

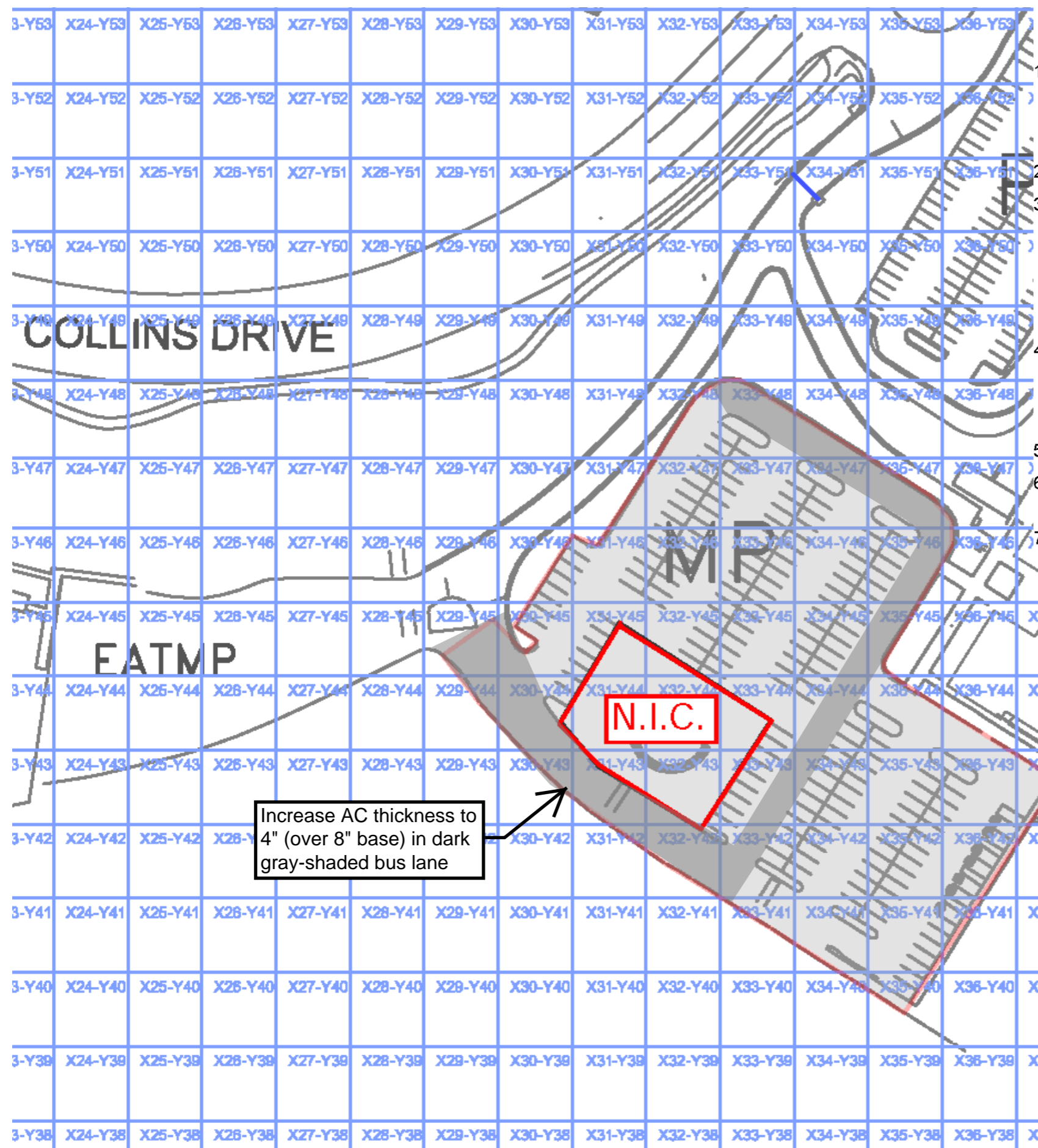
**MOORPARK COLLEGE MUSIC LOT
PAVEMENT REPLACEMENT 2024**

SITE LOCATION PLAN

Area	Pavement	Scope	Notes
MP	Parking Lot	Remove and replace	Construct 3" Asphalt Concrete over 8" aggregate base over Mirafi 600X over 1' R/R @ 95%, increase AC thickness to 4" in bus traffic lane shown on plan



CONSTRUCTION NOTES



1. Remove existing asphalt concrete pavement within marked area. Saw cut with clean straight edges. Key cut asphalt concrete edges to a depth of 1½ inches and a width of 18 inches into adjacent asphalt concrete pavement to remain. Protect existing pavement from distress from construction traffic. Replace damaged pavement.
2. Dispose of demolition debris and surplus material offsite.
3. Overexcavate MP pavement subgrade to a depth of 12 inches below bottom of AC/base section. After observation of exposed excavation bottom by geotechnical representative, scarify exposed bottom 6 inches, process and moisture condition or aerate as needed to between 0 and 2 percent over optimum moisture content, and compact to a minimum of 90 percent of the maximum dry density. Moisture-condition and place excavated soil in 8-inch loose lifts and compact the upper 1 foot of subgrade fill soils to 95 percent of the maximum dry density.
4. Lay Mirafi 600X on the MP Parking Lot subgrade surface in accordance with manufacturer's recommendations. Place full thickness of base that is premoistened to optimum moisture content at stockpile before trafficking with spreading and compacting equipment with wheel loads always advancing over full thickness during spreading operation.
5. Place and compact aggregate base to a minimum of 95 percent of the maximum dry density.
6. Protect existing utility structures, solar canopies and foundations, and concrete improvements in place, adjust manholes to match finish grade. New pavement to match grade of existing adjacent concrete.
7. Restore pavement marking with traffic-rated paint.

GENERAL NOTES

- A. Contractor to verify pavement areas and locations of existing utilities. Protect existing utilities in place.
- B. Contractor to provide secure work area to prevent pedestrian and vehicular access during duration of project.
- C. Use wacker to compact materials inaccessible to vehicular compactors.
- D. Compacted subgrade and aggregate base course shall be firm and unyielding when proof-rolled with a full water truck
- E. Contractor to effect positive drainage on all new pavement surfaces. Drainage on new pavement surfaces shall be achieved by sheet flow and shall not be concentrated.

**SECTION 02220
DEMOLITION AND EXCAVATION**

CONTENTS

	Page
PART 1 - GENERAL	1
1.01 WORK SPECIFIED HEREIN.....	1
1.02 SUBMITTALS.....	1
1.03 SCHEDULE AND NOTIFICATION.....	2
1.04 PROJECT CONDITIONS	2
PART 2 - PRODUCTS	3
2.01 MATERIALS.....	3
PART 3 - EXECUTION	3
3.01 PREPARATION.....	3
3.02 METHODS	3
3.03 SECURE DEMOLITION AREA	4

**SECTION 02220
DEMOLITION AND EXCAVATION**

Drawings and General Conditions of the contract apply to this Section, but this section shall have precedence when regarding conflicts. Demolition and excavation work shall conform with latest edition of “State of California Department of Transportation Standard Specifications” (Caltrans) and Standard Specifications for Public Works (“Greenbook”), latest edition, except as modified herein, and Standard Specifications shall be considered included as part of contract documents.

PART 1 - GENERAL

1.01 WORK SPECIFIED HEREIN

- A. Labor, materials, equipment, transportation, and services to complete the demolition and excavation work shown explicitly on the construction drawings, or additional demolition as necessary to complete the work.
- B. The demolition work shall include, but not be limited to, the following items:
 - 1. Prior to performing work, Contractor shall, at his sole expense, locate, mark, and memorialize all components of the improvements for restorative purposes, including, but not limited to, all pavement markings.
 - 2. Remove asphalt concrete and concrete pavement within areas to receive new pavement or concrete. Dispose of removed materials to offsite location at Contractor’s expense. Provide weigh tickets to campus M&O Director for offsite material/soil disposal.
 - 3. Locate and protect in place all underground and overhead utilities
 - 4. Strip grass mat from trenching alignment prior to excavation and save to replace upon completion of trenching.
 - 5. Loading, hauling, and dump fees for asphalt concrete, concrete, reinforcement steel, soil, and other removal items.
- C. Protect in place surrounding greenscape and hardscape improvements, and underground utilities, as directed by District’s representative. Restore damaged landscape to approval of Director of Facilities Maintenance and Operations.
- D. Contractor shall strictly adhere to the following regulations during demolition, excavation and grading:
 - Title 8 CCR 1532.1 Lead in Construction
 - Title 8 CCR 1529 Asbestos
 - Title 8 CCR 5194 Hazard Communication
 - Title 8 CCR 5155 Airborne Contaminants
 - Title 8 CCR 5192 Hazardous Waste Operations and Emergency Response

1.02 SUBMITTALS

- A. Demolition procedures, items to salvage and operational sequence and schedule shall be submitted at least 14 days in advance of mobilization for review and acceptance by campus Director of Facilities Maintenance and Operations.

- B. Prior to scheduling work, contractor to survey, by licensed surveyor, existing and proposed finished grades in areas to receive new pavement and prepare site drainage plan to achieve positive drainage by sheet flow, with no areas of concentrated runoff on new pavement surface. Contractor to submit survey data and proposed surface drainage plan to District for review and acceptance at least 15 business days prior to excavation.

1.03 SCHEDULE AND NOTIFICATION

- A. Work shall be performed so as not to disrupt campus operations. The Contractor shall submit a work schedule and traffic signage/barricading/control compatible with campus operations to the campus Director of Facilities Maintenance and Operations for approval at least 14 days prior to mobilization, and confirm field coordination of scheduled activities with campus Director in writing at least 3 business days in advance of site preparation/equipment mobilization and in accordance with the approved Work Segment Plan. Work shall be performed and completed, without exception, on pre-approved, scheduled work days.
- B. A preconstruction meeting shall be convened with the campus Director of Facilities Maintenance and Operations, Contractor's field supervisor, and District's engineer at least 10 business days prior to construction to review Contractor's survey and drainage plan, work schedule, and construction sequence and approach.

1.04 PROJECT CONDITIONS

- A. Provide traffic control for all work in traffic areas. Work area shall be well-cordoned off and marked, as agreed upon in advance by the M&O Director at time of work plan/schedule submittal. The Contractor is responsible in maintaining safe work areas at all times.
- B. Existing conditions: Verify existing conditions before starting work.
 - 1. Prior to performing work: Mark and memorialize all components of the improvements for restorative purposes, including, but not limited to, all pavement markings to be removed as a result of demolition and repair/reconstruction or maintenance.
- C. Protection
 - 1. Do not interfere with use of adjacent buildings. Maintain free and safe passage to and from adjacent classrooms and pedestrian/vehicle areas.
 - 2. Prevent movement or settlement of structures, ongrade improvements, and utilities. Provide bracing or shoring. Be responsible for safety and support of same. Assume liability for movement, settlement, damage, or injury.
 - 3. Cease operations and notify District immediately if safety of structures and improvements appears to be endangered. Take precautions to properly support existing structures and improvements. Resume operations only after safety is restored.

4. Provide, and maintain barricades, lighting, and guardrails required by applicable regulatory advisory to protect passersby and workers.

D. Existing Services

1. Follow the procedures outlined in the general conditions for utility disconnects and interruptions.

2. Immediately notify campus Director of Facilities Maintenance and Operations and District's engineer of damage to existing improvements, including underground utilities.

3. Place markers to indicate location of disconnected services. Identify service lines and capping locations on project record documents.

4. Verify with campus M&O Director that exposed, repaired, and/or rerouted underground utilities are fully functioning prior to paving or concrete placement. Unverified utilities will be restored as necessary at Contractor's expense.

PART 2 - PRODUCTS

2.01 MATERIALS

Excess or unsuitable material, used geotextiles, broken asphalt concrete, broken Portland cement concrete, pipes, etc., shall be removed and disposed of by the Contractor. All materials shall be disposed of at an approved disposal site. Contractor shall, prior to commencement of the work, submit a letter to the District stating the location of disposal site(s) for all excess material and certifying that he has obtained the property owner's permission for the disposal of all surplus materials.

PART 3 - EXECUTION

3.01 PREPARATION

A. Provide protection from falling objects over entrances, which are to be kept open during normal working hours.

B. Perform demolition work to cause the least inconvenience to surrounding areas.

3.02 METHODS

A. Contractor shall be responsible for determining the method or methods used to accomplish the removals and excavations indicated on the plans, except that blasting will not be allowed.

B. Contractor shall assume all responsibility to protect existing structures and facilities during all phases of the work, and shall repair or replace any structures or facilities damaged by him or his subcontractors at his expense.

C. Contractor shall demolish in an orderly and careful manner items required to accommodate new work, including work required for connection to existing structures.

D. Remove existing earth materials and asphalt concrete paving as indicated. Saw cut concrete and/or asphalt pavement to provide a straight line at edges of existing pavement that will remain.

- E. Remove concrete panels at joints so that entire panel is replaced.
- F. Grind existing pavement, as needed, in overlay areas to effect positive surface drainage to existing and new drainage improvements.
- G. Protect tree roots during demolition.
- H. Debris:
 - 1. Remove excess debris as it accumulates, except as otherwise specified. Do not store or permit debris to accumulate on site. If Contractor fails to remove excess debris promptly, District reserves right to cause same to be removed at Contractor's expense.
 - 2. Materials requiring removal and demolition, including but not limited to, Petromat, asphalt concrete and concrete, shall be removed completely from site by Contractor, unless approved otherwise.
 - 3. Contractor shall submit weigh tickets for material disposal to campus M&O Director.
 - 4. If Contractor encounters unforeseen items during clearing and demolition work, he is to notify the owner prior to removal or demolition.
- I. Perform demolition hauling and disposal in accordance with applicable authorities having jurisdiction.
- J. Repair demolition performed in excess of that required, at no cost to District.
- K. Burning of materials onsite is not permitted.
- L. Remove demolished materials. Provide weigh tickets to campus M&O Director for offsite material/soil disposal. Remove tools and equipment from site upon completion of work.
- M. District may identify specific items for the Contractor to salvage and deliver to District for future use.
- N. Contractor shall provide sufficient watering to abate dust. Contractor to secure water from County of Ventura.

3.03 SECURE DEMOLITION AREA

- A. Contractor shall implement safety measures and use barricades and signage to prevent pedestrian/handicap access and redirect traffic near areas where demolition and construction is underway.
- B. Contractor shall maintain safe and secure work areas until construction is complete.

END OF SECTION 02200

**SECTION 02310
SUBGRADE PREPARATION**

CONTENTS

	Page
PART 1 - GENERAL	1
1.01 WORK SPECIFIED HEREIN.....	1
1.02 STANDARD SPECIFICATIONS.....	1
1.03 SUBMITTALS	1
1.04 SCHEDULE AND NOTIFICATION	1
1.05 SUBSTITUTIONS.....	2
1.06 FINISHED GRADE	2
1.07 PROJECT CONDITIONS	2
PART 2 - MATERIALS	3
2.01 EXCESS OR UNSUITABLE MATERIAL	3
2.02 FILL	3
2.03 WATER	3
2.04 GRADE STAKES AND LINES	3
2.05 VERIFICATION OF QUANTITIES.....	4
2.06 TOLERANCES	4
PART 3 - EXECUTION	4
3.01 EXCAVATION AND SLOPE REPAIR	4
3.02 EXCAVATION	5
3.03 SUBGRADE PREP UNDER NEW and REPLACEMENT PAVEMENT	6

**SECTION 02310
SUBGRADE PREPARATION**

Drawings and General Conditions of the contract apply to this Section, but this section shall have precedence when regarding conflicts.

PART 1 - GENERAL

1.01 WORK SPECIFIED HEREIN

- A. Labor, materials, equipment, and services necessary to complete subgrade preparation, grading, and related items as indicated or specified.
- B. The general extent of grading is shown on drawings including, but is not limited to, the
 - 1. Preparation of subgrade below asphalt concrete and concrete pavements.
 - 2. Removal and recompaction/reconstruction of slope areas supporting pavement and sidewalk subgrade.

1.02 STANDARD SPECIFICATIONS

Standard Specifications refers to the latest edition of "State of California Department of Transportation Standard Specifications" (Caltrans) and Standard Specifications for Public Works ("Greenbook"), latest edition, except as modified herein, and shall be considered included as part of contract documents by reference.

1.03 SUBMITTALS

- A. Prior to scheduling work, Contractor to notify Underground Service Alert at least 2 business days in advance of excavating. Contractor to submit work schedule and material submittals to District for review and acceptance at least 14 days prior to excavation.

1.04 SCHEDULE AND NOTIFICATION

- A. Work shall be performed in manner so as not to disrupt campus operations. The Contractor shall submit a work schedule compatible with campus operations to the campus Director of Facilities Maintenance and Operations for approval at least 10 business days prior to mobilization, and confirm field coordination of scheduled activities with campus Director in writing at least 3 business days in advance of equipment mobilization and in accordance with the approved Work Segment Plan. Work shall be performed and completed, without exception, on pre-approved, scheduled work days.

- B. A preconstruction meeting shall be convened with the campus Director of Facilities Maintenance and Operations, Contractor's field supervisor, and District's Engineer at least 10 business days prior to construction to review Contractor's plans, work schedule, and construction sequence and approach.

1.05 SUBSTITUTIONS

Substitutions will be in accordance with general conditions.

1.06 FINISHED GRADE

- A. "Finished grade" as used herein, refers to the required final grade elevation to match existing conditions and achieve positive drainage, without concentrated runoff, consistent with positive site drainage.
- B. Unless otherwise indicated, provide uniform slopes between points for which finished grades are surveyed or between such points and existing established grade. Concentrated runoff and/or ponding in improved pavement areas and adjacent to slabs-on-grade shall not be permitted.

1.07 PROJECT CONDITIONS

- A. Anticipate and verify existing conditions before starting work.
- B. Protection
 - 1. Do not interfere with use of adjacent facilities. Maintain free and safe passage to and from adjacent buildings and walkways.
 - 2. Prevent movement or settlement of structures and existing improvements to remain. Provide bracing or shoring, as needed. Be responsible for safety and support of structures and improvements. Assume liability for movements of structures and improvements, settlement, damage, or injury.
 - 3. Cease operations and notify District immediately if safety of structures and improvements appears to be endangered. Take precautions to properly support structures and improvements. Resume operations only after safety is restored.
 - 4. Provide, and maintain barricades, fencing, and signage required by applicable regulatory agency or codes to protect passersby, workers and site users.
 - 5. Contractor shall exercise caution in excavating subgrade to avoid cutting tree roots. Roots shall be exposed to depth of 18 inches below finish grade in preparation of cutting and treatment by arborist, as required.

6. Contractor shall exercise caution in excavating subgrade to avoid cutting underground utilities. Repairs to underground utilities shall be at Contractor's expense.

PART 2 - MATERIALS

2.01 EXCESS OR UNSUITABLE MATERIAL

- A. Excess or unsuitable material, broken asphalt concrete, broken Portland cement concrete, pipes, etc., shall be removed and disposed of by Contractor. All materials shall be disposed of at an approved disposal site. Contractor shall, prior to commencement of work, submit a letter to District stating location of disposal site(s) for excess material and certifying that he/she has obtained property owner's permission for disposal of surplus materials.
- B. Areas where loose or otherwise unsuitable subgrade materials are encountered shall require removal to firm or dense, competent material, as determined by the District's Engineer.
- C. Wet subgrade materials shall be scarified, aerated to between -2 and +2 percent of optimum moisture content, and processed to pea-sized consistency prior to compaction and base placement.

2.02 FILL

Onsite soils used as fill shall be placed and compacted at a moisture content of between -2 and +2 percent of the optimum moisture content, with consideration to moisture content of underlying materials and avoidance of pumping conditions in subgrade and aggregate base course. Each layer shall be spread evenly and shall be thoroughly blade-mixed during the spreading to provide relative uniformity of material within each layer. Soft or yielding material shall be removed and be replaced with properly compacted fill material prior to placing the next layer. Fill material shall have an expansion index of less than 20 and designated stockpiles shall be observed and tested by the District's Engineer prior to being brought to the site.

2.03 WATER

- A. Water used in earthwork and pavement construction and repair activities shall be provided by Contractor. Contractor to secure water from County of Ventura Water Department.

2.04 GRADE STAKES AND LINES

Grading, including subgrade and finished grade of paved or concreted areas, shall be controlled by such intermediate grade stakes and lines as may be necessary to obtain the slopes and levels required by the finished grade elevations shown on construction drawings. Compacted subgrade and finished grade surfaces shall parallel and conform to the control planes established by those grade stakes and lines.

2.05 VERIFICATION OF QUANTITIES

Grading and pavement construction shall be done in conformance with pavement section thickness and existing finished grade elevations and approved site drainage plans. Discrepancies between such mentioned quantities and/or sections would not entitle Contractor to additional remuneration or compensation.

2.06 TOLERANCES

Subgrade for areas under pavement may vary within a tolerance of $\pm 0.04'$ from the finished grade elevations surveyed prior to excavation or from the proposed grades shown on approved drainage plans. Subgrade to receive asphalt concrete may vary within a tolerance of 1/2" in 10 feet, measured in any direction.

PART 3 - EXECUTION

3.01 EXCAVATION AND SLOPE REPAIR

- A. Notify campus Director of Facilities Maintenance and Operations at least 3 business days prior to start of site preparation/equipment mobilization.
- B. Excavate areas shown on plans or as specified herein that may include cutting for pavement or concrete sections and construction subgrade.
- C. Locate and protect existing utilities in place. Notify Facilities Director and Engineer of any damage to underground utilities. Damaged utilities shall be repaired to satisfaction of Facilities Director at Contractor's expense. Notice Facilities Director upon completion of repair and before burial.
- D. Excavations shall be kept free of water until compacted fills and structures are complete to above water, safe from uplift and horizontal water pressure and rutting and softening of subgrade. Dewatering equipment must be adequate to protect against flotation.
- E. Prior to placement of fill at slope toe or base of slope remediation, a keyway shall be excavated into competent materials and observed by the Geotechnical representative. The keyway shall be sloped at least 2 percent into the slope. Processed slope fill materials shall be placed in horizontal lifts not exceeding 8 inches in loose thickness. Fill materials shall be benched at least 6 feet into competent materials at approximate 2-foot vertical intervals. Slope faces shall be overfilled and trimmed back to a compacted core.
- F. Excavated material including, but not limited to, concrete and asphalt concrete, and materials not necessary or suitable for fill construction shall be removed from the site. Excavated aggregate base and earth materials may be placed in designated stockpile areas pre-approved by campus Director of Facilities Maintenance and Operations.

- G. Contractor to scarify and aerate wet to very moist subgrade conditions as early as practicable or use alternative means approved by District's Engineer to achieve optimum moisture content and/or stable subgrade conditions in order to maintain schedule, and shall be handled in accordance with these specifications at the Contractor's expense in terms of cost and schedule. Equipment and methods used shall be consistent with those appropriate to achieve and maintain firm and unyielding subgrade conditions. Materials to be aerated should be reduced to pea-size consistency to maximize surface area and facilitate drying, and to expedite compaction. Alternatively, very moist or wet materials may be replaced or mixed, at the Contractor's expense, with dryer materials, such as excavated aggregate base course materials or cement, and as approved by the District.
- H. Contractor shall use excavation, processing, and compaction equipment and methods appropriate for conditions encountered in subgrade materials in accordance with Caltrans Standard Specifications Section 5-1.115. Mitigation of adverse subgrade and fill conditions encountered or aggravated by actions of Contractor shall be the responsibility of the Contractor in terms of cost and schedule.
- I. Compaction equipment and methods used shall be consistent with those appropriate to achieve and maintain firm and unyielding subgrade conditions. Prior to placement of aggregate base, subgrade shall be firm and unyielding when proof-rolled with a loaded water truck. Deflecting areas shall be repaired at Contractor's expense in terms of cost and schedule.

3.02 EXCAVATION

- A. Notify campus Director of Facilities Maintenance and Operations at least 3 business days prior to start of site preparation/equipment mobilization and in accordance with the approved Work Segment Plan.
- B. Excavate areas shown on plans or as specified herein that may include cutting for pavement or concrete sections and construction subgrade.
- C. Locate and protect existing utilities in place. Notify Facilities Director and Engineer of any damage to underground utilities. Damaged utilities shall be repaired to satisfaction of Facilities Director at Contractor's expense. Notice Facilities Director upon completion of repair and before burial. Provide 24-hour advance notice to Director of Facilities Maintenance and Operations to perform verification that lighting conduit and other affected utilities are in working order prior to burial.
- D. Excavations shall be kept free of water until compacted fills and structures are complete to above water, safe from uplift and horizontal water pressure. Dewatering equipment must be adequate to protect against flotation.

- E. Excavated material including, but not limited to, concrete and asphalt concrete, and materials not necessary or suitable for fill construction shall be removed from the site. Excavated aggregate base and earth materials may be placed in designated stockpile areas pre-approved by campus Director of Facilities Maintenance and Operations.
- F. Contractor to scarify and aerate wet to very moist subgrade conditions as early after demolition as practicable or use alternative means approved by District's Engineer to achieve optimum moisture content and/or stable subgrade conditions in order to maintain schedule, and shall be handled in accordance with these specifications at the Contractor's expense in terms of cost and schedule. Equipment and methods used shall be consistent with those appropriate to achieve and maintain firm and unyielding subgrade conditions. Materials to be aerated should be reduced to pea-size consistency to maximize surface area and facilitate drying, and to expedite compaction. Alternatively, very moist or wet materials may be replaced or mixed, at the Contractor's expense, with dryer materials, such as excavated aggregate base course materials or cement, and as approved by the District.
- G. Contractor shall use excavation, processing, and compaction equipment and methods appropriate for conditions encountered in subgrade materials in accordance with Caltrans Standard Specifications Section 5-1.115. Manual excavation and small manually-operated compacting equipment shall be implemented in tree root repair areas. Mitigation of adverse subgrade and fill conditions encountered or aggravated by actions of Contractor shall be the responsibility of the Contractor in terms of cost and schedule.
- H. Compaction equipment and methods used shall be consistent with those appropriate to achieve and maintain firm and unyielding subgrade conditions. Prior to placement of aggregate base, subgrade shall be firm and unyielding when proof-rolled with a loaded water truck. Deflecting areas shall be repaired at Contractor's expense in terms of cost and schedule.

3.03 SUBGRADE PREPARATION UNDER NEW AND REPLACEMENT PAVEMENT

- A. The upper 12 inches of pavement subgrade or pavement subgrade areas to receive fill shall be overexcavated, aerated or moisture conditioned between 0 and 2 percent over the optimum moisture content, processed and reduced to a pea-sized or finer consistency, and compacted to a minimum of 95 percent relative compaction in accordance with ASTM D1557. Overexcavation and compaction of subgrade shall be observed by the geotechnical representative and notice of such work shall be given to District's Engineer at least 2 days in advance of such operations.
- B. Mirafi 600X shall be placed, according to manufacturer's recommendations, on the compacted subgrade surface in the Music Parking Lot. The full loose thickness of aggregate base that has been pre-moistened to optimum moisture

content shall be placed on the 600X prior to trafficking and application of compactive effort. Aggregate base shall be compacted to 95 percent of maximum dry density. The resulting aggregate base level shall allow for construction of the compacted thickness of asphalt concrete, and matching original finish grade.

- C. Except as noted in preceding section for aggregate materials placed over Mirafi 600X, aggregate base shall be placed in lifts of 6 inches or less in loose thickness and compacted to at least 95 percent relative compaction. Aggregate base shall conform to section 02720, "Aggregate Base."
- D. Paragraphs in above Section 3.02 **Excavation** apply here also, as appropriate.
- E. Compacted subgrade shall be firm and unyielding when proof-rolled with a full water truck.
- F. Upon completion of grading work, site shall be left in clean and finished conditions conforming to drawings.
- G. Subgrade surfaces shall be finished to uniform grades and slopes in accordance with contract documents and in such a manner to drain properly, convey runoff to existing and new drainage improvements, and be free from depressions that may cause areas of standing water or concentrates runoff on finished surface.
- H. Contractor shall maintain as-compacted condition of subgrade up to time of placement and compaction of base course. Disturbance, rutting, or loosening of previously compacted subgrade shall be corrected at Contractor's expense.

END OF SECTION 02310

**SECTION 02720
AGGREGATE BASE COURSE**

CONTENTS

	Page
PART 1 - GENERAL	1
1.01 SUMMARY	1
1.02 REFERENCES AND REGULATORY REQUIREMENTS	1
1.03 QUALITY ASSURANCE.....	1
1.04 SUBMITTALS.....	2
1.05 PRODUCT/SITE CONDITIONS	2
1.06 DELIVERY, STORAGE, AND HANDLING	2
1.07 SEQUENCING AND SCHEDULING	2
PART 2 - PRODUCTS	2
2.01 MATERIALS.....	2
PART 3 - EXECUTION	2
3.01 SUBGRADE PREPARATION	2
3.02 BASE MATERIAL PLACEMENT AND COMPACTION	3
3.03 TOLERANCES.....	3
3.04 CLEAN-UP OF WORK AREA	3
3.05 PROTECTION OF FINISHED PRODUCT	3

**SECTION 02720
AGGREGATE BASE COURSE**

Drawings and General Conditions of the contract apply to this Section, but this section shall have precedence when regarding conflicts.

PART 1 - GENERAL

1.01 SUMMARY

- A. Furnish labor, materials, equipment, facilities, transportation and services to complete all base course preparation, installation and related work as shown in contract documents and/or specified herein.
- B. Scope of work:

General extent of base course work is shown on the drawings and may include, but is not necessarily limited to, the following:
 - 1. Grading and compaction of subgrade soil under asphalt concrete paving.
 - 2. Furnishing, placing, and compaction of aggregate base material under asphalt concrete and concrete paving.
- C. Related sections can include, but may not be limited to:
 - 1. Section 0220 - Demolition and Excavation
 - 2. Section 02310 – Subgrade Preparation
 - 3. Section 02740 - Asphalt Concrete Paving
 - 4. Section 03000 – Concrete Pavement and Sitework

1.02 REFERENCES AND REGULATORY REQUIREMENTS

The State of California Department of Transportation Standard Specifications, latest edition, and Standard Specifications for Public Works Construction ("Greenbook"), latest edition, except as modified herein, shall be considered included as part of contract documents by reference.

1.03 QUALITY ASSURANCE

- A. Control of Work: Conform to Section 5 of the Standard (Caltrans) Specifications.
- B. Control of Materials: Conform to Section 6 of the Standard Specifications (Caltrans).

1.04 SUBMITTALS

- A. Submit material certificates of compliance and/or sieve analysis for all products and materials proposed to be used in work covered by this Section at least 14 days prior to onsite delivery.

1.05 PRODUCT/SITE CONDITIONS

- A. Wet Conditions: No subgrade preparation or base material placement shall occur when excessively wet conditions exist in the opinion of the District's Representative. Subgrade shall be firm and unyielding when proof-rolled with a loaded water truck immediately prior to base placement.
- B. Dry Conditions: Contractor shall provide dust control in conformance with Section 10 of Standard Specifications (Caltrans) and shall provide water to soil subgrade and base courses as necessary to achieve compaction goals.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be stockpiled onsite in locations that, in the opinion of the Contractor, cause least interference with construction and as acceptable to the District's representative.
- B. Materials shall not be stockpiled in landscape areas.
- C. Protect materials from segregation, contamination, and wind and water erosion.

1.07 SEQUENCING AND SCHEDULING

- A. Work of this section shall not proceed until underground utilities and irrigation sleeves have been installed and accepted.
- B. Contractor shall schedule work so that installation of paving/surfacing occurs no later than five (5) business days after placement and proper compaction of base materials. Base materials left unpaved longer than this time period shall be subject to testing and recompaction at Contractor's expense.

PART 2 - PRODUCTS

2.01 MATERIALS

Aggregate Base: Aggregate base shall be Class 2, 3/4" maximum material conforming to Section 26-1.02A of the Standard Specifications (Caltrans) or Crushed Miscellaneous Base (CMB) in accordance with the 'Greenbook' (latest edition).

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

- A. Preparation of subgrade shall conform to Section 02310 of these specifications and Section 6 of the Standard Specifications (Caltrans).

- B. Remove unsuitable subgrade material as necessary and replace with suitable material or aggregate base per the discretion of the District's representative.
- C. Subgrade shall be firm and unyielding when proof-rolled with a loaded water truck. Areas of deflecting subgrade shall be repaired at Contractor's expense in terms of cost and schedule.

3.02 BASE MATERIAL PLACEMENT AND COMPACTION

- A. Conform to Section 26 of the Standard Specifications (Caltrans).
- B. Obtain acceptance of subgrade preparation work prior to placing base material thereon. Place Mirafi 600X on pavement subgrade in accordance with manufacturer's recommendations prior to placement of aggregate base. Do not traffic geotextile without a minimum of 6 inches of base over geotextile.
- C. Place and compact base material in 6 inch maximum loose lifts unless otherwise noted. Base materials shall be moisture conditioned to within 2% of optimum moisture content prior to placement. Compact base materials to at least 95% relative compaction.
- D. Equipment trafficking and staging operations shall be performed in a manner that prevents pumping of underlying subgrade and/or finished base materials. Mitigation of adverse subgrade and/or base conditions aggravated by actions of Contractor shall be the responsibility of the Contractor in terms of cost and schedule.
- E. Aggregate base course shall have a compacted thickness consistent with drawings and to satisfy positive drainage requirements and/or District-approved drainage plan prepared by Contractor.
- F. Base shall be firm and unyielding when proof-rolled with a loaded water truck. Areas of deflecting base course shall be repaired at Contractor's expense in terms of cost and schedule.

3.03 TOLERANCES

Conform to Section 26 of the Standard Specifications (Caltrans).

3.04 CLEAN-UP OF WORK AREA

Contractor shall remove and legally dispose of excess materials/spoils and debris from the job site on a daily basis.

3.05 PROTECTION OF FINISHED PRODUCT

Contractor shall provide barricades, signs and other devices and prevent over-trafficking, as necessary, to prevent damage to finished base courses.

END OF SECTION 02720

**SECTION 02740
ASPHALT CONCRETE PAVING**

CONTENTS

	Page
PART 1 - GENERAL	1
1.01 DOCUMENTS	1
1.02 SCOPE OF WORK.....	1
1.03 SUBMITTALS.....	1
1.04 NOTIFICATION.....	2
1.05 TRAFFIC CONTROL.....	2
1.06 PRODUCT HANDLING	2
1.07 PROTECTION OF WORK.....	3
1.08 TESTING AND INSPECTION	3
1.09 GENERAL REQUIREMENTS	3
1.10 QUALITY ASSURANCE.....	4
1.11 SITE CONDITIONS.....	4
PART 2 - PRODUCTS	4
2.01 MATERIALS	4
PART 3 - EXECUTION	6
3.01 ACCEPTABLE APPLICATORS	6
3.02 EQUIPMENT	6
3.03 SURFACE PREPARATION	7
3.04 INSTALLATION.....	7
3.05 PLACING MIX	13
3.06 ROLLING.....	14
3.07 PAVEMENT MARKINGS	15
3.08 MAINTENANCE OF SURFACE	15
3.09 FIELD QUALITY ASSURANCE	15
3.10 REJECTION OF WORK.....	16

**SECTION 02740
ASPHALT CONCRETE PAVING**

PART 1 - GENERAL

1.01 DOCUMENTS

- A. Drawings and General Conditions of the contract apply to this Section.
- B. "Standard Specifications" refers to latest edition of "State of California Department of Transportation Standard Specifications" (Caltrans, 2010) and Standard Specifications for Public Works Construction refers to "Greenbook," latest edition.

1.02 SCOPE OF WORK

- A. Furnish labor, materials, equipment, facilities, transportation and services to complete asphalt concrete paving and related work as contained in contract documents and/or as specified herein.
- B. Work Included: The general extent of the asphalt concrete paving is shown on the Drawings and includes, but is not necessarily limited to, the following:
 - 1. Replacement of asphalt concrete materials removed during demolition.
 - 2. Restoration of pavement markings with traffic-grade paint.
- C. Related Work:
 - 1. Demolition covered by Section 02220 of these specifications.
 - 2. Subgrade Preparation covered by Section 02310 of these Specifications.
 - 3. Aggregate Base Course covered by Section 02720 of these Specifications.
 - 4. Concrete Pavement and Sitework covered by Section 03000 of these specifications.
- D. Workmanship and material within this section shall conform to the Standard Specifications, except as modified herein.

1.03 SUBMITTALS

- A. Submit to the Engineer at least 14 days in advance of construction:
 - 1. Prior to demolition, contractor to survey existing finished grades in areas to receive new pavement and prepare site drainage plan effecting positive drainage and eliminating areas of concentrated runoff or ponding. Contractor to submit survey data and proposed improved surface drainage plan to

District representative for review and acceptance at least 14 days prior to excavation.

2. Test reports for asphalt concrete and base materials, gradation and quality. Submit for each material to be incorporated into the work.
3. Manufacturer's product specifications and installation recommendations.
4. Provide copies of material certificates signed by material producer and contractor, certifying that each material item complies with, or exceeds specified requirements.

1.04 NOTIFICATION

- A. Work shall be performed so as not to disrupt campus operations. The Contractor shall submit a detailed work schedule compatible with campus operations to the campus Director of Facilities Maintenance and Operations for approval at least 10 business days prior to mobilization, and confirm field coordination of specific scheduled activities with campus Director in writing at least 3 business days prior to start of site preparation/equipment mobilization and in accordance with the approved Work Segment Plan. Work shall be performed and completed, without exception, on District-pre-approved, scheduled work days.
- B. A preconstruction meeting shall be convened with the campus operations director, Contractor's field supervisor, and District's engineer at least 10 business days prior to construction to review Contractor's survey and drainage plan, work schedule, and construction sequence and approach.

1.05 TRAFFIC CONTROL

- A. The Contractor shall provide temporary traffic controls required to perform the work of this Section as required by the District and campus Director of Facilities Maintenance and Operations.
- B. Contractor to prepare and submit traffic control plans to the District and campus Director of Facilities Maintenance and Operations for approval. No work shall be performed until approval granted from the District and campus Director of Facilities Maintenance and Operations.

1.06 PRODUCT HANDLING

- A. Protection
 1. Use all means necessary to protect bituminous concrete pavement materials before, during and after installation and to protect existing improvements.

2. Paving materials delivered to the work site prior to placement shall be stockpiled in such a manner as to minimize surface water impact on the stockpile and minimize intrusion of soils adjacent to and beneath the stockpile.

B. Replacements

1. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the District.

1.07 PROTECTION OF WORK

Pavement markings shall be memorialized by Contractor prior to demolition or construction for post-construction restoration of all markings. Curbs, walls and other adjacent improvements are to be covered with suitable material and protected from injury or damage by equipment and contact with oil, emulsion or asphalt. All manholes, catch basins and other gratings are to be covered with suitable material so that no asphalt or emulsion will come in contact with the inside walls or floors of the structures. Any damage to such work shall be repaired and/or replaced at the contractor's expense. Manhole rims and catch basin grates shall be adjusted, where necessary, to new finish pavement elevations. Headers shall be constructed in areas not abutting asphalt concrete or concrete.

1.08 TESTING AND INSPECTION

- A. At the District's discretion, testing and inspection of asphalt concrete pavement mixes and testing of placed aggregate base course and asphalt concrete pavement will be performed by independent testing laboratory appointed and paid for by District.
- B. If compaction tests indicate that aggregate base course or asphalt concrete paving do not meet specified requirements, contractor shall remove defective work, replace and retest at contractor's expense.

1.09 GENERAL REQUIREMENTS

- A. Paving surfaces shall have positive drainage as indicated in the contract documents and District-approved drainage plan provided by Contractor. Upon completion of the work, paved areas included in this section shall be subject to a water drainage test. Areas that fail to drain properly as determined by the District or District's representative shall be corrected and repaired at no additional cost to the District.
- B. Asphalt concrete paving shall be free from cracking, pot holes, raveling, slippage, depressions, birdbaths, corrugations, aggregate ("rock") pockets, or other defects at the date of completion and acceptance of the project.

- C. Finished asphalt concrete surfaces shall be smooth, dense and of uniform texture and appearance, and shall not deviate more than ½ inch in 10 feet and ¾ inch in 2 feet, as verified with a straightedge.
- D. Repairs shall be made within ten (10) days of notification at no cost to the District.

1.10 QUALITY ASSURANCE

- A. Codes and Standards: Comply with Standard Specifications, 2010 edition, and “Standard Plans for Public Works Construction” (“Greenbook”), latest edition.
- B. Manufacturer’s Qualifications: Company with experience in manufacturing Asphalt Concrete pavement for a period of five years minimum.

1.11 SITE CONDITIONS

- A. Construct asphalt concrete surface course when temperatures exceed 40 degrees F and when the aggregate base is dry and unyielding.
- B. Establish and maintain required lines and elevations.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aggregate Base material shall be State of California Department of Transportation Standard Specification Section 26.1.02A Class 2 aggregate base, ¾-inch gradation. Crushed miscellaneous base material conforming to Standard Specifications for Public Works Construction Section 200-2.4, fine gradation, shall be an acceptable alternative aggregate base material.
- B. Unless otherwise shown on the Drawings, the minimum thickness of aggregate base shall be 6 inches.
- C. Headers shall be foundation grade 2” x 4” redwood. A minimum thickness of ½ inch shall be used for bends.
- D. Asphalt Concrete. Material for new asphalt concrete pavements shall consist of plant-mixed, hot-laid asphalt mixture with ½-inch minus aggregate (gradation per Section 39 of the Caltrans Standard Specifications for Type B surfacing). Asphalt shall be PG-64-10 performance grade binder, per Caltrans Standard Specifications Section 92. Gradation of aggregate and asphalt content of the mix shall be such that smooth dense finished surface is produced. Unless otherwise shown on the Drawings, the as-compacted thickness of asphalt concrete for new or replacement pavements shall be a minimum of 3 inches, and the as-compacted thickness of asphalt concrete overlay shall be 2½ inches.

- E. Liquid Asphalt shall conform to requirements for SC-70 liquid asphalt as per Section 93 of the Standard Specifications. Rate of application shall be fifteen-hundredths to one-quarter (15/100 - ¼) gallon per square yard.
- F. Asphaltic emulsion shall be penetration type conforming to the RS-1 requirements of Section 94 of the Standard Specifications. Asphaltic emulsions shall be composed of a bituminous material uniformly emulsified with water and an emulsifying or stabilizing agent and conform to the provisions in Caltrans Standard Specifications Section 94, "Asphaltic Emulsions." Polymer modified asphaltic emulsion shall also contain a polymer.
- G. Primer for application on asphalt surfaces (tack coat) shall be RC-1 or approved equal.
- H. Soil sterilant shall be "Treflan" pre-emergence herbicide or approved equal.
- I. Paving fabric used below overlays shall be a thermoplastic non-woven fiber, resistant to mildew, rot and chemical attack. Paving fabric shall be Petromat Style No. 4599 as manufactured by Propex Fabrics, Inc., placed in accordance with manufacturer's recommendations.
- J. Crack Sealant shall be a mixture of paving asphalt and ground rubber or polymer with the following properties, such as Crafcro Superflex HT, or equivalent:

Rubberized/Polymer Sealant

Test	ASTM Designation	Requirements
Softening Point	D 36	210°F min.
Cone Penetration @ 25°C	D 5329	45 mm, min.
Elongation @ 25°C	D 3407	1000% min.
Flow @ 25°C	D 5329	0 mm max.

- 1. Gradation of the ground rubber shall be such that 100 percent will pass a 2.36-mm sieve.
- 2. Modified asphalt crack sealant material shall be capable of being melted and applied to cracks at temperatures below 204°C. When heated, it shall readily penetrate cracks ¼-inch wide or wider.
- K. Fog Seal shall be SS-1 consistent with Caltrans Standard Specifications Sections 37 and 94.
- L. Traffic-rated marking paint. Reflective blue in crosswalks.

PART 3 - EXECUTION

3.01 ACCEPTABLE APPLICATORS

- A. Company with experience in applying asphalt concrete pavement for a period of five (5) years minimum.
- B. Soil sterilant shall be applied in one (1) application: after base and before asphalt concrete is laid. The material shall be uniformly applied according to the manufacturer's recommendations and at the minimum rate of 7.5 lbs. per 1000 square feet.

3.02 EQUIPMENT

- A. Paving Equipment:
 - 1. Approved power brooms, aggregate spreaders, bituminous material distributor and hauling vehicles.
 - 2. Furnish equipment in such number and capacities as required to provide coordinated and uniform paving progress.
 - 3. Aggregate spreaders shall be mechanical and either self propelled or attachable to the rear of a dump truck and be capable of spreading aggregate within the specified limits.
 - 4. Bituminous material distributor shall provide controls for regulating and monitoring the spread of material at even heat on variable widths up to 15 feet with uniform pressure.
- B. Compacting Equipment:
 - 1. Self-propelled rollers shall be vibratory steel drum rollers and pneumatic tired rollers capable of exerting a ground pressure of not less than 80 pounds per square inch of contact area.
 - 2. Initial rolling shall be performed when the sum of the air and asphalt concrete temperature is between 300 and 375°F. Finish rolling shall commence after pavement has cooled sufficiently to permit removal of roller marks and shall be continued in whatever direction is necessary to produce a pavement surface free of indentations.
 - 3. Manually pushed rollers shall not be allowed.
 - 4. Vibrating plate compactors shall be manually guided vibrating plate type compactors.

3.03 SURFACE PREPARATION

A. New Pavement and Replacement Pavement Areas

1. Proof roll prepared aggregate base surface to check for unstable areas and areas requiring additional compaction with the District or District's representative present.
2. Notify District or District's representative in writing of unsatisfactory conditions. Do not begin paving work until deficient subbase, base and asphalt concrete areas have been corrected, including sealing cracks and repairing potholes and depressions
3. Install foundation grade 2" x 4" redwood headers except where adjacent to existing pavement, concrete curbs, walks or building. Use ½ inch thick boards where required for bending.
4. Apply tack coat to horizontal and vertical contact surfaces of previously constructed asphalt or Portland cement concrete. Exercise care in applying materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged areas. A tack coat shall also be applied to the base course asphalt just prior to placing the top course asphalt.

B. Cleaning Surfaces

1. Clean flat surfaces with rotary power brooms, or high velocity compressed air methods.
 - a. Clean paved areas showing signs of surface erosion or raveling that do not require removal in this manner.

3.04 INSTALLATION

A. Cutting or Breaking Paved Surfaces

1. In cutting or breaking up street and roadway surfacing including asphalt and concrete pavement, the Contractor shall not use equipment which will injure or endanger nearby improvements of any type.
2. All Portland cement and asphalt concrete pavements, gutters, driveways, curbs and sidewalks excavated or damaged shall be removed between neat vertical cuts made with a saw of approved type. In the case of curbs, gutters and sidewalks, cuts shall be made at the nearest score marks beyond the damaged portion, as may be required in each case by the governing agency. In the event a joint or scoring line does not exist or that such joint is 3 feet or more from the removed or damaged portion, the existing concrete shall be removed and reconstructed to neat, plane faces.

3. All pavement sawcuts shall be neat and straight to provide an unfractured and level pavement joint for bonding existing surfacing with pavement replacement. All cut edges shall provide clean, solid vertical faces free from all loose material. Where large irregular surfaces are removed or result from subsequent disturbance, such trimming or cutting as hereinafter provided, shall be parallel or at right angles to the road centerline.
4. Sawcut limits of replacement or repair (patch) shall be cutback ("keyed") at least 12 inches into existing asphalt concrete, at the base of the existing section.
5. Asphalt concrete pavement edge areas shall be built up or ground down, as needed, to provide level transition to abutting concrete flatwork, gutters, manholes, vault lids, or pavement surface.
6. All existing crushed aggregate and asphaltic concrete removed shall be hauled away from the work site and legally disposed of by the contractor. Weigh tickets for disposed materials shall be submitted to District within 3 days of disposal.

B. Subgrade Preparation

1. Subgrade for pavement shall not vary more than 0.02 foot from the specified grade and cross-section.
2. Upper 12 inches of subgrade shall be moisture conditioned to within 2 percent of optimum moisture content and compacted to a minimum of 95 percent of the maximum dry density, as determined by ASTM D1557.
3. Subgrade shall be firm and unyielding prior to placement of aggregate base.

C. Aggregate Base

1. Aggregate base courses shall be compacted to a minimum of 95 percent of the maximum dry density and shall not vary more than 0.02 foot from the specified grade and cross-section.
2. Aggregate base shall be firm and unyielding prior to placement of asphalt concrete.

D. Crack Filling and Sealing

1. Preparation
 - a. Cracks with an average clear opening between $\frac{1}{4}$ and $\frac{1}{2}$ inch shall be routed with a power cutter to provide minimum sealant reservoir of $\frac{1}{2}$ inch wide by 1 inch in depth

- b. Cracks shall be treated with an herbicide at least 48 hours prior to sealing.
 - c. Clean all cracks with high velocity compressed air of at least 90 psi to depth of two times width.
 2. Application of crack filler or sealant shall be according to manufacturer's recommendations except where exceeded by these specifications.
 - a. Do not place crack filler or sealant during dewey, wet or inclement weather.
 - b. Apply filler/sealant with melter applicator with a pressure feed wand followed with a squeegee. Temperature of filler/sealant shall be maintained between 380 and 400° F during application.
 - c. Sealant shall be applied in a slightly overfilled condition and shall be struck off using a squeegee, resulting in a band width between 2 and 4 inches. Overfill shall not exceed 1/16-inch over pavement surface. Overflow or excess sealant material shall be cleaned from pavement surface.
 - d. In areas where filler or sealant has sagged or contracted into crack, repeat application at two additional 2 week intervals or until filler or sealant remains intact at surface or 1/16-inch higher than surface.
 - e. Fill cracks at no less than 1 week intervals at least two times prior to completion or application of slurry seal.
 3. Crack Sealing: Application methods shall control sealant material within crack to depth of ¼ inch below existing pavement surface.
- E. Patching: Repair areas of severe cracking, root damage, depressions, potholing, or subgrade failure to full depth of asphalt and at least 48 hours prior to overlay, where applicable.
 1. Extend asphalt concrete removal minimum 12 inches into satisfactory pavement surrounding area to be patched. Edge distress from construction equipment shall result in enlarged asphalt concrete removal widths at Contractor's expense.
 2. Repairs shall be square-edged and cuts rectangular in shape.
 3. Apply tack coat to vertical faces and exposed surfaces of pavement.
 4. Backfill patches with hot asphalt pavement mix in lifts not exceeding 4 inches in thickness prior to compaction.

5. Compact asphalt concrete to a minimum of 95 percent of maximum density with several passes of vibratory roller within 60 minutes of laydown. Use wacker for compaction in areas not accessible to roller.
6. Comply with compaction and surface tolerance requirements specified for asphalt concrete pavement.
7. Keep the premises free from accumulations of waste materials, rubbish, grindings, and other debris resulting from the Work.

F. Pavement Patching or Restoration

1. In all existing pavement areas where the surface is removed, broken or damaged or in which the ground has caved in or settled the surface shall be restored to the original grade by the Contractor. Prior to resurfacing, the existing surfacing shall be removed as specified herein. All broken and jagged edges of the pavement edge shall be sawed straight. Areas to be cut shall be indicated by the District and no permanent pavement shall be placed until these edges have been sawed. If during the initial removal of the existing pavement a method of removal was used which disturbed the adjoining pavement, or if during general construction operations the adjacent pavement or base material was disturbed, then this adjoining pavement shall also be removed and replaced. Where irregular surfaces are to be surfaced, existing pavement shall be cut parallel to the centerline of the roadway, at the discretion of the District. Asphalt concrete pavement shall be saw cut to a minimum depth of 4 inches at a point not less than 12 inches outside the limits of excavation or the previous pavement cut (made by pneumatic tools), whichever limits are the greater. Where a repair edge is less than 4 feet from the existing edge of pavement, gutter or curb, the remaining existing pavement shall be removed and replaced asphalt concrete pavement.
2. Wherever asphalt cement pavement does not terminate against a curb, gutter, or another pavement, the Contractor shall provide and install a redwood header and stakes. Such headers and stakes shall remain in place upon completion of the improvements. Existing headers shall be removed where new pavement abuts old.
3. Headers shall be 2-inch (nominal size) boards, the vertical dimension of which shall at least be equal to the thickness of the pavement at the header line. Side stakes 2 inches by 3 inches (nominal size), 18 inches long or longer, and spaced not over 4 feet apart shall be driven on the outside of headers to a depth of 1 inch below the top and then nailed to the header. The joints between the individual boards being used as headers shall be spliced with a 1-inch-thick (nominal size) board of the same height as the header and not less than 24 inches long. Headers and stakes shall be redwood.

4. In order to obtain a satisfactory junction with adjacent surfaces, the contractor shall cut back and trim the edges so as to provide a clean sound, vertical joint, before permanent replacement of an excavated or damaged portion of pavement, gutter, driveway, curb or sidewalk with the same kinds of materials as used in the original construction and to the same thickness and other applicable dimensions, as nearly as may be, in such manner as to restore the affected portions of all said pavement facilities to a sound and serviceable conditions satisfactory to the District and the agency having jurisdiction.
5. An herbicide effective against native grasses and weeds of the area shall be applied on top of the subgrade in areas to receive new or replacement pavement in the quantity and according to the methods recommended by the manufacturer.
6. Apply tack coat of Grade SS1h on existing horizontal and vertical surfaces to come in contact with new asphalt pavement at a rate of 0.2 gallons per square yard or greater. Apply tack coat between successive lifts of asphalt concrete.
7. Place and compact asphalt concrete to match original finished surface. Lift thickness of compacted asphalt shall not exceed 3 inches. Placement of asphalt concrete shall be done by use of an automated asphalt paving machine specifically designed for placement of asphalt paving. Placement of permanent asphalt concrete with hand tools or walk behind devices will not be allowed. .
8. Correct areas of segregated aggregate immediately after laydown and before compaction.
9. Grind existing asphalt concrete to effect positive drainage and level transitions to abutting concrete flatwork or pavements. Transitions between pavement edges elevated greater than ¼-inch above adjacent concrete gutter shall be planed level, within ⅛-inch tolerance, with adjacent gutter. Edge milling shall be performed to remove accumulation of asphalt adjacent to gutters 1-inch or greater in thickness
10. All manholes, valve boxes and other surface structures shall be brought level to existing or new paved grades, as applicable.

G. Asphalt Overlay

1. Perform asphalt overlay where indicated on the Drawings.
2. The minimum width of asphalt overlay shall be the entire width of the paved road.

3. Width of asphalt overlay at street or driveway intersections shall be calculated as a straight line along the edge of pavement across the intersection of other side of the intersection.
4. Asphalt overlay shall be performed after all heavy equipment has been demobilized off the project area and pavement restoration is complete. The Contractor shall arrange his work such that none of the Contractor's equipment heavier than H-20 loading is allowed to travel over the new asphalt overlay. Placement of asphalt concrete shall be done by use of an automated asphalt paving machine specifically designed for the placement of asphalt paving. Placement of permanent asphalt concrete with hand tools or walk behind devices will not be allowed.
5. Apply tack coat of Grade SS1h on existing horizontal and vertical surfaces to come in contact with new asphalt pavement at the rate of 0.1 gallon per square yard.
6. Install paving fabric beneath the overlay in accordance with manufacturer's recommendations.
7. Place asphalt overlay to achieve a 2½-inch as-compacted thickness with smooth and even surfaces. Compaction shall be consistent with Sections **3.05 Placing Mix** and **3.06 Rolling**, below.
8. Grind existing asphalt concrete, where elevated $\geq\frac{1}{4}$ -inch above abutting flatwork or manhole/vault cover, to effect positive drainage and level transitions to abutting concrete flatwork, pavements, and improvements.
9. All manholes, valve boxes and other surface structures shall be brought level with new paved grades.
10. Seal edges of overlay that abut existing asphalt concrete.

H. Installation of New Pavement

1. Place the minimum asphalt concrete specified herein unless otherwise shown on Drawings. Placement of asphalt concrete shall be done by use of an automated asphalt paving machine specifically designed for the placement of asphalt paving. Placement of permanent asphalt concrete with hand tools or walk behind devices shall not be allowed.
2. Asphalt concrete showing segregated aggregate shall be corrected upon laydown and prior to compaction.
3. Pavement adjacent to structures and in other areas inaccessible to heavy rollers shall be compacted by means of heated hand tools and wackers.

4. Asphalt concrete shall be compacted to a minimum of 95 percent of the maximum density, including along longitudinal joints of successive adjacent lanes.
 5. All manholes, valve boxes and other surface structures shall be brought to new paved grades, as required.
 6. Apply tack coat between successive lifts of asphalt concrete.
- I. Clean-Up
1. During the Work, all roads, public and private, shall be kept clean and neat. Any debris, rubbish, grindings, unused materials or equipment shall be expeditiously removed.
 2. All manholes, valve covers, survey monuments and concrete improvements shall be thoroughly cleaned of construction debris and markings resulting from Contractor's operations.
- J. Acceptance
1. All pavement restoration and repair shall be completed to the satisfaction of such public agency having jurisdiction. District will not issue the Statement of Acceptance for the Work until the District has received approval from the public agency having jurisdiction that the work has been satisfactorily completed.

3.05 PLACING MIX

- A. Place asphalt concrete mixture on prepared surface, spread and strike off. Spread mixture at a minimum temperature of 275° F for the base course layer and 266° F for the finish course layer. Place inaccessible and small areas by hand. Correct areas showing segregated aggregate immediately after laydown and before compaction. Place each course to required grade, cross-section, and compacted thickness. Asphalt concrete placement shall be constructed to the thickness shown on the plans, and individual lift thickness shall be compatible with the size/weight of rolling equipment used for compaction, and shall in no case exceed 4 inches. Successive lifts of asphalt concrete shall not be placed until the preceding lift has achieved a minimum compaction of 95 percent of the maximum density.
- B. Equipment trafficking and staging operations shall be performed in a manner that prevents pumping of underlying aggregate base and subgrade materials. Areas where pumping develops shall be repaired at Contractor's expense.
- C. Make joints between old and new pavements, between successive (adjoining mats), or between successive days' work, to ensure continuous bond and uniform compaction between adjoining work. Construct joints to have same texture, density

and smoothness as other sections of asphalt concrete course. Echelon paving operations utilizing multiple pavers and large compaction rollers shall be employed for large parking lots such as AP/AAP/BP/CP and MP to achieve minimum density requirements along longitudinal joints.

- D. Spreading and rolling equipment shall be in accordance with the Standard Specifications. Areas inaccessible to roller contact shall be compacted to a minimum of 95 percent of the maximum density using wackers or heated hand tools.
- E. Compaction shall be in accordance with the Standard Specifications.

3.06 ROLLING

- A. Begin rolling when mixture will bear roller weight without excessive displacement.
- B. Asphalt concrete lifts shall receive 7 passes with 8- to 10-ton vibratory roller and 10- to 12-ton static roller within 90 minutes of laydown and above a temperature of 185°F.
- C. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers. Asphalt concrete shall be compacted to at least 95 percent of maximum density. Compaction shall be attained within 90 minutes of laydown and before asphalt concrete cools to 185°F.
- D. As soon as the first strip or lane is placed, the breakdown roller shall make the first pass on the low side of the mat with the steel drum overhanging about six inches. The second pass shall be made on the opposite side of the mat, again overhanging the steel drum about six inches.
- E. Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.
- F. Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.
- G. As loose mix from lane 2 is placed over top of the compacted mix of lane 1, the mix shall be high by the amount of compaction that will occur. Overlap of the second lane placed onto the first lane shall be of sufficient thickness to prevent a depression or invert along the joint once the minimum (95%) compaction is achieved along the joint. Excess mix shall be raked away and properly disposed off of pavement, not cast onto adjacent surface.
- H. Compaction along the longitudinal joint shall be performed by rolling with the steel drum almost entirely on the hot mat, overlapping onto the cold mat by about 6 inches, and as the entire width of the steel drum is being utilized in vibratory mode while the mix is still hot.

- I. Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks/plate edges/seams are eliminated and course has attained maximum density.
- J. After final rolling/compaction, do not permit vehicular traffic on pavement until pavement has cooled and hardened.

3.07 PAVEMENT MARKINGS

- A. Restore all pavement markings, including but not limited to, stalls, arrows, stop bars, and ADA markings, in repaved, overlay and slurry seal areas, and provide new markings, where applicable, using traffic-rated paint, and in accordance with contract documents.
- B. Remove loose paint prior to applying new paint on curbs.
- C. Prior to performing work, Contractor shall, at his sole expense, locate, mark, and memorialize all components of the improvements for restorative purposes.

3.08 MAINTENANCE OF SURFACE

- A. Following the certification of completion by the District, the Contractor shall maintain the surface of overlay and new pavement areas for at least the period of the guarantee of the Work.
- B. All materials and labor required for the maintenance of paving shall be supplied by the Contractor, and the Work shall be done in a manner satisfactory to the District.

3.09 FIELD QUALITY ASSURANCE

- A. Test in-place asphalt concrete courses for compliance with requirements for thickness, planarity and surface smoothness. Repair or remove and replace unacceptable paving as directed by District or District's representative.
- B. Tolerances for thickness shall be one eighth ($\frac{1}{8}$) inch, plus or minus.
- C. Asphalt substrate shall not vary from planned cross slope by more than +/- 0.2%. Finished asphalt shall be smooth and planar and shall not vary greater than $\frac{1}{2}$ ", plus or minus, under a 10 foot straight edge in any direction, and $\frac{3}{8}$ -inch under a 2-foot straight edge in any direction. Contractor shall be responsible for providing a survey of new asphalt surfaces that are acceptable to District or District's representative, and to water flood the surface with a water truck in the presence of District or District's representative. If after 20 minutes, "birdbaths" are evident in a depth more than $\frac{1}{4}$ ", the contractor and the District or District's representative will determine the best method of correction at no cost to District.

- D. Contractor shall be responsible for determining if the planarity, cross slopes, and general specifications have been met.
- E. In no case shall polyurethane filler used to correct birdbaths be greater than ¼” thick.
- F. Rough, high spots or over-asphalted areas shall be brought to grade by burning, blading, grinding, or edge-milling.
- G. Fog seal shall be applied at the rate of 0.1 gallon/sq.yd. to mitigate visible transitions between new and existing surfaces and between two different surfaces such as between existing and new pavement and between overlay and new pavement. Fog seal shall be applied over new asphalt concrete pavement where rock pockets are visible. Fog seal shall be applied no sooner than 90 days after pavement laydown consistent with Section 37 of Caltrans Standard Specifications. Finished asphalt concrete surface shall be of uniform color and consistency.

3.10 REJECTION OF WORK

- A. Failure to meet any test requirement including compaction, surface irregularities, separation of fines from aggregates, or specification herein shall be cause for rejection. At the discretion of the Engineer, the Contractor may be allowed to:
 - (1) Attempt to correct surface irregularities by fog or slurry sealing in conformance with these specifications.
 - (2) Attempt other corrective measures as approved by the Engineer that will not affect the quality or integrity of the asphalt concrete in place.
 - (3) Place an additional minimum 1-inch asphalt concrete layer over the defective area and such that positive drainage and planarity are achieved or maintained.
 - (4) Agree to a reduction in the Contract Unit Price for the material involved.

Such measures, if allowed by the Engineer, shall be solely at the Contractor’s risk and expense. In permitting the Contractor to proceed with such measures the Contractor agrees it does not obligate the Engineer to accept such work. Work not corrected to the satisfaction of the Engineer and District shall be removed and replaced by the Contractor at no expense to the District.

END OF SECTION 02740