

**SPECIAL PROVISIONS APPENDIX
FOR AMENDMENTS TO THE 2020 STANDARD SPECIFICATIONS
FOR HIGHWAY CONSTRUCTION
Update #5: November 20, 2023**

The following amendments apply to and take precedence over the 2020 Standard Specifications for Highway Construction, and over earlier amendments (if any).

This document is a consolidation of all SS 2020 amendments issued to date.

Amendments are presented in order of Section number, rather than release date. New amendments within this Update are flagged as **NEW**. Others have been previously released on the indicated “Issued” date heading each provision. Unless the context implies otherwise: *Italicized* text is instructions; unitalicized text is the amended language; Redline/Strikeout formatting or grey-shading in table cells (when used) is only presented to aid users in identifying changes that have been made within a block of text. Not all changes are marked.

SECTION 202 – ROADWAY AND DRAINAGE EXCAVATION

Issued Date: February 8, 2023

SS 202.21.07 Radial Stackers (page 7 of 13) – This clause is misnumbered as “201.21.07” in the published document. Delete the number “201.21.07” and replace it with “202.21.07”

Issued Date: February 26, 2021

SS 202.23 Bridge End Fill (page 7 of 13) – The fourth paragraph is amended by deleting the reference to “SS 201.22” and replacing it with “SS 202.22”.

Issued Date: February 8, 2021

SS 202.36.04 Ministry Materials Processed on Private Lands (page 10 of 13) is amended by deleting SS 202.36.04(d) and replacing it with the following.

(d) Where the volume of material remaining is less than the additional contingency amount determined pursuant to SS 202.36.04(a), the Ministry Representative will make the offers in SS 202.36.04(c)(ii). If agreement is not reached, SS 202.36.04(c)(i) will apply

SECTION 421 – STRUCTURAL STEEL

Issued Date: February 26, 2021

SS 421.06 Quality Assurance (page 3 of 22) is amended by deleting the fifth paragraph and replacing it with the following:

The extent of non-destructive testing will usually be in accordance with Table 421-A for each girder.

SECTION 502 – ASPHALT PAVEMENT CONSTRUCTION (EPS)

Issued Date: February 5, 2021

SS 502.08.03 Asphalt Mix Antistrip Additives – This earlier amendment is superseded by the February 8, 2023 amendment following.

Issued Date: February 8, 2023

SS 502.08.03 Asphalt Mix Antistrip Additives – Delete SS 502.08.03, including any earlier amendments, and replace it with the following:

“502.08.03 Asphalt Mix Anti-strip Additives

- (a) **All Mixes:** An anti-stripping agent, compatible with the supplied asphalt cement, shall be chosen by the Contractor from the Ministry’s [Recognized Products List](#), and shall be added to all asphalt mix used in the Work. The Recognized Products List can be found online at:

<https://www2.gov.bc.ca/gov/content/transportation/transportation-infrastructure/engineering-standards-guidelines/recognized-products-list>

The Contractor shall notify the Ministry Representative of the type of anti-stripping agent and the percent by weight being added.

For all mix designs, the Contractor shall determine the Tensile Strength Ratio (TSR) of each asphalt mix in accordance with AASHTO T 283.

Asphalt cement must still meet the specified grade following the addition of the anti-stripping agent.

- (b) **Standard Dosage:** Organosilane anti-stripping agents are to be added at standard dosage rate of 0.05% additive by weight of asphalt cement. All other anti-stripping agents are to be added at a standard dosage rate of 0.3% additive by weight of asphalt cement.
- (c) **Increased Dosage:** The anti-stripping agent dosage rate shall be increased as necessary to meet a minimum TSR value of 80.
- (d) **Dosing Location:** The anti-stripping agent shall be added:
- (i) at the AC supplier’s terminal with the dosage rate percent included on the bill-of-lading;
or
 - (ii) at the Contractor’s asphalt mix plant only after the Ministry Representative has approved the process for blending the materials, conducting QC, and monitoring and confirming dosage rates.
- (e) **Payment:** All costs associated with supplying and blending the additive into the asphalt cement shall be incidental and included in the Unit Price bid for the varying classes and lifts of asphalt mix.

If an increased dosage of anti-stripping agent is required above the standard dosage rates specified SS 502.08.03(b) above, or as amended in the Special Provisions, the costs for the additional anti-stripping agent above the standard dosage will be paid through the Provisional Sum for Site Modifications.”

Issued Date: January 1, 2021

SS 502.50 Payment Adjustments (page 14 of 32) is amended by adding the following after the existing text.

- (a) Rejection Limits:** Notwithstanding any other provision of the Contract, including full or partial waivers of payments adjustments for any or all of the following five rated characteristics:
- (i) density;
 - (ii) AC content;
 - (iii) gradation;

- (iv) application rate; and
- (v) segregation,

the rejection limits for each of those characteristics will apply to the Work.

For smoothness, the payment adjustments and rejection limits shall apply as specified in SS 502.57 Smoothness.

NEW Issued Date: *November 20, 2023*

SS 502.52.03 Coring (page 15 of 32) is amended by deleting the final sentence of the first paragraph [“The Contractor shall deliver ... safe storage location.”] and replacing it with:

“The Contractor shall immediately provide all cores taken (including those damaged during extraction) to the Ministry Representative or delegate thereof.

Issued Date: *January 1, 2021*

SS 502.53.04 Payment Adjustments (page 14 of 32) is amended by adding the following after the existing text.

However, if a Lot contains any Sub-Lot that falls within the reject zone of Table 502-K:

- (i) no bonus payment will be made for the Lot; and
- (ii) any penalty for the Lot will be based on the average AC content of all Sub-Lots, including those within the reject zone.

Issued Date: *January 1, 2021*

Tables 502-K and 502-M (pages 18 and 19 of 32) are deleted and replaced with the following.

Table 502-K: Payment Adjustments for Deviation of Asphalt Content

Differences of Actual AC Content From Designed AC Content in JMF (AC in %)		
Deviation from Asphalt Mix Design JMF	Payment Adjustments \$ per tonne	
	Top Lift	Lower Lifts
-0.56 or less	REJECT	REJECT
-0.55 to -0.51	REJECT	-\$9.00
-0.50 to -0.46	-\$8.00	-\$8.00
-0.45 to -0.41	-\$7.00	-\$7.00
-0.40 to -0.36	-\$5.00	-\$5.00
-0.35 to -0.26	-\$3.00	-\$3.00
-0.25 to -0.16	-\$1.00	-\$1.00
-0.15 to -0.01	\$0.00	\$0.00
0.00 to +0.15	\$2.00	\$2.00
+0.16 to +0.30	\$1.50	\$1.50
+0.31 to +0.35	\$0.00	\$0.00
+0.36 to +0.40	-\$2.00	-\$2.00
+0.41 to +0.45	-\$3.00	-\$3.00
+0.46 to +0.50	-\$5.00	-\$5.00
+0.51 to +0.55	REJECT	-\$6.50
+0.56 or greater	REJECT	REJECT

Table 502-M: Payment Adjustments for Material Application Rate

Actual Application Rate (Percent of specified rate)	Payment Adjustments \$ per tonne of material in the Lot (unless otherwise note)	
	Bottom Lift or Single Lift	Top Lift of Multiple Lifts
≥ 110	- \$7.00 for all material in the Lot up to 110% and no payment for product in excess of 110.0%	- \$7.00 for all material in the Lot up to 106% and no payment for product in excess of 106.0%
≥ 106.0 to <110.0	-\$5.00	
≥ 105.0 to <106.0		-\$5.00
≥ 103.0 to <105.0	-\$2.00	-\$2.00
≥ 102.0 to <103.0	\$0.00	\$0.00
≥ 97.0 to <102.0	\$1.00	\$1.00
≥ 94.0 to <97.0	-\$2.00	-\$2.00
≥ 92.0 to <94.0	-\$3.00	-\$3.00
≥ 90.0 to <92.0	-\$4.00	-\$4.00
≥ 85.0 to <90.0	-\$7.00	-\$7.00
<85.0	REJECT	REJECT

Issued Date: January 1, 2021

SS 502.57.04 Determination of Pavement Smoothness (page 21 of 32) is amended by deleting the third paragraph and replacing it with the following.

The profile shall be measured over the entire length of the pavement exclusive of structures and shoulder areas. Acceleration, deceleration and turning lanes are considered part of the driving lanes and shall be tested in accordance with this provision. The following areas will be excluded from Smoothness EPS payment adjustments and reject limits:

- Areas with a speed limit less than 70 km;
- Curb and gutter;
- Ramps, acceleration or deceleration lanes less than 300 m in length;
- Freeway cloverleaves;
- Turn lanes and storage lanes; and
- Other areas as specified in the Contract.

The areas outlined above are not exempt from the requirements of SS 502.57.09 Smoothness Deficiencies.

For the measuring process, the Contractor shall provide the Ministry Representative a chalk guideline in the centre of the lane immediately prior to measurement.

SP Appendix: SS 2020 Amendments

Issued Date: February 8, 2023

SS 502 Appendix B (Page 27.1 of 32): This previously issued amendment is incorporated into the November 20, 2023 amendment below.

NEW Issued Date: November 20, 2023

SS 502 Appendix B (Page 27.1 of 32): This Appendix is deleted and replaced with the attached new SS 502 Appendix 502-B, which reflects the February 8, 2023 amendment made to clause 1 in Update #4, revised word in 3(c), insertion of a new 3(d), deletion of prior 5, and renumbering of prior 6.

Issued Date: February 8, 2023

SS 502 Appendix 502-B-1: Insert the attached new SS 502 Appendix 502-B-1 immediately after Appendix 502 B.

SECTION 511 – COLD MILLING

Issued Date: February 8, 2023

511.32 Pavement Removal (Page 1 of 2): In the fourth paragraph, delete the first two sentences.

~~“At the end of each shift, all travelled lanes shall be milled to the same point to eliminate any uneven edge between lanes. Where median barrier is present, lanes in the same direction of travel shall be milled to the same point; lanes in the opposing direction may be milled to a different point.”~~

SECTION 635 – ELECTRICAL AND SIGNING

Issued Date: February 8, 2023

SS 635 – The following four SP Drawings are deleted and replaced with the attached revised versions.

SS Drawing SP635—2.1.1 (Page 97 of 277) – Revision G.

SS Drawing SP635—2.3.9 (Page 131 of 277) – Revision G.

SS Drawing SP635—2.5.6 (Page 163 of 277) – Revision F.

SS Drawing SP635—2.5.10 (Page 167 of 277) – Revision C.

SECTION 908 – PRESERVATIVE TREATMENT – WOOD PRODUCTS

Issued Date: January 1, 2021

SS 908 (Page 2 of 4) – The published page has a number for formatting issues, with SS 908.07.03, SS 908.07.04, and SS 908.07.05 being out of sequential order and SS 908.07.05 list items (e) and (f) incorrectly appearing under SS 908.07.02. SS 908 (page 2 of 4) is deleted and replaced with the attached.

SECTION 942 – PRECAST CONCRETE INTERLOCKING MODULAR BLOCKS

Issued Date: February 8, 2021

SS 942.15.01 (Page 2 of 3) – Delete the text in the lead-in paragraph and replace it with the following.

942.15.01 Defects – Structurally defective or damaged Interlocking Blocks, as well as those with defects outside the limits specified in SS 942.15.01(a) shall be cause for rejection.

SP Appendix: SS 2020 Amendments

SECTION 952 – CONTRACTOR SUPPLY ASPHALT AND PAVING MATERIALS FOR HIGHWAY USE

Issued Date: *February 8, 2023*

SS 952 Table 952-A Standard Test Methods – ASTM (Page 3 of 17) – Test Methods D2415 and D6048 are added. Delete the Table and replace with the following amended version.

Table 952-A: Standard Test Methods - ASTM

ASTM TEST DESIGNATION	TITLE OF TEST: Standard Test Method for...
D5	Penetration of Bituminous Materials
D13	Ductility of Asphalt Materials
D36	Softening Point of Bitumen (Ring-and-Ball Apparatus)
D70	Density of Semi-Solid Asphalt Binder (Pycnometer Method)
D92	Flash and Fire Points by Cleveland Open Cup Tester
D95	Water in Petroleum Products and Bituminous Materials by Distillation
D113	Ductility of Asphalt Materials
D139	Float Test for Bituminous Materials
D243	Residue of Specified Penetration
D244	Standard Test Methods and Practices for Emulsified Asphalts

D402	Distillation of Cutback Asphalt
D803	Testing Tall Oil
D1310	Flash Point and Fire Point of Liquids by Tag Open-Cup Apparatus
D1754	Effects of Heat and Air on Asphaltic Materials (Thin-Film Oven Test)
D2042	Solubility of Asphalt Materials in Trichloroethylene
D2170	Kinematic Viscosity of Asphalts
D2171	Viscosity of Asphalts by Vacuum Capillary Viscometer
<u>D2415</u>	<u>Ash in Coal Tar Pitch</u>
<u>D6084</u>	<u>Elastic Recovery of Asphalt Materials by Duclilometer</u>
D7496	Viscosity of Emulsified Asphalt by Saybolt Furol Viscometer

Issued Date: *February 8, 2021*

SS 952 Table 952-N: Requirements for High Float Emulsified Asphalts (Page 9 of 17) – Delete the Table and replace with the attached amended Table 952-N.

ATTACHMENTS:

1. **NEW** Issued November 20, 2023: SS 502 Appendix 502-B - 1 page
2. Issued February 8, 2023: SS 502 Appendix B and Appendix 502-B-1 - ~~1 page~~ and 7 pages respectively
3. Issued February 8, 2023: SS 635 Drawings SP635-2.1.1, 2.3.9, 2.5.6 and 2.5.10 - 4 pages
4. Issued January 1, 2021: SS 908 (Page 2 of 4) – 1 page
5. Issued February 8, 2023: SS 952 Table 952-N – 1 page

APPENDIX 502-B

OBTAINING AND PREPARING LOOSE MIX SAMPLES

1. Three (3) uncompacted mix samples per Sub-Lot shall be obtained by the Contractor in accordance with ASTM D979, SS 502 Appendix 502-B-1, and in the presence of the Ministry Representative or a delegate thereof. Samples shall be taken from the roadway after being laid by the paver, at locations and times chosen by the Ministry Representative. The first sample shall be used by the Contractor for Quality Control, the second sample by the Ministry for Quality Assurance, with the third retained by the Ministry for potential appeal testing.
2. The sizes of the samples taken shall meet the requirements of ASTM D979, Table 1, *Guide for Estimating Minimum Sample Quantity*.
3. The sample size shall be reduced to required laboratory sample size for Marshall and Superpave gyratory briquettes, asphalt content and hot mix gradation determination as outlined below:
 - (a) The sample shall either be reduced using a Riffle splitter or shall be quartered into four approximately equal portions. The two diagonally, opposite quarters shall be combined resulting in two samples. Identify and designate one of the samples as the Quality Companion Sample and set aside. Identify and designate the other resulting sample as the Quality Control Sample. Use the Quality Control Sample for testing.
 - (b) The Quality Control Sample shall be weighed to ensure that the sample so obtained meets the minimum mass required for the ignition test. If the sample does not meet the minimum mass requirements, then the additional materials will be obtained and added to the Quality Control Sample from the Companion Sample. This will be achieved by quartering the Quality Companion sample and adding one quarter of the Quality Companion Sample to the Quality Control Sample.
 - (c) This process is to be repeated for each sample to provide the Quality Assurance and Appeal Samples.
 - (d) These processes are to take place in the presence of the Ministry Representative or delegate thereof, at the time and location where the samples are taken, or at another nearby location acceptable to the Ministry Representative.
4. The third sample for appeal purposes shall be set aside and retained in a Contractor-supplied, suitable container labeled with sample location, date sampled, and project information.
5. The areas sampled shall be filled with mix immediately after sampling and shall receive the same compactive effort as the rest of the mat.

APPENDIX 502-B-1

LOOSE ASPHALT MIX SAMPLING PROCEDURE

1.0 General:

The purpose of this document is to establish a standard procedure for sampling loose mix asphalt used for the Ministry's projects. The intent is to obtain a representative loose mix asphalt sample before the material is compacted and incorporated into the pavement.

Three methods are outlined as follows. Users can select a method that is best suitable for their operations and can obtain a representative loose asphalt mix sample based on the individual project conditions.

Method A (sampling using shovel – no plate) – In this method a loose mix sample is obtained from the asphalt concrete mat behind the paver using a shovel. The sample is obtained before the start of compaction.

Method B (sampling using sampling plate) – This method uses a sampling plate that is placed on the roadway prior to placement of asphalt mix from the paver. This method is suitable when the asphalt mix is placed on a base course surface to avoid sample contamination with underlying base material. This method is also suitable when asphalt mix is placed on a milled surface to avoid loss of fines while obtaining the sample.

Method C (sampling using sampling template) – This method uses a sampling template that is placed on the roadway prior to compaction. The template is inserted through the depth of the asphalt mat.

2.0 General Training/Experience:

All samples shall be obtained by a person experienced with procedures for sampling and handling asphalt mix. This person shall have adequate knowledge and training related to safety practices to be followed on a paving project.

3.0 Apparatus/Equipment:**a. Equipment Common to All Methods**

- Measuring tape
- Insulated gloves
- Flat nose shovel with vertical sides (Recommended: 10" x 12" with 2.5" sides, overall length 5'). Users can

choose a shovel size suitable for their operations.

- Sample container – Cardboard boxes, metal containers, stainless steel bowls or other suitable containers

b. Additional Equipment Needed**Method A**

- No additional equipment needed.

Method B

- Shovel - Regular shovel can be used as well for this method.
- Sampling plate - heavy gauge metal plate preferably 380 mm x 380 mm (15" x 15") or 360 mm x 720 mm (14" x 28"), minimum 8 gauge thick optional wire attached to one corner long enough to reach from the center of the paver to the outside of the farthest auger extension. Holes 6.4 mm (¼") diameter should be provided in each corner. The plate should be capable of safely holding 15 to-30 kg material.
- Flat tray with handles (can be used instead of plates)

Method C

- Shovel - Regular shovel can be used as well for this method.
- Sampling template – Formed steel box (cookie cutter) with two 100 mm x 150 mm x 9 mm handles, sized to accommodate sample requirements. The leading edge of the cookie cutter box can be slightly beveled or angled for easier insertion into the asphalt mat.

4.0 Sampling Procedure:**a. Method A - Sampling Using Shovel (No Plate):**

1. Select a random location that is representative of the cross section of the mat as per the practices followed by the Ministry.
2. Mark the roadway with suitable marker. Wait until the paver has passed the mark.

SECTION 502

ASPHALT PAVEMENT CONSTRUCTION (EPS)

3. For a standard 3.65m wide mat, samples shall be taken 0.3 to 1.0m from outside edge of the pavement.
4. Sampling shovel can be preheated prior to taking the sample. Make sure that the shovel is free of any material, contaminant or solvent (release agent etc.).
5. Using the flat nose sampling shovel at the random location, dig directly downward into newly placed asphalt mat until it comes into contact with the pavement or other surface below.
6. When in contact, push the shovel forward until sampling shovel is full of asphalt mix and lift the shovel up slowly, being careful not to lose any asphalt mix. Place materials from shovel directly into sample container.
7. Scrape any asphalt mix material adhering to the shovel into the sampling container using a spatula. Extreme care should be taken to minimize coarse and fine particle separation while the sample is being taken.
8. The asphalt mix sample shall be obtained from the full depth of the mat avoiding contamination from underlying layers.
9. Try not to disturb any more sampling area than necessary to obtain a representative sample.
10. Take sufficient asphalt mix material to complete all the testing requirements specified as per the contract.
11. The material removed from the roadway shall be immediately replaced. The material shall not be broadcasted across the asphalt mat.

b. Method B - Sampling Using Metal Plate:

1. Select a random location that is representative of the cross section of the mat to be constructed, as per the practices followed by the Ministry.
2. The plate should be placed at least 600mm away from the edge of the asphalt mat. Determine the location of the plate before the paver reaches the selected location.
3. Lay the plate (with attached wire if used) down diagonally with the direction of travel, keeping it flat and tight to the base with the lead corner facing the paving machine.
4. If multiple plates are used (usually 3), the plates should be staggered over the lane, in the transverse direction (two plates at 300

mm from the edges of the lane and one at the center of the lane).

5. If wire is used with the plate, run the attached wire perpendicular to the direction of the paver, beyond the farthest auger extension and beyond the paving width. The wire should be held to the ground to allow construction and paving equipment to pass over the wire and the plate.
6. Make sure that the plate is placed in a manner or is secured properly so that it doesn't get dragged or lifted during placement of asphalt mix. This is important as the plate can potentially cause screed or other equipment damage when not secured or placed properly.
7. High temperature heat resistant metallic tape may be used to hold the plate securely (in case plate is getting dragged or lifted). The wire can be held to the surface or secured using tape.
8. After the placement of asphalt mix, locate the plate. If wire attachment is used, locate the plate by raising the wire.
9. Raise the plate slightly using a shovel, taking care not to lose any of the asphalt mix from the plate. This will locate four corners of the plate.
10. Using the flat nose sampling shovel, dig directly downward into newly placed asphalt mat until it comes into contact with the plate below.
11. When in contact, push the shovel forward until sampling shovel is full of asphalt mix and lift the shovel up slowly, being careful not to lose any asphalt mix. Place materials from shovel directly into sample container.
12. Scrape any asphalt mix material adhering to the plate and shovel into the sampling container using a spatula. Extreme care should be taken to minimize coarse and fine particle separation while the sample is being taken.
13. If flat tray with handles is used instead of plates, lift the flat tray using sampling shovel to locate corners of the tray. Flat tray should be secured to the surface prior to placement of mix as described above.
14. Vertically lift the tray laden with asphalt mix from the HMA mat by being careful not to disturb the mix at the edge of the tray. Place the entire asphalt mix sample in the container.

SECTION 502

Scrape any asphalt mix material adhering to the tray into the sampling container using a spatula.

15. The material removed from the roadway shall be immediately replaced. The material shall not be broadcasted across the asphalt mat.

c. Method C - Sampling Using Template (“Cookie Cutter”):

1. Select a random location that is representative of the cross section of the mat to be constructed, as per the practices followed by the Ministry.
2. Mark the roadway with a suitable marker. Wait until the paver has passed the mark.
3. Once the paver has passed the sampling location, immediately place the template on the location to be sampled. Push the template through the asphalt mat until it touches the underlying surface.
4. Using a shovel/scoop, carefully remove all the asphalt mix from inside the template and place into the sampling container.
5. The template shall be scraped as clean as possible to include the fines in the sample.
6. A plate can be used similar to Method B above if contamination of asphalt mix sample from underlying base or loss of fines on a milled surface is a concern.
7. If sampling plate is used, make sure that the template is smaller than the plate and can be easily accommodated inside the sampling plate (example 330mm template dimension for a 380mm sampling plate).
8. Scrape any asphalt mix material adhering to the template into the sampling container using a spatula. Extreme care should be taken to minimize coarse and fine particle separation while the sample is being taken.
9. The material removed from the roadway shall be immediately replaced. The material shall not be broadcasted across the asphalt mat.

5.0 Filling Sampling Holes:

- The holes shall be filled with sufficient quantity of asphalt (preferably slightly overfilled) so that satisfactory restoration of final surface can be achieved.
- When backfilling, the asphalt mix should be dumped vertically. Horizontal dumping of

ASPHALT PAVEMENT CONSTRUCTION (EPS)

asphalt mix can result in segregation on the asphalt mat.

6.0 Sample Identification / Labelling:

- Follow regular Ministry procedures for sample identification and labeling.

7.0 Safety:

Safety precautions are required when sampling and handling asphalt materials. Following are the general safety precautions to be observed when sampling. This procedure may not address all the safety concerns and additional safety measures may be necessary for individual projects or locations.

- Assessing hazards with associated work.
- Determining and using appropriate hazard mitigation strategies, to remove or eliminate hazards and prevent worker exposure.
- Taking precautions to avoid personal injury and environmental hazards.
- Taking precautions to prevent direct contact with high temperature materials.
- Using available resources for any emergencies.
- For safety, the roller(s) must remain at least 3 m (10 ft.) behind the sampling operation until the sample has been obtained and the hole filled with loose asphalt mixture.
- The plate placing operation must be at least 3 m (10 ft.) in front of the paver or pickup device. The technician placing the plate must have eye contact /communication with the paving machine operator. If eye contact cannot be maintained at all times, a third person must be present to provide communication between the operator and the technician.
- Specific precautions as required for each individual project and site.

8.0 References:

- ASTM D979
- AASHTO T 168
- Elseifi, M., Evaluation of Hot Mix Asphalt Sampling Techniques (2007)

SECTION 502

ASPHALT PAVEMENT CONSTRUCTION (EPS)

- Iowa DoT Hot Mix Sampling Demo (2019)

Recommended Sampling Shovel



Method A: Sampling Using Shovel Only



A1: Digging Shovel directly into asphalt at selected location.



A2: Lifting shovel full of asphalt mix.



A3: Scraping off leftover asphalt mix/fines from the shovel into sample container.

Method B: Sampling Using Sampling Plate and Shovel



B1 – Placing sampling plates on the existing surface.



B2 - Plates prior to placement of asphalt mix by paver.



B3 - Locating sampling plate with attached wire after asphalt mix is placed.



B4 - Lifting sampling plate with shovel.



B5 - Taking mix sample on top of the sampling plate.



B6 - Filling the hole left behind by vertically dumping new asphalt mix.

SECTION 502

ASPHALT PAVEMENT CONSTRUCTION (EPS)



B7 - Sampling hole filled up with new asphalt mix.



B8 - Sampling location after placement of new mix and compaction.

Method C: Sampling Using Sampling Template (Cookie Cutter)



C1 - Example: Sampling templates and scoop.



C2 - Placing sampling template at selected location on newly placed asphalt mat.

SECTION 502

ASPHALT PAVEMENT CONSTRUCTION (EPS)



C3 - Placing sampling template at selected location on newly placed asphalt mat.



C4 - Removing asphalt mix inside the sampling template using scoop.



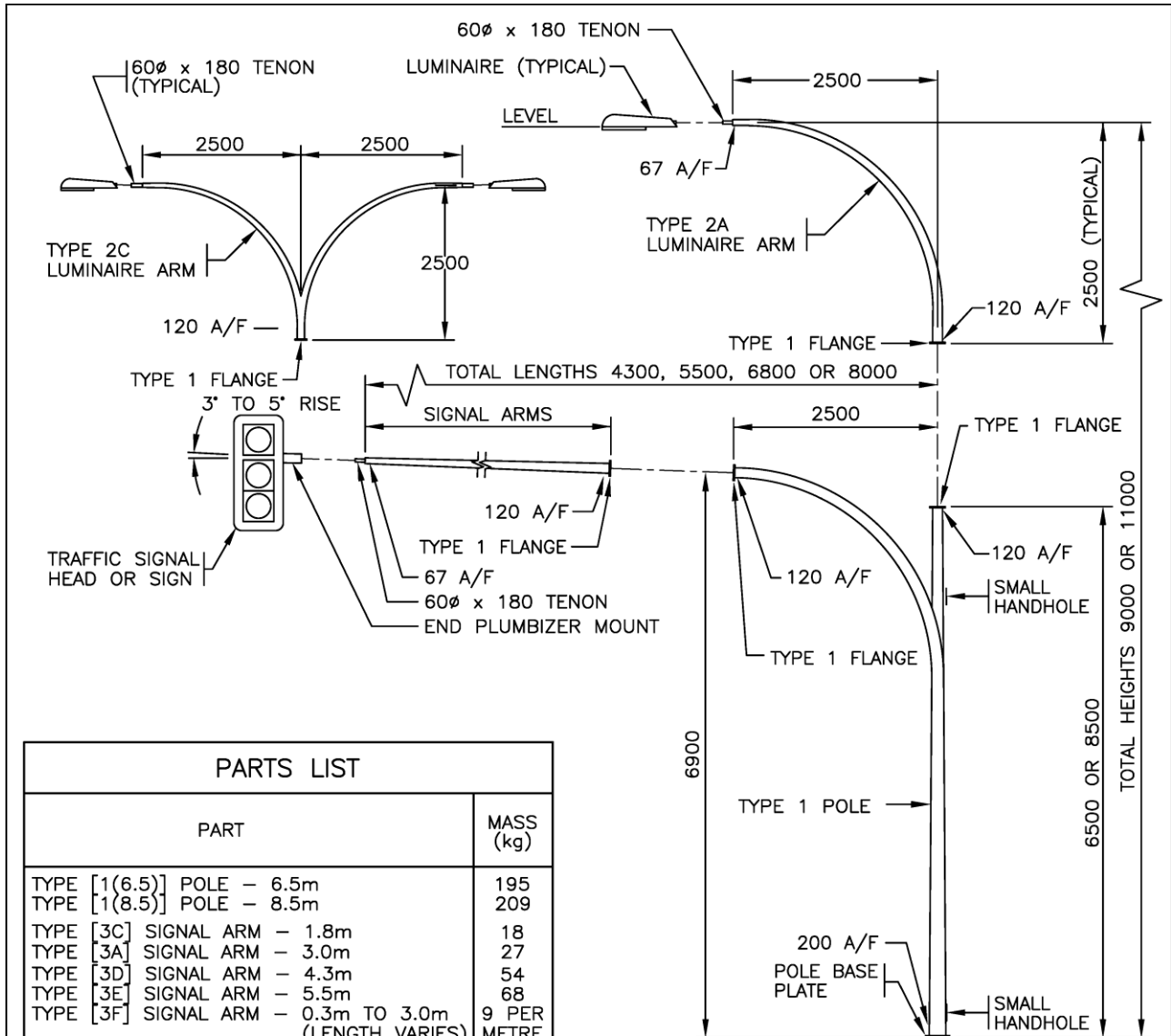
C5 - Scraping off leftover asphalt mix/fines from the scoop into sample container.



C6 - Scraping off leftover asphalt mix/fines from the template into sample container.



C7 - For bigger sampling template shovel can be used.



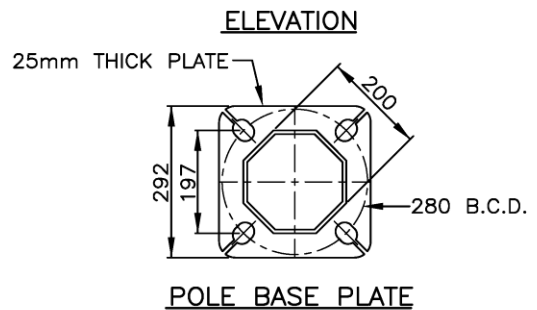
PARTS LIST		
PART		MASS (kg)
TYPE [1(6.5)] POLE - 6.5m		195
TYPE [1(8.5)] POLE - 8.5m		209
TYPE [3C] SIGNAL ARM - 1.8m		18
TYPE [3A] SIGNAL ARM - 3.0m		27
TYPE [3D] SIGNAL ARM - 4.3m		54
TYPE [3E] SIGNAL ARM - 5.5m		68
TYPE [3F] SIGNAL ARM - 0.3m TO 3.0m (LENGTH VARIES)		9 PER METRE
TYPE [2A] LUMINAIRE ARM		35
TYPE [2C] LUMINAIRE ARM		65
POST TOP TENON [PTT]		5
TYPE 1 FLANGE COVER PLATE [1FCP]		1.5

* [] I.D. LABEL ON POLE

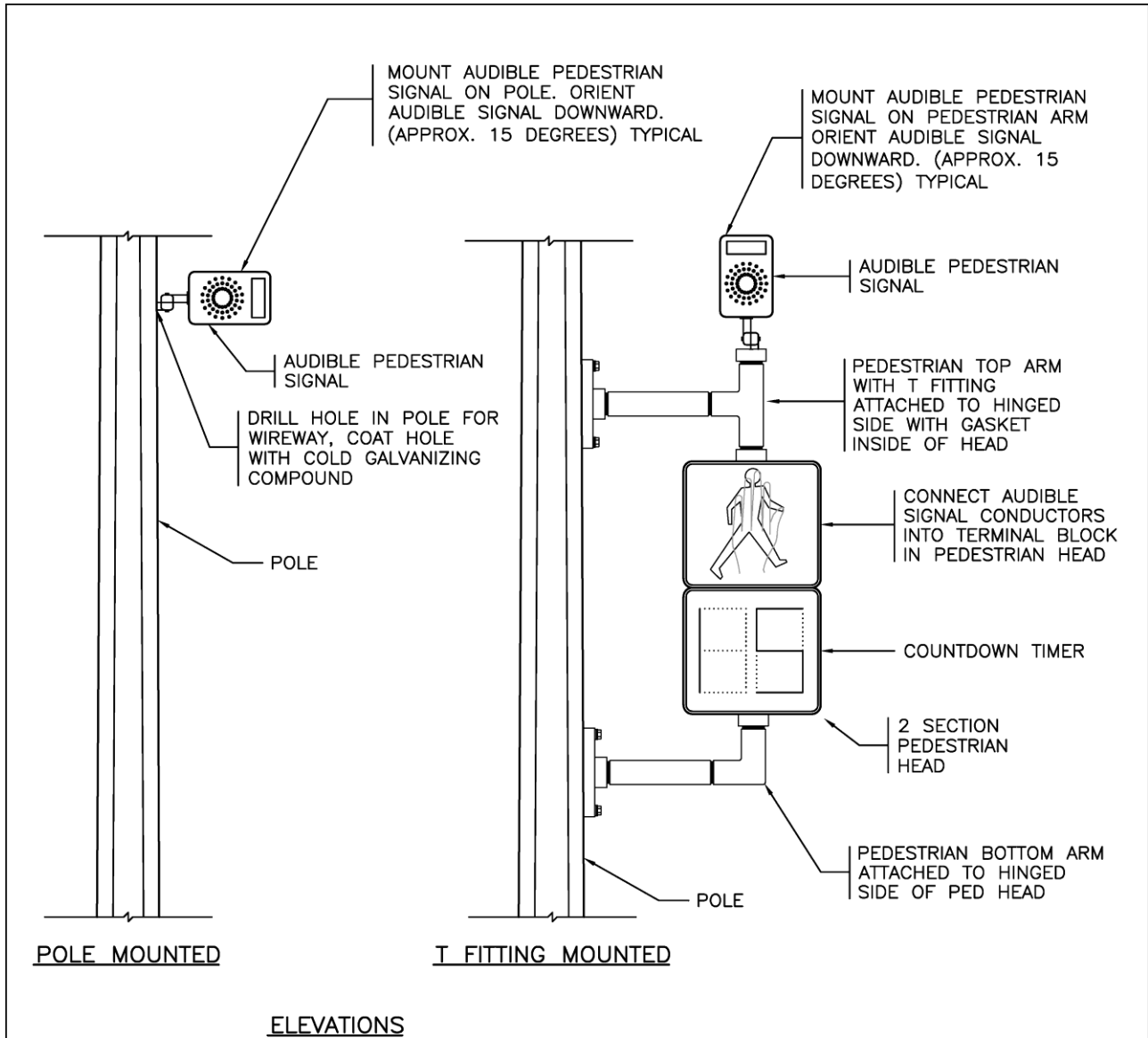
NOTES

- SEE STANDARD SPECIFICATIONS & SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
- SEE DRAWING SP635-2.1.2 FOR TYPE 1 POLE, BOLT KITS AND POLE ASSEMBLY DETAILS.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

NOT TO SCALE



No.	Revision	Date	TYPE 1 POLE INSTALLATION DETAILS (SIGNAL POLE)		SPECIFICATION DRAWING No. SP635-2.1.1
G	TYPE 1 POLE HEIGHT	FEB 23	Date	Approved	
F	GENERAL REVISIONS	APR 20	30/09/93 E.L. (Signature on File) Chief Highway Engineer		
E	GENERAL REVISIONS	APR 17			
D	SIGNAL HEAD MOUNTING REVISED	OCT 03			
C	3F ARM ADDED	AUG 96			
B	SIGNAL HEAD REVISED	AUG 95			



NOTES

1. SEE STANDARD SPECIFICATIONS & SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
2. AIM, ADJUST AND CONNECT AUDIBLE SIGNAL AS PER MANUFACTURERS INSTRUCTIONS TO THE SATISFACTION OF THE MINISTRY REPRESENTATIVE.

NOT TO SCALE



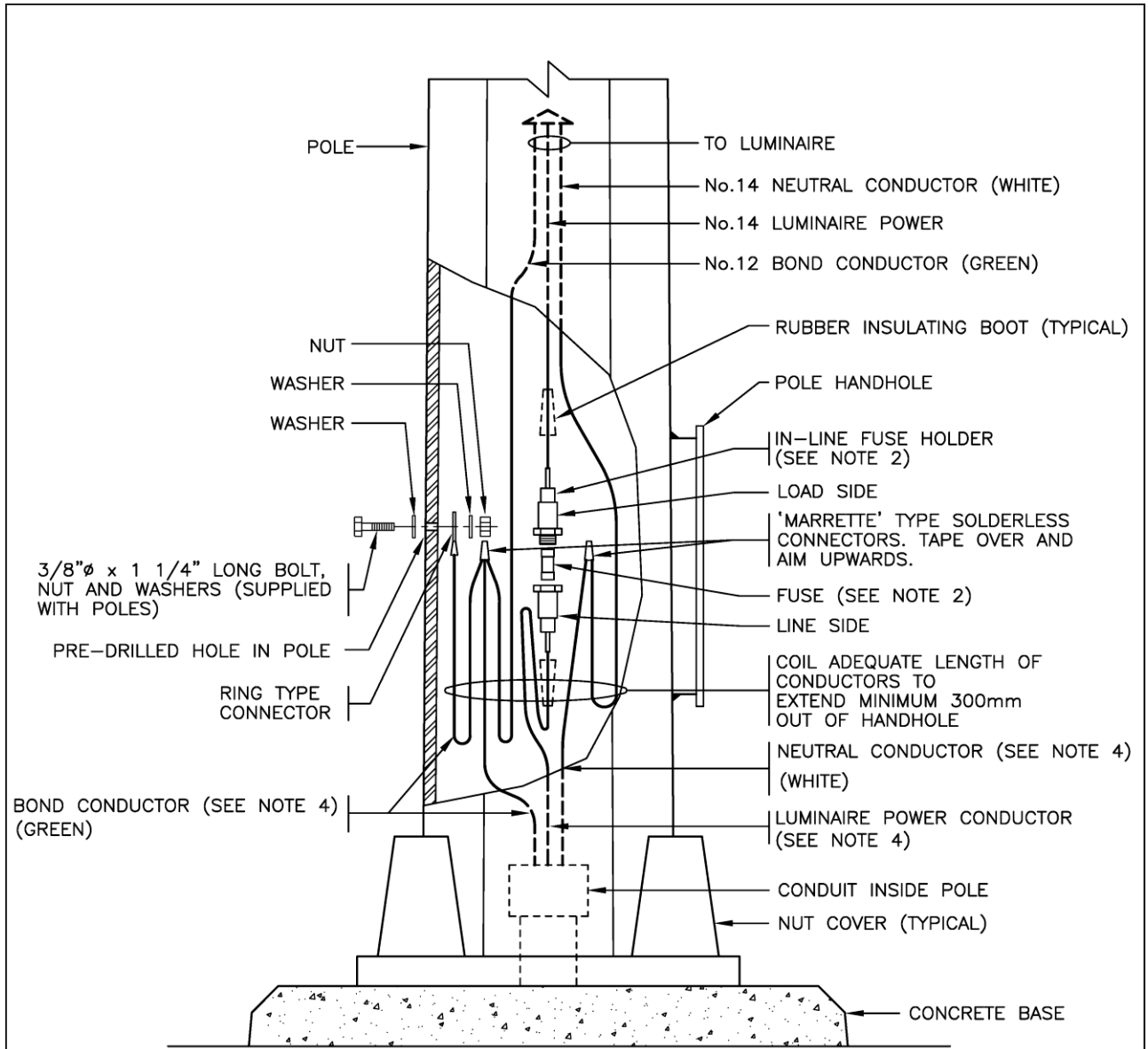
Ministry of Transportation and Infrastructure

No.	Revision	Date
G	POLE AND T FITTING DETAILS	FEB 23
F	GENERAL REVISIONS	APR 17
E	GENERAL REVISIONS	OCT 03
D	ALTERNATE SINGLE SECTION LED PED. HEAD ADDED	NOV 01
C	NOTE 3 REVISED	NOV 98
B	NEW DRAWING NUMBER	OCT 97

AUDIBLE SIGNAL INSTALLATION DETAILS

Date: 21/11/94
 Approved: E.L. (Signature on File)
 Chief Highway Engineer

SPECIFICATION DRAWING No. SP635-2.3.9



ELEVATION

NOTES

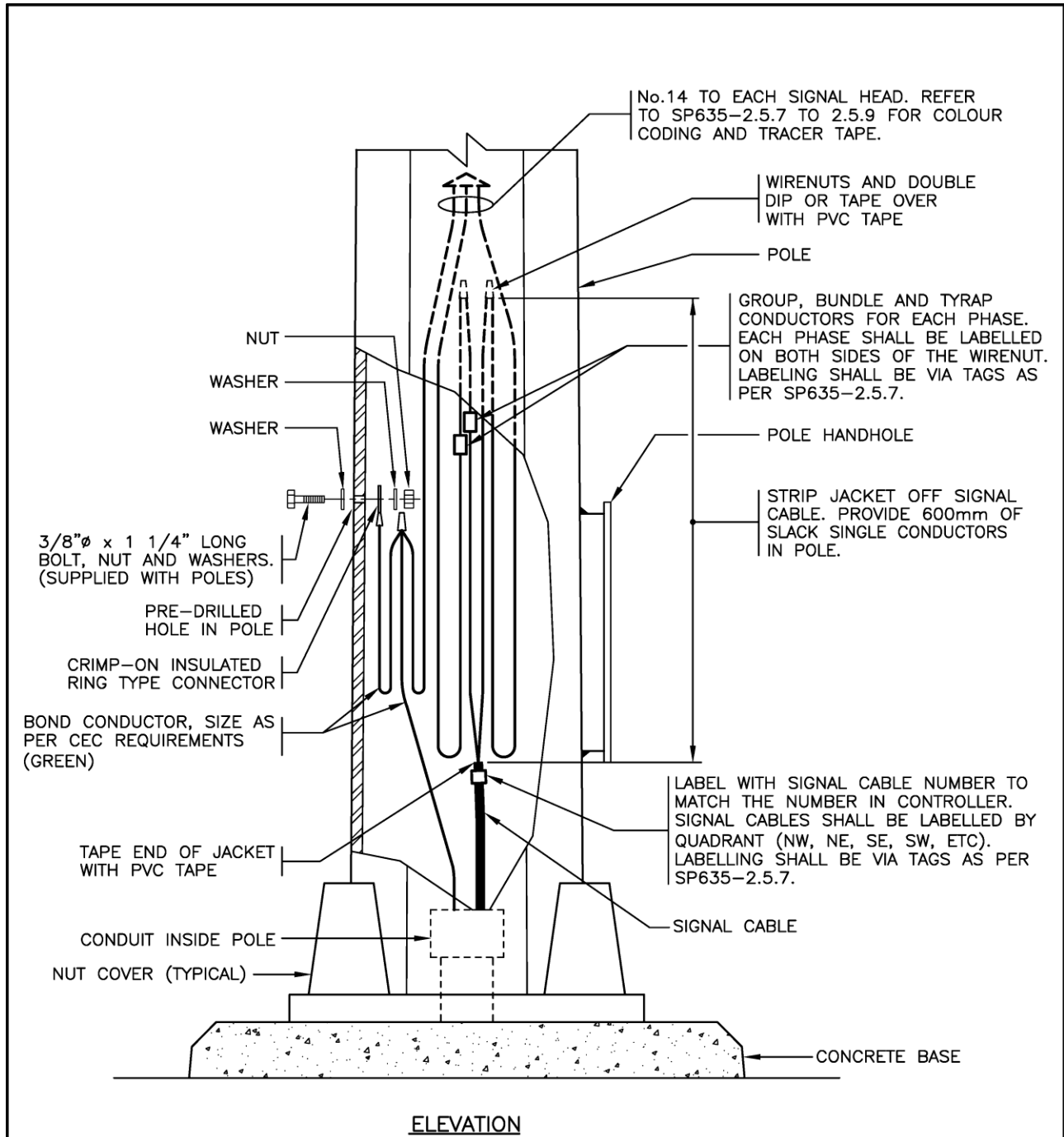
1. SEE STANDARD SPECIFICATIONS & SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
2. IN-LINE FUSE HOLDER SHALL BE A TRON HEB-AA WEATHERPROOF FUSE HOLDER OR A GOULD SHAWMUT GEB-11-11 C/W 5A GOULD SHAWMUT ATM OR BUSS KTK FUSE (347V) OR A 10A GOULD SHAWMUT OTM OR BUSS BAN-10 FUSE (120V) AND 2 'L' TYPE INSULATING BOOTS.
3. FUSE INSTALLATION IN JUNCTION BOXES SIMILAR.
4. SIZE AS PER CEC REQUIREMENTS.

NOT TO SCALE

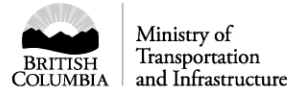


Ministry of Transportation and Infrastructure

No.	Revision	Date	LUMINAIRE WIRING IN POLE HANDHOLE		SPECIFICATION DRAWING No. SP635-2.5.6
F	NOTE 4 ADDED	JUN 22	Date	Approved	
E	GENERAL REVISIONS	APR 20	30/09/93 E.L. (Signature on File) Chief Highway Engineer		
D	GENERAL REVISIONS	APR 17			
C	FUSEHOLDER TYPE REVISED	AUG 99			
B	NOTES REVISED	AUG 95			
A	GENERAL REVISIONS	AUG 94			



- NOTES**
1. SEE STANDARD SPECIFICATIONS & SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
 2. REFER TO SP635-2.5.7 FOR CONDUCTOR LABELING.



NOT TO SCALE

No.	Revision	Date	SIGNAL CABLE WIRING IN POLE HANDHOLE		SPECIFICATION DRAWING No. SP635-2.5.10
F			Date	Approved	
E			14/11/03	D.N. (Signature on File)	
D				Chief Engineer	
C	BOND CONDUCTOR REVISED	JUN 22			
B	GENERAL REVISIONS	APR 20			
A	GENERAL REVISIONS	APR 17			

SECTION 908

PRESERVATIVE TREATMENT – WOOD PRODUCTS

908.07 Preservative Treatment – All treated wood materials shall be pressure treated in accordance with CSA O80.

The preservative treatment of laminated veneer lumber shall be in accordance with AWPA U1 and parallel strand lumber shall be in accordance with AWPA U1 and AWPA T1.

908.07.01 Acceptable Preservatives – One of the following preservatives shall be used:

- (a) creosote;
- (b) pentachlorophenol in Type A hydrocarbon solvent;
- (c) copper naphthenate in Type A hydrocarbon solvent;
- (d) chromated copper arsenate, Type C (CCA);
- (e) ammoniacal copper zinc arsenate (ACZA);
- (f) alkaline copper quaternary, Type A (ACQ-A);
- (g) alkaline copper quaternary, Type C (ACQ-C);
- (h) alkaline copper quaternary, Type D (ACQ-D); or
- (i) copper azole Type B (CA-B).

908.07.02 Certified Treatment Facilities – All pressure treated material shall come from a treatment plant/facility that is certified under and in compliance with the Canadian Wood Preservation Certification Authority (CWPCA) program.

A copy of the CWPCA certificate and certification letter must be submitted to the Ministry Representative upon request.

908.07.03 Environmental Compliance – Preservatives shall comply with all required environmental regulations. Treated wood for use in bridges or for use near or in aquatic environments shall be treated in accordance with the most recent version of [Best Management Practices for Use of Wood in Aquatic and Other Sensitive Environments](#), published by [Western Wood Preservers Institute](#) et al (WWPI BMPs).

908.07.04 Other Conditions – The type of preservative, conditioning, treatment, penetration and retention for the treated wood product shall be appropriate for the species, size, and end use of the product.

All sawn wood and glued-laminated members shall be incised before treatment in accordance with CSA O80.

All treated wood shall be substantially devoid of free surface preservative liquid and preservative deposits.

908.07.05 Use Category – The Use Category and the type of preservative for treated wood materials shall be in accordance with the following requirements. If there is any

conflict between any of these requirements, the following shall apply in the descending order of precedence:

- (a) Special Provisions;
- (b) Drawings;
- (c) Related Standard Specifications as listed in SS 908.02;
- (d) SS 908 and; and lastly
- (e) CSA O80, Table 2 “Use categories for specific products, uses and exposures”.

908.07.06 Pre-cut or Field Treat – Cutting, framing, and boring of timbers to receive preservative treatment shall be done before treatment insofar as possible. In the event that cutting or drilling becomes necessary after treatment, a field treatment preservative specified in CSA O80 or the AWPA M4 shall be used and applied in accordance to its label. For bridge components, creosote and copper naphthenate shall be the only permitted field treatment preservatives. At least two coats shall be applied and where possible, the colour of the preservative treatment used for protecting field cuts shall match the original preservative treatment colour.

908.08 Hardware, Fasteners and Metalwork

908.08.01 General – All hardware, fasteners and metal work in contact with treated wood products used in permanent structures shall be stainless steel or hot-dipped galvanized in accordance with the ASTM A123, ASTM A153 (Class D), or ASTM A653 (G90 coating class) as applicable.

908.08.02 Wood Treated with CCA, ACZA, ACQ-A, ACQ-C, ACQ-D, or CA-B – All hardware, fasteners and metal work used in permanent structures shall be hot-dipped galvanized in accordance with the ASTM A123, ASTM A153 (Class D) or ASTM A653 (G185 coating class) as applicable. Nails, spikes and sheet metal fastenings shall be 304 or 316 stainless steel when specified.

908.08.03 Galvanized fastenings – Galvanized nuts shall be retapped to allow for the increased diameter of the bolt due to galvanizing. Heat-treated alloy components and fastenings that may be affected by the heat of the zinc bath shall have corrosion protection provided by an alternate means as approved by the Designer and the Ministry Representative.

908.09 Handling of Treated Wood Products – All treated wood materials shall be handled with reasonable care to prevent damage of the pressure-treated surface such as puncture, cutting or crushing of fibre. Severely damaged pieces will be rejected at the discretion of the Ministry Representative.

Table 952-N: Requirements for High Float Emulsified Asphalts

REQUIREMENT	GRADE														
	HF-100S		HF-150P HF -100P		HF-150S		HF-250S		HF-350S		HF-500M		HF-1000M		
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
Residue by Distillation, % By Mass	62	---	<u>62</u>		62	---	62	---	65	---	65	---	65	---	
Oil Distillate, % By Volume	1	4	0.5	4	1	4	1	6	1.5	6	1	6	1	7	
Saybolt Furol Viscosity, @ 50°C, Furol seconds	35	150	35	<u>150</u>	35	150	35	150	75	400	50	---	50	---	
Sieve Test, % Retained on 1 mm Sieve	---	0.1	---	---	---	0.1	---	0.1	---	0.1	---	0.1	---	0.1	
Coating Test, %	90	---			90	---	90	---	---	---	---	---	---	---	
Settlement, 1 Day, % By Mass	---	1.5	---	---	---	1.5	---	1.5	---	1.5	---	1.5	---	1.5	
Demulsibility: 50 mL 5.55 g/L CaCl ₂ , % By Mass	75	---	75		75	---	---	---	---	---	---	---	---	---	
Workability @ 10°C	---	---	---	---	---	---	---	---	---	---	---	---	Pass	---	
TESTS ON RESIDUE															
Penetration at 25°C, 100 g, 5 s	*	*	**	**	**	**	**	**	**	**	**	---	---	---	---
Viscosity at 60°C, Pa·s												8	20	2	8
Float Test at 60°C, s	120 0	---	120 0		120 0	---	120 0	---	120 0	---	120 0	---	120 0	---	
Solubility in Trichloroethylene, %	97.5	---			97.5	---	97.5	---	97.5	---	97.5	---	97.5	---	
<u>Ash Content, % by weight</u>				<u>1.0</u>											
<u>Elastic Recovery, % at 10°C</u>			<u>50</u>												

* See Drawing SP952-02

** See Drawing SP952-03 or Drawing SP952-05

Note For HF-150P, penetration tests shall be conducted on residue which has been distilled to 201°C ± 5°C