



Office of Engineering
Project Development Division
Bridge Design Section
PO Box 94245 | Baton Rouge,
LA 70804-9245
Phone: 225-379-1302

John Bel Edwards, Governor
Shawn D. Wilson, Ph.D., Secretary

MEMORANDUM

TO: ALL CONSULTANTS
ALL BRIDGE DESIGNERS

FROM: PAUL FOSSIER, P.E.
BRIDGE DESIGN ENGINEER ADMINISTRATOR 

SUBJECT: BRIDGE DESIGN TECHNICAL MEMORANDUM NO. 64 (BDTM.64)
PAVEMENT EXPANSION JOINT REHAB FOR OVERLAY PROJECTS

DATE: October 12, 2016

Effectively immediately, use of the subject new Special Details, “Pavement Expansion Joint Rehab for Overlay Projects”, shall be implemented for all asphalt overlay projects adjacent to bridges which are prior to 60% Final Plan stage.

These details are applicable for the rehab and construction of 4” expansion relief joints in existing concrete pavements in overlay projects. Concrete pavement roadways should be constructed with EJ-4” relief joints in three locations near each end of a bridge and an additional relief joint at the end of the approach slab, as shown on Roadway Standard Plan “CP-01”.

Existing EJ-4” joints shall be repaired according to the details on sheet 2 of 4 of these plans. Locations that are lacking an EJ-4” relief joint where one should exist will require construction of a new joint according to the details on sheet 3 of 4. EJ-4” joints should be located as closely as possible to the locations shown on “CP-01”.

Existing expansion relief joints located at the end of an approach slab shall be repaired according to the details on sheet 4 of 4 of these plans. If no joint exists at the end of the approach slab, no work is required at that location.

In the past, existing pavement expansion joints may have been overlooked and covered by asphalt overlay. However, proper treatment of these joints is critical in preventing damage to bridge end bents and spans caused by concrete pavement expansion.

A new pay item (NS-602-00011 – “Expansion Joint Rehabilitation”) has been created to cover the work shown in this set of details. The index of special details posted on the Bridge Design website has been updated to include these details. See attachments for the new detail sheets and the pay item description.

This technical memorandum is posted on the LA DOTD Website under [Inside La DOTD > Divisions - Engineering > Bridge Design > Technical Memoranda – BDTMs.](#)

Please contact Ms. Zhengzheng “Jenny” Fu (225-379-1321, zhengzheng.fu@la.gov) if you have questions or comments.

PF/zzf/abl

Attachments

Cc: Janice Williams (Chief Engineer)
Edward Wedge (Deputy Engineer Administrator)

Chad Winchester (Chief, Project Development Division)
Kirk Gallien (Assistant Secretary of Operations)
David Miller (Chief Maintenance Administrator)
Michael Vosburg (Chief Construction Division Engineer)
Jeff Burst (Project Management Director)
Jeff Lambert (Pavement and Geotechnical Engineer Administrator)
Simone Ardoin (Road Design Engineer Administrator)
Jacques Deville (Pavement Preservation Program Manager)
Art Aguirre (FHWA)
Patrick Wollerson (DOTD Plans Manager)
District Administrators, ADA Engineering, ADA Operations, and District Area Engineers



10/12/2016

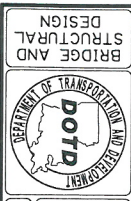
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NOTES:

1. THESE DETAILS ARE APPLICABLE FOR THE REHAB AND CONSTRUCTION OF 4" EXPANSION RELIEF JOINTS IN EXISTING CONCRETE PAVEMENTS IN OVERLAY PROJECTS. ALL SHEETS IN THIS SET SHALL BE USED TOGETHER. CONCRETE PAVEMENT ROADWAYS SHOULD BE CONSTRUCTED WITH E-J-4" RELIEF JOINTS IN THREE LOCATIONS NEAR EACH END OF A BRIDGE, AND AN ADDITIONAL RELIEF JOINT AT THE END OF THE APPROACH SLAB, AS SHOWN ON ROADWAY STANDARD PLAN "CP-01".
- EXISTING E-J-4" JOINTS SHALL BE REPAIRED ACCORDING TO THE DETAILS ON SHEET 2 OF 4 OF THESE PLANS. LOCATIONS THAT ARE LACKING AN E-J-4" JOINT WHERE ONE SHOULD EXIST WILL REQUIRE CONSTRUCTION OF A NEW JOINT ACCORDING TO THE DETAILS ON SHEET 3 OF 4. E-J-4" JOINTS SHOULD BE LOCATED AS CLOSELY AS POSSIBLE TO THE LOCATIONS SHOWN ON "CP-01".
- EXISTING EXPANSION RELIEF JOINTS LOCATED AT THE END OF AN APPROACH SLAB SHALL BE REPAIRED ACCORDING TO THE DETAILS ON SHEET 4 OF 4 OF THESE PLANS. IF NO JOINT EXISTS AT THE END OF THE APPROACH SLAB, NO WORK IS REQUIRED AT THAT LOCATION.
2. BASIS OF PAYMENT: ALL WORK SHOWN IN THESE PLANS SHALL BE PAID FOR UNDER ITEM NS-602-0001, "EXPANSION JOINT REHABILITATION."

EXPANSION JOINT REHAB DETAILS INDEX

| BRIDGE STANDARD INDEX NO. | SERIES | DESCRIPTION |
|---------------------------|--------|--|
| BD.2.9.1.0.01 | 1 OF 4 | EXPANSION JOINT REHAB NOTES AND INDEX |
| BD.2.9.1.0.02 | 2 OF 4 | REHAB OF EXISTING E-J-4" JOINT |
| BD.2.9.1.0.03 | 3 OF 4 | CONSTRUCTION OF NEW E-J-4" JT. IN EXISTING PAVEMENT |
| BD.2.9.1.0.04 | 4 OF 4 | REHAB OF EXISTING EXPANSION JOINT NEAR APPROACH SLAB |



PAVEMENT EXPANSION JOINT REHAB FOR OVERLAY PROJECTS
NOTES AND INDEX

BD.2.9.1.0.01 - PREVENTIVE MAINTENANCE

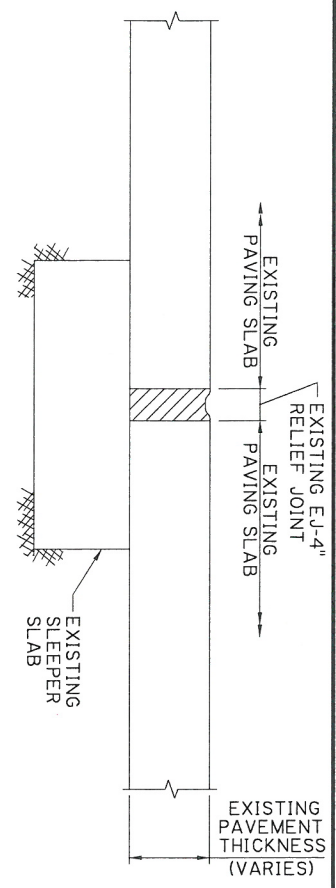


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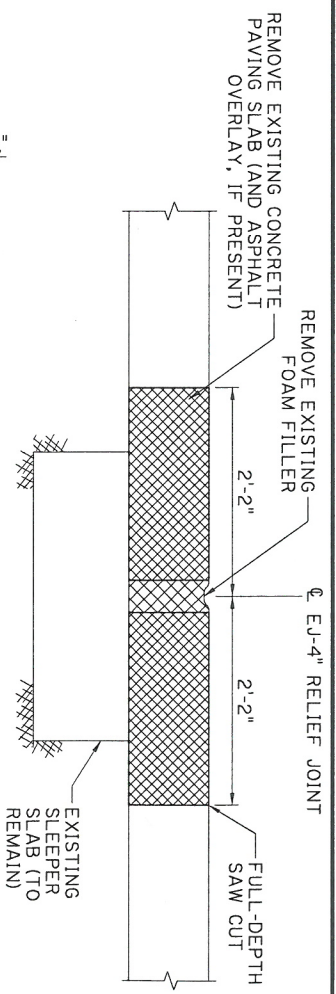
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|--------------|-----------------|----------|------------|-----------------|--|
| DESIGNED | A. L. LANCASTER | CHECKED | X. WANG | PARISH | |
| DETAILED | A. L. LANCASTER | CHECKED | R. MORVANT | CONTROL SECTION | |
| REVIEWED | Z. Z. FU | SERIES # | 1 OF 4 | STATE PROJECT | |
| SHEET NUMBER | | | | | |

STATE OF LOUISIANA
 ADAM LANCASTER
 License No. 35573
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING

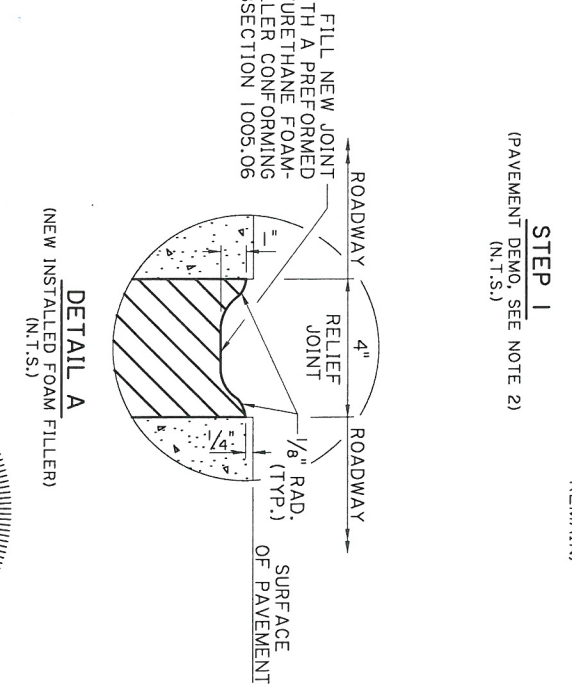
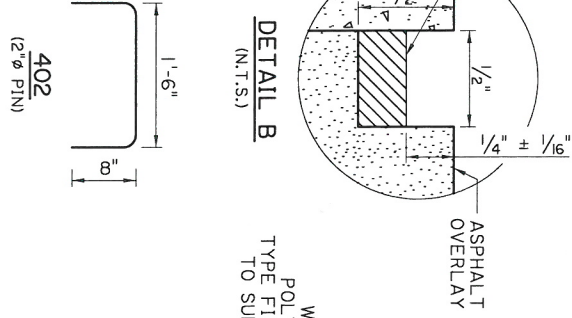
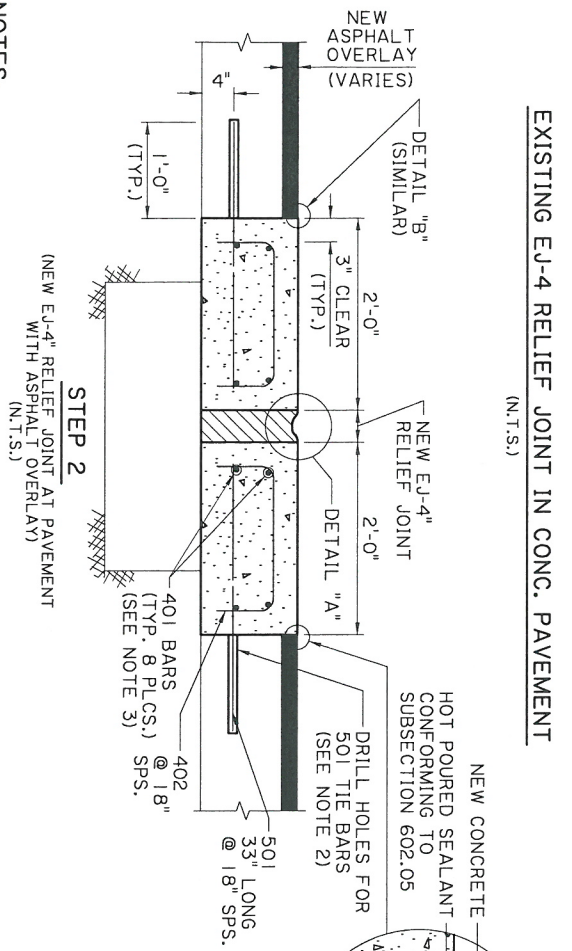
Adam Lancaster
10/12/16



EXISTING EJ-4 RELIEF JOINT IN CONC. PAVEMENT
(N.T.S.)



STEP 1
(PAVEMENT DEMO. SEE NOTE 2)
(N.T.S.)

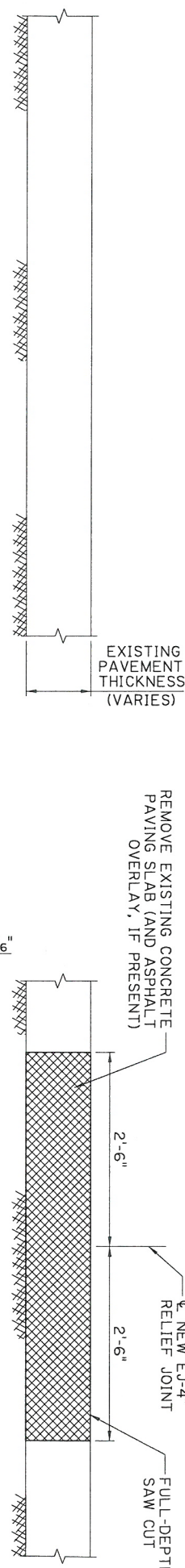


NOTES:

1. THIS PLAN IS APPLICABLE FOR THE REHABILITATION OF EXISTING 4" RELIEF JOINTS IN CONCRETE PAVEMENT WITH ASPHALT OVERLAY.
2. INSTALLATION PROCESS: REMOVE THE EXISTING FOAM FILLER. SAWCUT AND REMOVE EXISTING CONCRETE PAVING SLABS AND EXISTING ASPHALT OVERLAY, IF PRESENT. AS SHOWN IN "STEP 1", DEFORMED TIE BARS (SOI) SHALL BE INSTALLED IN EXISTING PAVEMENT BY DRILLING HOLES LARGER THAN THE BAR DIAMETER (1/8" WHEN EPOXY IS USED, 1/2" WHEN A CEMENTITIOUS GROUT ANCHOR SYSTEM IS USED, AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS WHEN ADHESIVE ANCHOR SYSTEMS ARE USED.) HOLES SHALL BE CLEAN AND MOISTURE FREE PRIOR TO PLACEMENT OF ANCHOR SYSTEM. ANCHOR SYSTEM INJECTION SHALL BE SUFFICIENT TO FILL THE VOID BETWEEN THE BAR AND THE HOLE, AS EVIDENCED BY MATERIAL SQUEEZE-OUT WHEN THE BAR IS INSERTED. PREVENT BARS FROM BEING DISTURBED UNTIL ANCHOR SYSTEM HAS SUFFICIENTLY CURED. PRIOR TO PLACING NEW CONCRETE, THE FACES OF EXISTING CONCRETE SHALL BE COATED WITH AN EPOXY RESIN TYPE II, GRADE B OR C FROM THE APPROVED MATERIALS LIST. NEW CONCRETE SHALL BE TYPE E AND SHALL OBTAIN 3500 PSI COMPRESSIVE STRENGTH PRIOR TO OPENING TO TRAFFIC. NEW CONCRETE SHALL RECEIVE A TINE FINISH. FILL NEW JOINT OPENING WITH FULL-DEPTH FOAM FILLER AS SHOWN IN "STEP 2" AND DETAIL "A".
3. WHEN REPAIRING AN EXPANSION JOINT IN PHASES, LEAVE 6" OF EXPOSED 401 BAR AT THE CONSTRUCTION JOINT FOR THE ATTACHMENT OF MECHANICAL SPLICES. LEAVE 3" CLEAR COVER AT THE ENDS OF 401 BARS.
4. BASIS OF PAYMENT: ALL WORK ASSOCIATED WITH THE RELIEF JOINT SHALL BE PAID FOR UNDER ITEM NS-602-0001, "EXPANSION JOINT REHABILITATION."

STATE OF LOUISIANA
 CIVIL ENGINEERING
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 License No. 35573
 PROFESSIONAL ENGINEER
 IN
 10/12/16

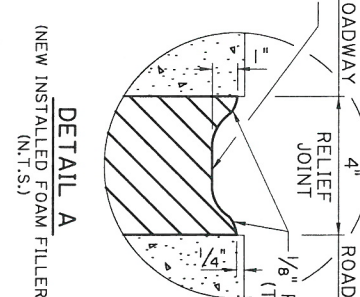
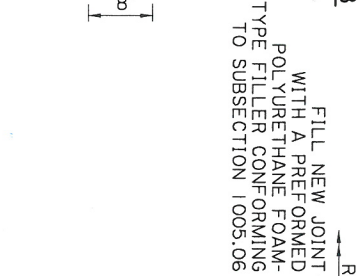
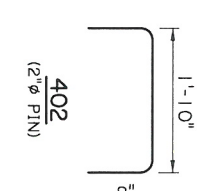
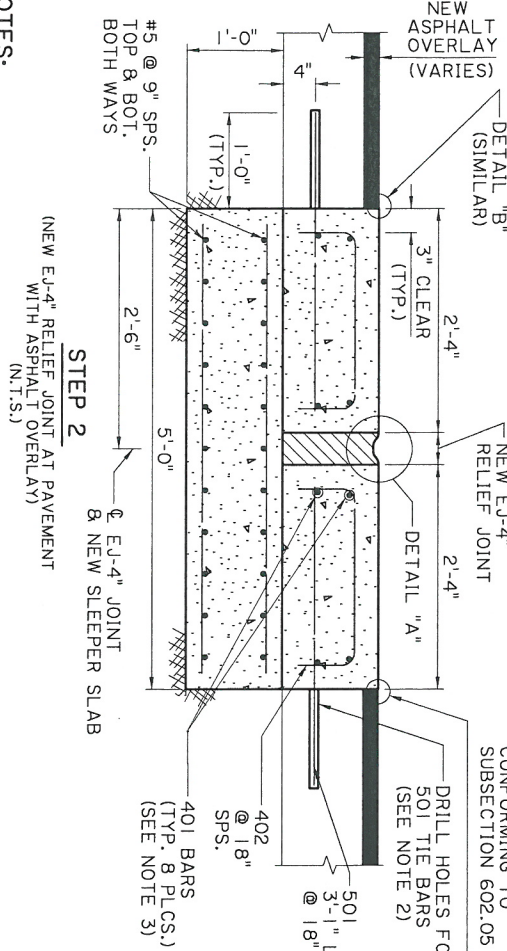
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|--|-----------------|--|--|---------------------------------------|--|
| | | PAVEMENT EXPANSION JOINT REHAB FOR OVERLAY PROJECTS EXISTING EJ-4" PAVEMENT RELIEF JOINT | | NO. _____ DATE _____ | |
| BD.2.9.1.0.02 - PREVENTIVE MAINTENANCE | | | | REVISION OR CHANGE GORDER DESCRIPTION | |
| DESIGNED | A.L. LANCASTER | PARTIAL | | BY | |
| CHECKED | X. WANG | | | | |
| DETAILED | A.L. LANCASTER | CONTROL | | | |
| CHECKED | R. MORVANT | SECTION | | | |
| REVIEWED | Z.Z. FU | STATE | | | |
| | SERIES # 2 OF 4 | PROJECT | | | |



EXISTING CONCRETE PAVEMENT
(N.T.S.)

STEP 1
(PAVEMENT DEMO. SEE NOTE 2)
(N.T.S.)

NEW E-J-4 RELIEF JOINT

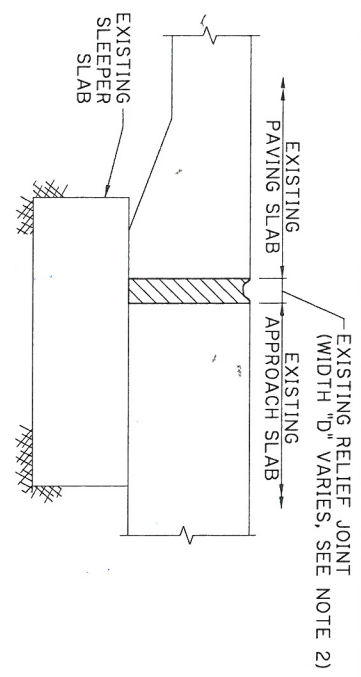


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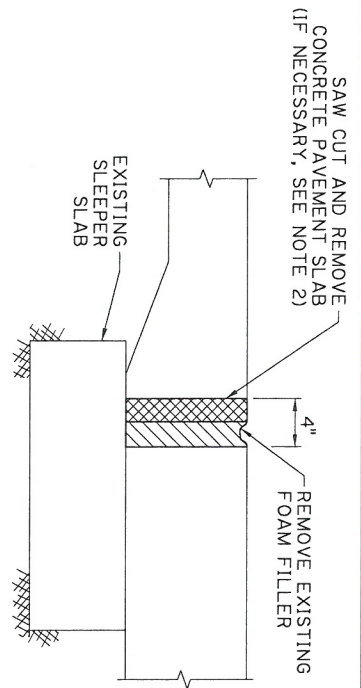
- THIS PLAN IS APPLICABLE FOR THE CONSTRUCTION OF NEW 4" RELIEF JOINTS IN EXISTING CONCRETE PAVEMENT WITH ASPHALT OVERLAY.
- INSTALLATION PROCESS: SAWCUT AND REMOVE EXISTING CONCRETE PAVING SLAB AND EXISTING ASPHALT OVERLAY, IF PRESENT, AS SHOWN IN "STEP 1". INSTALL SLEEPER SLAB WITH #5 DEFORMED BARS AS SHOWN IN "STEP 1". DEFORMED THE BARS (501) SHALL BE INSTALLED IN EXISTING PAVEMENT BY DRILLING HOLES LARGER THAN THE BAR DIAMETER (1/8" WHEN EPOXY IS USED, 1/2" WHEN A CEMENTITIOUS GROUT ANCHOR SYSTEM IS USED, AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS WHEN ADHESIVE ANCHOR SYSTEMS ARE USED.) HOLES SHALL BE CLEAN AND MOISTURE FREE PRIOR TO PLACEMENT OF ANCHOR SYSTEM. ANCHOR SYSTEM INJECTION SHALL BE SUFFICIENT TO FILL THE VOID BETWEEN THE BAR AND THE HOLE, AS EVIDENCED BY MATERIAL SQUEEZE-OUT WHEN THE BAR IS INSERTED. PREVENT BARS FROM BEING DISTURBED UNTIL ANCHOR SYSTEM HAS SUFFICIENTLY CURED. PRIOR TO PLACING NEW CONCRETE, THE FACES OF EXISTING CONCRETE SHALL BE COATED WITH AN EPOXY RESIN TYPE II, GRADE B OR C FROM THE APPROVED MATERIALS LIST. NEW CONCRETE SHALL BE TYPE E AND SHALL OBTAIN 3500 PSI COMPRESSIVE STRENGTH PRIOR TO TRAFFIC. NEW CONCRETE SHALL RECEIVE A TINE FINISH. FILL NEW JOINT OPENING WITH FULL-DEPTH FOAM FILLER AS SHOWN IN "STEP 2" AND DETAIL "A".
- WHEN REPAIRING AN EXPANSION JOINT IN PHASES, LEAVE 6" OF EXPOSED 401 BAR AT THE CONSTRUCTION JOINT FOR THE ATTACHMENT OF MECHANICAL SPLICES. LEAVE 3" CLEAR COVER AT THE ENDS OF 401 BARS.
- BASIS OF PAYMENT: ALL WORK ASSOCIATED WITH THE RELIEF JOINT SHALL BE PAID FOR UNDER ITEM NS-602-00011, "EXPANSION JOINT REHABILITATION."

STATE OF LOUISIANA
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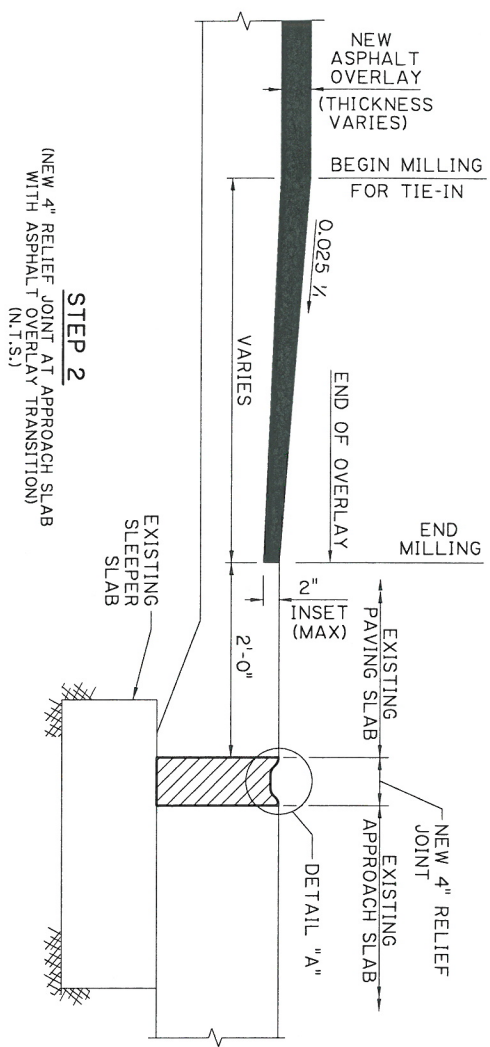
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| BRIDGE AND STRUCTURAL DESIGN | DEPARTMENT OF TRANSPORTATION AND PARISH AND REVENUE | STATE OF LOUISIANA | NO. | DATE | REVISION OR CHANGE ORDER DESCRIPTION | BY | DESIGNED | A.L. LANCASTER | PARISH |
| PAVEMENT EXPANSION JOINT REHAB FOR OVERLAY PROJECTS | NEW E-J-4" PAVEMENT RELIEF JOINT | NO. 2 | 10/12/16 | | | | CHECKED | X. WANG | |
| BD.2.9.1.0.03 - PREVENTIVE MAINTENANCE | | | | | | | DETAILED | A.L. LANCASTER | CONTROL SECTION |
| | | | | | | | CHECKED | R. MORVANT | |
| | | | | | | | REVIEWED | Z.Z. FU | |
| | | | | | | | SERIES # | 3 OF 4 | STATE PROJECT |



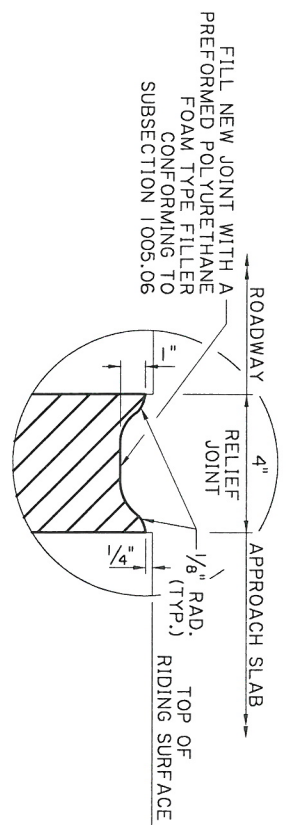
EXISTING RELIEF JOINT IN CONG. PAVEMENT AT APPROACH SLAB (N.T.S.)



STEP 1 (PAVEMENT DEMO, SEE NOTE 2) (N.T.S.)



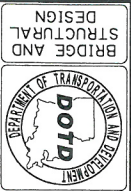
STEP 2 (NEW 4" RELIEF JOINT AT APPROACH SLAB WITH ASPHALT OVERLAY TRANSITION) (N.T.S.)



DETAIL A (NEW INSTALLED FOAM FILLER) (N.T.S.)

NOTES:

1. THIS PLAN IS APPLICABLE FOR THE REHABILITATION OF EXISTING 4" RELIEF JOINTS IN CONCRETE PAVEMENT AT THE END OF THE BRIDGE APPROACH SLAB, AS SHOWN IN THE BRIDGE DESIGN SPECIAL DETAILS FOR APPROACH SLABS.
2. IF THE WIDTH OF THE RELIEF JOINT ("D") IS 2" OR LESS, OR IF THE EXISTING FOAM JOINT FILLER IS DETERIORATED OR TORN, THEN REHABILITATION OF THE RELIEF JOINT IS REQUIRED. REMOVE THE EXISTING FOAM FILLER. SAWCUT AND REMOVE EXISTING CONCRETE PAVING SLAB AS NEEDED TO REESTABLISH 4" OPENING, AS SHOWN IN "STEP 1". VERTICAL SIDES OF JOINT OPENING MUST BE PARALLEL WITH RESPECT TO EACH OTHER, AND MUST BE PERPENDICULAR WITH RESPECT TO THE SLEEPER SLAB. DEMO PAVEMENT SLAB ONLY. DO NOT SAW CUT/DEMO THE APPROACH SLAB. JOINT OPENING AND VERTICAL EDGES OF SLABS MUST BE FREE OF DEBRIS BEFORE INSTALLATION OF NEW JOINT FILLER. FILL NEW JOINT OPENING WITH FULL-DEPTH FOAM FILLER AND TRANSITION ASPHALT OVERLAY AS SHOWN IN "STEP 2" AND DETAIL "A".
3. BASIS OF PAYMENT: ALL WORK ASSOCIATED WITH THE EXPANSION JOINT SHALL BE PAID FOR UNDER ITEM NS-602-0001 I, "EXPANSION JOINT REHABILITATION."



PAVEMENT EXPANSION JOINT REHAB FOR OVERLAY PROJECTS
4" EXPANSION JOINT @ APPROACH SLAB



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| NO. | DATE | REVISION OR CHANGE ORDER DESCRIPTION | BY |
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| | | | |
|----------|----------------|-----------------|--|
| DESIGNED | A.L. LANCASTER | PARISH | |
| CHECKED | X. WANG | CONTROL SECTION | |
| REVIEWED | R. MORVANT | STATE PROJECT | |
| SERIES # | 4 OF 4 | | |

STATE OF LOUISIANA
ADAM LANCASTER
License No. 35573
PROFESSIONAL ENGINEER
CIVIL ENGINEERING
10/12/16

*Use on Pavement Rehab and Preventive Maintenance Projects.
Requires Approval Of Pavement Preservation Engineer.
Use on Bridge Preventive Maintenance and Rehabilitation Projects.*

NS EXPANSION JOINT REHABILITATION (05/15):

DESCRIPTION. This item consists of the rehabilitation of expansion joints in accordance with plan details, the 2006 Louisiana Standard Specifications for Roads and Bridges, this specification, the manufacturer's instructions, and as directed by the project engineer.

MATERIALS. Materials shall be in accordance with Section 1005.06.

MEASUREMENT. Expansion Joint Rehabilitation will be measured by the linear foot repaired.

PAYMENT. Payment for Expansion Joint Rehabilitation will be made at the contract unit price per linear foot which includes all materials, labor, equipment, tools, and incidentals (included but not limited to the required filler material, sawcut and removal of existing pavement, handling, testing, preparing surfaces) necessary to complete the work.

Payment will be made under:

| <u>Item No.</u> | <u>Pay Item</u> | <u>Pay Unit</u> |
|-----------------|--------------------------------|---------------------|
| NS-602-00011 | Expansion Joint Rehabilitation | Linear Foot (Lin m) |