CITY OF BURNABY PAVEMENT RESTORATION POLICY

Version 1.0 2020 July 22

BACKGROUND

The deterioration of the road is accelerated when cuts are made into the pavement for various purposes, such as utility installations and subsurface investigations, and when these cuts are not properly restored. To protect the City's investment on roads, all parties must make every effort to coordinate underground construction with paving projects to avoid pavement cuts, and any unavoidable pavement cuts shall be restored to a high standard.

This Road Restoration Policy sets the standard for restoration of all City's roads. This policy will help ensure that road surfaces are safe for all users and minimize the accelerated degradation of the roads resulting from pavement cuts.

POLICY

AUTHORIZATION OF PAVEMENT CUT

1. All pavement cuts shall be authorized by the City as a part of the Minor Work Permit, Standard Street Works Permit, or other agreements with the City. Permit application fees and the City's Pavement Degradation Fees are required through the permits. All work shall conform to the City of Burnaby Bylaws, including the Burnaby Street and Traffic Bylaw 1961 and the Burnaby Noise or Sound Abatement Bylaw 1979;

2. Deviations from or modifications to this Policy are at the discretion of the City Engineer. Proposals for alternate restoration methods shall be submitted to the City and approved in writing by the City Engineer prior to excavation;

APPLICATION OF POLICY

3. The following table outlines the application of this policy and the associated permit or agreement that would refer to this policy. Note that this policy is still best practice across the City even for work that requires no permit or agreement.

	SMALL EXCAVATIONS (e.g. test holes)	STANDARD EXCAVATIONS (e.g. utility and service trenches)		
Work Completed By	**Minor Work Permit**	**Standard Street Works Permit**	**Project Agreement**	**Best Practice**
City Forces				✓
City Capital Projects*	✓			✓
Third-Party Works	✓	✓	✓	✓
Metro Vancouver Projects**	✓		✓	✓
Development Works	✓		✓	✓

*City Capital Projects typically include full width road restoration.

** The GVS&DD and GVWD Policy on Pavement Restoration for Sewer and Water Main Installations applies to Standard Excavations by Metro Vancouver.

ASPHALT AND CONCRETE CORING

4. Final restoration of asphalt or concrete cores up to 200 mm diameter shall be completed immediately following the coring operation. Restoration of cores shall involve filling the cored area with non-shrink, high strength grout and ensuring that the final surface is flush with surrounding ground;

5. Non-shrink, high strength grout refers to a cement-based grout that contains non-metallic and anti-shrinkage compounds blended with graded siliceous aggregate and Portland cement. The grout shall be designed for its application, whether it is flexible pavement repairs for asphalt coring or rigid pavement repairs for concrete coring. An example of such product is TARGET® Traffic PATCH™ Coarse;

ALL EXCAVATIONS

6. All other restorations shall conform to requirements in the City of Burnaby Supplementary Specifications & Standard Detailed Drawings and the Master Municipal Construction Document (Platinum Version). The following Standard Detailed Drawings, attached, describes the requirements of this policy in graphics format:

BBY-R114	Pavement Restoration
BBY-R115	Permanent Pavement Restoration Areas
BBY-R116	Permanent Pavement Restoration Areas at an Intersection.

7. Temporary restoration can be applied to all excavations but shall be permanently restored within six months;

8. No temporary restoration can be left unpaved if the area will be opened for traffic. Temporary road steel plates, where approved by the City, shall be designed and monitored by a Professional Engineer;

9. Final restoration of all excavations shall be completed to match existing conditions or better;

10. All edges of the final pavement restoration shall be saw cut or milled straight lines which are perpendicular or parallel to the lane;

11. All areas that experience sloughing of trench walls and/or undermining of materials below the asphalt along trench walls shall be marked on the surface during construction. Prior to final restoration, the full depth of asphalt at these locations shall be saw cut and removed and reconstructed with proper compaction in full depth;

12. Permanent restoration of asphalt surfaces shall be machine-placed and compacted using rollers. Hand placed asphalt will not be accepted as permanent restoration;

13. Finished surface of permanent restoration shall be within 6 mm of existing elevation. Finished surface of temporary restoration shall be within 15 mm of existing elevation;

14. Restoration of all concrete works, including sidewalks, curb & gutter, and driveways requires replacement of full concrete panels between existing dummy joints or expansion joints. The Contractor shall complete concrete cylinder tests in accordance to minimum material testing requirements in the City's Supplementary Specifications;

15. Where existing road structure is composed of structural strengthening features (e.g. concrete slabs, controlled density fill, lightweight fill, geo-synthetic systems, etc.), the features shall be replaced like-for-like and connected to existing systems as per the manufacturers' and the City requirements;

16. Special surface treatments such as coloured concrete/asphalt or stamped concrete/asphalt shall be replaced like-for-like. Contractor shall present the City with a mock-up for approval prior to installation;

17. Restoration of permanent pavement markings, survey monuments, and traffic detector loops embedded in the pavement is the responsibility of the Contractor. The Contractor shall provide and maintain temporary pavement markings until permanent pavement markings are installed. All temporary pavement markings shall be removed immediately following installation of the permanent markings;

18. All sawcut lines that extend beyond the permanent patched area shall be sealed with pavement crack sealer as part of permanent restoration;

SMALL EXCAVATIONS

19. A small excavation refers to any cut in the pavement that is smaller than one meter by one meter in size, for applications including asphalt coring, test holes, monitoring wells installation and removal, etc.;

20. Temporary restoration of all small excavations, excluding coring, shall be backfilled using 19mm crushed granular gravel and filled with non-shrink, high strength grout from 50 mm below the underside of the existing pavement up to the pavement surface;

21. Monitoring wells or boreholes where groundwater is encountered shall be decommissioned according to the City of Burnaby "Wells/Boreholes and Vacuum Holes Decommissioning Procedure". Alternate decommissioning methods in accordance to ASTMD5299/D5299M - "Standard Guide for Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities" may be proposed to the City Environmental Services Division in writing for acceptance prior to completing the work;

22. Final restoration area shall be at minimum a 1.2 meter by 1.2 meter square or diamond per BBY-R115;

23. For permanent restoration, final asphalt inlay of small excavations shall be completed in accordance to BBY-R114 using crushed granular materials and hot-mix asphalt. Cold-mix asphalt is not to be used. Grout from temporary restoration shall be removed;

24. Permanent restoration of small excavations that are within 2.0 meters of each other in the same lane shall be combined and restored as a standard excavation;

25. Extend final paving to the edge of pavement when a repair is within one meter to the edge of the pavement;

STANDARD EXCAVATIONS

26. A standard excavation refers to any cut in the pavement that is larger than one meter by one meter in size;

27. Temporary restoration and permanent restoration shall be completed using crushed granular materials and hot-mix asphalt in accordance to BBY-R114. Cold-mix asphalt is not to be used;

28. Restoration of excavations that are within 5.0 meters of each other in the same lane shall be combined;

29. Permanent pavement restoration will be to a full lane width and minimum 2.0 meters in length in the direction of travel. If a road has no lane markings, then the extent of paving will be the centerline of the road to the curb or road edge. If a cut is within the bike lane or paved shoulder, the extent of paving will be from the painted line to the edge of the pavement, and 2.0 meters in length in the direction of travel. The above apply to all lanes that a standard excavation may extend into, regardless of the size of extension into each lane;

30. Permanent pavement restorations along travelled lanes shall be in accordance to BBY-R115;

31. Permanent pavement restorations within intersections shall be in accordance to BBY-R116. Edge of all permanent restoration shall be at an intersecting lane line, centerline, painted line, or edge of pavement. Where the intersection is restored in the curb lane area next to a curb return, final paving shall be extended to the curb return;

32. A settling period to allow for trench settlement prior to final mill and pave shall be determined by a geotechnical engineer. The suggested minimum settling period before final restoration is three months;

INSPECTION AND WARRANTY

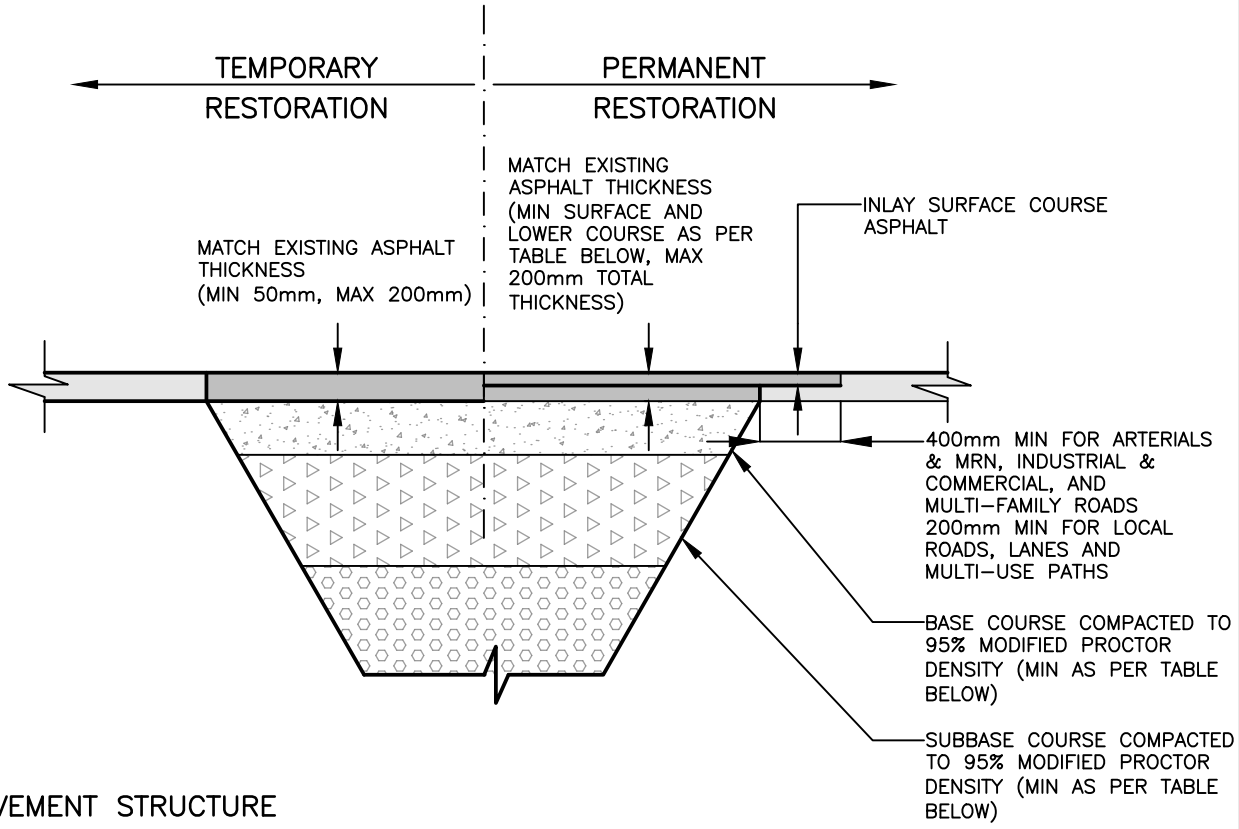
33. The Contractor is responsible for monitoring and maintenance of any temporary restoration before final restoration is completed;

34. The Contractor is responsible for restoration of any damaged area outside the limits of the excavation caused by their construction equipment and operation, unless the Contractor can clearly demonstrate that the damage is pre-existing;

35. Limits of final pavement restoration shall be determined during a walkthrough between City representative and the Contractor prior to completing the work;

36. Temporary and final restoration shall be completed to the satisfaction of the City Engineer, and;

37. All permanent restorations shall have a warranty period of one year. The warranty period shall start over every time rehabilitation work required and performed on the permanent restoration. Warranty shall cover defects including settlement, poor workmanship, inadequate compaction and cracks.



MINIMUM PAVEMENT STRUCTURE

ROAD CLASSIFICATION	SURFACE COURSE ASPHALT	LOWER COURSE ASPHALT	BASE COURSE	SUBBASE COURSE
ARTERIAL & MRN	60mm Superpave 19nms (MRN Roads)/ 60mm Superpave 12.5nms (Arterial)	100mm Lower Course #1 (in two lifts)	100mm–19mm Crushed Granular Base	300mm–19mm Crushed Granular Subbase*
INDUSTRIAL & COMMERCIAL ROADS (LOCAL AND COLLECTOR)	50mm Upper Course #1	100mm Lower Course #1 (in two lifts)	100mm–19mm Crushed Granular Base	300mm–19mm Crushed Granular Subbase*
MULTI-FAMILY (LOCAL AND COLLECTOR)	50mm Upper Course #1	75mm Lower Course #1	100mm–19mm Crushed Granular Base	250mm–19mm Crushed Granular Subbase*
LOCAL	40mm Upper Course #2	45mm Lower Course #1	100mm–19mm Crushed Granular Base	250mm–19mm Crushed Granular Subbase*
LANE	40mm Upper Course #2	45mm Lower Course #1	100mm–19mm Crushed Granular Base	250mm–19mm Crushed Granular Subbase*
MULTI-USE PATH	35mm Upper Course #2	40mm Lower Course #2	75mm–19mm Crushed Granular Base	250mm–19mm Crushed Granular Subbase*

* APPLIES TO TRENCH RESTORATION ONLY. 75mm CRUSHED GRANULAR SUBBASE FOR ROAD RECONSTRUCTION.

NOTES

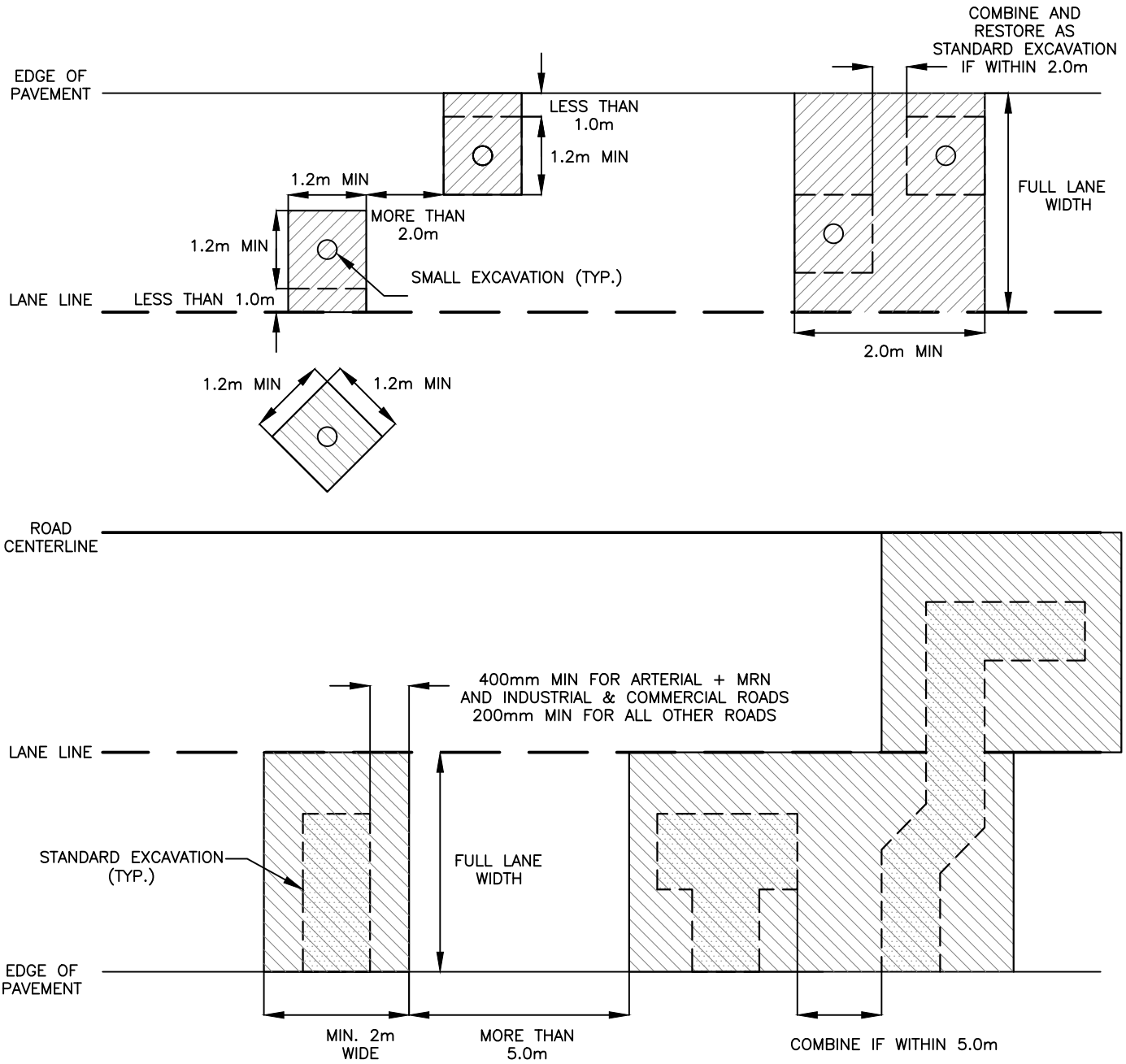
1. HOT MIX ASPHALT CONCRETE ONLY
2. MAXIMUN LIFT THICKNESS IS 75mm
3. STANDARD FOR THE HIGHER STREET CLASS APPLIES WHERE THERE ARE MIXED PROPERTY ZONING ON A STREET
4. REFER TO CITY OF BURNABY PAVEMENT RESTORATION POLICY

NOT TO SCALE

City of Burnaby
ENGINEERING DEPARTMENT

PAVEMENT RESTORATION

APPROVED BY: K.W	SCALE: N.T.S	BBY- R114
DRAWN BY: S.S	DATE: JUN.2020	



PLAN

PERMANENT PAVEMENT RESTORATION EXTENT

TRENCH LIMITS AT TOP OF PAVEMENT

NOTES:

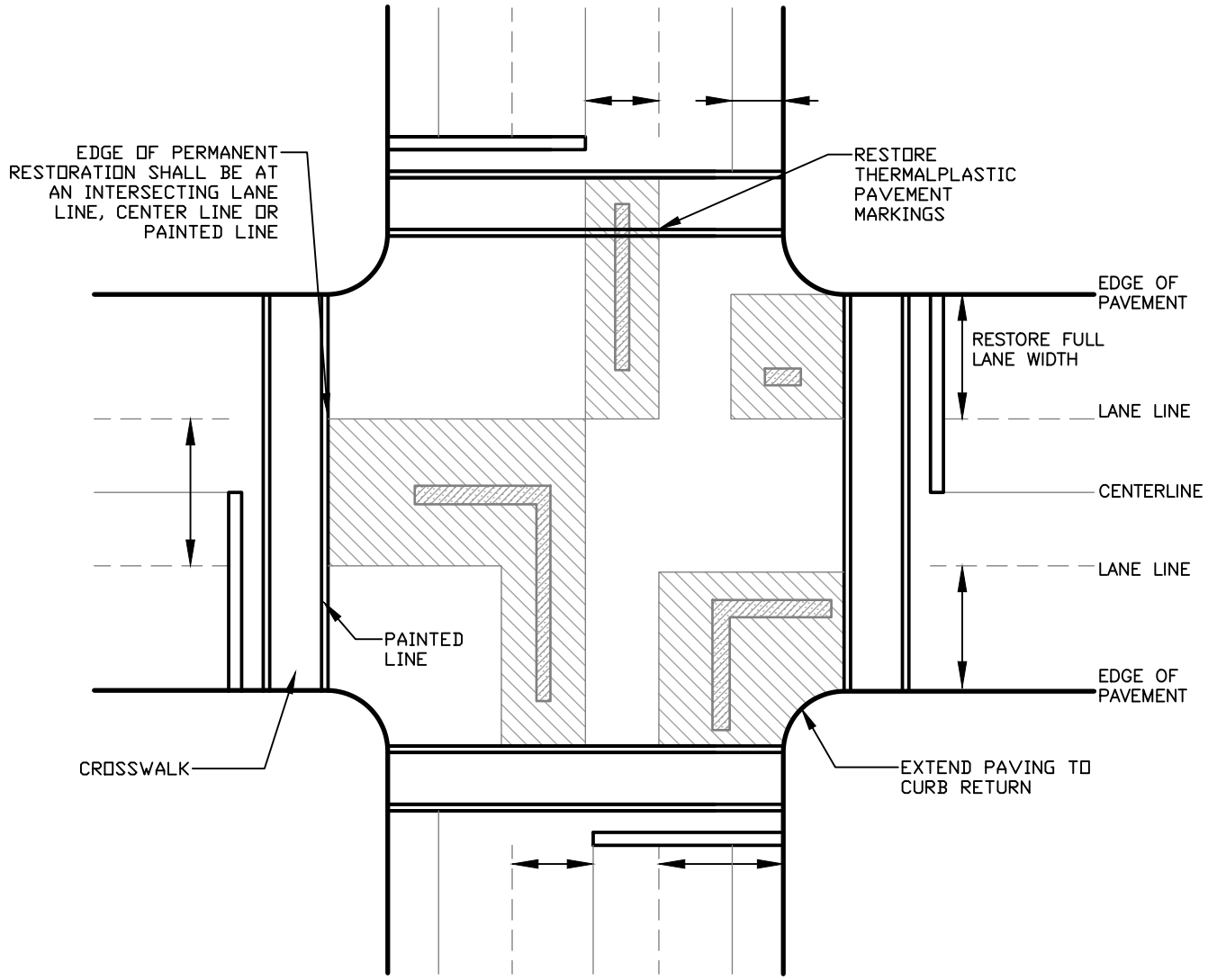
1. HOT MIX ASPHALT CONCRETE ONLY
2. REFER TO CITY OF BURNABY PAVEMENT RESTORATION POLICY AND BBY–R114 FOR PAVEMENT RESTORATION DETAILS.
3. DIAMOND CUT IS ALSO PERMITTED FOR SMALL EXCAVATIONS NEAR THE CENTER OF A LANE.

NOT TO SCALE

City of Burnaby
ENGINEERING DEPARTMENT

PERMANENT PAVEMENT RESTORATION AREAS

APPROVED BY: K.W	SCALE: N.T.S	**BBY-** R115
DRAWN BY: S.S	DATE: MAY.2020	



PLAN

NOTES

1. HOT MIX ASPHALT CONCRETE ONLY
2. REFER TO CITY OF BURNABY PAVEMENT RESTORATION POLICY AND BBY–R114 FOR PERMANENT RESTORATION DETAILS.

NOT TO SCALE

City of Burnaby
ENGINEERING DEPARTMENT

PERMANENT PAVEMENT RESTORATION AREAS AT AN INTERSECTION

APPROVED BY: K.W	SCALE: N.T.S	BBY- R116
DRAWN BY: S.S	DATE: MAY.2020	