

**DEPARTMENT OF TRANSPORTATION**  
DIVISION OF ENGINEERING SERVICES  
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*Flex your power!  
Be energy efficient!*

February 02, 2012

03-ED,Pla-89-27.2/27.4,0.0/T8.5  
03-2A9204  
Project ID 0300000297  
ACSTP-P089(102)E

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for CONSTRUCTION ON STATE HIGHWAY IN EL DORADO AND PLACER COUNTIES AT AND NEAR TAHOE CITY FROM 0.2 MILE SOUTH OF THE EL DORADO/PLACER COUNTY LINE TO THE TRUCKEE RIVER BRIDGE.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on Wednesday, February 15, 2012.

This addendum is being issued to revise the Project Plans, the Notice to Bidders and Special Provisions, the Bid book, the Federal Minimum Wages with Modification Number 3 dated 01/27/2012, and provide a copy of the Information Handout.

Project Plan Sheets 2, 6, 9, 16, 17, 18, 62, 90, 91, 92, 93, 128, 129, 130, 131, 160, 162, 166, 167, 168, 169, 170, 171, 172, 174, 180, 181, 206, 210, 223, 224, 225, 226, 227, 228, 254, 260, 262, 265, 267, 280, 283, 284, 297, 299, 301, 303, 305, 306, 307, 309, 316, 317, 319, 322, 323, 325, 329, 333, 335, 337, 339, 341, 343, 355, 359, 361, 362, 363, 366, 367, 368, 369, 411, 416, 418, 431, 435, 436, 437, 441, 443, 444, 445, 446, and 447 are revised. Copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheets 6A and 411A are added. Copies of the added sheets are attached for addition to the project plans.

In the Notice to Bidders, the eleventh paragraph is revised as follows:

"Complete the work within 390 working days."

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION, AND LIQUIDATED DAMAGES," the last paragraph is revised as follows:

"Complete the work within 390 working days."

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In the Special Provisions, Section 5-1.11, "SUPPLEMENTAL PROJECT INFORMATION," the table is revised as follows:

Means	Description
Included in the Information Handout	<ol style="list-style-type: none"> <li>1. Regional Water Quality Control Board Permit</li> <li>2. Army Corps of Engineers Permit</li> <li>3. Tahoe Regional Planning Agency Permit</li> <li>4. Fish and Game Streambed Alteration Agreement</li> <li>5. Aerially Deposited Lead, Petroleum Hydrocarbons and Title 22 Metals Site Investigation Report</li> <li>6. Transmittal of Additional Petroleum Hydrocarbon Site Investigation Data</li> <li>7. Geotechnical Design Report</li> <li>8. Infiltration Study Report</li> <li>9. TRPA Pre-Approved Staging Areas</li> <li>10. U.S. Fish and Wildlife Service Letter of Concurrence</li> </ol>
Available as specified in the Standard Specifications	Bridge as-built drawings
Available at: <a href="http://www.dot.ca.gov/hq/esc/oe/weekly_ads/index.php">http://www.dot.ca.gov/hq/esc/oe/weekly_ads/index.php</a>	Cross sections

In the Special Provisions, Section 8-1.02, "FILTER FABRIC," is revised as follows:

"Filter fabric for infiltration gallery, perforated plastic pipe, sand traps and sand vaults must be as specified in Section 88-1.02, "Filtration," of the Standard Specifications."

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," is revised as attached.

In the Special Provisions, Section 10-1.03, "WATER POLLUTION CONTROL," subsection "IMPLEMENTATION REQUIREMENTS," is revised as attached.

In the Special Provisions, Section 10-1.10, "TEMPORARY HYDRAULIC MULCH (POLYMER STABILIZED FIBER MATRIX)," subsection "CONSTRUCTION," the table is revised as follows:

Material	Application Rate
Wood Fiber	2,000 lbs/acre
Tackifier	8.5 gal/acre

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In the Special Provisions, Section 10-1.20, "COOPERATION," the table is revised as follows:

03-1A8424	ED-89	In and Near South Lake Tahoe from Route 50 to Cascade Road	Storm Water Quality Improvements
03-1A8434	ED-89	Near South Lake Tahoe from Cascade Road to North of Eagle Falls Sidehill Viaduct	Storm Water Quality Improvements
03-1A8444	ED-89	About 8.3 miles North of South Lake Tahoe from North of the Sidehill Viaducts to Meeks Creek	Storm Water Quality Improvements
03-1A8454	ED-89	Near Tahoma from Meeks Creek Bridge to Wilson Avenue	Storm Water Quality Improvements
03-1E0004	PLA-89	Near Truckee from Squaw Valley Road to the Nevada County Line	AC Pavement cold foam in-place recycling and HMA overlay
California Tahoe Conservancy	PLA-89	At Blackwood Creek (PM 3.81)	Restoration Project
03-4E5304	Pla-89	About 6 miles South of Truckee from 0.2 mile south of Squaw Creek Bridge to 0.3 mile north of Silver Creek Campground Turnoff	Culvert Rehabilitation
03-0E8104	ED-89		Plant Establishment and Protection
03-1A8414	ED-89	Near Meyers from the Alpine County Line to Route 50/89 Separation	Install Drainage Facilities

In the Special Provisions, Section 10-1.25, "MAINTAINING TRAFFIC," the seventeenth paragraph is revised as follows:

"A minimum of one paved traffic lane, not less than 11 feet wide, shall be open for use by public traffic. Two lanes of traffic shall be maintained when traffic control is not in use."

In the Special Provisions, Section 10-1.28, "TEMPORARY PAVEMENT DELINEATION," subsection "TEMPORARY TRAFFIC STRIPE (PAINT)," the first paragraph is revised as follows:

"The painted temporary traffic stripe shall be complete in place at the location shown and where required for construction staging to maintain the minimum two lanes of traffic before opening the traveled way to public traffic. Removal of painted temporary traffic stripe used for staged construction may be required."

In the Special Provisions, Section 10-1.34, "EXISTING HIGHWAY FACILITIES," subsection "REMOVE TRAFFIC STRIPE AND PAVEMENT MARKING," the first paragraph is revised as follows:

"This work includes removing existing traffic stripe and pavement marking at the locations shown on the plans and where required for construction staging to maintain the minimum two lanes of traffic."

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In the Special Provisions, Section 10-1.37, "EARTHWORK," the thirteenth paragraph is revised as follows:

"Permeable material placed below the sand vaults will be measured and paid for as structure backfill (sand vault)."

In the Special Provisions, Section 10-1.41, "DUFF," subsection "CONSTRUCTION," the fifth and sixth paragraphs are deleted.

In the Special Provisions, Section 10-1.46, "EROSION CONTROL (BONDED FIBER MATRIX)," subsection "CONSTRUCTION," is revised as attached.

In the Special Provisions, Section 10-1.48, "MULCH PLACEMENT," subsection "CONSTRUCTION," is revised as follows:

**"Application**

Place or blow mulch into interstitial spaces of rock slope protection (RSP) and other areas, as shown on the plans. Place or blow mulch to a uniform thickness allowing the crown of the RSP to be visible. Mulch shall be incorporated with compost."

In the Special Provisions, Section 10-1.51, "HOT MIX ASPHALT USING WARM MIX ASPHALT TECHNOLOGIES," is revised as attached.

In the Special Provisions, Section 10-1.57, "REPLACE ASPHALT COCNRETE SURFACING," subsection "MATERIALS," the second paragraph is revised as follows:

"The grade of asphalt binder mixed with aggregate for HMA must be PG 64-28."

In the Special Provisions, Section 10-1.58, "CONCRETE STRUCTURES," subsection "SAND VAULT," is revised as attached.

In the Special Provisions, Section 10-1.59, "PRECAST CONCRETE BOX CULVERTS," the following paragraph is added after the last paragraph.

"R. Full compensation for sand bedding (culvert) and slurry cement backfill shall be considered as included in the contract price paid per linear foot for precast reinforced concrete box culvert and no additional compensation will be allowed therefor."

In the Special Provisions, Section 10-1.625, "COLORED CONCRETE," is added as attached.

In the Special Provisions, Section 10-1.70, "UNDERDRAIN," the following paragraph is added after the last paragraph.

"Full compensation for minor concrete (Backfill) and bar reinforcing steel shall be considered as included in the contract price paid per linear foot for perforated plastic pipe underdrain of the sizes shown on the plans and no separate payment will be made therefor."

In the Special Provisions, Section 10-1.71, "PERMEABLE MATERIAL," is revised as attached.

In the Special Provisions, Section 10-1.735, "FILTER FABRIC," is added as attached.

In the Special Provisions, Section 10-1.74, "FILTER MEDIA," is revised as attached.

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In the Special Provisions, Section 10-1.85, "CONCRETE BARRIER," the following paragraph is added after the first paragraph.

"Colored concrete shall conform to "Colored Concrete" of these special provisions."

In the Special Provisions, Section 10-1.85, "CONCRETE BARRIER," the following paragraph is added after the last paragraph.

"Full compensation for colored concrete shall be considered as included in the contract price paid per linear foot for concrete barrier (Type 60D) and concrete barrier (Type 60SC), and no separate payment will be made therefor."

In the Bid book, in the "Bid Item List," Items 26, 38, 39, 40, 52, 67, 71, 72, 74, 79, 89, 91, 100, 108, 109, 110, 112, 125, 126, 131, 134, 135, 137, 138, 139, 140, 142, 144, 147 and 169 are revised.

To Bid book holders:

Replace pages 4,5,6,7,8,9,10 and 11 of the "Bid Item List" in the Bid book with the attached revised pages 4,5,6,7,8,9,10 and 11 of the Bid Item List. The revised Bid Item List is to be used in the bid.

Attached is a copy of the Information Handout (US Fish and Wildlife Service letter of concurrence USFWS#1-1-05-1-1956, dated November 9, 2005).

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the Notice to Bidders section of the Notice to Bidders and Special Provisions.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the Bid book.

Submit bids in the Bid book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This addendum, attachments and the modified wage rates are available for the Contractors' download on the Web site:

[http://www.dot.ca.gov/hq/esc/oe/project\\_ads\\_addenda/03/03-2A9204](http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/03/03-2A9204)

If you are not a Bid book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

  
for REBECCA D. HARNAGEL

Chief, Office of Plans, Specifications & Estimates  
Office Engineer  
Division of Engineering Services

Attachments

### 10-1.01 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

A first order of work for the Contractor shall be submitting a tree removal plan to the Engineer for approval. The Contractor shall notify the Engineer 15 working days prior to removing any trees. The Contractor may remove trees between August 16 and February 15 (provided removal is done in accordance with the TRPA soil disturbance limitations after October 15) without a pre-construction survey for nesting birds. Outside this time frame, a pre-construction survey for nesting birds must be performed by a qualified biologist (see Section 14-6.02, "Bird Protection" of these Special Provisions). Conduct the pre-construction survey no more than 7 days prior to commencement of ground-disturbing activities. Also at this time, the Engineer shall notify the TRPA Coordinator to conduct an over-the-phone Pre-Grade Inspection with TRPA. No trees shall be removed until approval of the over-the-phone Pre-Grade Inspection has been obtained.

Within the first construction season (2012, by September 1), the first order of tree removal work shall be the removal of trees required to facilitate the relocation of overhead utilities at the following locations:

- Station 18+00 to 27+00 Lt
- Station 178+00 to 186+00 Lt
- Station 213+35 Rt
- Station 220+00 to 232+00 Lt
- Station 254+33 Rt
- Station 270+00 to 278+00 Lt
- Station 315+00 to 318+00 Rt

Within the first construction season (2012), another first order of work shall be the relocation of the multipurpose trail between Stations 178+00 and 186+00 to facilitate the relocation of overhead utilities. This shall be completed by September 15, 2012.

In addition to that necessary for overhead utility relocation, and due to concurrent utility relocation work throughout the project limits work during the first construction season is limited to the following:

- Tree removal in addition to that necessary for overhead utility relocation
- Construction of vegetated swales between station 40+00 and 45+00
- Relocation of multipurpose trail from station 172+67 to 173+02 and station 175+04 to 177+28
- Reconstruction of the roadway from station 194+40 to 212+20
- Construction of the retaining wall from station 215+00 to 218+01
- Construction of drainage systems 9, 16, 23, 24, 27, 50, 59, 78 and 98
- Construction of the portions of drainage systems 70, 100 and 105 necessary to complete the pipe lining elements of the drainage system
- Construction of sand vaults from station 59+50 to 176+50

In the first season (2012), work performed in addition to that which is required for overhead utility relocation shall be subject to approval of the Engineer. Work requiring traffic control, and work in proximity to utility relocations shall be coordinated between the Contractor and the utility relocation Contractors. The overhead and underground utility relocation Contractors shall have priority access to their work.

No diesel engine or diesel powered equipment shall be idled for more than five minutes unless required to ensure health and safety or to meet requirements of the manufacturer for proper equipment operation or maintenance.

Parking, staging or storage of equipment and materials in easements or county encroachments shall not occur except when work within the easement or county encroachment is ongoing. All items of work in easements or county encroachments shall be completed within 30 consecutive working days. Access to driveways within or adjacent to easements or county encroachments shall remain open at all times.

The driveway in the temporary construction easement (TCE) at Station 44+91 Rt shall only be used to access the vegetated swale at this location, only during September and October in any given construction season. The Contractor shall not block this driveway at any time.

Attention is directed to "Areas for Contractor's Use" of these special provisions.

For alternate staging areas, outside of the right of way, selected by the Contractor; the Contractor shall submit the following information to the Engineer for review and approval:

- Site plan including: site limits, access roads and stormwater and water quality BMPs
- Property owner agreements
- Release of liability
- Legal access for Caltrans staff to inspect the location
- Environmental compliance documentation prepared by appropriately qualified environmental specialists
- All necessary permits, licenses and agreements
- Final grading plan in conformance with standard specifications
- Restoration plan

The Engineer will review and comment on the information within 10 days, once the submittals are adequate the Engineer will forward them to the appropriate agencies for review and approval. The site plan and restoration plan must be approved by TRPA prior to the start of construction.

Blowing or placing mulch over and in rock slope protection shall take place after rock coloration.

The Contractor shall expose by hand methods and provide referenced location and depth to the Engineer 72 hours prior to any excavation made within 4 feet from a field-marked position by the utility owner of any 6 inch or greater diameter gas line or any underground electrical line, or 2 feet from any other underground utility.

Thirty days prior to wall and barrier construction, the Contractor shall demonstrate the ability to construct the concrete barrier wall to successfully meet the appearance requirements of the permitting authority (Tahoe Regional Planning Agency, TRPA). An 8 foot long trial wall will be constructed (nearby off site location of Contractor's choice) using the proposed methods and materials of the Contractor to achieve the goal of matching the shape, texture and color of the existing rock barrier wall, located in El Dorado County on Route 89 at PM 16.5/16.6.

This will involve taking molds from the existing wall and the production of the form liners which will be used to simulate the texture of the existing rock rubble wall, on the new concrete barrier wall. The proposed concrete mix design should include any proposed coloring agents which will result in the proper surface texture and color after curing and finishing operations.

The work can only be performed during certain times of the year and it is expected multiple seasons will be required to complete the work.

The Contractor's attention is directed to the following conditions which are among those established by the Tahoe Regional Planning Agency in their permit for this project:

All grading or land disturbance in excess of 3-cubic yards shall be confined to the periods between May 1 and October 15. Grading or land disturbance shall not be performed any time of year during periods of precipitation or when the site is covered with snow, or is in a saturated, muddy, or unstable condition.

Per the requirements of Attachment Q of the TRPA Conditional Permit, a Pre-Grade Inspection shall be conducted with TRPA Environmental Compliance prior to the start of construction activities.

No work shall be performed within flowing drainages within the project area until flows are at their seasonal low or have ceased and the streambed is dry. It is predicted that in most years, the seasonal dry period of these drainages occurs between July 15<sup>th</sup> and October 15<sup>th</sup>, however work within these drainages will be subject to stream conditions and permit restrictions. A dewatering plan shall be prepared for work within any drainage to accommodate flows.

By October 15 of any year, all project drainage shall be fully functional and paving to finished grade shall be complete in areas where new curb, gutter or drainage inlets have been constructed.

Beginning with the second construction season work shall be performed per location as shown on the plans. The Contractor shall perform the work in the following order: Location 1, Location 2, and then Location 3. The Contractor shall not proceed to the next location unless work in the previous location is completed or unless approved in writing by the Engineer. Work shall be performed at one location per construction season. A construction season is defined as being from May 1 to October 15. The work to be performed at each location includes but is not limited to all structure work, drainage work, earthwork, minor concrete work, asphalt concrete paving, permanent erosion control work and temporary stripe and pavement marking (paint - 2 coat) for the season it is required as shown on the plans. The work at each location shall be completed to the finished grade prior to October 15 of each construction season. All temporary railing (Type K), temporary crash cushion arrays, and traffic control devices shall be completely removed and the roadway shall be delineated in its planned alignment by October 15 of each construction season.

Residual sand from winter maintenance operations shall be removed at the locations directed by the Engineer. Sand removal shall be paid for as extra work, as provided in Section 4-1.03D of the Standard Specifications. Cleaning of culverts covered under specific items of work will not be paid for as extra work.

All off-road construction equipment shall be cleaned of noxious weed sources (mud and vegetation) before the entry into the project area and the Lake Tahoe basin, as well as after entering potentially infested areas and before moving on to another area, to help ensure that noxious weeds are not introduced into the project area. The Contractor shall employ whatever cleaning methods (typically the use of a high pressure water hose) are necessary to ensure that the equipment is free of noxious weeds. Equipment shall be considered free of soils, seeds, and other such debris when a visible inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools are not required. Equipment washing stations shall be placed in areas that afford easy containment and monitoring (outside the Lake Tahoe Basin) and that do not drain into the forest or sensitive (riparian, wetlands and Stream Environment Zones) areas. The aforementioned noxious weed conditions shall also apply to entering and leaving any staging areas. Whenever possible staging areas shall be in weed free areas.

All rock material (gravel, cobble, and boulders) shall be clean and thoroughly washed prior to arrival at the site to ensure that the rock is free of any silt or clay particles.

The precast double reinforced concrete box culvert at Drainage System 26, located at Station "A1" 100+88.04, shall be placed between September 15<sup>th</sup> and October 10<sup>th</sup>. The double reinforced concrete box culvert shall be constructed so that only half of the roadway shall be closed at a time. The culvert shall be constructed in two phases with each side requiring no more than a three day (72 hour) work window from 8:00 pm Monday until 8:00 pm Thursday. Once work begins the Contractor shall work continuously until the work is finished. Emergency access shall be maintained throughout the closure.

In locations where the roadway structural section is to be reconstructed, work shall be done in conformance with Chart #2 of the Lane Requirement Charts under "Maintaining Traffic," elsewhere in these special provisions. Each location shall be paved, with traffic stripe in place, prior to opening the full width of the roadway to traffic in accordance with the chart. The Contractor shall submit to the Engineer a traffic control plan for each location, which must be reviewed and approved by the Engineer at least 5 working days prior to the closure. The Contractor shall be responsible for maintaining all elements of the construction zone during the closure. Full compensation for the traffic control plan and maintaining the construction zone is included in the contract lump sum price paid for traffic control system and no separate payment will be made therefor.

Ground water and/or seepage water may be encountered in excavations. Difficult excavation is anticipated due to boulders and/or bedrock.

A minimum of two lanes of traffic will be required when traffic control is not in use. Due to new roadway alignment changes and other factors, at locations determinable from the plans (Construction Detail sheets C-1 to C-83), road widening will be required in stages in order to maintain the required minimum two lanes of traffic.

The final lift of HMA shall not be placed until the entire width of the travelled way is completed.

Attention is directed to "Miscellaneous Concrete Construction" of these special provisions regarding constructing a 2' x 2' test panel prior to constructing curb ramps with detectable warning surfaces.

Attention is directed to "Environmentally Sensitive Area" and "Temporary Fence (Type ESA)" of these special provisions. Prior to beginning work, the boundaries of the Environmentally Sensitive Areas (ESA) shall be clearly delineated in the field. The boundaries shall be delineated by the installation of temporary fence (Type ESA).

Attention is directed to "Maintaining Traffic," "Construction Area Signs," and "Temporary Pavement Delineation" of these special provisions and to the stage construction sheets of the plans.

Attention is directed to "Progress Schedule (Critical Path Method)" of these special provisions regarding the submittal of a general time-scaled logic diagram within 10 days after approval of the contract. The diagram shall be submitted prior to performing any work that may be affected by any proposed deviations to the construction staging of the project.

The removal of existing pavement delineation shall be as required by the planned work and as directed by the Engineer. Pavement delineation removal shall be coordinated with new delineation so that lane lines are provided at all times on traveled ways open to public traffic.

Before obliterating any pavement delineation (traffic stripes, pavement markings, and pavement markers) that is to be replaced on the same alignment and location, as determined by the Engineer, the pavement delineation shall be referenced by the Contractor, with a sufficient number of control points to reestablish the alignment and location of the new pavement delineation. The references shall include the limits or changes in striping pattern, including one- and 2-way barrier lines, limit lines, crosswalks and other pavement markings. Full compensation for referencing existing pavement delineation shall be considered as included in the contract prices paid for new pavement delineation and no additional compensation will be allowed therefor.

Prior to applying hot mixed asphalt, the Contractor shall cover all manholes, valve and monument covers, grates, or other exposed facilities located within the area of application, using a plastic or oil resistant construction paper secured to the facility being covered by tape or adhesive. The covered facilities shall be referenced by the Contractor, with a sufficient number of control points to relocate the facilities after the uppermost layer of the new pavement has been placed. After completion of the paving operation, all covers shall be removed and disposed of in a manner satisfactory to the Engineer. Full compensation for covering manholes, valve and monument covers, grates, or other exposed facilities, referencing, and removing temporary cover shall be considered as included in the contract price paid for the item, and no additional compensation will be allowed therefor.

At the end of each working day if a difference in excess of 0.15 foot exists between the elevation of the existing pavement and the elevation of excavations within 5 feet of the traveled way that is not separated from the public traffic by temporary railing (Type K), material shall be placed and compacted against the vertical cuts adjacent to the traveled way. During excavation operations, native material may be used for this purpose; however, once placing of the structural section commences, structural material shall be used. The material shall be placed to the level of the elevation of the top of existing pavement and tapered at a slope of 4:1 (horizontal:vertical) or flatter to the bottom of the excavation. Full compensation for placing the material on a 4:1 slope, regardless of the number of times the material is required, and subsequent removing or reshaping of the material to the lines and grades shown on the plans shall be considered as included in the contract price paid for the materials involved and no additional compensation will be allowed therefor. No payment will be made for material placed in excess of that required for the structural section.

At those locations exposed to public traffic where guard railings or barriers are to be constructed, reconstructed, or removed and replaced, the Contractor shall schedule operations so that at the end of each working day there shall be no post holes open nor shall there be any railing or barrier posts installed without the blocks and rail elements assembled and mounted thereon.

At least 60 days before applying seeds, furnish the Engineer a statement from the vendor that the order for the seed required for this contract has been received and accepted by the vendor. The statement from the vendor must include the names and quantity of seed ordered and the anticipated date of delivery.

**10-1.03 WATER POLLUTION CONTROL  
IMPLEMENTATION REQUIREMENTS**

**SWPPP Implementation**

Obtain, install, and maintain a rain gauge at the job site. Observe and record daily precipitation. Monitor the National Weather Service Forecast Office on a daily basis. For forecasts, go to:

<http://www.srh.noaa.gov/forecast>

Whenever you or the Engineer identifies a deficiency in the implementation of the approved SWPPP:

1. Correct the deficiency immediately, unless the Engineer agrees to a later date for making the correction
2. Correct the deficiency before precipitation occurs

If you fail to correct the deficiency by the agreed date or before the onset of precipitation, the Department may correct the deficiency and deduct the cost of correcting the deficiency from payment.

Continue SWPPP implementation during any temporary suspension of work activities.

Install WPC practices within 15 days or before predicted precipitation, whichever occurs first.

**Numeric Effluent Limits (NELs) & Numeric Action Levels (NALs)**

The project is subject to NELs:

Parameter	Test Method	Detection Limit (Min)	Unit		Numeric Effluent Limit (Maximum Concentration for Discharge to Storm Drain Systems and Receiving Waters)
pH	Field test with calibrated portable instrument	0.2	pH units		Lower NAL = 6.0 Upper NAL = 9.0
Turbidity	Field test with calibrated portable instrument	1	NTU		20 NTU

The storm event daily average for storms up to the 20-year, 1-hour storm, must not exceed the NELs.

**Storm Water Sampling and Analysis Day**

Storm Water Sampling and Analysis Day work includes preparation, collection, analysis, and reporting of storm water samples for turbidity, and other constituents. When there is a qualified rain event that produces runoff, comply with the project's SAP for preparation, collection, analysis, and reporting of storm water samples. Collect:

1. Samples for each non-visible pollutant source and a corresponding uncontaminated control sample
2. Samples for turbidity, pH, and other constituents as specified
3. At least 3 samples for each day of each qualifying rain event
4. Samples for all locations where the storm water is discharged off-site

Perform sample collection during:

1. First 2 hours of each qualified rain event that produces runoff
2. Normal working hours

You are not required to physically collect samples during dangerous weather conditions such as flooding or electrical storms.

If downstream samples show increased levels, assess WPC practices, site conditions, and surrounding influences to determine the probable cause for the increase.

### **NAL Exceedance Report**

Sampling for pH is required when materials and/or constituents that affect pH are placed, or stored and left unprotected prior to either stormwater, or non-stormwater run-on/run-off passing over, or through the affected area. If sampling results indicate a pH result below 6.0, or above 9.0 the Contractor shall report the results to the RE immediately and prepare an exceedance report within 5 days of the event. The exceedance report shall include:

1. The analytical method(s), method reporting unit(s), and method detection limits. Analytical results that are less than the method detection limit shall be reported as "less than the method detection limit".
2. The date, location, time of sampling, visual observation (inspections), and/or measurements, including precipitation.
3. A description of current BMPs associated with the effluent sample that exceeded the NAL and the proposed corrective actions taken.

### **Inspection**

The WPC Manager must oversee inspections for WPC practices identified in the SWPPP:

1. Before a forecasted storm
2. After precipitation that causes site runoff
3. At 24-hour intervals during extended precipitation
4. On a predetermined schedule:
  - 4.1. At the end of each work day during periods of active construction
  - 4.2. At least once per month during periods of inactivity such as winter shutdown

The WPC Manager must oversee daily inspections of:

1. Storage areas for hazardous materials and waste
2. Hazardous waste disposal and transporting activities
3. Hazardous material delivery and storage activities
4. WPC practices specified under "Construction Site Management" of these special provisions

The WPC Manager must use the Storm Water Site Inspection Report provided in the Preparation Manual. The WPC Manager must prepare BMP status reports that include the following:

1. Location and quantity of installed WPC practices
2. Location and quantity of disturbed soil for the active or inactive areas

Within 24 hours of finishing the weekly inspection, the WPC Manager must submit:

1. Copy of the completed site inspection report
2. Copy of the BMP status report

## 10-1.46 EROSION CONTROL (BONDED FIBER MATRIX)

### CONSTRUCTION

#### Application

Measure and mix individual seed species in the presence of the Engineer.

Use hydroseeding equipment to apply erosion control to locations shown on the plans:

1. To form a continuous mat with no gaps between the mat and the soil surface.
2. From 2 or more directions to achieve a continuous mat.
3. In layers to avoid slumping and to aid drying.
4. During dry weather or at least 24 hours before predicted rain. Unless manufacturer guidelines allow for application during wet weather.

Do not apply erosion control if:

1. Water is standing on or moving across the soil surface
2. Soil is frozen
3. Air temperature is below 40 °F during the tackifier curing period unless allowed by the tackifier manufacturer and approved by the Engineer

Apply erosion control in two applications:

1. Combine seed, organic fertilizer, and bonded fiber (fiber and tackifier) for the first application according to the following spread rates and apply the mixture within 60 minutes of adding seed to the mixture:

#### First Application

Material	Pounds Per Acre <sup>1</sup> (Slope Measurement)
Seed	48.5
Organic Fertilizer	1200
Bonded Fiber (Fiber and Tackifier)	500

<sup>1</sup>Application rates of bonded fiber must be increased by 500 pounds per acre for surfaces roughened by techniques such as sheepsfoot-rolled, ripped, tracked, and imprinted.

2. Apply bonded fiber (fiber and tackifier) in the second application according the following rates:

#### Second Application

Slope Rate	Pounds Per Acre <sup>1</sup> (Slope Measurement)
Flatter than 3:1(horizontal:vertical)	1,100
From 3:1 to 2:1(horizontal:vertical)	1,500

<sup>1</sup>Application rates of bonded fiber must be increased by 500 pounds per acre for surfaces roughened by techniques such as sheepsfoot-rolled, ripped, tracked, and imprinted.

The ratio of water to bonded fiber (fiber and tackifier) in the mixture must be as recommended by the manufacturer.

Do not over-spray erosion control materials onto the traveled way, sidewalks, lined drainage channels, or existing vegetation.

## 10-1.51 HOT MIX ASPHALT USING WARM MIX ASPHALT TECHNOLOGIES

### GENERAL

#### Summary

This work includes producing and placing hot mix asphalt Type A using warm mix asphalt technologies using the QC/QA process. Warm mix asphalt technologies is defined as additives or processes that allow a reduction in the temperature at which asphalt mixtures are produced and placed.

Comply with Section 39, "Hot Mix Asphalt," of the Standard Specifications.

Use one of the following warm mix asphalt additives:

Product name: Evotherm  
Producer name: MeadWest Vaco Corporation  
Contact: Scott Dmytrow or Wade Miller  
Phone number: (916) 825 – 9415 or (949) 495 – 4822

Product name: Advera  
Producer name: PQ Corporation  
Contact: Annette Smith  
Phone number: (610) 651 – 4469

Product name: Sasobit  
Producer name: Sasol Wax Americas, Inc.  
Contact: Larry Michael  
Phone number: (301) 745 – 3334

Product name: Rediset WMX  
Producer name: AkzoNobel Surface Chemistry LLC  
Contact: Ray Hess  
Phone number: (949) 551 – 4501

#### Submittals

Submit information from each producer about each warm mix asphalt additive. Submit the method and location for addition of each additive.

Submit samples of loose plant-produced HMA with warm mix asphalt additives. The Engineer determines the quantity and time for sampling.

Submit a list of names participating in the prepaving conference. Identify each participant's name, employer, title, and role in construction of HMA with warm mix asphalt additive.

Submit the log of production data on electronic and printed media at the end of each production shift, or when requested by the Engineer. Each set of production data on electronic media must be in line feed carriage return, on one line, on a separate record, and with sufficient fields to satisfy the amount of data specified. The daily log must include:

1. Date of production
2. Time of day the data is captured
3. Data titles at least once per report
4. Aggregate size being treated
5. Flow rate of wet aggregate collected directly from the aggregate weigh belt
6. Aggregate moisture content at the time of treatment expressed as a percent of the dry aggregate
7. Calculated difference between the agreed warm mix asphalt additive ratio and the actual warm mix asphalt additive ratio

### Quality Control / Quality Assurance Projects

With the job mix formula (JMF) submittal, submit:

1. California Test 204 plasticity index results for untreated HMA using warm mix asphalt technologies
2. California Test 371 tensile strength ratio results for untreated HMA using warm mix asphalt technologies
3. AASHTO T 324 (Modified) test results for untreated HMA using warm mix asphalt technologies
  - a. AASHTO T 324 (Modified) is AASHTO T 324 "Hamburg Wheel-Track Testing of Compacted Hot Mix Asphalt (HMA)" with the following parameters:-
    - i. Target air voids = 7+/- 1%
    - ii. Number of test specimens = 2
    - iii. Test specimen = 12.5" X 10.25" slab compacted using Linear Kneading Compactor
    - iv. Test temperature = 50 +/- 1 C
    - v. Measurements: Impression at every 100 passes
    - vi. Testing shut off = 20,000 cycles
4. California Test 371 tensile strength ratio results for treated HMA using warm mix asphalt technologies if untreated HMA using warm mix asphalt technologies tensile strength ratio is below 70

With the JMF submittal, submit to the Engineer and the Transportation Laboratory, Attention: Moisture Test, samples for California Test 371 split from your mix design samples of:

1. Aggregate
2. Supplemental fines
3. Asphalt binder
4. Antistrip treatment
5. Warm mix additive

On the first production day, submit samples split from your HMA using warm mix asphalt technologies production sample for California Test 371 to the Engineer and the Transportation Laboratory, Attention: Moisture Test.

Submit the California Test 371 test results and AASHTO T 324 (Modified) for mix design and production to the Engineer and electronically to:

Moisture\_Tests@dot.ca.gov

### Data Cores

Three business days before starting coring, submit proposed methods and materials for backfilling data core holes. Submit to the Engineer and electronically to [Coring@dot.ca.gov](mailto:Coring@dot.ca.gov):

1. A summary of data cores taken
2. A photograph of each data core

For each data core, the summary must include:

1. Project identification number
2. Date cored
3. Core identification number
4. Type of materials recovered
5. Type and approximate thickness of unstabilized material not recovered
6. Total core thickness
7. Thickness of each individual material to within:
  - 7.1. For recovered material, 1/2 inch
  - 7.2. For unstabilized material, 1.0 inch

8. Location including:

- 8.1. County
- 8.2. Route
- 8.3. Post mile
- 8.4. Lane number
- 8.5. Lane direction
- 8.6. Station

Each data core digital photograph must include a ruler laid next to the data core. Each photograph must include:

1. The core
2. Project identification number
3. Core identification number
4. Date cored
5. County
6. Route
7. Post mile
8. Lane number
9. Lane direction

After data core summary and photograph submittal, dispose of cores under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

#### Quality Control and Assurance

For the mix design, determine the plasticity index of the aggregate blend under California Test 204. Choose an antistrip treatment and use the corresponding laboratory procedure for the mix design in compliance with:

**Antistrip Treatment Lab Procedures for Mix Design**

Antistrip Treatment	Lab Procedure
Plasticity index from 4 to 10 <sup>a, b</sup>	
Dry hydrated lime with marination	LP-6
Lime slurry with marination	LP-7
Plasticity index less than 4	
Liquid	LP-5
Dry hydrated lime without marination	LP-6
Dry hydrated lime with marination	LP-6
Lime slurry with marination	LP-7

Notes:

<sup>a</sup> If the plasticity index is greater than 10, do not use that aggregate blend.

<sup>b</sup> If the plasticity index is from 4 to 10, use dry hydrated lime with marination or lime slurry with marination.

For the mix design, determine tensile strength ratio under California Test 371 on untreated HMA using warm mix asphalt technologies. If the tensile strength ratio is less than 70:

1. Choose from the antistrip treatments specified based on plasticity index.
2. Test treated HMA using warm mix asphalt technologies under California Test 371.
3. Treat to a minimum tensile strength ratio of 70.

On the first production day and at least every 5,000 tons, sample HMA using warm mix asphalt technologies and test under California Test 371 and AASHTO T 324 (Modified).

The Department does not use California Test 371 or AASHTO T 324 (Modified) test results for JMF verification and production to determine specification compliance.

### **General**

During production, make loose HMA using warm mix asphalt technologies available at the plant for sampling. The Engineer determines the quantity and time for sampling.

### **Prepaving conference**

Discuss HMA using warm mix asphalt technologies at the prepaving conference. Discuss the methods for production and placement including contingency planning and standards or workmanship.

Provide the facility for the prepaving conference. Attendees must include:

1. Project Manager
2. Superintendent
3. Technical representatives from each warm mix additive company
4. Paving subcontractors
5. Asphalt rubber binder supplier
6. Plant manager
7. Plant operator

### **Technical Representatives**

A technical representative from each warm mix asphalt additive supplier must be present during the first week of production and placement of HMA using warm mix asphalt technologies and thereafter be available to the Contractor as needed. The technical representative must advise you, the Engineer, and the asphalt rubber binder producer. The technical representative must direct the mix operation as it relates to the warm mix asphalt additive.

The technical representative must advise the producer regarding plant and controller modifications necessary for product delivery and proper mixing. Plant modifications must comply with California MPQP

### **California MPQP**

Review the plant to assure compliance with weights and measures under California MPQP within 30 days before production of HMA using warm mix asphalt technologies.

### **Data Collection**

The device controlling warm mix asphalt additive proportioning must produce a log of production data. The log must be a series of data captured at 1-minute intervals during production. Each 1-minute data set must register the production activity for that minute and not be a summation of the preceeding minute. Each 1-minute data set represents an amount of material produced 5 minutes before and 5 minutes after the capture time. Store collected data with the plant control device while the contract is in progress.

## **MATERIALS**

### **Asphalt Binder**

The grade of asphalt binder mixed with aggregate for HMA using warm mix asphalt technologies Type A must be PG 64-28.

### **Aggregate**

The aggregate for HMA using warm mix asphalt technologies Type A must comply with the 1/2-inch grading.

## **CONSTRUCTION (MPQP)**

### **Proportioning Warm Mix Asphalt Technologies**

#### **General**

Proportion all ingredients by weight. The HMA plant process-controller (PPC) must be the sole source of ingredient proportioning control and be fully interfaced with all scales and meters used in the production process. Ensure that the HMA plant process-controller utilizes the warm-mix additive as an integral ingredient of the HMA mix.

Weighing and metering devices used for the production of WMA must meet the requirements of the Material Plant Quality Program (MPQP). When a loss-in-weight meter is used it must meet the requirements of the MPQP and the following:

1. Include at least one complete system re-fill cycle during each calibration test run.
2. Operate the device in a normal run mode for 10 minutes immediately before starting the calibration process.
3. Isolate the scale-system, within the loss-in-weight feeder, from surrounding vibration.
4. Check the scale-system, within the loss-in-weight feeder, for accuracy before and after the calibration process and daily during mix production.
5. For a dry ingredient delivery rate of less than one ton per hour use a 15 minute minimum test run size.
6. The unit's accuracy must comply with the limits of Table B, "Conveyor Scale Testing Extremes," in the MPQP.

Dry ingredient additives for continuous production must be proportioned with a conveyor scale or a loss-in-weight meter. Dry ingredients for batch production must be proportioned with a hopper scale.

Liquid ingredient additive, including a normally dry ingredient made liquid, must be proportioned with a mass flow meter.

Produce WMA by using either a continuous mixing or a batch type HMA plant.

#### **Continuous Mixing Plant**

The HMA plant process-controller in conjunction with the measuring systems must be capable of varying all ingredient feed rates proportionate with the aggregate delivery, at all production rates and rate changes. Liquid warm-mix additive must enter the production stream with the binder. Dry warm-mix additive must enter the production stream at or before the mixing area.

When dry warm-mix additives are utilized at continuous mixing HMA plants, baghouse dust systems must return all of the captured material to the mix.

HMA additive must be proportioned to within 0.3% of the target rate.

#### **Batch Mixing Plant**

Metered liquid warm-mix additive must be placed in an intermediate holding vessel to then be added to the mix with the binder. Dry ingredient proportioning devices must be separate from metering devices for the aggregates and asphalt binder. Dry warm-mix additive must be proportioned directly into the pugmill or placed in an intermediate holding vessel to be added to the pugmill at the appropriate time in the batch cycle.

Zero tolerance for the WMA additive batch scale is  $\pm 0.01$  percent of the asphalt binder batch weight. The indicated WMA additive batch scale weight may vary from the preselected weight setting by up to  $\pm 0.02$  percent of the asphalt binder batch weight.

### **Production Data Collection**

The HMA plant process-controller must produce an electronic log of production data. The log will consist of a series of snapshots captured at a maximum of 1-minute intervals throughout the period of daily production. Each snapshot of production data must be a register of production activity at that time and not a summation of the data over the preceding interval to the previous snapshot. The amount of material represented by each snapshot will be that amount produced during the 0.5 minute interval before and the 0.5 minute interval after the capture time. Collect and hold data for the duration of the contract and submit the electronic media to the Engineer, daily or upon request. The snapshot of production data must include the following:

- A. Date of production,
- B. Plant location,
- C. Time of day the data is captured,
- D. Mix type being produced,
- E. Temperature of the binder and HMA mixture,
- F. For a continuous mix operation, the rate of flow of the dry aggregate calculated from the wet aggregate flow rate as determined by the conveyor scale.
- G. For a continuous mix plant operation, the rate of flow of the asphalt meter.
- H. For a continuous mix plant operation, the rate of flow of warm-mix ingredient meter.
- I. For a batch plant operation, actual batch weights of all ingredients.
- J. The aggregate/binder ratio calculated from metered ingredient output.
- K. The binder/warm-mix additive ratio calculated from metered output.

Electronic media must be presented in a Comma-Separated Values (CSV) format. Captured data, for the ingredients represented by production snapshot, must have allowances for sufficient fields to satisfy the amount of data required by these specifications and include data titles at least once per report.

### **HMA Production, Transporting, Spreading and Compacting**

Produce an asphalt mixture within the temperature range of 285°F and 310 °F.

HMA using warm mix asphalt technologies temperature does not fall below 240 °F in the windrow.

### **Data Cores**

Take data cores that include the completed HMA pavement, underlying base, and subbase material. Protect data cores and surrounding pavement from damage.

Take 4-inch or 6-inch diameter data cores:

1. At the beginning, end, and every 1/2 mile within the paving limits of each route on the project
2. After all paving is complete
3. From the center of the specified lane

On a 2-lane roadway, take data cores from either lane. On a 4-lane roadway, take data cores from each direction in the outermost lane. On a roadway with more than 4 lanes, take data cores from the median lane and the outermost lane in each direction.

Each core must include the stabilized materials encountered. You may choose not to recover unstabilized material but you must identify the material. Unstabilized material includes:

1. Granular material
2. Crumbled or cracked stabilized material
3. Sandy or clayey soil

## **PAYMENT**

The contract price paid per ton for hot mix asphalt using warm mix asphalt technologies as designated in the Engineer's Estimate includes full compensation for furnishing all labor, materials, tools, equipment, warm mix additives and technical representation and incidentals for doing all the work involved in constructing hot mix asphalt using warm mix asphalt technologies, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The contract lump sum price paid for data core includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in data coring, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

## 10-1.58 CONCRETE STRUCTURES

### SAND VAULT

This work shall consist of furnishing, installing, and constructing sand vaults in conformance with the details shown on the plans, the provisions in Section 19, "Earthwork," Section 26, "Aggregate Bases," Section 51, "Concrete Structures," Section 52, "Reinforcement," Section 55-3.16, "Assembly," and Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications and these special provisions.

Welding of stainless steel shall conform to the requirements of AWS D1.6. Electrodes for welding stainless steel shall be Type E316L or ER316L filler metal for welds. After completion of the weld operation, stainless steel shall be smooth and free from waves.

Weld preparation and cleaning shall be performed with stainless steel brushes and non-ferrous abrasives. Equipment used in the fabrication of carbon steel shall not be used.

Attention is directed to "Precast Concrete Quality Control" of these special provisions.

The bottom portion of sand vaults may be constructed as either cast-in-place or precast units.

Working drawings for precast units shall be submitted to the Engineer for approval in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications.

Working drawings for precast units shall show the construction method, precast unit dimensions, configuration of the reinforcement (including splice type and location), openings, inserts, and connections between precast segments.

Working drawings for floating drain shall include attachment details for wire mesh, polyvinylchloride pipe, encapsulated float, hose and chain. Working drawings for louvered panels shall include the dimensions of each panel.

The Engineer will have 15 working days to review the working drawings after a complete submittal has been received. No fabrication or installation of the precast units or screens shall be performed until the working drawings are approved in writing by the Engineer.

Should the Engineer fail to complete the review within the time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the working drawings, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Concrete for precast units shall be sampled and tested by the precast manufacturer for compressive strength at least once every production shift and not less often than once daily. Test result records shall be available to the Engineer at all times during regular work shifts.

Shotcrete shall not be used as an alternative construction method for reinforced concrete members unless otherwise specified.

When a roughened concrete surface is shown on the plans, the existing concrete surface shall be roughened to a full amplitude of approximately 0.25 inch by abrasive blasting, water blasting, or mechanical equipment.

Concrete used in sand vaults shall contain not less than 675 pounds of cementitious material per cubic yard, and shall be designated by a 28 day compressive strength of 4,000 psi or greater conforming to the provisions in Section 90-1.01, "Description," and Section 90-9, "Compressive Strength," of the Standard Specifications. An air-entraining admixture conforming to the provisions in Section 90-4, "Admixtures," of the Standard Specifications shall be added to the concrete at the rate required to result in an air content of  $6 \pm 1.5$  percent in the freshly mixed concrete.

Sand vaults shall have a Class 1 surface finish in conformance with Section 51-1.18B, "Class 1 Surface Finish," of the Standard Specifications.

Access hatches shall be factory fabricated, spring assist hatches that provide smooth, controlled operation of the lid while opening and closing the hatch. Hatches shall have a hold open arm and hold down latch that can be operated from below when hatch is closed. Access hatches shall be either Type 1 or Type 2 as shown on the plans and one of the types listed, or equal, as approved by the Engineer:

#### Type 1:

1. The BILCO Company. Type HLC
2. U.S.F. Fabrication, Inc. Model DT-AHS or ALH
3. Neenah Foundry Company. Series R-3498, R-6662, or R-6663
4. East Jordan Iron Works, Inc. Series 8090

Type 2:

1. The BILCO Company. Type JAL-H20
2. U.S.F. Fabrication, Inc. Model AHS
3. East Jordan Iron Works, Inc. Series AHS

Hatches shall be watertight and drains, if present, shall be placed at the lowest corner of the hatch and drain to the inlet chamber. Exposed fasteners shall be tamper proof.

Access hatches shall be installed in accordance with the manufacturer's instructions.

All areas of access hatches that will be visible when closed shall be treated to provide a low sheen appearance. Galvanized steel hatches shall be stained prior to delivery to the job site in conformance with the provisions for "Staining Galvanized Steel Surfaces" of these special provisions.

Flap gates shall be Waterman SSF-41; Golden Harvest, Inc., GH-39P Stainless Steel Circular Discharge Flap Gate; Fontaine Industries, Series 60 Stainless Steel (316) Circular Flap Gate; Plasti-fab, Inc., Stainless Steel Body Neoprene Circular Flap Gate, or equal. Cracking pressure required to open the 18" flap gate inside the sand vault shall be no more than 0.5 psi.

Encapsulated float shall be made up of a flotation material and an encasement around the flotation material.

Flotation material shall be extruded polystyrene, expanded polystyrene, or a copolymer of polyethylene and polystyrene. Flotation material shall have a minimum density of 1.5 lbs./cu. ft., be of consistent quality throughout the float, beads shall be firmly fused together, and there shall be no voids inside the encasement.

The encasement shall be solid polyethylene or a polyurethane type coating, both of which shall be watertight and have a minimum thickness of 0.06 inches.

Other encasement or flotation materials, or flotation devices of similar dimensions, watertightness and buoyancy may be substituted with approval of the Engineer.

Float shall be secured to the PVC pipe and wire mesh screen with a bonding agent compatible with the materials to be bonded or other mechanical method which does not puncture the encapsulated float.

Hose shall conform to the provisions in Section 20-2.27, "Flexible Hose," of the Standard Specifications.

The Contractor shall provide two additional floating drain units (except chain and hose) to the Engineer.

All metal within the precast portion of the sand vaults shall be new and shall be manufactured of Type 316 stainless steel except ladders, which may be hot-dipped galvanized.

All intake openings for louvered screens shall be free from jagged edges, irregularities, or other defects. Stainless steel shall conform to the requirements of ASTM Designation: A 240/A 240M, Type 316, with a #2B finish. Fasteners, resin capsules, mechanical expansion anchor bolts, and cast-in-place anchor bolts shall be Type 316 stainless steel, conforming to the requirements in Section 75, "Miscellaneous Metal," of the Standard Specifications and these special provisions.

Finished screens shall be descaled by immersion in a nitric/hydrofluoric acid bath, rinsed, and air dried to achieve passivation.

Installation of screen, supports, and other ancillary features shall be in conformance with the provisions in Sections 55-3.16, "Assembly," and 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications.

Permeable material placed within the sand vault shall be Class 1, conforming to the provisions in "Permeable Material" of these special provisions.

One foot wide filter fabric shall be placed between sand vault and structure backfill at all keyways.

Filter fabric shall conform to Section 88-1.02, "Filtration," of the Standard Specifications and these special provisions.

Filter media shall conform to the provisions in "Filter Media" of these special provisions.

## MEASUREMENT AND PAYMENT

Measurement and payment for structural concrete, sand collection vault and concrete in precast concrete sand vaults shall conform to the provisions in Section 51-1.22, "Measurement," and Section 51-1.23, "Payment," of the Standard Specifications and these special provisions except that the contract price paid per cubic yard for structural concrete, sand collection vault shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for hatches and manhole frames and covers. Measurement and payment for reinforcement in sand vaults shall conform to the provisions in Section 52-1.10, "Measurement," and Section 52-1.11, "Payment," of the Standard Specification and these special provisions.

Permeable material placed below sand vaults shall be Class 1 and will be measured and paid for as structure backfill (sand vault).

Filter media placed within the sand vaults will be measured and paid for as filter media.

The contract unit price paid for furnish precast concrete sand vault shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, including reinforcement, gate valves, floating drains (including two additional floating drain units), plastic pipe and brackets located within limits of sand vaults, flap gates, ladders, louvered screens, weirs, weir plates, wire mesh panels, permeable material within sand vaults, PVC debris log and filter fabric, and for doing all the work involved in constructing and furnishing the sand vault at the site of the work, complete and ready for installation, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract unit price paid for install precast concrete sand vault shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing the sand vault, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

#### 10-1.625 COLORED CONCRETE

Colored concrete shall conform to the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these special provisions.

The concrete barrier (Type 60D and 60SC) shall be integrally pigmented concrete. The color shall closely match the "Yellowstone 3.5" or equivalent, as shown on the plans, and as approved by the Engineer.

Color pigments shall be of high quality iron oxides conforming to ASTM C 979. The dosage shall not exceed 10 percent by weight of cementitious material in the concrete mix design.

The Contractor shall submit technical data and manufacturer's specifications for colored concrete components and a proposed plan for mixing, delivery, placement, finishing, and curing of the colored concrete. This plan shall be submitted to the Engineer for approval at least 20 days prior to constructing the architectural texture test panel.

A test panel of at least 4' x 4' with a minimum depth of 5 inches shall be successfully completed at a location approved by the Engineer at least 20 days before placing colored concrete. The test panel shall be constructed, finished, and cured with the same materials, tools, equipment, and methods that will be used in placing the colored concrete. At the completion of the curing period, the test panel shall exhibit a color that closely matches the specified color. If ordered by the Engineer, additional test panels shall be constructed, finished, and cured until the specified color is obtained.

The approved test panel shall be the standard of comparison in determining the acceptability of colored concrete. Upon successful completion of all colored concrete, all test panels shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Cementitious materials and aggregates from the same sources used in the approved architectural texture test panel shall be used for the colored concrete in the finished work.

The Contractor shall monitor the water content, weight of cementitious materials, and size, weight, and color of aggregate to maintain consistency and accuracy of the mixed colored concrete. The Contractor shall schedule delivery of concrete to provide consistent mix times from batching until discharge. No water shall be added after a portion of the batch has been discharged.

When more than one concrete pump is used to place concrete, the Contractor shall designate the pumps to receive colored concrete. The designated pumps shall receive only colored concrete throughout the concrete placement operation.

Consistent finishing practices shall be used to ensure uniformity of texture and color.

Unless otherwise specified, curing of colored concrete shall be by the forms-in-place method or the curing compound method only and shall conform to Section 90-7.03, "Curing Structures," of the Standard Specifications and these special provisions. The curing compound used for curing colored concrete surfaces shall be clear or match the color of the colored concrete and shall be manufactured specifically for colored concrete. Curing compounds containing calcium chloride shall not be used. The time between completing surface finishing and applying curing compound shall be the same for each colored concrete component.

Surrounding exposed surfaces shall be protected during placement, finishing, and curing operations of colored concrete.

Full compensation for colored concrete shall be considered as included in the contract price paid per linear foot for concrete barrier (Type 60D) and concrete barrier (Type 60SC), and no separate payment will be made therefor.

**10-1.71 PERMEABLE MATERIAL**

**MATERIALS**

Permeable Material must comply with Section 68, "Subsurface Drains," of the Standard Specifications and these special provisions and consist of hard, durable, clean sand, gravel or crushed stone, and shall be free from organic material, clay balls, or other deleterious materials.

Permeable material placed within sand vaults must be Class 1 and must conform to the following grading requirements:  
Grading Requirements

Sieve Sizes	Percentage Passing
3/4"	100
1/2"	95-100
3/8"	70-100
No. 4	0-55
No. 8	0-10
No. 100	0-3
No. 200	0

Permeable material placed within sand vaults must be washed so the effluent from washing is below 30 NTU prior to placement and washed again once installed, so that the effluent from the sand vault is less than 30 NTU. Wash water will become your property and must be disposed of.

Permeable Material for infiltration galleries must be Class 3 and must conform to either of the following grading requirements.

**Grading Requirements**

Sieve Sizes	Percentage Passing
2"	95-100
1-1/2"	0-5
Sieve Sizes	Percentage Passing
1"	95-100
3/4"	0-5

Permeable Material for infiltration galleries must be composed entirely of particles that have no more than one fractured face.

Filter Fabric for use with permeable material must conform to the provisions in Section 88-1.02, "Filtration" of the standard Specifications and the following.

Remove loose or extraneous material and sharp objects immediately before placing filter fabric. The subgrade and trench to receive the filter fabric must comply with the compaction and elevation tolerance specified for the material involved. Handle and place filter fabric under the manufacturer's instructions. Align and place filter fabric without wrinkles. Overlap adjacent roll ends of filter fabric at least 18 inches. The preceding roll must overlap the following roll in the direction that the permeable material is being spread. Completely replace torn or punctured sections damaged during placement or repair by placing a piece of filter fabric that is large enough to cover the damaged area and comply with the overlap specified. Cover filter fabric with the thickness of overlying material shown within 72 hours of placing the fabric.

**MEASUREMENT AND PAYMENT**

Permeable Material is measured by the cubic yard. Quantities of permeable material to be paid for by the cubic yard will be determined from the dimensions shown on the plans or the dimensions directed by the Engineer and permeable material placed in excess of the these dimensions will not be paid for. .

The contract price paid per cubic yard for permeable material includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the permeable material, complete in place, including washing the permeable material and disposing of the water, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

## 10-1.735 FILTER FABRIC

### MATERIALS

Filter fabric must comply with Section 88, "Geosynthetics," of the Standard Specifications and these special provisions.

When tested under the referenced ASTMs, the properties of filter fabric must have the values shown in the following table:

<b>Filter Fabric</b>		
Property	ASTM	Specification
Grab breaking load, lb 1-inch grip, minimum in each direction	D 4632	120
Apparent elongation, percent minimum, in each direction	D 4632	50
Permittivity, sec <sup>-1</sup> , minimum and maximum	D 4491	1.6-1.8
Apparent opening size, U.S. Standard sieve size minimum and maximum	D 4751	60-80
Ultraviolet resistance, percent minimum retained grab breaking load, 500 hr.	D4355	70

### MEASUREMENT AND PAYMENT

Filter fabric is measured by the square yard of the actual area covered. Measurement does not include additional filter fabric needed for overlaps.

The contract price paid per square yard for filter fabric includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and placing filter fabric, complete, in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

### 10-1.74 FILTER MEDIA

Filter media shall conform to the details shown on the plans and these special provisions. Filter material for use in media filters shall consist of hard, durable, clean sand, and shall be free from organic material, clay balls or other deleterious substances.

#### Submittals

At least 5 business days before installing filter media;

1. ASTM 6913 test of source material

Once installed a minimum of one ASTM 6913 test shall be performed on media placed at the location determined by the engineer. The media must meet the grading requirements of this specification.

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for:

1. Filter Media

Filter media shall conform to the following grading requirements:

Grading Requirements

Sieve Sizes	Percentage Passing
3/8"	100
No. 4	95-100
No. 8	80-100
No. 16	45-85
No. 30	15-60
No. 50	3-15
No. 100	0-4
No. 200	0

Standard ASTM 6913	Range
Effective Particle size (Es) = (D <sub>10</sub> )	0.25-0.5 mm
Uniformity Coefficient U <sub>c</sub> = (D <sub>60</sub> /D <sub>10</sub> )	< 4

The filter media material shall be washed prior to placement, so that all silt and clay particles are removed. Filter media shall be thoroughly washed, with a minimum of four times the media volume of potable water, prior to placing in the vault. The maximum amount of washing required will depend on the source material used. The wash water shall be disposed of outside of the state right of way. Once the material is placed in the vault, the material shall be washed again until the water discharged from the media filter has a turbidity reading of 30 NTU or less. Wash water above 30 NTU shall become the property of the Contractor and shall be disposed of in conformance with the provisions in section 7-1.1.3, "Disposal of Material Outside of the Highway Right of Way," of the Standard Specifications.

#### PLACEMENT

Placement of the filter media shall conform to the following requirements:

- A. The filter media shall be placed in a manner that will not damage or cause permanent displacement of the filter fabric.
- B. The filter media shall be spread by methods that will produce a uniform finished surface to the grades shown on the plans.

**MEASUREMENT**

Filter media will be measured by the cubic yard. The quantity to be paid will be calculated on the basis of the dimensions shown on the plans.

**PAYMENT**

The contract price paid per cubic yard for filter media shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and placing the media, complete in place, including washing material and disposing of the water, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**BID ITEM LIST**  
**03-2A9204**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21	074058	STORM WATER SAMPLING AND ANALYSIS DAY	EA	72		
22	120090	CONSTRUCTION AREA SIGNS	LS	LUMP SUM	LUMP SUM	
23	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM	LUMP SUM	
24	120149	TEMPORARY PAVEMENT MARKING (PAINT)	SQFT	7,260		
25	120151	TEMPORARY TRAFFIC STRIPE (TAPE)	LF	2,390		
26	120159	TEMPORARY TRAFFIC STRIPE (PAINT)	LF	524,000		
27	120165	CHANNELIZER (SURFACE MOUNTED)	EA	70		
28	128650	PORTABLE CHANGEABLE MESSAGE SIGN	LS	LUMP SUM	LUMP SUM	
29	129000	TEMPORARY RAILING (TYPE K)	LF	2,740		
30	021920	TEMPORARY CRASH CUSHION (TYPE ABSORB 350)	EA	34		
31	146001	CONTRACTOR SUPPLIED BIOLOGIST (DAY)	WDAY	96		
32	146003	NATURAL RESOURCE PROTECTION PLAN	LS	LUMP SUM	LUMP SUM	
33	150206	ABANDON CULVERT	EA	17		
34	150305	OBLITERATE SURFACING	SQFT	3,910		
35	150662	REMOVE METAL BEAM GUARD RAILING	LF	550		
36	150668	REMOVE FLARED END SECTION	EA	2		
37	150230	DESTROY WELL	EA	5		
38	150710	REMOVE TRAFFIC STRIPE	LF	158,000		
39	150742	REMOVE ROADSIDE SIGN	EA	160		
40	150805	REMOVE CULVERT	LF	4,640		

**BID ITEM LIST**  
**03-2A9204**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41	150820	REMOVE INLET	EA	41		
42	150821	REMOVE HEADWALL	EA	3		
43	150857	REMOVE ASPHALT CONCRETE SURFACING	SQFT	1,809		
44	151531	RECONSTRUCT FENCE	LF	10		
45	021921	REMOVE SIDEWALK (PAVERS)	SQFT	2,910		
46	152320	RESET ROADSIDE SIGN	EA	10		
47	021922	RELOCATE MILE MARKER	EA	1		
48	152430	ADJUST INLET	EA	11		
49	152438	ADJUST FRAME AND COVER TO GRADE	EA	140		
50	152604	MODIFY INLET	EA	11		
51	152610	MODIFY MANHOLE	EA	56		
52	153103	COLD PLANE ASPHALT CONCRETE PAVEMENT	SQYD	18,200		
53	153215	REMOVE CONCRETE (CURB AND GUTTER)	LF	1,260		
54	153223	REMOVE UNSOUND CONCRETE	CF	5		
55	153225	PREPARE CONCRETE BRIDGE DECK SURFACE	SQFT	1,809		
56	155003	CAP INLET	EA	8		
57	155210	CLEANING, INSPECTING AND PREPARING HOST PIPE	LF	550		
58	155230	CONCRETE INVERT PAVING	CY	25		
59	155316	24" CURED-IN-PLACE PIPELINER	LF	210		
60	021923	42" X 29" CURED-IN-PLACE PIPELINER	LF	150		

**BID ITEM LIST**  
**03-2A9204**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
61	155318	30" CURED-IN-PLACE PIPELINER	LF	110		
62	021924	45" X 24" CURED-IN-PLACE PIPERLINER	LF	75		
63	021925	60" X 34" CURED-IN-PLACE PIPERLINER	LF	52		
64	157560	BRIDGE REMOVAL (PORTION)	LS	LUMP SUM	LUMP SUM	
65	160101	CLEARING AND GRUBBING	LS	LUMP SUM	LUMP SUM	
66	160120	REMOVE TREE	EA	380		
67	190101	ROADWAY EXCAVATION	CY	29,800		
68	021926	ROADWAY EXCAVATION (VEGETATED SWALE)	CY	1,260		
69	021927	ROADWAY EXCAVATION (TYPE DC)	CY	250		
70	190110	LEAD COMPLIANCE PLAN	LS	LUMP SUM	LUMP SUM	
71 (F)	192020	STRUCTURE EXCAVATION (TYPE D)	CY	763		
72 (F)	021928	STRUCTURE EXCAVATION (SAND VAULT)	CY	862		
73 (F)	192037	STRUCTURE EXCAVATION (RETAINING WALL)	CY	943		
74 (F)	021929	STRUCTURE BACKFILL (SAND VAULT)	CY	473		
75	021930	SLURRY CEMENT BACKFILL	CY	6		
76 (F)	193013	STRUCTURE BACKFILL (RETAINING WALL)	CY	660		
77 (F)	193031	PERVIOUS BACKFILL MATERIAL (RETAINING WALL)	CY	70		
78	193114	SAND BACKFILL	CY	66		
79	198007	IMPORTED MATERIAL (SHOULDER BACKING)	TON	2,050		
80	202007	DUFF	SQYD	2,960		

**BID ITEM LIST**  
**03-2A9204**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
81	202011	MULCH	CY	2,700		
82	203025	COMPOST (INCORPORATE)	SQYD	42,500		
83	203026	MOVE-IN/MOVE-OUT (EROSION CONTROL)	EA	12		
84	203028	EROSION CONTROL (BONDED FIBER MATRIX) (ACRE)	ACRE	18		
85	203034	ROLLED EROSION CONTROL PRODUCT (NETTING)	SQYD	10,200		
86	021931	LOG PLACEMENT	EA	79		
87	021932	BOULDER PLACEMENT	EA	490		
88	021933	CONCRETE COLORATION	SQFT	12,400		
89	260201	CLASS 2 AGGREGATE BASE	CY	22,600		
90	390095	REPLACE ASPHALT CONCRETE SURFACING	CY	3,400		
91	021934	HOT MIX ASPHALT (WARM MIX TECHNOLOGY)	TON	64,700		
92	394060	DATA CORE	LS	LUMP SUM	LUMP SUM	
93	394090	PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA)	SQYD	71		
94	397005	TACK COAT	TON	75		
95 (F)	510060	STRUCTURAL CONCRETE, RETAINING WALL	CY	315		
96	021935	PRECAST REINFORCED CONCRETE BOX CULVERT	LF	88		
97	021936	FURNISH PRECAST SAND VAULT	EA	23		
98	021937	INSTALL PRECAST SAND VAULT	EA	23		
99 (F)	021938	STRUCTURAL CONCRETE, SAND COLLECTION VAULT	CY	171		
100 (F)	510502	MINOR CONCRETE (MINOR STRUCTURE)	CY	575		

**BID ITEM LIST**  
**03-2A9204**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
101 (F)	021939	ARCHITECTURAL TEXTURE (RUBBLE MASONRY)	SQFT	722		
102 (F)	021940	ARCHITECTURAL TEXTURE (VOLCANIC ROCK)	SQFT	4,030		
103	511124	RAPID SETTING CONCRETE (PATCH)	CF	6		
104	515041	FURNISH POLYESTER CONCRETE OVERLAY	CF	543		
105 (F)	515042	PLACE POLYESTER CONCRETE OVERLAY	SQFT	1,809		
106	043442	PUBLIC SAFETY PLAN	LS	LUMP SUM	LUMP SUM	
107 (F)	520106	BAR REINFORCING STEEL (EPOXY COATED)	LB	118,892		
108	560248	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063"-UNFRAMED)	SQFT	1,130		
109	560249	FURNISH SINGLE SHEET ALUMINUM SIGN (0.080"-UNFRAMED)	SQFT	160		
110	560251	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063"-FRAMED)	SQFT	55		
111	566011	ROADSIDE SIGN - ONE POST	EA	160		
112	566012	ROADSIDE SIGN - TWO POST	EA	4		
113	597600	PREPARE AND PAINT CONCRETE	SQFT	4,760		
114	641101	12" PLASTIC PIPE	LF	520		
115	641104	15" PLASTIC PIPE	LF	16,100		
116	641107	18" PLASTIC PIPE	LF	10,200		
117	641113	24" PLASTIC PIPE	LF	510		
118	641119	30" PLASTIC PIPE	LF	25		
119	641125	36" PLASTIC PIPE	LF	190		
120	665024	24" CORRUGATED STEEL PIPE (.109" THICK)	LF	12		

**BID ITEM LIST**  
**03-2A9204**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
121	021941	60" X 34" CORRUGATED STEEL PIPE ARCH (.109" THICK)	LF	5		
122	667019	35" X 24" CORRUGATED STEEL PIPE ARCH (.109" THICK)	LF	210		
123	667024	42" X 29" CORRUGATED STEEL PIPE ARCH (.109" THICK)	LF	15		
124	021942	12" PERFORATED PLASTIC PIPE UNDERDRAIN	LF	180		
125	021943	18" PERFORATED PLASTIC PIPE UNDERDRAIN	LF	2,000		
126 (F)	682001	PERMEABLE MATERIAL	CY	786		
127	700639	36" CORRUGATED STEEL PIPE INLET (.109" THICK)	LF	440		
128	705202	15" CONCRETE FLARED END SECTION	EA	4		
129	705204	18" CONCRETE FLARED END SECTION	EA	48		
130	705206	24" CONCRETE FLARED END SECTION	EA	4		
131	707117	36" PRECAST CONCRETE PIPE INLET	LF	450		
132	720106	ROCK SLOPE PROTECTION (1/2 TON, METHOD A)	CY	550		
133	721006	ROCK SLOPE PROTECTION (1/2 TON, METHOD B)	CY	32		
134	721007	ROCK SLOPE PROTECTION (1/4T, METHOD B)	CY	3,930		
135	721008	ROCK SLOPE PROTECTION (LIGHT, METHOD B)	CY	390		
136	721010	ROCK SLOPE PROTECTION (NO. 1, METHOD B)	CY	230		
137	721011	ROCK SLOPE PROTECTION (NO. 2, METHOD B)	CY	380		
138	729000	FILTER FABRIC	SQYD	4,830		
139 (F)	021944	FILTER MEDIA	CY	110		
140	731501	MINOR CONCRETE (CURB)	CY	180		

**BID ITEM LIST**  
**03-2A9204**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
141	731502	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	CY	280		
142	731504	MINOR CONCRETE (CURB AND GUTTER)	CY	3,440		
143	731510	MINOR CONCRETE (CURB, GUTTER, SIDEWALK AND DRIVEWAY)	CY	59		
144	731517	MINOR CONCRETE (GUTTER)	CY	2,210		
145	021945	SIDEWALK (PAVERS)	SQFT	5,380		
146	731623	MINOR CONCRETE (CURB RAMP)	CY	3		
147 (F)	750001	MISCELLANEOUS IRON AND STEEL	LB	129,973		
148	800701	WOOD FENCE	LF	1,510		
149	021946	SPLIT RAIL FENCE	LF	860		
150	820108	DELINEATOR (CLASS 2)	EA	250		
151	820112	MARKER (CULVERT)	EA	180		
152	820151	OBJECT MARKER (TYPE L-1)	EA	7		
153	832003	METAL BEAM GUARD RAILING (WOOD POST)	LF	88		
154 (F)	043443	CONCRETE BARRIER (TYPE TRANSITION)	LF	36		
155	839521	CABLE RAILING	LF	300		
156	021947	WOOD BOLLARDS	EA	140		
157	839541	TRANSITION RAILING (TYPE WB)	EA	8		
158	839581	END ANCHOR ASSEMBLY (TYPE SFT)	EA	1		
159	839585	ALTERNATIVE FLARED TERMINAL SYSTEM	EA	7		
160	021948	ALTERNATIVE CRASH CUSHION	EA	4		

**BID ITEM LIST  
03-2A9204**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
161	839704	CONCRETE BARRIER (TYPE 60D)	LF	320		
162	839712	CONCRETE BARRIER (TYPE 60SC)	LF	180		
163	839723	CONCRETE BARRIER (TYPE 732B)	LF	280		
164	021949	6" THERMOPLASTIC TRAFFIC STRIPE (RECESSED)	LF	11,600		
165	021950	6" THERMOPLASTIC TRAFFIC STRIPE (RECESSED, BROKEN 8-4)	LF	1,000		
166	021951	THERMOPLASTIC PAVEMENT MARKING (RECESSED)	SQFT	2,710		
167	021952	4" THERMOPLASTIC TRAFFIC STRIPE (RECESSED, BROKEN 12-3)	LF	7,820		
168	840545	4" THERMOPLASTIC TRAFFIC STRIPE (RECESSED, BROKEN 36-12)	LF	7,910		
169	840581	4" THERMOPLASTIC TRAFFIC STRIPE (RECESSED)	LF	150,000		
170	840661	TWO-COMPONENT PAINT PAVEMENT MARKING	SQFT	2,390		
171	860090	MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION	LS	LUMP SUM	LUMP SUM	
172	860890	MODIFY TRAFFIC MONITORING STATION (COUNT)	LS	LUMP SUM	LUMP SUM	
173	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

**TOTAL BID:**

\$ \_\_\_\_\_