



# 8905 Cold Milling

REVISION 16/02/2024

## 8905.1 Introduction

This Supplementary Specification refers to the removal of asphalt and base course by pavement milling to a specified depth, the hauling of the cold milled material to designated stockpiles and disposal areas, and the sweeping of the pavement. This specification does not relate to in-place pavement recycling or supply and lay new pavement or wearing surface.

The different pavement milling activities covered by this specification include;

- a) Cold milling of pavement asphalt surface – depth as per existing asphalt layer/s
- b) Cold milling of asphalt surface above concrete – depth of asphalt less 10mm’s (other methods needed to remove the last 10mm if required)
- c) Cold milling of asphalt of bridge deck wearing surface – depth of asphalt less 10mm’s (other methods needed to remove the last 10mm if required)
- d) Pavement planing of asphalt/seal and pavement base course/s – depth as per the design plans
- e) Removal of asphalt or surface layer/s via alternative methods than milling

Milling activities shall be carried out in a manner that will not cause damage to the remaining pavement, kerb, kerb and channel, bridge deck and kerb log, or relieving slabs and which is approved by the Superintendent.

### 8905.1.1 Definitions of Terms

The terms used in this Technical Specification shall be as defined in Clause 2 of MRTS01 *Introduction to Technical Specifications*.

Additional terms used in this Technical Specification are defined in the Table below.

Term	Definition as Applies to this Specification
Planing	Milling process which removes part of or all of the pavement to a depth specified. Sometimes also referred to profiling.
Cold Milling	Removal of a section or part of the pavement surface covering roads, bridges, or concrete base
Deck Wearing Surface	Protective overlay on a bridge structure to enhance vehicle ride, safety, improve skid resistance, and protects the bridge deck from rear, usually constructed of asphalt
Hidden Objects	Any objects not visible to the naked eye and requiring identification by means of a location device or metal detector
Location device	Device capable of identifying Hidden Objects using a non-destructive technique, specifically a metal detector (or equivalent) for metal objects.
Concrete Structure	Can be a concrete bridge element, concrete pavement or other concrete feature (see definitions below) that underlies an existing pavement.
Concrete bridge	A concrete bridge deck, bridge approach slab, joint nosing or crown of a



element	concrete box culvert.
Other concrete feature	A concrete footing, encasement, drainage or utility pit or other similar concrete feature.

## 8905.2 Referenced Documents

This supplementary specification shall be read in conjunction with the following:

- MRS01 *“Introduction to Specifications”*
- MRTS01 *“Introduction to Technical Specifications”*;
- MRTS30 *“Asphalt Pavements”*;
- MRTS84A *“Removal of Bridge Deck Wearing Surfaces”*
- DTMR Pavement Rehabilitation Manual
- AusSpec 1136 – *“Cold Milling of Asphalt and Base Course”*
- AusSpec C251 – *“Cold Milling”*
- Austroads AP-PWT05-19 *“Profiling”*
- MRC Supplementary Specification 8900 *“Saw Cutting Existing Surface”*
- MRC Supplementary Specification 8407 *“Bituminous Cold Mix”*; and
- the Project Drawings

## 8905.3 Description of Works

Work items incorporated by this supplementary specification are identified in Section 8905.6 and 8905.7 with individual activities/tasks for measurement and payment sourced from the Bill of Quantities and listed in MRC Supplementary Specification Annexure 8905\_1 Cold Milling Section 1

## 8905.4 Quality Systems Requirements

### 8905.4.1 Std Test Methods (Testing Regime)

The following minimum testing regime applies to this specification:

Survey of the geometrics of the milled out area shall be carried out to verify compliance with the design drawings and the works are within the tolerances for depth and straight edge conformance tolerances set out in Table 8905.4.3 unless otherwise approved by the Superintendent.

Unless otherwise approved by the Superintendent the pavement or subgrade that has been exposed by the milling process shall be compacted and tested as per MRTS04 and MRTS05 with the results being submitted to the Superintendent prior to any overlay occurring. (HOLD POINT)

### 8905.4.2 Hold Points, Witness Points and Milestones

The following table represents the minimum inspection requirements for this specification;

Activity	Inspection Type	When
Construction procedure and other required submissions as per Clause 8905.5	Milestone	4 Weeks prior to works commencing
Traffic management in place and all approvals granted as per approved traffic management plan	Hold Point	Prior to any site works commencing
Location survey to locate	Hold Point	Prior to commencing milling works



hidden objects and utilities, as well as DBYD and potholing		
Final location of milled area marked out	Hold Point	During site survey layout.
Site material and depth investigation and report submission	Hold Point	Prior to milling works commencing
Report damage to Superintendent to either infrastructure or the milling plant.	Hold Point	Immediately after the damage has occurred
Inspection of milled floor for unsuitable material	Hold Point	At completion of milling activities
Edge treatment of completed milled runs	Witness Point	Prior to opening to the pedestrians and vehicular traffic
Special treatments in place for milled runs where temporary ramps cannot be implemented	Witness Point	During and at completion of milling activities as documented in the Traffic management Plan.
Removal of temporary ramps, geometrics, and swept surface	Hold Point	Prior to overlay activities commencing
Disposal of material as required by Superintendent	Witness Point	As milling works occur and at completion of milling works.
Site inspection for damage to infrastructure and cleaned of all material.	Hold Point	At completion of all site works
Erosion and Sediment Control measures are in place in accordance with the approved ESC Plan	Hold Point	During works and at the completion of all works
Works as Executed documentation	Hold Point	Minimum 14 days prior to practical completion being requested.

#### 8905.4.3 Construction Tolerances

Unless noted on the design drawings or otherwise approved by the Superintendent the following construction tolerances shall apply to this Specification;

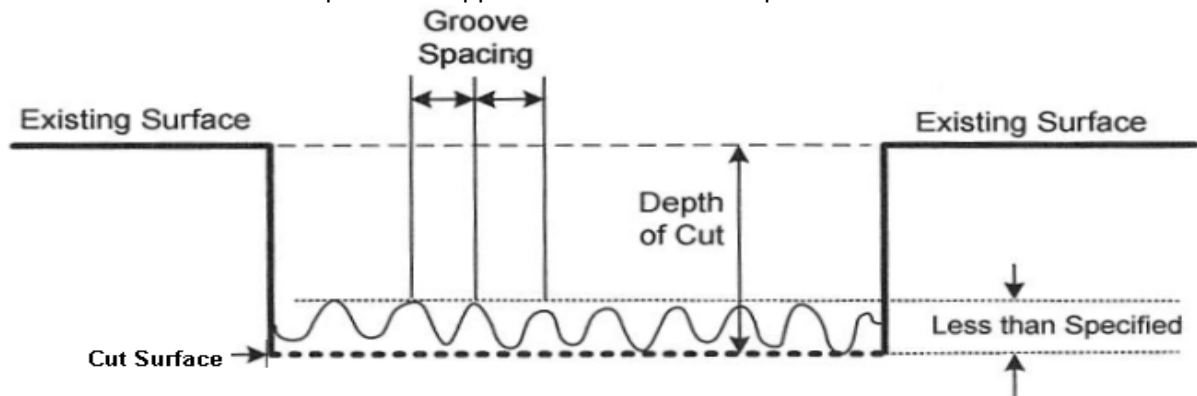
Tolerances Table

Nature of milling work	Tolerance on depth of cut		Groove spacing (mm)	Surface texture depth (mm)
	Greater than specified (mm)	Less than specified (mm)		
Difference in surface position between adjacent cuts	5 max	5 max	Not Specified	Not Specified
Cutting to depth $\leq$ 40 mm	0	8 max	15 max	2.5 max
Cutting to depth > 40 mm where the floor of the cut is asphalt or bound material	10 max	5 max	15 max	Not specified
Cutting to depth > 40 mm where the floor of the cut is unbound material	15 max	5 max	15 max	Not specified
Cutting to depth within nominal 40 mm of the	0	8 max	10 max	2.5 max

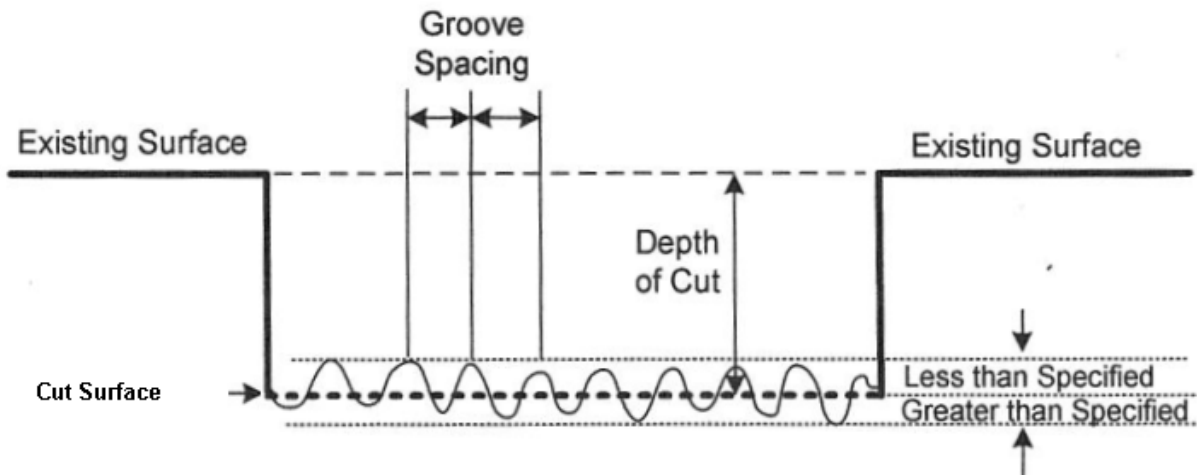


Nature of milling work	Tolerance on depth of cut		Groove spacing (mm)	Surface texture depth (mm)
	Greater than specified (mm)	Less than specified (mm)		
surface of a concrete structure and/or waterproofing membrane that is to be retained				
Producing a surface suitable for spray sealing without prior correction	Not specified	Not specified	10 max	1.5 max
Milling achieve specified level	10 max	0	Not specified	Not specified
Re-texturing the surface of asphalt pavement	5 max	10 max	10 max	Not specified
Producing a surface to optimise ride quality	5 max	5 max	Not specified	Not specified
On concrete bridge element with extra fine milling requirements	0	8 max	10 max	1.5 max
Note: Where the nature of milling work satisfies more than one of the description above, the least tolerance applies.				
Straight Edge test over 3m transversely and longitudinally - <5mm				

Where "Nil" tolerance on depth of cut applies for "Greater than specified"



Where above and below depth of cut has been specified





The Contractor is to submit the following documentation 4 weeks prior to commencing work or a prestart is conducted. (MILESTONE):

- Works procedure and methodology for carrying out specific milling activities as required to be carried out for each site
- Environmental Plan
- Erosion and Sediment Control Plan (as required for site/s)
- Traffic Management Plan and TGS's
- Workplace Health and Safety Plan including specific to the work and site/s
- Quality management Plan outlining requirements of 8901.4 as a minimum

Other requirements unique to the project will be listed in the MRC Supplementary Specification Annexure 8905\_1 Cold Milling (MILESTONE)

No site works are to commence without all approvals and traffic management controls being in place. (HOLD POINT).

#### **8905.5.1 Survey of Hidden Objects**

The approximate locations of known Hidden Objects are shown on the design drawings, and may be shown on the sketch plans and/or drawings provided by the Principal.

The contractor is to make enquiries with DBYD and the relevant Authorities to confirm the exact locations of all objects shown on the design drawings, as shown on the sketches and/or drawings or otherwise brought to your attention.

Survey the area to be milled for Hidden Objects using a locating device or metal detector and pot holing. The locations and extent of any objects (metal objects, public utilities, etc) detected must be clearly marked on site. Determine whether the Hidden Object is within the depth to be milled.

The onus of locating such structures and their susceptibility to damage by milling operations is the sole responsibility of the contractor.

Unless otherwise directed by the Superintendent, set out the cold milling work area as specified as shown in the sketches and/or design drawings. This work must include the marking of milling depths and locations of Hidden Objects.

The Contractor is to conduct a site inspection with the Superintendent prior to any milling works commencing to verify the work has been set out in accordance with the sketches and/or drawings or as directed by the Principal (HOLD POINT)

#### **8905.5.2 Plant and Equipment**

The cold milling machine must be well maintained, equipped, and fitted with the appropriate cutting drum for the intended work and it's required precision. This must correlate with the submitted works procedure submitted to and approved by the Superintendent.

In order to measure the depth of the cut in millimetres all milling plant operators must be furnished with appropriate gauge/s to enable measurement of the cuts.

#### **8905.5.3 Milling Plant Operators**

Milling operators must have adequate training and experience in the operation of the cold milling machine (including automatic sensing equipment). Each machine must be operated with 3 trained and skilled operators at all times, one on the driving platform and one each side of the sensor/cutting mandrel.

The Contractor shall provide documented evidence for the Superintendent's approval to demonstrate the experience, qualification, skills and training of the personnel as part of the works procedure submission. (MILESTONE)

#### **8905.5.4 Site Investigation for Depth and Material Identification**



The contractor shall be responsible for a site investigation to identify existing layer thickness and the presence of other materials such as geogrid or geofabric. A report is to be submitted to the Superintendent detailing the findings of the investigation along with any proposed scope change for review and approval by the Superintendent prior to milling activities occurring (HOLD POINT).

Where milling operations occur over concrete structures or stabilised pavement the thickness survey and investigation shall be carried out as per MRTS 84A Section 5 with all results submitted to the Superintendent for approval.

The contractor must liaise and obtain approval for the proposed works activities from the Asset Owner and submit this approval with the works procedure to the Superintendent.

## **8905.6 Construction**

This section lays out the works operations with more detail based on specific requirements of this supplementary specification. Some activities may appear to include items which are stated within other specifications, the purpose is to reinforce that requirement specific to this supplementary specification.

Specific construction requirements associated with these works is detailed in MRC Supplementary Specification Annexure 8905\_1 Cold Milling Section 5

The Superintendent may direct the depth, width, length, alignment and section of road to be cold milled at any time.

The Superintendent may order work to cease temporarily on account of dust nuisance, excessive windrows or loose material, excessive roughness of the cold milled surface or any circumstances which the Superintendent considers may adversely affect the work or public safety.

At all times during milling activities if infrastructure is damaged or the milling plant is damaged the Contractor shall halt works and inform the Superintendent of the damage and submit the cause and the proposed course of action (HOLD POINT)

### **8905.6.1 Work Operations**

#### **8905.6.1.1 Cold milling of pavement asphalt surface – depth as per existing asphalt layer/s (excluding over concrete structures)**

Work operations included in these items include

- a) Work operations included in Clause 2.1.5 of MRS01 “Introduction to Specifications”;**
- b) Site set out and location any utilities or objects that may be damaged by milling operations and liaise with relevant Authorities;**

The contractor is responsible for the set out the extents of the work area and the location of all hidden objects and infrastructure, refer to 8905.5.1 of this Supplementary Specification. (HOLD POINT)

- c) Saw cut the existing pavement edges to the dimensions shown on the Drawings;**

Saw cut as required by the design drawings and MRC Supplementary Specification 8900, care should be taken to ensure no damage to other infrastructure such as kerbing. If damage to other infrastructure occurs the contractor is to inform the Superintendent immediately in order to ascertain the extent of damage and any required repair/s. Scope and cost of repairs will be at the discretion of the Superintendent and at no cost to the Principal.

- d) Milling of Asphalt Layer;**

Mill out the existing asphalt to the minimum depth required to meet the specified minimum thicknesses of overlaying layers as detailed in the contract documents or otherwise ordered by the Superintendent. A tolerance of -0 / +10mm will be allowed on the depth ordered. Any materials removed in excess of the ordered depth +10mm shall be replaced with new asphalt at no cost to the Principal



The Contractor shall supply sufficient trucks to enable a continuous output to be achieved by the cold milling machine with minimal delay.

When loading by elevator, the trucks shall back up and maintain a similar speed to the cold milling machine. The drive shall distribute the load of milled material uniformly over the truck body. The Contractor shall comply with all regulations regarding the covering and securing of loads where applicable. The cover shall overlap the truck body by at least 250 mm and be tied down securely.

Completed runs shall comply with the requirements of 8905.4.3 and design drawings unless otherwise approved by the Superintendent.

The contractor and Superintendent shall carry out a site inspection to identify any unsuitable material at the base of the cut/s, upon identification and determination of the extent of the unsuitable material the Contractor shall remove and replace the unsuitable material with approved material and to a depth and extent as approved by the Superintendent. (HOLD POINT)

Where the milling plant cannot access areas or is required to keep clear of infrastructure such as kerbs, concrete pits etc the asphalt shall be removed by hand or by other methods as approved by the Superintendent.

**e) Treatment at Edges of Milling;**

Where works are to be opened to traffic or left unattended the works shall be arranged such that edges of the milled asphalt and base course are bevelled by constructing temporary cold mix ramps to transition around protruding utilities / objects, or to existing pavement levels, as required:

- 1) Transverse Joints – 1.0m for each 50mm's variation in 60km/hr zones, and 2.5m for each 50mm's variation in 80km/hr zones.
- 2) Longitudinal Joints - 1.0m for each 50mm's variation in 60km/hr zones, and 2.5m for each 50mm's variation in 80km/hr zones.
- 3) Adjacent to Structures – 1.0m for each 50mm's variation

(WITNESS POINT)

All temporary ramps shall be tack coated with bitumen emulsion prior to the placing of the cold mix. The cold mix shall be compacted once laid. The cold mix shall comply with MRC supplementary Specification 8407 "Bituminous Cold Mix".

Prior to asphalt overlay activities being carried out the temporary ramps shall be removed, the installing and removal of cold mix ramps shall be part of the required works and at no cost to the principal. (WITNESS POINT)

**f) Completion of Milling Prior to Overlay Works;**

The temporary ramps shall be removed and the pavement swept free of all loose material prior to tack coating and laying asphalt, and the resultant rubble shall be removed from the site.

The contractor is to make arrangements for the Superintendent to inspect the surface and review the geometrics of the milled area prior to the milling plant/equipment being removed from the site. (HOLD POINT)

**g) Disposal of Milled Asphalt.**

Material removed by the milling process shall be loaded and carted away to either a designated stockpile site if the materials are required to be retained by the Superintendent or where the milled material is not required by the Principal the Contractor shall dispose of the material as per their approved Environmental Plan at no cost to the Principal. (WITNESS POINT)



**8905.6.1.2 Cold milling of asphalt surface above concrete – depth as per design drawings; and**

**8905.6.1.3 Cold milling of asphalt of bridge deck wearing surface or above box culverts – depth as per design drawings**

Work operations included in these items include:

- a) **Work operations included in Clause 2.1.5 of MRS01 “Introduction to Specifications”;**
- b) **Liaise with the bridge or box culvert asset owner to ensure the structure is capable of handling the type of activity proposed and the weight of plant on the structure.**

The Contractor shall liaise with the asset owner on the condition of the structure to ensure any static and dynamic loadings and vibration from milling activities will be included in the works procedure, the proposed asphalt removal procedure will need to be approved by the relevant asset owner four weeks prior to commencement of works and then be documented in the proposed work procedure and methodology submitted to the Superintendent for approval. (HOLD POINT)

If the structure is damaged the contractor is to inform the Superintendent immediately in order to ascertain the extent of damage and any required repair/s. Scope and cost of repairs will be at the discretion of the Superintendent and at no cost to the Principal.

- c) **Site set out and location any utilities or objects that may be damaged by milling operations and liaise with relevant Authorities;**

The contractor is responsible for the set out the extents of the work area and the location of all hidden objects and infrastructure, refer to 8905.5.1 of this Supplementary Specification. (HOLD POINT)

- d) **Saw cut the existing pavement edges to the dimensions shown on the Drawings;**

Saw cut as required by the design drawings and MRC Supplementary Specification 8900, care should be taken to ensure no damage to the underlying concrete structure. If the concrete is damaged the contractor is to inform the Superintendent immediately in order to ascertain the extent of damage and any required repair/s. Scope and cost of repairs will be at the discretion of the Superintendent and at no cost to the Principal.

- e) **Milling of Asphalt Layer;**

Mill out the existing asphalt to the minimum depth required to meet the specified minimum thicknesses of overlaying layers as detailed in the contract documents or otherwise ordered by the Superintendent. A tolerance of -0 / +10mm will be allowed on the depth ordered. Any materials removed in excess of the ordered depth +10mm shall be replaced with new asphalt at no cost to the Principal

The Contractor shall supply sufficient trucks to enable a continuous output to be achieved by the cold milling machine with minimal delay.

When loading by elevator, the trucks shall back up and maintain a similar speed to the cold milling machine. The drive shall distribute the load of milled material uniformly over the truck body. The Contractor shall comply with all regulations regarding the covering and securing of loads where applicable. The cover shall overlap the truck body by at least 250 mm and be tied down securely.

Completed runs shall comply with the requirements of 8905.4.3 and design drawings unless otherwise approved by the Superintendent.

The contractor shall report

The contractor and Superintendent shall carry out a site inspection to identify any unsuitable material at the base of the cut/s, upon identification and determination of the extent of the unsuitable material the Contractor shall remove and replace the unsuitable material with





approved material and to a depth and extent as approved by the Superintendent. (HOLD POINT)

Where the milling plant cannot access areas or is required to keep clear of infrastructure such as kerbs, concrete pits etc the asphalt shall be removed by hand or by other methods as approved by the Superintendent.

**f) Treatment at Edges of Milling;**

Where works are to be opened to traffic or left unattended the works shall be arranged such that edges of the milled asphalt and base course are bevelled by constructing temporary cold mix ramps to transition around protruding utilities / objects, or to existing pavement levels, as required:

- 1) Transverse Joints – 1.0m for each 50mm's variation in 60km/hr zones, and 2.5m for each 50mm's variation in 80km/hr zones.
- 2) Longitudinal Joints - 1.0m for each 50mm's variation in 60km/hr zones, and 2.5m for each 50mm's variation in 80km/hr zones.
- 3) Adjacent to Structures – 1.0m for each 50mm's variation

(WITNESS POINT)

All temporary ramps shall be tack coated with bitumen emulsion prior to the placing of the cold mix. The cold mix shall be compacted once laid. The cold mix shall comply with MRC supplementary Specification 8407 "Bituminous Cold Mix".

Prior to asphalt overlay activities being carried out the temporary ramps shall be removed, the installing and removal of cold mix ramps shall be part of the required works and at no cost to the principal. (WITNESS POINT)

**g) Completion of Milling Prior to Overlay Works;**

The temporary ramps shall be removed and the pavement swept free of all loose material prior to tack coating and laying asphalt, and the resultant rubble shall be removed from the site.

The contractor is to make arrangements for the Superintendent to inspect the surface and review the geometrics of the milled area prior to the milling plant/equipment being removed from the site. (HOLD POINT)

**h) Disposal of Milled Asphalt.**

Material removed by the milling process shall be loaded and carted away to either a designated stockpile site if the materials are required to be retained by the Superintendent or where the milled material is not required by the Principal the Contractor shall dispose of the material as per their approved Environmental Plan at no cost to the Principal.

**8905.6.1.4 Pavement planing of asphalt/seal and pavement base course/s – depth as per the design plans**

Work operations included in these items include:

- a) **Work operations included in Clause 2.1.5 of MRS01 "Introduction to Specifications";**
- b) **Site set out and location any utilities or objects that may be damaged by milling operations and liaise with relevant Authorities;**

The contractor is responsible for the set out the extents of the work area and the location of all hidden objects and infrastructure, refer to 8905.5.1 of this Supplementary Specification. (HOLD POINT)

**c) Saw cut the existing pavement edges to the dimensions shown on the Drawings;**

Saw cut as required by the design drawings and MRC Supplementary Specification 8900, care should be taken to ensure no damage to other infrastructure such as kerbing. If damage to



other infrastructure occurs the contractor is to inform the Superintendent immediately in order to ascertain the extent of damage and any required repair/s. Scope and cost of repairs will be at the discretion of the Superintendent and at no cost to the Principal.

**d) Pavement Planing of existing layers**

Mill out the existing wearing course and pavement to the minimum depth required as detailed in the contract documents or otherwise ordered by the Superintendent. A tolerance of -0 / +10mm will be allowed on the depth ordered. Any materials removed in excess of the ordered depth +10mm shall be replaced and incorporated into the layer exposed at no cost to the Principal.

Milled layers are not to exceed 150mm's in depth for each run. Where multiple layers are to be milled out site works shall follow the submitted works procedure until the milled floor level is achieved

The Contractor shall supply sufficient trucks to enable a continuous output to be achieved by the cold milling machine with minimal delay.

When loading by elevator, the trucks shall back up and maintain a similar speed to the cold milling machine. The drive shall distribute the load of milled material uniformly over the truck body. The Contractor shall comply with all regulations regarding the covering and securing of loads where applicable. The cover shall overlap the truck body by at least 250 mm and be tied down securely.

Completed runs shall comply with the requirements of 8905.4.3 and design drawings unless otherwise approved by the Superintendent.

The contractor and Superintendent shall carry out a site inspection to identify any unsuitable material at the base of the final cut/s, upon identification and determination of the extent of the unsuitable material the Contractor shall remove and replace the unsuitable material with approved material to a depth and extent as approved by the Superintendent. (HOLD POINT)

Where the milling plant cannot access areas or is required to keep clear of infrastructure such as kerbs, concrete pits etc the asphalt shall be removed by hand or by other methods as approved by the Superintendent.

**e) Treatment at Edges of Milling;**

Until the edges of the milled area are capable of meeting the below criteria for temporary ramps the milled area is to be made safe and exclude pedestrian and vehicular traffic from entering, this is to be reflected in the Works Procedure, Work Place Health and Safety Plan and the Traffic Management Plan. (WITNESS POINT)

Where works are to be opened to traffic or left unattended the works shall be arranged such that edges of the milled asphalt and base course are bevelled by constructing temporary cold mix ramps to transition around protruding utilities / objects, or to existing pavement levels, as required:

- 1) Transverse Joints – 1.0m for each 50mm's variation in 60km/hr zones, and 2.5m for each 50mm's variation in 80km/hr zones.
- 2) Longitudinal Joints - 1.0m for each 50mm's variation in 60km/hr zones, and 2.5m for each 50mm's variation in 80km/hr zones.
- 3) Adjacent to Structures – 1.0m for each 50mm's variation

(WITNESS POINT)

All temporary ramps shall be tack coated with bitumen emulsion prior to the placing of the cold mix. The cold mix shall be compacted once laid. The cold mix shall comply with MRC supplementary Specification 8407 "Bituminous Cold Mix".



Prior to asphalt overlay activities being carried out the temporary ramps shall be removed, the installing and removal of cold mix ramps shall be part of the required works and at no cost to the principal. (WITNESS POINT)

**f) Completion of Milling Prior to Overlay Works;**

The temporary ramps shall be removed and the pavement swept free of all loose material prior to tack coating and laying asphalt, and the resultant rubble shall be removed from the site.

The contractor is to make arrangements for the Superintendent to inspect the surface and review the geometrics of the milled area prior to the milling plant/equipment being removed from the site. (HOLD POINT)

**g) Disposal of Milled Asphalt.**

Material removed by the milling process shall be loaded and carted away to either a designated stockpile site if the materials are required to be retained by the Superintendent or where the milled material is not required by the Principal the Contractor shall dispose of the material as per their approved Environmental Plan at no cost to the Principal.

**8905.6.1.5 Removal of asphalt or surface layer/s (on bridge/culvert/concrete structure) via alternative methods than milling**

Work operations included in these items include:

**a) Work operations included in Clause 2.1.5 of MRS01 “Introduction to Specifications”;**

**b) Liaise with the bridge or box culvert asset owner to ensure the structure is capable of handling the type of activity proposed and the weight of plant on the structure.**

The alternative method approved shall take into consideration the load on the structure during the removal of asphalt or surfacing activities and cause no damage the concrete surface or any associated infrastructure, this includes kerb logs, rails, signage etc.

If the structure is damaged the contractor is to inform the Superintendent immediately in order to ascertain the extent of damage and any required repair/s. Scope and cost of repairs will be at the discretion of the Superintendent and at no cost to the Principal.

**c) Site set out and location any utilities or objects that may be damaged by milling operations and liaise with relevant Authorities;**

The contractor is responsible for the set out the extents of the work area and the location of all hidden objects and infrastructure, refer to 8905.5.1 of this Supplementary Specification. (HOLD POINT)

**d) Saw cut the existing pavement edges to the dimensions shown on the Drawings;**

Saw cut as required by the design drawings and MRC Supplementary Specification 8900, care should be taken to ensure no damage to the underlying concrete structure. If the concrete is damaged the contractor is to inform the Superintendent immediately in order to ascertain the extent of damage and any required repair/s. Scope and cost of repairs will be at the discretion of the Superintendent and at no cost to the Principal.

**h) Removal of Asphalt or Surface Layer/s;**

Remove the existing asphalt or surface layer/s to the minimum depth required to meet the specified minimum thicknesses of overlaying layers as detailed in the contract documents or otherwise ordered by the Superintendent. A tolerance of -0 / +10mm will be allowed on the depth ordered. Any materials removed in excess of the ordered depth +10mm shall be replaced with new asphalt at no cost to the Principal

The Contractor shall supply sufficient trucks to enable a continuous output to be achieved with minimal delay. The Contractor shall comply with all regulations regarding the covering and



securing of loads where applicable. The cover shall overlap the truck body by at least 250 mm and be tied down securely.

Completed runs shall comply with the requirements of 8905.4.3 and design drawings unless otherwise approved by the Superintendent.

The contractor and Superintendent shall carry out a site inspection to identify any unsuitable material at the base of the cut/s, upon identification and determination of the extent of the unsuitable material the Contractor shall remove and replace the unsuitable material with approved material and to a depth and extent as approved by the Superintendent. (HOLD POINT)

Where infrastructure such as kerbs, concrete pits etc the asphalt or surface layer/s shall be removed by hand or by other methods as approved by the Superintendent.

**i) Treatment at Edges of Milling;**

Where works are to be opened to traffic or left unattended the works shall be arranged such that edges of the milled asphalt and base course are bevelled by constructing temporary cold mix ramps to transition around protruding utilities / objects, or to existing pavement levels, as required:

- 1) Transverse Joints – 1.0m for each 50mm's variation in 60km/hr zones, and 2.5m for each 50mm's variation in 80km/hr zones.
- 2) Longitudinal Joints - 1.0m for each 50mm's variation in 60km/hr zones, and 2.5m for each 50mm's variation in 80km/hr zones.
- 3) Adjacent to Structures – 1.0m for each 50mm's variation

(WITNESS POINT)

All temporary ramps shall be tack coated with bitumen emulsion prior to the placing of the cold mix. The cold mix shall be compacted once laid. The cold mix shall comply with MRC supplementary Specification 8407 "Bituminous Cold Mix".

Prior to asphalt overlay activities being carried out the temporary ramps shall be removed, the installing and removal of cold mix ramps shall be part of the required works and at no cost to the principal. (WITNESS POINT)

**j) Completion of Milling Prior to Overlay Works;**

The temporary ramps shall be removed and the pavement swept free of all loose material prior to tack coating and laying asphalt, and the resultant rubble shall be removed from the site.

The contractor is to make arrangements for the Superintendent to inspect the surface and review the geometrics of the milled area prior to the milling plant/equipment being removed from the site. (HOLD POINT)

**k) Disposal of Milled Asphalt.**

Material removed by the approved alternative process shall be loaded and carted away to either a designated stockpile site if the materials are required to be retained by the Superintendent or where the milled material is not required by the Principal the Contractor shall dispose of the material as per their approved Environmental Plan at no cost to the Principal.

## **8905.7 Post Construction**

**a) Inspection of Work Area**

The work site is to be inspected by the contractor and the Superintendent to ensure it has been cleaned of all debris, excavated material, and construction materials and returned to its natural state prior to works occurring, and no damage has been done to adjacent infrastructure



(including underground) as a result of the works. (HOLD POINT)

Disturbed areas are to be rehabilitated as required by the design drawings and erosion and sediment control measures installed as per the Contractors approved Erosion and sediment control Plan and as directed by the Superintendent. (HOLD POINT)

**b) Collection and submission of all As Constructed data including QA data requirements. (As Required)**

Unless otherwise approved by the Superintendent the Contractor is to supply and submit Works as Executed documentation as required by *MRC D20 - Drawings and Documentation* for approval by the Superintendent 4 weeks prior to requesting a practical completion inspection. (HOLD POINT)

Format of submitted “As Constructed” documentation shall be compliant with MRC Supplementary Specification 8919.

## **8905.8 Measurement and Payment**

Provision for these works shall be included in the scheduled unit rate for the items show in Clause 8905.3 of this Supplementary Specification and annexure. Work operations listed above for cold milling and pavement planing shall be claimed per square metre removed, under the items stated in Clause 8905.3.

Payment for additional milling, as ordered by the Superintendent, shall be by survey, or other agreed method

No separate payment will be made for the works operations specified within this Supplementary specification or it’s annexure.

Version Control:

<b>Version</b>	<b>Description</b>	<b>Reviewed / Endorsed</b>	<b>Date</b>
1.0	Original issue		23.11.2012
2.0	Review of specification	C. Sultana	16.02.2024