

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

OFFICE ENGINEER

1727 30<sup>th</sup> Street MS-43

P.O. BOX 168041

SACRAMENTO, CA 95816-8041

FAX (916) 227-6214

TTY 711

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March 14, 2011

08-SBd-40-R151.7/R153.3

08-489304

Project ID 0800000775

ACIM-040-2(055)151E

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for CONSTRUCTION ON STATE HIGHWAY IN SAN BERNARDINO COUNTY NEAR NEEDLES FROM 0.4 MILE WEST OF WHALE MOUNTAIN WASH BRIDGE TO 0.1 MILE WEST OF PARK MOABI ROAD OVERCROSSING.

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 Thursday, March 17, 2011.

This addendum is being issued to revise the Project Plans, and the Notice to Bidders and Special Provisions.

Project Plan Sheet19 is revised. A copy of the revised sheet is attached for substitution for the like-numbered sheet.

In the Special Provisions, Section 10-1.32, "HOT MIX ASPHALT," subsection "Quality Control/Quality Assurance Projects," subsection "MATERIALS," and subsection "CONSTRUCTION" are deleted.

In the Special Provisions, Section 10-1.35, "HOT MIX ASPHALT (TYPE C)," subsection "MATERIALS," the first paragraph is revised as follows:

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

In the Special Provisions, Section 10-1.395, "IMPERMEABLE MEMBRANE," is added as attached.

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To Bid book holders:

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 and attachments are available for the Contractors' download on the Web site:

**[http://www.dot.ca.gov/hq/esc/oe/project\\_ads\\_addenda/08/08-489304](http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/08/08-489304)**

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,



REBECCA D. HARNAGEL  
Chief, Office of Plans, Specifications & Estimates  
Office Engineer  
Division of Engineering Services

Attachments

## 10-1.395 IMPERMEABLE MEMBRANE

### GENERAL

#### Summary

This work includes placing impermeable membrane to prevent infiltration. Comply with Section 19, "Earthwork," and Section 88, "Geosynthetics" of the Standard Specifications.

### MATERIALS

#### Impermeable Membrane

Impermeable membrane must be smooth on both sides. Impermeable membrane must consist of a single ply material. The major polymer material component of the impermeable membrane must be linear low density polyethylene (LLDPE). The impermeable membrane must be flexible enough to bend in anchor trenches and to conform to subgrade irregularities by its own weight, in ambient job-site air temperatures, without any overburden placed on it, and without additional heating and bending.

Impermeable membrane must be manufactured from either virgin raw materials or from a combination of virgin and recycled materials. None of the materials, whether virgin or recycled, must contain biodegradable filler materials that degrade the physical or chemical characteristics of the finished roll products, such that they no longer function as leak-free water barriers. To confirm the absence of biodegradable filler materials, the engineer may order tests such as ASTM E 204 (Fourier Transformed Infrared Spectroscopy-FTIR) or other appropriate tests.

Impermeable membrane must be free from holes or punctures. Impermeable membrane must comply with:

Impermeable membrane

Property	ASTM	Specification
Thickness, mil minimum	5199 (smooth), or 5994 (textured)	30
Grab tensile strength at break – 1 inch strip, lbs/inch minimum	D 6693	60
Elongation at break, % minimum	D 6693	50
Puncture Resistance (for LLDPE polymer), lbs. minimum	D 4833	45
Tear Resistance, lbs. minimum	D 1004	30
Carbon Black Content, % minimum	D 1603	2

#### Seams

There shall be factory seamed impermeable membrane delivered to the job site.

Impermeable membrane sheets must be welded (heat or ultrasonic or other), or solvent-bonded with a material that is compatible with the impermeable membrane as recommended by the manufacturer. The width of any seam must be no less than one inch. Filler-sealer compounds is not allowed for factory or field seams.

#### Geotextile Cushion Fabric

Geotextile cushion fabric must be Class 10 Rock slope protection (RSP) fabric under Section 88-1.06 "Channel and Shore Protection" of the Standard Specifications.

### CONSTRUCTION

#### Subgrade

Remove loose or extraneous material and objects that may damage the impermeable membrane .

Compact subgrade to receive impermeable membrane to at least 95 percent relative compaction for a minimum depth of 6 inches.

Prepare subgrade under Section 19-2.05, "Slopes," of the Standard Specifications.

### **Placement**

Place impermeable membrane on the subgrade with the impermeable membrane sandwiched between Geotextile cushion fabric layers.

### **Anchor Trench**

Anchor the transverse and longitudinal edges of the sandwiched impermeable membrane and geotextile cushion fabric in trenches at least 8 inches deep.

### **Test**

Test impermeable membrane and impermeable membrane seams under ASTM D 4437, the Vacuum Box Method. Repair or replace leaky impermeable membrane.

### **Damage Repair**

If impermeable membrane is damaged during construction, patch with new material under the "Seams" section of the Specifications, or completely replace the damaged section. Overlap patch material at least 18 inches on all sides of any damage.

### **MEASUREMENT AND PAYMENT**

Impermeable membrane is measured and paid for by the square yard of area covered including anchor trench embedment.

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

Full compensation for revisions to drainage systems by the use of an alternative impermeable membrane is included in the contract price paid per square yard for impermeable membrane and no adjustment in compensation will be made therefor.