SECTION 32 1216

aSPHALT PAVING

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LANL MASTER SPECIFICATION

This template must be edited for each project. In doing so, the specifier must add job-specific requirements.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer. Once the choice is made or text supplied, remove the brackets. The specifications must also be edited to delete specification requirements for processes, items, or designs that are not included in the project -- and specifier’s notes such as these. Additional tailoring requirements are contained in ESM [Chapter 1](http://engstandards.lanl.gov/ESM_Chapters.shtml#esm1) Section Z10 Att. F, Specifications.

This document refers to two scopes to facilitate tailoring. Retain the Scope 1, 2, or both material as appropriate.

**Scope 1: Minor and Miscellaneous Asphalt Paving:**

Reference: NMDOT Standard Specifications for Highway and Bridge Construction, Section 416 MINOR PAVING and 417, MISCELLANEOUS PAVING.

Scope 1 covers miscellaneous paving projects, where the amount of asphalt to be placed is less than 1,500 tons, and is to be used for small parking lots, miscellaneous access roads, utility cuts, pot holes, minor intersection improvements, ditch, slope paving, median paving, guardrail pads, bicycle/pedestrian paths, trails, asphalt curbs, asphalt sidewalks, and driveways for building access.

**Scope 2: Major Asphalt Paving:**

Reference: NMDOT Standard Specifications for Highway and Bridge Construction, Section 423, HOT MIX ASHALT (HMA) – SUPERPAVE.

Scope 2 covers major paving projects such as roadway paving and parking lot paving projects that will utilize 1,500 tons or more of HMA.

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To seek variance from requirements in the specifications that are applicable, contact the Engineering Standards Manual [Civil POC](https://engstandards.lanl.gov/POCs.shtml#civil). Please contact POC with suggestions for improvements as well.  
  
When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General Requirements.  
  
This specification is developed for ML-4 projects.  For ML-1, 2, and 3 applications, additional requirements and independent reviews should be added if increased confidence in procurement or execution is desired; see ESM Chapter 1 Section Z10 Specifications and Quality sections.

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1. GENERAL
   1. SECTION INCLUDES
      1. Subgrade and Base Course
      2. Hot-Mix Asphalt (HMA) Pavements
      3. Open-Graded Friction Course
      4. Tack Coat and Prime Coat
      5. Traffic Control Markings
   2. ACTION SUBMITTALS
      1. Submit the following:
         1. Material certifications documenting compliance with the New Mexico Department of Transportation (NMDOT) Standard Specifications for Highway and Bridge Construction (SSHBC) including any Supplemental or Interim Specifications (i.e., use the latest specs).  [*http://www.dot.state.nm.us/content/nmdot/en/Standards.html*](http://www.dot.state.nm.us/content/nmdot/en/Standards.html)
         2. Proposed mix design of each class of the HMA pavement with supporting documents in accordance with AASHTO R35. Mix design analysis shall be developed by a laboratory accredited through AASHTO [re:source](http://aashtoresource.org/aap/accreditation-directory) (formerly AMRL) and complying with AASHTO R18 and ASTM D3666.
         3. Laboratory test reports and calculations for mix design for the HMA pavement. The mix design reports shall be less than one year old and be from the same source for the aggregate to be used for the Project. Two or more aggregate sources may be used only when each individual aggregate source meets all applicable quality requirements.
            1. Aggregate quality testing shall include Los Angeles Abrasion and Impact, Soundness loss, Absorption, and fractured faces.
         4. Certification from the testing laboratory responsible for material analysis and field testing, that equipment to be utilized is properly and currently calibrated.
         5. Certification that testing personnel are in compliance with ASTM D 3666.
         6. Traffic analysis, vehicle loadings, and structural design.
         7. Detailed plan for temporary traffic control markings and traffic signs. This plan shall be approved by the LANL Traffic Engineer prior to applying the traffic control markings.
         8. Detailed plan for permanent traffic control markings and traffic signs. This plan shall be approved by the LANL Traffic Engineer prior to applying the traffic control markings.
   3. QUALITY ASSURANCE
      1. Perform work in accordance with the respective, noted sections of the NMDOT Standard Specifications for Highway and Bridge Construction latest edition. Exclude NMDOT Division 901, Quality Control/Quality Assurance (QC/QA) unless otherwise noted in Article 3.8 “Field Quality Control” of this Section, and any other references to METHOD OF MEASUREMENT, to BASIS OF PAYMENT, and for pay factor determination. *Document(s) at* [*http://www.dot.state.nm.us/content/nmdot/en/Standards.html*](http://www.dot.state.nm.us/content/nmdot/en/Standards.html)
      2. Supply the base course and prepare the subgrade in accordance with the NMDOT SSHBC, Section 303, Base Course and in accordance with Section 31 2000, *Earth Moving*.
      3. The LANL STR shall submit the approved material certifications and mix designs to the LANL Utilities & Institutional Facilities Roads System Engineer and the LANL Construction Inspector for verification of construction items and certifications during field quality assurance.
2. PRODUCTS
   1. MATERIALS

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Specifiers Note on PG Binder: Determine the Final PG Binder using the following table, and update “2.1.A Final (adjusted) PG Binder [PG 58-22]” accordingly. As an example, if ESAL range is 3 to 10 and Traffic Loading Rate is Standing, then factor is 2. Multiplying that 2 by the 6 degree/grade amount in Note 1 yields 12. Adding 12 to the base PG 58-22 yields a final (adjusted) PG Binder of 70-22. Where adjusted binder needed varies based on location of job or sub-placements, so indicate.

Contact the LANL Traffic Engineer for project-specific, 20-Year-ESALs.

The base performance grade (PG) asphalt binder PG 58-22 shall be adjusted based on:

* + 1. 20-year-equivalent single-axle loads (ESALs).
    2. Design Gyrations = [75], per NMDOT SSHBC Section 417.2.2.
    3. Traffic Loading Rate (Standing/Slow/Standard) and resulting factor per the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| 20-Year Design ESALs (Millions) | Adjustment Factors to PG Base Binder Grade (1) | | |
| Traffic Loading Rate | | |
| Standing (2) | Slow (3) | Standard (4) |
| < 0.3 | 1 | -- | -- |
| 0.3 to < 3 | 2 | 1 | -- |
| 3 to 10 | 2 | 1 | -- |
| >10 | 2 | 1 | 1 |

1. Increase t((1) Increase the high-end temperature grade by the number of grades indicated (one grade is equivalent to 6°C)
2. Standing Traffic - the average traffic speed is less than 15 mph.
3. Slow Traffic -the average traffic speed ranges from 15 mph to less than 45 mph.
4. Standard Traffic -the average traffic speed is 45 mph or greater.

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* + 1. Final (adjusted) PG Binder is [PG 58-22] for specifying asphalt mix design
    2. [SCOPE 1] Minor and Miscellaneous Asphalt Paving:

Provide Hot-Mix Asphalt (HMA) pavement conforming to NMDOT SSHBC, Section 416 Minor Paving, and Section 417, Miscellaneous Paving.

* + 1. [SCOPE 2] Major Asphalt Paving:

Provide Hot-Mix Asphalt (HMA) pavement conforming to NMDOT SSHBC. Section 423, Hot-Mix Asphalt–Superpave.

* + - 1. Provide aggregates conforming to the requirements of Table 423.2.2.1:1 “HMA Aggregate Gradation Control Points”. Ensure aggregate conforms to Table 423.2.2.1.2:1 “Minimum Fractured Faces, Sand Equivalent, and Fine Aggregate Angularity for Virgin Aggregates”.
      2. Provide performance graded asphalt cement conforming to NMDOT SSHBC, Section 402, Asphalt Material, Hydrated Lime, and Anhydrite Based Material.
    1. Provide open-graded friction course conforming to NMDOT SSHBC, Section 403, Open-Graded Friction Course (OGFC).
       1. Open-graded friction course: Provide aggregates conforming to the requirements of Table 403.2.2:1.
       2. Provide asphalt cement conforming to NMDOT SSHBC, Section 402, and the submitted laboratory mix design.
    2. Provide liquid asphalt tack coat conforming to NMDOT SSHBC, Section 407, Tack Coat.
    3. [Provide liquid asphalt prime coat conforming to NMDOT SSHBC, Section 408, Prime Coat shall be used as required by site conditions or design requirements and approved by the LANL Utilities & Institutional Facilities Roads System Engineer and LANL STR].
  1. TRAFFIC CONTROL MARKING

1. Provide paint for pavement markings (words, symbols, and stripes) conforming to NMDOT SSHBC, Section 704, Pavement Markings. Comply with the requirements for the application, protection, and limitations of the paint.
2. Provide high performance, reflectorized glass beads for improved retro-reflectivity for roadway marking stripes conforming to NMDOT SSHBC, Section 704, Pavement Markings.
3. EXECUTION
   1. Pre-job INSPECTION
      1. Verify the compacted subgrade and base is ready to support paving and imposed loads.
      2. Verify grades and elevations of base course are correct.
   2. PREPARATION
      1. [Perform Pavement Crack Sealing in accordance with the NMDOT Standard Specifications Section 411, Hot-Poured Crack Sealant.]
      2. [Perform Pavement Cold Milling in accordance with the NMDOT Standard Specifications Section 414, Cold Milling.]
      3. [Perform Pavement Surface Restoration in accordance with the NMDOT Standard Specifications Section 415, Pavement Surface restoration.]
      4. Remove loose and deleterious material from compacted base surface immediately. Surface and subgrade shall be free of frozen material and any material that contains ice crystals.
      5. When placing HMA on base course, proof roll the base course with a 27-ton roller or other approved equipment and correct any soft areas, as directed by the LANL STR. Place the HMA on the approved surface, then spread, and strike off to the specified grade and elevation. Spread and compact the HMA in layers in accordance with the specifications.
      6. Do not place HMA on wet or frozen surfaces or if weather conditions prevent proper handling, finishing, and compacting. Place HMA when the Chill Factor is at least 40 °F and rising. If the air temperature is 60 °F or warmer, do not consider the Chill Factor.
      7. [Apply prime coat at the rate as recommended by the laboratory mix design and approved by the LANL Utilities & Institutional Facilities Roads System Engineer and LANL STR.]

Apply a tack coat to existing asphalt or new Portland cement concrete surfaces to receive the HMA pavement. Apply tack coat to vertical surfaces of existing or new pavement and concrete surfaces abutting or projecting into new asphalt pavement and construction joints. Apply material at a uniform application rate of 0.10 to 0.15 gal/sy to give a 0.03 to 0.05 gal/sy of residual asphalt on surfaces receiving the tack coat.

* + 1. All surfaces shall be considered existing after a 12 hour break in construction activity, and shall require a tack coat, unless specified otherwise by the LANL Utilities & Institutional Facilities Roads System Engineer and LANL STR.
  1. PLACING ASPHALT PAVement
     1. Place HMA pavement in accordance with NMDOT SSHBC Section 423.3.
     2. Place the HMA by means of a paving machine on prepared surface, spread, and strike-off. Thickness of the pavement lifts shall be as recommended by the approved mix design, and as approved by the Engineer of Record (EOR) and/or the LANL Utilities & Institutional Facilities Roads System Engineer. Place inaccessible and small areas by hand. Place each course to required grade, cross section, and compacted thickness, per the approved mix design and as shown on drawings.
     3. Target temperature: Do not allow the temperature of the HMA discharged from the plant mixer into the transport vehicle to be greater or less than the target mixing temperature of 310 degrees F as specified in the mix design by more than 10% F, not to exceed 350 degrees F.

The laydown temperature of the HMA, at the time of placement shall be + or – 22 degrees F per the laydown temperature specified in the approved Project mix design.

HMA delivered to the Project site with mix and/or laydown temperatures outside the acceptable range are subject to rejection by the LANL Construction Inspector. The LANL STR and/or the LANL Utilities & Institutional Roads System Engineer shall be notified immediately of conditions where the HMA does not meet the required temperature range.

OGFC placement temperature shall not exceed the asphalt binder Supplier’s recommendation or fall below 220 degrees F.

* + 1. Compact the HMA thoroughly and uniformly immediately after placement. Operate rollers at speeds slow enough to minimize displacement of the HMA, including the lines and grades of the asphalt edges. Remove marks from pneumatic rollers and immediately correct any displacement. Do not use equipment that crushes the aggregate excessively.
    2. At locations inaccessible to the rollers, compact the HMA with hot hand tampers, smoothing irons, or mechanical tampers. Remove areas that become loose, broken, mixed with dirt, segregated or defective, replace with fresh HMA, and compact to match the surrounding area.
    3. Density for acceptance of HMA shall be 94.5% of theoretical maximum density as determined from AASHTO T 209. For determination of maximum specific gravity, obtain and test a minimum of two (2) samples of the HMA that is placed. Each individual density test value obtained shall be within + or – 3% of the theoretical maximum density.

Note: Final Densities at or below 90.0% of theoretical maximum density are subject to rejection by the LANL Utilities & Institutional Roads System Engineer. All rejected asphalt material shall be removed and replaced in compliance with the Project documents at the Subcontractor’s expense.

* + 1. Monitor the compaction process by determining the density of the HMA with a portable nuclear density gauge. Establish calibration of the portable nuclear density gauge from cut pavement samples (2 samples minimum). Determine the density readings of the cut pavement samples in accordance with AASHTO T 166 (weight, volume method) and determine the density readings of the pavement with the portable nuclear density gauge. Perform density testing while the asphalt mixture is hot enough to permit further compaction. Do not roll for compaction when it becomes ineffective or damages the HMA. Do not use vibratory mode when the temperature of the mix is below 200 °F.
    2. Construction joints between old and new pavements, or between successive days' work shall have the same texture, density, and smoothness as other sections of the HMA course. Saw cut and clean the construction joint contact surfaces and apply tack coat. The location of cold joints in roadways shall be pre-determined by the Subcontractor and approved by the LANL STR and/or the LANL Utilities & Institutional Facilities Roads System Engineer.
  1. PAVEMENT PENETRATIONS, MANHOLES, AND VALVE COVERS
     1. Manhole frames and valve covers shall be adjusted as per the Drawings and approved by the LANL STR and/or the Utilities & Institutional Facilities Roads System Engineer. The finish surface at the top of all asphalt concrete pavement penetrations, to include but not be limited to manhole frames and valve covers, shall be constructed to and be parallel in all directions to the finished surface of the surrounding asphalt concrete pavement prior to placing the surface course.
  2. Tolerances

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Refer to Civil Standard Drawing ST-G30GEN-4 for single utility trench detail.  
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* + 1. Pavement smoothness for roadways shall conform to the tolerances required by NMDOT SSHBC, Section 401, “Pavement Smoothness Measurement”, consisting of providing and using profile testing Equipment that incorporates the Mean Roughness Index (MRI).

Use an MRI threshold (inch/mi) of 105.00 and a segment length of 25.00 feet. Identify must grind locations for each lane using the “MRI” Ride Quality Index. Any locations with a MRI of 105.00 to 125.00 will be evaluated by the LANL Construction Inspector, the LANL STR, and the Subcontractor, to determine if diamond grinding is required. Final determination will be made by the LANL Utilities & Institutional Facilities Roads System Engineer. All locations with an MRI above 125.00 must be included in a corrective action plan.

1. Pavement smoothness and joints for pedestrian pathways, bicycle paths, and parking lots shall conform to the tolerances required by NMDOT SSHBC, Section 401, “Pavement Smoothness Measurement”, by use of straightedge measurements.

Test the final surface of HMA with an approved ten (10) foot straightedge at both right angles and parallel to the centerline, advancing the straightedge in five (5) foot increments. In lieu of a physical ten (10) foot straightedge measurement and at the direction of the STR a profile measurement device that complies with NMDOT SSHBC, Section 401.3.1.1 “Profile Measurement Device” can be used for the ten (10) foot straightedge measurement. Correct surface deviations greater than 1/8 inch within ten (10) ft., as directed by the LANL Construction Inspector.

1. Asphalt pavement cuts and potholes shall be patched by hand placement or small asphalt paver suitable for width of the trench. Asphalt patch shall be the same depth as the adjacent pavement with the minimum depth being three inches. The finished surface of the patch shall match the contour and grade of the undisturbed adjacent pavement.
2. After the completion of final rolling, the smoothness of the course shall be checked, and the irregularities that exceed the specified tolerances and/or retain water on the surface shall be removed and replaced by the Subcontractor at no additional cost to the Project.
   1. CLEANING AND PROTECTION
      1. Cleaning
         1. After completion of paving operations, clean surfaces of excess or spilled asphalt material to the satisfaction of LANL STR.
      2. Protection
         1. After final rolling, do not permit vehicular traffic on the HMA pavement until it has properly cooled and hardened.
         2. Provide barricades and warning devices as required to protect pavement, employees, and the general public. Temporary traffic control devices shall meet the requirements of the Manual on Uniform Traffic Control Devices, latest edition.
   2. PAVEMENT MARKINGS

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* + 1. Sweep and clean surfaces using the means necessary to eliminate any loose material, dirt, grease, and debris.
    2. The Subcontractor shall perform a detailed layout by providing preliminary spotting of the permanent pavement lines and other markings as shown on the approved detail plan. Acceptance by LANL Traffic Engineer shall be obtained before permanent marking begins.
    3. All pavement markings shall be as shown on the Drawings.
    4. Apply three (3) coats of paint. The initial application of paint shall be placed no sooner than 7 days after paving is complete. The second and third application of paint shall be placed no sooner than 14 days after the first application unless otherwise approved by the LANL Utilities & Institutional Facilities Roads System Engineer.
    5. Apply paint with a spray-type self-propelled pavement marking machine suitable for applying traffic paint to produce uniform straight edges without running or splattering.
    6. Provide necessary measures to divert traffic from the paint installation area during the application and drying time of the permanent traffic control markings and stripes.
    7. Paint for word markings, letters, numerals, and symbols shall be applied using suitable spray equipment together with stencils and templates that dimensionally conform to existing LANL stencils and templates.
    8. Paint shall be applied within the temperature range specified by the manufacturer.
    9. When existing permanent or temporary detour striping or markings are no longer required they shall be removed by wet blasting.
  1. FIELD QUALITY CONTROL
     1. Preliminary Test Strip (Minor and Major Asphalt Paving)

Prior to initiating the contractual Project placement, the Subcontractor shall produce a test strip to develop the ideal placement plan and rolling pattern.  The rolling pattern shall be repeated until optimal density and break point is determined.  Test-strip paving that does not comply with the density requirement of this specification may be accepted for use at the discretion of the Utilities & Institutional Facilities Roads System Engineer.

Note: Size or length of the test strip shall be determined on a project-specific basis and agreed upon between the Subcontractor and the LANL Utilities & Institutional Facilities Roads System Engineer.  In no case shall it be less than 1,200 sq. ft. (nominally 12-15 ft. wide) unless Project size dictates a smaller area, nor shall the size be greater than four times that (4,800 sq. ft.).

1. Once a rolling pattern has been established, density cores (3 minimum) shall be acquired by the Project testing agency, and laboratory analysis performed in order to correlate all Nuclear Density Gauges to be used on the Project site.
2. Once optimal density for the Project is identified by the Project testing agency, and with concurrence with LANL Construction Inspector, the Subcontractor shall submit a field execution work plan for review and approval by the Engineer of Record and LANL Utilities & Institutional Facilities Roads System Engineer.
3. Once approval of the work execution plan is granted, the Project placement may proceed, and all work shall be executed per the approved plan. If Subcontractor wishes to deviate from the approved plan at any time during the placement, they shall submit a request to the Engineer of Record and the LANL Utilities & Institutional Facilities Roads System Engineer for review and approval prior to proceeding.
   * 1. Field Documentation

The Subcontractor shall ensure that the testing agency is documenting, and provides to the LANL STR the following minimum information to support any HMA Placement:

1. Start time, end time, and any delays encountered during the placement.
2. Ambient temperature at start of placement and periodically throughout the placement.
3. Asphalt temperature (out of truck and laydown) if significant waiting time.
4. Surface temperatures.
5. Truck arrival times, and if determined to be a concern, waiting time for each truck.
6. Site conditions at the time of placement and throughout the placement (weather etc.).
7. Description of the placement method (mech. or hand placement).
8. Any names, discussions/decisions made with LANL staff about the placement.
   * 1. Testing
9. [Scope 1] Miscellaneous Asphalt Paving:

Prior to final acceptance of the HMA, an evaluation of the in place material, and the completed work shall be done by the Utilities & Institutional Facilities Roads System Engineer to determine the need for testing of minor, miscellaneous and/or major paving. Contact the LANL STR immediately if testing will be required.

If required by the Utilities & Institutional Facilities Roads System Engineer, the Subcontractor is responsible for the following minimum tests as part of the final acceptance:

* Density (Nuclear): As needed to control operations per AASHTO T 310.
* Smoothness: See Article 3.5 Tolerances.
* Thickness, Mat Density, Cores AASHTO T 166, 209

Determine thickness by coring the in place compacted Material and measuring the thickness to the nearest 1/4 inch using a measuring tape.

1. [Scope 2] Major Asphalt Paving:

Testing of aggregates for HMA shall be as follows (see Section 901, Table 901.7.3) of the NMDOT SSHBC for list of all-inclusive testing and required frequency):

* Gradation AASHTO T 11, 27, 146
* Fractured Faces NMDOT Method FF1
* Sand equivalent AASHTO T 176
* Plasticity Index AASHTO T 89, 90
* Moisture Content AASHTO T 255
* Los Angles Wear AASHTO T 96, 104
* Soundness Loss AASHTO T 85

Testing of HMA as specified in the NMDOT SSHBC (see Section 901, Table 901.7.4) of the NMDOT SSHBC for list of all-inclusive testing and required frequency):

* Asphalt Content AASHTO T 308
* Gradation AASHTO T 30, 164, 308
* Air Voids AASHTO T 166, 209, 269
* Voids in Mineral Aggregate (VMA) AASHTO R 35
* Voids Filled with Asphalt (VFA) AASHTO R 35
* Dust to Binder Ratio AASHTO R 35
* Gyratory Tests AASHTO T 312
* Thickness, Mat Density, Cores AASHTO T 166, 209

Determine thickness by coring the in place compacted Material and measuring the thickness to the nearest 1/4 inch using a measuring tape.

* Density (Nuclear): As needed to control operations per AASHTO T 310.
* Temperature: See Paragraph 3.3.C (PLACING ASPHALT PAVEMENT Target temperature)

1. Provide an AASHTO [re:source](http://aashtoresource.org/aap/accreditation-directory) (formerly AMRL)-accredited independent testing agency to perform field testing of installed products to include compaction, smoothness, thickness, and test samples that shall verify quality control requirements. Testing equipment used in the performance of specified testing shall be calibrated annually with calibration standards traceable to NIST. A copy of the certifications shall be submitted to the LANL STR and/or LANL Utilities and Institutional Facilities Roads System Engineer upon request.
2. Provide unobstructed access to all work areas and cooperate with the appointed testing agencies laboratory technician.
3. Submit test results within 3 working days of test to LANL STR and/or LANL Utilities & Institutional Facilities Roads System Engineer.
4. Testing Frequency for HMA:
5. [Scope 1] Minor and/or Miscellaneous Asphalt Paving:

Perform testing as required below for Major Paving, or as specified in this specification.

1. [Scope 2] Major Asphalt Paving:

Thickness: Take measurements at a randomly selected locations, or as directed by the LANL Construction Inspector.

Mat Density Cores: Density calculation will use the daily average of specific gravity as validated by F-test and T-test in the daily calculation.

Field Density: Baseline testing shall be one test per [100] linear foot. If after the first [500] feet of testing, consistent passing results are documented, the LANL Construction Inspector may increase the frequency of tests to every [500] linear feet.

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Anytime during the testing process consistent failures are encountered, the LANL Construction Inspector shall re-evaluate the testing frequency. Contact the LANL STR and/or the Utilities & Institutional Facilities Roads System Engineer immediately of any changes in testing frequency.

HMA Materials: Minimum one (1) test per [500] tons.

Minimum of one (1) test per day and three (3) tests per sublot except for maximum specific gravity. Obtain a minimum of two (2) tests per day for maximum specific gravity. If sublot size is reduced to [1500] tons or less, perform testing at a rate of one (1) test per [500] tons with a minimum of one (1) per day.

1. Subcontractor Quality Control for Compaction; Subcontractor shall monitor the compaction process by determining the density of the hot-mix asphalt with a portable nuclear densometer in accordance with ASTM D 2950. Density testing will be conducted as needed to control operations. The Independent Testing Laboratory shall provide certification that the portable nuclear densometer has been calibrated and readings are accurate.
   * 1. Final Acceptance
2. [Scope 1] Minor and/or Miscellaneous Asphalt Paving:

Final acceptance of minor and/or miscellaneous paving shall be provided by the LANL Construction Inspector and/or the Utilities & Institutional Facilities Roads System Engineer. Final acceptance shall be based on visual examination, verification of line and grade, and testing if determined necessary per paragraph 3.8.A.1 of this section.

Visual inspection, a pass or fail of the HMA shall be documented by the LANL Construction Inspector. Contact the LANL STR immediately of any failed HMA.

1. [Scope 2] Major Asphalt Paving:

The Subcontractor shall perform Quality Control sampling, testing, and inspection in accordance with NMDOT SSHBC Section 901, Table 901.7:3, “Minimum Process Control Guidelines for Aggregates and Base Course,” Table 901.7:4, “ Minimum Process Control Guidelines for Hot Mix Asphalt,” and Table 901.7:5, “Minimum Process Control Guidelines for Portland Cement Concrete Pavement”.

1. Acceptance of major paving shall be based on compliance with all applicable sections of the Project Specification.

END OF SECTION

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Do not delete the following reference information:

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THE FOLLOWING STATEMENT IS FOR LANL USE ONLY

This Project specification section is based on LANL Master Specification 32 1216 Rev. 6, dated September 25, 2018.