Volume 2 – Rural Roads
Construction Specifications, Edition 1

General

The County of Grande Prairie Construction Specifications is a collection of eight distinct and separate volumes that are unique to the construction activity specified. The Construction Specifications include:

- Volume 1 – Amendments to the General Specifications, Edition 1
- Volume 2 – Rural Roads, Edition 1
- Volume 3 – Concrete (not yet available)
- Volume 4 – Drainage (not yet available)
- Volume 5 – Waterworks (not yet available)
- Volume 6 – Electrical (not yet available)
- Volume 7 – Landscaping (not yet available)
- Volume 8 – Bridges, Edition 1

Although separate, each volume must be referenced and interpreted simultaneously with all other volumes that are pertinent to the works being described.

Contractors are advised that both Volume 1 – Amendments to the General Specifications and Volume 2 – Roads are generally based on the following documents:

- Alberta Transportation and Economic Corridors (TEC)
    - General Specifications Edition 16 - 2019,
    - Standard Specifications for Highway Construction, Edition 16, 2019
    - Standard Specifications for Bridge Construction, Edition 19, 2020

- Aquatera Utilities Ltd.
    - Design and Construction Manual

To meet the County's construction requirements, these Volumes contain Specifications or Specification Amendments that either amend or supersede the documents on which the Specifications are based.

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End of Section

Section 201 – Clearing and Grubbing

PART 1 GENERAL

1.1 Description

.1 Clearing consists of cutting, piling, removing and disposing of trees, brush, stumps, logs and roots from areas shown on the Drawings or as designated by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.1 except as modified herein.

1.3 Definitions

.1 Clearing consists of cutting off trees, brush and heavy vegetative growth to not more than 0.3 metres above ground and disposing of felled trees, brush, vegetative growth, including all underbrush, deadwood and surface debris .

.2 Close-cut clearing consists of cutting off standing trees, brush, scrub, roots, stumps and embedded logs, removing flush with existing grade and disposing of fallen timber and surface debris.

.3 Clearing isolated trees consists of cutting off to not more than 0.3 metres above ground designated trees and disposing of felled trees and debris.

.4 Grubbing consists of excavation and disposal of grass, weeds, shrubs, stumps and roots to not less than 0.2 metres below existing ground surface .

PART 2 MATERIALS

2.1 No modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 Payment.

.1 Replace the contents of the Standard Specifications for Highway Construction Section 2.1.4 with the following:

.1 Clearing; grubbing; clearing and grubbing; clearing, grubbing and mulching; clearing, grubbing and timber salvage; and clearing, grubbing, timber salvage and mulching will be measured in hectares based on horizontal measurements or as individual isolated trees. No allowance will be made for uneven or sloping ground.

.2 Payment for this work will be made at the unit prices bid for "Clearing", “Clearing and Grubbing”, “Clearing, Grubbing and Mulching”, Clearing, Grubbing and Timber Salvage” and/or “Clearing, Grubbing,Timber Salvage and Mulching”, as applicable, and will be full compensation for all clearing and/or clearing and timber salvage operations; disposal of debris by burning, mulching or other methods specified by the Consultant; and all labour, equipment, tools and incidentals necessary to complete the Work to the satisfaction of the Consultant.

.3 Payment for all clearing and grubbing items includes removal and disposal of all branches, stumps, timbers and vegetation remains.

.4 If, through no fault of his own, the Contractor is unable to obtain a burning permit and the Consultant directs the Contractor to mulch and spread the clearing debris on-site or dispose of these materials off-site, payment for this Work will be made in accordance with the General Specifications, Subsection 1.2.33.2, Extra Work. However, if, in the opinion of the Consultant, the Contractor did not make use of opportunities to burn debris when available, these costs will be considered incidental to the Work and no separate or additional payment will be made.

.5 All costs associated with clearing of areas for Contractor campsites will be considered incidental to the Work and no payment will be made for clearing and grubbing of those areas.

End of Section

Section 202 – Excavating, Trenching, and Backfill

Under Development

Section 203 – Grading

PART 1 GENERAL

1.1 Description

.1 Grading consists of the excavation of soil materials, the salvage of select soil materials, the operation of borrow areas and the construction of embankment. This work includes the removal and/or satisfactory placement of all materials necessary for the construction and preparation of embankments, slopes, drainage works and connections to the required alignment, grade and cross-sections. It also includes the excavation for culverts, underdrains, and foundation pits for bridges, trestles, buildings and other structures.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.3 – Grading, except as modified herein.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 Quality Assurance Test Methods

.1 In addition to the test methods identified in the Standard Specifications for Highway Construction, Section 2.3.4.7.5.2 – Test Methods, the Consultant may direct the Contractor provide a vehicle and operator to perform a “roll test” for quality assurance. The vehicle supplied by the Contractor for the roll test shall be a legally loaded gravel truck, water truck, or other construction equipment acceptable to the Consultant. Acceptance or rejection of the roll test results will be at the discretion of the Consultant.

4.2 Towing Traffic:

.1 Delete the contents of Standard Specifications for Highway Construction, Section 2.3.6.2 – Towing Traffic and replace with:

.1 Any costs for towing traffic shall be included in the unit price bid for “Common Excavation”. The Contractor shall supply operators and equipment for towing at the request of the Consultant.

4.3 Lime for Drying

.1 Delete the contents of the Standard Specifications for Highway Construction, Section 2.3.6.13.5.2 – Lime for Drying and replace with:

.1 When the Contractor elects to use lime for drying wet materials, the cost of the materials, transportation to the project Site, mixing, storage, transportation within the project limits, loading, unloading, spreading, and any other direct, indirect or incidental costs will be considered incidental to the Work, and no separate or additional payment will be made.

4.4 Overhaul

.1 Delete the contents of the Standard Specifications for Highway Construction, Section 2.3.6.15 – Overhaul and replace with:

.1 There shall be no payment or compensation made for overhaul. The cost of overhauling material will be considered incidental to the Work, and no separate or additional payment will be made.

4.5 Finishing Previous Clearing

.1 Replace the contents of the Standard Specifications for Highway Construction, Section 2.3.6.16 – Finishing Previous Clearing with the following:

.1 Finishing previous clearing will be measured and paid at the applicable bid item under Volume 2 - Section 201.

End of Section

Section 204 – Culverts

PART 1 GENERAL

1.1 Description

.1 This specification covers the installation of pipe culverts less than 1500 mm equivalent diameter.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.4 – Culverts.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 205 – Riprap

PART 1 GENERAL

1.1 Description

.1 This specification covers the supply and placement of riprap. Riprap is a protective covering consisting of hand-laid or randomly deposited rock, sacked concrete or sacked cement stabilized material which is placed around culvert inlets and outlets and along slopes, embankments and ditches.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.5 – Riprap.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 206 – Topsoil Placement

PART 1 GENERAL

1.1 Description

.1 Topsoil placement consists of the placing and finishing of select topsoil material on disturbed areas as shown on the Drawings or as directed by the Contract Administrator, for the purpose of establishing vegetation for erosion control.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.6 – Topsoil Placement.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 209 – Salvage of Base Course and Pavement Materials

PART 1 GENERAL

1.1 Description

.1 This work shall consist of the salvaging and stockpiling of existing surface and/or base course materials, in accordance with these specifications and in conformity with the Drawings and locations provided, or as directed by the Consultant

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.9 – Salvage of Base Course and Pavement materials.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 212 – Fencing

PART 1 GENERAL

1.1 Description

.1 Fencing consists of the removal and disposal, removal and reinstallation, and the supply and installation of fence, gates and related appurtenances of the class or classes specified, in accordance with these specifications; as shown on the Drawings; or as directed by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.12 – Fencing.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 Add the following subsection

.1 Backfilling Fence Post Holes

.1 Where existing fence is removed, the Contractor shall immediately backfill the remaining hole. Backfill material shall be tamped to prevent settlement.

PART 4 MEASUREMENT AND PAYMENT

4.1 Add the following subsection

.1 Backfilling Post Holes

.1 Backfilling of post-holes resulting from the removal of existing fence will be considered incidental to the Work and no separate or additional payment will be made.

End of Section

Section 213 – Livestock Guards

PART 1 GENERAL

1.1 Description

.1 This work shall consist of the installation of livestock guards of the type and to the dimensions, lines, elevations and design shown on the Drawings and in accordance with these specifications, at locations as shown on the Drawings or as directed by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.13 – Livestock Guards.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 215 – Metal Bin Retaining Wall

PART 1 GENERAL

1.1 Description

.1 This work shall consist of the construction of metal bin-type retaining walls in accordance with these specifications and in conformity with the dimensions and designs shown on the Drawings, at locations as indicated and to lines and grades as established by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.15 – Metal Bin Retaining Wall.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 217 – Removal of Miscellaneous Structures

PART 1 GENERAL

1.1 Description

.1 This work shall consist of removing concrete curbs, concrete curbs and gutters, concrete surfaces such as sidewalks, pavement and medians, manholes, inlets, catch basins, concrete or masonry walls and other structures; salvaging and disposing of the resulting material as directed, and backfilling the resulting trenches, holes and pits in accordance with these Specifications.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.17 – Removal of Miscellaneous Structures, except as modified herein.

.2 Excavation, trenching and backfilling shall be in accordance with Section 202 – Excavation, Trenching, and Backfilling.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 219 – Guardrail and Guideposts

PART 1 GENERAL

1.1 Description

.1 This work consists of the erection, removal, salvage and reinstallation or disposal of guardrail and guideposts.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.19 – Guardrail and Guideposts, except as modified herein.

.2 Excavation, trenching and backfilling shall be in accordance with the Volume 2, Section 202 – Excavation, Trenching, and Backfilling.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 Add the following subsection

.1 Backfilling Guardrail Post Holes

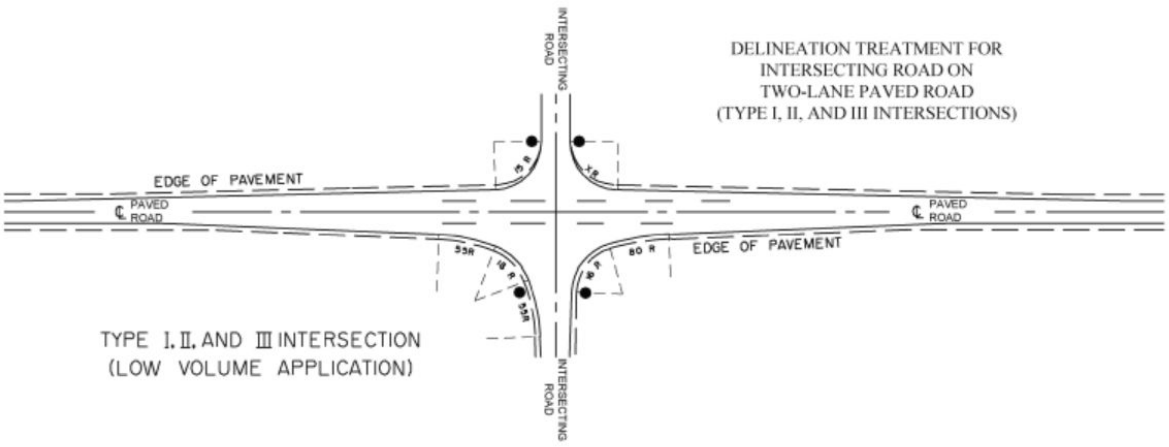
.1 Where existing guardrail is removed, the Contractor shall immediately backfill the hole resulting from the removal of the guardrail post using granular material. Backfill material shall be tamped to prevent settlement.

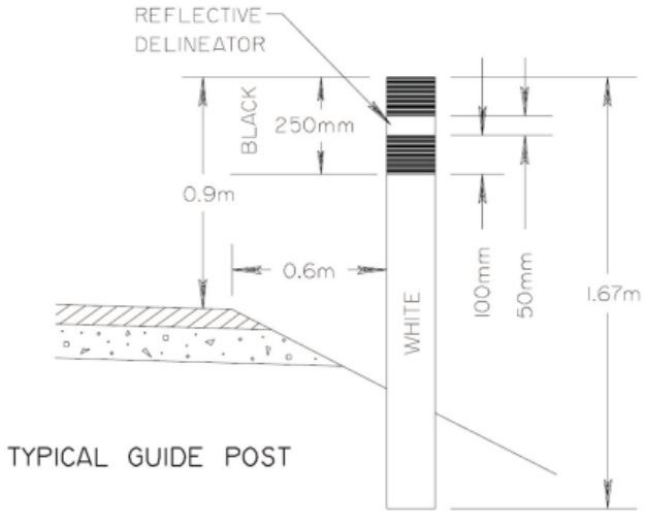
PART 4 MEASUREMENT AND PAYMENT

4.1 Add the following subsection

.1 Backfilling Guardrail Post Holes

.1 Backfilling of holes resulting from the removal of existing guardrail posts will be considered incidental to the Work and no separate or additional payment will be made.





LEGEND:

● DELINEATOR GUIDEPOST

NOTES:

ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE INDICATED.

County of Grande Prairie No. 1

COUNTY of GRANDE PRAIRIE No. 1

GUIDE POST DELINEATION FOR PUBLIC ROAD APPROACH

DATE:	2025-01-17	DRAWN BY:	CA	APPROVED:	DRAWING
SCALE:	NOT TO SCALE	CHECKED BY:	IH		10.1.5

End of Section

Section 220 – Seeding

PART 1 GENERAL

1.1 Description

.1 This specification covers preparation of the area to be seeded, the supply and application of seed and fertilizer, and the finishing of seeded areas. Areas to be seeded shall include any disturbed or exposed earth surfaces within the right-of-way, borrow and waste areas, and as determined by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.20 – Seeding, except as modified herein.

PART 2 MATERIALS

2.1 Seed Mix

.1 Further to the Standard Specifications for Highway Construction, Section 2.20.2.2 – Grass Seed, the grass seed mix supplied by the Contractor shall be a certified seed mix of the following type:

40% Creeping Red Fescue
40% Smooth Brome
20% Timothy

Applied at a rate of 25 kg/ha.

2.2 Fertilizer

.1 Further to the Standard Specifications for Highway Construction, Section 2.20.2.3 - Fertilizer, the fertilizer supplied by the Contractor shall be 26-14-6-6 applied at a minimum rate of 75 kg/ha.

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 222 – Plastic Culvert Extensions and Culvert Liners

PART 1 GENERAL

1.1 Description

.1 This specification covers the installation of plastic pipes as liners inside existing culverts, and extensions of these plastic pipes beyond the ends of the existing culverts.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.22 – Plastic Culvert Extensions and Culvert Liners.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 223 – Smooth Wall Steel Pipe Culvert Extensions and Culvert Liners

PART 1 GENERAL

1.1 Description

.1 This specification covers the installation of smooth wall steel pipes as liners inside existing culverts, and extensions of these smooth wall steel pipes beyond the ends of the existing culverts.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 2.23 – Smooth Wall Steel Pipe Culvert Extensions and Culvert Liners.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 301 – Subgrade Preparation

PART 1 GENERAL

1.1 Description

.1 Subgrade shall be considered as the soil surface on which a subsequent layer or layers of base course, gravel surfacing, surface treatment, pavement or other material is to be placed. Prior to the deposition of any material on the subgrade, the subgrade shall be prepared to the satisfaction of the Consultant in accordance with the provisions hereinafter specified.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.1 – Subgrade Preparation, except as modified herein.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 Preparing Subgrade Surface

.1 Contrary to the Standard Specifications for Highway Construction, Section 3.1.3.3 – Preparing Subgrade Surface, if the Contractor elects to use lime for drying wet materials, the cost of supplying lime will be considered incidental to the Work and no separate or additional payment will be made.

End of Section

Section 302 – Aggregate Production and Stockpiling

PART 1 GENERAL

1.1 Description

.1 This specification covers the general requirements for production, gradation, stockpiling, and pit operations for specified aggregate materials.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.2 – Aggregate Production and Stockpiling, except as modified herein.

PART 2 MATERIALS

2.1 Production

.1 In the Standard Specifications for Highway Construction, Section 3.2.3.1 - General, add the following trench bedding materials:

Designation		Trench Bedding – Designation 9		
		Type A	Type B	Type C
Classification		Native Sand	Clean Sand	20mm
Sieve Size Percent Passing	25000			100
	20000			95 – 100
	16000			
	12500			
	10000			5 – 10
	7500			
	5000	100	100	0 – 5
	2500		70 – 95	
	1250	66 – 100		
	630	52 – 100		
	315	35 – 78	30 – 65	
	160	18 – 43	10 – 25	
	80	7 - 13	2 - 10	

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 Interim Payment for Producing, Hauling and Stockpiling Crushed Aggregates

.1 Contrary to the Standard Specifications for Highway Construction, Section 3.2.4.2 – Interim Crushing, Hauling and Stockpiling, no interim payment for producing, hauling and stockpiling of crushed aggregates will be made.

4.2 Surplus Crushed Aggregates

.1 Contrary to the Standard Specifications for Highway Construction, Section 3.2.4.3 – Surplus Crushed Aggregates, no payment for surplus crushed aggregates will be made.

End of Section

Section 303 – Gravel Surfacing

PART 1 GENERAL

1.1 Description

.1 Gravel surfacing shall consist of the shaping of the road surface as required, and the placing of crushed gravel thereon as directed by the Consultant.

.2 On newly constructed grades, the intent of gravel surfacing is to place the granular material in two separate operations. The first application of surfacing gravel shall be incorporated into the top 0.15m of the embankment. Following re-compaction of the embankment containing the first application of surface gravel, a second application of surfacing gravel will be spread uniformly across the final finished grade.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.3 – Gravel Surfacing, except as modified herein.

PART 2 MATERIALS

2.1 Surfacing Gravel

.1 The Contractor shall supply and install Designation 4 Class 25 and Designation 4 Class 40 crushed aggregate in accordance with Specification 302, Aggregate Production and Stockpiling. The Contractor shall supply aggregate materials in accordance with Specification 502, Supply of Aggregate, and haul aggregate materials in accordance with Specification 405, Hauling.

.2 Unless otherwise specified in the Special Provisions or shown on the Drawings, application rates of surfacing aggregate shall be as follows:

.1 Designation 4 Class 40 aggregate – 600 tonne/km placed in two (2) separate lifts of 300 tonne/km each

.2 Designation 4 Class 25 aggregate – 300 tonne/km

PART 3 CONSTRUCTION

3.1 Placing Gravel Material

.1 Replace Standard Specifications for Highway Construction, Section 3.3.3.2 – Placing of Gravel Material, with the following:

.1 For newly constructed embankments, surfacing gravel shall be applied in two separate operations. The first application of Designation 4 Class 40 surfacing aggregate shall be mixed into the top 0.15 m of the roadway embankment using one of the following procedures at the option of the Contractor:

.1 The Contractor shall place the surfacing aggregate concurrently with the final 0.15 m of embankment. The Contractor shall mix the embankment material with the surfacing aggregate, shape, adjust moisture content where necessary, and compact the resulting mixture in accordance with the Standard Specifications for Highway Construction, Section 2.3.4.7 “Constructing Roadways”.

.2 Following acceptance of the embankment construction the Contractor shall uniformly spread the Designation 4 Class 40 surfacing aggregate on the surface of the final grade in two lifts. Following each application of surfacing aggregate, the Contractor shall apply sufficient water to saturate the aggregate and underlying embankment and immediately employ a Caterpillar Model 815 soil compactor (or similar equipment approved by the Consultant) to embed the surfacing aggregate into the saturated embankment.

.3 Following acceptance of the embankment construction the Contractor shall uniformly spread the surfacing aggregate on the surface of the final grade. The embankment and surfacing aggregate shall be scarified to a depth of 150 mm, mixed and recompacted in accordance with the Standard Specifications for Highway Construction, Section 3.1.2.3 “Preparing Subgrade Surface”.

.4 Other techniques proposed by the Contractor that can achieve similar end product results will be considered subject to the prior approval of the County.

PART 4 MEASUREMENT AND PAYMENT

4.1 Measurement and Payment

.1 Delete the contents of the Standard Specifications for Highway Construction, Section 3.3.4.1- Gravel Surfacing and replace it with the following:

.1 Gravel Surfacing

.1 Measurement of gravel surfacing will be in tonnes.

.2 Payment for “Gravel Surfacing” for the type specified will be made at the unit price bid per tonne. Payment will be considered full compensation for shaping the road surface, processing, hauling and placing the gravel material.

.3 There will be no separate or additional payment for placement of gravel surfacing in more than one layer.

.4 Payment for the supply of aggregate will be made in accordance with Specification 502, Supply of Aggregate.

.2 Preparing Roadway Surface

.1 Preparing the roadway surface and mixing the surfacing aggregate into the top 150mm of roadway embankment will be measured in square metres of the finished roadway surface.

.2 Payment for "Preparing Roadway Surface" will be made at the unit price bid. Payment will be considered full compensation for all labour, materials, equipment, tools and incidentals necessary to complete the Work to the satisfaction of the Consultant, regardless of which methodology is employed by the Contractor to mix the surfacing gravel into the embankment.

End of Section

Section 305 – Asphalt Stabilized Base Course

PART 1 GENERAL

1.1 Description

.1 Asphalt stabilized base course shall consist of an intimate mixture of crushed aggregate and cutback or emulsified asphalt, produced by plant-mixing at elevated temperatures and placed in layers upon a previously prepared surface, compacted and finished as specified herein.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.5 – Asphalt Stabilized Base Course.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 306 – Granular Base Course

PART 1 GENERAL

1.1 Description

.1 Granular base course shall consist of an intimate mixture of crushed aggregate and water, which is placed in layers upon a prepared surface, compacted and finished, as specified herein.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.6 – Granular Base Course.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 308 – Granular Fill

PART 1 GENERAL

1.1 Description

.1 Granular fill shall consist of pit-run gravel, gravel fill, sand or crushed gravel placed upon the prepared areas and in excavations, at locations and to thickness specified.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.8 – Granular Fill.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 309 – Cement Stabilized Base Course

PART 1 GENERAL

1.1 Description

.1 Cement stabilized base course shall consist of a uniform mixture of sand or crushed aggregate, portland cement and water, combined as hereinafter specified, placed, compacted, and finished on the prepared surfaces.

.2 Cement stabilized base course material as defined herein shall be mixed through a central mixing plant in accordance with the requirements of the Specifications.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.9 – Cement Stabilized Base Course.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 310 – Asphalt Surface Treatment

PART 1 GENERAL

1.1 Description

.1 Asphalt surface treatment shall consist of scarifying and salvaging existing asphalt bound aggregate and/or gravel surfacing, adding and blending additional crushed aggregate when required, adding liquid asphalt, mixing and compacting the asphalt bound aggregate on the roadway in accordance with the specifications contained herein.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.10 – Asphalt Surface Treatment.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 316 – Cold Milling Asphalt Pavement

PART 1 GENERAL

1.1 Description

.1 Cold milling asphalt pavement is the process of removing existing pavement from the roadway using cold milling equipment to the lines and dimensions shown on the Drawings or as directed by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.16 – Cold Milling Asphalt Pavement, except as modified herein.

1.3 Reclaimed Asphalt Pavement (RAP)

.1 The contents of the Standard Specifications for Highway Construction, Section 3.16.2 shall be replaced with the following:

.1 The material produced as a result of cold milling will be defined as reclaimed asphalt pavement (RAP).

.2 The Contractor shall assume ownership of the RAP material and shall haul it from the roadway to his own storage site or otherwise dispose of it.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 319 – Prime, Tack, and Flush Coats

PART 1 GENERAL

1.1 Description

.1 This specification covers the placing an asphalt material on a prepared surface at locations shown on the Drawings or designated by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.19 – Prime, Tack, and Flush Coats.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 320 – Slurry Seal

PART 1 GENERAL

1.1 Description

.1 This specification covers the installation of a slurry seal, a designed mixture of crushed aggregate, additives (as needed), emulsified asphalt, and water applied to a prepared pavement as a surface treatment, at locations and conforming to the lines and dimensions specified.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.20 – Slurry Seal.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 321 – Double Seal Coat

PART 1 GENERAL

1.1 Description

.1 This specification covers the installation of a double seal coat consisting of a wearing course composed of two applications of processed aggregate held in place by an asphalt binder, spread and rolled on a prepared surface to the lines and dimensions shown on the Drawings or as designated by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.21 – Double Seal Coat.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 322 – Graded Aggregate Seal Coat

PART 1 GENERAL

1.1 Description

.1 This specification covers the installation of a graded aggregate seal coat consisting of a surface treatment composed of an asphalt binder and a graded aggregate, spread and compacted in one application on a prepared surface to the lines and dimensions shown on the Drawings or as designated by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.22 – Graded Aggregate Seal Coat.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 324 – Chip Seal Coat

PART 1 GENERAL

1.1 Description

.1 This specification covers the installation of a chip seal coat, a designed mixture of processed aggregate, an asphalt binder, spread and rolled on a prepared surface, at locations and conforming to the lines and dimensions specified or as determined by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.24 – Chip Seal Coat.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 326 – Micro-Surfacing

PART 1 GENERAL

1.1 Description

.1 This specification covers the installation of micro-surfacing, a slurry seal type of application which is placed on a prepared pavement at locations and conforming to the lines and dimensions specified or as designated by the Consultant. The micro-surfacing treatment is intended to provide a smooth, durable, skid resistant surface. Application can be for crack repair, rut filling and/or surfacing the entire travel lane. The micro-surfacing mixture shall consist of a cationic polymer modified asphalt, mineral aggregate, mineral filler, field control additive and water.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.26 – Micro-Surfacing.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 330 – Asphalt Pavement Crack Routing and Sealing

PART 1 GENERAL

1.1 Description

.1 This specification covers crack sealing, to prolong the life of existing pavements by preventing moisture from penetrating the roadway structure, and by preventing the spalling of material from the edges of the cracks.

.2 The Work shall consist of routing, cleaning and drying cracks and sealing them with crack sealant between the limits shown on the Drawings or as directed by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.30 – Asphalt Pavement Crack Routing and Sealing.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 331 – Asphalt Pavement Crack Sealing

PART 1 GENERAL

1.1 Description

.1 This specification covers crack sealing, to prolong the life of existing pavements by preventing moisture from penetrating the roadway structure, and by preventing the spalling of material from the edges of the cracks.

.2 The Work shall consist of sealing cracks with crack sealant between the limits shown on the Drawings, described in the Special Provisions, or as directed by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.31 – Asphalt Pavement Crack Sealing.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 333 – Crack Repair – Spray Patch

PART 1 GENERAL

1.1 Description

.1 This specification covers the repair of transverse and longitudinal cracks by cleaning the defect of all rock, dirt, sand or other objectionable material, applying asphalt binder as a tack material, filling with a mixture of asphalt binder and crushed aggregate and compacting the mix.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.33 – Crack Repair – Spray Patch.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 335 – Crack Repair – Mill and Fill

PART 1 GENERAL

1.1 Description

.1 This specification covers the repair of transverse and longitudinal cracks by milling a rectangular trench centered over the crack, filling the trench with asphalt concrete pavement mix, then compacting the mix.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.35 – Crack Repair – Mill and Fill.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 340 – Cutting of Pavement

PART 1 GENERAL

1.1 Description

.1 This specification covers the cutting of existing concrete curbs, sidewalks, driveways, asphalt concrete pavement, and base course materials where new surfacing materials are to be placed abutting the existing structure. The location of pavement cuts will be shown on the Drawings, or as directed by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.40 – Cutting of Pavement, except as modified herein.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

.1 Add the following to the Standard Specifications for Highway Construction, Section 3.40.3 – Measurement and Payment:

.1 If there is no separate bid item for cutting of pavement in the tender form, cutting of pavement will be considered incidental to the Work and no separate or additional payment will be made.

End of Section

Section 350 – Asphalt Concrete Pavement (EPS)

PART 1 GENERAL

1.1 Description

.1 This specification covers the installation of asphalt concrete pavement (ACP), consisting of crushed aggregates, or a combination of crushed aggregates and reclaimed asphalt pavement (RAP), blend sand material as required and asphalt cement, combined in a hot mix plant, placed and compacted on a prepared surface in conformity to the lines, grades, dimensions and cross-sections as shown on the Drawings or as directed by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.50 – Asphalt Concrete Pavement – End Product Specification, except as modified herein.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 Inspections for Pavement Segregation

.1 Replace Standard Specifications for Highway Construction, Section 3.50.4.7.3.2 “Inspections by the Consultant” with the following:

.1 Inspections During Construction

The Consultant will inspect the lower lifts of pavement to identify any instances of pavement segregation. If segregation is evident, the Consultant will immediately notify the Contractor so that corrective action can be taken to prevent further occurrence of segregation.

The County will engage an independent segregation assessor to complete the segregation assessment on the top lift of pavement. The County anticipates the independent segregation assessor will make four trips to the County during the construction season to complete segregation assessments on all County projects delivered during the year.

The Contractor is responsible for notifying the County of the Contractor’s anticipated construction schedule and when the project will be ready for the final segregation assessment. The County will arrange for the Independent Segregation Assessor to inspect the project on the next scheduled assessment trip. The Contractor is advised that due to the timing of paving completion and the Independent Segregation Assessor’s

next site visit, there could be a delay of several weeks between the completion of paving and the actual segregation inspection.

Should the Contractor wish to observe the independent segregation assessment, the Consultant will provide the Contractor with 48 hours advance notice of the date for the planned testing.

During the inspection(s) of the top lift, the Independent Segregation Assessor will identify and record any areas of slight, moderate and severe segregation and any areas of center-of-paver streak. Areas requiring repair in accordance with the Standard Specifications for Highway Construction, Subsection 3.50.4.7.4 – Repairing Pavement Segregation, will be marked by the Independent Segregation Assessor. The Independent Segregation Assessor will provide the Contractor with a written assessment indicating location and severity of the segregated areas as soon as practical following each inspection.

The County will be responsible for the provision of traffic accommodation and flagging required by the Independent Segregation Inspector for the segregation assessment and the marking of areas of identified segregation.

.2 Inspection Following Construction

A secondary segregation inspection of the top lift pavement following construction will not be conducted.

3.2 Smoothness

.1 In the Standard Specifications for Highway Construction, replace the contents of the Standard Specifications for Highway Construction, Section 3.50.4.8.2 – “Smoothness”, with the following:

.1 The County will engage an independent smoothness assessor to complete the verification testing for smoothness on the top lift of pavement. The County anticipates the independent smoothness assessor will make two trips to the County during the construction season to complete verification testing for smoothness on all County projects delivered during the year.

.2 The Contractor is responsible for notifying the County of the Contractor’s anticipated construction schedule and when the project will be ready for the verification testing for smoothness. The County will arrange for the independent smoothness assessor to inspect the project on the next scheduled visit. The Contractor is advised that due to the timing of paving completion and the independent smoothness assessor’s next site visit, there could be a delay of several weeks between the completion of paving and the actual verification testing for smoothness.

.3 Should the Contractor wish to observe the independent smoothness assessment, the Consultant will provide the Contractor with 48 hours advance notice of the date for the planned testing.

PART 4 MEASUREMENT AND PAYMENT

4.1 Asphalt Concrete Pavement – EPS

.1 In the Standard Specifications for Highway Construction, Section 3.50.7.2.1 "Payment for Acceptable Work", make the following revisions:

.1 Payment adjustments for smoothness and segregation will be determined by the County's independent testing assessor.

.2 In the Standard Specifications for Highway Construction, Section 3.50.7.2.1.1 "Segregation Payment Adjustments", replace Table A, Table B, and Table C with the following:

4.2 Segregation Payment Adjustments

.1 In the Standard Specifications for Highway Construction, Section 3.50.7.2.1.1 – Segregation Payment Adjustments, replace Table A, Table B, and Table C with the following:

Table A - Payment Adjustment for Slight Segregation	
Segregation Frequency of Slight Segregation Areas (per lane.km)	**Payment Adjustment ($ per lane.km)**
0	(1)
1 or 2	(2)
Greater than 2	-(number of areas-2) x $250

Table B - Payment Adjustment for Moderate and Severe Segregation	
Segregation Frequency of Moderate and Severe Segregation Areas (per lane.km)	**Payment Adjustment ($ per lane.km)**
0	(1)
Greater than 0	-(number of areas) x $1,500

Table C - Payment Adjustment for Center of Paver Streak	
Length of Center of Paver Streak (per lane.km)	**Payment Adjustment ($ per lane.km)**
1 metre or Less	(1)
Greater than 1 metre	-$3.00 per linear metre

(1) Lane.kms with no areas of segregation of any type or severity, or any centre-of-paver streaks will be assigned a bonus payment of $5,000 per lane.km. For partial lane.kms the bonus will be pro-rated based upon the actual length of the segment assessed.

(2) Lane.kms with 1 or 2 areas of slight segregation, no moderate or severely segregated areas and no centre-of-paver streak will be assigned a bonus payment of

$2,500 per lane.km. For partial lane.kms the bonus will be pro-rated based upon the actual length of the segment assessed.

Notes:

- Total payment adjustment per lane.km for segregation will be the sum of Tables A, B and C.
- For partial lane.kms, the payment adjustments for Table A, B and C will be prorated based upon the actual length of segment assessed.
- The maximum penalty adjustment for segregation shall be limited to $5,000 per lane.km. For partial lane.kms, this adjustment will be prorated based upon the actual length of segment assessed.

4.3 Payment for Acceptable Work

.1 In the Standard Specifications for Highway Construction, Section 3.50.7.2.1 – Payment for Acceptable Work, replace Table 3.50A with the following:

Table 350A
Unit Price Adjustment for Density

% of Marshall Density	Unit Price Adjustment - $ per tonne			
	Design Lift Thickness (mm)			
Lot Mean	50 mm or Greater Lower Lifts	Less than 50 mm Lower Lifts	50 mm or Greater Top Lift Only	Less than 50 mm Top Lift Only
≥ 98.0	3.0	3.0	3.0	3.0
97.9	2.7	2.7	2.7	2.7
97.8	2.4	2.4	2.4	2.4
97.7	2.1	2.1	2.1	2.1
97.6	1.8	1.8	1.8	1.8
97.5	1.5	1.5	1.5	1.5
97.4	1.2	1.2	1.2	1.2
97.3	0.9	0.9	0.9	0.9
97.2	0.6	0.6	0.6	0.6
97.1	0.3	0.3	0.3	0.3
97.0	0.0	0.0	0.0	0.0
96.9	-0.2	0.0	-0.2	-0.04
96.8	-0.4	0.0	-0.4	-0.07
96.7	-0.6	0.0	-0.6	-0.11
96.6	-0.8	0.0	-0.8	-0.14
96.5	-1.0	0.0	-1.0	-0.18
96.4	-1.2	0.0	-1.2	-0.22
96.3	-1.4	0.0	-1.4	-0.25

Table 350A
Unit Price Adjustment for Density

% of Marshall Density	Unit Price Adjustment - $ per tonne			
	Design Lift Thickness (mm)			
Lot Mean	50 mm or Greater Lower Lifts	Less than 50 mm Lower Lifts	50 mm or Greater Top Lift Only	Less than 50 mm Top Lift Only
96.2	-1.6	0.0	-1.6	-0.29
96.1	-1.8	0.0	-1.8	-0.32
96.0	-2.0	0.0	-2.0	-0.36
95.9	-2.5	-0.20	-2.5	-0.4
95.8	-3.0	-0.40	-3.0	-0.8
95.7	-3.5	-0.60	-3.5	-1.2
95.6	-4.0	-0.80	-4.0	-1.6
95.5	-4.5	-1.00	-4.5	-2.0
95.4	-5.0	-1.20	-5.0	-2.4
95.3	-5.5	-1.40	-5.5	-2.8
95.2	-6.0	-1.60	-6.0	-3.2
95.1	-6.5	-1.80	-6.5	-3.6
95.0	-7.0	-2.00	-7.0	-4.0
94.9	-8.0	-2.50	-8.0	-4.4
94.8	-9.0	-3.00	-9.0	-4.8
94.7	-10.0	-3.50	-10.0	-5.2
94.6	-11.0	-4.00	-11.0	-5.6
94.5	-12.0	-4.50	-12.0	-6.0
94.4	-13.0	-5.00	-13.0	-6.4
94.3	-14.0	-5.50	-14.0	-6.8
94.2	-15.0	-6.00	-15.0	-7.2
94.1	-16.0	-6.50	-16.0	-7.6
94.0	-17.0	-7.00	-17.0	-8.0
93.9	50% of Unit Price	-7.80	Overlay or Rm. & Rp.	-8.8
93.8	50% of Unit Price	-8.60	Overlay or Rm. & Rp.	-9.6
93.7	50% of Unit Price	-9.40	Overlay or Rm. & Rp.	-10.4
93.6	50% of Unit Price	-10.20	Overlay or Rm. & Rp.	-11.2
93.5	50% of Unit Price	-11.00	Overlay or Rm. & Rp.	-12.0
93.4	50% of Unit Price	-11.80	Overlay or Rm. & Rp.	-12.8
93.3	50% of Unit Price	-12.60	Overlay or Rm. & Rp.	-13.6
93.2	50% of Unit Price	-13.40	Overlay or Rm. & Rp.	-14.4
93.1	50% of Unit Price	-14.20	Overlay or Rm. & Rp.	-15.2

Table 350A
Unit Price Adjustment for Density

% of Marshall Density	Unit Price Adjustment - $ per tonne			
	Design Lift Thickness (mm)			
Lot Mean	50 mm or Greater Lower Lifts	Less than 50 mm Lower Lifts	50 mm or Greater Top Lift Only	Less than 50 mm Top Lift Only
93.0	50% of Unit Price	-15.00	Overlay or Rm. & Rp.	-16.0
92.9	50% of Unit Price	-15.80	Overlay or Rm. & Rp.	-16.8
92.8	50% of Unit Price	-16.60	Overlay or Rm. & Rp.	-17.6
92.7	50% of Unit Price	-17.40	Overlay or Rm. & Rp.	-18.4
92.6	50% of Unit Price	-18.20	Overlay or Rm. & Rp.	-19.2
92.5	50% of Unit Price	-19.00	Overlay or Rm. & Rp.	-20.0
92.4	50% of Unit Price	-19.80	Overlay or Rm. & Rp.	-20.8
92.3	50% of Unit Price	-20.60	Overlay or Rm. & Rp.	-21.6
92.2	50% of Unit Price	-21.20	Overlay or Rm. & Rp.	-22.4
92.1	50% of Unit Price	-22.00	Overlay or Rm. & Rp.	-23.2
92.0	50% of Unit Price	-22.80	Overlay or Rm. & Rp.	-24.0
91.9	25% of Unit Price	-23.60	Remove & Replace	-24.8
91.8	25% of Unit Price	-24.20	Remove & Replace	-25.6
91.7	25% of Unit Price	-25.00	Remove & Replace	-26.4
91.6	25% of Unit Price	-25.80	Remove & Replace	-27.2
91.5	25% of Unit Price	-26.60	Remove & Replace	-28.0
91.4	25% of Unit Price	-27.40	Remove & Replace	-28.8
91.3	25% of Unit Price	-28.20	Remove & Replace	-29.6
91.2	25% of Unit Price	-29.00	Remove & Replace	-30.4
91.1	25% of Unit Price	-29.80	Remove & Replace	-31.2
91.0	25% of Unit Price	-30.60	Remove & Replace	-32.0
90.9	Remove & Replace	50% of Unit Price	Remove & Replace	50% of Unit Price
90.8	Remove & Replace	50% of Unit Price	Remove & Replace	50% of Unit Price
90.7	Remove & Replace	50% of Unit Price	Remove & Replace	50% of Unit Price
90.6	Remove & Replace	50% of Unit Price	Remove & Replace	50% of Unit Price
90.5	Remove & Replace	50% of Unit Price	Remove & Replace	50% of Unit Price
90.4	Remove & Replace	50% of Unit Price	Remove & Replace	50% of Unit Price
90.3	Remove & Replace	50% of Unit Price	Remove & Replace	50% of Unit Price
90.2	Remove & Replace	50% of Unit Price	Remove & Replace	50% of Unit Price
90.1	Remove & Replace	50% of Unit Price	Remove & Replace	50% of Unit Price
90.0	Remove & Replace	50% of Unit Price	Remove & Replace	50% of Unit Price
$\leq$ 89.9	Remove & Replace	Remove & Replace	Remove & Replace	Overlay or Rm. & Rp.

.2 In the Standard Specifications for Highway Construction, Section 3.50.7.2.1 – Payment for Acceptable Work, replace Table 3.50B with the following:

Table 350B
Unit Price Adjustment for Asphalt Content

Deviation of the Actual Asphalt Content from the Approved Asphalt Content	Unit Price Adjustment for Asphalt Content PAa $ per tonne			
	Top Lift		Lower Lift	
	Below	Above	Below	Above
From 0.0 to 0.15	1.00	2.00	1.00	2.00
From 0.16 to 0.30	0.00	0.00	0.00	0.00
From 0.31 to 0.35	-2.60	0.00	-2.60	0.00
From 0.36 to 0.40	-3.80	-1.80	-3.80	-1.80
From 0.41 to 0.45	-5.00	-2.70	-5.00	-2.70
From 0.46 to 0.50	-6.10	-3.60	-6.10	-3.60
From 0.51 to 0.55	-	-	-7.20	-4.50
From 0.56 to 0.60	-	-	-8.40	-5.40
From 0.61 to 0.65	-	-	-9.50	-6.30

Notes:

- For asphalt content bonus to apply, all sublots must be within ± 0.30 of the asphalt content in the job mix formula.
- For top lift lot average deviations of more than ±0.50% from the job mix formula, the County will determine whether to overlay, or to remove and replace the previously placed mix. For material that is allowed to stay in place, the lot payment will be 50% of the unit price bid.
- For lower lift lot average deviations of more than ±0.65% from the job mix formula, the County will determine whether removal and replacement is required. For material that is allowed to stay in place, the lot payment will be 50% of the unit price bid.
- For any sublot deviations greater than ±1.00% from the job mix formula, the County will determine whether to overlay, or to remove and replace the entire lot of previously placed mix. For material that is allowed to stay in place, the lot payment will be 50% of the unit price bid.

.3 In the Standard Specifications for Highway Construction, Section 3.50.7.2.1 – Payment for Acceptable Work, replace Table 3.50F with the following:

Table 350F
"A" and "B" Adjustment Points for Deviation in Gradation

Sieve Size µm	**Mean**
[1] 20 000, 16 000, 12 000, 10 000, 5 000	5 for each 1% Deviation
1 250	1 for each 1% Deviation
630	2 for each 1% Deviation
315	2 for each 1% Deviation
160	0.2 for each 0.1% Deviation
80 Deviation ≤ 1.0% 80 Deviation > 1.0%	1.0 for each 0.1% Deviation 2.0 for each additional 0.1% Deviation

[1] Include all sieve sizes up to one size smaller than the top size

Lot Mean Adjustment points will be calculated for each Lot. If the Lot Mean does not exceed the requirements in Table 3.50 E, a Lot Gradation Price Adjustment per tonne will be applied based on the following formula:

PAg = (A x -$0.20) + (B x -$2.00) + Bonus

Where:

PAg = Unit Price Adjustment for Gradation (bonus or penalty; QA Acceptance Lots only)

A = Mean Adjustment Points assessed within the gradation limits specified in Specification 3.2 but beyond the Job Mix Formula tolerance requirements in Table 3.50 D.

B = Mean Adjustment Points assessed outside the gradation limits specified in Specification 3.2 regardless of the Job Mix Formula tolerance.

Bonus = +$2.00 when there are no Mean Adjustment Points and the maximum range as shown in Table 3.50D, is not exceeded for any sieve size in the Lot.

End of Section

Section 352 – Milled Rumble Strips

PART 1 GENERAL

1.1 Description

.1 This specification describes the construction of milled rumble strips along roadway shoulders, edge lines and centerlines, and at locations with stop conditions.

.2 Rumble strips constructed along roadway shoulders, edge lines and centerlines are designed to alert drivers when they leave the intended travel lane. Rumble strips constructed across the travel lanes are intended to alert drivers of an upcoming stop condition.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.52 – Milled Rumble Strips, except as modified herein.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 Construction of Milled Rumble Strips

.1 In the Standard Specifications for Highway Construction, Section 3.52.3.3, replace the fourth paragraph with the following:

.1 Rumble strips shall be constructed as shown on Standard Drawing:

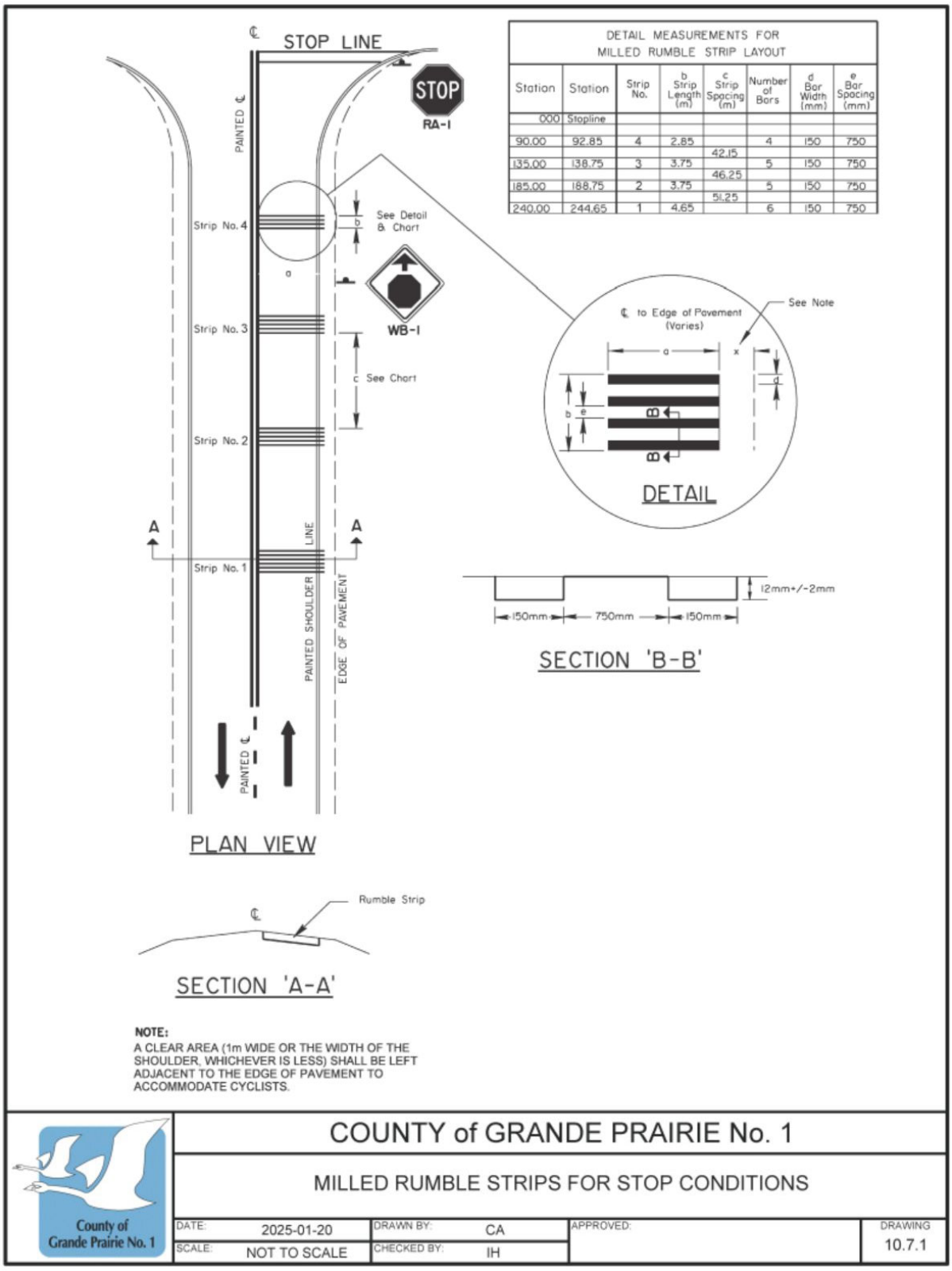
.1 Standard Drawing 10.7.1 - Typical Layout for Milled Rumble Strips for Stop Conditions.

.2 Standard Drawing 10.7.2 - Typical Layout for Milled Rumble Strips for Centreline;

.3 Standard Drawing 10.7.3 - Typical Layout for Milled Edge Line Rumble Strips ($0.2 \leq$ Shoulder Width <0.6m)

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications



DETAIL MEASUREMENTS FOR MILLED RUMBLE STRIP LAYOUT

Station	Station	Strip No.	b Strip Length (m)	c Strip Spacing (m)	Number of Bars	d Bar Width (mm)	e Bar Spacing (mm)
000	Stopline						
90.00	92.85	4	2.85		4	150	750
135.00	138.75	3	3.75	42.15	5	150	750
185.00	188.75	2	3.75	46.25	5	150	750
240.00	244.65	1	4.65	51.25	6	150	750

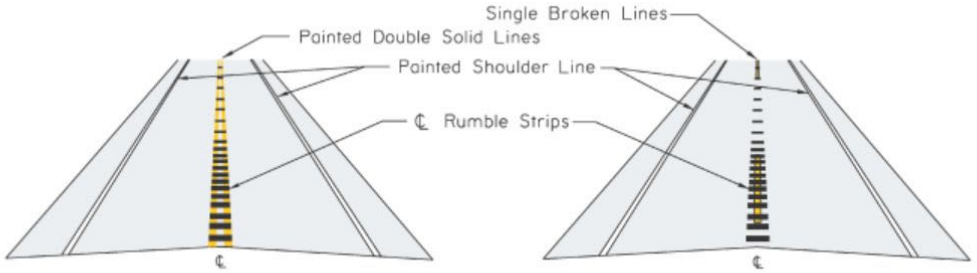
NOTE:
A CLEAR AREA (1m WIDE OR THE WIDTH OF THE SHOULDER, WHICHEVER IS LESS) SHALL BE LEFT ADJACENT TO THE EDGE OF PAVEMENT TO ACCOMMODATE CYCLISTS.

County of Grande Prairie No. 1

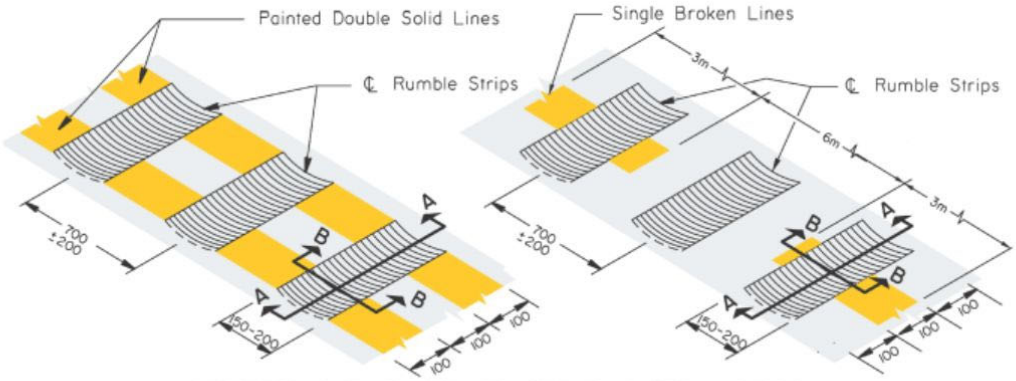
COUNTY of GRANDE PRAIRIE No. 1

MILLED RUMBLE STRIPS FOR STOP CONDITIONS

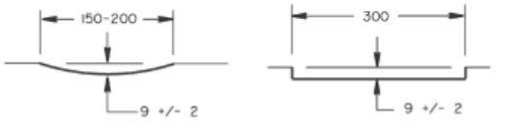
DATE:	2025-01-20	DRAWN BY:	CA	APPROVED:	DRAWING
SCALE:	NOT TO SCALE	CHECKED BY:	IH		10.7.1



GENERAL VIEW (UNDIVIDED HIGHWAY)



CENTRELINE RUMBLE STRIP INSTALLATION



SECTION 'B-B' SECTION 'A-A'

NOTE: All dimensions are in millimetres unless otherwise specified.

Notes: Centreline Milled Rumble Strips

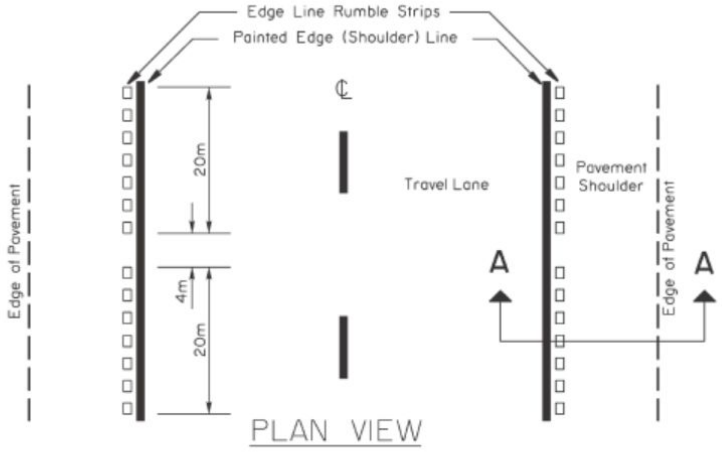
1. Milling shall be done after painted roadway lines are installed.
2. For existing or new pavements, milling of centreline rumble strips shall be centered on the painted lines.
3. The milled strips shall be continuous over the length required.
4. Centreline rumble strips shall only be installed where indicated in the Special Provisions or as directed by the Consultant.
5. Rumble strips shall not be installed within 50m of the centre of an intersection.
6. The centreline may be fogged if directed by the Consultant.

County of Grande Prairie No. 1

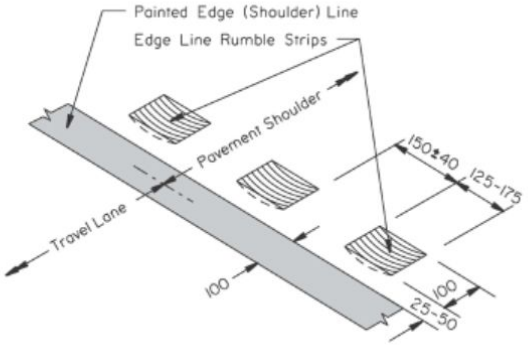
COUNTY of GRANDE PRAIRIE No. 1

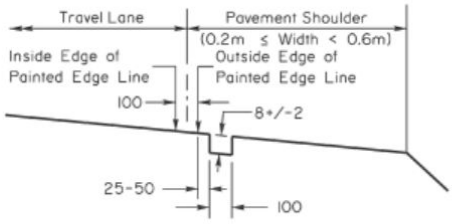
MILLED RUMBLE STRIPS FOR CENTRELINE

DATE:	2025-01-20	DRAWN BY:	CA	APPROVED:	DRAWING
SCALE:	NOT TO SCALE	CHECKED BY:	IH		10.7.2



PLAN VIEW





SECTION 'A-A'

GAP EDGE LINE
RUMBLE STRIP INSTALLATION

NOTE:
All dimensions are in millimetres unless noted otherwise.

Notes:

1. Rumble strips are to be placed on existing and new pavements on all highway shoulders.
2. Rumble strips should only be installed on interchange ramps when directed by the Consultant.
3. Shoulder rumble strips are to be interrupted for intersections and accesses (which are normally in daily use). Rumble strips will normally be continuous through field accesses. Strips are to be terminated 60m prior to the taper and reinstated 60m from the end of taper. Where there are no tapers, shoulder rumble strips may be terminated/reinstated 200m from the intersection or as directed by the Consultant.
4. Rumble strips are to be placed at the approaches to all bridges that have barrier systems. Strips will commence 100m prior to the approach guardrail and terminate 10m prior to the bridge deck. Rumble strips are not to be placed on bridge decks.
5. Rumble strips may be installed selectively at locations where hazards exist near the travel lanes (e.g., railway crossing cantilever structures, raised medians, etc.).

County of Grande Prairie No. 1

COUNTY of GRANDE PRAIRIE No. 1

MILLED EDGE LINE RUMBLE STRIPS WITH GAP PATTERN
(0.2m ≤ SHOULDER WIDTH < 0.6m)

DATE:	2025-01-20	DRAWN BY:	CA	APPROVED:	DRAWING
SCALE:	NOT TO SCALE	CHECKED BY:	IH		10.7.3

End of Section

Section 360 – Sideslope Improvement

PART 1 GENERAL

1.1 Description

.1 This specification describes the reconstruction and improvement of the sideslopes in the areas shown on the Drawings; described in the Special Provisions; or as determined by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 3.60 – Sideslope Improvement.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 370 – Full Depth Reclamation

PART 1 GENERAL

1.1 Description

.1 This specification describes full depth reclamation (FDR), a pavement rehabilitation technique in which the existing asphalt pavement and a portion of the underlying granular base is pulverized; shaped and compacted; re processed and stabilized with an asphalt product and, if required, other additives or additional granular materials; shaped and compacted to specified dimensions. After curing, an asphalt tack coat and asphalt concrete mixture or other type of surfacing treatment is placed as specified.

1.2 References

.1 Wirtgen Cold Recycling Manual (Wirtgen GmbH, Windhagen, Germany, 2nd Edition,

1.3 Definitions

.1	Foamed Asphalt	A process where heated asphalt cement is expanded from its normal volume by the addition of precise amounts of water.
.2	Control Strip	A section of stabilized FDR constructed using the equipment and method of compaction as prescribed herein.
.3	Control Density	The maximum wet density attained on a "Control Strip".
.4	Lot	Normally defined as the quantity of stabilized FDR material processed in one day's production with no changes to the approved mix design. A days production of less than 4 hours may be combined with the previous or following days production at the Consultant’s option. If the Consultant suspects a portion of a Lot is substandard, he may order extra testing to define the area and severity of the deficiency. A new Lot will be designated for this portion if this extra testing indicates the FDR material is subject to rejection.
.5	Visually Failed Area	An area of the FDR mat which fails, loses specified density, becomes too wet, ravels, contains excess asphalt stabilizer or oil spills, becomes rutted, distorted, loose or rough, or contains any other defect judged by the Consultant to negatively affect the long-term performance of the pavement structure.

PART 2 MATERIALS

2.1 General

.1 All materials necessary for full depth reclamation described herein, shall be supplied by the Contractor.

2.2 Additive Aggregates

.1 Additional aggregate added to the reclaimed pavement materials shall meet the requirements for either Designation 2 Class 25 or Class 20 aggregate; or as recommended in the mix design submission.

.2 If applicable, requirements for the maximum percent passing the 80 μm sieve may be waived to meet the minimum percent passing for free fines in the combined reclaimed material. The Contractor shall produce crushed aggregate in accordance with Standard Specification 302, Aggregate Production and Stockpiling. When required, the Contractor shall supply aggregate in accordance with Standard Specification 502, Supply of Aggregate, and haul materials in accordance with Standard Specification 405, Hauling.

.3 Additive aggregate used in order to improve the mix design properties of the stabilized FDR material and not specified to be added in the Special Provisions or shown on the Drawings, shall be used at the Contractors option and expense.

2.3 Water

.1 The Contractor shall supply and haul all water required for the construction and maintenance of this work.

.2 The water shall be clean and free from deleterious concentrations of acids, alkalis, salts or other organic or chemical substances.

2.4 Asphalt Stabilizing Agent

.1 The Contractor shall supply asphalt products in accordance with Standard Specification 507, Supply of Asphalt.

.2 Unless otherwise specified, the Contractor has the option of using either foamed asphalt or an asphalt emulsion as an asphalt stabilizing agent, but not both.

.3 When using the foamed asphalt process, the Contractor shall choose the grade of asphalt cement which displays the best foaming characteristics.

.4 When using an asphalt emulsion, the Contractor may choose which grade of emulsion to use. Use of alternative grades not listed in Standard Specification 507 will be allowed, subject to approval by the Consultant. When proposing to use an alternative grade, the Contractor shall indicate the appropriate ASTM or AASHTO material specification.

.5 The type and grade of liquid asphalt for tack coat shall be in accordance with Section 319, Prime, Tack and Fog Coats, unless otherwise specified.

.6 Sampling of the asphalt stabilizing agent shall be as described in Standard Specification 507, at a frequency of one sample per three Lots.

2.5 Portland Cement

.1 The Contractor shall use Portland cement as a chemical stabilizing agent at an additive rate of 1.0% to 1.5% by weight of dry reclaimed material and additive aggregate. Additional Portland cement may be used for reprocessing visually failed areas subject to approval by the Consultant.

.2 Other chemical stabilizing agents may be used subject to approval by the Consultant.

2.6 MIX DESIGN

2.7 Responsibility for Mix Design

.1 Preparation and submission of FDR mix designs for Consultant verification and approval is the responsibility of the Contractor. The design shall be prepared by a laboratory that is pre-qualified by Alberta Transportation and Economic Corridors in the category of Mix Design – Marshall Design, or can provide proof of experience in preparing FDR mix designs.

.2 The mix design shall be submitted to the Consultant a minimum of seven days prior to the start of any stabilization operations.

.3 All costs incurred in mix design formulation are the responsibility of the Contractor.

2.8 Requirements for Mix Design

.1 For mix design purposes, and prior to commencing the Work, the Contractor shall obtain representative samples of the material that will be produced during the reclaiming operation. These samples shall be used along with any additive aggregate and Portland cement, to establish the design rate of asphalt stabilizer as a percentage by mass of reclaimed asphalt pavement and additive aggregate.

.2 The FDR mix design shall follow the procedures outline in the Wirtgen Cold Recycling Manual (Wirtgen GmbH, Windhagen, Germany, 2nd Edition, Appendix 2 Mix Design Procedures).

.3 The FDR mix design at the Design Asphalt Content and Optimum Total Fluid Content shall meet the requirements outlined in Table 1, Full Depth Reclamation Design Criteria. The Design Asphalt Content shall be chosen to optimize the performance characteristics of the FDR and not solely to meet minimum design criteria.

Table 1 - Full Depth Reclamation Design Criteria (Emulsion or Foamed Asphalt)

Property	Design Criteria
Air Voids (%)	Report Only
Dry Tensile Strength (kPa) @ 25°C	250
Tensile Strength Ratio (%)	50

.4 For materials stabilized using the foamed asphalt process, the minimum percentage of free fines, or fines that are not bound within the reclaimed asphalt pavement, shall be 5% or greater passing the 80 μm sieve.

.5 The percent by mass of asphalt stabilizing agent to be added to the un-stabilized material shall be a minimum of 2.0%.

.6 In addition to reporting the above listed criteria the mix design submission shall include:

.1 Information on the type, manufacturer and supplier of the asphalt stabilizer.

.2 The asphalt content and aggregate gradation of the asphalt concrete being incorporated in the FDR process.

.3 The design percentage and gradation of additive aggregate.

.4 The design addition rate of asphalt stabilizer and foaming characteristics if the foamed asphalt process is used.

.5 Percent of free fines passing the 80 □m sieve if the foamed asphalt process is used.

.6 Design addition rate for Portland cement.

.7 The percentage moisture content to obtain the Optimum Fluids Content.

.8 All calculations performed to determine the Optimum Fluids Content and design application rate for the asphalt stabilizer.

.9 Bulk and maximum theoretical densities at various application rates of the asphalt stabilizer.

.7 A separate and complete mix design will be required for any significant changes to the composition of the existing pavement structure or materials.

.8 The Contractor shall not produce any stabilized FDR mixture prior to receiving the Consultant's written notice that the mix design has been verified. Any stabilized FDR mix produced prior to receiving such notice will not be accepted.

PART 3 CONSTRUCTION

3.1 Equipment

.1 Additive Aggregate

.1 Additive aggregate, if required, shall be uniformly distributed in front of the recycling train.

.2 Recycling Equipment

.1 The equipment used shall be specially designed for performing FDR, including the ability to uniformly incorporate significant quantities of additive aggregate; and the ability to add an accurate and uniform application of water and an asphalt stabilizing agent.

.2 As a minimum, the milling machine shall have the following features:

.1 The capacity of milling to a minimum depth of 300 mm in a single pass; and be equipped with an automated sensor system to accurately maintain a preset depth of cut.

.2 A milling head that rotates upwards into the direction of advance and achieves a minimum 2.0 m width of cut in a single pass.

.3 To mix the reclaimed material with aggregate, water and stabilizing agents; the milling, or separate processing unit, shall include the following features:

.1 A micro-processor control system to regulate the application of water and stabilizing agents in relation to travel speed and mass of material.

.2 A dual pumping and metering system for applying water and asphalt stabilizing agent simultaneously. The pumping system shall be calibrated to deliver within a tolerance of +/- 3% by volume.

.3 A system of self cleaning nozzles that provides uniform application of water and stabilizing agents across the full width of treatment. The application system shall be adjustable for varying widths of treatment.

.4 When using the foamed asphalt process, an asphalt cement expansion system capable of producing optimum expansion; and an injection system capable of injecting and blending the foamed asphalt uniformly throughout the combined reclaimed and aggregate materials.

.3 Straight Edge

.1 The Contractor shall supply a 3 m metal straight edge for determining conformance to surface tolerance requirements. When requested, the Contractor shall provide the Consultant with the use of the straight edge instrument.

3.2 General

.1 The full depth reclamation operations shall be carried out through a minimum of two separate processing phases. The first or pulverization phase shall consist of milling and mixing the asphalt concrete and base course materials to specified depths such that 100% of the pulverized asphalt material is smaller than 40 mm, and a minimum of 95% of the material is smaller than 25 mm.

.2 The reclaimed material shall be bladed and spread to the width and/or depth shown on the Drawings or as designated by the Consultant. The reclaimed material shall be lightly compacted for traffic accommodation and preparation for further processing.

.3 The application of additive aggregate and stabilizing agent shall be completed in one or more subsequent mixing operations, to the depths and dimensions shown on the Drawings or as designated by the Consultant. In all cases, the full depth of pulverized reclaimed material shall be processed during the subsequent mixing operations. The Contractor shall ensure that none of the underlying grade material is incorporated within the reclaimed material during the mixing operations.

.4 If required, additive aggregate shall be added to the roadway prior to stabilizing. The aggregate delivery vehicle shall have a system for controlled application of the aggregate.

.5 During stabilization operations, the Contractor shall overlap successive passes of the reclaimer stabilizer by a minimum of 100 mm.

.6 When an emulsion stabilizing agent is used, stabilization operations shall not be carried out when the ambient temperature is less than 10°C, or when the overnight low is forecast to be less than 2°C.

.7 When a foamed asphalt stabilizing agent is used, stabilization operations shall not be carried out when the ambient temperature is less than 5°C.

.8 Stabilization of reclaimed materials shall not proceed during periods of rain or if the surface is in a saturated condition.

.9 The FDR material shall be spread and compacted to the specified width, thickness and cross slope dimensions. The Contractor shall be responsible for managing and disposing of any excess FDR or reclaim pavement materials in a manner subject to the approval of the Consultant. Spreading excess material across existing paved shoulders will not be permitted. No separate or additional payment will be provided to the Contractor for the disposal of excess materials unless otherwise provided in the special provisions.

3.3 Density Control

.1 Compaction of the stabilized FDR material shall be carried out once the material has been spread to the specified widths and thicknesses.

.2 Control over the density to which stabilized FDR is compacted will be exercised by the construction of a Control Strip in accordance with Alberta Transportation and Economic Corridors (TEC) test procedure ATT 58 – Density Test, Control Strip Method, with the following modifications:

.1 References to granular base course shall apply to full depth reclamation.

.2 The minimum length of the control strip shall be 200 m.

.3 The maximum allowable thickness for the stabilized FDR material shall be 250 mm.

.4 The nuclear density readings shall not be adjusted for moisture content.

.5 Prior to compaction, the moisture content of the stabilized FDR material shall be adjusted to within a range of 0.5% over optimum to 2.0% below the optimum moisture content.

.6 Minimum compaction equipment for determination of Control Maximum Wet Density shall be two 12 tonne pad foot rollers, one 10 tonne vibratory roller, and one self-propelled pneumatic tire roller

.3 The Control Density determined on the control strip shall be the reference compaction standard for acceptance of all remaining FDR material. A new control strip and Control Density shall be determined for any new mix designs; for

significant change to the reclaimed materials or processing depths; and any time when directed by the Consultant.

.4 Once the control density has been established, the Contractor may choose his own combination of compaction equipment.

.5 All stabilized FDR shall be tested for compaction using the Test Section Density procedure described in TEC test procedure ATT 58 – Density Test, Control Strip Method.

3.4 Adjustments to the Mix Design

.1 The Lot Mean for Dry Tensile Strength and Tensile Strength Ratio shall meet minimum design criteria.

.2 Adjustments to the mix design or to the FDR processing techniques to meet tensile strength requirements, compliance requirements and/or to address minor changes to the composition of the existing pavement structure or materials shall be taken by the Contractor subject to the approval by the Consultant. Prior to making any adjustments, the Contractor shall review all available quality control and quality assurance inspection and test data with the Consultant.

3.5 Surface Appearance and Tolerance

.1 The surface of the FDR mat shall be of uniform texture, free of severe segregation and any visually failed areas.

.2 The compacted FDR mat shall be smooth and comply with the surface tolerance requirements for base course work as described in Volume 1, Section 105 - Tolerances on Grading and Base Course Projects.

3.6 Interim Lane Markings

.1 The Contractor shall install and maintain interim lane markings on all FDR surfaces that are exposed to overnight traffic.

.2 Interim lane markings shall meet the requirements of the Standard Specifications for Highway Construction, Section 3.50.5.8, Interim Lane Markings.

3.7 Curing of Stabilized FDR Material

.1 No traffic shall be allowed on the stabilized FDR material until the tight blading and final compaction is complete, and the material has sufficiently cured to support all traffic without rutting, distorting or displaying any signs of instability.

.2 When using an emulsion stabilizing agent, the asphalt concrete pavement or any other surface material shall not be placed until the FDR material has sufficiently cured such that the moisture content is 2% or less, or when a core can be easily extracted in the presence of the Consultant. The Contractor shall be responsible for obtaining cores to be given to the Consultant for moisture content determination and visual examination. The amount of time required for curing is typically 14 days or more, but will vary according to weather conditions. The actual curing time will be determined in the field based on existing conditions.

.3 When foamed asphalt is used as a stabilizing agent, the wearing surface shall not be placed until the FDR material has been allowed to cure for a minimum of 2 days and the Contractor has demonstrated that the specification requirements have been met.

.4 The asphalt concrete pavement or other specified wearing surface shall be placed no later than 30 days following FDR stabilization operations, provided the FDR material meets specification requirements. The Contractor shall schedule his operations to ensure that prior to winter shutdown, all accepted FDR is covered with the specified wearing surface or a minimum of one lift of ACP. A tack coat shall be applied to the FDR mat prior to paving in accordance with Section 319 Prime, Tack and Fog Coats.

3.8 Quality Control Testing

.1 General

.1 Quality control activities and testing shall be the responsibility of the Contractor throughout every stage of the Work. Tests that may be performed by the Consultant to determine compliance with specifications will be quality assurance tests and will not be considered as quality control tests.

.2 Unless otherwise directed by the Consultant, the Contractor shall submit all QC test reports and summaries, in writing, to the Consultant prior to 2:00 p.m. of the next working day.

.3 The Contractor shall be responsible for all costs associated with quality control, and for obtaining quality assurance samples as specified herein.

.4 The Contractor shall sample, test, and evaluate the FDR process in accordance with the minimum frequencies provided in the following Table:

Test or Action	Test Method	Frequency
Daily Inspection Report	Note 1	Daily – Submit to Consultant the following day
Process Depth Checks	Note 2	One per 200 m
Bulk Application Rate of Asphalt Stabilizing Agent	See Section 3.8.2	Every Tanker Load of Asphalt
Gradation of Additive Aggregate	ASTM C136	One per eight-hour shift Operation or a minimum of three tests, whichever is greater
Sampling and Testing of Stabilized FDR Mix	See Section 3.8.3	Two per Lot (Note 3)
Cores of Stabilized FDR Base for Moisture Content Determination (Emulsion Only)	Note 4	As Required to Prove Curing Requirements are achieved prior to placing surfacing material

Note 1 The Contractor shall maintain a daily inspection report documenting the following information, where applicable:

- Date

- Highway and direction of travel
- Beginning and end stations
- Total treatment area (m2) – Pulverization & stabilization
- Calibration Control Settings
- Measurements from the processing depth checks – Pulverization and stabilization
- Water and asphalt counter reading (beginning, end, total)
- Individual and moving average determinations of bulk application rates for asphalt stabilizing agent.

Note 2 To check that the automatic sensor system is functioning correctly, the actual depth of cut shall be physically measured by the Contractor at both ends of the milling drum at least once every 200 metres along the cut length.

Note 3 Once test results for two consecutive Lots indicate compliance to tensile strength requirements the frequency may be reduced to two samples and tests for every fifth Lot or a change in the composition of pavement materials, whichever occurs first.

Note 4 -A minimum of three cores for each days production to be obtained using stratified random sampling procedures as described in ATT 56. Cores to be provided to the Consultant for visual inspection and moisture content determination.

.2 Bulk Application Rates

.1 The Contractor shall be responsible for calculating the bulk application rates of asphalt stabilizing agent applied. Bulk application rates shall be determined by measuring the area and depth stabilized, calculating the mass of FDR material treated, and calculating the mass of asphalt stabilizing agent used. Bulk application rates shall be calculated for each tanker of asphalt used. Individual results shall not be more than 0.6% above, or more than 0.4% below the established mix design value. A moving average of four individual bulk application rates shall be calculated beginning with the fourth bulk rate determination, and for each subsequent bulk rate determination. All moving averages so calculated shall not be more than 0.1% below the established mix design value.

.3 Moisture Content and Tensile Strength Testing of Stabilized FDR Material

.1 The Contractor shall obtain representative loose mix samples of the stabilized FDR material for moisture content and tensile strength testing at a minimum frequency of two samples per Lot, with a minimum period of 3 hours between samples. Samples shall be a minimum of 15 kg each. The samples shall be obtained immediately following stabilization, and Marshall briquette specimens shall be formed within two hours of obtaining the sample. The briquettes and mositure content samples shall be properly labelled and bagged to protect against moisture loss.

.2 The Contractor shall arrange to have the samples delivered to a testing laboratory of his choice. The testing laboratory shall have obtained pre-qualification status from the Alberta Transportation and Economic Corridors in the category of Mix Design – Marshall or have experience in preparing FDR mix designs.

.3 For each sample, the moisture content of the stabilized FDR material shall be determined according to ASTM C566.

.4 Each briquette shall be tested for dry tensile strength, wet tensile strength and tensile strength ratio in accordance with AASHTO T283 and using the same conditioning, preparation and curing conditions as were used during the mix design.

.5 Test results shall be reported to the Consultant in a timely manner and no later than 5 days following sampling.

.6 The Lot Mean for Dry Tensile Strength and Tensile Strength Ratio will be determined as the arithmetic mean of all quality control test results plus, if available, quality assurance test results for the Lot.

3.9 Quality Assurance Testing

.1 The Consultant may, at any time, take samples and carry out testing and inspection of materials incorporated or being incorporated into the work. The Contractor shall co-operate with the Consultant for such sampling, testing and inspection. Consultant sampling and testing will not relieve the Contractor from any obligation to perform all work in strict accordance with the requirements of the Specifications.

.2 Sample locations for routine quality testing will be randomly selected as far as practicable. This will not limit the Consultant from testing at any additional locations deemed necessary.

.3 Frequency of testing for Density Control is outlined in TEC test procedure ATT 58 – Density Test, Control Strip Method.

.4 Following the completion of compaction and final grading operations, the Consultant will inspect the mat for compliance to surface appearance and surface tolerance requirements.

3.10 Compliance Requirements

.1 All stabilized FDR material shall be compacted to an average of 98.0% of the applicable Control Density, with no single test less than 95% of the applicable Control Density.

.2 The stabilized FDR mat shall be of the specified thickness and meet all surface tolerances.

.3 Visually failed areas or areas with severe segregation which, in the opinion of the Consultant, may negatively affect the long-term performance of the pavement structure will be rejected. All rejected areas shall be repaired by the Contractor to the satisfaction of the Consultant.

.4 For areas rejected due to deterioration of the FDR material, the following methods of repair are acceptable but subject to the approval of the Consultant:

.1 Remove rejected area to a minimum depth of 50 mm and replace with hot mix Asphalt Concrete Pavement as approved by the Consultant.

.2 Reprocess rejected area to full depth using FDR equipment and adding additional asphalt and/or Portland cement stabilizers if directed by the Consultant.

.3 To meet specified surface tolerances, all deficient areas shall be re profiled by grading or levelled with the same ACP mix to be used for the overlay.

.5 All costs associated for repairing rejected FDR material are the responsibility of the Contractor, and no separate or additional payment will be made.

.6 For areas of pulverized reclaim material or stabilized FDR material rejected due to underlying weak sub-base or subgrade materials, the following methods of repair are acceptable but subject to the approval of the Consultant.

.1 Re-processing of the rejected area to full depth using FDR equipment and adding additional asphalt and/or cement stabilizers if directed by the Consultant.

.2 Complete subgrade excavation and removal of weak underlying materials in accordance with Section 301, Subgrade Preparation.

.3 Removal of failed FDR and granular base materials followed by incorporation of Portland cement into the underlying materials for stabilization. Granular fill and reclaimed materials may be used for backfill to ensure positive drainage is maintained.

.7 Alternate methods proposed by the Contractor may be used subject to approval by the Consultant.

PART 4 MEASUREMENT AND PAYMENT

4.1 Full Depth Reclamation

.1 Accepted full depth reclamation will be measured in square metres of final finished surface from the top edge of FDR shoulder to the top edge of FDR shoulder. Width measurement for payment purposes will not exceed the dimensions shown on the Drawings unless modified by the Consultant.

.2 Payment for accepted full depth reclamation will be made at the unit price bid for “Full Depth Reclamation”, and will be full compensation for traffic accommodation; pulverizing and/or blending of all layers and materials, regardless of the number of phases or equipment passes used; all quality control sampling and testing; all mix designs; compaction, blading and shaping of the FDR material, both with and without additive aggregate; supplying water and adjusting the moisture content; supplying and adding an asphalt stabilizing agent; supplying and adding Portland cement or other additive; maintaining the treated surface; interim lane marking; supplying and applying asphalt material for tack

coat; and all labour, materials, equipment, tools and incidentals necessary to complete the Work to the satisfaction of the Consultant.

.3 Payment for the repair of FDR material rejected due to weak underlying materials will be at the applicable unit rates.

4.2 FDR Additive Aggregate

.1 Measurement of FDR additive aggregate will be in tonnes.

.2 Payment for FDR additive aggregate, when specified to be added, will be made at the unit price bid for "FDR Additive Aggregate", and will be full compensation for processing, hauling, placing; and quality control, and all labour, materislas, equipment, tools and incidentals necessary to complete the Work to the satisfaction of the Consultant.

.3 Payment for the supply of aggregate will be made in accordance with Section 502, Supply of Aggregate.

End of Section

Section 401 – Asphalt Curb, Medians, Traffic Islands, and Flumes

PART 1 GENERAL

1.1 Description

.1 This specification describes the construction of asphalt curbs, medians, traffic islands and flumes, using well graded crushed aggregate, and asphalt cement, combined as hereinafter specified, placed and compacted on a prepared base, in conformity with lines, grade and cross-section as shown on the Drawings, at specified locations or as determined by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 4.01 – Asphalt Curb, Medians, Traffic Islands, and Flumes.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 405 – Hauling

PART 1 GENERAL

1.1 Description

.1 This specification describes the hauling of all granular materials produced under Specification 302, Aggregate Production and Stockpiling, including blend sand, and the hauling of all mixtures of granular material with asphalt or cement produced under the applicable specification as required by the Drawings, Special Provisions or as designated by the Consultant. This specification covers the following:

.1 The administration of haul roads from all aggregate sources;

.2 Hauling granular materials and mixtures of granular material with asphalt or cement bid by unit weight or volume;

.3 Hauling granular materials and mixtures of granular material with asphalt or cement bid "In-Place".

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 4.05 – Hauling, except as modified herein.

1.3 Road Use Agreement

.1 Prior to starting hauling operations, the Contractor shall enter into a Local Road Use Agreement with the County of Grande Prairie No.1. The agreement will cover the use of local roads as haul roads and detour roads and will address maintenance and restoration of roads used under this contract.

.2 Notwithstanding the above, the County of Grande Prairie No. 1 reserves to right to cancel the road use agreement at any time if the County identifies unexpected damage to the road, or observes the use of overweight loading of haul trucks.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 Delete the contents of Section 4.5.3.3 of the Standard Specifications for Highway Construction and replace with the following:

.1 The Contractor shall initially condition, maintain and restore roads used as haul roads to the satisfaction of the agency having jurisdiction. The Contractor shall also be responsible for construction of new haul roads where necessary.

.2 All costs incurred in such work shall be borne by the Contractor.

PART 4 MEASUREMENT AND PAYMENT

4.1 Delete the contents of the Standard Specifications for Highway Construction, Section 4.5.5 and replace with the following:

.1 The Contractor shall control dust on haul roads using water or other dust abatement materials approved for use by the Consultant. The Contractor shall supply and apply the materials on an as required basis, or when directed to do so by the Consultant. All costs associated with dust control will be considered incidental to the Work, and no separate or additional payment will be made.

.2 There will be no payment to the Contractor for the restoration of Haul Roads damaged by the Contractor's Operations. This includes, but is not limited to any gravel surfacing, asphalt stabilized base course or asphalt concrete pavement materials required to restore the haul road to a condition that is similar to the condition that existed prior to commencement of hauling operations.

End of Section

Section 502 – Supply of Aggregate

PART 1 GENERAL

1.1 Description

.1 This specification describes the general requirements for the supply of aggregate materials by the Contractor. Aggregate materials are considered the total of the granular portion of construction materials consisting of the coarse and fine gravel splits, blend sand and manufactured fines when required.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.2 – Supply of Aggregate.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 507 – Supply of Asphalt

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply of asphalt materials including ordering, scheduling, delivering, supplying storage facilities, handling, storing, sampling, testing and other related work.

.2 For purposes of this specification, the term "Asphalt Supplier" shall mean the party awarded an order by the Contractor for the supply of asphalt.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.7 – Supply of Asphalt.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 514 – Supply of Fencing

PART 1 GENERAL

1.1 Description

.1 This specification describes the supplying all required materials for the construction of fence including, but not limited to, the following:

- .1 Split Cedar Posts
- .2 Pressure Treated Wood Posts and Braces
- .3 Two Strand Barbed Wire
- .4 Single Strand Barbed Wire
- .5 Woven Wire (Paige Wire)
- .6 Brace Wire
- .7 Staples
- .8 Metal Stays
- .9 Chain Link Fence

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.14 – Supply of Fence materials.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 516 – Supply of Reinforced Concrete Culvert

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply and fabrication of the following material by the Contractor:

- .1 Reinforced Concrete Pipe
- .2 Reinforced Concrete Box Culvert
- .3 Joints and Fittings
- .4 Precast Reinforced Concrete Manhole Risers and Tops
- .5 Concrete Masonry Units for Construction of Catch Basins and Manhole
- .6 Rubber Gasket Joints, and
- .7 Cement Mortar

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.16 – Supply of Reinforced Concrete Culvert.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 517 – Supply of Polyvinyl Chloride Pipe

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply of polyvinyl chloride pipe of the following types:

.1 Type PSM Polyvinyl Chloride Drainage Pipe

.2 Ribbed Polyvinyl Chloride Drainage Pipe

.3 Polyvinyl Chloride (PVC) Pipe for Culvert Liners.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.17 – Supply of Polyvinyl Chloride Pipe.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 518 – Supply of Permanent Highway Signs, Posts and Bases

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply of concrete bases, steel breakaway posts as applicable, cluster frames, wooden posts and designated highway signs as shown on the Drawings, or as directed by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.18 – Supply of Permanent Highway Signs, Posts and Bases, except as modified herein.

PART 2 MATERIALS

2.1 Reflective Sheeting

.1 Delete Standard Specifications for Highway Construction, Section 5.18.2.8.2 and replace with the following:

.1 The reflective sheeting supplied by the Contractor for all RA, RB, WA, WB, and WC categories of signs shall meet or exceed the performance requirements specified in ASTM-D4956 for Type IX or Type XI Unmetallized Cube Corner Microprismatic Retroreflective Element Material. Products meeting these requirements are listed on the Alberta Transportation and Economic Corridors' Products List under the "Specialized Applications" Category.

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 520 – Supply of Line Painting and Message Marking Materials

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply of line painting and pavement message marking materials.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.20 – Supply of Line Painting and Message Marking Materials, except as modified herein.

PART 2 MATERIALS

2.1 Materials

.1 Contrary to the Specifications for Highway Construction, Section 5.20.2 Materials, only premium traffic paint for warm weather (acetone) and low temperature highway traffic paint (alkyd) products that are listed on Alberta Transportation and Economic Corridor's Products List will be permitted on County projects.

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 522 – Supply and Install Smooth Wall Steel Pipes

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply and installation of smooth wall steel pipe culvert through the existing highway without disturbing the existing surfacing structure as shown on the Drawings and as directed by the Consultant.

.2 Centerline steel pipe culvert installation shall consist of augering of the steel pipe through the existing highway embankment and installing the remainder of the steel pipe culvert by the trenched or open cut method as shown on the Drawings (CB6-2.4M19).

.3 The abbreviation for Smooth Wall Steel Pipe when indicated on the plans or used in the Specifications is S.W.S.P.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.22 – Supply and Install Smooth Wall Steel Pipes.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 523 – Supply of Corrugated Metal Pipe and Pipe Arches

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply of corrugated metal pipe and pipe arches up to 1 400 mm equivalent diameter by the Contractor.

.2 Abbreviations for the various types of metal pipe are as follows:

.1 C.S.P. - Corrugated Steel Pipe

.2 C.S.P. Arch - Corrugated Steel Pipe Arch

.3 C.A.P. - Corrugated Aluminum Pipe

.4 C.A.P. Arch - Corrugated Aluminum Pipe Arch.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.23 – Supply of Corrugated Metal Pipe and Pipe Arches.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 524 – Supply of Polyethylene Pipe

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply of polyethylene pipe by the Contractor. The Work consists of supplying polyethylene pipe of the following types:

.1 Closed Profile Pipe: a pipe product that has an essentially smooth waterway braced circumferentially or spirally with corrugations that are joined integrally by an essentially smooth outer wall.

.2 Corrugated Pipe: a single walled pipe where the wall is formed into a series of alternating ridges and grooves.

.3 Open Profile Pipe: a pipe product that has an essentially smooth waterway braced circumferentially or spirally with outside corrugations..

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.24 – Supply of Polyethylene Pipe.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 525 – Supply of Thrie Beam and W-Beam Guardrail

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply of Thrie Beam, Modified Thrie Beam or W-Beam guardrail, as specified, for use as hazard avoidance barriers.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.25 – Supply of Thrie Beam and W-Beam Guardrail.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 526 – Supply of Box Beam Guardrail and Posts

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply of standard box beam or median box beam guardrail and posts for use as hazard avoidance barriers.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.26 – Supply of Box Beam Guardrail and Posts.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 528 – Supply of Flexible Guide Post Traffic Delineators

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply of flexible guide post traffic delineators.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.28 – Supply of Flexible Guide Post Traffic Delineators.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 530 – Supply of Metal Bin Retaining Wall

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply of galvanized metal (cellular) bin retaining wall of various sizes depending on the retaining wall design.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.30 – Supply of Metal Bin Retaining Wall.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 531 – Geotextile

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply and installation of geotextile.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 5.31 – Geotextile, except as modified herein.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 535 – Geosynthetics

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply and installation of geosynthetic materials. Geosynthetics include geogrids, geocomposites and geomembranes. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.

.2 Geogrids may be used for reinforcement. Geocomposites may be used for drainage and for separation/reinforcement or drainage/reinforcement.

.3 Requirements for geogrids, geocomposites, and geomembranes if applicable, are shown on the Drawings.

1.2 Material Certification

.1 Submit a "General Product Certification Sheet" clearly showing "Minimum Average Roll Values", as governed by ASTM D4354. All values to meet or exceed specified requirements.

.2 At least 2 weeks prior to commencing work, and prior to material being accepted on site, submit original manufacturer's "Mill Certificates", showing actual MINIMUM test values and clearly identifying roll and batch numbers. Any material arriving on site which does not meet or exceed accepted "Minimum Average Roll· Values" or that are not identified on original manufacturer's mill certification document to be removed at no cost to Owner.

.3 All rolls of geosynthetics arriving on site to be clearly labelled identifying roll and batch number, original manufacturer's product identification number, and width and length of material contained within roll.

1.3 Delivery and Storage

.1 Ensure each individual roll of geosynthetic is wrapped and covered to protect fabric from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, debris and rodents.

.2 Use equipment that does not contact material itself during loading, unloading and handling. Slings or other lifting devices to provide adequate support without damaging material. Off-load in a minimum of steps directly to storage or installation area .

.3 Store all rolls of geosynthetic on smooth, flat surfaces raised above ground that provide continuous support to rolls. Maintain additional protective cover if rolls are to be stored in excess of 30 days .

PART 2 MATERIALS

2.1 Geosynthetic

.1 Minimum specifications or specified products shall be as described in the Special Provisions or as shown on Contract Drawings.

.2 Notwithstanding above, all specified properties represent "Minimum Average Roll Values" as governed by ASTM D4354.

.3 Seams for all geosynthetics to be in accordance with the manufacturer's recommendations.

PART 3 CONSTRUCTION

3.1 Installation

.1 Geosynthetic shall be installed as shown on the Drawings in accordance with the manufacturer’s recommendations.

3.2 Protection

.1 Do not permit passage of any vehicle directly on geosynthetic at any time. Place fill by end-dumping or long-reach equipment

.2 Maximum drop height for fill directly onto geosynthetic to not exceed 1 m.

3.3 Repairs

.1 Repair seams which open, and tears and punctures, by removing fill and resetting geosynthetic. Additional geosynthetic to be placed over area, extending beyond perimeter of failure a distance corresponding to lapping requirements specified in Subsection 3.1. Where practical, repaired geosynthetic to be pinned, bonded or stapled into place at intervals equal to or less than one-eighth perimeter of damage or 2 m, whichever is lesser.

PART 4 MEASUREMENT AND PAYMENT

4.1 Measurement

.1 In Contracts where the Specification states the supply and installation of geosynthetic will be paid separately, geosynthetic will be measured in square metres of ground covered, excluding the area(s) associated with overlap of joints.

4.2 Payment

.1 In Contracts where the Specification states the supply and installation of geosynthetic will be paid separately, payment for “Geosynthetic - Supply and Install”, for the type specified, will be made at the unit price bid per square metre. The unit price will be considered full compensation for all labour, materials, equipment, tools and incidentals necessary to complete the Work to the satisfaction of the Consultant.

.2 In Contracts where the applicable Specification states that the cost of supplying and installing geosynthetic is considered incidental to the Work or is included in the unit price bid for the Work for which the geosynthetic is being utilized, no separate or additional payment will be made.

End of Section

Section 605 – Permanent Environmental Protection Devices

PART 1 GENERAL

1.1 Description

.1 This specification describes the supply, installation and maintenance of permanent environmental protection devices, including silt fences, synthetic permeable barriers, erosion control soil covering, rock check dams and straw bale barriers.

.2 The Work shall be in accordance with the Best Management Practices for the various structures as shown in the Design Guidelines for Erosion and Sediment Control for Highways, and as specified herein.

.3 The location, spacing, and the estimated quantities of permanent environmental protection devices will be provided in the Specifications or will be as shown on the Contract Drawings.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 6.5 – Permanent Environmental Protection Devices.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 610 – Gabions and Gabion Mattresses

PART 1 GENERAL

1.1 Description

.1 This specification describes the preparation of the ground surface to receive gabions, the placement of geotextile and the construction of the gabion structures in place, complete with rock filling in accordance with these specifications at locations shown on the Drawings or described in the Specifications and in accordance with Alberta Transportation and Economic Corridor's Design Guidelines for Erosion and Sediment Control for Highways, B.M.P. No. 2a-c.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 6.10 – Gabions and Gabion Mattresses.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 615 – Fish Capture and Release

PART 1 GENERAL

1.1 Description

.1 The Work shall include the capture, salvage and release of fish that are trapped or stranded as the result of the Contractor's operations, in accordance with the Standard Specifications for Highway Construction, Section 1.2.16, Environmental Management.

.2 The requirements detailed in the following specifications will be necessary only in the event the watercourse is deemed to be fish bearing and that there is a likelihood that fish may be present at the time of construction.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 6.15 – Fish Capture and Release.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 No Modifications

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 620 – Control of Clubroot

PART 1 GENERAL

1.1 Description

.1 Clubroot, caused by Plasmodiophora brassicae, is a serious disease of cruciferous crops (i.e. mustards, canola, etc.) which can result in reduced to severe yield losses. Clubroot was declared a pest under Alberta's Agricultural Pests Act in April 2007. Enforcement of the Act is the responsibility of the Agricultural Service Board located in each municipality.

.2 If the Work involves any form of soil disturbance, including but not limited to the removal and stockpiling of topsoil, topsoil placement, common excavation, or embankment construction, the Contractor shall be solely responsible for all measures required to prevent the spread of clubroot.

1.2 References

.1 The Contractor shall carry out his operations in accordance with the following Provisions and the Best Management Practices outlined in the Alberta Clubroot Management Plan which is available on-line at the following location:

http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/agdex11519

1.3 ECO Plan Requirements

.1 As part of the ECO Plan, the Contractor shall detail his proposed Clubroot control measures for soil disturbance work at locations involving Clubroot infected soils.

.2 Details shall include proposed equipment cleaning procedures as well as any control measures recommended by the Municipality's Agricultural Fieldman.

.3 Soil disturbance work shall not commence until the Contractor's ECO Plan has been reviewed and accepted by the Consultant.

PART 2 MATERIALS

2.1 Not required

PART 3 CONSTRUCTION

3.1 Not Required

PART 4 MEASUREMENT AND PAYMENT

.1 All costs associated with the implementation of Clubroot control measures, including those required by the applicable Agricultural Service Board, will be considered incidental to the Work and no separate or additional payment will be made.

End of Section

Section 625 – Decontamination of Construction Equipment Used withing the Bed or Banks of Waterbodies

PART 1 GENERAL

1.1 Description

.1 The County of Grande Prairie No. 1 is committed to preventing the spread of whirling disease in Alberta beyond the infected watersheds. In addition to whirling disease, this process will minimize the spread of other fish diseases and aquatic invasive species, such as zebra mussels.

.2 Whirling disease is a fish disease that affects the salmonid family of fish, which include trout and mountain whitefish. The disease is caused by a parasite that affects the cartilage of the fish head, spine and gills. A marked "whirling" swimming behaviour may be observed in fish as the parasite invades cartilage and impairs the nervous system. While not harmful to humans, whirling disease can cause high levels of mortality to fish. The disease can be transmitted from infected locations to other waterbodies by the movement of infected water or sediment on gear, equipment, watercraft or vehicles.

.3 If the Contractor's Work involves construction or any other activity within the bed or banks of a waterbody including, but not limited to streams, rivers, lakes, and wetlands, the Contractor shall be solely responsible for decontaminating all equipment prior to its entry onto the bed and banks of the waterbody.

1.2 References

.1 The Contractor's ECO Plan shall address Alberta Environment and Park's (AEP) Decontamination Protocol for Work in or Near Water (the Decontamination Protocol) in order to meet regulatory approval conditions. The protocol can be found at the following website: https://www.alberta.ca/stop-whirling-disease.aspx.

.2 For construction equipment the Contractor shall follow the Decontamination Protocol including APPENDIX D: DECONTAMINATION INSTRUCTIONS FOR INDUSTRIAL AND CONSTRUCTION OPERATIONS.

.3 The Contractor shall follow the Decontamination Protocol at the Stop the Spread of Whirling Disease website (https://www.alberta.ca/stop-whirling-disease.aspx) that is applicable to all other non-construction related equipment (i.e., personal gear, turbidity monitoring equipment, etc.) with respect to the AEP Risk Zone the Project is occurring within

PART 2 MATERIALS

2.1 Not required

PART 3 CONSTRUCTION

3.1 General

.1 The Contractor shall ensure that machinery arrives on Site in a clean condition and is free of invasive aquatic species (e.g., Myxobolus cerebralis – whirling disease) and dirt, noxious weeds or prohibited noxious weeds.

.2 The Contractor shall document and track their decontamination efforts by completing the decontamination record template found in the Decontamination Protocol (APPENDIX I: DECONTAMINATION RECORD TEMPLATE) and make available to the Consultant upon request.

PART 4 MEASUREMENT AND PAYMENT

4.1 Payment for Decontamination of Equipment

.1 All costs associated with complying with decontamination protocols and reporting will be considered incidental to the Work, and no separate or additional payment will be made.

End of Section

Section 701 – Traffic Accommodation and Temporary Signing

PART 1 GENERAL

1.1 Description

.1 This specification describes the requirements for traffic accommodation including the preparation of the Traffic Accommodation Strategy and the supply, installation, maintenance and removal of temporary construction signing and traffic control devices which are specifically related to construction, repair or emergency situations and which are generally removed when the Work is completed or the situation returns to normal.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 7.1 – Traffic Accommodation and Temporary Signing, except as modified herein.

PART 2 MATERIALS

2.1 No Modifications

PART 3 CONSTRUCTION

3.1 General

.1 Add the following to Standard Specifications for Highway Construction, Section 7.1.1 – General:

.1 The Owner reserves the right to modify the Contractor's operations if in the opinion of the Consultant, traffic is being unduly hindered.

3.2 Requirements for Traffic Accommodation and Temporary Signing

.1 In Standard Specifications for Highway Construction, Section 7.1.2.1 – Requirements for Traffic Accommodation and Temporary Signing, add the following:

.1 Prior to any shut down of construction operations, the Contractor shall ensure that any disturbed roadway surface is restored to a condition that is suitable for traffic operations, and that all construction signing, not required for the safe operation of traffic, is covered.

.2 In addition to the requirements of the Standard Specifications for Highway Construction Section 7.1.2.1 - Requirements for Traffic Accommodation and Temporary Signing, add the following:

.1 When traffic accommodation is required, the Contractor shall

.1 Provide the required number of flagpersons or at minimum 2 flag persons, during all periods of active equipment operations.

.2 Control their operations to ensure normal school bus operations are not interfered with.

.3 Minimize disruption to the residential and business accesses along the project and shall ensure that entrances are restricted for longer than 15 minutes unless alternative temporary access has been provided.

.4 Obtain prior approval from the Consultant, before changing or disrupting accesses and road crossings.

.5 Carry out construction operations at road crossings, intersections, and entrances in one continuous operation; and,

.6 Coordinate all construction activities with businesses and stakeholders utilizing the roadway, in order to minimize disruption.

3.3 Detours

.1 In the Standard Specifications for Highway Construction Section 7.1.8 - Detours, add the following:

.1 Should the Contractor decide to utilize detours, all localized detours and local road detours will be subject to the approval of the Owner and shall meet the requirements of the Standard Specifications for Highway Construction Section 7.1.8 “Detours”.

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 702 – Painted Roadway Lines

PART 1 GENERAL

1.1 Description

.1 This specification describes the painting and removal of roadway lines including edge lines, lane lines, continuity lines and directional dividing lines as shown on the Drawings.

1.2 References

.1 Work shall be performed in accordance with the Standard Specifications for Highway Construction, Section 7.2 – Painted Roadway Lines, except as modified herein.

PART 2 MATERIALS

.1 Contrary to Standard Specifications for Highway Construction Section 7.2.2 “Materials”, the Contractor shall supply and apply a PPG (formally Ennis) acetone paint (986061/986063) Premium Traffic Paint product listed on Alberta Transportation and Economic Corridor’s products list.

.2 The paint supplied by the Contractor shall be stored and applied as per the manufacturer’s recommendations and specifications.

.3 Application rates shall be approved by the Consultant prior to placement based on the paint manufacturer’s recommendations. A minimum application rate of 42L/km shall be used.

PART 3 CONSTRUCTION

3.1 Contractor Quality Control Inspection Plan

.1 Replace Standard Specifications for Highway Construction Section 7.2.1.2 “Contractor Quality Control Inspection Plan” with the following:

.1 As part of the Contractor Quality Control Inspection Program (QCIP), on a daily basis the Contractor shall include Wet Film Thickness Field Measurements in accordance with ASTM D4414-95(2020) - Standard Practice for Measurement of Wet Film Thickness By Notch Gages, as a confirmation of the digitally tracked paint application thickness. The Contractor shall develop and submit in writing to the Consultant, the method, complete with photographs and the frequency of random field wet film thickness measurements. The Contractor shall maintain records and photographs of the wet film thickness measurements and submit these along with other records of QCIP data and shall provide these records to the Consultant daily.

.2 Failure to submit the daily painting reports may delay approval and payment for the Work completed.

.2 Digital Pavement Marking Measurement Instrument (DPMMI) or equivalent

.1 Each paint vehicle must have mounted on it a Digital Pavement Marking Measurement Instrument (DPMMI) or equivalent, that will be used to continuously track data at intervals of no greater than 15 seconds during the paint application. Calibration of each DPMMI shall be conducted annually prior to any paint applications for the respective year. Proof of calibration for each DPMMI shall be submitted to the Consultant.

.2 The data to be tracked shall include but not be limited to the following information:

.1 Date

.2 Time

.3 Location (Hwy #, control section, travel direction, and GPS coordinates)

.4 Speed of Vehicle

.5 Paint application thickness (wet mils) and rate (liters/line km)

.6 Glass bead application rate (kgs/litre)

.7 Distance painted

.8 Road temperature

.9 Air temperature

.10 Paint temperature

.3 The Contractor shall be responsible to accurately track the road and the exact location on the road, that all recorded data applies. Data shall be provided to the Consultant at the end of each day of paint application.

.4 If for any reason the DPMMI becomes inoperable, the Contractor shall immediately advise the Consultant. The Contractor shall advise the Consultant of the area painted without the DPMMI and a date when the instrument will be back in operation. All tracked data noted above shall continue to be collected. If the DPMMI is to be inoperable for 5 days or more, the Consultant may instruct the Contractor to cease work until it is back in operation. Such an instruction will not absolve the Contractor of the requirement to complete the Work by the End-of-Season date.

.5 Documentation of the Contractor’s processes for using and calibrating the DPMMI and tracking the required data from the unit shall be recorded and made available to the Consultant

.3 Acceptance

.1 Paint Application Rate

.1 The Paint Application Rate, provided from the DPMMI data, that is marginally outside of the specified paint application rate of 42 L/Km, will be assessed a payment reduction of the unit bid price for Roadway Lines - Supplying Paint and Painting for the type of

line(s) painted. The payment reduction for the marginal application rates is:

Paint Application Rate [1] (L/km)	Wet Film Thickness (mils)	Payment Reduction [3] (%)
42.0 to 38.0 [2]	<16.5 to ≥15.0	No Payment Reduction
37.9 to 36.1	<15 to ≥ 14.2	10
36.0 to 33.0	<14.2 to ≥ 13.0	20
32.9 to 30.5	<13 to > 12.0	30
≤ 30.4	≤ 12.0	Re-Stripe

Notes:

1 Paint application rate with the specified glass bead application rate of not less than 600 grams per litre of paint.

2 Specified paint application rate of a minimum of not less than 38.0 L/km of a solid 100 mm wide line.

3 Payment reduction is percent of unit bid price for Roadway Lines - Supplying Paint and Painting for type of line painted.

.2 Workmanship

.1 Marginal workmanship or “Conditionally Conforming” painted roadway lines are:

.1 Marginal deviations from the acceptance criteria specified in Standard Specifications for Highway Construction Section 7.2.5.4 “Acceptance Criteria”.

.2 Marginal deviations from:

.1 Locations at tangents, curves, and transitions as per the Drawings and/or,

.2 Visible uniform straightness or uniform curvature.

.2 Acceptance of “Conditionally Conforming” Painted Roadway Lines:

.1 “Conditionally Conforming” painted roadway lines that are a safety hazard:

.1 Remove and Replace “Conditionally Conforming” painted roadway lines, as described in Standard Specifications for Highway Construction Section 7.2.5.5, Removal, Repair, or Replacement of Unacceptable Painted Lines, at the Contractor’s expense, rounded to the nearest 0.1 km.

.2 “Conditionally Conforming” painted roadway lines that are not a safety hazard:

.1 At the discretion of the County, non-payment for “Conditionally Conforming” painted roadway lines, rounded to the nearest 0.1 km.

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 703 – Pavement Messages

PART 1 GENERAL

1.1 Description

.1 This specification describes application of pavement messages such as crosswalk, stop ahead, turning arrows and stop bar lines, to the dimensions specified; at the locations shown on the Drawings or as designated by the Consultant.

1.2 References

.1 Work shall be performed in accordance with the current edition of the Standard Specifications for Highway Construction, Section 7.3 – Pavement Messages, except as modified herein.

PART 2 MATERIALS

.1 Contrary to Standard Specifications for Highway Construction Section 7.3.2.2 “Marking Materials”, the Contractor shall supply and apply a PPG (formally Ennis) acetone paint (986061/986063) Premium Traffic Paint product listed on Alberta Transportation and Economic Corridor’s products list.

.2 The paint supplied by the Contractor shall be stored and applied as per the manufacturer’s recommendations and specifications.

.3 Application rates shall be approved by the Consultant prior to placement based on the paint manufacturer’s recommendations. A minimum application rate of 42L/km shall be used.

PART 3 CONSTRUCTION

3.1 Contractor Quality Control Inspection Plan

.1 Replace Standard Specifications for Highway Construction Section 7.2.1.2 “Contractor Quality Control Inspection Plan” with the following:

.1 As part of the Contractor Quality Control Inspection Program (QCIP), on a daily basis the Contractor shall include Wet Film Thickness Field Measurements in accordance with ASTM D4414-95(2020) - Standard Practice for Measurement of Wet Film Thickness By Notch Gages, as a confirmation of the digitally tracked paint application thickness. The Contractor shall develop and submit in writing to the Consultant, the method, complete with photographs and the frequency of random field wet film thickness measurements. The Contractor shall maintain records and photographs of the wet film thickness measurements and submit these along with other records of QCIP data and shall provide these records to the Consultant daily.

.2 Failure to submit the daily painting reports may delay approval and payment for the Work completed.

.3 The data to be tracked shall include but not be limited to the following information:

.1 Date

.2 Time

.3 Location (GPS coordinates)

.4 Paint application thickness (wet mils) and application rate

.5 Glass bead application rate (kgs/litre)

.6 Road temperature

.7 Air temperature

.8 Paint temperature

.4 The Contractor shall be responsible to accurately track the exact location on the road, that all recorded data applies. Data shall be provided to the Consultant at the end of each day of paint application.

.2 Acceptance

.1 Paint Application Rate

.1 The Paint Application Rate, provided from the DPMMI data, that is marginally outside of the specified paint application rate of 42 L/Km, will be assessed a payment reduction of the unit bid price for Roadway Lines - Supplying Paint and Painting for the type of line(s) painted. The payment reduction for the marginal application rates is:

Paint Application Rate [1] (L/km)	**Wet Film Thickness (mils)**	**Payment Reduction [3] (%)**
42.0 to 38.0 [2]	<16.5 to ≥15.0	No Payment Reduction
37.9 to 36.1	<15 to ≥ 14.2	10
36.0 to 33.0	<14.2 to ≥ 13.0	20
32.9 to 30.5	<13 to > 12.0	30
≤ 30.4	≤ 12.0	Re-Stripe

Notes:

1 Paint application rate with the specified glass bead application rate of not less than 600 grams per litre of paint.

2 Specified paint application rate of a minimum of not less than 38.0 L/km of a solid 100 mm wide line.

3 Payment reduction is percent of unit bid price for Roadway Lines - Supplying Paint and Painting for type of line painted.

.2 Workmanship

.1 Marginal workmanship or “Conditionally Conforming” painted roadway lines are:

.1 Marginal deviations from the acceptance criteria specified in Standard Specifications for Highway Construction Section 7.2.5.4 “Acceptance Criteria”.

.2 Marginal deviations from:

.1 Locations at tangents, curves, and transitions as per the Drawings and/or,

.2 Visible uniform straightness or uniform curvature.

.2 Acceptance of “Conditionally Conforming” Painted Roadway Lines:

.1 “Conditionally Conforming” painted roadway lines that are a safety hazard:

.1 Remove and Replace “Conditionally Conforming” painted roadway lines, as described in Standard Specifications for Highway Construction Section 7.2.5.5, Removal, Repair, or Replacement of Unacceptable Painted Lines, at the Contractor’s expense, rounded to the nearest 0.1 km.

.2 “Conditionally Conforming” painted roadway lines that are not a safety hazard:

.1 At the discretion of the County, non-payment for “Conditionally Conforming” painted roadway lines, rounded to the nearest 0.1 km.

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications

End of Section

Section 707 – Permanent Highway Signing

PART 1 GENERAL

1.1 Description

.1 This specification describes the removal and reinstallation or disposal of existing signs and the installation of new signs, and includes permanent traffic control signing, guide signing and facility signing for the normal use of the roadway after construction is complete.

1.2 References

.1 Work shall be performed in accordance with the the Standard Specifications for Highway Construction, Section 7.7 – Permanent Highway Signing, except as modified herein.

PART 2 MATERIALS

2.1 Wood Posts

.1 Wood posts supplied by the Contractor shall have the dimensions 100mm x 150mm with break-away features, in accordance with the County's Standard Drawing 10.1.2 – Typical Breakaway Wood Post.

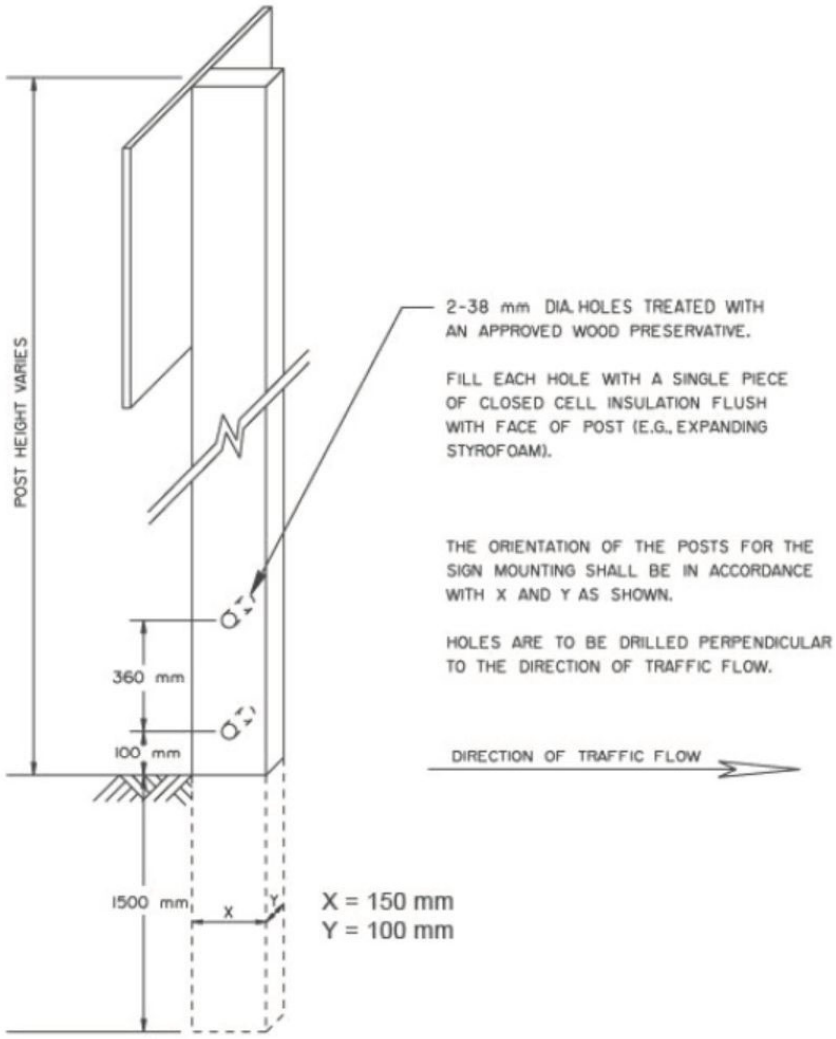
PART 3 CONSTRUCTION

3.1 General Installation and Layout

.1 Permanent sign installation and layout shall be in accordance with the County's Standard Drawing 10.1.4 – Typical Rural Sign Installation, or as otherwise directed by the Consultant.

PART 4 MEASUREMENT AND PAYMENT

4.1 No Modifications



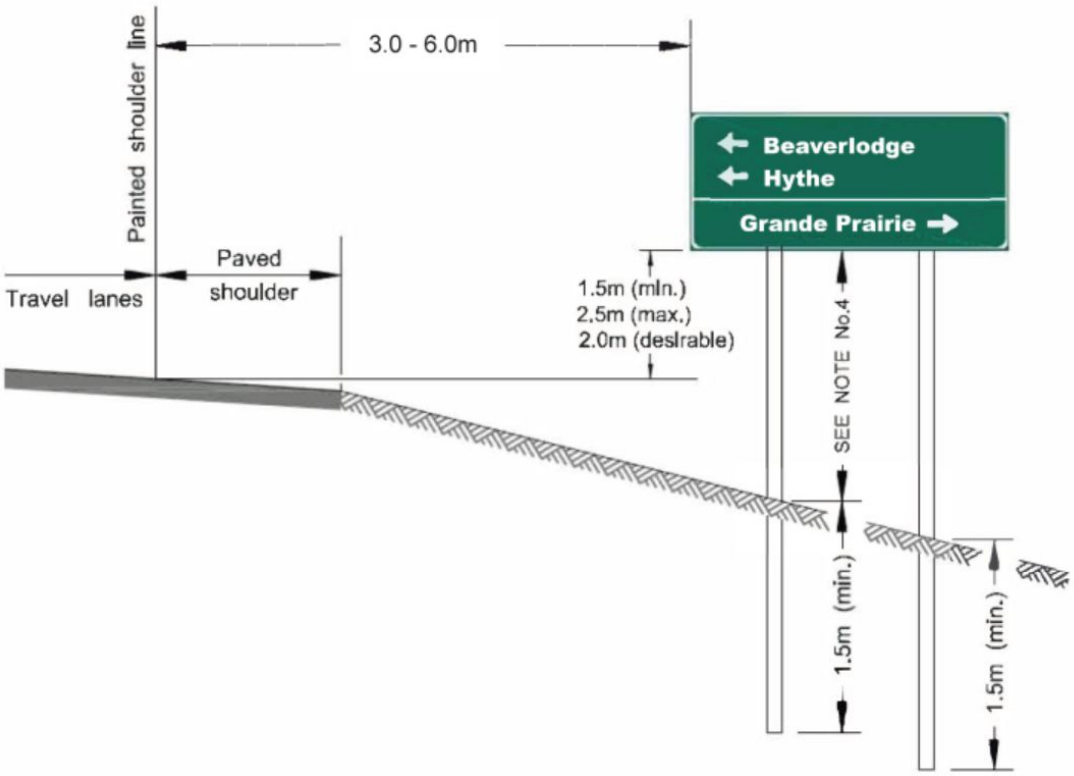
NOTE:
THE BREAKAWAY FEATURE FOR WOOD POSTS WITH CROSS-SECTIONAL DIMENSIONS GREATER THAN 100 mm X 100 mm IS REQUIRED FOR POSTS LOCATED WITHIN THE CLEAR ZONE AND DESIRABLE FOR POSTS LOCATED OUTSIDE THE CLEAR ZONE (WITHIN HIGHWAY RIGHT-OF-WAY).

County of Grande Prairie No. 1

COUNTY of GRANDE PRAIRIE No. 1

TYPICAL BREAKAWAY WOOD POST

DATE:	2025-01-17	DRAWN BY:	CA	APPROVED:	DRAWING
SCALE:	NOT TO SCALE	CHECKED BY:	IH		10.1.2



NOTE:

1. All signs to be erected perpendicular to the road and tilted 1°- 3° from perpendicular unless otherwise indicated.
2. Single post signs should also be installed to these specifications.
3. This plan shows typical installation only. Offsets may require adjustment for specific situations.
4. 2.2m min. for steel breakaway groundmount posts.

County of Grande Prairie No. 1

COUNTY of GRANDE PRAIRIE No. 1

TYPICAL RURAL SIGN INSTALLATION

DATE:	2025-01-17	DRAWN BY:	CA	APPROVED:	DRAWING
SCALE:	NOT TO SCALE	CHECKED BY:	IH		10.1.4

End of Section