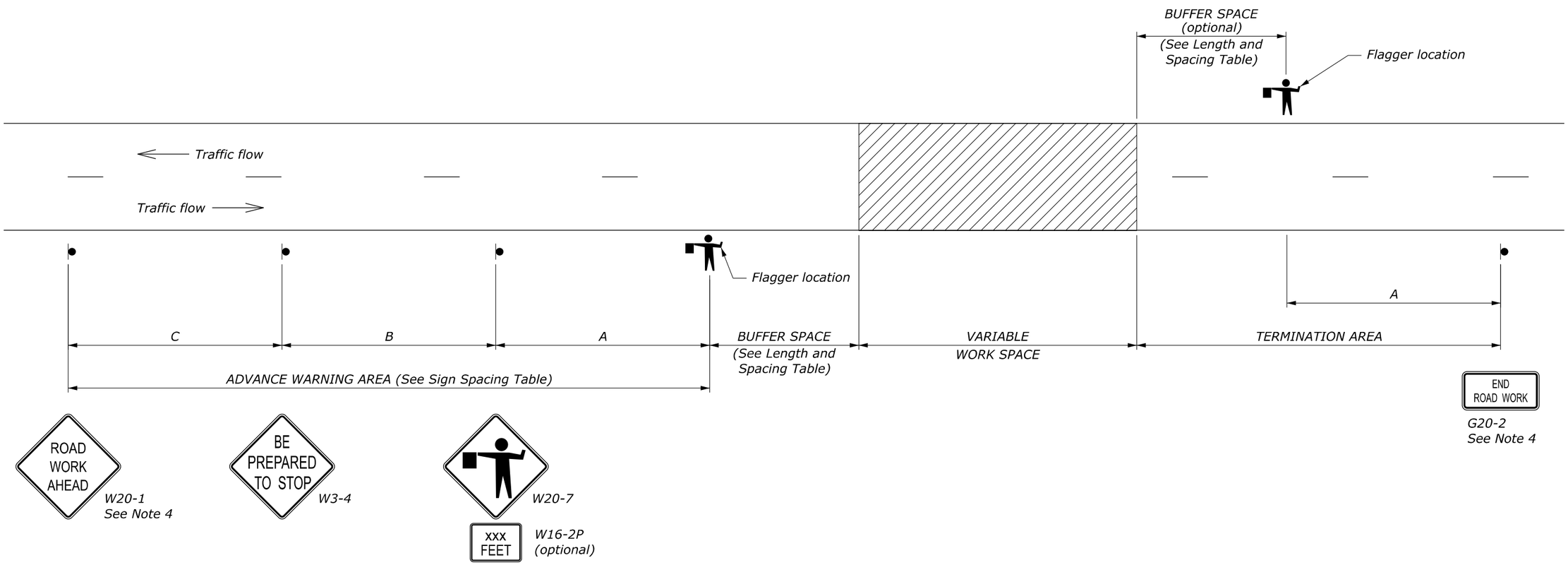
LENGTH AND SPACING TABLE	
APPROACH SPEED* MPH	BUFFER SPACE LENGTH FEET
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

* Approach speed based on the regulatory posted speed, not the advisory speed.

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 mph and less	100	100	100
Urban and Rural 35 mph to 50 mph	350	350	350
Rural greater than 50 mph	500	500	500
Expressway / Freeway	1000	1500	2640

NOTE:

1. Signs are shown for one direction of travel only. Place signs similar to those depicted for the opposite direction of travel.
2. Final location and spacing of devices may be changed to fit field conditions as approved.
3. For pilot car operation, mount the PILOT CAR FOLLOW ME (G20-4) sign at a conspicuous location on the rear of vehicle. Prominently display the name of the Contractor on the pilot car.
4. If closure is completely within the project limits, eliminate the ROAD WORK AHEAD (W20-1) and END ROAD WORK (G20-2) signs.
5. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY

TEMPORARY TRAFFIC CONTROL ROAD CLOSURE LAYOUT (WITH FLAGGERS)

FLH STANDARD 635-5

SPECIFICATION FP-24, FP-14

APPROVED FOR USE 2/2024

2 September 2025 9:06 AM \\vpa-hln-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Temporary Traffic Control\mt-d-malm202601_pln_ttc_det_04.dgn [Std 635-5]

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	G.7

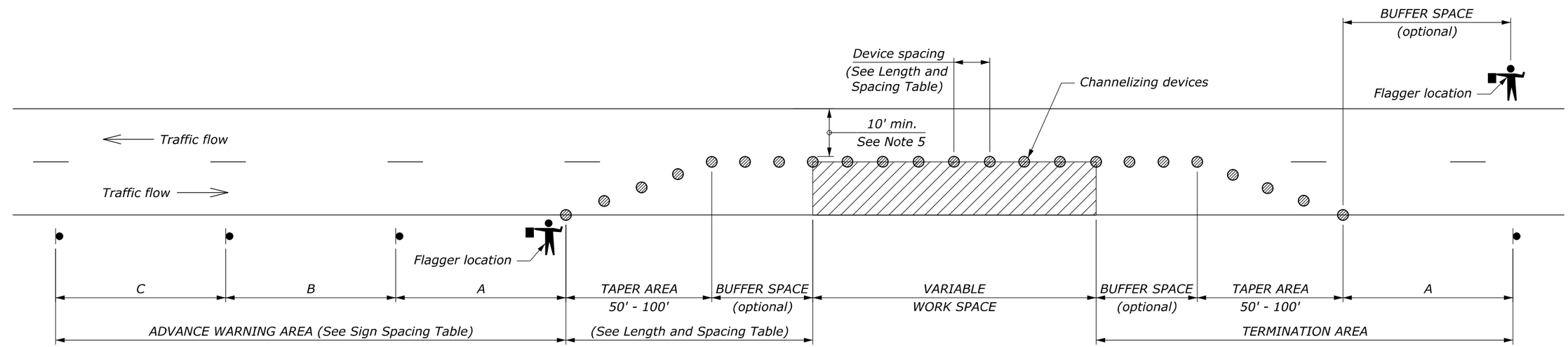
LENGTH AND SPACING TABLE				
APPROACH SPEED* MPH	BUFFER SPACE LENGTH FEET	CHANNELIZING DEVICE SPACING IN FEET		
		TAPER AREA	BUFFER SPACE	WORK SPACE
20	115	20	40	40
25	155	20	50	50
30	200	20	60	60
35	250	20	70	70
40	305	20	80	80
45	360	20	90	90
50	425	20	100	100
55	495	20	110	110
60	570	20	120	120
65	645	20	130	130
70	730	20	140	140

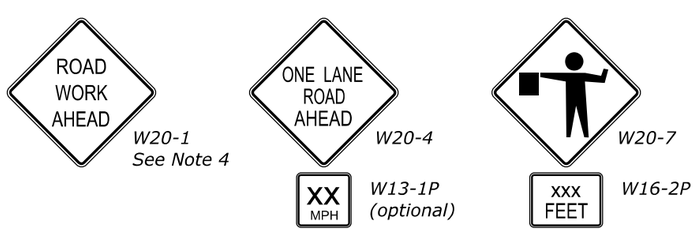
* Approach speed based on the regulatory posted speed, not the advisory speed.

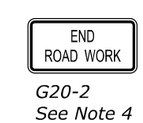
SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 mph and less	100	100	100
Urban and Rural 35 mph to 50 mph	350	350	350
Rural greater than 50 mph	500	500	500
Expressway / Freeway	1000	1500	2640

NOTE:

1. Signs are shown for one direction of travel only. Place signs similar to those depicted for the opposite direction of travel.
2. Final location and spacing of devices may be changed to fit field conditions as approved.
3. For pilot car operation, mount the PILOT CAR FOLLOW ME (G20-4) sign at a conspicuous location on the rear of vehicle. Prominently display the name of the Contractor on the pilot car.
4. If closure is completely within the project limits, eliminate the ROAD WORK AHEAD (W20-1) and END ROAD WORK (G20-2) signs.
5. For project specific minimum width, refer to the Special Contract Requirements, Section 156.
6. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.







NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY

TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH FLAGGERS)

FLH STANDARD 635-6

SPECIFICATION FP-24, FP-14

APPROVED FOR USE 2/2024

2 September 2025 9:07 AM \\rpa-lln-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Temporary Traffic Control\mt-d-malm202601_pln_ttc_det_02.dgn [Std 635-6]

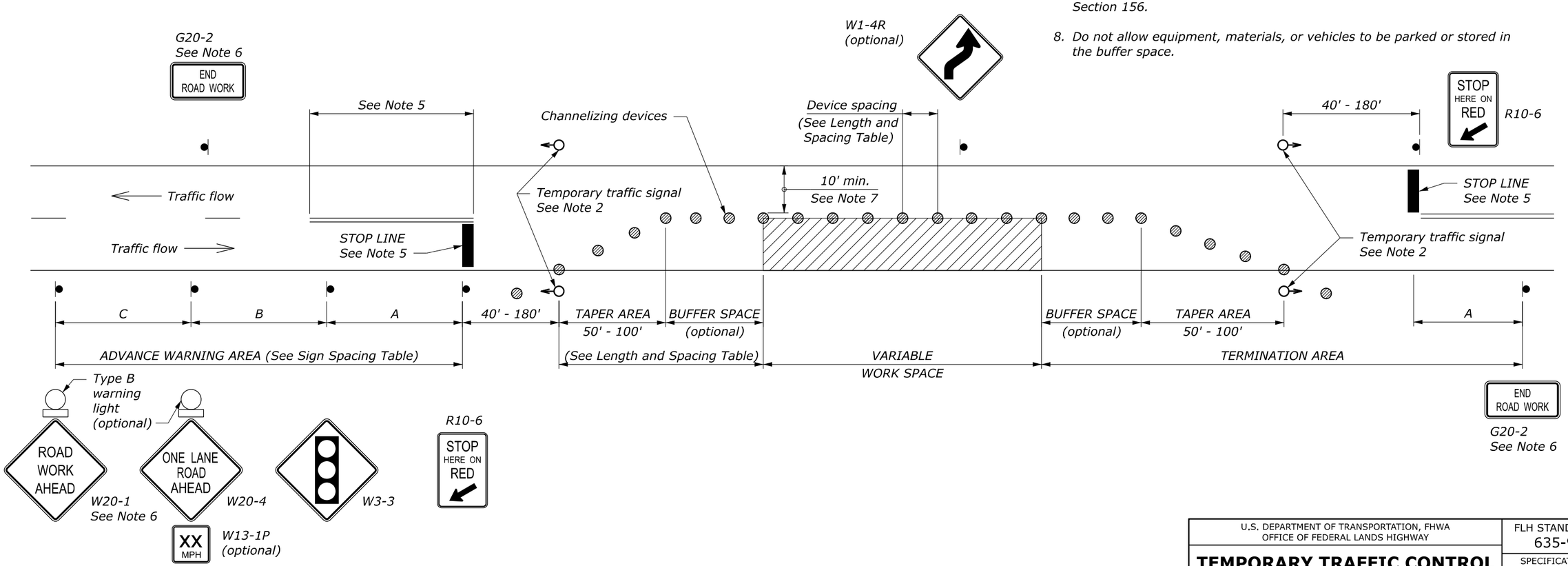
LENGTH AND SPACING TABLE				
APPROACH SPEED* MPH	BUFFER SPACE LENGTH FEET	CHANNELIZING DEVICE SPACING IN FEET		
		TAPER AREA	BUFFER SPACE	WORK SPACE
20	115	20	40	40
25	155	20	50	50
30	200	20	60	60
35	250	20	70	70
40	305	20	80	80
45	360	20	90	90
50	425	20	100	100
55	495	20	110	110
60	570	20	120	120
65	645	20	130	130
70	730	20	140	140

* Approach speed based on the regulatory posted speed, not the advisory speed.

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 mph and less	100	100	100
Urban and Rural 35 mph to 50 mph	350	350	350
Rural greater than 50 mph	500	500	500
Expressway / Freeway	1000	1500	2640

NOTE:

1. Signs are shown for one direction of travel only. Place signs similar to those depicted for the opposite direction of travel.
2. A single signal installation is acceptable, on the right-hand side of the road, if it has two signal faces that are at least 8 feet apart and meets the other requirements of the MUTCD.
3. Install and operate temporary traffic control signals in accordance with the requirements of the MUTCD. Establish signal timing using a qualified engineer. When the signal is changed to the flashing mode either manually or automatically, ensure red signal indications are flashed to both approaches.
4. Final location and spacing of devices may be changed to fit field conditions as approved. If signals are moved, determine revised signal timing using a qualified engineer.
5. For paved roadway surfaces, install stop lines complying with the MUTCD. Remove existing conflicting pavement markings and raised markers between the work space and the stop line. Add no-passing lines in advance of the stop line that comply with the MUTCD. Removable pavement markings may be used for stop lines and no-passing pavement markings.
6. If closure is completely within the project limits, eliminate the ROAD WORK AHEAD (W20-1) and END ROAD WORK (G20-2) signs.
7. For project specific minimum width, refer to Special Contract Requirements, Section 156.
8. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY

TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH SIGNALS)

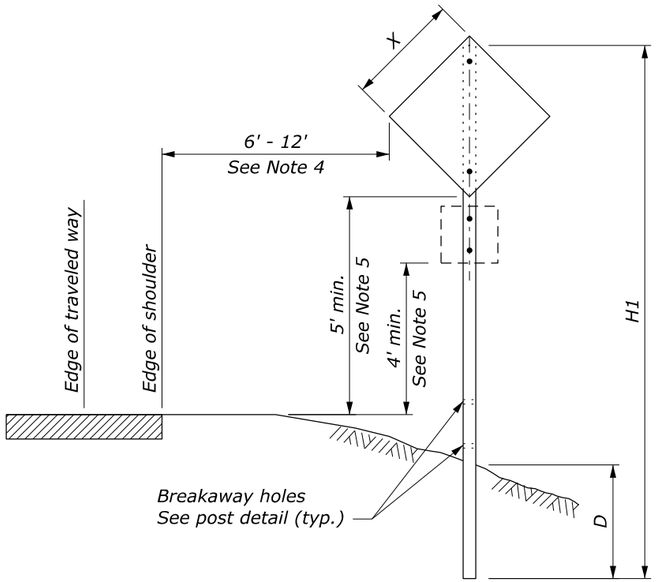
FLH STANDARD 635-9

SPECIFICATION FP-24, FP-14

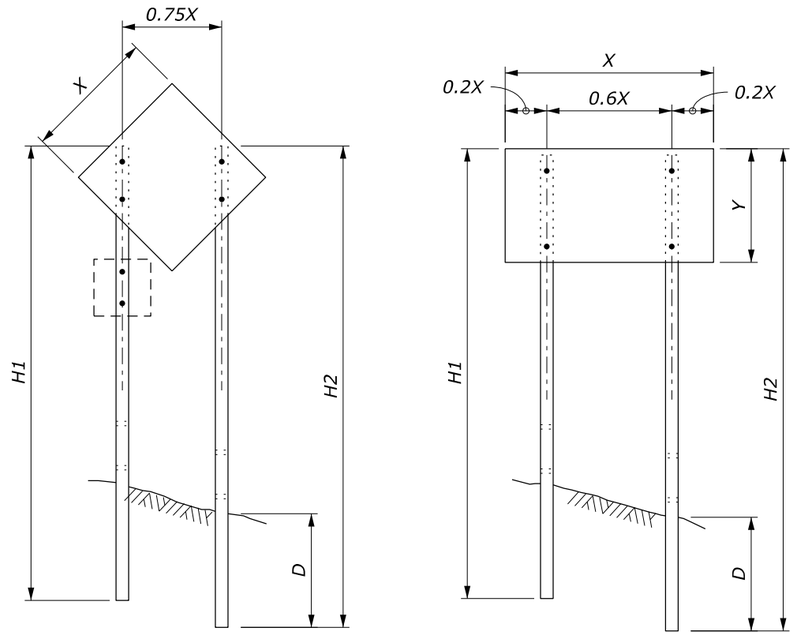
APPROVED FOR USE 2/2024

\\rpa-hln-04\shared\Highways\FHWA\24500059_mtd-malm2026-1_DAR2026\DGN\Temporary Traffic Control\mt-d-malm202601_pln_ttc_det_05.dgn [Std 635-9]
2 September 2025 9:07 AM

PROJECT	SHEET NUMBER
MT DAR MALM 2026(1)	G.9



SINGLE POST SIGN



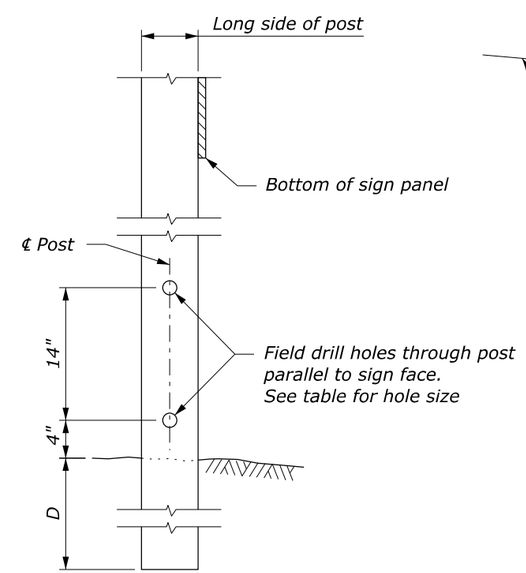
TWO POST SIGN

NOTE:

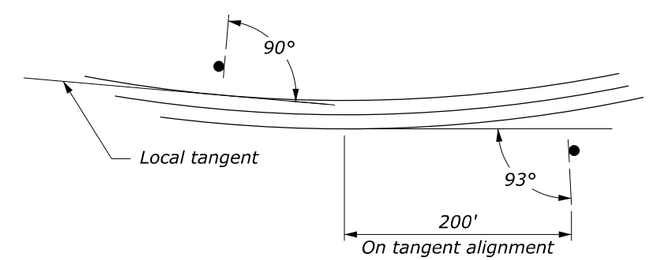
1. Attach sign panels with a minimum of two ¼" diameter bolts per post.
2. H1 and H2 = Overall post length. Select post lengths to fit field conditions.
3. D = Post embedment depth for average soil conditions.
4. In areas where lateral distance is limited, a minimum lateral offset of 2 ft may be used. In areas with curbs, a minimum lateral distance of 1 ft behind the face of the curb may be used.
5. In pedestrian locations, or in areas with obstructed views, use 7 ft minimum mounting height for main sign and 6 ft minimum mounting height for secondary sign.
6. Use 7 ft minimum spacing between posts for sign posts 6" x 6" or larger.
7. State standards may be used as an alternative if approved.

WOOD POST SELECTION TABLE

WIDTH "X"	AREA (SQFT)	NUMBER OF POSTS	POST SIZE (INCH)	D (INCH)	HOLE SIZE (INCH)
Diamond ≤ 36" Other Shapes ≤ 48"	< 10	1	4 x 4	36	0
		1	4 x 6	48	1.5
Diamond ≤ 48"	10 - 20	1	6 x 6	48	2
Diamond ≤ 48" Other Shapes ≤ 12'	10 - 20	2	4 x 4	36	0
	20 - 50	2	4 x 6	48	1.5
> 13'	50 - 65	2	6 x 6	48	2
12' - 16'	50 - 65	3	4 x 6	48	1.5
> 17'	65 - 95	4	4 x 6	48	1.5
> 30'	65 - 95	3	6 x 6	48	2



POST DETAIL



SIGN INSTALLATION ANGLE

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA
OFFICE OF FEDERAL LANDS HIGHWAY

TEMPORARY TRAFFIC CONTROL SIGN INSTALLATION WOOD POSTS

FLH STANDARD 635-14

SPECIFICATION FP-24, FP-14

APPROVED FOR USE 2/2024

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