

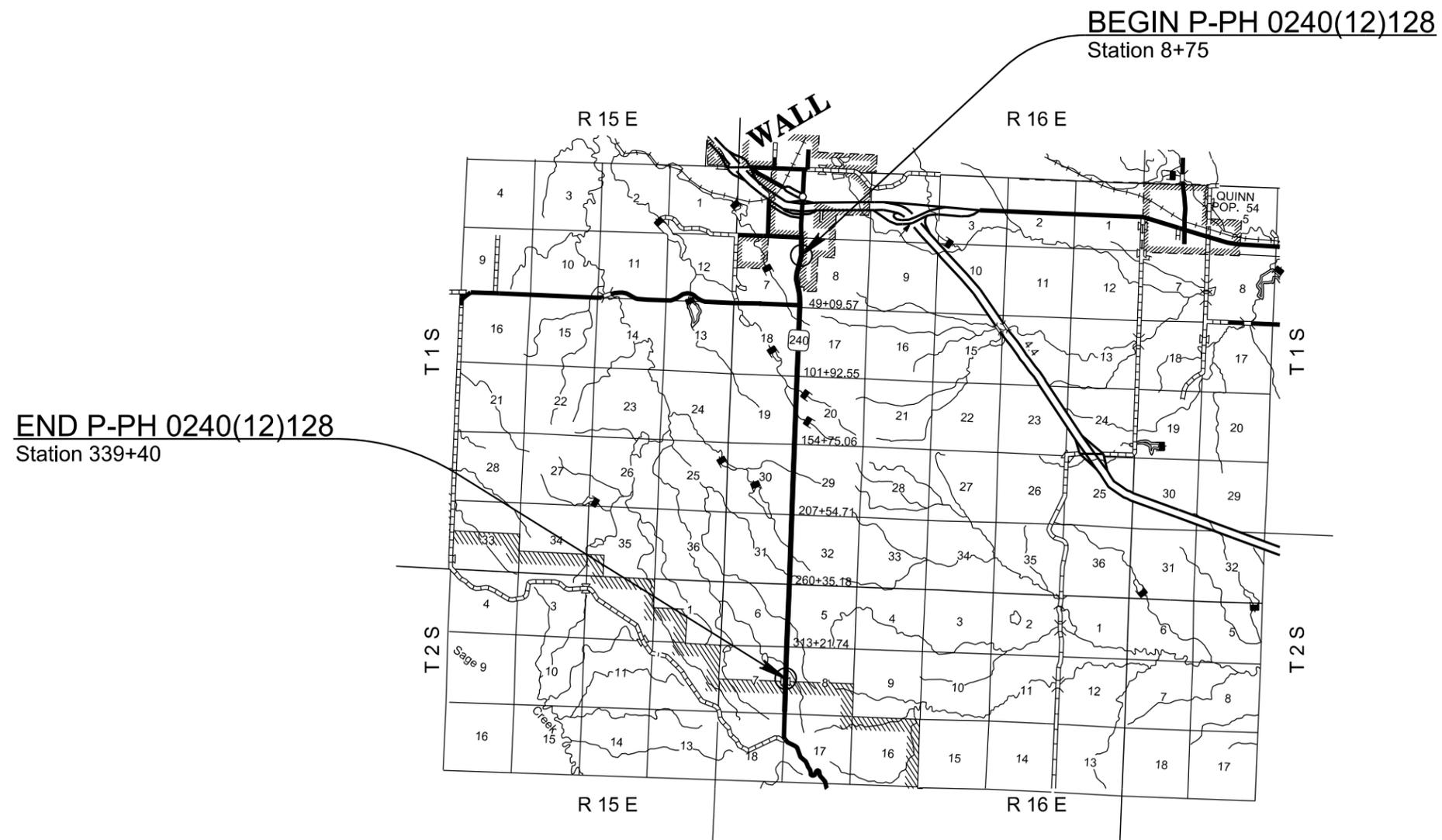
Section F: Surfacing Plans

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	F1	F20

Plotting Date: 11/17/2014

INDEX OF SHEETS

F1	General Layout with Index
F2 thru F9	Estimate of Quantities, Notes, Rates, and Tables
F10 thru F12	Typical Surfacing Sections
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F14	Standard Plates
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PLOT SCALE - 1:200

PLOTTED FROM - TRPR18387

PLOT NAME - 1

FILE - U:\MS\PR\PEN\0380\TITLE F.DGN

ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E3320	Checker	Lump Sum	LS
120E0100	Unclassified Excavation, Digouts	313	CuYd
120E6200	Water for Granular Material	660.2	MGal
260E1010	Base Course	54,950.0	Ton
320E0005	PG 58-34 Asphalt Binder	70.8	Ton
320E1800	Asphalt Concrete Blade Laid	939.3	Ton
320E4000	Hydrated Lime	9.4	Ton
320E5020	Saw Joint in Asphalt Concrete	66,130	Ft
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	12.6	Mile
330E0010	MC-70 Asphalt for Prime	85.7	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	49.9	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	28.4	Ton
330E2000	Sand for Flush Seal	325.4	Ton
332E0010	Cold Milling Asphalt Concrete	78,000	SqYd

SECTION F ESTIMATE OF QUANTITIES – Alternate A

Bid Item Number	Item	Quantity	Unit
* 270E0220	Blend and Stockpile Granular Material	2,474.0	Ton
320E0005	PG 58-34 Asphalt Binder	1,269.8	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	26,636.1	Ton
320E4000	Hydrated Lime	260.8	Ton

* - Denotes Non-Participating

SECTION F ESTIMATE OF QUANTITIES – Alternate B

Bid Item Number	Item	Quantity	Unit
* 270E0220	Blend and Stockpile Granular Material	2,274.0	Ton
320E0005	PG 58-34 Asphalt Binder	1,142.6	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	27,364.7	Ton
320E4000	Hydrated Lime	273.9	Ton

* - Denotes Non-Participating

SURFACING THICKNESS DIMENSIONS

Plans tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

SAWING IN EXISTING SURFACING

Where new Portland Cement Concrete Pavement (PCCP) or new asphalt concrete is placed adjacent to existing asphalt concrete or PCCP, the existing pavement shall be sawed full depth to a true line with a vertical face. No separate payment shall be made for sawing other than the sawing of asphalt concrete for the removal of existing shoulder material for which the bid item "Saw Joint in Asphalt Concrete" is included in the Estimate of Quantities. See Typical Sections for more details.

CHECKING SPREAD RATES

The Contractor shall be responsible for checking the Base Course and Q2R Hot Mixed Asphalt Concrete spread rates. The Contractor shall also take the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor shall compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts. The station to station spread shall be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each days shift, the Contractor shall verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each days ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item shall be given to the Engineer no later than the following morning.

If the Checker is not properly and accurately performing the required duties, the Contractor shall correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor shall be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of $\pm 1/2$ inch of the plan shown depth, the Contractor shall correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer.

All costs for providing the Contractor furnished checker and performing all related duties shall be incidental to the contract lump sum price for "Checker". No allowances will be made to the contract lump sum price for Checker due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25 percent. Payment for the Checker shall then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

UNCLASSIFIED EXCAVATION, DIGOUTS

Included in the Estimate of Quantities are 50 cubic yards per mile of Unclassified Excavation, Digouts for the necessary removal of unstable material in the following locations:

TABLE OF UNCLASSIFIED EXCAVATION, DIGOUTS

Station to Station	Length (miles)	Unclassified Excavation, Digouts (Cu Yd)
Sta. 8+75 to 323+08.60	5.953	298
Sta. 323+08.60 to 323+17.20	0.286	14
Sta. 338+17.20 to 339+40	0.023	1
TOTAL	6.262	313

The Contractor must ensure any water that collects in the digouts can escape the subgrade. The Contractor can accomplish this by ensuring the digouts daylight to the inslope or a drain tube is placed at the bottom of the digouts and the outlet is placed at the closest available point.

Cost for drain tube shall be included in the contract unit price per cubic yard for "Unclassified Excavation, Digouts".

Backfill shall be Base Course paid for at the contract unit price per ton.

BACKFILLING OF DIGOUTS

Included in the Estimate of Quantities are 100 tons of Base Course per mile and 1.2 Mgal of Water for Granular Material per mile for backfilling of digouts of the existing surface at locations to be designated by the Engineer. Compaction of the Base Course for the digouts shall be to the satisfaction of the Engineer. An estimated 6.262 miles are required for project.

COLD MILLING ASPHALT CONCRETE

The Cold Milled Material will be used as RAP for Class Q2R Hot Mixed Asphalt Concrete on this project.

Cold milling asphalt is estimated to produce 5,137 tons of salvaged asphalt concrete material. An estimated 3,900 tons (Alt. A) or 4,000 tons (Alt. B) of salvaged asphalt concrete will be used on this project in the Class Q2R Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q2R Asphalt Concrete.

The remainder of the salvaged asphalt concrete material estimated at 1,237 tons (Alt. A) or 1,137 tons (Alt. B) shall be stockpiled at the Wall Maintenance Yard and blended at a 50-50 rate with granular material in the Wall Maintenance Yard satisfactory to the Engineer.

The Los Angeles Abrasion Loss value on the aggregate used for the in place asphalt concrete was 26 percent. This value was obtained from testing during construction of the in place asphalt concrete.

TABLE OF COLD MILLING ASPHALT CONCRETE

Location of Removal Areas	Cold Milling Asphalt Concrete	
	Sq. Yds.	Tons
Sta. 8+75 to Sta. 339+40	*78,000	5,137

*This is an only an estimate as the milling operation at 0.02 ft/ft with a maximum cut at the centerline will be 1.75". See Mainline Surfacing Cross Sections for more information.

BLEND AND STOCKPILE GRANULAR MATERIAL

Milled material not reused on the project shall be hauled to the Wall Maintenance Yard.

Milled material shall be blended and stockpiled at the Wall Maintenance Yard with granular material located in the Wall Maintenance Yard at a rate of 50% milled material and 50% granular material to obtain stockpile material. Prior to incorporation into the stockpile, milled material shall be run over a 1½" screen to remove large chunks. Large chunks shall become the property of the Contractor and shall be subtracted from the overall quantity. No further testing of the material will be required. The use of a pugmill to blend the material will be accepted.

Calibrated conveyor(s) shall be used to provide a uniform blending of the materials. Material shall be blended prior to incorporation into the pile.

Cost for hauling, weighing, stockpiling, and blending milled material with the existing granular material shall be included in the contract unit price per ton for "Blend and Stockpile Granular Material".

ALTERNATE A - TABLE FOR BLEND & STOCKPILE GRANULAR MATERIAL

SECTION	MILLED MATERIAL Ton	GRANULAR MATERIAL Ton	BLEND & STOCKPILE GRANULAR MATERIAL Ton
1	1,237	1,237	2,474
TOTALS:	1,237	1,237	2,474

ALTERNATE B - TABLE FOR BLEND & STOCKPILE GRANULAR MATERIAL

SECTION	MILLED MATERIAL Ton	GRANULAR MATERIAL Ton	BLEND & STOCKPILE GRANULAR MATERIAL Ton
1	1,137	1,137	2,274
TOTALS:	1,137	1,137	2,274

ALTERNATE A - PLACEMENT OF SALVAGED MATERIAL TABLE

	RAP needed for Class Q2R Hot Mixed Asphalt Concrete (tons)	Granular Material needed for project (tons)	Total (tons)
Cold Milled Asphalt Concrete (tons)	3,900.0	*---	5,137
Virgin Base Course (tons)	---	54,950	54,950
Total (tons)	3,900.0	54,950	

An estimated 10 percent loss of salvaged and cold milled material during the removal and replacement operation.

* The remainder of the salvaged asphalt concrete material estimated at 1,237 tons shall be stockpiled at the Wall Maintenance Yard and blended at a 50-50 rate with granular material in the Wall Maintenance Yard satisfactory to the Engineer.

ALTERNATE B - PLACEMENT OF SALVAGED MATERIAL TABLE

	RAP needed for Class Q2R Hot Mixed Asphalt Concrete (tons)	Granular Material needed for project (tons)	Total (tons)
Cold Milled Asphalt Concrete (tons)	4,000.0	*---	5,137
Virgin Base Course (tons)	---	54,950	54,950
Total (tons)	4,000.0	54,950	

An estimated 10 percent loss of salvaged and cold milled material during the removal and replacement operation.

* The remainder of the salvaged asphalt concrete material estimated at 1,137 tons shall be stockpiled at the Wall Maintenance Yard and blended at a 50-50 rate with granular material in the Wall Maintenance Yard satisfactory to the Engineer.

CLASS Q2R HOT MIXED ASPHALT CONCRETE

Asphalt concrete aggregates shall consist of salvaged asphalt concrete mix material (RAP) and virgin aggregate.

Virgin mineral aggregate shall be furnished by the Contractor.

Virgin mineral aggregate for Class Q2R Hot Mixed Asphalt Concrete - Alternate A shall conform to the requirements of the Special Provision for Gyratory Controlled Quality Control/Quality Assurance Hot Mixed Asphalt Concrete Pavement for a Class Q2.

Virgin mineral aggregate for Class Q2R Hot Mixed Asphalt Concrete - Alternate B shall consist of a minimum of 80 percent crushed limestone ledgerrock and shall conform to the requirements of the Special Provision for Gyratory Controlled Quality Control/Quality Assurance Hot Mixed Asphalt Concrete Pavement for a Class Q2 except for the following:

Voids in Mineral Aggregate (VMA):

	Minimum VMA (%)
Class Q2R	13.0

Salvaged asphalt concrete material shall be obtained from the material produced by cold milling on this project and may be used without further testing. The salvaged asphalt concrete material shall be crushed so that the maximum particle size in the cold feed will not exceed 1-1/2 inches (37.5 mm).

The Class Q2R Asphalt Concrete shall include 15 percent salvaged asphalt concrete (RAP) in the mixture. Job mix formula tolerances for the RAP shall be ± 5 % from the target value.

All remaining requirements of the Special Provision for Class Q2 Hot Mixed Asphalt Concrete shall apply.

The asphalt concrete on the shoulders will not be compacted to a specified density. The shoulders shall be compacted using the same rolling pattern used on the adjacent asphalt concrete or as directed by the Engineer.

ALTERNATE A SUMMARY OF Q2R HOT MIXED ASPHALT CONCRETE

Location	Class Q2R Hot Mix Asphalt Concrete with Specified Density Compaction (Tons)	Class Q2R Hot Mix Asphalt Concrete without Specified Density Compaction (Tons)
24' Mainline - 2" Lift	9,888.2	---
2 - 6' Shoulders - 2" Lift	---	6,024.3
2 - 6' Shoulders - 3" Lift	---	9,049.0
Intersecting Roads	---	26.7
Snowplow Turnaround	---	162.8
Pipe Replacements	---	214.7
AC for Superelevated Curves	---	237.2
Ac for Outside of Lanes	---	407.0
AC for Spot Leveling	---	626.2
Totals:	9,888.2	16,747.9

ALTERNATE B SUMMARY OF Q2R HOT MIXED ASPHALT CONCRETE

Location	Class Q2R Hot Mix Asphalt Concrete with Specified Density Compaction (Tons)	Class Q2R Hot Mix Asphalt Concrete without Specified Density Compaction (Tons)
24' Mainline - 2" Lift	10,151.2	---
2 - 6' Shoulders - 2" Lift	---	6,193.4
2 - 6' Shoulders - 3" Lift	---	9,299.6
Intersecting Roads	---	27.4
Snowplow Turnaround	---	167.4
Pipe Replacements	---	221.0
AC for Superelevated Curves	---	243.6
Ac for Outside of Lanes	---	418.0
AC for Spot Leveling	---	643.1
Totals:	10,151.2	17,213.5

FLEXIBLE PAVEMENT SMOOTHNESS PROVISION

All sections, not excluded by the Special Provision for Flexible Pavement Smoothness, will be profiled as 1 opportunity.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	F4	F20

Plotting Date: 11/17/2014

ASPHALT CONCRETE BLADE LAID

Included in the Estimate of Surfacing Quantities are 150 tons of Asphalt Concrete Blade Laid, 1.5 tons of Hydrated Lime, and 11.3 tons of PG 58-34 Asphalt Binder per mile and shall be tight bladed on the existing surface 24 feet wide prior to the overlay. A sufficient amount of material shall be kept in front of the blade to fill and level all joints, cracks and other surface irregularities.

The blade used to tight blade the material shall be equipped with gates, wings or other devices approved by the Engineer to prevent the material from windrowing at the edges of the blade.

A paver may be used to place the material provided it is equipped with a solid screed bar plate measuring a minimum of 12" wide by 1 1/2" thick that forces the mixture into the joints and cracks to adequately level and fill them while not exceeding the application rate set up in the Plans.

Mineral Aggregate for tight bladed material shall use only the fine aggregate components combined in the same proportions as the Class Q2R Hot Mixed Asphalt Concrete mix. No quality testing will be done on any of the coarse aggregate (+No. 4 sieve) in this mix.

The Asphalt Concrete Blade Laid Lift shall be designed using a N_{design} Gyratory Compactive Effort of 65. The asphalt binder content shall be determined so that the air voids of Asphalt Concrete Blade Laid Lift are between 3.0% and 5.0%.

The tight bladed material shall be compacted by at least 2 complete coverages with pneumatic tired rollers.

All loose existing joint material shall be removed and the surface shall be thoroughly swept with a rotary broom to remove all loose asphalt concrete and joint material from cracks and spall areas prior to placing the Blade Laid Mix. Cost for removing the material and brooming shall be included in the contract unit price per ton Asphalt Concrete Blade Laid.

FLUSH SEAL

Application of Flush Seal shall be completed within 10 working days following completion of the asphalt concrete surfacing. For each working day that the Flush Seal remains uncompleted after the 10 working day limitation, the Contractor will be assessed liquidated damages at the rate of \$250.00 per day.

The liquidated damages shall apply only up to the Contract Completion Date, as extended. After the Contract Completion Date, liquidated damages will be assessed in accordance with the schedule set forth in Section 8.7 of the Specifications For Roads And Bridges.

Application of Flush Seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer shall notify the Contractor as soon as possible that the Flush Seal is unnecessary.

SAND FOR FLUSH SEAL

The sand application shall be placed 11' wide in each lane, leaving 12" on center line and 6" on each edge line free of sand.

GRIND RUMBLE STRIPS IN ASPHALT CONCRETE

Rumble Strips for the shoulders shall be constructed as per Standard Plate 320.22. Payment for forming rumble strips, on the shoulders, including labor, materials and incidentals shall be at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete". It is estimated that 12.6 miles of asphalt concrete rumble strip will be required for the shoulders. Rumble strips must receive an application of flush seal even if mainline flush seal is eliminated.

Rumble Strips

Sta. 8+75 to Sta. 323+08.60

Sta. 323+08.60 to Sta. 338+17.20

Sta. 338+17.20 to Sta. 339+40

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances shall be satisfactorily cleared of vegetation, shaped, and compacted to the satisfaction of the Engineer prior to placement of mainline surfacing. This work will be considered incidental to other contract items. Separate measurement and payment will not be made.

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RATES OF MATERIALS

STATE OF SOUTH DAKOTA	PROJECT P-PH 0240(12)128	SHEET F5	TOTAL SHEETS F20
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Plotting Date: 11/17/2014

The Estimate of Surfacing Quantities is based on the following quantities of materials per mile.

SD 240 EB Shoulder

Sta. 8+75 to Sta. 339+40

3" CLASS Q2R ASPHALT CONCRETE	Alt A	Alt B
Crushed Aggregate	579	598 Tons
15% Salvaged Asphalt Concrete	102	106 Tons
PG 58-34 Asphalt Binder	34	31 Tons
Hydrated Lime – 1%	7	7 Tons
Total:	722	742 Tons

The exact proportions of this material will be determined on construction.

MC-70 Asphalt for Prime at the rate of 6.65 ton/mile applied 9.6 feet wide (Rate = 0.3 gallon per square yard).

SS-1h or CSS-1h Asphalt for Tack at the rate of 2.1 ton/mile applied 8.6 feet wide (Rate = 0.05 gallon per square yard).

BASE COURSE

Crushed Aggregate 4,094 Tons/mile.

Water for Granular Material at the rate of 98.3 M. Gallons/mile.

SD 240 WB Shoulder

Sta. 8+75 to Sta. 339+40

3" CLASS Q2R ASPHALT CONCRETE	Alt A	Alt B
Crushed Aggregate	579	598 Tons
15% Salvaged Asphalt Concrete	102	106 Tons
PG 58-34 Asphalt Binder	34	31 Tons
Hydrated Lime – 1%	7	7 Tons
Total:	722	742 Tons

The exact proportions of this material will be determined on construction.

MC-70 Asphalt for Prime at the rate of 6.65 ton/mile applied 9.6 feet wide (Rate = 0.3 gallon per square yard).

SS-1h or CSS-1h Asphalt for Tack at the rate of 2.1 ton/mile applied 8.6 feet wide (Rate = 0.05 gallon per square yard).

BASE COURSE

Crushed Aggregate 4,094 Tons/mile.

Water for Granular Material at the rate of 98.3 M. Gallons/mile.

SD 240 Mainline 2" Resurfacing

Sta. 8+75 to Sta. 339+40

2" CLASS Q2R ASPHALT CONCRETE	Alt A	Alt B
Crushed Aggregate	2036	2104 Tons
15% Salvaged Asphalt Concrete	359	371 Tons
PG 58-34 Asphalt Binder	121	109 Tons
Hydrated Lime – 1%	25	26 Tons
Total:	2541	2610 Tons

The exact proportions of this material will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.3 ton/mile applied 42.2 feet wide (Rate = 0.05 gallon per square yard).

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 4.5 ton/mile applied 36.0 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 51.6 ton/mile applied 22.0 feet wide (Rate = 8.0 pounds per square yard).

1:200 Plot Scale -

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TABLE OF ADDITIONAL QUANTITIES

LOCATION	WATER FOR GRANULAR MATERIAL	BASE COURSE	ASPHALT FOR PRIME	ASPHALT FOR FLUSH SEAL
Station to Station	(MGal)	(Ton)	(Ton)	(Ton)
Intersecting Roads & Approaches				
Sta. 10+06 L	0.2	15.0	---	---
Sta. 12+38 R	0.2	15.0	---	---
Sta. 12+42 L	0.2	15.0	---	---
Sta. 21+80 L	0.2	15.0	---	---
Sta. 23+75 L	0.2	15.0	---	---
Sta. 23+75 R	0.2	15.0	---	---
Sta. 42+08 R	0.2	20.0	---	---
Sta. 42+08 L	0.2	15.0	---	---
Sta. 49+09 IR	0.2	20.0	0.1	0.1
Sta. 67+05 L	0.2	15.0	---	---
Sta. 75+51 R	0.4	30.0	---	---
Sta. 75+51 L	0.4	30.0	---	---
Sta. 80+80 L	0.2	15.0	---	---
Sta. 101+93 L	0.2	15.0	---	---
Sta. 101+93 R	0.2	15.0	---	---
Sta. 127+50 L	0.2	15.0	---	---
Sta. 147+75 R	0.2	15.0	---	---
Sta. 154+75 L	0.2	15.0	---	---
Sta. 154+75 R	0.2	15.0	---	---
Sta. 169+73 R	0.2	15.0	---	---
Sta. 187+00 L	0.2	15.0	---	---
Sta. 187+00 R	0.2	15.0	---	---
Sta. 207+55 R	0.2	15.0	---	---
Sta. 207+55 L	0.2	15.0	---	---
Sta. 219+05 L	0.2	15.0	---	---
Sta. 227+30 R	0.2	15.0	---	---
Sta. 251+75 L	0.2	15.0	---	---
Sta. 265+81 R	0.2	15.0	---	---
Sta. 278+88 R	0.2	15.0	---	---
Sta. 313+22 L	0.2	15.0	---	---
Sta. 313+22 R	0.2	15.0	---	---
Subtotals:	6.6	505.0	0.1	0.1

TABLE OF ADDITIONAL QUANTITIES CONTINUED

LOCATION		WATER FOR GRANULAR MATERIAL	BASE COURSE	ASPHALT FOR PRIME	ASPHALT FOR TACK		ASPHALT FOR FLUSH SEAL	SAND FOR FLUSH SEAL
					1st Lift	Top Lift		
Station	to Station	(MGal)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)
Backfill of Digouts								
8 +	75.00 to 323 + 08.60	7.1	595.3	---	---	---	---	---
323 +	08.60 to 338 + 17.20	0.3	28.6	---	---	---	---	---
338 +	17.20 to 339 + 40.00	0.1	2.3	---	---	---	---	---
Additional Surfacing for Snowplow Turnaround								
		4.2	347.1	0.7	0.1	0.1	0.1	2.3
Crossroad								
0 +	00.00 to 2 + 60.00	1.2	103.0	---	---	---	---	---
Pipe Replacement Surfacing Quantities								
Sta. 9+00 - replaces pipe @ Sta. 9+49		1.1	91.0	0.1	*	---	---	---
Sta. 9+49		1.1	91.0	0.1	*	---	---	---
Sta. 35+00		2.5	209.3	0.2	*	---	---	---
Sta. 68+58		1.9	154.7	0.1	*	---	---	---
Sta. 80+28		1.7	145.6	0.1	*	---	---	---
Sta. 88+99		2.2	182.0	0.1	*	---	---	---
Sta. 102+70		1.4	118.3	0.1	*	---	---	---
Sta. 125+18		2.0	163.8	0.1	*	---	---	---
Sta. 167+84		2.6	218.4	0.2	*	---	---	---
Sta. 219+99		1.9	154.7	0.1	*	---	---	---
Sta. 288+02		1.6	136.5	0.1	*	---	---	---
Sta. 303+99		1.7	145.6	0.1	*	---	---	---
Sta. 313+68		1.9	154.7	0.1	*	---	---	---
Sta. 319+98		1.5	127.4	0.1	*	---	---	---
Additional Asphalt Concrete in Superelevated Curves								
		---	---	---	---	---	---	---
Additional Asphalt Concrete for Outside of Lanes								
		---	---	---	---	---	---	---
Asphalt Concrete for spot leveling, strengthening and Repair								
		---	---	---	---	---	---	---
Tack for repair and leveling								
		---	---	---	3.0	---	---	---
Totals:		44.6	3,674.3	2.4	3.5	0.2	2.3	

* The total quantity of Asphalt for Tack on this sheet (0.3 Ton) in the asterisk marked locations is included in the Estimate of Quantities.

 1:200
Plot Scale -

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Plotting Date: 11/17/2014

ALTERNATE A / ALTERNATE B - TABLE OF ADDITIONAL QUANTITIES

LOCATION Station	CLASS Q2R HOT MIXED ASPHALT CONCRETE		PG 58-34 ASPHALT BINDER		HYDRATED LIME	
	1st Lift	Top Lift	1st Lift	Top Lift	1st Lift	Top Lift
	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)
Intersecting Roads & Approaches	Alt. A/Alt. B	Alt. A/Alt. B	Alt. A/Alt. B	Alt. A/Alt. B	Alt. A/Alt. B	Alt. A/Alt. B
Sta. 10+06 L	---	---	---	---	---	---
Sta. 12+38 R	---	---	---	---	---	---
Sta. 12+42 L	---	---	---	---	---	---
Sta. 21+80 L	---	---	---	---	---	---
Sta. 23+75 L	---	---	---	---	---	---
Sta. 23+75 R	---	---	---	---	---	---
Sta. 42+08 R	---	---	---	---	---	---
Sta. 42+08 L	---	---	---	---	---	---
Sta. 49+09 IR	16.1/16.4	10.6/11.0	0.8/0.7	0.5/0.5	0.2/0.2	0.1/0.1
Sta. 67+05 L	---	---	---	---	---	---
Sta. 75+51 R	---	---	---	---	---	---
Sta. 75+51 L	---	---	---	---	---	---
Sta. 80+80 L	---	---	---	---	---	---
Sta. 101+93 L	---	---	---	---	---	---
Sta. 101+93 R	---	---	---	---	---	---
Sta. 127+50 L	---	---	---	---	---	---
Sta. 147+75 R	---	---	---	---	---	---
Sta. 154+75 L	---	---	---	---	---	---
Sta. 154+75 R	---	---	---	---	---	---
Sta. 169+73 R	---	---	---	---	---	---
Sta. 187+00 L	---	---	---	---	---	---
Sta. 187+00 R	---	---	---	---	---	---
Sta. 207+55 R	---	---	---	---	---	---
Sta. 207+55 L	---	---	---	---	---	---
Sta. 219+05 L	---	---	---	---	---	---
Sta. 227+30 R	---	---	---	---	---	---
Sta. 251+75 L	---	---	---	---	---	---
Sta. 265+81 R	---	---	---	---	---	---
Sta. 278+88 R	---	---	---	---	---	---
Sta. 313+22 L	---	---	---	---	---	---
Sta. 313+22 R	---	---	---	---	---	---
Subtotals:	26.7/27.4		1.3/1.2		0.3/0.3	

Plot Scale - 1:200

Plotted From - tpr18387

File - ...\\penn038D\Notes\SectionF.dgn

ALTERNATE A / ALTERNATE B - TABLE OF ADDITIONAL QUANTITIES CONTINUED

LOCATION	CLASS Q2R HOT MIXED ASPHALT CONCRETE		PG 58-34 ASPHALT BINDER		HYDRATED LIME	
	1st Lift	Top Lift	1st Lift	Top Lift	1st Lift	Top Lift
	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)
Station to Station	Alt. A/Alt. B	Alt. A/Alt. B	Alt. A/Alt. B	Alt. A/Alt. B	Alt. A/Alt. B	Alt. A/Alt. B
Backfill of Digouts						
8+75 to 323+08.60	---	---	---	---	---	---
323+08.60 to 338+17.20	---	---	---	---	---	---
338+17.20 to 339+40	---	---	---	---	---	---
Additional Surfacing for Snowplow Turnaround	97.7/100.4	65.1/67.0	4.6/4.2	3.1/2.8	1.0/1.0	0.6/0.7
Crossroad						
0+00 to 2+60	---	---	---	---	---	---
Pipe Replacement Surfacing Quantities						
Sta. 9+00 - replaces pipe @ Sta. 9+49	9.3/9.6	---	0.4/0.4	---	0.1/0.1	---
Sta. 9+49	9.3/9.6	---	0.4/0.4	---	0.1/0.1	---
Sta. 35+00	21.4/22.0	---	1.0/0.9	---	0.2/0.2	---
Sta. 68+58	15.9/16.4	---	0.8/0.7	---	0.2/0.2	---
Sta. 80+28	14.9/15.4	---	0.7/0.6	---	0.1/0.2	---
Sta. 88+99	18.7/19.2	---	0.9/0.8	---	0.2/0.2	---
Sta. 102+70	12.1/12.5	---	0.6/0.5	---	0.1/0.1	---
Sta. 125+18	16.9/17.3	---	0.8/0.7	---	0.2/0.2	---
Sta. 167+84	22.5/23.1	---	1.1/1.0	---	0.2/0.2	---
Sta. 219+99	15.9/16.4	---	0.8/0.7	---	0.2/0.2	---
Sta. 288+02	14.0/14.3	---	0.7/0.6	---	0.1/0.1	---
Sta. 303+99	14.9/15.4	---	0.7/0.6	---	0.1/0.2	---
Sta. 313+68	15.9/16.4	---	0.8/0.7	---	0.2/0.2	---
Sta. 319+98	13.0/13.4	---	0.6/0.6	---	0.1/0.1	---
Additional Asphalt Concrete in Superelevated Curves	118.6/121.8	118.6/121.8	5.6/5.1	5.6/5.1	1.2/1.2	1.2/1.2
Additional Asphalt Concrete for Outside of Lanes	203.5/209.0	203.5/209.0	9.7/8.7	9.7/8.7	2/2.1	2/2.1
Asphalt Concrete for spot leveling, strengthening and Repair	626.2/643.1	---	30.1/26.9	---	6.3/6.3	---
Tack for repair and leveling	---	---	---	---	---	---
Totals:	1,674.6/1,720.5		80.0/71.9		16.7/17.2	

 1:200
Plot Scale -

 Plotted From -
trp18387

File - ...\\penn038D\NotesSectionF.dgn

TYPICAL SURFACING SECTIONS

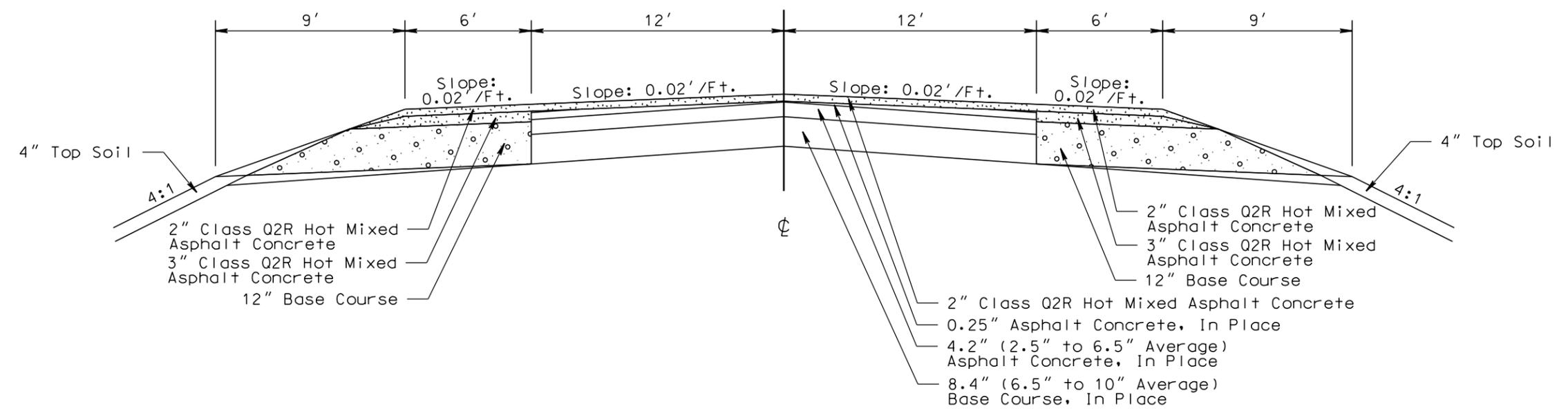
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH 0240(12)128	F11	F20

Plotting Date: 11/17/2014

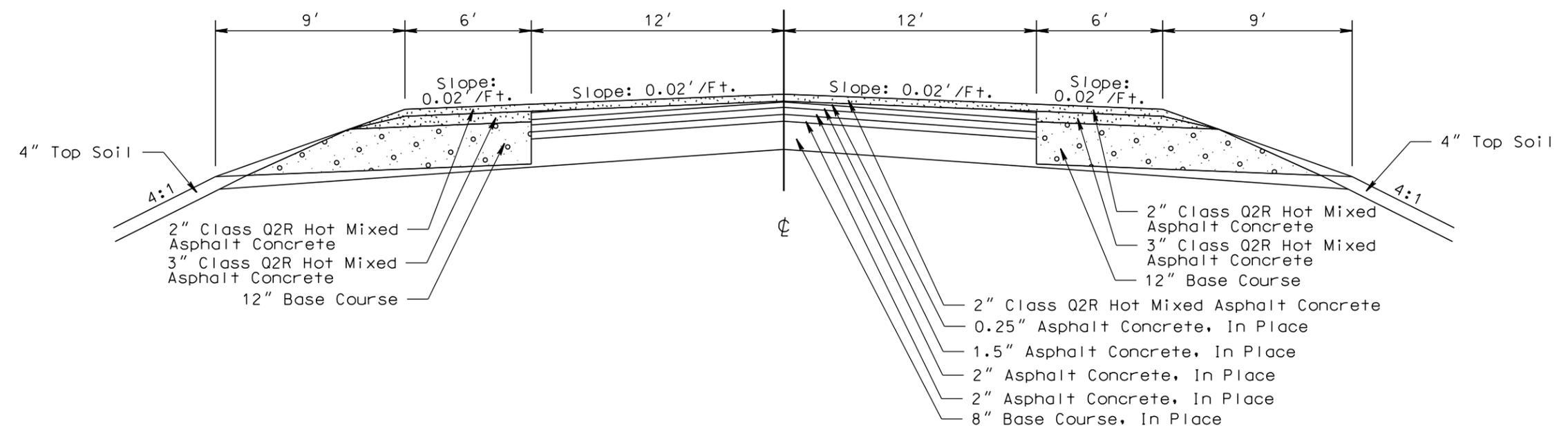
PLOT SCALE - 1+6.00001

PLOT NAME - 11

Sta. 8+75 to Sta. 323+08.60
Sta. 338+17.20 to Sta. 339+40



Sta. 323+08.60 to Sta. 338+17.20



PLOTTED FROM - TRPR18387

FILE - ... \PENND380\TYPICAL SECTION.DGN

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT P-PH 0240(12)128	SHEET F12	TOTAL SHEETS F20
-----------------------	-----------------------------	--------------	---------------------

Plotting Date: 11/17/2014

PLOT SCALE - 1+6.00001

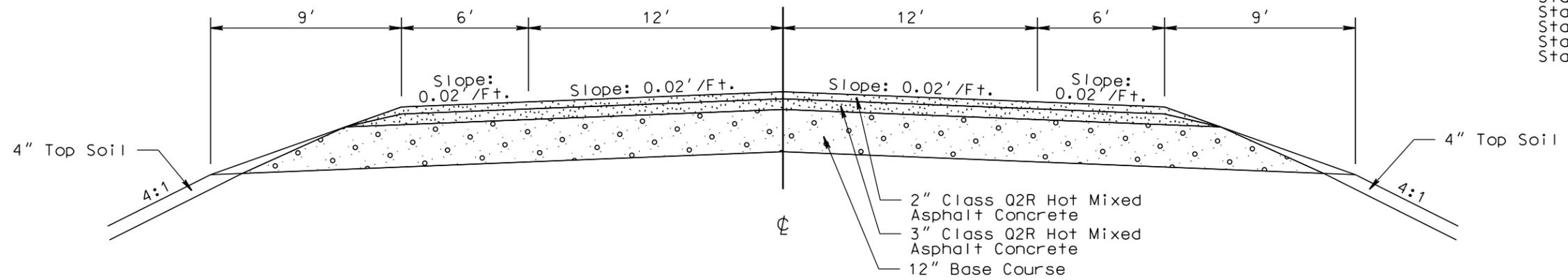
PLOT NAME - 12

Pipe Locations

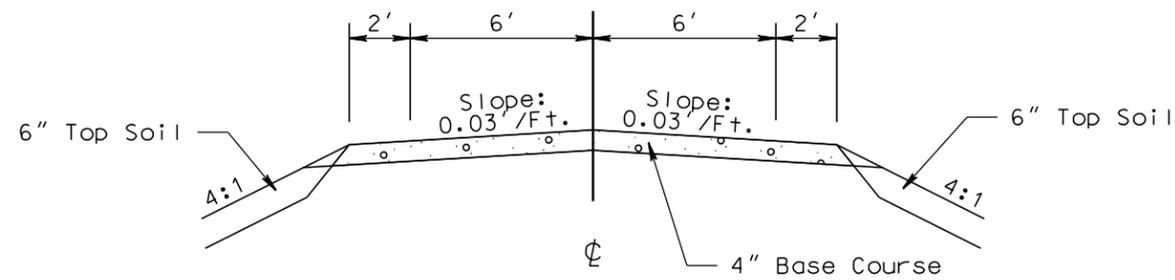
- Sta. 9+00
- Sta. 9+49
- Sta. 35+00
- Sta. 68+58
- Sta. 80+28
- Sta. 88+99
- Sta. 102+70
- Sta. 125+18
- Sta. 167+84
- Sta. 219+99
- Sta. 288+02
- Sta. 303+99
- Sta. 313+68
- Sta. 319+98

Pipe Replacement Locations (See Section B)

Sta. 8+75 to Sta. 323+08.60
Sta. 338+17.20 to Sta. 339+40



Crossroad Sta. 0+00 to Sta. 2+60

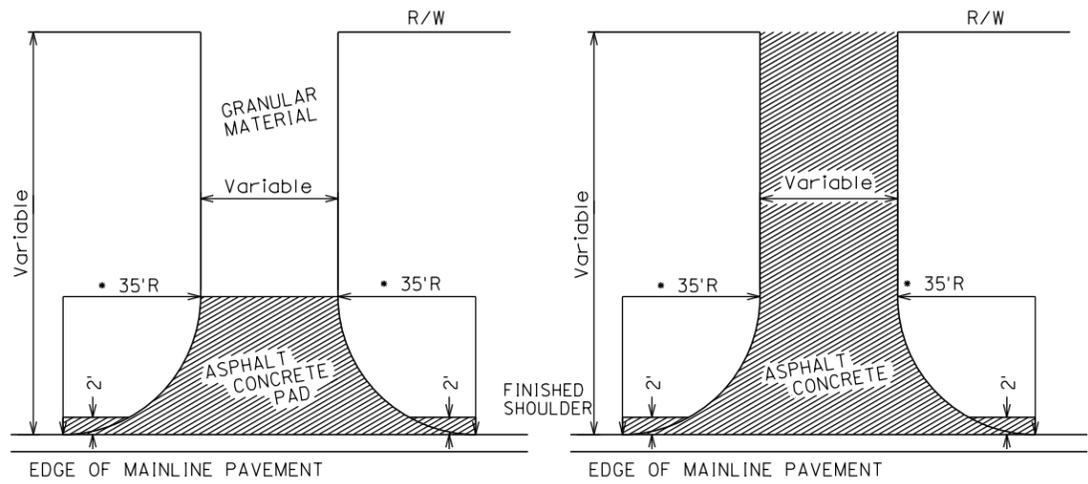


PLOTTED FROM - TRPR18387

FILE - ... \PENND380\TYPICAL SECTION.DGN

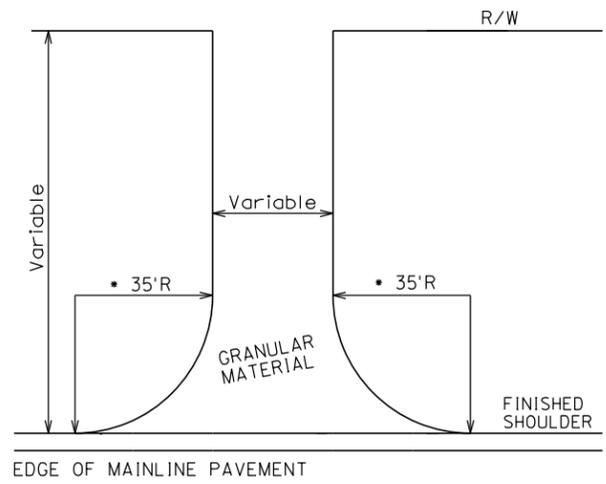
SPECIAL DETAILS

SURFACING OF INTERSECTING ROADS AND ENTRANCES WITH PCCP OR AC PAVED SHOULDERS



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND R/W

INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND R/W



ENTRANCE

The surfacing details shown on this sheet are provided as a guide for surfacing these facilities. The precise construction limits for situations other than the standards shown will be determined by the Engineer, at the time of construction.
 • 35' radius except as noted elsewhere in plans.

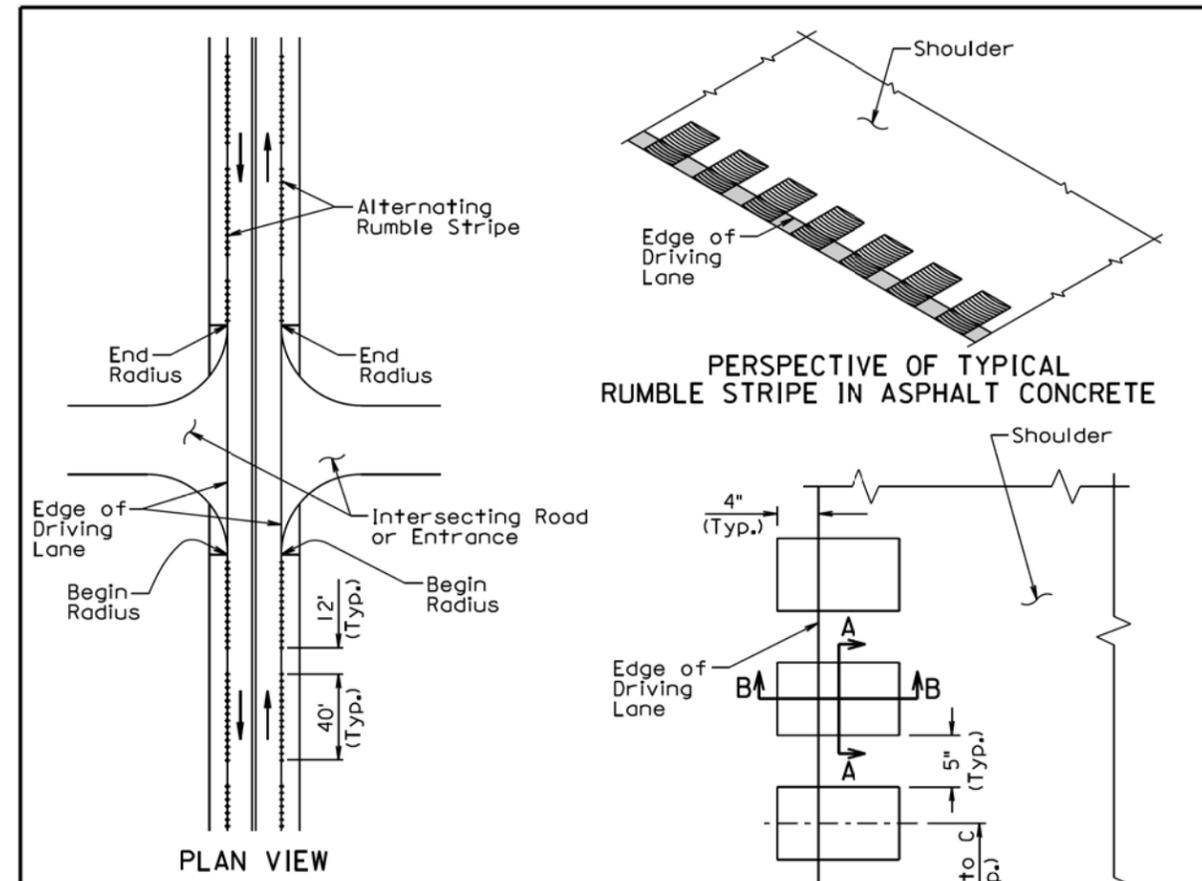
ROADWAY WITH SHOULDER

Plot Scale - 1:212.561

Plotted From - tpr18387

File - U:\ms\p\penn038D\32004.dgn

Plotting Date: 11/17/2014



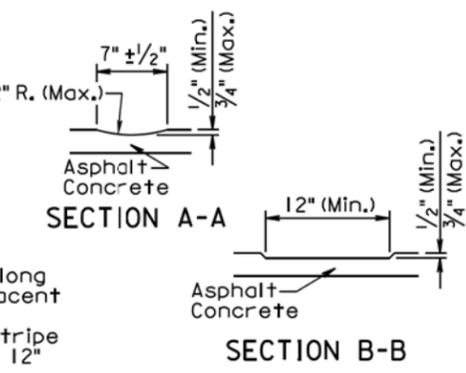
GENERAL NOTES:

A rumble stripe shall be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble stripe shall receive a flush seal with the shoulder flush sealing or asphalt surface treatment.

A rumble stripe shall not be constructed through intersecting roads, entrances, and turnouts. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble stripe adjacent to the intersecting roads, entrances, and turnouts shall be adjusted as approved by the Engineer.

Prior to constructing the rumble stripe the Contractor shall submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

Measurement of the rumble stripe shall be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble stripe shall include the 12' long segments without rumble stripes and the segments adjacent to intersecting roads, entrances, and turnouts without rumble stripes. Payment for constructing the rumble stripe shall be at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete".



June 26, 2011

S D D O T Published Date: 4th Qtr. 2014	12" RUMBLE STRIPE IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.22
	Sheet 1 of 1	

PLOT SCALE - 1:200

-PLOTTED FROM - TRPR18387

PLOT NAME - 14

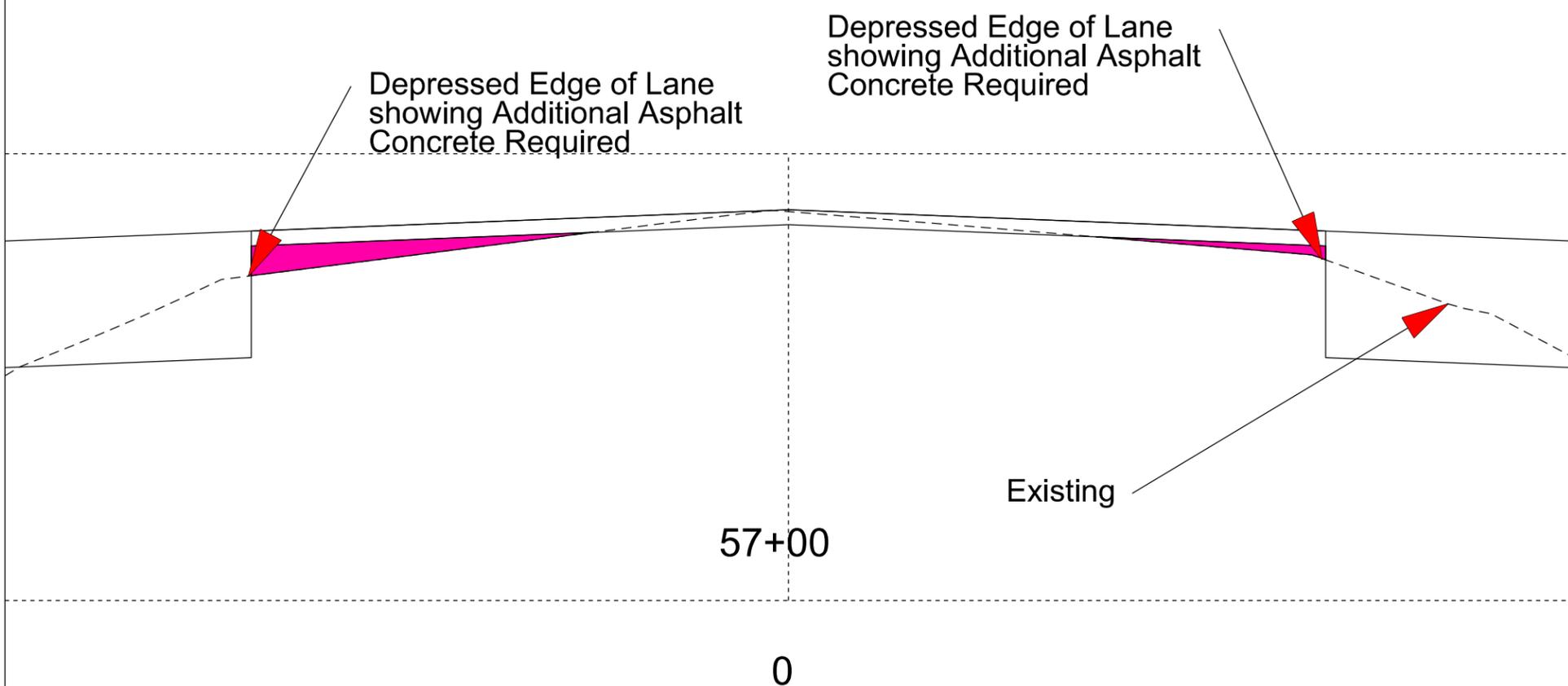
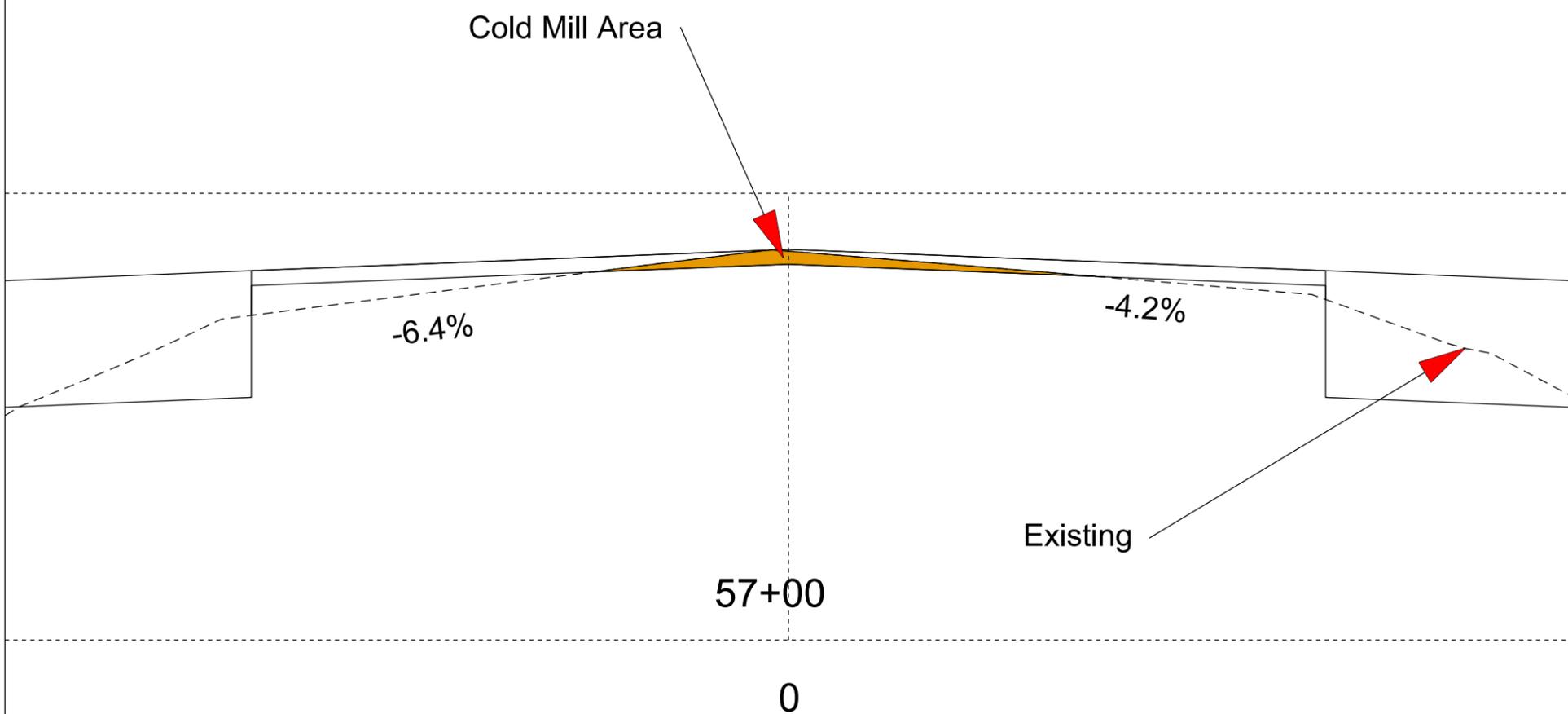
FILE - ... \STANDARD PLATES\SP1.DGN

Mainline Surfacing Cross Sections

Within the project limits the tangent sections of roadway lanes cross slopes vary between 0.1% and 6.4%. Existing cross slopes are shown on the following cross sections.

Areas with lower shoulders on both sides are within Station Ranges:

- 50+00 to 64+00
- 86+00 to 95+00
- 126+00 to 129+00
- 136+00 to 143+00
- 259+00 to 263+00
- 270+00
- 274+00 to 276+00



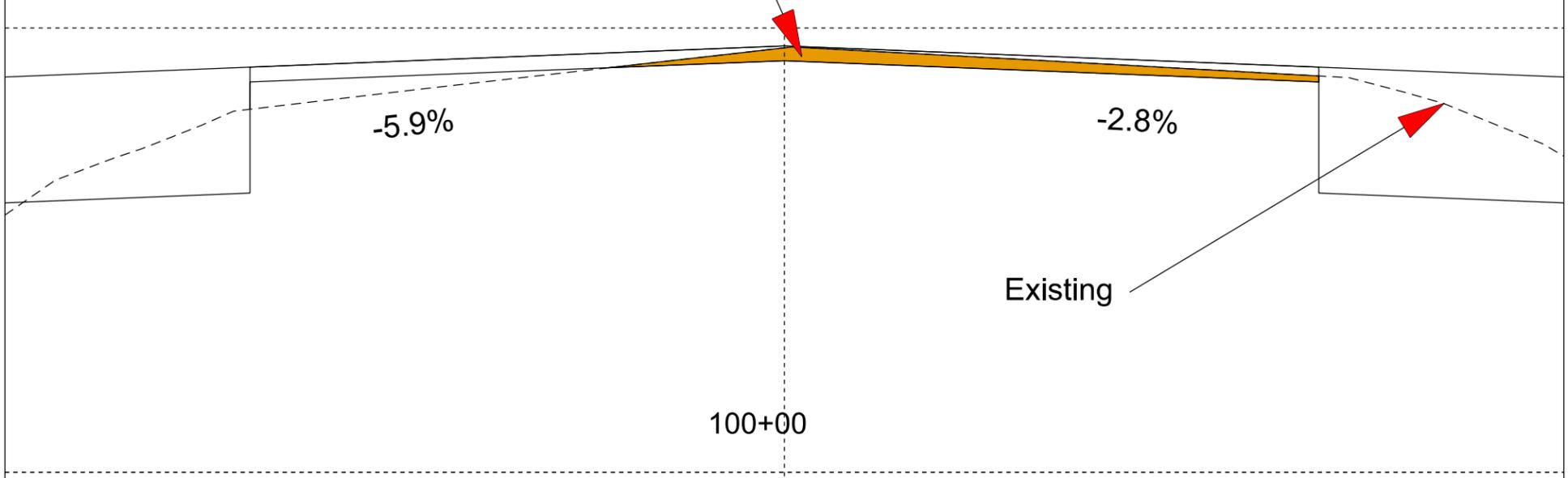
Mainline Surfacing Cross Sections

Within the project limits the tangent sections of roadway lanes cross slopes vary between 0.1% and 6.4%. Existing cross slopes are shown on the following cross sections.

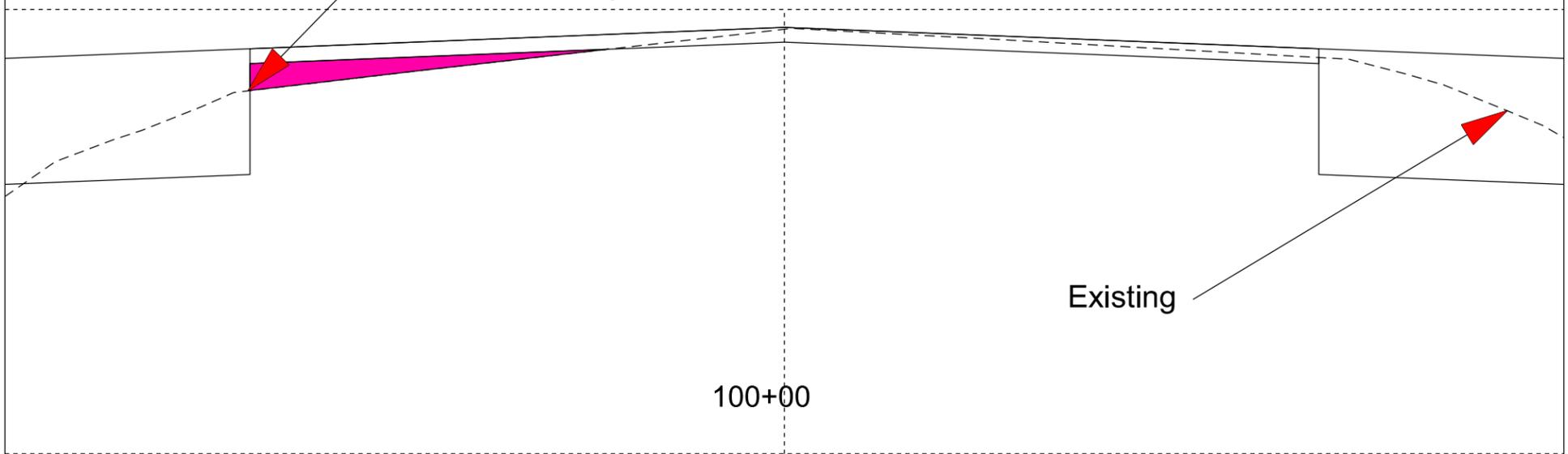
Areas with lower left shoulders are within Station Ranges:

- 49+00
- 96+00 to 106+00
- 125+00
- 130+00 to 135+00
- 227+85 to 229+00
- 231+00 to 244+00
- 253+00 to 258+00
- 277+00 to 281+00

Cold Mill Area



Depressed Edge of Lane showing Additional Asphalt Concrete Required

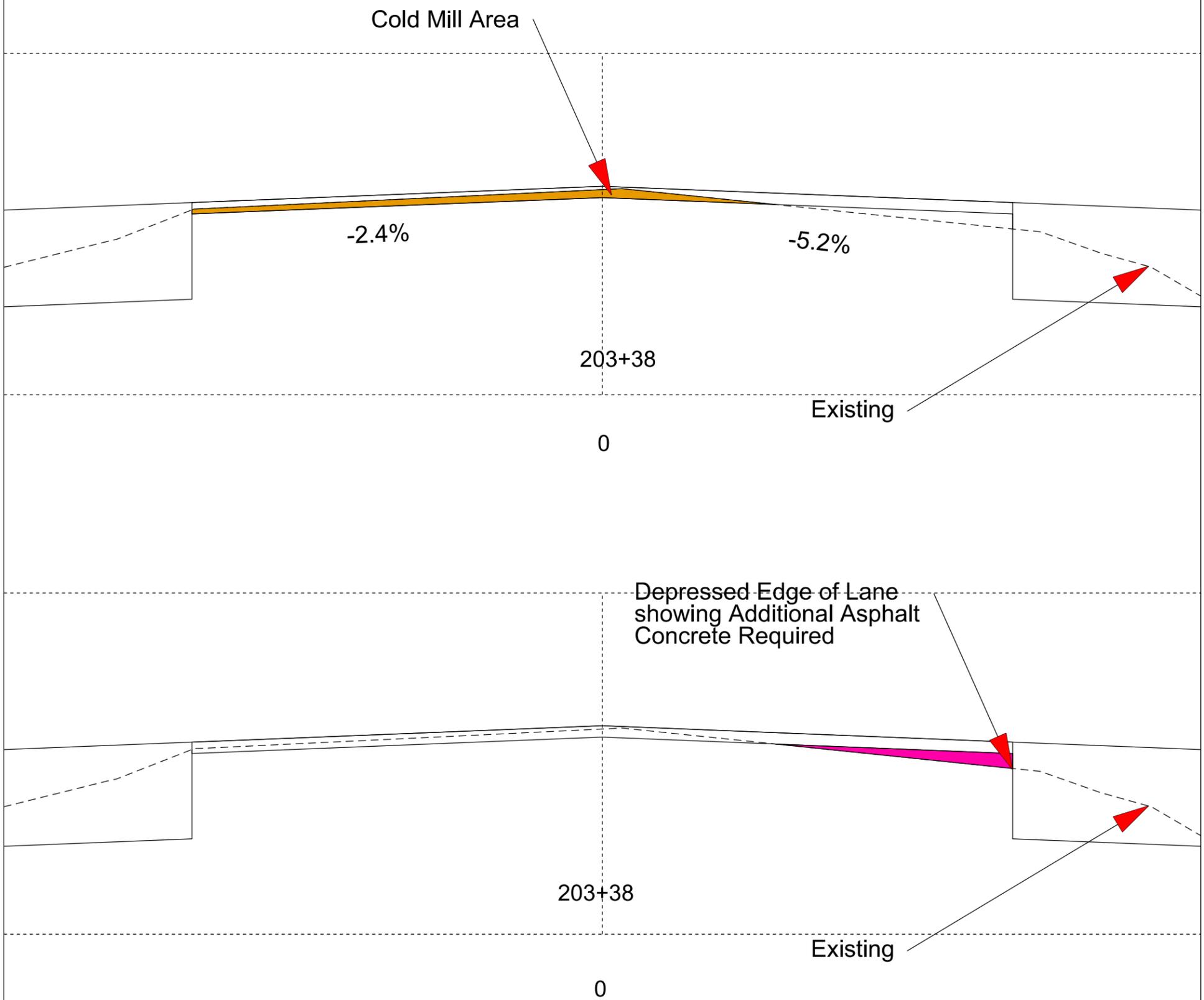


Mainline Surfacing Cross Sections

Within the project limits the tangent sections of roadway lanes cross slopes vary between 0.1% and 6.4%. Existing cross slopes are shown on the following cross sections.

Areas with lower right shoulders are within Station Ranges:

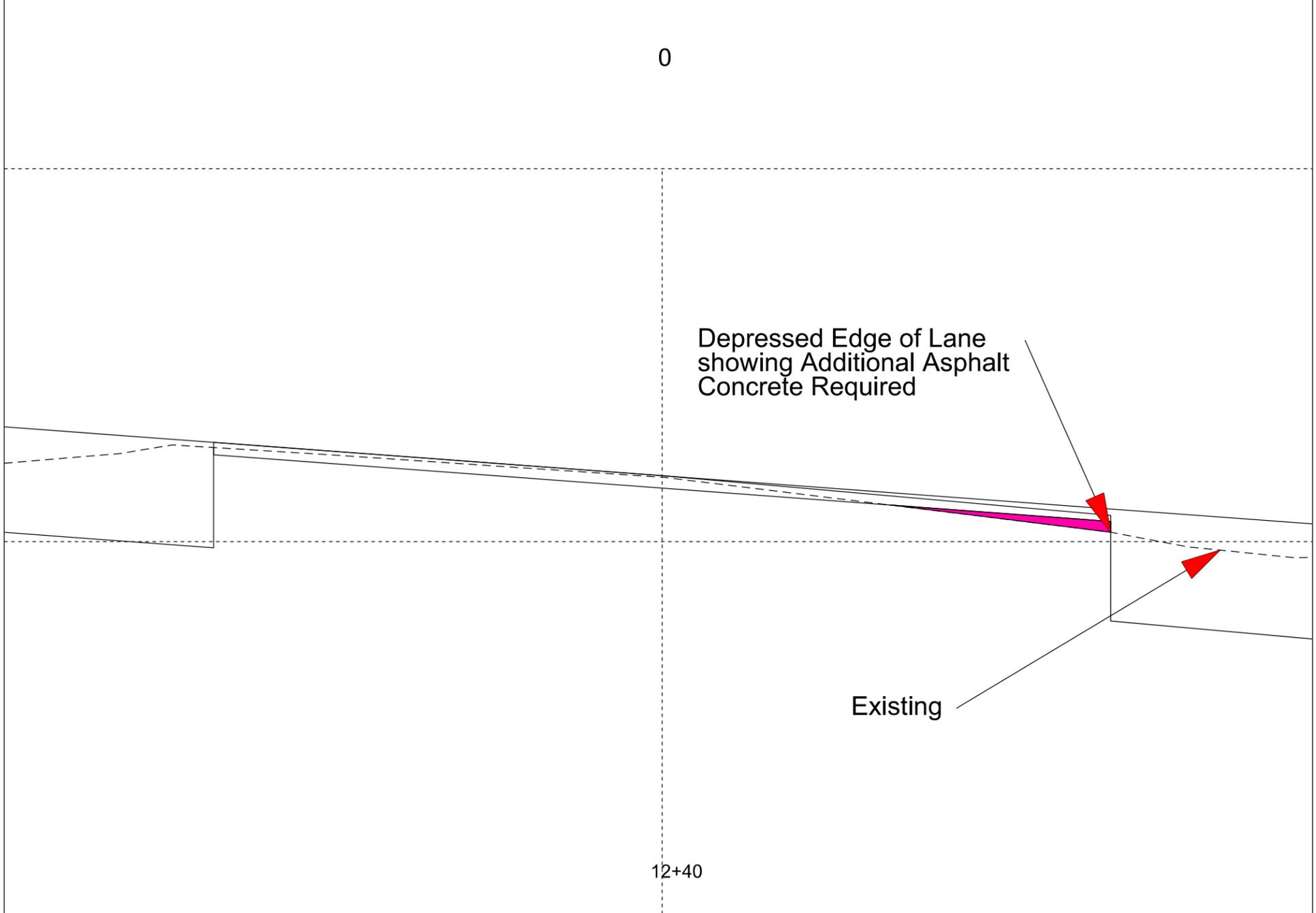
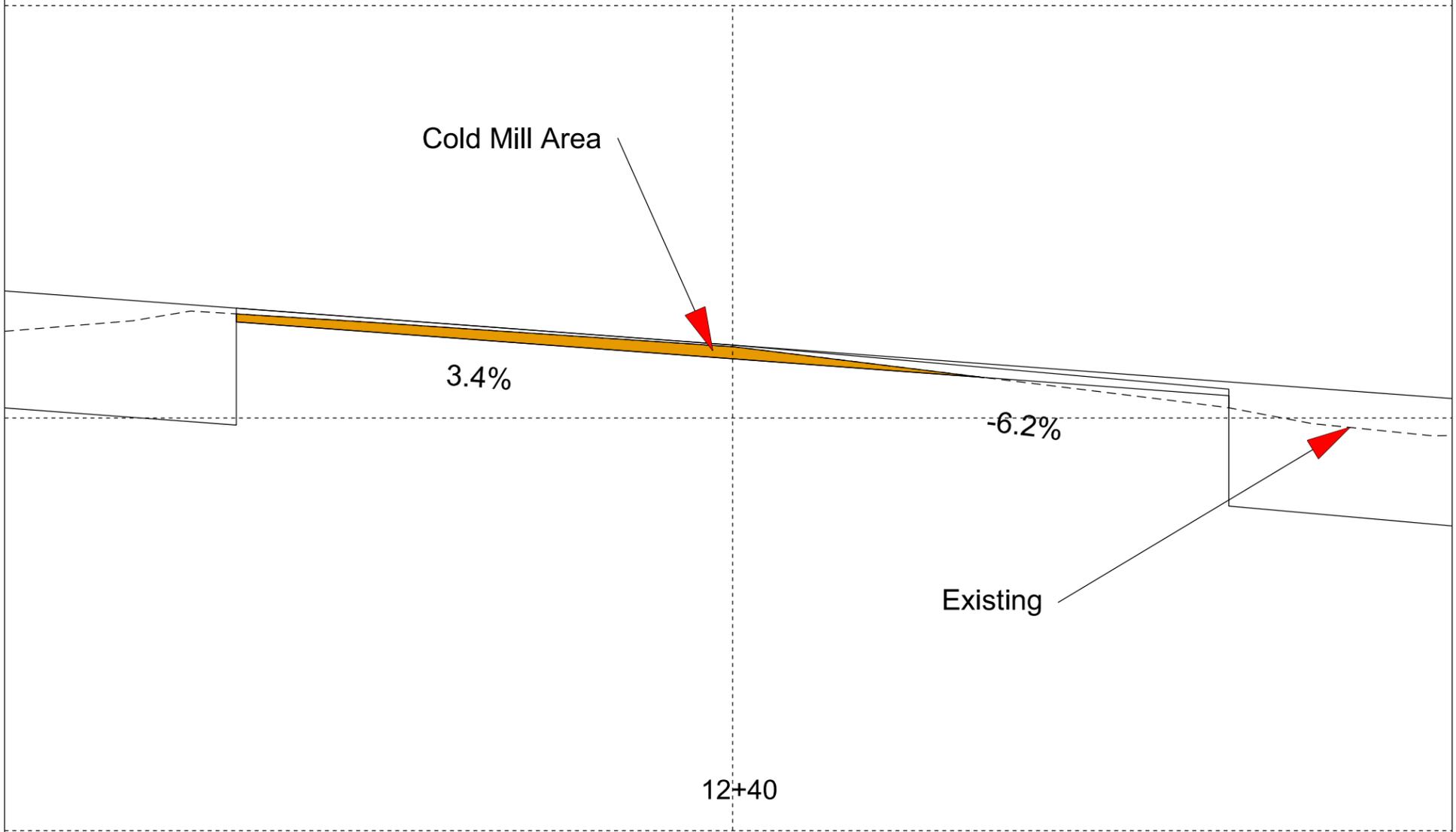
- 65+00 to 85+00
- 111+00 to 121+00
- 144+00 to 178+00
- 183+00 to 227+30
- 250+00 to 251+00
- 266+00 to 269+00
- 271+00 to 273+00
- 292+00 to 293+00
- 310+00
- 329+00 to 331+00



Mainline Superelevated Surfacing Cross Sections

Within the project limits the roadway lanes cross slope varies from 0.1% to 9.9%. The extreme cross slopes are generally within the curve sections of the roadway. Existing cross slopes are shown on the following cross sections.

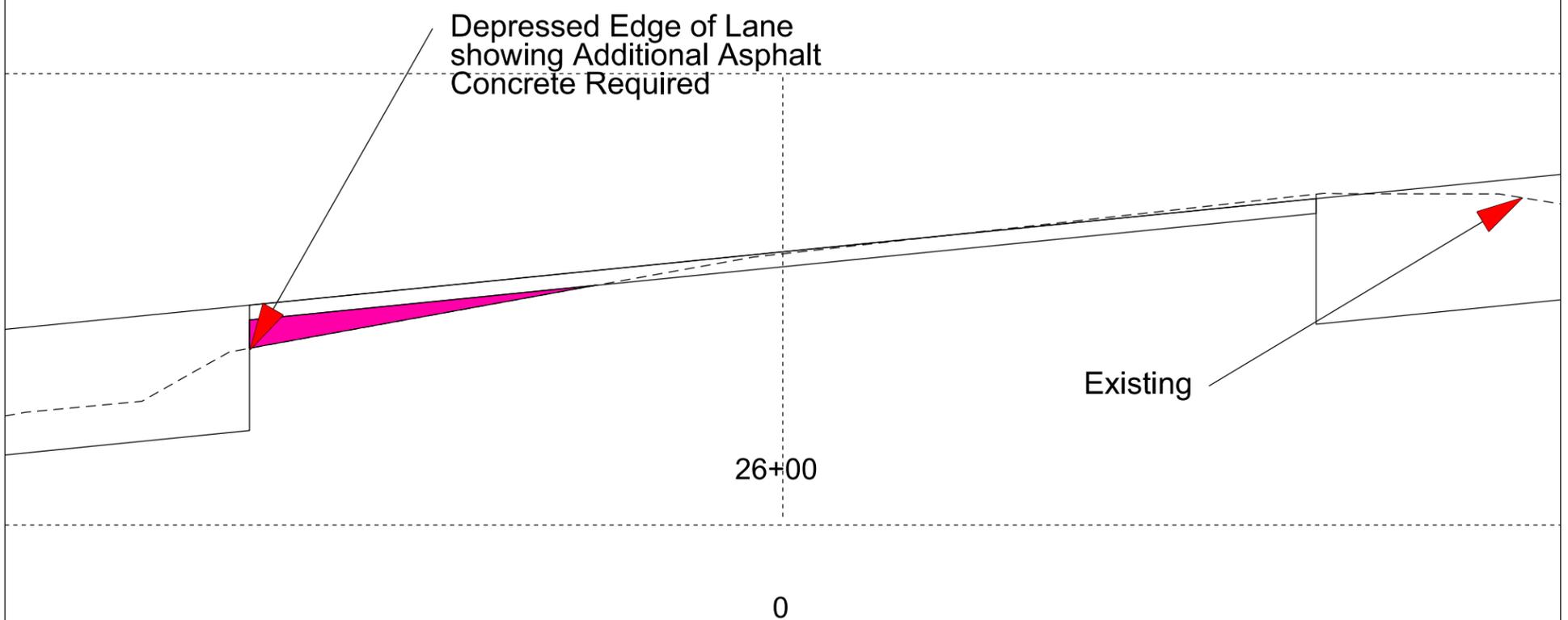
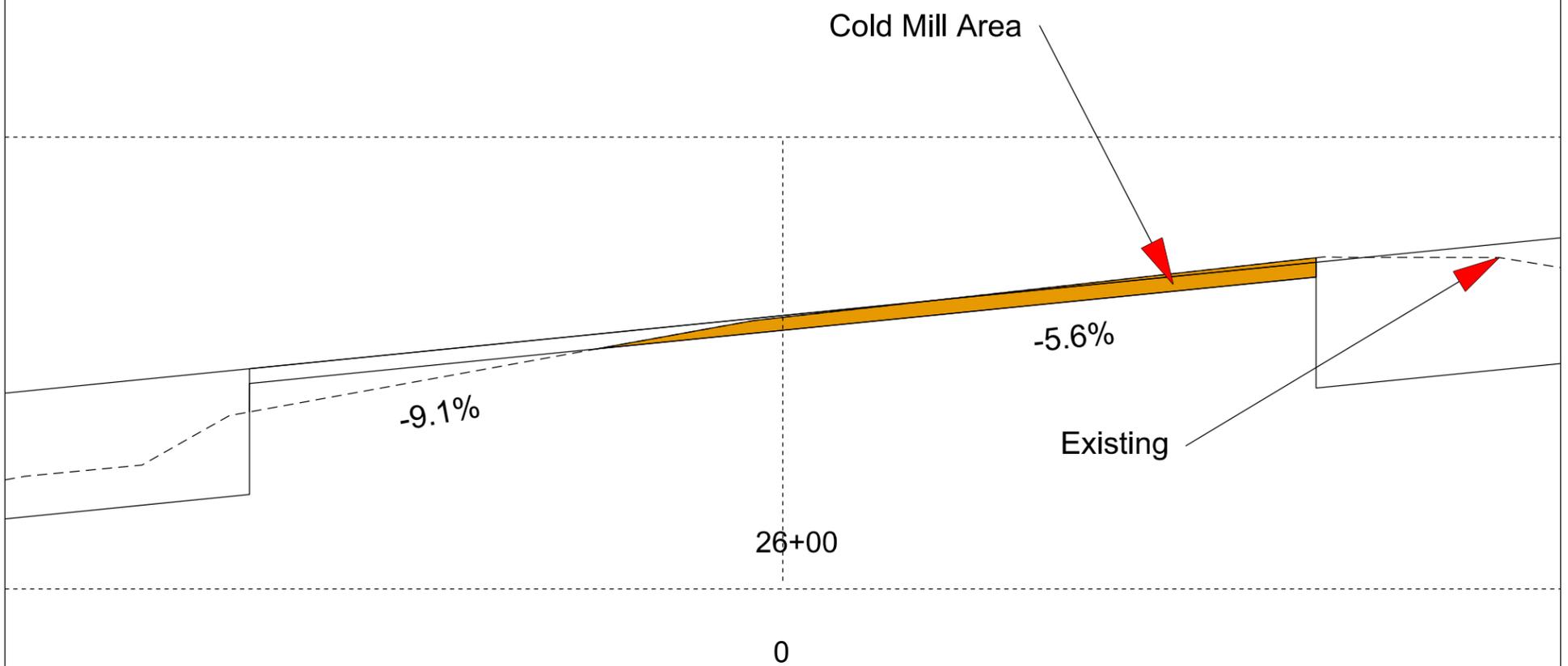
The first curve is a right hand curve and runs from Station 8+75 to Station 16+00



Mainline Superelevated Surfacing Cross Sections

Within the project limits the roadway lanes cross slope varies from 0.1% to 9.9%. The extreme cross slopes are generally within the curve sections of the roadway. Existing cross slopes are shown on the following cross sections.

The second curve is a left hand curve and runs from Station 18+00 to Station 34+00



Mainline Superelevated Surfacing Cross Sections

Within the project limits the roadway lanes cross slope varies from 0.1% to 9.9%. The extreme cross slopes are generally within the curve sections of the roadway. Existing cross slopes are shown on the following cross sections.

The third curve is a right hand curve and runs from Station 38+00 to Station 48+00

