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10 MWe Solar Thermal
Central Receiver Pilot Plant

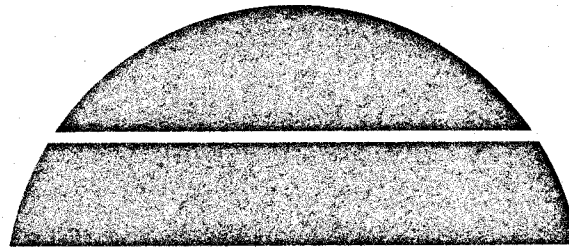
SOLAR FACILITIES DESIGN INTEGRATION

**CONSTRUCTION PACKAGE NO. 2
FINAL EARTHWORK AND ROADWORK
(RADL ITEM 7-28)**

August 1980

WORK PERFORMED UNDER CONTRACT
DE-AC03-79SF10499

STEARNS-ROGER ENGINEERING CORP
4500 CHERRY CREEK DRIVE
P.O. BOX 5888
DENVER, CO 80217



U.S. Department of Energy



Solar Energy

**10 MWe Solar Thermal
Central Receiver Pilot Plant
Solar Facilities Design Integration**

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DENVER, CO 80217**

**PREPARED FOR THE
U.S. DEPARTMENT OF ENERGY
SOLAR ENERGY
UNDER CONTRACT DE-AC-03-79SF10499**

PREFACE

This technical construction package is provided by McDonnell Douglas Astronautics Company (MDAC) in accordance with Department of Energy Contract Number DE-AC03-79SF10499, Reports and Deliverables List (RADL), Item 7-28. This package was prepared by Stearns-Roger Engineering Corporation under MDAC Subcontract Number 78012035.

This technical construction package will be included in the invitation for bid being prepared for the Department of Energy by Townsend and Bottum, Inc., for the Final Earthwork and Roadwork Construction Package No. 2. This construction package consists of constructing bituminous pavements, compacted aggregate surfaces, and restoring existing surfaces.

RADL 7-28 includes two parts, as follows:

- Technical Specification for Construction Package No. 2 identified as STMPO Drawing 40C700-2S (Stearns-Roger Project No. C-21700)
- Supplemental construction drawings as identified in Paragraph 2.1 of the Technical Specification

Questions concerning this report should be directed to R. J. Perkins at (714) 896-3073.

TECHNICAL SPECIFICATION

July 8, 1980

NO. 40 C 700 - 2S

for

FINAL EARTHWORK AND ROADWORK

CONSTRUCTION PACKAGE #2

Prepared by:

Stearns-Roger
ENGINEERING CORP.

PROJECT NO. C-21700

CONSTRUCTION PACKAGE #2
FINAL EARTHWORK AND ROADWORK
SECTION 4 - IFB

NOTICE

Wherever the term "Construction Manager" is used, it is intended that it shall mean the Contracting Officer's duly authorized representative which is Townsend and Bottum, Inc.

The Construction Manager will not direct the day-to-day operations of the Contractor, but will provide the inspection and verification of the Contractor's performance in accordance with the design specifications and drawings.

TECHNICAL SPECIFICATIONS FOR
CONSTRUCTION PACKAGE #2
FINAL EARTHWORK AND ROADWORK
SECTION 4 - IFB

SECTION TI - TECHNICAL INFORMATION

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FINAL EARTHWORK AND ROADWORK
SECTION 4 - IFB

LIST OF ABBREVIATIONS

The following abbreviations used in this Section 4 are defined as follows:

ASTM - American Society for Testing and Materials

IFB - Information for Bidders

CONSTRUCTION PACKAGE #2
SECTION 4 - IFB
TECHNICAL INFORMATION

1.0. SCOPE OF WORK

The work of this Contract consists of performing final earthwork, aggregate surfacing, roadwork and paving for the 10 MWe Solar Pilot Plant, near Daggett, California.

1.1. Description of Work. The work to be performed hereunder includes, but shall not necessarily be limited to, the following:

1.1.1. Restoring and preparing the existing compacted aggregate base courses of roadways, traffic and parking areas of the Plant.

1.1.2. Applying weed killer to the surfaces to be paved.

1.1.3. Constructing bituminous pavements where and as shown, on the above restored base courses.

1.1.4. Stripping and removing approximately 4 inches of existing grade from the unsurfaced portions of the Core Area, preparing the subgrade as required and constructing compacted aggregate surfacing back to finish grade on those areas.

1.1.5. Cleaning Plant Area culverts and drainage channels of trash and debris, and of excessive silting as determined by the Construction Manager.

1.1.6. Furnishing all labor, supervision, equipment, temporary facilities, materials, supplies and services not furnished by others, but which are necessary for satisfactorily accomplishing the work of this Contract.

1.2. Work Not Included. The following items of work related to the work hereunder, will be performed by others:

1.2.1. Establishing horizontal and vertical control points for the Contractor's reference.

1.2.2. Site preparation and initial site grading.

1.2.3. Sampling and testing of base course materials, determining in-place compacted densities, and determining specification compliance of paving materials and installed pavement.

1.2.4. Providing a source of construction water.

1.2.5. Paving of the Plant Access Road south of the interface at station 10H0 of the South Access Road.

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TECHNICAL INFORMATION (CONTD)

2.0. SUPPLEMENTS

The following Supplements are furnished with and, unless otherwise noted, form a part of these Specifications:

2.1. Stearns-Roger Engineering Corp. Drawings

<u>Drawing No.</u>	<u>S-R Drawing No.</u>	<u>Sheet No.</u>	<u>Rev.</u>	<u>Title</u>
40C1005133900	XL22934	G1-1	4	General Arrangement - Site Plot Plan
40C1005133901	XL22934	G1-2	1	General Arrangement - Core Area
40C1005133911	XL22934	Y1-1	1	Site Plot Plan
40C1005133921	XL22934	Y2-1	0	Initial Grading Plan (for information only)
40C1005133922	XL22934	Y2-2	2	Grading Sections and Details
40C1005133923	XL22934	Y2-3	2	Core Area Layout & Grading Plan
40C1005133924	XL22934	Y2-4	1	Core Area Grading Sections & Details
40C1005133941	XL22934	Y4-1	0	Storm Drainage - Sections & Details
40C1005133951	XL22934	Y5-1	1	Road Profiles

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3.0. CODES AND STANDARDS

3.1. The codes, standards and publications of the following organizations form a part of these Specifications to the extent indicated by the references thereto:

ASTM - American Society for Testing and Materials
Standard Specifications of the State of California, Department of
Transportation
Federal, State, County or Municipal Codes, Laws and Ordinances of the
place of installation.

3.2. Should a conflict be found to exist between the listed codes and standards and this Specification, the conflict shall be submitted to the Construction Manager for resolution before proceeding with the affected work.

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TECHNICAL INFORMATION (CONTD)

4.0 DRAWING AND DATA SUBMITTALS

Prior to fabrication or delivery to the jobsite of the devices and materials to be installed under this Contract, the Contractor shall submit to the Construction Manager for review and comment, the drawings and descriptive data called for in the various Articles of this Section 4. Drawings and data submittal shall be in accordance with Article GC.14 of Section 3, GENERAL CONDITIONS.

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TECHNICAL INFORMATION (CONTD)

5.0. EARTHWORK

This Article of these Specifications covers earthwork for the Plant Area and general requirements pertaining to the work of this contract. Additional requirements applicable to restoration of base courses are specified in Article 6.0., BASE COURSES AND AGGREGATE SURFACING.

5.1. Description of Earthwork. The entire Plant Area was previously brought to the lines, grades and elevations shown on the Drawings. It is anticipated that earthwork performed under this Contract will be limited to preparation of the core areas as required to receive aggregate surfacing. Cleaning of drainage channels and culverts shall be performed to the extent specified hereinafter.

5.2. General Requirements

5.2.1. Existing Underground Utilities. The Contractor is advised that buried piping and electrical utilities are presently installed throughout the site area and are shown on drawings available through the Construction Manager. In performing the work of this contract precautions shall be taken to avoid damaging these utilities or endangering personnel.

5.2.2. Sampling and Testing. Suitability of soils and the in-place compacted densities of soils will be determined by a sampling and testing agency retained by the Construction Manager. These determinations will be made at no expense to the Contractor, except that in the event that failure to meet specified densities require re-testing, such re-testing shall be at the Contractor's expense.

5.2.3. Suitable Materials. To be considered suitable for use in the work, earthwork materials shall be free from perishable matter, trash, debris, frost or frozen material, and stones or hard cemented pieces larger than 2 inches, and shall be compactible, with or without blending, to the specified density. Materials not meeting the foregoing requirements shall be considered unsuitable and shall not be used in the work. Any amounts of suitable earthwork materials required in excess of the amounts available from on-site stockpiles, shall be obtained by the Contractor from the borrow area indicated on the Drawings; except that additional base course material and aggregate surfacing, if required, shall be imported by Contractor.

5.2.4. Line and Grade Control

5.2.4.1. All earthwork shall be performed to the lines, grades and sections shown and/or specified. The Contractor shall lay out his work from existing permanent survey points established by others, and shall establish such additional references, stakes and grade hubs as necessary for proper control of his work.

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TECHNICAL INFORMATION (CONTD)

5.2.4.2. The Contractor shall maintain his stakes and other established survey markers until authorized to remove them. Where such markers are destroyed by the Contractor or lost through his negligence prior to their authorized removal, the Construction Manager may require that they be replaced by and at the expense of the Contractor.

5.2.5. Weather Limitations. Operations involving compaction shall not be performed during periods when freezing temperatures, excessive moisture, or similar factors cause doubt that satisfactory results will be obtained unless the entire procedure is submitted for review by the Construction Manager and upon trial, produces satisfactory results.

5.2.6. Equipment

5.2.6.1. Earthwork equipment shall be of types and capacities capable of obtaining the specified results, except that heavy vibratory type rollers shall not be operated within the Core Area.

5.2.6.2. Should any equipment not be maintained in satisfactory working order or prove inadequate for obtaining the prescribed results, such equipment shall be repaired or replaced immediately upon notification to the Contractor that the work performed by the equipment is unacceptable and does not meet the requirements of the plans and specifications.

5.2.7. Compaction Control

5.2.7.1. Moisture-density relations of soils will be determined in accordance with ASTM D1557. Field in-place density tests of compacted fill, backfill, and subgrade, will be performed in accordance with ASTM D1556, D2167 or D2922. Where in-place densities fall below specified minimums, the Contractor will be required to rework those zones until the required densities are obtained.

5.2.7.2. During placing and/or compacting operations, the moisture content of material in the layer being compacted shall be near optimum (optimum +1, -3 percent) and shall be uniform throughout the layer. The Contractor shall perform all operations necessary to insure the proper moisture content, including sprinkling, scarifying, aeration or drainage.

5.2.8. Construction Water. Raw water in the quantities required for the Contractor's use under this Contract, will be available without charge at one location identified by the Construction Manager. The Contractor shall be responsible for providing the equipment for transporting and utilizing the water to meet his construction needs.

5.2.9. Wasting. Earthwork materials to be wasted shall be wasted in the disposal area indicated on the Drawings. Waste materials shall be placed in the disposal area in such manner that the area will be self-draining. Compaction by at least two passes of a heavy roller will be required

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throughout the disposal area to prevent wind and rain erosion. Upon completion of wasting operations in the disposal area, the Contractor shall rough grade and dress the disposal area.

5.3. Performance of Work

5.3.1. Coordination of Work. It shall be the responsibility of the Contractor to coordinate his operations hereunder with his reconditioning of base courses and paving operations such that base courses properly merge with adjacent grades, shoulders are properly compacted and smooth, and pavement is not damaged. All unsatisfactory or damaged areas shall be repaired to the satisfaction of the Construction Manager by and at the expense of the Contractor.

5.3.2. Cleaning Ditches and Culverts. The work of this Contract includes removal and disposal of trash, accumulations of wind-blown weeds, and excessive silting as determined by the Construction Manager, from existing ditches and culverts of the Project. Such removed accumulations shall be transported to and disposed of in the off-site disposal area indicated on the Drawings. Where ditches have been eroded, they shall be restored to the required section and gradient, and shall be recompacted. Upon completion of the work of this Contract, all ditches and culverts of the Project shall be left free from obstructions to proper drainage, and in a condition satisfactory to the Construction Manager.

5.3.3. Finish Grading. Areas of earthwork under this Contract shall be left finish graded in accordance with the following. The graded surfaces shall be reasonably smooth, compacted, and free from irregular surface changes where ponding of runoff could occur. The degree of finish required shall be that ordinarily obtainable from either blade grader or scraper operations. The graded surfaces shall be not more than 0.1 foot above or below the established grades and sections.

5.4. Maintenance. The finish graded areas of the Project shall be maintained in satisfactory condition, as determined by the Construction Manager, until completion of Contract. Any caving, erosion, rutting, undue settlement, and other damage or defects in the Contractor's work occurring or detectable prior to completion of Contract, shall be promptly corrected by the Contractor without additional compensation.

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TECHNICAL INFORMATION (CONTD)

6.3. Weather Limitations. Operations involving compaction shall not be performed during periods when freezing temperatures, excessive moisture, or similar factors cause doubt that satisfactory results will be obtained, unless the entire procedure is submitted for review by the Construction Manager and upon trial, produces satisfactory results.

6.4. Reconditioning Base Courses

6.4.1. All existing base courses for roads, traffic areas and parking areas of the Plant shall be reconditioned to the governing specifications referred to in Paragraph 6.2. and in accordance with the following additional requirements. Reconditioning shall, as a minimum, include scarifying the upper 2 inches; adding or removing base course material if necessary; sprinkling or aerating as necessary; recompacting and regrading to the lines, grades and sections shown, and to the specified density and tolerances.

6.4.2. Where addition of base course material is necessary, preparation and placement shall be accomplished in accordance with the following:

6.4.2.1. The upper 2 inches of the existing base course shall be scarified before placement of additional material upon it, and shall be near optimum moisture content at the time of placing the additional material. The additional material shall be near optimum moisture content at the time of compacting.

6.4.2.2. The additional base course material shall be spread in layers of uniform thickness, without segregation. Material showing segregation shall be mixed until uniform. No layer shall exceed 6 inches in uncompacted thickness. Each layer shall be compacted to the density specified below before placement of a succeeding layer.

6.4.3. After the top surface of each base course has been scarified and shaped, and before compaction is completed, transverse and longitudinal surface irregularities shall be eliminated.

6.4.4. The base courses shall be compacted throughout to a density of not less than 95 percent of maximum density at optimum moisture content as determined in accordance with ASTM D1557.

6.4.5. The finished and compacted base courses shall conform to the grade and typical sections shown on the Drawings, or with authorized modifications thereof. When tested in any direction with a 10-foot straightedge, the finished base course shall not show a deviation in excess of 3/8-inch.

6.4.6. All shoulder construction or reconditioning shall be done in proper sequence with reconditioning the base courses. In compacting the edges of the base courses and shoulders the rolling shall be as specified for the base course, and shall overlap the shoulders a minimum of one foot. Completed shoulders shall be true to alignment and grade, shaped to drain, and in conformity with the sections shown on the Drawings.

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TECHNICAL INFORMATION (CONTD)

6.0. BASE COURSES AND AGGREGATE SURFACING

This Article of these Specifications covers reconditioning of existing compacted aggregate base courses for roads, traffic and parking areas; preparation of existing compacted aggregate base courses to receive bituminous pavements to be constructed under this Contract; and construction of compacted aggregate surfacing within the Core Area.

6.1. General

6.1.1. Compacted aggregate base courses for roads, traffic and parking areas of the Project have previously been constructed by others. The Contractor shall recondition those base courses and prepare the appropriate surfaces to receive the bituminous paving specified in Article 7.0., BITUMINOUS PAVING.

6.1.2. The existing base courses were constructed to the Governing Specifications described in Paragraph 6.2. below. These base courses shall be returned to compliance with the referenced paragraph and shall be brought to the lines, grades, sections and other requirements shown on the Drawings and as specified herein. Existing base courses in areas to receive pavement were constructed such that the top of base course matched the top of future pavement. The preparation of this base course in areas to receive pavement will therefore require removal of an approximately 2 inch depth of base course material as specified in Paragraph 6.5., "Excavation for Pavement." It is anticipated that this material may be reused in constructing the compacted aggregate surfacing within the Core Area.

6.1.3. Should additional aggregate base or surfacing material be required, the material shall be furnished by the Contractor from off-site sources and shall meet the referenced requirements of the Standard Specifications. The proposed material shall not be used in the work until certification by the supplier of such compliance.

6.1.4. In-place compacted density of aggregate base courses and aggregate surfacing will be determined by the Construction Manager's Testing Agency in accordance with ASTM D1556 (Sand Cone Method) or ASTM D2922 (Nuclear Method), at no expense to the Contractor.

6.2. Governing Specifications. The base courses and aggregate surfacing shall be compacted aggregate base courses conforming to the requirements of Section 26 of the Standard Specifications of the State of California, Department of Transportation, Class 2 Aggregate Base, 3/4-inch maximum aggregate size, except that the compaction and tolerance requirements specified hereinafter shall govern. The aggregate material shall meet the gradation, quality and other requirements of Article 26-1.02B of the referenced Standard Specifications.

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6.5. Excavation for Pavement. Within the limits of those areas of base course to be occupied by bituminous pavement, the removal of an approximately 2-inch depth of existing base course material will be necessary. The Contractor's construction methods and procedures for accomplishing final preparation for bituminous paving, and acceptable shoulder construction, shall be acceptable to the Construction Manager and shall produce satisfactory results. The procedure shall, in addition to other requirements, ensure the following:

6.5.1. That any adjacent berms are neatly trimmed to line and the resulting loose material is removed.

6.5.2. That each surface on which pavement will be constructed is smooth, compacted to not less than 95 percent maximum density, and is at the required elevation and section.

6.6. Aggregate Surfacing. Areas to receive aggregate surfacing shall be as indicated on the Drawings.

6.6.1. Preparation of Surfaces to Receive Aggregate Surfacing. The existing areas to receive aggregate surfacing within the core have been constructed to finish grade by others. The preparation of these areas to receive aggregate surfacing will therefore require removal of an approximately 4-inch depth of material which shall be wasted as specified in Subparagraph 5.2.8., Wasting. The Contractor shall then compact the areas to receive aggregate surfacing to meet the following requirements.

6.6.1.1. The prepared subgrade shall be brought to near optimum moisture content as determined in accordance with ASTM D1557 and the upper 6 inches shall be compacted to not less than 95 percent maximum density, shall be smooth, and shall not vary more than 0.1 foot above or below the required grade.

6.6.1.2. Subgrade that does not conform to the above requirements shall be reconstructed to the specified density and tolerances. Necessary earthwork shall be accomplished in accordance with Article 5.0. EARTHWORK.

6.6.1.3. Should elapsed time, or a period of precipitation or freezing temperatures occur between completion of an area of subgrade and construction of aggregate surfacing thereon, the subgrade will be reinspected and, if necessary, shall be reconditioned by the Contractor to conform to the foregoing requirements.

6.6.2. Construction of Aggregate Surfacing

6.6.2.1. Immediately prior to commencing aggregate surfacing construction thereon, the subgrade surfaces shall be inspected by the Construction Manager's Testing Agency to verify the density and tolerance requirements of the previous paragraph.

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6.6.2.2. The aggregate surfacing material shall be placed in uniform mixtures and shall be spread in layers or windrows without segregation. Segregated materials shall be mixed until uniform.

6.6.2.3. The aggregate surfacing material shall be spread, watered, processed, shaped and compacted as specified. Where the required thickness of the completed course is 6 inches or less, the material may be spread and compacted in a single layer. Where the required thickness of the completed aggregate base exceeds 6 inches, the base material shall be spread and compacted in layers of approximately equal thickness, providing the compacted thickness of a layer shall not exceed 6 inches.

6.6.2.4. Each layer of aggregate surfacing material shall be uniformly compacted throughout to a density of not less than 95 percent of maximum density at optimum moisture content as determined in accordance with ASTM D1557.

6.6.2.5. The finished and compacted surface of the aggregate surfacing shall conform to finish grades as shown on the drawings and to the requirements specified in Paragraph 5.3.3. Finish Grading.

6.7. Maintenance. All areas of finished base course and aggregate surfacing shall be maintained in satisfactory condition, as determined by the Construction Manager, until completion of Contract. Any caving, erosion, rutting, undue settlement, and other damage or defects in the base courses occurring or detectable prior to completion of Contract, shall be promptly corrected by the Contractor. If such defects or damage are determined by the Construction Manager to be due to defective work by the Contractor, or due to the operations of the Contractor, the Contractor shall perform such repairs without additional compensation.

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TECHNICAL INFORMATION (CONTD)

7.0. WEED KILLER

This Article of these Specifications covers the weed killer to be furnished and installed to the surface areas as specified herein.

7.1. Areas to Receive Weed Killer. All surfaces which will receive bituminous pavement shall be sterilized by the application of the specified weed killer. Prior to commencing weed killer application the base course shall have been prepared in accordance with Article 6.0. BASE COURSES AND AGGREGATE SURFACING.

7.2. Materials. The weed killer chemical shall be Poly-Bor-Chlorate, manufactured by U.S. Borax and Chemical Corp., or Construction Manager approved equal.

7.3. Application. The weed killer chemical shall be diluted at the ratio of 1 pound chemical to 1 gallon of water and be applied at a rate of 4 gallons per 100 square feet. Weed killer shall not be applied in adverse or windy weather conditions nor in any manner that permits the weed killer to spread beyond the limits of the surfaces to which it is applied. Precautions shall be taken to prevent any spray material from reaching the surfaces of installed heliostats. The Contractor shall be responsible for all loss or damage to the Government's property or the property of others resulting from the negligent use of the weed killer.

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8.0. BITUMINOUS PAVING

This Article of these Specifications covers constructing bituminous pavement for roads, traffic and parking areas of the Plant as indicated on the drawings to be constructed under this Contract.

8.1. General

8.1.1. The pavements to be constructed hereunder shall conform to the respective requirements of the Standard Specifications of the State of California, Department of Transportation, as referenced below. The above document, referred to hereafter as the "Standard Specifications," shall govern the paving work to the extent indicated by the references thereto.

8.1.2. The bituminous pavements for the Project shall be constructed of Type A "Asphalt Concrete," produced in a batch mixing plant or a continuous mixing plant. The use of asphalt concrete produced from a drier-drum mixing plant may be used only with the prior written approval of the Construction Manager.

8.1.3. Not less than seven (7) days prior to the beginning of paving operations, the Contractor shall furnish to the Construction Manager, certified laboratory test results of the asphalt concrete mixture proposed for use, and the name, plant location, and general qualifications of the supplier of the paving mix.

8.2. Materials

8.2.1. Aggregate. The gradation and quality of the aggregate used in the paving mix shall conform to Standard Specifications Section 39-2.02, "Aggregate" for Type A asphalt concrete.

8.2.2. Asphalt

8.2.2.1. Paving asphalt to be mixed with aggregate shall be a steam-refined asphalt conforming to the Standard Specifications, Section 92, "Asphalts," Grade AR-4000.

8.2.2.2. Liquid asphalt for prime coat shall conform to the Standard Specifications, Section 93, "Liquid Asphalts," Grade MC-70.

8.2.2.3. Asphaltic emulsion for "paint binder" shall conform to the Standard Specifications, Section 94, "Asphaltic Emulsions, for Slow-Setting Grade CSS1 or CSS1h."

8.3. Asphalt Concrete Mixture. The asphalt concrete mixture, composed of the specified aggregate, and the optimum amount of asphalt as determined by Test Method No. Calif. 367, shall conform to the applicable quality requirements of the Standard Specifications, Section 39-2.02, "Aggregate."

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8.3.1. Proportioning

8.3.1.1. Proportioning of pounds of paving asphalt per 100 pounds of dry aggregate shall conform to the provisions of the Standard Specifications, Section 39-3.03, "Proportioning."

8.3.1.2. For any routine test, the grading of the combined aggregate shall comply with the limits as provided in the Standard Specifications, Section 39-2, "Materials," and shall be of such uniformity that the range between any individual test result and the previous moving average shall not be greater than allowed in Section 39-3.03, "Proportioning."

8.4. Construction

8.4.1. Inspections

8.4.1.1. Prior to commencing paving operations, including application of prime coat, on an area to be paved, the prepared base course will be inspected, and shall conform to the specified compaction, elevation tolerances, shall have received the specified weed killer application, and shall be free from loose or extraneous material as provided in Section 39-4.01, "Grade Tolerance" of the Standard Specifications. Any discrepancies revealed shall be corrected to the satisfaction of the Construction Manager before commencing paving operations.

8.4.1.2. Prior to commencing paving operations, concrete surfaces against which paving mix will be placed shall be inspected and cleaned of mud, dirt and other materials which would interfere with application of the paint binder.

8.4.2. Use and Application of Prime Coat. Approved base course surfaces to be paved shall be primed with asphalt prior to being paved. The prime coat material shall be applied at an approximate total rate of 0.25 gallon per square yard of surface treated, in accordance with Section 39-4.02, "Prime Coating and Paint Binder," and Section 93, "Liquid Asphalts," of the Standard Specifications. Suitable precautions shall be taken to prevent contamination of concrete foundations with the primer, such as installation of temporary paper coverings where the primer is applied against or near such foundations.

8.4.3. Use and Application of Paint Binder

8.4.3.1. Paint binder shall be applied to those portions of vertical concrete surfaces which will be in contact with pavement, and to the prepared edges of previously compacted and cooled pavement against which placement is to be resumed.

8.4.3.2. The edge of the previously constructed pavement shall be trimmed back to sound pavement in a neat line, loose material removed, and then given a coat of paint binder immediately before resuming placement. Concrete surfaces shall be free from mud, dirt and loose material at the time of applying the paint binder.

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8.4.3.3. When approved in writing by the Construction Manager, the asphalt emulsion paint binder may be diluted by adding up to an equal volume of water.

8.4.3.4. Paint binder shall be applied to each surface in a single application at a rate of 0.05 to 0.10 gallon per square yard of surface treated, in accordance with Section 39-4.02, "Prime Coat and Paint Binder," and Section 94, "Asphaltic Emulsions," of the Standard Specifications.

8.4.4. Spreading and Compacting Equipment

8.4.4.1. Equipment for spreading and compacting the asphalt-aggregate mixture shall meet or exceed the provisions of Section 39-5, "Spreading and Compacting," of the Standard Specifications.

8.4.4.2. Should any equipment not be maintained in satisfactory working order or prove inadequate for obtaining the prescribed results, such equipment shall be repaired or replaced immediately upon notification to the Contractor that the work performed by the equipment is unacceptable and does not meet the requirements of the plans and specifications.

8.4.5. Spreading and Compacting

8.4.5.1. Spreading and compacting the asphalt-aggregate mixture in paving roadways, traffic and parking areas shall be accomplished in accordance with the provisions of Section 39-6, "Spreading and Compacting," of the Standard Specifications.

8.4.5.2. Surfacing of miscellaneous areas such as road approaches, gutters, gutter flares, and other areas outside the traffic flow, shall conform to Section 39-7, "Miscellaneous," of the Standard Specifications.

8.5. Surface Requirements.

8.5.1. After final rolling, the surface of the bituminous pavements shall be smooth and true to line, grade and cross section. When a 10-foot straightedge is laid on the surface parallel with the pavement centerline, the surface shall not vary more than 1/8-inch from the straightedge. When the 10-foot straightedge is laid on the pavement surface transverse to the centerline between the crown and edge of pavement, the surface shall not vary more than 1/4-inch from the straightedge. Low or defective areas shall be immediately corrected by cutting out the faulty areas and replacing with fresh hot mixture and compacting each area to conform to the remainder of the pavement.

8.5.2. After completion of paving operations the Contractor shall insure that shoulders are true to alignment and grade, thoroughly compacted, sloped to drain, and in conformity with the sections on the drawings.

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8.6. Protection. Following final rolling, vehicular traffic shall not be permitted on the pavement until the pavement has cooled and hardened for at least 8 hours. The Contractor shall furnish and install such barriers, signs and lights as may be necessary to enforce this requirement.

SECTION 4 - IFB
TECHNICAL INFORMATION (CONTD)

9.0. CLEAN-UP

After completion of the work of this Contract, and before final acceptance of the work will be given, the Contractor shall remove all the Contractor's tools, equipment, temporary facilities, surplus materials, trash, empty containers and other evidences of construction from the Contractor's work, parking and storage areas and leave those areas clean to the satisfaction of the Construction Manager.