

ATTACHMENT 2 - TECHNICAL SPECIFICATIONS TO THE CAMPUS PAVING AND DRAINAGE PROJECT

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1 MOBILIZATION

GENERAL

The work performed under this section shall conform to Section 1, "General," of the Caltrans Standard Specifications (CSS) and these Technical Specifications.

MOBILIZATION

This contract item shall consist of preparatory work and operations for mobilization of the Contractor's personnel, equipment and supplies to the project site including obtaining all bonds, insurance, and permits; furnishing, purchasing, transportation, setup, storage and staging of all labor, materials, tools, equipment, and incidentals required for performance and completion of the work as shown on the Project Plans and specified in the Standard Specifications, these Technical Specifications, as directed by the Engineer, required by the Project Permits, and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site. In addition, mobilization shall also include but not be limited to the following items:

1. Provide on-site sanitary facilities.
2. Prepare and transmit all submittals as directed in these Technical Specifications or as directed elsewhere in the Contract Documents, Standard Specifications, Permits and Project Plans.
3. Wash and clean all tools and equipment prior to bringing on site.
4. Any other costs of work in advance of construction operations and not directly attributable to any specific bid item.

DEMOBILIZATION

Demobilization shall consist of the removal of all materials, tools, equipment, signage, temporary pollution control materials, trash, debris, and all other items imported to or generated on-site as a result of the work completed by the Contractor. Furthermore, demobilization shall include repairing all pavements, walkways, infrastructure, signage, landscape, and any other public or private facilities damaged by construction activities to their pre-construction conditions using comparable materials as accepted and directed by the Engineer.

MEASUREMENT AND PAYMENT

Measurement and payment for "**Mobilization**" shall be made per the **lump sum** price as shown on the Bid Form. The lump sum price shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in mobilization, including demobilization, in conformance with the plans, the Caltrans Standard Specifications and these Technical Specifications, and no additional compensation will be allowed therefor. The payment for "**Mobilization**" shall also include items which are considered **incidental** to "**Mobilization**", including "Cleaning," "Construction Surveying and Staking," and "Temporary Traffic Control."

Partial payments for "**MOBILIZATION**," shall be made as follows:

When 5% of the original contract amount is earned from other bid items, 50% of the amount bid for Mobilization, or 5% of the original contract amount, whichever is lesser, may be paid.

When 10% of the original contract amount is earned from other bid items, 75% of the amount bid for Mobilization, or 7.5% of the original contract amount, whichever is lesser, may be paid.

When 20% of the original contract amount is earned from other bid items, 95% of the amount bid for Mobilization, or 9.5% of the original contract amount, whichever is lesser, may be paid.

When 50% of the original contract amount is earned from other bid items, 100% of the amount bid for Mobilization, or 10% of the original contract amount, whichever is lesser, may be paid.

Upon completion of all work on the project, payment of any amount bid for Mobilization in excess of 10% of the total original contract amount will be paid.

2 CLEANING

GENERAL

This section includes cleaning during construction and final cleaning on completion of the work. At all times Contractor shall:

- a) Maintain areas covered by the Contract and adjacent properties and public access roads free from accumulations of waste, debris, and rubbish caused by construction operations.
- b) Conduct cleaning and disposal operations to comply with local ordinances and antipollution laws.
- c) Do not burn or bury rubbish or waste materials on project site.
- d) Do not dispose of volatile wastes, such as mineral spirits, oil, or paint thinner, in storm or sanitary drains.
- e) Do not dispose of wastes into sewer manholes.
- f) Use only cleaning materials recommended by manufacturer of surface to be cleaned.

CLEANING DURING CONSTRUCTION

During execution of work, Contractor shall:

- a) Clean site, adjacent properties, and public access roads and dispose of waste materials, debris, and rubbish to assure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.
- b) Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- c) Provide containers for collection and disposal of waste materials, debris, and rubbish.
- d) Cover or wet excavated material leaving and arriving at the site to prevent blowing dust. Clean the public access roads to the site of any material falling from the haul trucks.

FINAL CLEANING

At the completion of work and immediately prior to final inspection, Contractor shall clean the entire project site as follows:

- a) Clean, sweep, wash, and polish all work and equipment including finishes.

- b) Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces; polish surfaces.
- c) Repair, patch, and touch up marred surfaces to match adjacent surfaces.
- d) Broom clean paved surfaces; rake clean landscaped areas.
- e) Remove from the site temporary structures and materials, equipment, and appurtenances not required as a part of or appurtenant to, the completed work.

MEASUREMENT AND PAYMENT

Measurement and payment for “**Cleaning**” shall be considered **incidental** and included in the **lump sum bid price** for “**Mobilization**” as shown on the Bid Form. The other items on the Bid Form shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work associated with all cleaning necessary to construct the new facilities, complete in place, in conformance with the CSS and these Technical Specifications, and no additional compensation will be allowed therefor.

3 CONSTRUCTION SURVEYING AND STAKING

GENERAL

The Engineer will provide the Contractor with drawings showing benchmarks and reference points as it deems necessary to establish lines and grades required for the completion of the site work specified in the Contract Documents. The Contractor shall make or furnish all surveys and set all construction stakes necessary for the completion of the work. Additional information can be found under section 5.8 of the Contract Documents.

MEASUREMENT AND PAYMENT

Measurement and payment for “**Construction Surveying and Staking**” shall be considered **incidental** and included in the **lump sum bid price** for “**Mobilization**” as shown on the Bid Form. The other items on the Bid Form shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work associated and no additional compensation will be allowed therefor.

4 TEMPORARY TRAFFIC CONTROL

GENERAL

All work required for maintaining and controlling traffic during the construction period shall conform to Section 12, “Temporary Traffic Control,” of the CSS and these Technical Specifications.

All such work shall additionally conform to standards contained in the FHWA Manual of Uniform Traffic Control Devices (MUTCD), to the CA MUTCD issued by the State of California, Department of Transportation (Caltrans), and the “Work Area Traffic Control Handbook,” published by Building News, Inc., and as directed by the Engineer.

Traffic control for all construction work shall be scheduled to provide for a minimum of inconvenience and a maximum of safety to the public.

All traffic control signs and devices shall remain the property and responsibility of the Contractor.

RESTRICTIONS ON CLOSURE OF TRAFFIC LANES

All traffic lanes shall remain open for public use on the days and at the times specified below, unless otherwise approved by the Engineer:

- 1) Memorial Day weekend from 8:00AM Friday through 11:59PM Monday
- 2) Labor Day weekend from 8:00AM Friday through 11:59PM Monday
- 3) All non–construction hours when the Contractor’s employees are not physically present at the construction site actively performing contract work.
- 4) Special Events as directed by the Engineer

MEASUREMENT AND PAYMENT FOR TEMPORARY TRAFFIC CONTROL

Measurement and payment for “**Temporary Traffic Control**” shall be considered **incidental** and included in the **lump sum bid price** for “**Mobilization**” as shown on the Bid Form. The other items on the Bid Form shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work associated and no additional compensation will be allowed therefor.

5 QUALITY CONTROL PROGRAM

GENERAL

The Contractor shall assume full responsibility for accomplishing the stated purpose of the project set forth in the plans and specification.

The Contractor shall establish a necessary level of control that will:

- a) Adequately provide for the production of acceptable quality materials.
- b) Provide sufficient information to assure both the Contractor and the Engineer that the specification requirements are met.

The Contractor shall be prepared to discuss and present, at the preconstruction conference, his understanding of the quality control requirements and his plan for complying with this section. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed and approved by the Engineer.

The Contractor shall provide a private consultant materials laboratory to perform Acceptance Testing

Contractor shall furnish the Quality Control Program a minimum of 14 calendar days prior to the start of work. Contractor will not be permitted to start asphalt pulverization, until Quality Control Program has been accepted.

DESCRIPTION OF PROGRAM

The Quality Control Program shall ensure conformance to applicable specifications and plans with respect to materials, workmanship, construction, finish, and functional performance. This Quality Control Program shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the specifications and any other activities deemed necessary by the Contractor to establish an effective level of quality control.

The Contractor shall describe the Quality Control Program in a written document that shall be submitted to the Engineer for review. The Quality Control Program shall be organized to address, at a minimum, the following items:

- a) Project progress schedule
- b) Laboratory and Staff certifications
- c) Submittals schedule: Including HMA Mix Design, Work Schedule and Concrete Mix Design.
- d) Inspection requirements
- e) Quality Control (QC) testing plan including frequency chart for QC and Independent Assurance (IA) test
- f) Documentation of quality control activities, and
- g) Requirements for corrective action when quality control and/or acceptance criteria are not met.

The Contractor may add any additional elements to the Quality Control Program that they deem necessary to adequately control all production processes required to complete the Contract work. The work performed under all phases of the project shall conform to the, Caltrans Construction Manual and the applicable provisions of the CSS and these Technical Specifications including, but not limited to Section 5, "Control of Work," and Section 6, "Control of Materials."

Contractor will be responsible for providing all required Quality Control (QC) sampling, testing, and reporting, and Independent Assurance (IA) sampling and testing as required by the CSS, and Caltrans Construction Manual.

The QCM will prepare, certify, maintain, and update the acceptance test summary log. This log along with daily field reports will be provided to the Resident Engineer (RE) at the end of each workday for the duration of the Contract. Contractor shall supply a final report of testing at the conclusion of the contract. Final report shall include copies of all load tickets.

PAYMENT FOR QUALITY CONTROL PROGRAM

Payment for the Quality Control Program shall be made per the **lump sum** price for "**Quality Control Program**" as shown on the Bid Form. The lump sum price shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in developing, preparing, obtaining approval of, revising, and amending the Quality Control Program, as specified in the CSS and these Technical Specifications,

Caltrans Construction Manual and as directed by the Engineer. Payments for “Quality Control Program” will be made as follows:

- a) After the Quality Control Program has been approved by the Engineer, fifty percent (50%) of the Contract price for “Quality Control Program” will be included in the first monthly partial payment estimate; and
- b) After completing QCP inspections and testing in conformance with the CSS, QCP, and these Technical Specifications, payment for the remaining forty percent (40%) of the Contract item price for “Quality Control Program” will be made. This 40% may be split into smaller portions based on the project sections completed each month.
- c) The remaining 10% will be paid at the completion of the project, once the final report of testing is received and contract is accepted.

NONCOMPLIANCE

In cases where Quality Control activities do not comply with either the Contractor Quality Control Program or the Contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the Engineer, the Engineer may:

- a) Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors.
- b) Order the Contractor to stop work until appropriate corrective actions are taken.
- c) Direct the contractor to remove and replace any sections of materials that do not meet QCP requirements.

The Engineer will retain an amount equal to twenty-five percent (25%) of the estimated value of the contract work performed during estimate periods in which the Contractor fails to conform to the provisions of this section as determined by the Engineer. Retention for failure to conform to the provisions in this section shall be in addition to the other retention provided for in the Contract. The amounts retained for failure of the Contractor to conform to the provisions in this section will be released for payment on the next monthly estimate for partial payment following the date that an approved Quality Control Program has been implemented and maintained, and the quality of work is adequately controlled, as determined by the Engineer.

The Engineer retains the right to reject all work completed in advance of an approved Quality Control Program.

6 IMPLEMENTATION OF SWPPP

GENERAL

This contract item shall consist of the implementation of the Storm Water Pollution Prevention Plan (SWPPP) as detailed in Section 5.41 of the Contract Documents. The Contractor is responsible for the full execution of the SWPPP, which includes all preparatory work and operations necessary to comply with the requirements outlined in the Project Plans, Standard Specifications, and these Technical Specifications. The implementation shall also comply with

all pertinent regulations and permits. The work shall include, but is not limited to, the following items:

1. Installation and maintenance of all Best Management Practices (BMPs) as specified in the SWPPP.
2. Continuous monitoring and inspection of BMPs to ensure their effectiveness and compliance with the SWPPP.
3. Immediate correction of any deficiencies or failures in the BMPs to prevent water pollution.
4. Proper documentation of all inspections, maintenance activities, and corrective actions as required by the SWPPP and regulatory agencies.
5. Any other costs of work related to the implementation of the SWPPP that are not directly attributable to any specific bid item.

MEASUREMENT AND PAYMENT

Measurement and payment for "Implementation of SWPPP" shall be made per the lump sum price as shown on the Bid Schedule. The lump sum price shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in the implementation of the SWPPP, in conformance with the plans, the Caltrans Standard Specifications, and these Technical Specifications. No additional compensation will be allowed therefor.

7 EXISTING FACILITIES

GENERAL

This section includes the removal of all items necessary to construct the improvements whether shown on the plans to be removed or not. The Contractor shall coordinate with MCWD for salvage of any materials specified to be salvaged. Additional materials shall be salvaged at the Engineer's request.

Existing facilities which are to remain in place shall be protected in conformance with the Technical Specifications. This includes all existing facilities that are to remain unaltered by the project, as well as all existing concrete surfaces adjacent to locations being pulverized.

LOWER EXISTING FACILITIES

Contractor shall locate, mark, and **lower only** all MCWD water, sewer and electrical utility covers, including but not limited to valves, valve clusters, Clean Outs, manholes and lids, in accordance with the Standard Specifications and these Technical Specifications, Mammoth Community Water District (MCWD) requirements and as indicated on the plans or as directed by the Engineer. MCWD will provide circular plates for placement over manhole cones. Contractor shall provide a means of protection within manholes to prevent construction or other debris from entering the channel to the greatest extent possible. In order to prevent sewer overflows, Contractor shall notify the Engineer and MCWD immediately in the event of construction or other debris entering manholes.

Contractor may pave over lowered facilities. MCWD will later raise utility covers to finish grade after pavement has been completed. After adjustment, MCWD will fill the pavement removal area with a concrete collar in conformance with Town Standard 204, Section 73

REMOVE EXISTING DROP INLETS

This contract item shall consist of the removal of existing drop inlets as specified in the Contract Documents. The work includes identifying and verifying drop inlets for removal, excavating and removing the inlets, proper disposal of materials, backfilling and compacting excavated areas. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

REMOVE EXISTING CONCRETE

This contract item shall consist of the removal of existing concrete as specified in the Contract Documents. The work includes identifying and verifying concrete areas for removal, saw-cutting, breaking, and removing concrete, proper disposal of debris, and repairing any adjacent infrastructure or surfaces damaged during removal. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

REMOVE EXISTING BLOCK STEM WALL

This contract item shall consist of the removal of one existing block stem wall as specified in the Contract Documents. The work includes identifying and verifying block stem wall for removal, dismantling and removing the wall, proper disposal of debris, backfilling and compacting excavated areas, and repairing any adjacent infrastructure or surfaces damaged during removal. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

REMOVE EXISTING HYDRONIC SYSTEM

This contract item shall consist of the removal of existing hydronic piping as specified in the Contract Documents. The work includes identifying and verifying hydronic piping for removal, disconnecting and removing the piping, proper disposal of materials, and repairing any adjacent infrastructure or surfaces damaged during removal. The hydronic system sits underneath existing asphalt in a single location covering approximately 300 square feet. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

MEASUREMENT AND PAYMENT

Measurement and payment for:

- “LOWER EXISTING UTILITY COVERS” shall be made per the **individual unit prices per each.**
- “REMOVE EXISTING 16”X19” DROP INLET” shall be made per the **individual unit prices per each.**
- “REMOVE EXISTING CONCRETE” shall be made per the **individual unit prices per cubic yard.**
- “REMOVE EXISTING BLOCK STEM WALL” shall be made on a **lump sum unit basis.**
- “REMOVE EXISTING HYDRONIC SYSTEM” shall be made on a **lump sum unit basis.**

compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work associated with Existing Facilities necessary to lower and remove facilities, in conformance with these Technical Specifications, and no additional compensation will be allowed, therefore.

Payment for all Existing Facilities work shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work associated with Existing Facilities necessary to construct the new facilities, in conformance with the Caltrans Standard Specification and these Technical Specifications, and no additional compensation will be allowed therefore.

8 NEW FACILITIES

GENERAL

This section includes all items necessary to construct the new facilities. All work must comply with the Project Plans, Standard Specifications, these Technical Specifications, and as directed by the Engineer.

REMOVE AND REPLACE EXISTING PIPE WITH 6” HDPE

This contract item shall consist of removing the existing 4” pipe and replacing it with 6” HDPE Schedule 80 pipe as specified in the Contract Documents. The work includes identifying and verifying pipes for removal, excavating, removing the existing pipe, installing the new 6” HDPE Schedule 80 pipe, backfilling, compacting, and restoring any surfaces or infrastructure disturbed during the process. This section also encompasses the installation of new 6” HDPE pipe where no existing pipe is being replaced. In this scenario all of the same steps will be followed except removal of existing pipe. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

SUPPLY AND INSTALL NEW 16”X19” DROP INLET

This contract item shall consist of supplying and installing a new 16" x 19" drop inlet (DI) per Town of Mammoth Specifications as specified in the Contract Documents. The work includes excavation, installation of the new DI, connection to existing drainage systems, backfilling, compacting, and restoring any surfaces or infrastructure disturbed during the installation. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

SUPPLY AND INSTALL NEW 24" GRAVITY DROP INLET

This contract item shall consist of installing a new 24" diameter gravity drop inlet (DI) per Town of Mammoth Specifications as specified in the Contract Documents. The work includes excavation, installation of the new DI, connection to existing drainage systems, backfilling, compacting, and restoring any surfaces or infrastructure disturbed during the installation. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

SUPPLY AND INSTALL NEW 36" GRAVITY DROP INLET

This contract item shall consist of installing a new 36" diameter gravity drop inlet (DI) per Town of Mammoth Specifications as specified in the Contract Documents. The work includes excavation, installation of the new DI, connection to existing drainage systems, backfilling, compacting, and restoring any surfaces or infrastructure disturbed during the installation. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

INSTALL NEW 8" HDPE PIPE

This contract item shall consist of installing a new 8" HDPE Schedule 80 pipe as specified in the Contract Documents. The work includes excavation, installation of the new pipe, connection to existing drainage systems, backfilling, compacting, and restoring any surfaces or infrastructure disturbed during the installation. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

INSTALL NEW 36" DRYWELL DROP INLET

This contract item shall consist of installing a new 36" drywell drop inlet (DI) per Town of Mammoth Specifications as specified in the Contract Documents. The work includes excavation, installation of the new drywell DI, backfilling, compacting, and restoring any surfaces or infrastructure disturbed during the installation. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

INSTALL CONCRETE ADA RAMP

This contract item shall consist of installing a new concrete ADA ramp as specified in the Contract Documents. The work includes excavation, formwork, drain pipe, pouring and finishing

concrete, installing tactile warning surfaces, and restoring any surfaces or infrastructure disturbed during the installation. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

INSTALL NEW TRUNKATED DOME PAVERS

This contract item shall consist of installing ADA truncated dome pavers per Town of Mammoth Specifications as specified in the Contract Documents. The work includes preparing the substrate, placing the pavers, ensuring proper alignment and installation, and restoring any surfaces or infrastructure disturbed during the installation. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

MEASUREMENT AND PAYMENT

Measurement and payment for:

- “Remove & Replace Pipe with 6" HDPE Schedule 80” shall be made **per the individual unit prices per linear foot (LF)**.
- “Supply & Install New 16" x 19" DI” shall be made **per the individual unit prices per each (EACH)**.
- “Install New 24" DIA Gravity DI” shall be made **per the individual unit prices per each (EACH)**.
- “Install New 36" DIA Gravity DI” shall be made **per the individual unit prices per each (EACH)**.
- “Install New 8" HDPE Schedule 80 Pipe” shall be made **per the individual unit prices per linear foot (LF)**.
- “Install New 36" Drywell DI” shall be made **on a lump sum unit basis (LS)**.
- “Install Concrete ADA Ramp” shall be made **on a lump sum unit basis (LS)**.
- “Install ADA Truncated Dome Pavers” shall be **made per the individual unit prices per square foot (SF)**.

Compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work associated with New Facilities necessary to construct the new facilities, in conformance with these Technical Specifications, and no additional compensation will be allowed therefor.

Payment for all New Facilities work shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work associated with New

Facilities necessary to construct the new facilities, in conformance with the Town of Mammoth Specifications, the Caltrans Standard Specifications, and these Technical Specifications, and no additional compensation will be allowed therefor.

SITE WORK

9 SAW CUT ASPHALT

GENERAL

This contract item shall consist of saw cutting existing asphalt as specified in the Contract Documents. The work includes providing all necessary labor, materials, tools, equipment, and incidentals required to perform the saw cutting to the specified dimensions and locations. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

MEASUREMENT AND PAYMENT

Measurement and payment for “Saw Cut Asphalt” shall be made per the individual unit prices per linear foot (LF). Payment shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to perform the work, in conformance with the Caltrans Standard Specifications and these Technical Specifications, and no additional compensation will be allowed therefor.

10 PULVERIZE EXISTING HMA

GENERAL

This contract item shall consist of pulverizing existing hot mix asphalt (HMA) to a depth of 6”, as specified in the Contract Documents. The work includes providing all necessary labor, materials, tools, equipment, and incidentals required to pulverize the asphalt to the specified depth and dimensions. All work must comply with the Project Plans, Standard Specifications, and these Technical Specifications, and be performed as directed by the Engineer.

The existing asphalt pavement to be pulverized and incorporated into the subgrade.

Water: For dust control the contractor is to implement moisture conditioning during the reclamation process.

Equipment:

Pulverization Equipment: Heavy machinery equipped with cutting or grinding attachments capable of pulverizing existing HMA.

Procedure:

Pulverization of Existing Asphalt:

- a. The existing asphalt pavement shall be pulverized to a depth of 6”.
- b. Pulverization shall be performed using appropriate equipment to achieve a uniform and consistent particle size distribution.
- c. Water should be applied during pulverization to control dust and improve the workability of the material.

MEASUREMENT AND PAYMENT

Measurement and payment for “Pulverize Existing HMA” shall be made per the individual unit prices per square foot (SF). Payment shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to perform the work, in conformance with the Caltrans Standard Specifications and these Technical Specifications, and no additional compensation will be allowed therefor.

11 ROTOMILL EXISTING HMAGENERAL

This contract item shall consist of rotomilling existing hot mix asphalt (HMA) to a depth of 4”, as specified in the Project Plans. The work includes providing all necessary labor, materials, tools, equipment, and incidentals required to mill the asphalt to the specified depth and dimensions. All work must comply with the Project Plans, and these Technical Specifications, and be performed as directed by the Engineer.

Water: For dust control, the contractor is to implement moisture conditioning during the milling process.

Equipment: Rotomilling Equipment: Heavy machinery equipped with cutting or grinding attachments capable of milling existing HMA to the specified depth.

Procedure:

- a.) The existing asphalt pavement shall be rotomilled to a depth of 4”.
- b.) Rotomilling shall be performed using appropriate equipment to achieve a uniform and consistent particle size distribution.
- c.) Water should be applied during rotomilling to control dust and improve the workability of the material.

MEASUREMENT AND PAYMENT

Measurement and payment for “Rotomilling Existing HMA” shall be made per **square foot (SF)**. Payment shall include full compensation for furnishing all labor, materials, tools,

equipment, and incidentals necessary to perform the work, including rotomilling to the specified depth, in conformance with the Caltrans Standard Specifications and these Technical Specifications, and no additional compensation will be allowed therefor.

12 EARTHWORK

GENERAL

Earthwork shall conform to Section 19, "Earthwork," of the CSS and these Technical Specifications. The Contractor shall thoroughly inspect the site and shall satisfy himself as to the conditions to be encountered. No extra payment will be made for unusable material, nor for import of fill material.

The Contractor shall be solely responsible for performing the work in accordance with the plans, the CSS, and these Specifications. If, in the opinion of the Engineer, unsatisfactory conditions such as unstable soil, improper moisture condition, inadequate compaction, adverse weather, etc. are resulting in a quality of work less than required in these Specifications, the Engineer shall reject the work and may recommend that construction be stopped until the conditions are rectified.

HAZARDOUS MATERIALS

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area. The Engineer shall be informed immediately for proper evaluation and handling of these materials prior to continuing work in that area. As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fine and/or imprisonment and shall not be allowed.

EXCAVATION

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Engineer during grading. Soft, loose, dry, saturated, spongy, organic-rich, highly fractured, or otherwise unsuitable ground shall be over-excavated to competent ground as evaluated by the Engineer during grading.

Large (minimum three (3) feet by four (4) feet)) and/or excess rocks shall be relocated in the project area as directed by the Engineer. Placement of rocks shall include the excavation of the ground to set the bottom of the rock a minimum of one (1) foot or one-third (1/3) the diameter of the rock, whichever is greater, below adjacent finish ground. The Engineer may direct the Contractor to set large rocks deeper than one (1) foot below grade. Dumping of piles of rock will not be permitted.

SUBGRADE PREPARATION

The reclaimed asphalt is suitable as compacted fill. Rocks greater than six (6) inches and less than two (2) feet in diameter can be placed in the bottom of deeper fills or areas as approved by

the Engineer, provided they are selectively placed in such a manner that no large voids are created. All rocks shall be placed a minimum of three (3) feet below finish grade elevation. For the areas to receive detectable warning pavers, a one (1) foot removal is recommended depending on site conditions (i.e. depth of root zone and depth of disturbance which may have locally deeper removal depths). The removal bottom should be observed (tested as needed) by the Engineer prior to placing fill soils.

All fill and backfill to be placed in association with the proposed construction shall be accomplished slightly over optimum moisture content using equipment that is capable of producing a uniformly compacted product throughout the entire fill lift. Fill materials at less than optimum moisture should have water added and the fill mixed to result in material that is uniformly above optimum moisture content. Fill materials that are too wet can be aerated by blading or other satisfactory methods until the moisture content is as required. The wet soils may be mixed with drier materials in order to achieve an acceptable moisture content.

All fill and backfill shall be placed in horizontal lifts at a thickness (generally not to exceed eight (8) inches) in conformance with the CSS, and using appropriate equipment for spreading, mixing, and compacting the material to minimum relative compaction. Maximum allowable lift thickness may be increased if the Contractor can demonstrate to the Engineer that the lift can meet the compaction requirements using alternative equipment and method.

No fill soils shall be placed during unfavorable weather conditions. When work is interrupted by rains, freezing temperatures, or snow, fill operations shall not be resumed until the field tests by the Contractor, as submitted to the Engineer for approval, indicate that the moisture content and density of the fill are as specified.

Prepared subgrade shall be smooth and uniform, and true to the required grade and cross section, and shall be within the tolerances specified in subsection 19-1.03, "Construction," of the CSS or as shown on the Plans. The Contractor shall repair at own expense any damage to a prepared subgrade until the subgrade is in a condition meeting the requirements specified.

Compaction:

- a. Compaction of the reclaimed subgrade shall be carried out using vibratory rollers or compactors.
- b. Compaction efforts shall be focused on achieving the specified density and eliminating any voids or air pockets within the subgrade.

COMPACTION REQUIREMENTS

All pulverized subgrade is to be compacted to its desired relative compaction as seen in the table below.

Category	Compaction Requirement
Class II Aggregate Base	95% relative compaction
Pulverized Roadbed	95% relative compaction
Reclaimed Pavement for Shoulder Backing	95% relative compaction
All other fill and embankment	90% relative compaction

COMPACTION TESTING

The Contractor shall perform compaction tests at locations determined by the inspector to ensure compaction requirements are met. No fill, backfill, aggregate base, concrete placement or paving shall commence without prior Engineer approval of the subgrade.

If the required compaction is not achieved, the Contractor may, at their own expense:

a) Recompect the area between the previous and following test points, a minimum distance of one hundred (100) feet; or

b) Test points halfway between the previous tests and compact the areas as far as the next passing test. This area shall then be retested at intervals offset from the previous tests

by half the distance between the last two tests. This procedure is to be repeated until the compaction tests show that the required compaction has been reached.

TEMPORARY EXCAVATIONS

Temporary excavation shall be made no steeper than 1:1. The recommended maximum slope for temporary excavations does not preclude local raveling and sloughing. Where wet soils are exposed, flatter excavation of slopes and dewatering may be necessary. In areas of insufficient space for slope cuts, or where soils with little or no binder are encountered, shoring shall be used. All large rocks exposed above temporary cuts shall be removed prior to excavation. In addition, any rocks exposed during development from raveling and sloughing shall be removed immediately.

All excavations shall comply with the requirements of the California Construction and General Industry Safety Orders and the Occupational Safety and Health Act and other public agencies having jurisdiction.

SURPLUS MATERIAL

The Contractor shall dispose of surplus material in accordance with subsection 17–2.03D, “Clearing and Grubbing – Disposal of Material,” of the CSS. Surplus material (including topsoil) which cannot be redistributed and utilized onsite within the limits of improvement shall become the property of the Contractor and the Contractor shall remove it from the Work site.

FINAL GRADE

The final grade (grading plane) shall be constructed smooth, uniform, even, to neat lines, and true to the required grade and cross section. It shall conform to the tolerances specified in Project Plans. The final grade will be visually inspected and approved by the Engineer both for quality of line and quality of subgrade.

MEASUREMENT AND PAYMENT

Measurement and payment for “**EARTHWORK**” shall be made on a **Lump Sum Basis**, as shown in the Bid Form. The unit prices shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in grading and compacting the subgrade as well as any incidental occurrences that may be required in order to

fulfill the project scope , as shown on the plans, and these Technical Specifications and as directed by the Engineer, and no additional compensation will be allowed therefor.

The payment for “**Earthwork**” shall also include items which are considered **incidental** to “**Clearing and Grubbing**”.

13 CLEARING AND GRUBBING

GENERAL

Work performed in connection with clearing and grubbing shall conform to, “Clearing and Grubbing,” of these Technical Specifications.

Clearing and grubbing operations shall be confined to the limits of construction shown on the plans and completed in a manner acceptable to the Engineer. Clearing and grubbing includes, but is not limited to, removal of trees, logs, stumps, brush, bushes, boulders, rocks, vegetation, roots and other objectionable, deleterious or unsuitable materials within the project limits as required to construct the improvements and as directed by the Engineer. Unsuitable materials include but is not limited to, concrete, masonry, asphalt, loose or disturbed soils, undocumented fills, contaminated soils, or other unsuitable materials. All unsuitable and surplus material shall become the property of the Contractor and shall be removed from the project site by the Contractor. Topsoil removed from the project site may be used for the top six (6) inches of non-structural fill areas upon approval of the Engineer.

MEASUREMENT AND PAYMENT

Clearing and Grubbing work shall be considered **incidental** and included in the **lump sum bid price** for “**Earthwork**” as shown on the Bid Form, and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the clearing and grubbing work necessary to construct the new facilities, in conformance with the plans and these Technical Specifications, and no additional compensation will be allowed therefor.

14 HOT MIX ASPHALT

GENERAL

Hot Mix Asphalt (HMA) concrete shall conform to the provisions of Section 39, “Hot Mix Asphalt,” of the CSS and these Technical Specifications. The following requirements apply:

- **Type and Grade:** Hot Mix Asphalt shall be Type A PG64-28 with a 3/4” maximum aggregate size.
- **Slope and Grade:** New asphalt pavement shall conform to the slope callouts shown in the Project Plans. Any alterations to the planned slopes can only be approved as directed by the Engineer.
- **Installation Locations:** New Hot Mix Asphalt is to be installed at all locations specified for pulverization. These locations are detailed in the project plans. Areas designated to receive Type II Slurry Seal shall not receive new HMA.

- **Thickness:** Hot Mix Asphalt is to be installed in two lifts to a thickness of 4 inches throughout the project area.

MATERIALS

1. **Asphalt Binder:** The asphalt binder used shall be Performance Grade (PG) 64-28, conforming to AASHTO M320.
2. **Aggregates:** Aggregates shall be clean, hard, durable particles of crushed stone, crushed gravel, or crushed slag, and shall conform to the quality requirements of AASHTO M43.
3. **Mix Design:** The mix design for HMA shall be prepared in accordance with AASHTO R35 and submitted for approval by the Engineer at least 7 days prior to commencing paving operations.

PREPARATION

1. **Subgrade Preparation:** Prior to placing HMA, ensure any deficiencies in the subgrade or base course shall be corrected before HMA placement. Subgrade shall be compacted to 95% relative density prior to HMA installation.
2. **Tack Coat:** A tack coat shall be applied to all surfaces where new asphalt concrete pavement meets existing asphalt pavement or concrete, including between asphalt layers, sawcut or ground edges, road overlay and over the area of pavement feathering, curbs and gutters. Asphalt for the tack coat shall be CSS-1 or SS-1 applied at 0.1 gallons per square yard. Distribution of tack coat must produce a uniform application at the rates and temperatures required in the specifications. Upon approval by the Engineer, tack coat may not be required between layers of asphalt placed on the same day. Areas to receive tack coat shall be closed to traffic so as not to track asphalt onto surfaces beyond the project area.

PLACEMENT

1. **Weather Limitations:** HMA shall not be placed when the ambient temperature is below 50°F or when the surface temperature is below 40°F. Additionally, HMA shall not be placed during rain or other adverse weather conditions.
2. **Equipment:** Use self-propelled pavers equipped with automatic grade and slope controls to ensure a uniform surface. Compaction equipment shall include steel-wheel rollers and pneumatic-tired rollers.
3. **Spreading and Compacting:** Place HMA in uniform layers not exceeding 4 inches in compacted thickness. Each layer shall be thoroughly compacted. The final surface shall be smooth and free of ruts, ridges, or other irregularities.

QUALITY ASSURANCE

1. **Field Testing:** Conduct field tests for density, thickness, and surface smoothness. Tests shall be performed at intervals specified in the Quality Control Program.

2. **Acceptance Criteria:** HMA will be accepted based on test results meeting the specified criteria for density, thickness, and smoothness. Any areas not meeting these criteria shall be corrected at the Contractor's expense.

MEASUREMENT AND PAYMENT

Payment for "INSTALL 4" HMA" shall be made per the individual unit prices per TON, as shown in the various sections of the Bid Form. No allowance will be made for hot mix asphalt placed outside said dimensions or in excessive amounts, unless otherwise directed by the Engineer. The unit prices shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing all hot mix asphalt pavement necessary to construct the new facilities, complete in place, as shown on the plans and these Technical Specifications, and as directed by the Engineer. No additional compensation will be allowed therefor.

15 CONCRETE

GENERAL

This section outlines the requirements for all concrete, including but not limited to forming, reinforcing, placing, finishing, curing, and testing of concrete for pavements, curbs, gutters, sidewalks, structures, and other related items as shown on the Project Plans and specified herein.

- a) Concrete shall have a minimum 28-day compressive strength of 5,000 psi.
- b) Exposed concrete shall have Class 1 surface or sack finish.
- c) Cement shall be Type II Portland cement.
- d) Fibermesh fiber additive or approved equal shall be added per manufacturer's recommendations for all concrete with an exposed wearing surface including but not limited to concrete utility collars, curb and gutter, sidewalk, crosswalks, vaults, valley gutters, and as directed by the Engineer.
- e) The maximum water cement ratio shall be 0.45.
- f) All concrete shall have an air entertainment of five percent (5%), plus or minus one percent (+/-1%).
- g) Coarse aggregate for concrete shall be non-reactive, 1-inch minimum per Section 90-2.02C, "Minor Concrete - Aggregates," of the CSS.
- h) Concrete may be sealed with a sealer as recommended by the Engineer at no additional cost.

REINFORCEMENT

1. **Reinforcing Steel:** Reinforcing steel shall be #4 rebar placed in a grid pattern 24 Inches On Center.

2. **Placement:** Reinforcement shall be accurately placed and adequately supported before concrete is placed. Reinforcement shall be securely tied to prevent displacement during concrete placement.

PLACEMENT

1. **Preparation:** Before placing concrete, ensure that all formwork, reinforcement, and embedded items are in place and clean. The subgrade or base shall be properly prepared and moistened.
2. **Placing:** Concrete shall be placed in a manner to prevent segregation and shall be consolidated by vibration or other suitable means to ensure a dense, homogeneous structure.
3. **Cold Weather:** During cold weather, concrete placement shall be done in accordance with ACI 306 to protect the concrete from freezing.
4. **Hot Weather:** During hot weather, concrete placement shall be done in accordance with ACI 305 to prevent premature drying and excessive temperature rise.

MEASUREMENT AND PAYMENT

Measurement and payment for "Concrete" shall be made in the **unit price per CUBIC YARD** with the exclusion of the ADA Concrete Ramp which will be **paid on a lump sum basis** as seen on the Bid Form. The unit prices shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work in conformance with the plans and these Technical Specifications. No additional compensation will be allowed therefor.

16 CRACK SEAL

GENERAL

Crack treatment (Crack Seal) Shall be done on all locations called out in the project plans to receive a slurry seal. Use hot-applied rubberized asphalt crack sealant meeting ASTM D6690 Type II or equivalent. Compressed air, wire brushes, and/or high-pressure water shall be used for cleaning the cracks prior to application. Ensure cracks are dry before sealing. Apply sealant directly into the crack using the wand applicator, ensuring complete coverage and slight overfilling.

MEASUREMENT AND PAYMENT

Measurement and payment for "Crack Seal" shall be made per the **lump sum** price as shown on the Bid Form. The lump sum price shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in mobilization, including demobilization, in conformance with the plans, the Caltrans Standard Specifications and these Technical Specifications, and no additional compensation will be allowed therefor.

17 SLURRY SEAL

GENERAL

Slurry Seal Shall be done on all locations called out in the project plans to receive a slurry seal.

SUBMITTALS

Contractor shall submit the following related to the slurry seal.

- a) Slurry mix design documents, including applicable test results
- b) Aggregate load tickets
- c) Emulsion load tickets

SURFACE PREPARATION

No work shall be started until the following requirements are fulfilled.

CLEANING

Contractor shall clean the road surface immediately before applying the slurry seal by sweeping with self-propelled power brooms or other methods such as flushing with water (leaving no standing water). Oil or grease that has not penetrated the asphalt pavement shall be removed by scraping or by scrubbing with a detergent and washed thoroughly with clean water. After cleaning, these areas shall be treated with oil spot primer. Surface shall be left free of dust, dirt, grease, vegetation, oil or objectionable surface film, or any extraneous material affecting adhesion of the slurry seal. Contractor shall dispose of the removed material in an appropriate dump site or as directed by Engineer.

b) UTILITY COVERS AND CONCRETE COLLARS

Contractor shall locate, mark, and mask or cover all utility covers and associated concrete collars, including but not limited to manholes, valves, monuments, vaults, and grates, with plastic or oil-resistant construction paper prior to applying the slurry seal. Masking materials shall be removed prior to completion of the project.

MATERIALS

Contractor shall place Type 2 slurry seal applied at a daily average rate of no less than 18 pounds per square yard. Contractor shall submit load/shipping tickets for materials daily to Engineer adequate for verification of application rate.

a. Asphalt Emulsion. The emulsified asphalt shall conform to ASTM specifications CSS-1h or SS-1h and shall conform to the requirement of the International Slurry Seal Association specification.

b. Aggregate. The mineral aggregate used shall be the type and grade specified for the particular use of the slurry seal. The aggregate shall be manufactured crushed stone such as granite, slag,

limestone, chat, or other high quality aggregate, or combination thereof. To assure the material is totally crushed, 100% of the parent aggregate will be larger than the largest stone in the gradation to be used.

The combined mineral aggregate shall conform to the following gradation:

Sieve Size	Type II (% Passing)
3/8"	100
No.4	90-100
No.8	65-90
No.16	45-70
No. 30	30-50
No.50	18-30
No.100	10.-21
No.200	5 -15

Mineral fillers such as Portland cement, limestone dust, fly ash and others shall be considered as part of the blended aggregate and shall be used in minimum required amounts. They shall meet the gradation requirements of ASTM D242. Mineral fillers shall only be used if needed to improve the workability of the mix of gradation of the aggregate.

c. *Water.* All water used with the slurry mixture shall be potable and free from harmful soluble salts.

MEASUREMENT AND PAYMENT

Measurement and payment for “**Slurry Seal**” shall be charged on a **Per Square Foot basis**, included in the price schedule as shown on the Bid Form, and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the Crack Seal and Slurry Seal work necessary to construct the new facilities, as shown on the plans and in conformance with these Technical Specifications and as directed by the Engineer, and no additional compensation will be allowed therefor.

18 SHOULDER BACKING

GENERAL

Shoulder backing installation shall comply with the guidelines outlined in the project documents and these technical specifications. The material for shoulder backing shall be the same pulverized material used as base for Asphalt.

The installation of shoulder backing shall adhere to the specified dimensions and slope requirements as indicated in the Project Plans. Any deviations from the planned dimensions or slopes must receive prior approval from the Engineer.

Shoulder backing shall be applied to all designated areas as outlined in the project plans, excluding areas designated for specific treatments or purposes as indicated in the specifications.

MEASUREMENT AND PAYMENT

Payment for "Shoulder Backing Installation" shall be made on a **Per Lineal Foot Basis** as listed in the Bid Form.

No additional compensation will be provided for shoulder backing installed beyond the designated dimensions or in excess amounts, unless directed otherwise by the Engineer.

The unit prices shall include all costs associated with labor, materials, tools, equipment, and any incidental expenses necessary for the complete installation of shoulder backing as per the plans, specifications, and Engineer's instructions.

19 T-GRIND

GENERAL

T-Grinding work shall comply with the guidelines set forth in the project documents and these technical specifications.

T- patches shall adhere to the specified dimensions and requirements as indicated in the Project Plans, and shall follow the specifications set forth in the Town of Mammoth Lakes Standard Plan 201-2. Any deviations from the planned dimensions must receive prior approval from the Engineer.

T-patches shall be applied to all designated areas as outlined in the project plans, excluding areas designated for specific treatments or purposes as indicated in the specifications.

Contractor shall grind existing asphalt pavement for a minimum width of one (1) foot beyond line of sawcut, and a minimum 2 inches deep for purposes of creating a "T" patch, prior to placement of new asphalt.

MEASUREMENT AND PAYMENT

Measurement and payment for "**T-Grind**" shall be included in the Bid Schedule on a **Per Lineal Foot Basis**, and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in grinding all pavement necessary to construct the new facilities, complete in place, as shown on the plans and in conformance with these Technical Specifications and as directed by the Engineer, and no additional compensation will be allowed therefor.

20 SIGNS

GENERAL

Installation of all signs shall be in conformance with Section 56 of the CSS and these Technical Specifications:

- a) All ADA signs shall be installed in the locations designated for ADA Parking Spaces.

- b) The stop sign shall be installed in the location designated per the project plans at the entrance/exit of the facility.
- c) Sign heights shall be as specified in the California Manual of Uniform Traffic Control Devices.
- d) All signs shall be installed with vandal proof fasteners, and in conformance with ADA Standards.

MEASUREMENT AND PAYMENT

Measurement and payment for “**Signs**” shall be **per the individual unit prices per each (EACH)**, and shall include full compensation for furnishing all labor, materials, tools, equipment, and for doing all the work associated with signs. Payment shall be made for each sign individually as outlined in the Bid Schedule.

21 STRIPING & PAVEMENT MARKINGS

GENERAL

Pavement stripes and pavement markings shall conform to the project documents, these technical specifications and the Americans with Disabilities Act Provisions. All striping and pavement markings that have been called out in the Projects Plans shall be install by the contractor. All Stripes shall be 4” wide and in compliance with ADA standards.

MEASUREMENT AND PAYMENT

Measurement and payment for “**Striping**” shall be made on a **lump sum basis** for “**Striping & Pavement Markings**” as shown in the Bid Schedule, and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in the installation of all traffic stripes, as shown on the plans and in conformance with these Technical Specifications, and no additional compensation will be allowed therefor.