State of Illinois
Department of Transportation
Bureau of Materials
Springfield

POLICY MEMORANDUM

Revised: May 13, 2024 23-08.5
This Policy Memorandum supersedes number 23-08.4 dated September 6, 2019

TO: REGIONAL ENGINEERS AND BUREAU CHIEFS IN THE OFFICE OF HIGHWAYS PROJECT IMPLEMENTATION, AND WELDED WIRE REINFORCEMENT/BAR MAT PRODUCERS

SUBJECT: WELDED WIRE REINFORCEMENT/BAR MAT PLANT CERTIFICATION PROCEDURE

1.0 PURPOSE

1.1 To establish procedures whereby welded wire reinforcement (**WWR**) and/or **Bar Mats** furnished by a **Manufacturer** or **Supplier** will be accepted for use on **Department** projects.

2.0 SCOPE

2.1 This procedure is available to all **Manufacturers** and **Suppliers** of **WWR** and/or **Bar Mats**.

3.0 REFERENCES AND AUTHORITY

3.1 IDOT Standard Specifications for Road and Bridge Construction.

3.2 AASHTO Product Evaluation & Audit "Qualification of Highway Product Manufacturers Through the Use of AASHTO Audits (Designation: SP01-24-01)".

3.3 AASHTO Product Evaluation & Audit "AASHTO Product Evaluation and Audit Solutions Committee Work Plan for Evaluation of Reinforcing Steel and Wire Manufacturers".

3.4 AASHTO M54/M54M (ASTM A184/A184M), "Fabricated Deformed Steel Bar Mats for Concrete Reinforcement".

3.5 AASHTO M336/M336M (ASTM A1064/A1064M) "Steel Wire and Welded Wire, Plain and Deformed, for Concrete Reinforcement".

3.6 ASTM A706/A706M, "Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement".

4.0 DEFINITIONS

AASHTO - American Association of State Highway and Transportation Officials.

AASHTO PRODUCT EVALUATION & AUDIT – An **AASHTO** product evaluation and audit program under the Solutions branch of the **AASHTO** Technical Services Program tree. **AASHTO Product Evaluation & Audit** was formerly the National Transportation Product Evaluation Program (NTPEP).

AASHTO PRODUCT EVALUATION & AUDIT COMPLIANT – A **Plant** which is listed by **AASHTO Product Evaluation & Audit** as being compliant with its audit program for reinforcing steel **Manufacturers**.

ASTM - American Society for Testing Materials.

BAR MAT - **ASTM** A706 deformed steel reinforcement bars welded together at right angles to form a sheet or mat.

BUREAU - Central Bureau of Materials (CBM), Illinois **Department** of Transportation.

CMMS – Construction and Materials Management System. A **Department**-wide database containing construction and materials inspection and test information.

CORRECTIVE ACTION REPORT (CAR) - A procedure used to originate a corrective action. It is used as a response to a defect. In simple words, it means an action**/**actions adopted to eliminate the problem from occurring again.

DEPARTMENT - Illinois Department of Transportation (IDOT), including its **Districts** and Central Bureau offices.

DISQUALIFIED PLANT - A **Plant** that is not qualified by the **Bureau** to ship **WWR** for immediate use on **Department** projects.

DISTRICT - District office, Illinois **Department** of Transportation.

ENGINEER - Chief Engineer of the **Department** of Transportation of the state of Illinois, or authorized representative as defined in Section 101 of the **Standard Specifications**.

INDEPENDENT ASSURANCE (IND) SAMPLE - A sample used to provide an independent check on the reliability of the **Manufacturer's Quality Control** program.

INSPECTOR - The authorized representative of the **Engineer** assigned to make detailed inspection of any or all portions of the work, material, product, etc., as applicable.

INVESTIGATION (INV) SAMPLE - A destination sample used to verify the acceptability of **WWR** or **Bar Mats** from a **Plant** or **Supplier**

MANUFACTURER - A term synonymous with **Producer**.

MMI - Manual for Material Inspection

MISTIC - Materials Integrated System for Test Information and Communication. A **Department**-wide database containing materials inspection and test information. The **Department** transitioned from **MISTIC** to **CMMS** in 2022

NTPEP - National Transportation Product Evaluation Program. **NTPEP** was renamed **AASHTO Product Evaluation & Audit** in 2023**.**

PLANT - A **Producer's** facility or mill for manufacturing or fabricating products such as **WWR** or **Bar Mats** that are employed on **Department** projects.

PRELIMINARY (PRE) SAMPLE - A sample used to determine, in advance, if the **WWR** will comply with the **Specifications**.

PROBATIONARY PLANT - A **Plant** that is qualified by the **Bureau** to ship **WWR** for immediate use on **Department** projects on a conditional basis.

PROCESS CONTROL (PRO) SAMPLE - A sample used for the purpose of controlling production of **WWR** proposed for incorporation in **Department** projects.

PRODUCER - An individual or business entity providing materials and/or products for performance of prescribed work.

QUALIFIED PERSONNEL - Personnel with demonstrated capability to perform applicable production tasks, inspection and testing.

QUALIFIED PLANT - A **Plant** that is qualified by the **Bureau** to ship **WWR** for immediate use on **Department** projects.

QUALIFIED PRODUCER LIST – The **Department's** Qualified Producer List for Certified of WELDED WIRE REINFORCEMENT/BAR

QUALITY CONTROL - The sum total of activities performed by a **Producer**, Contractor, Consultant, **Manufacturer**, etc. to make sure materials; manufactured, fabricated or constructed items; processes; products; designs; conducted test procedures; etc. will satisfy the requirements of the **Specifications**, **Quality Control** program, etc., as applicable.

SPECIFICATIONS - Specifications for materials; manufactured, fabricated or constructed items; processes; products; designs; conducted test procedures, etc. which includes the **Standard Specifications**, supplemental specifications and recurring special provisions, highway standards, shop drawings, contract plans, project special provisions, **AASHTO Specifications**, **ASTM Specifications**, etc., as applicable.

SISTER SAMPLE - A term synonymous with **Split Sample**.

SPLIT SAMPLE - A sample in which half the material is tested by the **Bureau** or **AASHTO Product Evaluation & Audit**, and the other half is tested by the **Manufacturer**.

STANDARD SPECIFICATIONS - The **Department's** Standard Specifications for Road and Bridge Construction.

SUPPLIER - A company that supplies materials or products such as **WWR** or **Bar Mats** that it does not manufacture or fabricate.

WWR - Welded Wire Reinforcement.

5.0 WWR AND BAR MAT ACCEPTANCE PROCEDURES

5.1 **WWR** and **Bar Mats** will be accepted according to the **Specifications** and this policy memorandum.

5.2 Reinforcement bars used to fabricate **Bar Mats** shall be obtained by the **Manufacturer** from a **Department** qualified **Producer**. The **Bureau** maintains a list of "Certified Reinforcing Bar and/or Dowel Bar Producers" on the internet that indicates which **Producers** of reinforcement bars are qualified by the **Department**.

5.3 **Qualified Plant Procedure.** In order to supply **WWR** for use on **Department** projects, a **Manufacturer's Plant** shall be approved by the **Bureau.** Requirements for the **Qualified Plant** Procedure are contained in Section 6 of this policy memorandum.

5.4 **Qualified Plant List.** The **Bureau** will maintain a "Qualified Producer List Of Certified Welded Wire Reinforcement" on the internet which will indicate the **Qualified Plants** that meet the requirements of this policy memorandum. This list will include the name, location, and **Producer/Supplier** Number of each **Qualified Plant**. Other information, as appropriate, will also be provided on the list. **Qualified Plants** may ship **WWR** for immediate use on **Department** projects.

5.5 The Resident **Engineer** or **Inspector** will make a positive identification between **WWR** identification marks, or I.D. tags, and the **Qualified Plant** list when **WWR** is delivered to the jobsite, precast concrete **Plant**, or precast prestressed concrete **Plant**. See also Section 7.1. **WWR** from a **Qualified Plant** or **Supplier** will be accepted and entered into the **CMMS** reporting system (formerly entered into **the MISTIC** reporting system) by the **District** Materials **Engineer**.

5.6 **Suppliers** shall only supply **WWR** from **Qualified Plants**.

5.7 **Bar Mats** will be accepted via visual inspection at the jobsite, precast concrete **Plant**, or precast prestressed concrete **Plant**. The Resident **Engineer** or **Inspector** will make a positive identification between reinforcement bar marks or I.D. tags, and the qualified **Producer** list for reinforcing and/or dowel bars when **Bar Mats** are delivered to the jobsite (See also Section 5.2). **Bar Mats** will be accepted and entered into the **CMMS** reporting system (formerly entered into **the MISTIC** reporting system) by the **District** Materials **Engineer**.

6.0 QUALIFIED PLANT PROCEDURE

6.1 **Preliminary Approval.**

6.1.1 A **Manufacturer** requesting qualification shall provide or have available the following to the **Bureau**:

1. The **Plant** name and location

2. A list of the **WWR** manufactured by the **Plant**

3. A certification the **Plant** production meets the requirements of Section 3.0 for all products listed in Item 2 of this section

6.1.2 **AASHTO Product Evaluation & Audit Compliance.** At the time of application for approval by the **Bureau**, the **Manufacturer** shall either be listed as **AASHTO Product Evaluation & Audit Compliant**, or be in the process of becoming listed as **AASHTO Product Evaluation & Audit Compliant** as determined by the **Bureau**.

6.1.2.1 Final **Qualified Plant** status will not be granted by the **Bureau** until the **Manufacturer** is listed as **AASHTO Product Evaluation & Audit Compliant**.

6.2 **Quality Control Requirements for Qualified Plants.**

1. The **Manufacturer** shall establish and maintain **Quality Control** policies and procedures for production, sampling and testing of **WWR**. The **Bureau** shall be notified of any changes in the **Manufacturer's Quality Control** program.

2. The **Plant** laboratory test equipment shall be maintained in good working order and calibrated according to SP01

3. **Qualified Personnel** shall perform applicable production tasks, inspections, and testing

6.3 **Inspection, Sampling, and Testing Procedures.**

6.3.1 Sampling, testing and inspection procedures will not begin until the requirements of Section 6.1 of this policy memorandum have been met as determined by the **Bureau**.

6.3.2 Inspection. An **Inspector** from the **Bureau** will conduct a scheduled visit to inspect the laboratory facilities for the **Plant**; the **Plant** manufacturing processes; the **Plant** storage facilities; and the **Quality Control** policies, procedures, and practices performed at the **Plant** (See also Section 6.2). Access to all necessary **Plant** facilities and records (i.e., test, **Quality Control**, etc.) shall be made available to the **Inspector**. The **Manufacturer** shall be responsible for payment of transportation, per diem (meals), lodging, and incidental travel costs incurred by the **Inspector** if the trip from the **Bureau** to the **Plant**, the **Plant** inspection, and the return trip to the **Bureau** cannot be completed within one day's normal work hours of 8:00 AM to 4:30 PM. Reimbursement for travel costs shall be provided no later than 30 calendar days after receipt of costs submitted by the **Department**.

6.3.3 Sampling. During the **Plant** inspection or at another prearranged date and time, the **Inspector** or a representative from **AASHTO Product Evaluation & Audit** (as determined by the **Bureau**) will select **Preliminary (PRE) Samples**. The material to be sampled will be selected from the sizes, grades and heats/lots in stock.

PRE Samples for testing conducted by the **Manufacturer,** and the **Bureau** or **AASHTO Product Evaluation & Audit** shall be **Split Samples** or **Sister Samples**. Samples sent to the **Bureau** or **AASHTO Product Evaluation & Audit** (as determined by the **Bureau**) for testing shall contain identification marks, or I.D. tags. The **Manufacturer** shall assume the cost to deliver the samples to the **Bureau** or **AASHTO Product Evaluation**

& Audit. **PRE Samples** shall be full width sheets obtained from 10 separate lots/heats that span the styles, sizes and grades produced by the **Manufacturer**. The length of each **PRE Sample** shall be as determined by the **Inspector** or a representative from **AASHTO Product Evaluation & Audit**. Samples shall be cut into specimens for various tests as detailed in Appendix A. Samples and specimens shall be marked/tagged and numbered in such a manner as to ensure traceability.

6.3.4 Testing. The **Manufacturer** shall test its portion of the 10 **PRE Samples** according to the Test/Measurement schedule outlined in Table 1 for plain **WWR**. The **Manufacturer** shall test its portion of the 10 **PRE Samples** according to the Test/Measurement schedule outlined in Table 2 for deformed **WWR**. The test results shall be signed and submitted to the **Bureau** or **AASHTO Product Evaluation & Audit**, as determined by the **Bureau**.

Table 1. Testing and Conformance Requirements for plain **WWR**

Sample #: *A number from the 1st to the 10th sample*
Longitudinal and Transverse Wire Designation/Size: W#
Lot #: *Lot # number the sample came from*

Test/Measurement	Conformance Requirement
Diameter, (ASTM A1064 Section 7.1.6, Tables 1 & 8), in.[1]	Permissible Variation from Table 1: < W 5 ±0.003 W 5 to ≤ W 12 ±0.004 > W 12 to ≤ W 20 ±0.006 > W 20 ±0.008
Tensile, (ASTM A1064 Sections 8.1.1 & 7.1.4.1, Table 5), psi	Min from Table 5
Bend Test, (ASTM A1064 Sections 8.2 & 7.1.5, Table 7), Pass/Fail	No Cracking of Outside Radius as Determined by the Inspector
Weld Shear, (ASTM A1064 Sections 8.3 & 9), lbs[2]	Min 35000 x Nominal Area of Larger Wire in sq. in.

[1]See Appendix B for a detailed procedure on diameter measurements.
[2]If nominal area of smaller wire is less than 40% of nominal area of larger wire, weld shear test does not apply.

Table 2. Testing and Conformance Requirements for deformed **WWR**

Sample #: *A number from the 1st to the 10th sample*
Longitudinal and Transverse Wire Designation/Size: D#
Lot #: *Lot # number the sample came from*

Test/Measurement	Conformance Requirement
Unit Weight, (ASTM A1064 Section 7.2.7, Table 3), lb/ft	Permissible Variation from Table 3: 6%
Tensile, (ASTM A1064 Sections 8.1.1 & 7.2.5.1, Table 10), psi	Min from Table 10
Bend Test, (ASTM A1064 Sections 8.2 & 7.2.6, Table 11), Pass/Fail	No Cracking of Outside Radius as Determined by the Inspector
Weld Shear, (ASTM A1064 Sections 8.3 & 9), lbs[1,2]	Min 35000 x Nominal Area of Larger Wire in sq. in.
Deformation Spacing, (ASTM A1064 Section 7.2.4), # Deformations/in.	3.5 ≤ Avg # Deform./in. ≤ 5.5
Deformation Height, (ASTM A1064 Section 7.2.4, Table 3), in.	Min Avg Height from Table 3

[1]Small wire shall not be less than D 4.
[2]If nominal area of smaller wire is less than 40% of nominal area of larger wire, minimum weld strength is 800 lb.

If wire is cold drawn at the **Plant**, the **Manufacturer** shall demonstrate this process for at least 1 draw down at the **Plant** in the presence of the **Inspector** or **AASHTO Product Evaluation & Audit Representative**. The reduction in area of the cold drawn wire shall be reported by the **Manufacturer**.

Measurements by the **Manufacturer** of deformation height and spacing for deformed wire will only be required for 1 heat/lot unless otherwise directed by the **Bureau** or **AASHTO Product Evaluation & Audit**.

The **Bureau** or **AASHTO Product Evaluation & Audit** (as determined by the **Bureau**) will test its portion of the 10 **PRE Samples** according to the Test/Measurement schedule outlined in Table 1 for plain **WWR**. The **Bureau** or **AASHTO Product Evaluation & Audit** (as determined by the **Bureau**) will test its portion of the 10 **PRE Samples** according to the Test/Measurement schedule outlined in Table 2 for deformed **WWR**. Measurement of deformation spacing and height will be conducted by the **Bureau or AASHTO Product Evaluation & Audit** (as determined by the **Bureau**) at its discretion.

6.4 **Sample, Heat, and Laboratory Comparison Assessment Criteria.** Results from the tests outlined in Table 1 and/or Table 2, as applicable, on the **PRE Samples** conducted by the **Manufacturer** will be evaluated for excessive variation from the tests results on the **PRE Samples** conducted by the **Bureau** or **AASHTO Product Evaluation & Audit** according the criteria outlined in Section 6.4.1.

Test results on the **PRE Samples** will be evaluated for conformance with Table 1 and/or Table 2, as applicable, according to the criteria outlined in Section 6.4.2.

6.4.1 Laboratory Comparison Requirements.

6.4.1.1 Laboratory Comparison Requirements for Individual **PRE Split Sample** Results. The test results for each of the individual specimens cut from **PRE Split Samples** shall vary between laboratories by not more than the following:

1. Tensile Strength 10.0%
2. Unit Weight[1] 5.0%

[1]Deformed wire only.

6.4.1.2 Laboratory Comparison Requirement for Heat/Lot Average **PRE Split Sample** Results. The average test results from the individual specimens cut from **PRE Split Samples** for each heat/lot shall vary between laboratories by not more than the following:

1. Tensile Strength 5.0%
2. Unit Weight[1] 2.0%

[1]Deformed wire only.

6.4.1.3 Failure of the **Manufacturer** to meet the requirements of Section 6.4.1.1 or 6.4.1.2 will result in the **Plant** not achieving initial qualified status or maintaining current qualified status. However, at the discretion of the **Bureau,** a heat or heats may be re-sampled, re-tested and re-assessed according to Section 6.5.

6.4.2 **Specification** Conformance Requirements.

6.4.2.1 Conformance Requirements detailed in Table 1 and/or Table 2, as applicable, shall apply to all tests conducted by the **Bureau** or **AASHTO Product Evaluation & Audit**, as well as all the tests conducted by the **Manufacturer**.

6.4.2.2 For determination of **Plant** qualification, the test results obtained by the **Bureau** or **AASHTO Product Evaluation & Audit** supersede those of the **Manufacturer**.

6.4.2.3 All of the specimens cut from **PRE Split Samples** test results shall meet the Conformance Requirements outlined in Table 1 and/or Table 2, as applicable.

6.4.2.4 Failure of the **Manufacturer** to meet to the requirements of Sections 6.4.2.1 through 6.4.2.3 will result in the **Plant** not achieving initial qualified status or maintaining current qualified status. However, at the discretion of the **Bureau,** a heat or heats may be re-sampled, re-tested and re-assessed according to Section 6.5.

6.5 Re-Sampling, Re-Testing, and Re-Assessment Criteria.

6.5.1 Inter-Laboratory.

6.5.1.1 At the discretion of the **Bureau**, heats/lots that do not conform to the requirements of Section 6.4.1.1 may be re-sampled from the same heat/lot and re-tested according to Section 6.3. Re-assessment will be according to Section 6.4.1.1 and 6.4.1.2.

6.5.1.2 At the discretion of the **Bureau**, heats/lots that do not conform to the requirements of Section 6.4.1.2 may be re-sampled from the same heat and re-tested according to Section 6.3. Re-assessment will be according to Section 6.4.1.1 and 6.4.1.2.

6.5.1.3 Heats/lots that have been re-sampled and re-tested according to Section 6.5.1.1 and/or Section 6.5.1.2 shall also meet the requirements of Section 6.4.2.

6.5.2 **Specifications**.

6.5.2.1 At the discretion of the **Bureau**, heats/lots that do not conform to the requirements of Section 6.4.2 may be re-sampled from the same heat/lot and re-tested according to Section 6.3.

6.5.2.2 Re-assessment of re-sampled and re-tested heats/lots will be according to Section 6.4.2. At the discretion of the **Bureau**, re-assessment may also be according to 6.4.1.1 and/or 6.4.1.2.

6.5.3 Subsequent Re-Sampling, Re-Testing, and Re-Assessment Criteria. Heats/lots that do not meet the requirements of Section 6.5.1 and/or Section 6.5.2 will be rejected, and should not be subsequently re-sampled, re-tested and re-assessed unless otherwise authorized by the **Bureau**.

6.6 **Initial Plant Qualification.** The **Bureau** will notify the **Manufacturer** in writing if the request for qualification is approved or denied. A request may be denied if the **Manufacturer** fails to meet any of the requirements outlined in Sections 6.1 through 6.5. If the request for qualification is denied, the **Manufacturer** shall meet the requirements of Sections 7.7.3, 7.7.4, 7.7.5, 7.7.6, and 7.7.8 Item 3 in order to re-apply for qualification.

6.7 **Plant Requalification.** The **Bureau** will notify the **Manufacturer** in writing if the request for requalification is approved or denied. A request may be denied if the **Manufacturer** fails to meet any of the requirements outlined in Sections 6.2 through 6.5, or if the **Plant** falls out of compliance with **AASHTO Product Evaluation & Audit**. If the request for requalification is denied, the **Plant** will either be designated as **Disqualified** or **Probationary** at the discretion of the **Bureau**. In order to become **Qualified** once again, **Disqualified** or **Probationary Plants** shall meet the requirements of Section 7.7.

7.0 REQUIREMENTS DURING PERIOD OF QUALIFICATION

7.1 Record and Reporting Requirements.

1. Records of production control tests shall be maintained by the **Manufacturer** for a minimum period of 5 years and shall be made available to the **Bureau** upon request.

2. Copies of shipping orders, bills of lading, and invoices shall be maintained by the **Manufacturer** or **Supplier** for a minimum period of 5 years. Copies of shipping orders, bills of lading, and invoices shall be provided to the Resident **Engineer** or **Inspector,** and the **District** Materials **Engineer** upon delivery to a jobsite, precast concrete **Plant,** or precast prestressed concrete **Plant**.

7.2 **AASHTO Product Evaluation & Audit Compliance.** If a **Plant** falls out of **AASHTO Product Evaluation & Audit Compliance**, it will be designated as **Disqualified**. In order to become **Qualified** once again, **Disqualified Plants** shall meet the requirements of Section 7.7 and become **AASHTO Product Evaluation & Audit Compliant** once again.

7.3 **Inspection.** During the period of qualification, a **Plant** may be inspected according to Section 6.3.2 at the discretion of the **Bureau**. If a **Plant** fails the inspection, it will be designated as either **Disqualified** or **Probationary** at the discretion of the **Bureau**. In order to become **Qualified** once again, **Disqualified** or **Probationary Plants** shall meet the requirements of Section 7.7.

7.4 Process Control Sampling.

7.4.1 **Process Control (PRO) Samples** may be taken at any time during the period of qualification.

7.4.2 Sampling at the jobsite, fabricator, or any other location by a **District** will be as directed by the **Bureau.**

7.4.3 **PRO Samples** shall be taken according to Appendix C.

7.5 Process Control Testing and Assessment Criteria.

7.5.1 All tests on the **PRO Samples** collected according to Section 7.4 will be conducted by the **Bureau,** and all results shall meet the Conformance Requirements in Table 1 and/or Table 2, as applicable.

7.5.2 Failure of the **Manufacturer** to meet to the requirements of Section 7.5.1 will result in the **Plant** being designated as **Disqualified** or **Probationary** at the discretion of the **Bureau**. However, at the discretion of the **Bureau**; **PRO Samples** may be re-sampled, re-tested and re-assessed according to Section 7.6.

7.6 Process Control Re-Sampling, Re-Testing, and Re-Assessment Criteria.

7.6.1 Re-sampling shall be according to Sections 7.4.2 and 7.4.3.

7.6.2 Re-testing shall be according to Section 7.5.1. Re-assessment shall be according to Sections 7.5.1 and 7.6.3.

7.6.3 If all the re-tested **PRO Samples** meet the requirements of Section 7.5.1, the **Manufacturer** will remain as a **Qualified Plant**. If at least 1 of the test results does not meet the Conformance Requirements in Table 1 and/or Table 2, as applicable, the **Plant** will be designated as either **Disqualified** or **Probationary** at the discretion of the **Bureau**. In order to become **Qualified** once again, **Disqualified** or **Probationary Plants** shall meet the requirements of Section 7.7.

7.7 **Disqualification, Probation, and Corrective Action.**

7.7.1 **Disqualified Plants** will be immediately removed from the **Qualified Plant** List and shall not supply **WWR** to **Departmental** projects.

7.7.2 **Probationary Plants** will not be immediately removed from the **Qualified Plant** List and may supply **WWF** to **Departmental** projects on a conditional basis.

7.7.3 **Disqualified** and **Probationary Plants** shall submit a **Corrective Action Report (CAR)** (See Section 7.7.4) for each identified issue to the **Bureau** within 15 business days of the date of disqualification or probation. Failure to submit a **CAR** or **CARs** within this time frame will result in the **Plant** having to undergo the full **Qualified Plant** Procedure outlined in Section 6.0 as well as repeat Section 7.7 in order to become **Qualified** once again. In addition, **Probationary Plants** will be designated as **Disqualified Plants**.

7.7.4 **CARs** shall contain detailed descriptions of the issue to be addressed, the course of action to be taken to remedy the issue, and a timeline for when this course of action will be accomplished. See also Appendix D. A separate **CAR** is required for each identified issue to be addressed by the **Manufacturer**.

7.7.5 The **Bureau** will determine if a proposed **CAR** is acceptable and may revise or amend a **CAR** before approval.

7.7.6 The **Bureau** will determine when and/or if the issue addressed in a **CAR** has been remedied.

7.7.7 If the **Bureau** determines that each issue has been remedied within the timelines stipulated in each submitted and approved **CAR**, the **Manufacturer** will be reinstated as a **Qualified Plant**.

7.7.8 If the **Bureau** determines that an issue has not been remedied within the timeline stipulated in a **CAR**, the **Manufacturer** will either:

1. Remain a **Probationary** or **Disqualified Plant** until the **Bureau** determines the issue addressed in a **CAR** has been remedied
2. Be declared a **Disqualified Plant** until the **Bureau** determines the issue addressed in a **CAR** has been remedied
3. Be required to undergo the full **Qualified Plant** Procedure outlined in Section 6.0, and, at the discretion of the **Bureau**, repeat Section 7.7 in order to become **Qualified** once again

7.8 **Independent Assurance (IND) and Investigation (INV) Sampling, Testing and Assessment Criteria.**

7.8.1 **IND or INV Samples** may be taken at any time during the period of qualification.

7.8.2 **IND Sampling** will be according to Appendix C, or as otherwise determined by the **Bureau**.

7.8.3 **INV Sampling** will be according to Appendix C, or as otherwise determined by the **Bureau** or **District**.

7.8.4 **IND or INV Sample** testing and assessment will be according to Section 7.5.

7.8.5 **IND or INV** re-**Sampling**, re-testing, and re-assessment will be according to Sections 7.6, 7.8.2, and 7.8.3.

8.0 REQUALIFICATION PROCEDUE

8.1 **Procedure.** Requalification shall be according to Sections 6.2, 6.3, 6.4, 6.5 and 6.7.

8.2 **Interval. Qualified Plants** shall be requalified on an annual basis or as determined by the **Bureau**. The **Bureau** will inform the **Manufacturer** when the requalification procedure will commence.

9.0 CLOSING NOTICE

Archived versions of this policy memorandum may be examined by contacting the **Bureau**.

The current **Bureau** Chief of Materials has approved this policy memorandum. Signed documents are on file with the **Bureau**.

Appendix A: Sampling and Specimen Outline (Section 6.3.3)

Specimens per Sample Lot/Heat for Plain WWR*

Plain Wire Lot/Heat #'s 1 through 10		
Specimen Type	# of Mill Specimens	# of Sister or Split Specimens[5]
Longitudinal Diameter[1]	4	8 (From Same Wire as Mill Specimens)
Transverse Diameter[1]	2	4 (From Same Wire as Mill Specimens)
Longitudinal Tensile[2]	4 Across Weld	8 Across Weld
Transverse Tensile[2]	2 Across Weld	4 Across Weld
Longitudinal Weld Shear[3]	4 Welds	8 Welds
Bend Test[4]	1	2

[1]See also Appendix B.
[2]Specimens selected according to ASTM A1064 Section 8.1.1.
[3]Specimens selected according to ASTM A1064 Sections 8.3.4 and 11.2.
[4]Specimen length as determined by the Inspector or **AASHTO Product Evaluation & Audit** Representative.
[5]Split Specimens contain backup specimens.

Specimens per Sample Lot/Heat for Deformed WWR*

Deformed Wire Lot/Heat #'s 1 through 10		
Specimen Type	# of Mill Specimens	# of Sister or Split Specimens[4]
Longitudinal Unit Weight[1]	4	8
Transverse Unit Weight[1]	2	4
Longitudinal Tensile[2]	4 Across Weld	8 Across Weld
Transverse Tensile[2]	2 Across Weld	4 Across Weld
Longitudinal Weld Shear[3]	4 Welds	8 Welds
Bend Test[1]	1	2

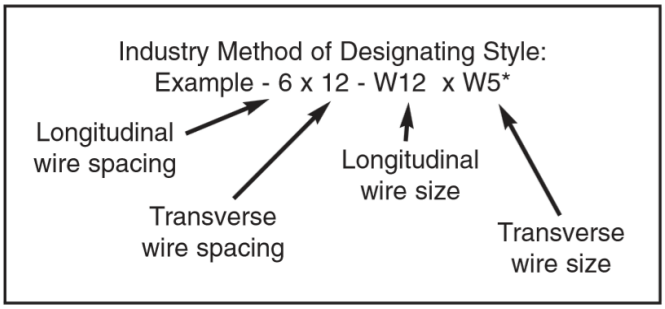
[1]Specimen length as determined by the Inspector or **AASHTO Product Evaluation & Audit** Representative.
[2]Specimens selected according to ASTM A1064 Section 8.1.1.
[3]Specimens selected according to ASTM A1064 Sections 8.3.4 and 11.2.
[4]Split Specimens contain backup specimens.

*See also Figure A2

Test Demonstrations at Plant During Qualification Procedure

1. Reduction of area for cold drawn wire shall be as directed by the Inspector or **AASHTO Product Evaluation & Audit** Representative.

2. Deformation height and spacing – Specimen length 12 in. minimum [sampling may also be required for testing by the Bureau or **AASHTO Product Evaluation & Audit** (as determined by the Bureau)].



*Note: The prefix W is for plain wire. The prefix D is for deformed wire.

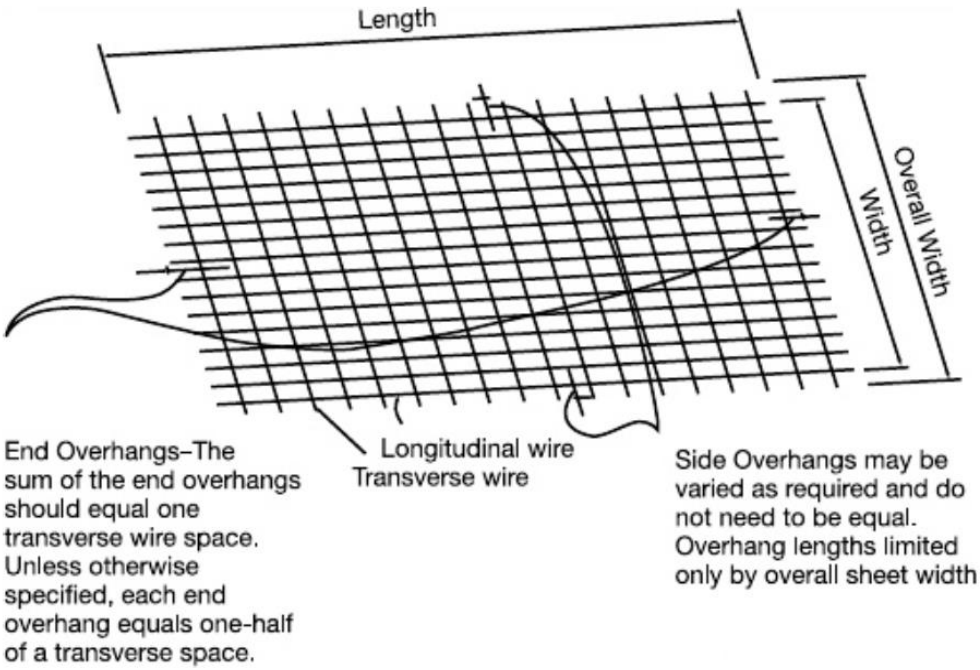


Figure A1 – Industry Standard Nomenclature and Definitions

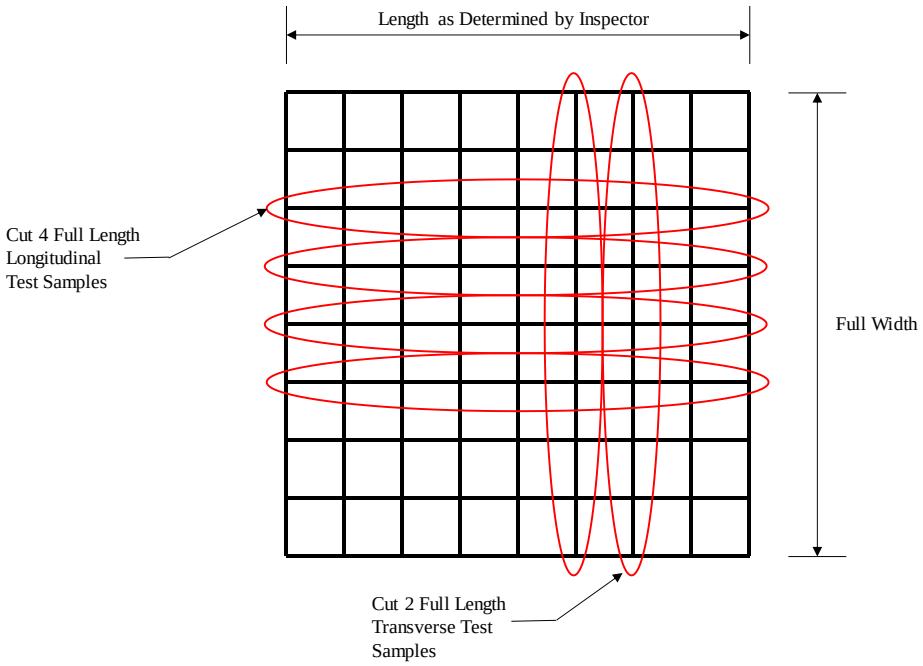


Figure A2 – Sample Cutting Diagram (Standard WWR Mesh)

Appendix B: Plain Wire Diameter Measurement Procedure [Section 6.3.4 WWR According to ASTM A1064]

1. As shown in Figures B1 (Mesh ≥ 4 in.) and B2 (Mesh < 4.in), Orientation B is rotated 90° from Orientation A. Three (3) readings shall be obtained at Orientation A and 3 readings shall be obtained at Orientation B at each Location.

2. A single recorded plain steel wire diameter measurement is the average of 6 individual readings at a Location (I.e., the average of Readings A1, A2, A3, B1, B2 and B3 at a Location) as shown Figures B1 (Mesh ≥ 4 in.) and B2 (Mesh < 4.in).

3. Readings A1 (B1) and A3 (B3) shall be within a distance of ± ½ in. as shown in Figures B1 (Mesh ≥ 4 in.) and B2 (Mesh < 4.in).

4. Reading A2 (B2) shall be within a distance of ± ¼ in. of Readings A1 (B1) and A3 (B3) as shown in Figures B1 (Mesh ≥ 4 in.) and B2 (Mesh < 4.in).

5. A minimum of 4 recorded measurements by the **Manufacturer** shall be taken for longitudinal wires.

6. A minimum of 2 recorded measurements by the **Manufacturer** shall be taken for transverse wires.

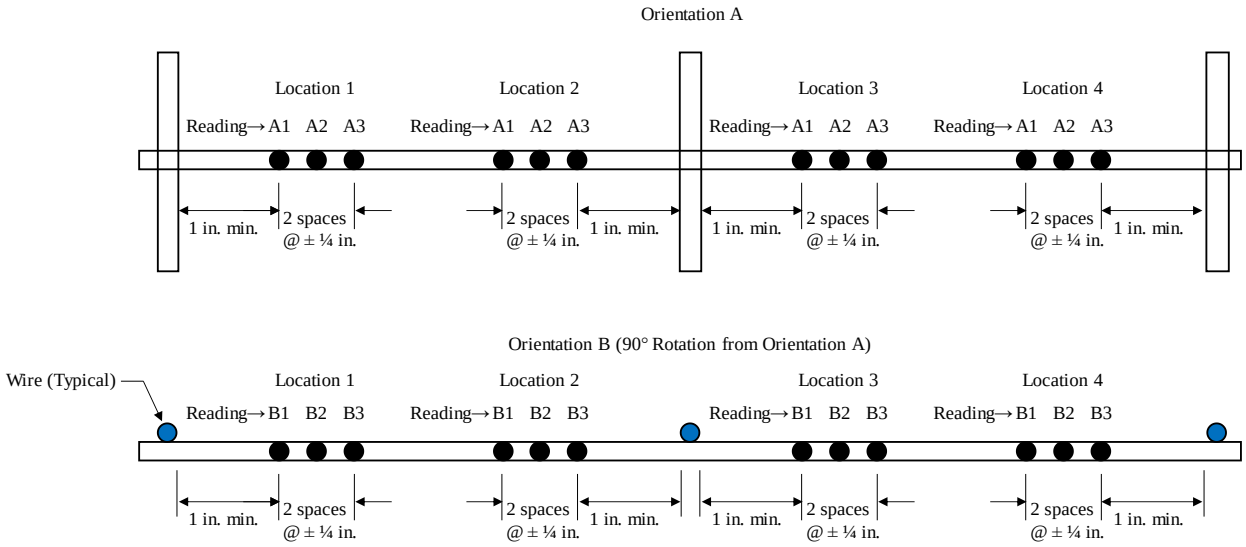


Figure B1 - Mesh Sizes 4 in. x 4 in. and Larger

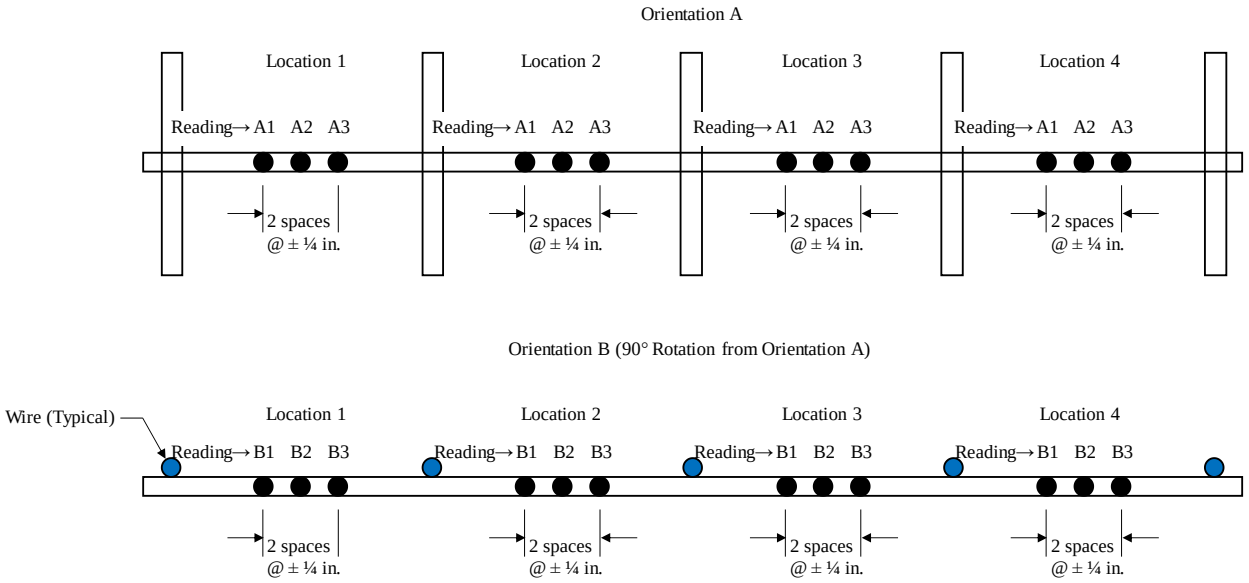


Figure B2 - Mesh Sizes Smaller Than 4 in. x 4 in.

Appendix C: Sampling and Specimen Outline [Sections 7.4 & 7.8 Welded Wire Reinforcement According to ASTM A1064]

Mesh Sizes Smaller Than 8 in. x 8 in.[1]

1 Sample: 3 feet x 3 feet (See also Figure C1)

Mesh Sizes Greater Than or Equal to 8 in. x 8 in.[1]

1 Sample: 4 feet x 4 feet (See also Figure C1)

[1]If sampling according to Figure C1 is not possible, sampling shall be as directed by the Inspector

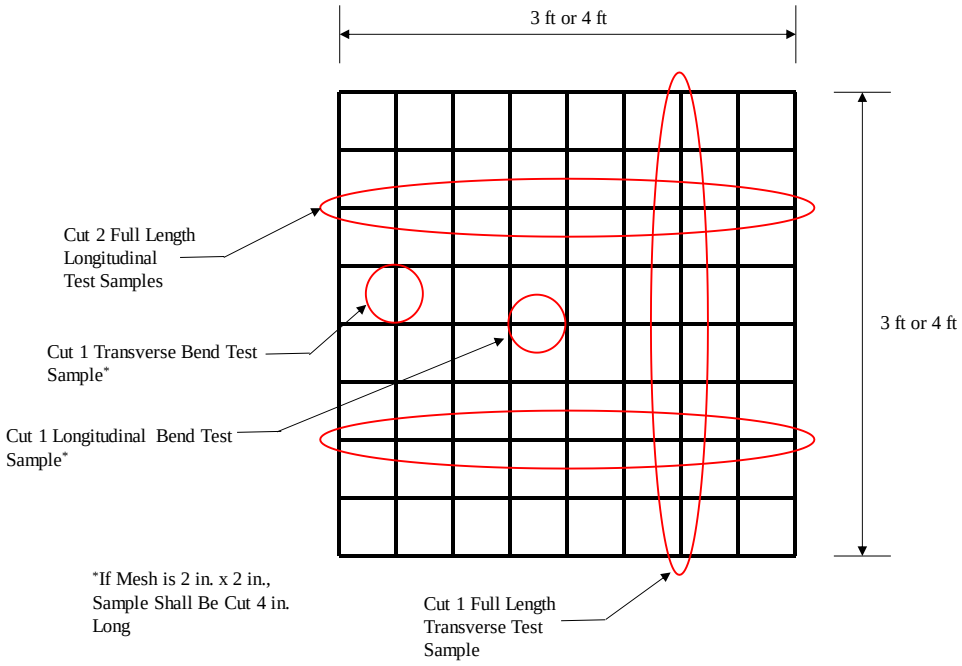


Figure C1 - Sample Cutting Diagram (Standard WWR Mesh)

ILLINOIS DEPARTMENT OF TRANSPORTATION
Corrective Action Report

Complete and submit the following form (link embedded) to the Central Bureau of Materials via e-mail (Michael.Aldridge@Illinois.gov) within 15 business days of notification of Disqualification, Probation, or Denial of Qualification.

Plant and Location:	**Date of Transmittal:**

Describe in the areas provided the corrective action taken to resolve the issue. Corrective action of issues includes root cause analysis and a plan to monitor the effectiveness of the corrective action. Attach any supporting documentation (e.g.: modified/new procedures, purchase requests, proof of new training, calibration records, etc.)

Issue
Description (to be completed by IDOT):

Immediate Action
Description of the Immediate Action Taken to Prevent Recurrence of Issue (to be completed by Manufacturer):

Root Cause Analysis
Description of the Reason(s) That Allowed the Issue to Happen (to be completed by Manufacturer):

Actionable Solution
Description of the Improvements to the Quality Control Program that will be Implemented to Prevent a Similar Occurrence of the Issue. Include a Timeline for Implementation (to be completed by Manufacturer):

Planned Monitoring Activities
Description of the Plans to Monitor the Effectiveness of the Actionable Solution Given Above (to be completed by Manufacturer):