CALL NO. 300

CONTRACT ID. 192121

BOYD COUNTY

FED/STATE PROJECT NUMBER FD04 010 0023 010-011

DESCRIPTION COUNTRY MUSIC HIGHWAY (US 23)

WORK TYPE JPC PAVEMENT

PRIMARY COMPLETION DATE 7/31/2019

LETTING DATE: March 22,2019

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN DAYLIGHT TIME March 22,2019. Bids will be publicly announced at 10:00 AM EASTERN DAYLIGHT TIME.

NO PLANS ASSOCIATED WITH THIS PROJECT.

REQUIRED BID PROPOSAL GUARANTY: Not less than 5% of the total bid.

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SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 09

CONTRACT ID - 192121

FD04 010 0023 010-011

COUNTY - BOYD

PCN - MP01000231901
FD04 010 0023 010-011

COUNTRY MUSIC HIGHWAY (US 23) (MP 10.622) NORTHBOUND LANES OF US 23 FROM THE NORTH END OF I-64 OVERPASS EXTENDING NORTH TO 525 FEET NORTH OF I-64 OVERPASS (MP 10.730), A DISTANCE OF 0.11 MILES.JPC PAVEMENT SYP NO. 99--0395.07.

GEOGRAPHIC COORDINATES LATITUDE 38:22:53.00 LONGITUDE 82:36:27.00

COMPLETION DATE(S):

COMPLETED BY 07/31/2019	SPECIFIED COMPLETION DATE
0 WORKING Hours	LANE CLOSURE DURING PROHIBITED TIMES
0 WORKING	EXCAVATED AREAS NOT FILLED WITH JPC THE SAME DAY AS ECAVATED

CONTRACT NOTES

PROPOSAL ADDENDA

All addenda to this proposal must be applied when calculating bid and certified in the bid packet submitted to the Kentucky Department of Highways. Failure to use the correct and most recent addenda may result in the bid being rejected.

BID SUBMITTAL

Bidder must use the Department's electronic bidding software. The Bidder must download the bid file located on the Bid Express website (www.bidx.com) to prepare a bid packet for submission to the Department. The bidder must submit electronically using Bid Express.

JOINT VENTURE BIDDING

Joint venture bidding is permissible. All companies in the joint venture must be prequalified in one of the work types in the Qualifications for Bidders for the project. The bidders must get a vendor ID for the joint venture from the Division of Construction Procurement and register the joint venture as a bidder on the project. Also, the joint venture must obtain a digital ID from Bid Express to submit a bid. A joint bid bond of 5% may be submitted for both companies or each company may submit a separate bond of 5%.

UNDERGROUND FACILITY DAMAGE PROTECTION

The contractor shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. When prescribed in said directives, the contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom shall be contacted through their individual Protection Notification Center. Non-compliance with these directives can result in the enforcement of penalties.

REGISTRATION WITH THE SECRETARY OF STATE BY A FOREIGN ENTITY

Pursuant to KRS 176.085(1)(b), an agency, department, office, or political subdivision of the Commonwealth of Kentucky shall not award a state contract to a person that is a foreign entity required by KRS 14A.9-010 to obtain a certificate of authority to transact business in the Commonwealth ("certificate") from the Secretary of State under KRS 14A.9-030 unless the person produces the certificate within fourteen (14) days of the bid or proposal opening. If the foreign entity is not required to obtain a certificate as provided in KRS 14A.9-010, the foreign entity should identify the applicable exception. Foreign entity is defined within KRS 14A.1-070.

For all foreign entities required to obtain a certificate of authority to transact business in the Commonwealth, if a copy of the certificate is not received by the contracting agency within the time frame identified above, the foreign entity's solicitation response shall be deemed non-responsive or the awarded contract shall be cancelled.

Businesses can register with the Secretary of State at https://secure.kentucky.gov/sos/ftbr/welcome.aspx .

SPECIAL NOTE FOR PROJECT QUESTIONS DURING ADVERTISEMENT

Questions about projects during the advertisement should be submitted in writing to the Division of Construction Procurement. This may be done by fax (502) 564-7299 or email to kytc.projectquestions@ky.gov. The Department will attempt to answer all submitted questions. The Department reserves the right not to answer if the question is not pertinent or does not aid in clarifying the project intent.

The deadline for posting answers will be 3:00 pm Eastern Daylight Time, the day preceding the Letting. Questions may be submitted until this deadline with the understanding that the later a question is submitted, the less likely an answer will be able to be provided.

The questions and answers will be posted for each Letting under the heading "Questions & Answers" on the Construction Procurement website (www.transportation.ky.gov/contract). The answers provided shall be considered part of this Special Note and, in case of a discrepancy, will govern over all other bidding documents.

HARDWOOD REMOVAL RESTRICTIONS

The US Department of Agriculture has imposed a quarantine in Kentucky and several surrounding states, to prevent the spread of an invasive insect, the emerald ash borer. Hardwood cut in conjunction with the project may not be removed from the state. Chipping or burning on site is the preferred method of disposal.

INSTRUCTIONS FOR EXCESS MATERIAL SITES AND BORROW SITES

Identification of excess material sites and borrow sites shall be the responsibility of the Contractor. The Contractor shall be responsible for compliance with all applicable state and federal laws and may wish to consult with the US Fish and Wildlife Service to seek protection under Section 10 of the Endangered Species Act for these activities.

ACCESS TO RECORDS

The contractor, as defined in KRS 45A.030 (9) agrees that the contracting agency, the Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this contract for the purpose of financial audit or program review. Records and other prequalification information confidentially

disclosed as part of the bid process shall not be deemed as directly pertinent to the contract and shall be exempt from disclosure as provided in KRS 61.878(1)(c). The contractor also recognizes that any books, documents, papers, records, or other evidence, received during a financial audit or program review shall be subject to the Kentucky Open Records Act, KRS 61.870 to 61.884.

In the event of a dispute between the contractor and the contracting agency, Attorney General, or the Auditor of Public Accounts over documents that are eligible for production and review, the Finance and Administration Cabinet shall review the dispute and issue a determination, in accordance with Secretary's Order 11-004.

April 30, 2018

SPECIAL NOTE FOR RECIPROCAL PREFERENCE

RECIPROCAL PREFERENCE TO BE GIVEN BY PUBLIC AGENCIES TO RESIDENT BIDDERS

By reference, KRS 45A.490 to 45A.494 are incorporated herein and in compliance regarding the bidders residency. Bidders who want to claim resident bidder status should complete the Affidavit for Claiming Resident Bidder Status along with their bid in the electronic bidding software. Submittal of the Affidavit should be done along the bid in Bid Express.

April 30, 2018

EXPEDITE PROJECT WORK ORDER

The Contractor may request that the Department expedite the work order for this project to allow for maximization of time to complete the work. In order for the Department to accomplish this task, the Contractor may be required to "hand carry" all required project documentation to facilitate the process. Immediately UPON NOTIFICATION OF AWARD OF THE CONTRACT, deliver required project documentation to:

Division of Construction Procurement
200 Mero St.
Frankfort, KY 40602

NATIONAL HIGHWAY

Be advised this project is on the NATIONAL HIGHWAY SYSTEM.

SURFACING AREAS

The Department estimates the mainline surfacing width to vary 48-60 feet.
The Department estimates the total mainline and shoulder area to be surfaced to be 3,500 square yards.
The Department estimates the shoulder width to be 10 feet on each side.
The estimated total shoulder area to be surfaced is included in the mainline area.

ASPHALT MIXTURE

Unless otherwise noted, the Department estimates the rate of application for all asphalt mixtures to be 110 lbs/sy per inch of depth.

DGA BASE

Unless otherwise noted, the Department estimates the rate of application for DGA Base to be 115 lbs/sy per inch of depth.

INCIDENTAL SURFACING

The Department has included in the quantities of JPC and asphalt mixtures established in the proposal estimated quantities required for resurfacing curve widening and ramp gores and tapers as applicable. Surface or resurface these areas as directed by the Engineer. The Department will not measure placing and compacting for separate payment but shall be incidental to the Contract unit price for JPC Pavement-10 Inch.

JPC PAVEMENT SMOOTHNESS

JPC Pavement Smoothness requirements shall apply on this project in accordance with Section 501 (Category B) of the current Standard Specifications.

FUEL PAY ADJUSTMENT

The Department has included the Contract bid item "Fuel Adjustment" for possible future payments at an established Contract unit price of $1.00. The Department will calculate actual adjustment quantities after work is completed. If the existing Contract amount is insufficient to pay all items on the contract with the adjustments, the Department will establish additional monies with a change order.

OPTION B

Be advised that the Department will control and accept compaction of asphalt mixtures furnished on this project under OPTION B in accordance with Sections 402 and 403.

SPECIAL NOTE FOR JPC PAVEMENT

THIS PROJECT IS A FULLY CONTROLLED ACCESS HIGHWAY

I. DESCRIPTION

Except as specified herein, construct Jointed Plain Concrete (JPC) Pavement in accordance with the Department's 2012 Standard and Supplemental Specifications, Special Provisions and Special Notes, and Standard and Sepia Drawings, current editions, and as directed by the Engineer. Section references are to the Standard Specifications. Furnish all materials, labor, equipment, and incidentals for the following work:

(1) Maintain and control traffic; (2) Site Preparation and Erosion Control; and (3) Remove existing asphalt pavement and replace with JPC Pavement-10 Inch; and (4) Remove and replace Island Header curb; (5) Construct Standard Integral Curb (Modified), Flume Inlet, and Channel Lining; (6) Diamond Grind new JPC Pavement and shoulders; (7) Remove and replace guardrail: and (8) All other work specified as part of this contract.

II. MATERIALS

The Department will sample and test all materials according to the Department's Sampling Manual. Make the materials available for sampling a sufficient time in advance of use, to allow for the necessary time for testing, unless otherwise specified in these notes.

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Erosion Control. See Special Note for Erosion Control.

C. Dense Graded Aggregate. Furnish Dense Graded Aggregate (DGA). Do **NOT** furnish Crushed Stone Base in lieu of DGA.

D. JPC Pavement-10 Inch (Mainline & Shoulders). See Section 501. Use Class P or Class A Concrete. At the Contractor's request and at no additional cost to the Department, the Engineer may approve high early strength rapid setting concrete; however the use of chloride accelerators will not be approved. The Department will allow either central mixing or truck mixing.

E. Joint Sealant. Use Hot-Poured Elastic, no alternate.

F. Traffic Signal Loops. See Special Notes for Traffic Signal Preformed Loop Replacement.

G. Flume Inlet Type I and Channel Lining Class II. See Standard Drawing RDD-020-07 RDD-040-05.

H. Island Header Curb and Standard Integral Curb. Furnish Class A Concrete.

I. Asphalt Mixtures. Furnish Asphalt Mixture for Level And Wedge PG64-22.

J. Staking. See Special Note for Staking.

III. CONSTRUCTION METHODS

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Shoulder Preparation and Restoration. Prior to placing any lane closures that require shifting traffic onto existing shoulders, patch the shoulder as directed by the Engineer. Remove failed materials and perform additional patching as directed by the Engineer during the time the shoulder is used as a travel lane.

C. Erosion Control. See Special Note for Erosion Control.

D. Site Preparation. Be responsible for all site preparation, including but not limited to, incidental excavation and backfilling; removal of all obstructions or any other items; disposal of materials; sweeping and removal of debris; shoulder preparation and restoration; temporary and permanent erosion and pollution control; final dressing, clean up, and seeding; and all incidentals. Perform all Site Preparation only as approved or directed by the Engineer. See Special Note for Erosion Control.

E. Pavement Removal. Consider pavement removal locations and dimensions shown on the drawings to be approximate only; the Engineer will determine exact locations and dimensions at the time of construction. Prior to removal, saw-cut existing asphalt pavement at locations directed by the Engineer to provide a neat edge where new concrete will adjoin existing asphalt. Remove existing asphalt pavement and underlying DGA or other stone base as necessary to provide for the specified thickness of the replacement JPC Pavement without unnecessarily disturbing the remaining base by any method approved by the Engineer.

F. Preparation of Base. Immediately after pavement, compact the existing aggregate base to the Engineer's satisfaction. The Engineer will accept compaction by either visual inspection or by nuclear gauge. When the Engineer deems it necessary to stabilize the existing base, use DGA. The Contractor may use flowable fill and cement stabilization as an alternative to stabilize the existing base or to replace unsuitable materials, at the

Contractors request and at no additional cost to the Department when a plan for such is presented to and approved by the Engineer. During compaction, wet the base as the Engineer directs. Compact areas not accessible to compaction equipment by hand tamping.

G. Traffic Signal Loops. See Special Notes for Traffic Signal Preformed Loop Replacement. Protect lead wires from each loop to the junction box during each phase of the construction sequence at no additional cost to the Department.

H. JPC Pavement. Except as provided herein, construct JPC Pavement-10 Inch for both driving lanes and shoulders according to Section 501. Prior to pavement removal and placing JPC Pavement, obtain the Engineer's approval of proposed method of construction for ensuring and establishing a smooth profile. Immediately after removing asphalt pavement, stabilize any exposed DGA base as directed by the Engineer and place JPC in a continuous operation in accordance with the Traffic Control Plan Phasing and as directed by the Engineer. Install dowel bars and tie bars according to the Standard Drawings in both pavement and shoulders. Do not allow an area with removed pavement within (10) ten feet of traffic during non-working hours. Perform pavement removal, base stabilization, and construct the JPC Pavement as one continuous operation. Construct the replacement JPC Pavement to be a minimum depth of 10 inches after Diamond Grinding; however, transition the finished grade to match adjacent pavement that is to remain in place; therefore, the actual thickness of the pavement may be greater than 10 inches in some areas. Consolidate the concrete, strike off, machine finish with a vibrating or roller screed, and straightedge the plastic concrete with a straightedge conforming to Section 501.02.18. The Department will not require texturing, use a broom finish. Do not seal the joints until after Diamond Grinding. Test the profile of the finished pavement with a 10 foot straightedge according to Section 501.03.19. Provide positive drainage upon completion of construction.

I. Curing. Use curing blankets only. Do not use burlap curing or white membrane curing compound. If the Contractor elects to us JPC Pavement 24/48/72 cure according to Section 502.03(C).

J. Diamond Grinding. Perform Diamond Grinding on the driving lanes and shoulders. See Section 501.03.16.

K. Ride Quality. See Section 501.03.19, category B (after Diamond Grinding).

L. Joints. After Diamond Grinding, clean and seal all transverse and longitudinal joints and the pavement shoulder joint with hot-poured elastic according to Section 501.03.17 and 501.03.18 and the standard drawings, except do not seal joints until after Diamond Grinding.

M. Flume Inlet, Channel Lining, and Curbs. Construct Flume Inlet Type I, Channel Lining Class II, Island Integral Curb, and Standard Integral Curb according to the Standard Drawings and as directed by the Engineer.

N. Guardrail. See Special Note for Guardrail.

O. Disposal of Waste. Dispose of all waste and debris off the right-of-way at sites obtained by the Contractor at no additional cost to the Department. See Special Note for Waste and Borrow.

P. Pavement Markings. See Traffic Control Plan.

Q. On-Site Inspection. Prior to submitting a bid, make a thorough inspection of the site and become thoroughly familiar with the existing conditions so that the work can be expeditiously performed after contract award. The Department will consider submission of a bid as evidence of this inspection having been made. The Department will not honor any claims resulting from site conditions.

R. Property Damage and Restoration. Be responsible for all damage to public and/or private property resulting from the work. Repair or replace all damaged roadway features in like kind materials and design at no additional cost to the Department. Repair or replace damaged private property in like kind materials and design to the satisfaction of the owner at no additional cost to the Department or the owner.

S. Caution. Consider information shown on the drawings and in this proposal and the types and quantities of work listed are approximate only, and not as an accurate or complete evaluation of the material and conditions to be encountered during construction. The bidder must draw his own conclusion as to the conditions encountered. The Department does not give any guarantee as to the accuracy of the data and no claim will be considered for additional compensation or Contract time if the conditions encountered are not in accordance with the information shown.

T. Utility Clearance. Determine the location of all underground and overhead utilities prior to construction. It is not anticipated that utility facilities will need to be relocated and/or adjusted; however, in the event that work does require relocation and/or adjustment, the utility companies will work concurrently with the Contractor while relocating their facilities.

U. Final Dressing, Clean Up, and Seeding and Protection. After all work is completed, remove all waste and debris from the construction sites. Remove all temporary shoulder widening and restore disturbed shoulders. Perform Class A final dressing on all disturbed areas. Sow disturbed earthen areas with Seed Mixture No. 1.

V. Coordination of Work. Be advised that other projects may be in progress within or in the near vicinity of this project. Take into consideration that the traffic control of those projects may affect this project and the traffic control of this project may affect those projects. Coordinate the work on this project with the work of the other contractors. In case of a conflict, the Engineer will determine the relative priority to give to work phasing on the various projects.

W. Staking. See Special Note For Staking.

IV. METHOD OF MEASUREMENT

The Department will measure only the bid items listed. All other items required to complete the construction shall be incidental to the listed bid items.

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Site Preparation. Other than the bid items listed, The Department will not measure Site Preparation for payment, but shall be incidental to the other items of the work.

C. Dense Graded Aggregate. See Section 302.04.01.

D. Erosion Control. See Special Note for Erosion Control.

E. Shoulder Preparation and Restoration. The Department will measure asphalt materials to prepare and restore shoulders for maintaining traffic as Leveling and Wedging PG64-22. The Department will not measure other specific items for shoulder preparation and restoration but shall be incidental to Maintain and Control Traffic.

F. Remove Pavement. The department will measure removed pavement in square yards regardless of type. The Department will not measure removal of underlying base material but shall be incidental to Remove Pavement.

G. JPC Pavement-10 Inch. See Section 502.04.01, except the Department will measure the actual pavement area.

H. Joint Sealing. The Department will not measure sawing, cleaning, and sealing joints in JPC Pavement-10 Inch for payment, but shall be incidental to JPC Pavement-10 Inch.

I. Smooth Dowels, Deformed Tie Bars, and Hook Bolts. The Department will not measure smooth dowels, deformed tie bars and hook bolts, but shall be incidental to JPC Pavement-10 Inch.

J. Diamond Grinding. See Section 503.04.01.

K. Signal Loops. See Special Notes For Traffic Signal Preformed Loop Replacement.

L. Flume Inlet Type I. See Standard Drawing RDD-020-07.

M. Channel Lining. See Erosion Control Plan.

N. Island Integral Curb and Standard Integral Curb. See Standard Drawing

O. Guardrail. See Special Note for Guardrail.

P. Staking. See Section 201.04.01

IV. BASIS OF PAYMENT

The Department will make payment only for the bid items listed. All other items required to complete the construction shall be incidental to the bid items listed.

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Erosion Control. See Special Note for Erosion Control.

C. DGA. See Section 302.05.

D. Remove Pavement. Accept payment at the Contract unit price per square yard as full compensation for all labor, materials, equipment, and incidentals for removing and disposing of pavement and underlying base materials.

E. JPC Pavement-10 Inch. See Section 501.05.01.

F. Diamond Grinding. See Section 503.04.01.

G. Joint Sealing. The Department will make payment for sawing, cleaning, and sealing joints in the existing JPC Pavement according to section 503.05.

H. Signal Loops. See Special Notes For Traffic Signal Preformed Loop Replacement.

I. Guardrail. See Special Note for Guardrail.

J. Flume Inlet Type I. See Standard Drawing RDD-020-07.

K. Channel Lining. See Erosion Control Plan.

L. Island Integral Curb and Standard Integral Curb. See Standard Drawing

M. Staking. See Section 201.05.

SPECIAL NOTE FOR STAKING

In addition to the requirements of Section 201, perform the following:

1. Contrary to Section 201.03.01, perform items 1-3 usually performed by the Engineer; and
2. Verify intersection and lane profile and alignment and prepare a Drainage Development Worksheet to provide for positive drainage upon completion of construction; and
3. Prior to incorporating into the work, obtain the Engineers approval of all designs and revisions to be provided by the Contractor; and
4. Produce and furnish to the Engineer "As Built" plans; and
5. Perform any and all other staking operations required to control and construct the work.

Accept payment at the Contract unit bid price as full compensation for all labor, materials, equipment, and incidentals for performing all staking on the project.

SPECIAL NOTE FOR INLAID PAVEMENT MARKERS

I. DESCRIPTION

Except as provided herein, perform all work in accordance with the Department's Standard and Supplemental Specifications and applicable Standard and Sepia Drawings, current editions. Article references are to the Standard Specifications. This work shall consist of:

(1) Maintain and Control Traffic; and (2) Furnish and install Inlaid Pavement Markers (IPMs) in recessed grooves; and (3) Any other work as specified by these notes and the Contract.

II. MATERIALS

The Department will sample all materials in accordance with the Department's Sampling Manual. Make the materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing unless otherwise specified in these Notes.

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Markers. Provide reflective lenses with depth control breakaway positioning tabs. Before furnishing the markers, provide to the Engineer the manufacturer's current recommendations for adhesives and installation procedures. Use one brand and design throughout the project. Use markers meeting the specifications in the table below.

SPECIFICATIONS FOR HOUSING AND REFLECTOR	
Material:	Polycarbonate Plastic
Weight:	Housing 2.00 oz.
	Reflector 2.00oz.
Housing Size:	5.00" x 3.00" x 0.70" high
Specific Intensity of Reflectivity at 0.2° Observation Angle	
White:	3.0 at 0°entrance angle
	1.2 at 20°entrance angle
Yellow:	60% of white values
Red:	25% of white values

C. Adhesives. Use adhesives that conform to the manufacturer's recommendations.

III. CONSTRUCTION

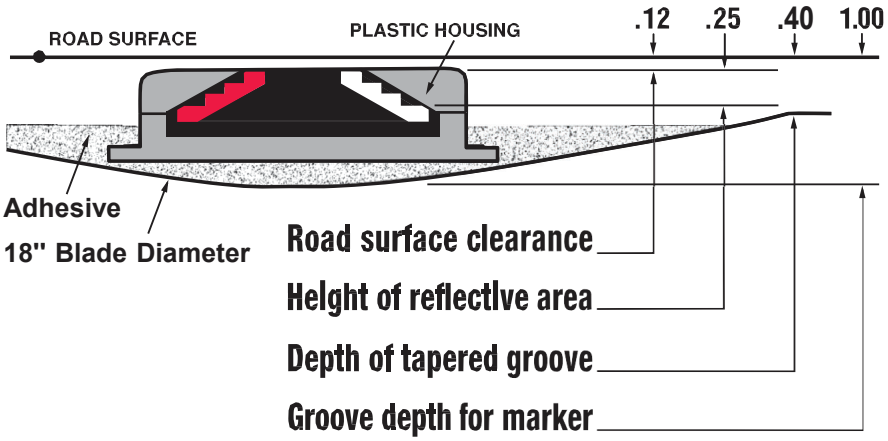
A. Experimental Evaluation. The University of Kentucky Transportation Center will be evaluating this installation of IPMs. Notify the Engineer a minimum of 14 calendar days prior to beginning work. The Engineer will coordinate the University's activities with the Contractor's work.

B. Maintain and Control Traffic. See Traffic Control Plan.

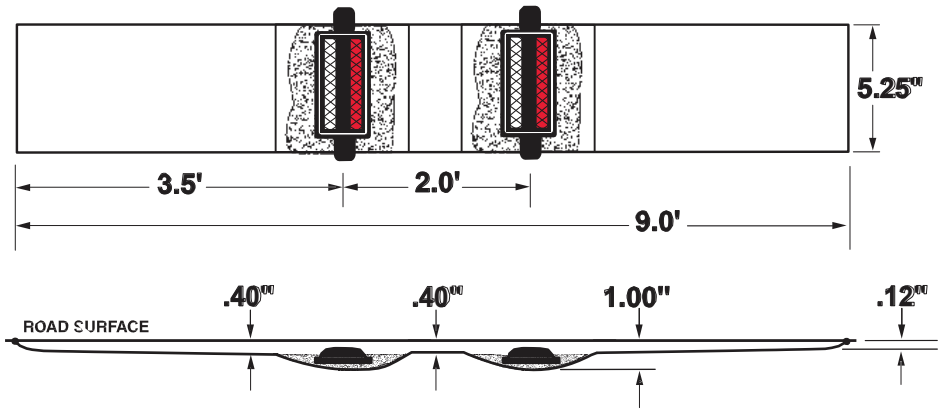
C. Installation. Install IPMs in recessed grooves cut into the final course of asphalt pavement according to the manufacturer's recommendations. Do not cut the grooves until the pavement has cured sufficiently to prevent tearing or raveling. Cut installation grooves using diamond blades on saws that accurately control groove dimensions. Remove all dirt, grease, oil, loose or unsound layers, and any other material from the marker area which would reduce the bond of the adhesive.

D. Maintain pavement surfaces in a clean condition until placing markers.

Prepare the pavement surfaces, and install the markers in the recessed groove according to the drawing below. Use an approved snowplowable epoxy adhesive. Ensure that the adhesive bed area is equal to the bottom area of the marker, and apply adhesive in sufficient quantity to force excess out around the entire perimeter of the marker. Use materials, equipment, and construction procedures that ensure proper adhesion of the markers to the pavement surface according to the manufacturer's recommendations. Remove all excess adhesive from in front of the reflective faces. If any adhesive or foreign matter cannot be removed from the reflective faces, or if any marker fails to properly adhere to the pavement surface, remove and replace the marker at no additional cost to the Department.



E. Location and Spacing. Install the markers in the pattern for high reflectivity with two (2) IPMs per groove. Locate and space markers as shown in the current standard drawings or sepias (note: use Inlaid Pavement Markers wherever Type V Pavement Markers are called for). Do not install markers on bridge decks. Do not install a marker on top of a pavement joint or crack. Offset the recessed groove a minimum of 2 inches from any longitudinal pavement joint or crack and at least one inch from the painted stripe, ensuring that the finished line of markers is straight with minimal lateral deviation. Give preference to maintaining the 2-inch offset between recessed groove and joint as opposed to keeping the line of markers straight.



Place inlaid markers as much in line with existing pavement striping as possible. Place markers installed along an edge line or channelizing line so that the near edge of the plastic housing is no more than one inch from the near edge of the line. Place markers installed along a lane line between and in line with the dashes. Do not place markers over the lines except where the lines deviate visibly from their correct alignment, and then only after obtaining the Engineer's prior approval of the location.

If conflicts between recessed groove placement in relation to pavement joint and striping cannot be resolved, obtain the Engineer's approval to eliminate the marker or revise the alignment.

F. Disposal of Waste. Dispose of all removed asphalt pavement, debris, and other waste at sites off the right of way obtained by the Contractor at no additional cost to the Department. See Special Note for waste and Borrow.

G. Restoration. Be responsible for all damage to public and/or private property resulting from the work. Restore all damaged features in like kind materials and design at no additional cost to the Department.

H. On-Site Inspection. Make a thorough inspection of the site prior to submitting a bid and be thoroughly familiar with existing conditions so that the work can be expeditiously performed after a contract is awarded. The Department will consider submission of a bid

as evidence of this inspection having been made and will not honor any claims for money or grant Contract time extensions resulting from site conditions.

I. Caution. Do not take information shown on the drawings and in this proposal and the types and quantities of work listed as an accurate or complete evaluation of the material and conditions to be encountered during construction, but consider the types and quantities of work listed as approximate only. The bidder must draw his own conclusion as to the conditions encountered. The Department does not give any guarantee as to the accuracy of the data and no claim will be considered for additional compensation or extension of Contract time if the conditions encountered are not in accordance with the information shown.

IV. MEASUREMENT

A. Maintain and Control Traffic. See Traffic Control Plan.

B. "INLAID PAYMENT MARKER" shall be measured as each. One (1) installation of "INLAID PAVEMENT MARKER" will consist of grooving the pavement, removing asphalt cuttings and debris, preheating pavement to remove moisture, adhesives, and installation of two (2) markers with all lenses in accordance with this note.

Note: Each pay item of Inlaid Pavement Marker will require two markers.

V. PAYMENT

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Inlaid Pavement Markers. The Department will make payment for the completed and accepted quantity of completely installed "INLAID PAVEMENT MARKERS" at the Contract unit price, each. Accept payment as full compensation for all labor, equipment, materials, and incidentals to accomplish this work to the satisfaction of the Engineer. A system of one (1) groove and two (2) markers shall be paid as one "INLAID PAVEMENT MARKER". The bid item "INLAID PAVEMENT MARKER" shall be used regardless of the color and type of lenses required.

SPECIAL NOTE FOR LIQUIDATED DAMAGES

In addition to the requirements of Section 108.09, the Department will assess Liquidated Damages in the amount of $1,500 per hour or part of an hour for the first hour that a lane closure remains in place during hours prohibited by the Traffic Control Plan.

In addition to the requirements of Section 108.09, the Department will assess Liquidated Damages in the amount of $1,500 per hour or part of an hour for the first hour that an excavated area remains unfilled with new JPC beyond 1 calendar day as allowed by the Traffic Control Plan.

Contrary to Sections 108.07.02 and 108.09, the Department will assess Liquidated Damages for the months of December through March, regardless of whether seasonal or temperature limitations prohibit the Contractor from performing work on the controlling item or operation.

The Department will apply all liquidated damages accumulatively.

All other applicable portions of Section 108 apply.

SPECIAL PROVISION FOR WASTE AND BORROW SITES

Obtain U.S. Army Corps of Engineer's approval before utilizing a waste or borrow site that involves "Waters of the United States". The Corps of Engineers defines "Waters of the United States" as perennial or intermittent streams, ponds or wetlands. The Corps of Engineers also considers ephemeral streams, typically dry except during rainfall but having a defined drainage channel, to be jurisdictional waters. Direct questions concerning any potential impacts to "Waters of the United States" to the attention of the appropriate District Office for the Corps of Engineers for a determination prior to disturbance. Be responsible for any fees associated with obtaining approval for waste and borrow sites from the U.S. Army Corps of Engineer or other appropriate regulatory agencies.

1-296 Waste & Borrow Sites
01/02/2012

COORDINATION OF WORK WITH OTHER CONTRACTS

Be advised, there may be active project(s) adjacent to or within this project. These may be KYTC administered contracts, work being performed as part of a KYTC issued encroachment permit, or work being performed by Department forces. The Engineer will coordinate the work of the Contractor and others within the limits of this project. See Sections 105.06, 107.06 and 107.14.

SPECIAL NOTES FOR GUARDRAIL

I. DESCRIPTION

Except as specified herein, perform all work in accordance with the Department's 2012 Standard and Supplemental Specifications and Standard and Sepia Drawings, current editions. Article references are to the Standard Specifications.

Furnish all equipment, labor, materials, and incidentals for the following work items:

(1) Site preparation; (2) Remove existing guardrail systems; (3) Construct Guardrail, End Treatments, Bridge End Connectors, and Terminal Sections, as applicable; (4) Delineators for guardrail; (5) Maintain and control traffic; and (6) all other work specified as part of this contract.

II. MATERIALS

Except as specified herein, provide for all materials to be sampled and tested in accordance with the Department's Sampling Manual and make the materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing.

A Maintain and Control Traffic. See Traffic Control Plan.

B. Erosion Control. See Special Note for Erosion Control.

C. Guardrail. Furnish guardrail system components according to section 814 and the Standard and Sepia Drawings; except use steel posts only, no alternates.

D. Delineators for Guardrail. Furnish white and/or yellow Delineators for Guardrail according to the Delineators for Guardrail Sepia Drawing.

III. CONSTRUCTION METHODS

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Erosion Control. See Special Note for Erosion Control.

C. Site Preparation. Remove existing guardrail system including the guardrail end treatments, Bridge End connectors and all other elements of the existing guardrail system as per Section 719, except that the Contractor will take possession of all concrete posts and all concrete associated with existing bridge and/or guardrail end treatments. Locate all disposal areas off the Right of Way. Be responsible for all site preparation, including but not limited to, clearing and grubbing, excavation, embankment, and removal of all

obstructions or any other items; regrading, reshaping, adding and compacting of suitable materials on the existing shoulders to provide proper template or foundation for the guardrail; filling voids left as the result of removing existing guardrail and guard posts with dry sand; temporary pollution and erosion control; disposal, of excess and waste materials and debris; and final dressing, cleanup, and seeding and protection. Perform all site preparation as approved or directed by the engineer.

D. Remove Guardrail. See Section 719.03.03 and 719.02.07, except deliver the salvageable components to the Departments Boyd County facility.

E. Guardrail. Except as specified herein, construct guardrail system according to Section 719 and the Standard Drawings. Consider locations listed on the summary and/or shown on the drawings to be approximate only. The Engineer will determine the exact termini for individual guardrail installations at the time of construction. Unless directed otherwise by the Engineer, provide a minimum two (2) foot shoulder width. Construct radii at entrances and road intersections as directed by the Engineer.

Erect guardrail to the lines and grades shown on current Standard or Sepia Drawings or as directed by the Engineer by any method approved by the Engineer which allows construction of the guardrail to the true grade without apparent sags.

When removing existing guardrail and installing new guardrail, do not leave the blunt end exposed where it would be hazardous to the public. When it is not practical to complete the construction of the guardrail and the permanent end treatments and terminal sections first, provide a temporary end by connecting at least 25 feet of rail to the last post, and by slightly flaring, and burying the end of the rail completely into the existing shoulder. If left overnight, place a drum with bridge panel in advance of the guardrail end and maintain during use.

F. Delineators for Guardrail. Construct Delineators for Guardrail according to the Delineators for Guardrail Sepia Drawing.

G. Property Damage. Be responsible for all damage to public and/or private property resulting from the work. Restore damaged roadway features and private property at no additional cost to the Department.

H. Coordination with Utility Companies. Locate all underground, above ground and overhead utilities prior to beginning construction. Be responsible for contacting and maintaining liaison with all utility companies that have utilities located within the project limits. Do not disturb existing overhead or underground utilities. It is not anticipated that any utility facilities will need to be relocated and/or adjusted; however, in the event that it is discovered that the work does require that utilities be relocated and/or adjusted, the utility companies will work concurrently with the Contractor while relocating their facilities. Be responsible for repairing all utility damage that occurs as a result of guardrail operations at no additional cost to the Department.

I. Right of Way Limits. The Department has not established exact limits of the Right-of-Way. Limit work activities to obvious Right-of-Way, permanent or temporary easements, and work areas secured by the Department through consent and release of the adjacent property owners. Be responsible for all encroachments onto private lands.

J. Disposal of Waste. Dispose of all removed concrete, debris, and other waste and debris off the Right-of-Way at sites obtained by the Contractor at no additional cost to the Department. See Special; Note for Waste and Borrow.

K. Final Dressing, Clean Up, and Seeding and Protection. Apply Class A Final Dressing to all disturbed areas, both on and off the Right-of-Way. Sow all disturbed earthen areas according to the Special Notes for Erosion Control.

IV. METHOD OF MEASUREMENT

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Erosion Control. See Special Note for Erosion Control.

C. Site preparation. Other than the bid items listed, the Department will not measure Site Preparation for separate payment but shall be incidental to Guardrail, End Treatments, Bridge End Connectors, and Terminal Sections as applicable.

D. Remove Guardrail. See Section 719.04.08.

E. Guardrail, End Treatments, Bridge End Connectors, Terminal Sections, and

F. Delineators for Guardrail. See Delineators for Guardrail Sepia Drawing.

V. BASIS OF PAYMENT

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Remove Guardrail. See Section 719.05

C. Guardrail, End Treatments, Bridge End Connectors, Terminal Sections. See Section 719.05.

D. Delineators for Guardrail. See Delineators for Guardrail Sepia Drawing.

SPECIAL NOTE FOR TYPICAL SECTION DIMENSIONS

Consider the dimensions shown on the typical sections for pavement and shoulder widths and thickness' to be nominal or typical dimensions. The Engineer may direct or approve varying the actual dimensions to be constructed to fit existing conditions. Do not widen existing pavement or shoulders unless specified elsewhere in this proposal or directed by the engineer.

1-3725 Typical Section Dimensions
01/02/2012

TRAFFIC CONTROL PLAN

THIS PROJECT IS A FULLY CONTROLLED ACCESS HIGHWAY

TRAFFIC CONTROL GENERAL

Except as provided herein, maintain and control traffic in accordance with the 2012 Standard and Supplemental Specifications, Special Provisions and Special Notes, and the Standard and Sepia Drawings, current editions. Except for the roadway and traffic control bid items listed, all items of work necessary to maintain and control traffic will be paid at the lump sum bid price to "Maintain and Control Traffic".

Contrary to Section 106.01, furnish new, or used in like new condition, traffic control devices at the beginning of the work and maintain in like new condition until completion of the work.

PROJECT PHASING & CONSTRUCTION PROCEDURES

Do not erect lane closures during the following days and hours:

May 24-27, 2019	Memorial Day Weekend
July 4-7, 2019	Fourth of July Weekend
August 31-September 2, 2019	Labor Day Weekend

The Engineer may specify additional days and hours when lane closures will not be allowed.

Maintain the I-64 ramps open at all times. On the I-64 off ramps lane closures will be permitted twice on each ramp during construction for a duration of 48 hours for each closure. During the lane closure, maintain a clear lane width of 14 feet. Do not allow the queue on the west bound I-64 exit ramp to extend beyond the ramp exit gore at any time.

On US 23, maintain a minimum of maintain one lane of traffic in each direction at all times during construction. Maintain access and egress to I-64 ramps at all times. Provide a minimum clear lane width of 12 feet; however, provide for passage of vehicles of up to 16 feet in width. Immediately after removing asphalt pavement, stabilize any exposed DGA and place JPC in a continuous operation so that excavated areas are filled the same day as excavated. If traffic is stopped due to construction operations, and a school bus on an official run arrives on the scene, make provisions for the passage of the bus as quickly as possible. Do not allow traffic to back up on the I-64 Exit Ramps beyond the exit gore.

Night Work is allowed on this project. Obtain the Engineer's approval of the method of lighting prior to performing night work.

Fourteen (14) calendar days prior to erecting any lane closures, partner with the Engineer to develop a Phasing Plan and Work Schedule to expedite the work and minimize disruption to traffic.

Consider these restrictions when submitting bid. The Department will not consider any claims for money or grant time extensions for any delays a result of these restrictions.

PUBLIC INFORMATION PLAN

This project is considered a significant project according to Section 112.03.12. The Department will prepare a public information plan and provide public notification. Notify the Engineer immediately and obtain approval of any changes to the approved Work Schedule.

LANE CLOSURES

Do not leave lane closures in place during non-working hours except for JPC curing. Contrary to Section 112.04.17, the Department will not measure long term lane closures for payment, but shall be incidental to Maintain and Control Traffic.

SIGNS

The Engineer may require additional signing and/or traffic control devices in addition to the items shown on the Standard Drawings. Sign posts and splices shall be compliant with NCHRP 350 or MASH. Manufacturer's documentation validating this compliance shall be provided to the Engineer prior to installation. Signs, including any splices, shall be installed according to manufacturer's specifications and installation recommendations. Contrary to section 112.04.02, the Department will measure only long term signs (signs intended to be continuously in place for more than 3 days) for payment. The Department will not measure; short term signs (signs intended to be left in place for 3 days or less) for payment, but shall be incidental to Maintain and Control Traffic. Contrary to Section 112.04.02, the Department will measure individual signs only once for payment, regardless of how many times they are erected or relocated. The Department will not measure replacements for damaged signs directed by the Engineer to be replaced due to poor condition or reflectivity.

CHANGEABLE MESSAGE SIGNS

Provide changeable message signs in advance of and within the project at locations determined by the Engineer. If work is in progress concurrently in both directions or if more than one lane closure is in place in the same direction of travel, provide additional changeable message signs as directed by the Engineer. Place changeable message signs one mile in advance of the anticipated queue at each lane closure. As the actual queue lengthens and/or shortens, relocate or provide additional changeable message signs so that traffic has warning of slowed or stopped traffic at least one mile but not more than two miles before reaching the end of the actual queue. The Engineer may vary the designated locations as the work progresses. The Engineer will determine the messages to be displayed. In the event of damage or mechanical/electrical failure, repair or replace the Changeable Message Sign within 24 hours. The Department will measure for payment the maximum number of Changeable Message Signs in concurrent use at the same time on a single day on all sections of the contract. The Department will measure individual Changeable Message Signs only once for payment, regardless of how many times they are set, reset, removed, and relocated during the duration of the project. The Department will not measure replacements for damaged Changeable Message Signs or for signs the Engineer directs be replaced due to poor condition or readability. Retain possession of the Changeable Message Signs upon completion of construction.

ARROW PANELS

Use arrow panels as shown on the Standard Drawings or as directed by the Engineer. The Department will measure for payment the maximum number of arrow panels in concurrent use at the same time on a single day on all sections of the contract. The Department will measure for payment the maximum number of Changeable Message Signs in concurrent use at the same time on a single day on all sections of the contract. The Department will measure individual Arrow Panels only once for payment, regardless of how many times they are set, reset, removed, and relocated during the duration of the project. The Department will not measure replacements for damaged Arrow Panels or for panels signs the Engineer directs be replaced due to poor condition or readability for payment. Retain possession of the Arrow Panels upon completion of construction.

TRAFFIC SIGNALS

As required by the phasing, the Department will relocate signal heads, adjust signal timing, or place signal indications on flashing red/yellow as determined as determined by the Engineer. Provide flaggers to supplement the adjusted signals as required by the work in progress.

TRAFFIC LOOPS

See Special Note for Traffic Signal Preformed Loops.

BARRICADES

The Department will not measure barricades used in lieu of barrels and cones for channelization or delineation, but shall be incidental to Maintain and Control Traffic according to Section 112.04.01.

The Department will measure barricades used to protect pavement removal areas in individual units Each. The Department will measure for payment the maximum number of barricades in concurrent use at the same time on a single day on all sections of the contract. The Department will measure individual barricades only once for payment, regardless of how many times they are set, reset, removed, and relocated during the duration of the project. The Department will not measure replacements for damaged barricades the Engineer directs to be replaced due to poor condition or reflectivity.

PAVEMENT MARKINGS

Consider the locations listed on the summary to be approximate only. Prior to pavement removal, locate and document the location of the existing markings. After Diamond Grinding, replace the markings with Type 1 Tape Markings as shown on the Summary. Place markings not previously existing as directed by the Engineer.

PAVEMENT STRIPING

If there is to be a deviation from the existing striping plan, the Engineer will furnish the Contractor a striping plan prior to placement of the final surface course. Install Temporary and Permanent Striping according to Section 112 and with the following exceptions:

1. Include Edge Lines in Temporary Striping; and
2. Use Removable Tape for Temporary Striping; and
3. Place Temporary or Permanent Striping before opening a lane to traffic; and
4. Use Durable Type I Tape for Permanent Striping.

PAVEMENT EDGE DROP-OFFS

Do not allow a pavement edge between opposing directions of traffic or lanes that traffic is expected to cross in a lane change situation with an elevation difference greater than 1½". Place Warning signs (MUTCD W8-11 or W8-9A) in advance of and at 1500' intervals throughout the drop-off area. Dual post the signs on both sides of the traveled way. Wedge all transverse transitions between resurfaced and unresurfaced areas which traffic may cross with asphalt mixture for leveling and wedging. Remove the wedges prior to placement of the final surface course.

Protect pavement edges that traffic is not expected to cross, except accidentally, as follows:

Less than 2" - No protection required.

2" to 4" - Place plastic drums, vertical panels, or barricades every 50 feet. During daylight working hours only, the Engineer will allow the Contractor to use cones in lieu of plastic drums, panels, and barricades. Wedge the drop-off with DGA or asphalt mixture for leveling and wedging with a 1:1 or flatter slope in daylight hours, or 3:1 or flatter slope during nighttime hours, when work is not active in the drop-off area.

Greater than 4' - Protect drop-offs greater than 4 inches within 10 feet of traffic by placing drums, vertical panels, or barricades every 25 feet. The Engineer will not allow the use of cones in lieu of drums, vertical panels, or barricades for drop-offs greater than 4". Place Type III Barricades directly in front of the drop-off facing on coming traffic in both directions of travel. Provide warning signs as shown on the Standard Drawings or as directed by the Engineer. Do not allow drop-offs greater than 4 inches within 10 feet of traffic during non-working hours.

Pedestrians & Bicycles - Protect pedestrian and bicycle traffic as directed by the engineer.

USE AND PLACEMENT OF CHANGEABLE MESSAGE SIGNS

The following policy is based upon current Changeable Message Signs (CMS) standards and practice from many sources, including the Federal Highway Administration (FHWA), other State Departments of Transportation, and Traffic Safety Associations. It is understood that each CMS installation or use requires individual consideration due to the specific location or purpose. However, there will be elements that are constant in nearly all applications. Accordingly these recommended guidelines bring a level of uniformity, while still being open to regional experience and engineering judgment.

Application

The primary purpose of CMS is to advise the driver of unexpected traffic and routing situations. Examples of applications where CMS can be effective include:

- Closures (road, lane, bridge, ramp, shoulder, interstate)
- Changes in alignment or surface conditions
- Significant delays, congestion
- Construction/maintenance activities (delays, future activities)
- Detours/alternative routes
- Special events with traffic and safety implications
- Crash/incidents
- Vehicle restrictions (width, height, weight, flammable)
- Advance notice of new traffic control devices
- Real-time traffic conditions (must be kept up to date)
- Weather /driving conditions, environmental conditions, Roadway Weather Information Systems
- Emergency Situations
- Referral to Highway Advisory Radio (if available)
- Messages as approved by the County Engineer's Office

CMS should not be used for:

- Replacement of static signs (e.g. road work ahead), regulatory signage (e.g. speed limits), pavement markings, standard traffic control devices, conventional warning or guide signs.
- Replacement of lighted arrow board
- Advertising (Don't advertise the event unless clarifying "action" to be taken by driver – e.g. Speedway traffic next exit)
- Generic messages
- Test messages (portable signs only)
- Describe recurrent congestion (e.g. rush hour)
- Public service announcements (not traffic related

Messages

Basic principles that are important to providing proper messages and insuring the proper operation of a CMS are:

- Visible for at least ½ mile under ideal daytime and nighttime conditions
- Legible from all lanes a minimum of 650 feet
- Entire message readable twice while traveling at the posted speed
- Nor more than two message panels should be used (three panels may be used on roadways where vehicles are traveling less than 45 mph). A panel is the message that fits on the face of the sign without flipping or scrolling.
- Each panel should convey a single thought; short and concise
- Do not use two unrelated panels on a sign
- Do not use the sign for two unrelated messages
- Should not scroll text horizontally or vertically
- Should not contain both the words left and right
- Use standardized abbreviations and messages
- Should be accurate and timely
- Avoid filler/unnecessary words and periods (hazardous, a, an, the)
- Avoid use of speed limits
- Use words (not numbers) for dates

Placement

Placement of the CMS is important to insure that the signs is visible to the driver and provides ample time to take any necessary action. Some of the following principles may only be applicable to controlled access roadways. The basic principles of placement for a CMS are:

- When 2 signs are needed, place on same side of roadway and at least 1,000 feet apart
- Place behind semi-rigid/rigid protection (guardrail, barrier) or outside of the clear zone
- Place 1,000 feet in advance of work zone; at least one mile ahead of decision point
- Normally place on right side of roadway; but should be placed closest to the affected lane so that either side is acceptable
- Signs should not be dual mounted (one on each side of roadway facing same direction)
- Point trailer hitch downstream
- Secure to immovable object to prevent thief (if necessary)
- Do not place in sags or just beyond crest
- Check for reflection of sun to prevent the blinding of motorist
- Should be turned ~3 degrees outward from perpendicular to the edge of pavement
- Bottom of sign should be 7 feet above the elevation of edge of roadway
- Should be removed when not in use
-

Standard Abbreviations

The following is a list of standard abbreviations to be used on CMS.

Word	Abbrev.	Example
Access	ACCS	ACCIDENT AHEAD/USE ACCS RD NEXT RIGHT
Alternate	ALT	ACCIDENT AHEAD/USE ALT RTE NEXT RIGHT
Avenue	AVE	FIFTH AVE CLOSED/DETOUR NEXT LEFT
Blocked	BLKD	FIFTH AVE BLKD/MERGE LEFT
Boulevard	BLVD	MAIN BLVD CLOSED/USE ALT RTE
Bridge	BRDG	SMITH BRDG CLOSED/USE ALT RTE
Cardinal Directions	N, S, E, W	N I75 CLOSED/ DETOUR EXIT 30
Center	CNTR	CNTR LANE CLOSED/MERGE LEFT
Commercial	COMM	OVRSZ COMM VEH/USE I275
Condition	COND	ICY COND POSSIBLE
Congested	CONG	HVY CONG NEXT 3 MI
Construction	CONST	CONST WORK AHEAD/EXPECT DELAYS
Downtown	DWNTN	DWNTN TRAF USE EX 40
Eastbound	E-BND	E-BND I64 CLOSED/DETOUR EXIT 20
Emergency	EMER	EMER VEH AHEAD/PREPARE TO STOP
Entrance, Enter	EX, EXT	DWNTN TRAF USE EX 40
Expressway	EXPWY	WTRSN EXPWY CLOSED/DETOUR EXIT 10
Freeway	FRWY, FWY	GN SYNDR FWY CLOSED/DETOUR EXIT 15
Hazardous Materials	HAZMAT	HAZMAT IN ROADWAY/ALL TRAF EXIT 25
Highway	HWY	ACCIDENT ON AA HWY/EXPECT DELAYS
Hour	HR	ACCIDENT ON AA HWY/2 HR DELAY
Information	INFO	TRAF INFO TUNE TO 1240 AM
Interstate	I	E-BND I64 CLOSED/DETOUR EXIT 20
Lane	LN	LN CLOSED/MERGE LEFT
Left	LFT	LANE CLOSED/MERGE LFT
Local	LOC	LOC TRAF USE ALT RTE
Maintenance	MAINT	MAINT WRK ON BRDG/SLOW
Major	MAJ	MAJ DELWAYS I75/USE ALT RTE

Mile	MI	ACCIDENT 3 MI AHEAD/ USE ALT RTE
Minor	MNR	ACCIDENT 3 MI MNR DELAY
Minutes	MIN	ACCIDENT 3 MI/30 MIN DELAY
Northbound	N-BND	N-BND I75 CLOSED/ DETOUR EXIT 50
Oversized	OVRSZ	OVRSZ COMM VEH/USE I275 NEXT RIGHT
Parking	PKING	EVENT PKING NEXT RGT
Parkway	PKWY	CUM PKWAY TRAF/DETOUR EXIT 60
Prepare	PREP	ACCIDENT 3 MIL/PREP TO STOP
Right	RGT	EVENT PKING NEXT RGT
Road	RD	HAZMAT IN RD/ALL TRAF EXIT 25
Roadwork	RDWK	RDWK NEXT 4 MI/POSSIBLE DELAYS
Route	RTE	MAJ DELAYS I75/USE ALT RTE
Shoulder	SHLDR	SHLDR CLOSED NEXT 5 MI
Slippery	SLIP	SLIP COND POSSIBLE/ SLOW SPD
Southbound	S-BND	S-BND I75 CLOSED/DETOUR EXIT 50
Speed	SPD	SLIP COND POSSIBLE/ SLOW SPD
Street	ST	MAIN ST CLOSED/USE ALT RTE
Traffic	TRAF	CUM PKWAY TRAF/DETOUR EXIT 60
Vehicle	VEH	OVRSZ COMM VEH/USE I275 NEXT RIGHT
Westbound	W-BND	W-BND I64 CLOSED/DETOUR EXIT 50
Work	WRK	CONST WRK 2MI/POSSIBLE DELAYS

Certain abbreviations are prone to inviting confusion because another word is abbreviated or could be abbreviated in the same way. DO NO USE THESE ABBREVIATIONS.

Abbrev.	**Intended Word**	**Word Erroneously Given**
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (merge)
LOC	Local	Location
LT	Light (traffic)	Left
PARK	Parking	Park
POLL	Pollution (index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard

TEMP	Temporary	Temperature
WRNG	Warning	Wrong

TYPICAL MESSAGES

The following is a list of typical messages used on CMS. The list consists of the reason or problem that you want the driver to be aware of and the action that you want the driver to take.

Reason/Problem	Action
ACCIDENT	ALL TRAFFIC EXIT RT
ACCIDENT/XX MILES	AVOID DELAY USE XX
XX ROAD CLOSED	CONSIDER ALT ROUTE
XX EXIT CLOSED	DETOUR
BRIDGE CLOSED	DETOUR XX MILES
BRIDGE/(SLIPPERY, ICE, ETC.)	DO NOT PASS
CENTER/LANE/CLOSED	EXPECT DELAYS
DELAY(S), MAJOR/DELAYS	FOLLOW ALT ROUTE
DEBRIS AHEAD	KEEP LEFT
DENSE FOG	KEEP RIGHT
DISABLED/VEHICLE	MERGE XX MILES
EMER/VEHICLES/ONLY	MERGE LEFT
EVENT PARKING	MERGE RIGHT
EXIT XX CLOSED	ONE-WAY TRAFFIC
FLAGGER XX MILES	PASS TO LEFT
FOG XX MILES	PASS TO RIGHT
FREEWAY CLOSED	PREPARE TO STOP
FRESH OIL	REDUCE SPEED
HAZMAT SPILL	SLOW
ICE	SLOW DOWN
INCIDENT AHEAD	STAY IN LANE
LANES (NARROW, SHIFT, MERGE, ETC.)	STOP AHEAD
LEFT LANE CLOSED	STOP XX MILES
LEFT LANE NARROWS	TUNE RADIO 1610 AM
LEFT 2 LANES CLOSED	USE NN ROAD
LEFT SHOULDER CLOSED	USE CENTER LANE
LOOSE GRAVEL	USE DETOUR ROUTE
MEDIAN WORK XX MILES	USE LEFT TURN LANE
MOVING WORK ZONE, WORKERS IN ROADWAY	USE NEXT EXIT
NEXT EXIT CLOSED	USE RIGHT LANE
NO OVERSIZED LOADS	WATCH FOR FLAGGER
NO PASSING	
NO SHOULDER	
ONE LANE BRIDGE	

PEOPLE CROSSING
RAMP CLOSED
RAMP (SLIPPERY, ICE, ETC.)
RIGHT LANE CLOSED
RIGHT LANE NARROWS
RIGHT SHOULDER CLOSED
ROAD CLOSED
ROAD CLOSED XX MILES
ROAD (SLIPPERY, ICE, ETC.)
ROAD WORK
ROAD WORK (OR CONSTRUCTION) (TONIGHT, TODAY, TOMORROW, DATE)
ROAD WORK XX MILES
SHOULDER (SLIPPERY, ICE, SOFT, BLOCKED, ETC.)
NEW SIGNAL XX MILES
SLOW 1 (OR 2) - WAY TRAFFIC
SOFT SHOULDER
STALLED VEHICLES AHEAD
TRAFFIC BACKUP
TRAFFIC SLOWS
TRUCK CROSSING
TRUCKS ENTERING
TOW TRUCK AHEAD
UNEVEN LANES
WATER ON ROAD
WET PAINT
WORK ZONE XX MILES
WORKERS AHEAD

TRAFFIC CONTROL FOR DURABLE PAVEMENT MARKINGS AND THERMOPLASTIC STRIPING

Except as provided herein, maintain and control traffic in accordance with the Standard and Supplemental Specifications and the Standard and Sepia Drawings, current editions. Except for the roadway and traffic control bid items listed, all items of work necessary to maintain and control traffic will be paid at the lump sum bid price to "Maintain and Control Traffic". Contrary to Section 106.01, furnish new, or used in like new condition, traffic control devices at the beginning of the work and maintain in like new condition until completion of the work. Do not install Thermoplastic Markings on bridge decks. Provide egress and ingress to all ramps, side roads, and entrances at all times

TWO-LANE, TWO-WAY ROADWAYS:

Place durable markings and thermoplastic striping according to the Standard Drawings TTS-130-01 and TTS-135-01. Accomplish the work in only one lane and affect the adjacent lane as little as possible. Provide egress and ingress to all ramps, side roads, and entrances at all times. Sign approaches to the immediate work area in accordance with Standard Drawings TTC-100-03 and TTC-105-02. Install the signs on approved temporary mountings.

MULTI-LANE ROADWAYS:

Place durable markings and thermoplastic striping behind stationary lane closures or as a mobile operation. Obtain the Engineer's approval for stationary lane closures prior to use. Sign approved stationary lane closures according to Standard Drawings TTC-115-02 and TTC-125-02. If the Contractor desires an interior lane closure, prepare a plan and obtain the Engineer's approval prior to use. Perform mobile operations according to Standard Drawing TTS-120-01 and TTS-125-01. Install the signs for mobile operations on approved temporary mountings on both sides of the traveled way.

Restrict the work area to not more than one lane of traffic plus 24 inches maximum of only one adjacent lane in each direction of travel. Provide a minimum lane width of 10 feet; however, provide for passage of vehicles of up to 16 feet in width. Limit the length of a lane closure to not exceed 1 mile in urban areas or 3 miles in rural areas as designated by the Engineer. Do not erect more than one lane closure in each direction of travel unless there is at least 2 miles separation between lane closures and both lane closures are in the same lane.

TRAFFIC CONTROL FOR INLAID PAVEMENT MARKER INSTALLATIONS

Except as provided herein, maintain and control traffic in accordance with the Standard and Supplemental Specifications and the Standard and Sepia Drawings, current editions. Except for the roadway and traffic control bid items listed, all items of work necessary to maintain and control traffic will be paid at the lump sum bid price to "Maintain and Control Traffic". Contrary to Section 106.01, furnish new, or used in like new condition, traffic control devices at the beginning of the work and maintain in like new condition until completion of the work. Do not install Inlaid Pavement Markers on bridge Decks. If pavement markers are specified for bridge decks, use flush- mounted Type IV-A markers. Install all necessary traffic control devices before beginning work. Provide egress and ingress to all ramps, side roads, and entrances at all times. After the pavement markers have been placed on the roadway, leave traffic control devices in place to protect the markers from damage by traffic until the Engineer determines the adhesive epoxy has sufficiently hardened. When work is suspended or completed and the Engineer determines the pavement markers are completely bonded to the pavement, immediately remove the traffic control devices.

TWO-LANE, TWO-WAY ROADWAYS:
The Department will consider installation of inlaid pavement markers on two-lane, two-way roadway sections to be short-duration operations. Accomplish the work in only one lane and affect the adjacent lane as little as possible. Sign approaches to the immediate work area in accordance with Standard Drawings TTC-100-03 and TTC-105-02. Install the signs on approved temporary mountings.

As a minimum, equip all work vehicles used in the roadway with strobe lights or rotating beacons. If a flashing arrow board is mounted directly on a work vehicle, operate the board in caution mode only; do not use a flashing arrow indication. The Department will not require the use of a Truck Mounted Attenuator (TMA) on two-lane, two-way roadway sections.

MULTI-LANE ROADWAYS:
Place raised pavement markers behind stationary lane closures. Obtain the Engineer's approval for stationary lane closures prior to use. Sign approved stationary lane closures according to Standard Drawings TTC-115-03 and TTC-125-03. If the Contractor desires an interior lane closure, prepare a plan and obtain the Engineer's approval prior to use. Install all necessary traffic control devices before beginning work.

Protect the work zone with a TMA conforming to Sections 725.02.05 and 725.03.03. Place the TMA within the lane closure at locations approved by the Engineer. Contrary to Section 725.03.03, retain possession of the TMA upon completion of the work.

Restrict the work area to not more than one lane of traffic plus 24 inches maximum of only one adjacent lane in each direction of travel. Provide a minimum lane width of 10 feet; however, provide for passage of vehicles of up to 16 feet in width. Limit the length of a lane closure to not exceed 1 mile in urban areas or 3 miles in rural areas as designated by the Engineer. Do not erect more than one lane closure in each direction of travel unless there is at least 2 miles separation between lane closures and both lane closures are in the same lane.

SPECIAL NOTE FOR PREFORMED QUADRAPOLE LOOPS

1.0 DESCRIPTION. Be advised that there are existing traffic signal loop detectors within the construction limits of this project. Except as specified herein, perform all work in accordance with the Department's Standard/Supplemental Specifications, Special Provisions, Special Notes, and Standard/Sepia Drawings, current editions, and as directed by the Engineer. Article references are to the Standard Specifications. Furnish all materials, equipment, labor, and incidentals for placement of preformed quadrapole loops, preformed loops, preformed loop/lead-In, loop lead-in, conduit, junction box, wiring, and connection to the existing signal system.

1.1 PREBID REQUIREMENTS. Each Contractor submitting a bid for this work shall make a thorough inspection of the site prior to submitting his bid and shall thoroughly familiarize himself with existing conditions so that the work can be expeditiously performed after a Contract is awarded. Information provided in the Plans regarding types and quantities of work is not to be taken as an accurate or complete evaluation of the materials and conditions to be encountered during construction. The bidder must make his own determinations as to the conditions encountered.

2.0 MATERIALS. Except as provided herein, provide materials according to Subsection 723.02 and Section 835. Provide for materials to be sampled and tested in accordance with the Department's Sampling Manual. Make materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing, unless otherwise specified in this Special Note.

2.1 Preformed Quadrapole Loops or Preformed loops. All preformed loop wire shall be 16-gauge THWN stranded copper, single conductor in a 2-4-2 configuration for Quadrapole as shown on the Quadrapole Loop detail. If it is a 6'x6' loop, the loop shall have 3 turns installed in the preformed loop. The loop shall be housed in a class A oil resistant heavy-duty reinforced rubber hose with a 250-PSI internal pressure rating. Hose for the loop assembly shall be one continuous piece. The 3/8" I.D. (5/8" O.D.) hose shall be factory assembled. Preformed loops shall be pre-wired. The loop configuration lengths shall be assembled for the specific application. Hose tee connections shall be high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing the glue joints. The tee shall have the same flexible properties as the hose to insure that the whole assembly can conform to pavement movement and shifting without cracking or breaking. Preformed loop quadrapole loops.

Bid item 20453ES835 is used for 6'x30' loops, and bid item 20452ES835 is used for 6'x6' loops.

2.2 Preformed Loop/Lead-In. All preformed loop/lead-in (homerun) wire shall be 16-gauge THWN stranded copper, single conductor in a 2 configuration for homerun wire as shown on the quadrapole Loop detail. The homerun wire is from the junction box to the edge of the quadrapole loop. The home run shall be housed in a class A oil resistant heavy-duty reinforced rubber hose with a 250-PSI internal pressure rating. Hose for the loop and home run wire assembly shall be one continuous piece from the hose tee. The 3/8" I.D. (5/8" O.D.) hose shall be factory assembled. Homerun wires shall be pre-wired. The homerun lengths shall be assembled for the specific application. Hose tee connections shall be high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing the glue joints. The tee shall have the same flexible properties as the hose to insure that the whole assembly can conform to pavement movement and shifting without cracking or breaking.

2.3 Maintain and Control Traffic. See Traffic Control Plan.

2.4 Sand. Furnish natural sand meeting the requirements of Subsection 804.04.01.

2.5 Seeding. Furnish Seed Mix Type I.

2.6 Loop Saw Slot and Fill. Furnish loop sealant, backer rod, and non-shrink grout according to the Saw Slot Detail. Use if sawing into existing pavement. Usually, the preformed loops will be laid on the ground under the final concrete inlay.

2.7 Junction Boxes. Furnish junction box type B, #57 aggregate, and geotextile filter type IV according to junction box detail.

2.8 Cable No. 14/1 pair. Furnish cable that is specified in Section 835. Cable shall be ran splice free. This shall include splice kits to connect to the preformed loop/lead-in (homerun).

2.9 Conduit. Furnish and install appropriate conduit from transitions to the roadway, junction boxes and poles. See details below.

3.0 CONSTRUCTION. Except as specified herein, install and test Preformed Quadrapole Loops in accordance with Section 723 and the drawings.

3.1 Testing. The Contractor shall test all loops and cable no 14/1 pair (lead-in) according to Subsection 723.03.17 before and after concrete inlay construction. The Contractor may have to separate the loop from the lead-in to perform this test. If the loop/lead-in meets the requirement in Section 723 at the controller cabinet, the loop/lead-in shall not be replaced. If existing loops do not meet the requirements in Subsection 723.03.17, the loops shall be replaced. Replacement loops may be installed either before or after the milling process.

The Contractor shall verify that loops (both existing and replacement loops) meet the requirements per Subsection 723.03.17 before the final concrete inlay is laid. If loops do not meet the conditions of Subsection 723.03.17, the Contractor shall replace them. If replacement loops have to be reinstalled, the costs of reinstallation shall be incidental loop to the concrete inlay bid item. The Contractor shall re-splice loops to the lead-in with the proper splice as noted in the spec book.

3.2 Coordination. Notify the Engineer in writing, two (2) weeks prior to beginning any work. The Engineer will contact the District Traffic Engineer to coordinate the Department's operations with the Contractor's work. The electrical Contractor shall coordinate with the general Contractor and inspector to ensure the preformed loops are located and installed prior to placing the concrete inlays.

3.3 Connection. The Contractor shall schedule all signal loop installation to ensure the new loops are connected to the lead-in and operational within 5 calendar days of the old loops being damaged and/or disconnected. This requirement includes damage caused by any work activity associated with the project. If the new signal loops are not functioning as intended following 5 calendar days, the Department may assess Liquidated Damages at a rate of $500 per calendar day per signal location until the loops are operating at pre-construction conditions. All liquidated damages will be applied cumulatively.

3.4 Maintain and Control Traffic. See Traffic Control Plan.

3.5 Concrete inlays. The electrical Contractor shall coordinate with the concrete Contractor and the resident engineer to get preformed loops installed in a timely matter. The Contractor may have to use 1" PVC conduit in sections of the concrete inlay for transition from lane to lane so that the preformed loop/lead-in can be connected to the preformed loop. The 1" PVC conduit shall be incidental to the project. The Contractor may have to use the preformed loop to maintain detection prior to placement of the concrete inlay. The preformed loop may be attached to the top pavement as recommended by the manufacturer.

3.6 Milling. On projects involving milling and texturing of the existing pavement, install preformed loops and/or preformed loop/lead-in in the existing pavement before or after performing the milling and texturing. After milling, the remnant contents of the existing saw slot (grout, loop wires, backer rod, and/or loop sealant) may not be flush with the top of the milled portion of the surface. In such cases, clear the saw slot of loose remnant contents and refill the saw slot with natural sand. Obtain the Engineer's approval of the stabilized saw slot prior to resurfacing. The Department will not measure for separate payment clearing and stabilizing the saw slot and shall consider this work incidental to milling.

3.7 **Loop Saw Slot and Fill.** This will only be used if installed in existing concrete or in asphalt. The following is a typical step by step procedure for the installation of a loop.

1) Carefully mark the slot to be cut, perpendicular to the flow of traffic and centered in the lane.
2) Make each saw-cut 3/4-inch wide and at a depth such that the top of the backer rod is a minimum of 4 inches below the surface of asphalt/concrete pavement.
3) Drill a 1½ inch core hole at each corner and use a chisel to smooth corners to prevent sharp bends in the wire.
4) Clean ALL foreign and loose matter out of the slots and drilled cores and within 1 foot on all sides of the slots using a high pressure washer.
5) Completely dry the slots and drilled cores and within 1 foot on all sides of the slots.
6) Measure 9-12 inches from the edge of the paved surface (shoulder break or face of curb) and drill a 1½ inch hole on a 45º angle to the conduit adjacent to the roadway. There will be one for each homerun.
7) Closely inspect all cuts, cores, and slots for jagged edges or protrusions prior to the placement of the wire. All jagged edges and protrusions shall be ground or re-cut and cleaned again.
8) Place the preformed loop and homerun splice-free from the termination point (cabinet or junction box) to the preformed loop.
9) Push the preformed loop and homerun into the saw slot with a blunt object such as a wooden stick. Make sure that the preformed loop and homerun is pushed fully to the bottom of the saw slot. Screwdrivers shall not be used.
10) Install duct sealant to a minimum of 1 inch deep into the cored 1½ inch hole.
11) Apply loop sealant from the bottom up and fully encapsulate the preformed loop and homerun in the saw slot. The preformed loop and homerun should not be able to move when the sealant has set.
12) Cover the encapsulated preformed loop and homerun with a continuous layer of backer rod along the entire loop and home run saw slots such that no voids are present between the loop sealant and backer rod.

13) Finish filling the saw cut with non-shrinkable grout per manufacturer's instructions. Alleviate all air pockets and refill low spaces. There shall be no concave portion to the grout in the saw slot. Any excess grout shall be cleaned from the roadway to alleviate tracking.
14) Clean up the site and dispose of all waste off the project.
15) Ensure that the grout has completely cured prior to subjecting the loop to traffic. Curing time varies with temperature and humidity.

3.8 Final Dressing, Clean Up, and Seeding. After all work is completed, clean work sites and all disturbed areas. Dispose of all waste and debris off the right of way at sites obtained by the Contractor at no additional cost to the Department. Sow all disturbed earthen areas with Seed Mix Type I.

3.9 Removal: The Contractor shall remove all existing junction boxes, wire from spans/poles/junction boxes/conduits, and conduits. The removal will be incidental to the project.

3.10 Property/roadway Damage. The Contractor shall be responsible for all damage to public and/or private property resulting from the work. Upon completion of the work, restore all disturbed highway features and private property in like kind design and materials at no additional cost to the Department.

3.11 Right-of-Way Limits. The Department has not established exact limits of Right-of-Way. Limit work activities to obvious Right-of-Way and work areas secured by the Department through Consent and Release of the adjacent property owners. Contractor is responsible for all encroachments onto private lands.

3.12 Utility Clearance. Work around and do not disturb existing utilities. The Department does not anticipate any utility impacts for loop installation. If utilities are impacted, work with associated utility companies to resolve issues.

3.13 Control. Obtain the Engineer's approval of all designs required to be furnished by the Contractor prior to incorporation into the work. The Department reserves the right to permit other contractors, state forces, public utility companies, and others to do work during the construction within the limits of, or adjacent to, the project. Conduct operations and cooperate with such other parties so that interference with each other's work will be reduced to a minimum. The Contractor agrees to make no claims against the Department for additional compensation due to delays or other conditions created by the operations of such other parties. Should a difference of opinion arise as to the rights of the Contractor and others working within the limits of, or adjacent to, the project, the Engineer will decide as to the respective rights of the various parties involved in order to assure the completion of the work in general harmony and in a satisfactory manner, and the Engineer's decision shall be final and binding upon the Contractor.

3.14 Bore and Jack. Except for situations outlined in 3.15, bore and jack will be used if the conduit is under pavement of any kind. The conduit shall be 2" rigid steel conduit under all pavement areas except for the area that the loop transition from the saw slot. The installation of conduit should follow the below detail.

3.15 Open Cut Roadway. With permission of the Engineer, roadway may be open cut if the conduit is under pavement. The conduit shall be 2" rigid steel conduit under all pavement areas except for the area that the loop transition from the saw slot. The installation of conduit should follow requirements per Section 723.

4.0 MEASUREMENT. See Subsection 723.04 for bid item notes. Additional bid items include the following:

4.1 Preformed loop quadrapole loops. Use bid note for loop wire in subsection 723.04.05.

4.2 Preformed loops. Use bid note for loop wire in subsection 723.04.05.

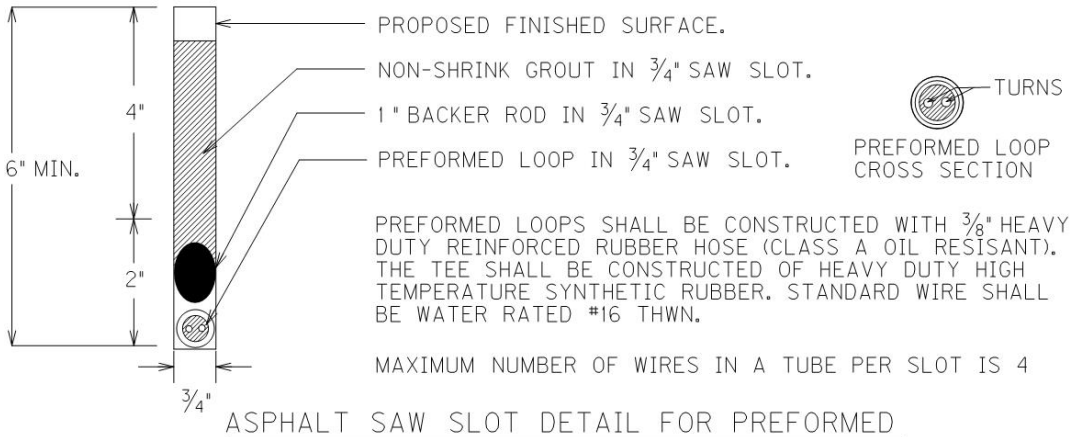
4.3 Preformed loop/lead-in. Use bid note for loop wire in subsection 723.04.05.

4.4 Loop Test. The Department will measure the quantity as each individual unit loop tested. The Department will not measure disconnection, reconnection, traffic control, re-splicing per specifications, before and after testing per note above, and any associated hardware for payment and will consider them incidental to this item of work.

5.0 PAYMENT. The Department will make payment for the completed and accepted quantities of listed items according to Subsection 723.05 in addition to the following:

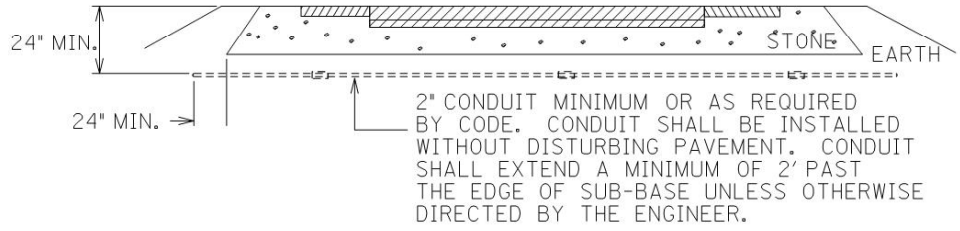
Code	Pay Item	Pay Unit
Conduit 1"	4792	Linear Foot
PVC Conduit – 1 ¼ inch – sch 80	24900EC	Linear Foot
PVC Conduit – 2 inch – sch 80	24901EC	Linear Foot
Conduit 2"	4795	Linear Foot
Preformed loop quadrapole loops	20453ES835	Linear Foot
Preformed loops	20452ES835	Linear Foot
Preformed loop/lead-in	4894	Linear Foot
Electrical Junction boxes type B	4811	Each
Loop Test	24963ED	Each
Trenching and Backfilling	4820	Linear Foot
Loop Wire	4830	Linear Foot
Cable-No. 14/1 Pair	4850	Linear Foot[1]
Loop Saw Slot and Fill	4895	Linear Foot[1]
Bore and Jack Conduit	21543EN	Linear Foot[3]
Open Cut Roadway	4821	Linear Foot[3]

The Department will consider payment as full compensation for all work required under these notes and the Standard Specifications.

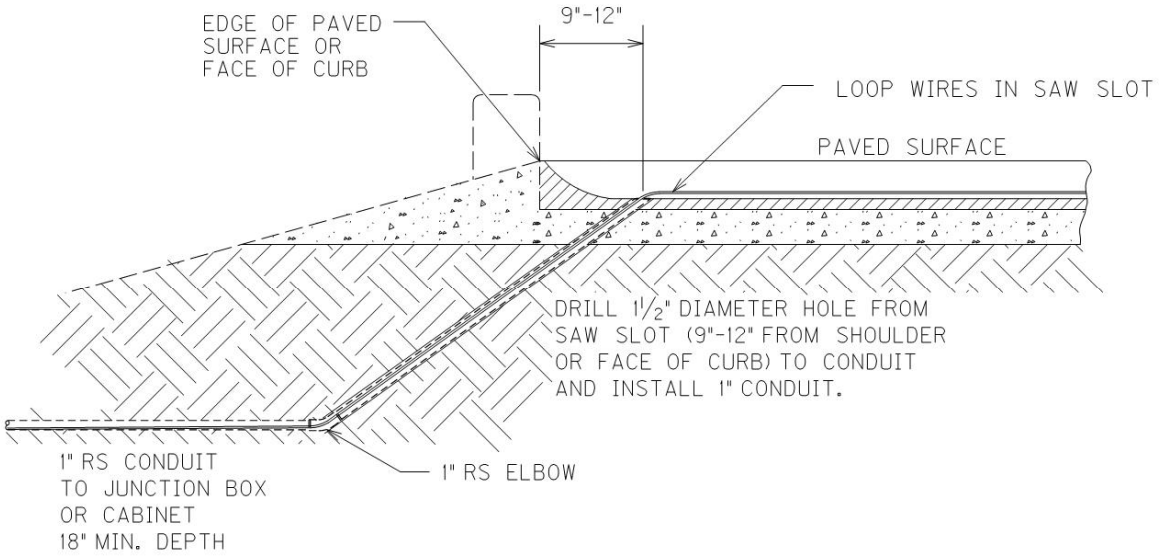


ASPHALT SAW SLOT DETAIL FOR PREFORMED

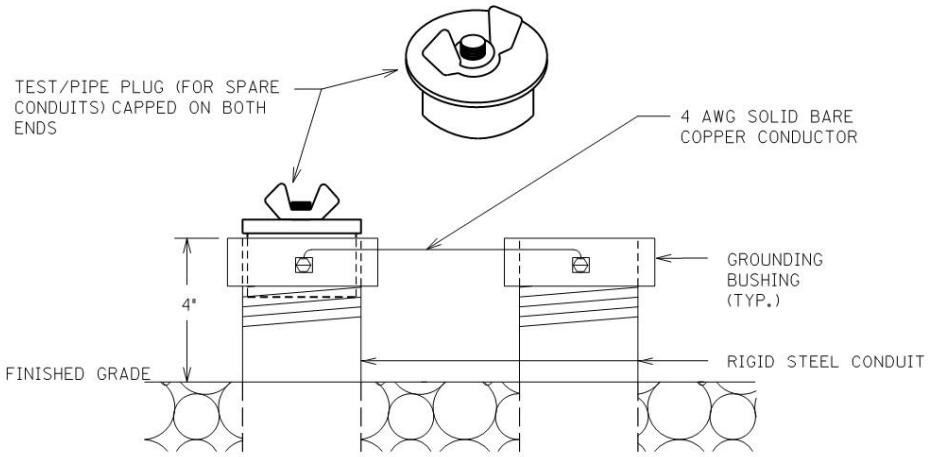
Use detail for concrete application
if concrete is four inches or less



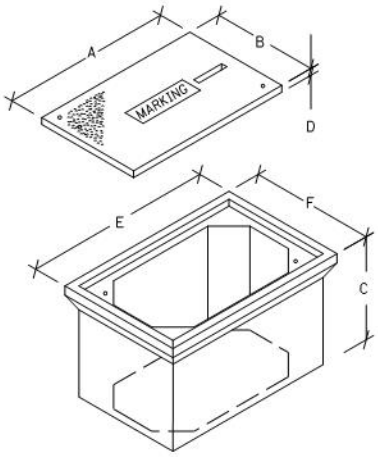
CONDUIT UNDER EXISTING PAVEMENT DETAIL



SAW SLOT EDGE OF PAVEMENT TRANSITION



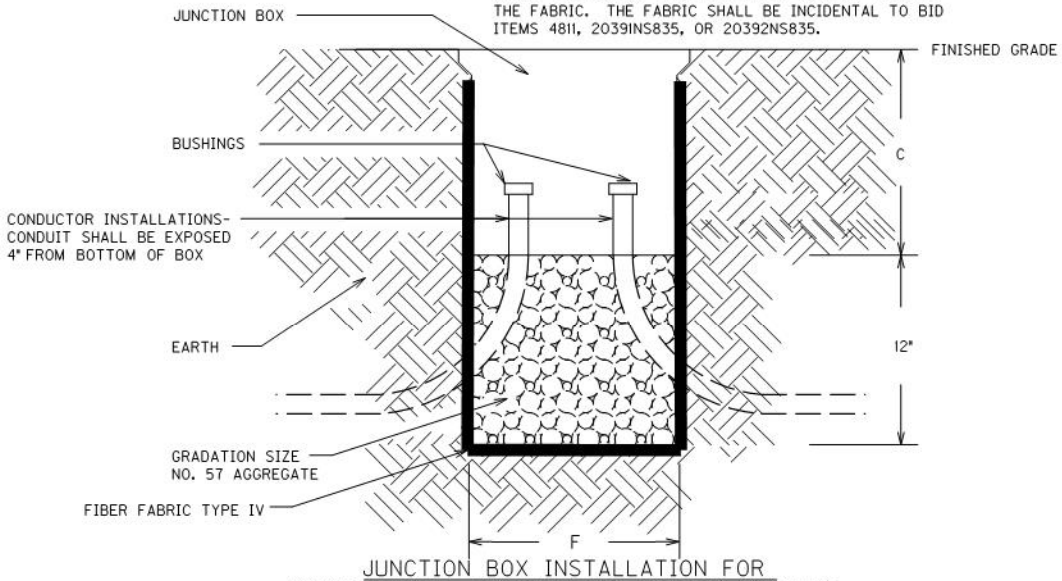
TEST/PIPE PLUG(FOR SPARE CONDUITS) AND GROUNDING DETAIL



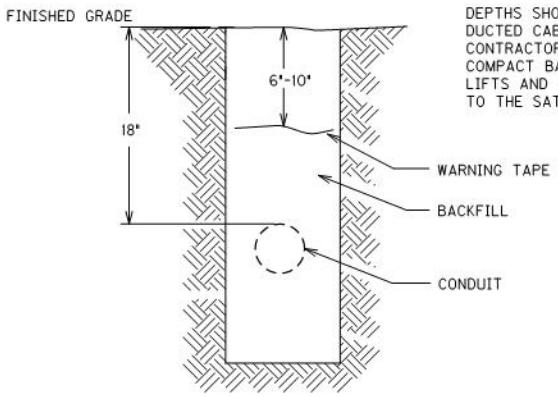
JUNCTION BOX DIMENSIONS (NOMINAL)						
	A	B	C	D	E	F
TYPE A	23"	14"	27"	2"	25"	15"
TYPE B	18"	11"	12"	1¾" *	20"	13"
TYPE C	36"	24"	30"	3"	38"	26"

* MINIMUM
NOTE: STACKABLE BOXES ARE PERMITTED

BEFORE THE INSTALLATION OF THE #57 AGGREGATE AND JUNCTION BOX, THE CONTRACTOR SHALL INSTALL GEOTEXTILE FILTER FABRIC TYPE IV IN THE HOLE. THE FABRIC SHALL EXTEND TO JUST BELOW THE LIP OF THE JUNCTION BOX AND SHALL BE CONTINUOUSLY ADHERED TO THE EXTERIOR OF THE BOX WITH ADHESIVE. ANY LOCATIONS WHERE CONDUITS ENTER THE BOX, THE FABRIC SHALL BE 'X CUT' ONLY AS MUCH AS NECESSARY TO ALLOW PASSAGE OF EACH INDIVIDUAL CONDUIT THROUGH THE FABRIC. THE FABRIC SHALL BE INCIDENTAL TO BID ITEMS 4811, 2039INS835, OR 20392NS835.



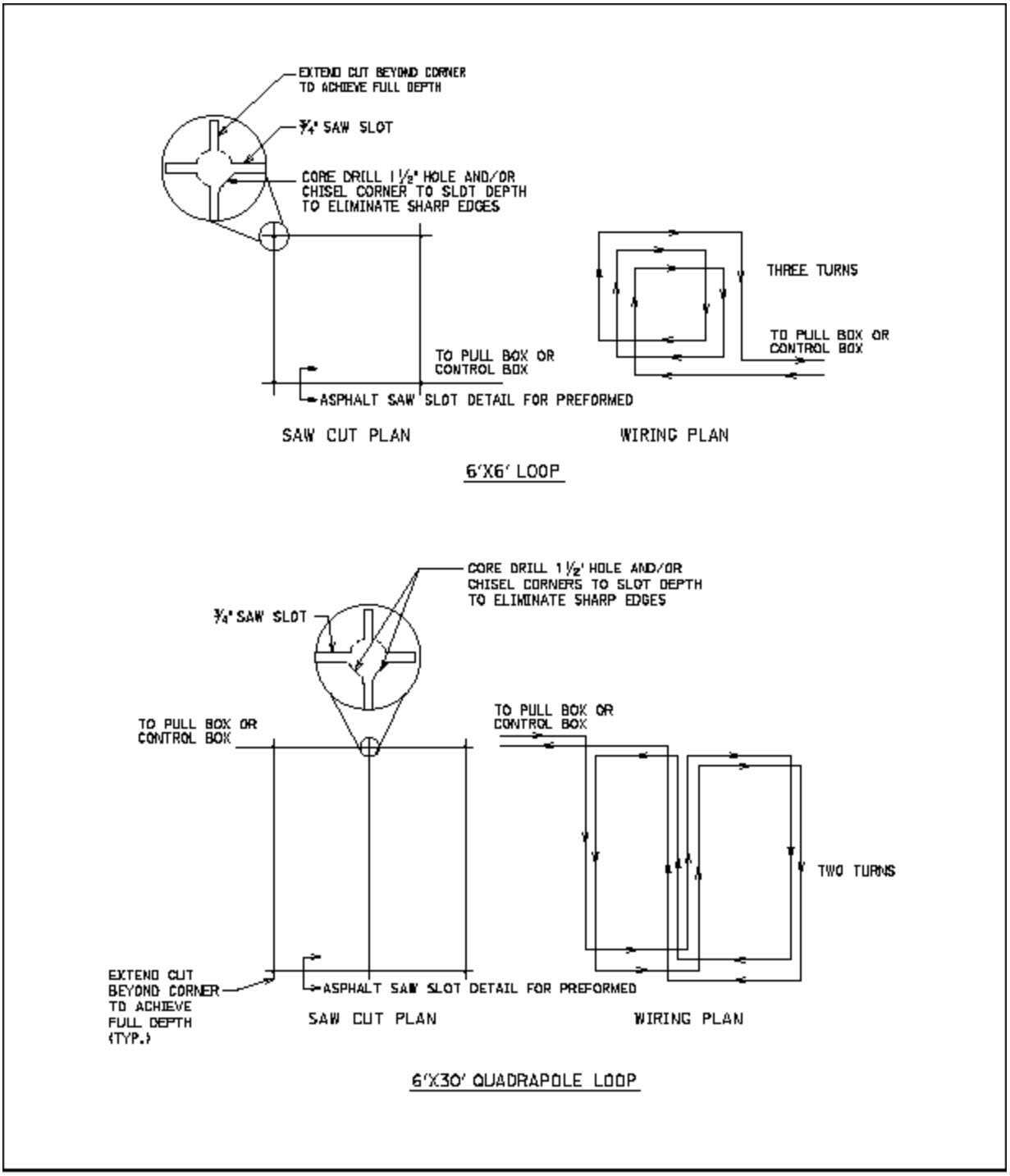
JUNCTION BOX INSTALLATION FOR
CONVENTIONAL LIGHTING OR TRAFFIC SIGNALS



DEPTHS SHOWN FOR CONDUIT AND DUCTED CABLE ARE MINIMUMS. CONTRACTOR SHALL PLACE AND COMPACT BACKFILL IN 9" MAXIMUM LIFTS AND RETORE DISTURBED AREA TO THE SATISFACTION OF THE ENGINEER.

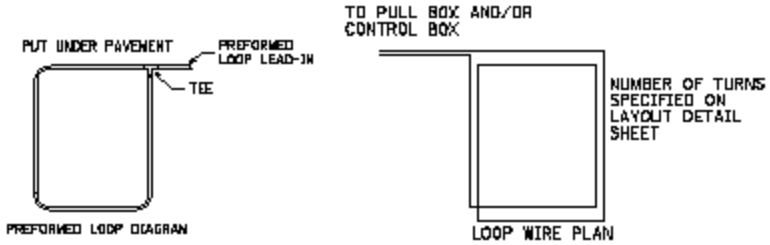
CONDUIT AND WARNING TAPE TRENCH

Preformed Quadrapole Loops
Page **9** of **10**



Preformed Quadrapole Loops
Page **10** of **10**

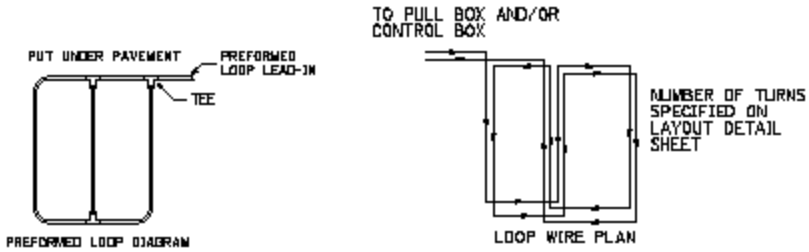
PREFORMED LOOP LEAD-IN SHALL BE TWISTED WITH THREE TO FIVE TURNS PER FOOT UNTIL TERMINATED AT FIELD CONNECTIONS IN THE CABINET OR CONNECTED TO SHIELDED CABLE.



STANDARD PREFORMED LOOP

*ALL LOOPS THAT ARE NOT QUADRAPOLES SHALL BE STANDARD AND HAVE 3 TURNS

PREFORMED LOOP LEAD-IN SHALL BE TWISTED WITH THREE TO FIVE TURNS PER FOOT UNTIL TERMINATED AT FIELD CONNECTIONS IN THE CABINET OR CONNECTED TO SHIELDED CABLE.



QUADRAPOLE PREFORMED LOOP

*ALL 6'x30' LOOPS SHALL BE QUADRAPOLE AND SHALL HAVE A 2-4-2 CONFIGURATION

SPECIAL NOTE FOR EROSION CONTROL

I. DESCRIPTION

Perform all erosion and water pollution control work in accordance with the Department's Standard and Interim Supplemental Specifications, Special Provisions and Special Notes, and Standard and Sepia Drawings, current editions, and as directed by the Engineer. Section references are to the Standard Specifications. This work shall consist of:

(1) Developing and preparing a Best Management Practices Plan (BMP) tailored to suit the specific construction phasing for each site within the project; (2) Preparing the project site for construction, including locating, furnishing, installing, and maintaining temporary and/or permanent erosion and water pollution control measures as required by the BMP prior to beginning any earth disturbing activity on the project site; (3) Clearing and grubbing and removal of all obstructions as required for construction; (4) Removing all erosion control devices when no longer needed; (5) Restoring all disturbed areas as nearly as possible to their original condition; (6) Preparing seedbeds and permanently seeding all disturbed areas; (7) Providing a Kentucky Erosion Prevention and Sediment Control Program (KEPSC) qualified inspector; and (8) Performing any other work to prevent erosion and/or water pollution as specified by this contract, required by the BMP, or as directed by the Engineer.

II. MATERIALS

Furnish materials in accordance with these notes, the Standard Specifications and Interim Supplemental Specifications, and applicable Special Provisions and Special Notes, and Standard and Sepia Drawings, current editions. Provide for all materials to be sampled and tested in accordance with the Department's Sampling Manual. Unless directed otherwise by the Engineer, make the materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing.

III. CONSTRUCTION

Be advised, these Erosion Control Plan Notes do not constitute a BMP plan for the project. Jointly with the Engineer, prepare a site specific BMP plan for each drainage area within the project in accordance with Section 213. Provide a unique BMP at each project site using good engineering practices taking into account existing site conditions, the type of work to be performed, and the construction phasing, methods and techniques to be utilized to complete the work. Be responsible for all erosion prevention, sediment control, and water pollution prevention measures required by the BMP for each site. Represent and warrant compliance with the Clean Water Act (33 USC Section 1251 et seq.), the 404 Permit, the 401 Water Quality Certification, and applicable state and

local government agency laws, regulations, rules, specifications, and permits. Contrary to Section 105.05, in case of discrepancy between theses notes, the Standard Specifications, Interim Supplemental Specifications, Special and Special Notes, Standard and Sepia Drawings, and such state and local government agency requirements, adhere to the most restrictive requirement.

Conduct operations in such a manner as to minimize the amount of disturbed ground during each phase of the construction and limit the haul roads to the minimum required to perform the work. Preserve existing vegetation not required to be removed by the work or the contract. Seed and/or mulch disturbed areas at the earliest opportunity. Use silt fence, silt traps, temporary ditches, brush barriers, erosion control blankets, sodding, channel lining, and other erosion control measures in a timely manner as required by the BMP and as directed or approved by the Engineer. Prevent sediment laden water from leaving the project, entering an existing drainage structure, or entering a stream.

Provide for erosion control measures to be in place and functioning prior to any earth disturbance within a drainage area. Compute the volume and size of silt control devices necessary to control sediment during each phase of construction. Remove sediment from silt traps before they become a maximum of ½ full. Maintain silt fence by removing accumulated trappings and/or replacing the geotextile fabric when it becomes clogged, damaged, or deteriorated, or when directed by the Engineer. Properly dispose of all materials trapped by erosion control devices at approved sites off the right of way obtained by the Contractor at no additional cost to the Department (See Special Note for Waste and Borrow).

As work progresses, add or remove erosion control measures as required by the BMP applicable to the Contractor's project phasing and construction methods and techniques. Update the volume calculations and modify the BMP as necessary throughout the duration of the project. Ensure that an updated BMP is kept on site and available for public inspection throughout the life of the project.

After all construction is complete, restore all disturbed areas in accordance with Section 212. Completely remove all temporary erosion control devices not required as part of the permanent erosion control from the construction site. Prior to removal, obtain the Engineer's concurrence of items to be removed. Grade the remaining exposed earth (both on and off the Right of-Way) as nearly as possible to its original condition, or as directed by the Engineer. Prepare the seed bed areas and sow all exposed earthen areas with the applicable seed mixture(s) according to Section 212.03.03.

IV. MEASUREMENT

Erosion Control Blanket. If required by the BMP, the Department will measure Erosion Control Blanket according to Section 212.04.07.

Sodding. If required by the BMP, the Department will measure Sodding according to Section 212.04.08.

Channel Lining. The Department will measure Channel Lining according to Sections 703.04.04.

Erosion Control. Contrary to Sections 212.04, 213.04, and 703.04 other than Erosion Control Blankets, Sodding, and Channel Lining, the Department will measure Erosion Control as one lump sum. The Department will not measure developing, updating, and maintaining a BMP plan for each site; providing a KEPSC qualified inspector; locating, furnishing, installing, inspecting, maintaining, and removing erosion and water pollution control items; Roadway Excavation, Borrow Excavation, Embankment In Place, Topsoil Furnished and Placed, and Spreading Stockpiled Topsoil; Topdressing Fertilizer, Temporary and Permanent Seeding and Protection, Special Seeding Crown Vetch, and Temporary Mulch; Sedimentation Basin and Clean Sedimentation Basin, Silt Trap Type "A" and Clean Silt Trap Type "A"; Silt Trap Type "B" and Clean Silt Trap Type "B"; Silt Trap Type "C" and Clean Silt Trap Type "C"; Temporary Silt Fence and Clean Temporary Silt Fence; Plants, Vines, Shrubs, and Trees; Gabion and Dumped Stone Deflectors and Riffle Structures; Boulders; Temporary Ditches and clean Temporary Ditches; Geotextile Fabric, and all other erosion and water pollution control items required by the BMP or the Engineer, but shall be incidental to Erosion Control.

V. Basis of Payment

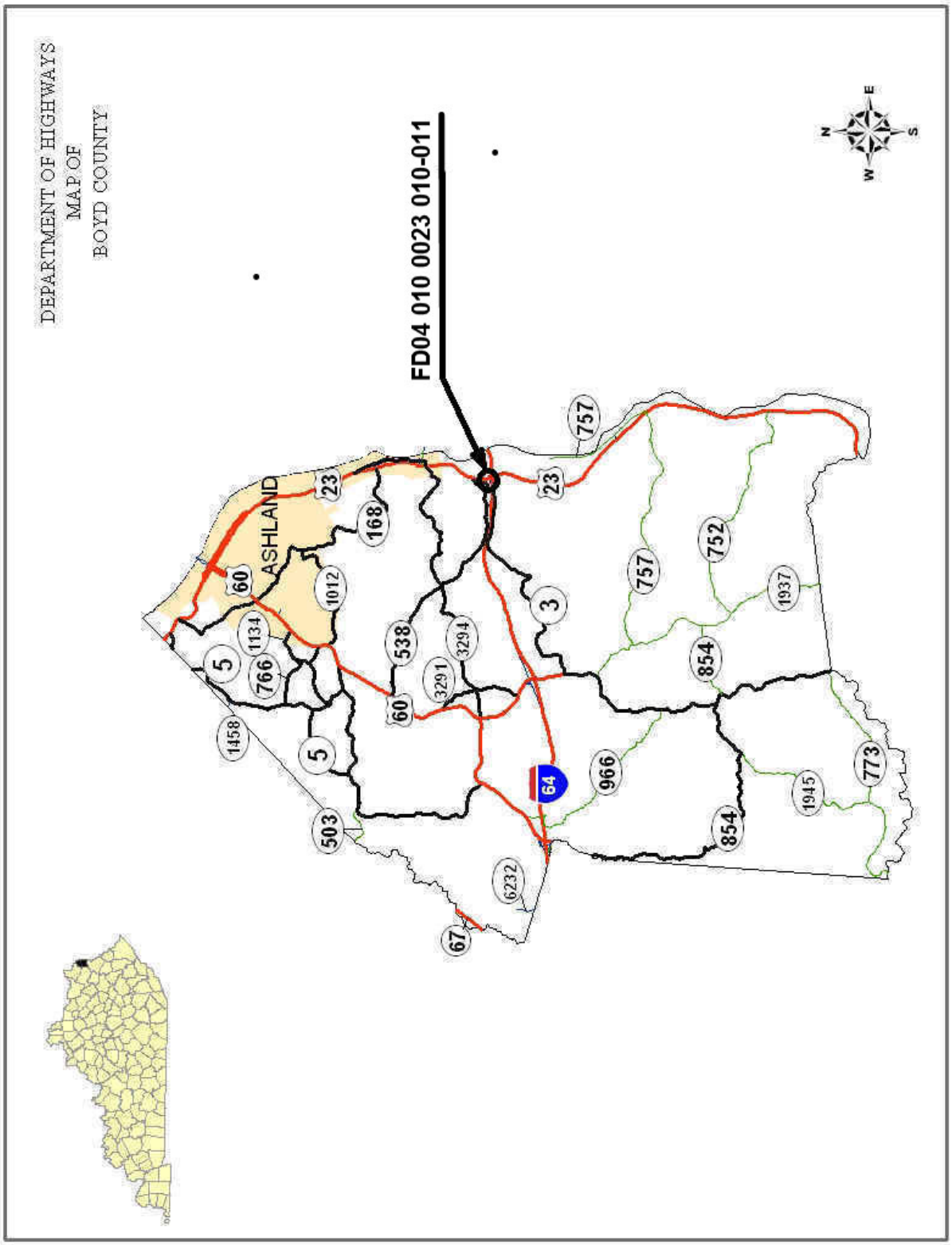
Erosion Control Blanket. If not listed as a bid item, but required by the BMP, the Department will pay for Erosion Control Blankets as Extra Work according to Sections 104.03 and 109.04.

Sodding. If not listed as a bid item, but required by the BMP, the Department will pay for Sodding as Extra Work according to Sections 104.03 and 109.04.

Channel Lining. The Department will pay for Channel Lining as according to Section 703.05.

Erosion Control. Contrary to Sections 212.05 and 213.05, other than Erosion Control Blanket, Sodding, and Channel Lining, payment at the Contract lump sum price for Erosion Control, shall be full compensation for all materials, equipment, labor and incidentals necessary to complete the erosion and water pollution control work as specified in these notes, Sections 212 and 213, the Supplemental Specifications, applicable Special Provisions and Special Notes, and Standard and Sepia Drawings, including but not limited to developing, updating, and maintaining a BMP plan for each site; providing a KEPSC-RI qualified inspector; locating, furnishing, installing, inspecting, maintaining, and removing erosion and water pollution control items; Roadway Excavation, Borrow Excavation, Embankment In Place, Topsoil Furnished and Placed, and Spreading Stockpiled Topsoil; Topdressing Fertilizer, Temporary and Permanent Seeding and Protection, Special Seeding Crown Vetch, and Temporary Mulch; Sedimentation Basin and Clean Sedimentation Basin, Silt Trap Type "A" and Clean Silt Trap Type "A"; Silt Trap Type "B" and Clean Silt Trap

Type “B”; Silt Trap Type “C” and Clean Silt Trap Type “C”; Temporary Silt Fence and Clean Temporary Silt Fence; Plants, Vines, Shrubs, and Trees; Gabion and Dumped Stone Deflectors and Riffle Structures; Boulders; Temporary Ditches and clean Temporary Ditches; Geotextile Fabric and all other erosion and water pollution control items required by the BMP or the Engineer.

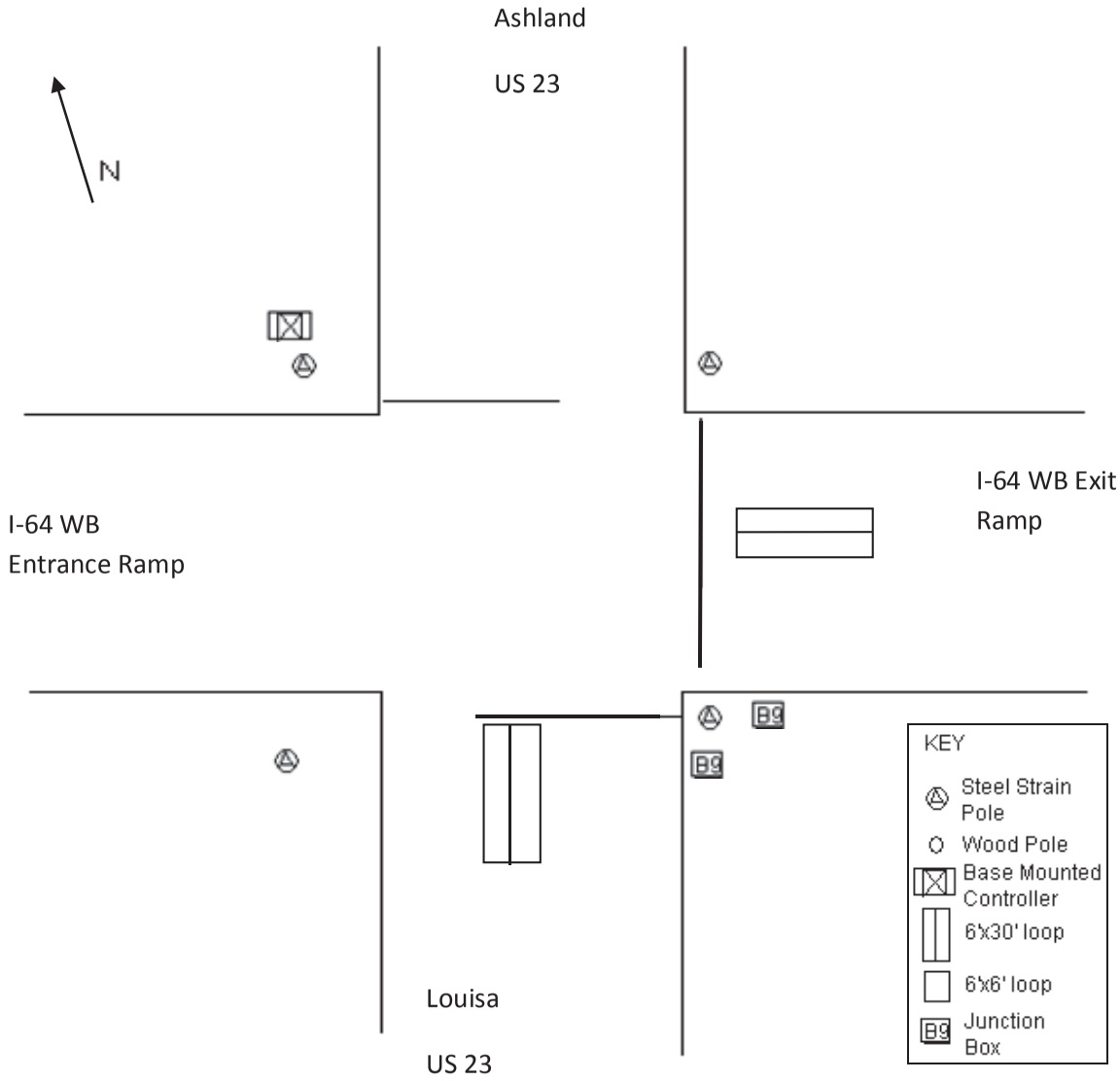

DEPARTMENT OF HIGHWAYS
MAP OF
BOYD COUNTY
FD04 010 0023 010-011
ASHLAND
23
168
1012
60
1134
766
5
1458
503
538
3294
3291
3
757
752
1937
854
966
64
1945
773
6232
67
N
E
S
W

GUARDRAIL SUMMARY

NEW GUARDRAIL							REMOVE GUARDRAIL				
LANE	END TREAT.	BEGIN MILEPOINT	END MILEPOINT	END TREAT.	LIN FEET	REMARKS	LANE	BEGIN MILEPOINT	END MILEPOINT	LIN FEET	REMARKS
NB	Bridge End Connector Type A-1	10.622	10.667	Tie To Existing	300.0		NB	10.622	10.667	300.0	
SB	Tie to Existing	10.667	10.622	Bridge End Connector Type A	300.0		SB	10.667	10.622	300.0	
		Totals			600.0			Totals		600.0	

TRAFFIC LOOP SUMMARY

LOCATION	PRE-FORMED LOOPS LF	LOOPS LEAD-IN LF	SAW, SLOT AND FILL LF	LOOP WIRE LF	CONDUIT 1 INCH LF	CABLE NO. 14/1 LF	JUNCTION BOX		LOOP TEST EACH
							TYPE B EA	10X8X4 EA	
WB EXIT RAMP	102	25			15	330	1		1
NB US 23	102	60			15	330	1		1
TOTALS	204	85	0	0	30	660	2	0	2



County	Boyd
Route	US 23
Side Street	I-64 Ramp
MP	10.667
Date	8/28/2018

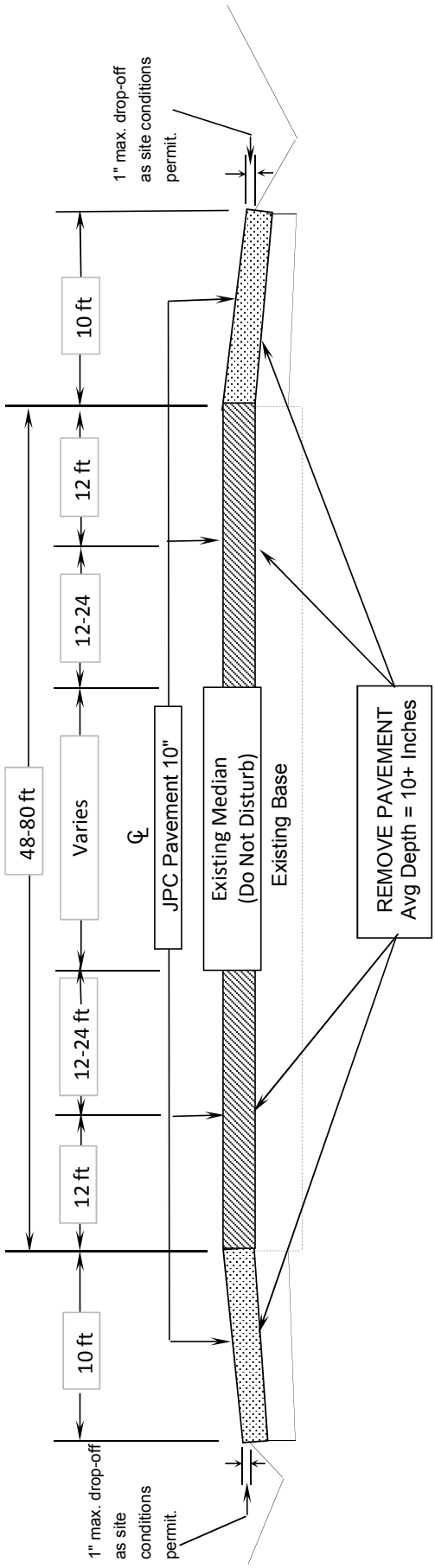
COMMENTS:

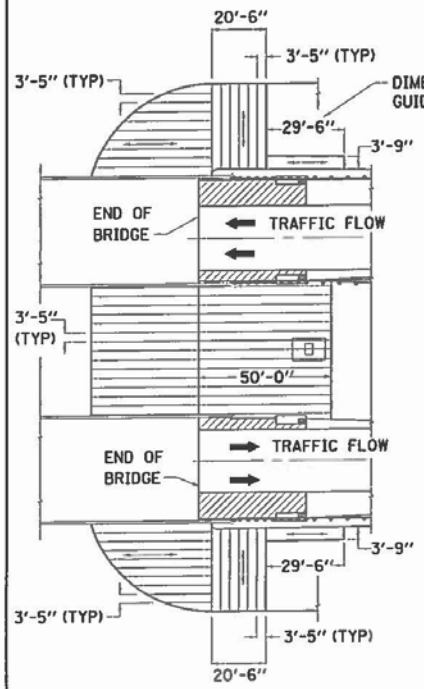
All loops are preformed quadrapole loops.

***Contractor is responsible for verifying preformed loop lengths and lead-ins before ordering.**

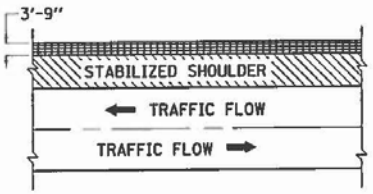
Bid item code	Bid item	Unit	EB Approach	WB Approach	NB Approach	SB Approach	Total
20453ES835	Preformed Quadrapole Loops	LF		102	102		204
4894	Preformed Loop/Lead-In	LF		25	60		85

TYPICAL SECTION





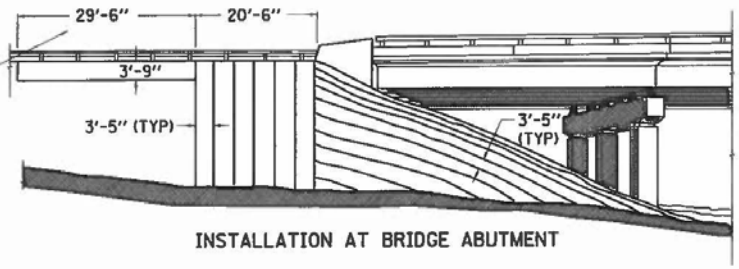
PLAN VIEW
INSTALLATION AT BRIDGE ABUTMENT



INSTALLATION ADJACENT TO ROADWAY

ANY AREA WITHIN 8'-0" OF THE ROADWAY THAT IS SEEDED SHALL BE PROTECTED WITH ONE 3'-9" WIDTH OF NETTING.

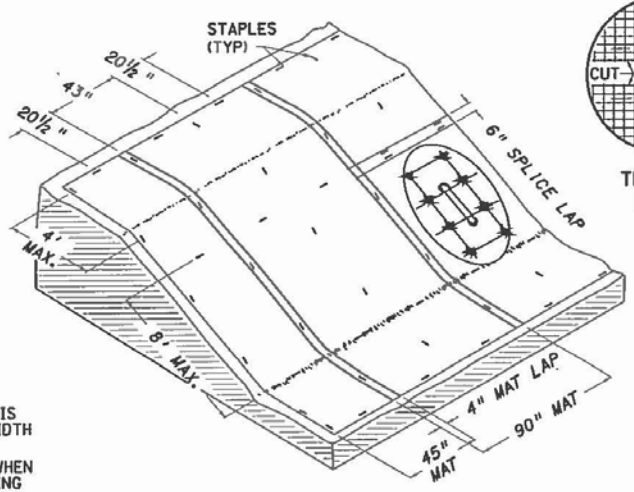
STABILIZED SHOULDERS HAVE BEEN DEPICTED. WHEN THE SHOULDERS ARE EARTH THE STRIP OF NETTING SHALL BE ADJACENT TO THE ROADWAY.



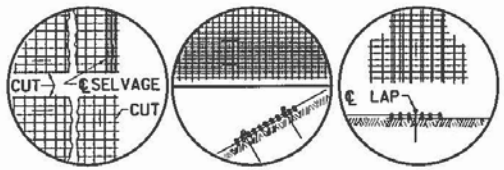
INSTALLATION AT BRIDGE ABUTMENT

NOTES

1. METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE IN ACCORDANCE WITH KENTUCKY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
2. BLACK PLASTIC NETTING: MANUFACTURED FROM EXTRUDED RECTANGULAR MESH PLASTIC; A MINIMUM OF 45" WIDE, APPROXIMATELY ¾"X1" MESH OPENINGS; WEIGHING NOT LESS THAN 2.6 LBS. PER 1000 SQ. FT. (±0.5 LB). OTHER NETTING MAY BE USED IF APPROVED BY THE ENGINEER.
3. STAPLES SHALL BE U-SHAPED AND MADE FROM STEEL WIRE OF NO. WI-WI.5 OR W2 AS NEEDED FOR INSTALLATION CONDITIONS. THE STAPLES SHALL HAVE A MINIMUM WIDTH OF 1" AND A MINIMUM LENGTH OF 6".
4. NETTING SHALL BE INSTALLED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, ALL IN ACCORDANCE WITH THIS STANDARD DRAWING.
5. STAPLES SHALL BE DRIVEN FLUSH WITH SOIL SURFACE AT ALL EDGES AND LAPS IN ALTERNATE ROWS OF 4'-0" AND 8'-0" MAXIMUM SPACING DOWN THE SLOPE AS DEPICTED BELOW, (BEGIN AND END ALL INSTALLATIONS WITH A ROW OF STAPLES ON 4'-0" MAXIMUM SPACING) WITH THE STAPLE TOPS TURNED AS FOLLOWS; STAPLES ON 4'-0" SPACING, PARALLEL TO MAT LENGTH. STAPLES SHALL BRIDGE A MINIMUM OF TWO STRANDS OF NETTING AND BE LOCATED WITH AT LEAST TWO STRANDS BETWEEN STAPLE AND ALL EDGES. KEEP NETTING TAUT AND IN CONTACT WITH THE MULCH AT ALL POINTS, BUT DO NOT STRETCH.



INSTALLATION ON SLOPES



TERMINAL EDGES | 6" SPLICE LAP | 4" MAT LAP

NETTING

GUARDRAIL DELIVERY VERIFICATION SHEET

CONTRACT ID 192121

DESCRIPTION	UNIT	QUANTITIES FIELD VERIFIED	QUANTITIES DELIVERED
GUARDRAIL STEEL W BEAM	LF		
GUARDRAIL STEEL THRIE BEAM	LF		
GUARDRAIL THRIE BEAM-W BEAM CONNECTOR	EA		
GUARDRAIL TERMINAL SECTION No. 1	EA		
GUARDRAIL TERMINAL SECTION No. 2	EA		
GUARDRAIL TERMINAL SECTION No. 3	EA		
GUARDRAIL THRIE BEAM TERMINAL SECTION	EA		
CRASH CUSHION TYPE VI	EA		
CRASH CUSHION TYPE VII	EA		
CRASH CUSHION TYPE IX/IX-A	EA		
GUARDRAIL END TREATMENT TYPE 1	EA		
GUARDRAIL END TREATMENT TYPE 2A	EA		
GUARDRAIL END TREATMENT TYPE 3	EA		
GUARDRAIL END TREATMENT TYPE 4A	EA		
GUARDRAIL END TREATMENT TYPE 7	EA		
GUARDRAIL CONNECTOR TO BRIDGE END TYPE A/A-1	EA		
GUARDRAIL CONNECTOR TO BRIDGE END TYPE E/E-1	EA		
GUARDRAIL CONNECTOR TO BRIDGE END TYPE C	EA		
GUARDRAIL CONNECTOR TO BRIDGE END TYPE D	EA		
GUARDRAIL CONNECTOR TO CONC MED PIER	EA		
GUARDRAIL CONNECTOR TO CONC SHLDR PIER	EA		
GUARDRAIL POSTS-STEEL	EA		
GUARDRAIL OFFSET BLOCK TYPE 4	EA		
GUARDRAIL OFFSET BLOCK STEEL	EA		
GUARDRAIL OFFSET BLOCK THRIE BEAM	EA		
GUARDRAIL BACK-UP PLATE W BEAM	EA		
GUARDRAIL BACK-UP PLATE THRIE BEAM	EA		
GUARDRAIL NUTS, BOLTS, & WASHERS	BAG		

NOTES:

1. Dispose of concrete foundations and timber posts off the Right-of-Way at sites obtained by the Contractor at no additional cost to the Department.
2. Salvage and deliver removed guardrail system components, other than concrete foundations and timber posts, to the Department's Boyd County maintenance facility.
3. Prior to removing the materials from the project site, obtain the Contractor's and Engineer's representativ's signatures.
4. Upon delivery, obtain the Boyd County mintenance facility's representative's signature and submit this completed form to the Engineer.
5. The Department will not measure removed guardrail components for payment without completed delivery verification sheet(s).

	PRINTED NAME	SIGNATURE	DATE
RESIDENT ENGINEER'S REPRESENTATIVE	_____	_____	_____
CONTRACTOR'S REPRESENTATIVE	_____	_____	_____
BOYD COUNTY MAINTENANCE FACILITY'S REPRESENTATIVE	_____	_____	_____

PART II

SPECIFICATIONS AND STANDARD DRAWINGS

SPECIFICATIONS REFERENCE

Any reference in the plans or proposal to previous editions of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 2012* and *Standard Drawings, Edition of 2016.*

SUPPLEMENTAL SPECIFICATIONS

The contractor shall use the Supplemental Specifications that are effective at the time of letting. The Supplemental Specifications can be found at the following link:

http://transportation.ky.gov/Construction/Pages/Kentucky-Standard-Specifications.aspx

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SPECIAL NOTE FOR PORTABLE CHANGEABLE MESSAGE SIGNS

This Special Note will apply when indicated on the plans or in the proposal.

1.0 DESCRIPTION. Furnish, install, operate, and maintain variable message signs at the locations shown on the plans or designated by the Engineer. Remove and retain possession of variable message signs when they are no longer needed on the project.

2.0 MATERIALS.

2.1 General. Use LED Variable Message Signs Class I, II, or III, as appropriate, from the Department's List of Approved Materials.

Unclassified signs may be submitted for approval by the Engineer. The Engineer may require a daytime and nighttime demonstration. The Engineer will make a final decision within 30 days after all required information is received.

2.2 Sign and Controls. All signs must:

1) Provide 3-line messages with each line being 8 characters long and at least 18 inches tall. Each character comprises 35 pixels.
2) Provide at least 40 preprogrammed messages available for use at any time. Provide for quick and easy change of the displayed message; editing of the message; and additions of new messages.
3) Provide a controller consisting of:
   a) Keyboard or keypad.
   b) Readout that mimics the actual sign display. (When LCD or LCD type readout is used, include backlighting and heating or otherwise arrange for viewing in cold temperatures.)
   c) Non-volatile memory or suitable memory with battery backup for storing pre-programmed messages.
   d) Logic circuitry to control the sequence of messages and flash rate.
4) Provide a serial interface that is capable of supporting complete remote control ability through land line and cellular telephone operation. Include communication software capable of immediately updating the message, providing complete sign status, and allowing message library queries and updates.
5) Allow a single person easily to raise the sign to a satisfactory height above the pavement during use, and lower the sign during travel.
6) Be Highway Orange on all exterior surfaces of the trailer, supports, and controller cabinet.
7) Provide operation in ambient temperatures from -30 to + 120 degrees Fahrenheit during snow, rain and other inclement weather.
8) Provide the driver board as part of a module. All modules are interchangeable, and have plug and socket arrangements for disconnection and reconnection. Printed circuit boards associated with driver boards have a conformable coating to protect against moisture.
9) Provide a sign case sealed against rain, snow, dust, insects, etc. The lens is UV stabilized clear plastic (polycarbonate, acrylic, or other approved material) angled to prevent glare.
10) Provide a flat black UV protected coating on the sign hardware, character PCB, and appropriate lens areas.
11) Provide a photocell control to provide automatic dimming.

1I

12) Allow an on-off flashing sequence at an adjustable rate.
13) Provide a sight to aim the message.
14) Provide a LED display color of approximately 590 nm amber.
15) Provide a controller that is password protected.
16) Provide a security device that prevents unauthorized individuals from accessing the controller.
17) Provide the following 3-line messages preprogrammed and available for use when the sign unit begins operation:

/KEEP/RIGHT/⇒⇒⇒/
/KEEP/LEFT/⇐⇐⇐/
/LOOSE/GRAVEL/AHEAD/
/RD WORK/NEXT/**MILES/
/TWO WAY/TRAFFIC/AHEAD/
/PAINT/CREW/AHEAD/
/REDUCE/SPEED/**MPH/
/BRIDGE/WORK/***0 FT/
/MAX/SPEED/**MPH/
/SURVEY/PARTY/AHEAD/
/MIN/SPEED/**MPH/
/ICY/BRIDGE/AHEAD/ /ONE LANE/BRIDGE/AHEAD/
/ROUGH/ROAD/AHEAD/
/MERGING/TRAFFIC/AHEAD/
/NEXT/***/MILES/
/HEAVY/TRAFFIC/AHEAD/
/SPEED/LIMIT/**MPH/
/BUMP/AHEAD/
/TWO/WAY/TRAFFIC/

*Insert numerals as directed by the Engineer.
Add other messages during the project when required by the Engineer.

2.3 Power.

1) Design solar panels to yield 10 percent or greater additional charge than sign consumption. Provide direct wiring for operation of the sign or arrow board from an external power source to provide energy backup for 21 days without sunlight and an on-board system charger with the ability to recharge completely discharged batteries in 24 hours.

3.0 CONSTRUCTION. Furnish and operate the variable message signs as designated on the plans or by the Engineer. Ensure the bottom of the message panel is a minimum of 7 feet above the roadway in urban areas and 5 feet above in rural areas when operating. Use Class I, II, or III signs on roads with a speed limit less than 55 mph. Use Class I or II signs on roads with speed limits 55 mph or greater.

Maintain the sign in proper working order, including repair of any damage done by others, until completion of the project. When the sign becomes inoperative, immediately repair or replace the sign. Repetitive problems with the same unit will be cause for rejection and replacement.

Use only project related messages and messages directed by the Engineer, unnecessary messages lessen the impact of the sign. Ensure the message is displayed in either one or 2 phases with each phase having no more than 3 lines of text. When no message is needed, but it is necessary to know if the sign is operable, flash only a pixel.

When the sign is not needed, move it outside the clear zone or where the Engineer directs. Variable Message Signs are the property of the Contractor and shall be removed from the project when no longer needed. The Department will not assume ownership of these signs.

4.0 MEASUREMENT. The final quantity of Variable Message Sign will be

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the actual number of individual signs acceptably furnished and operated during the project. The Department will not measure signs replaced due to damage or rejection.

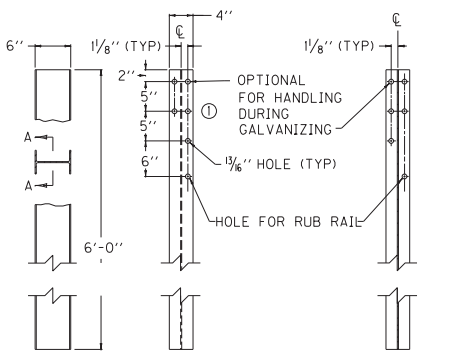
5.0 PAYMENT. The Department will pay for the Variable Message Signs at the unit price each. The Department will not pay for signs replaced due to damage or rejection. Payment is full compensation for furnishing all materials, labor, equipment, and service necessary to, operate, move, repair, and maintain or replace the variable message signs. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
02671	Portable Changeable Message Sign	Each

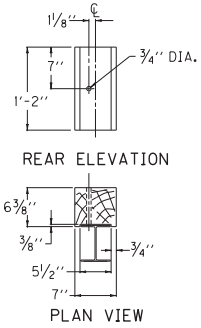
Effective June 15, 2012

2016 KENTUCKY STANDARD DRAWINGS

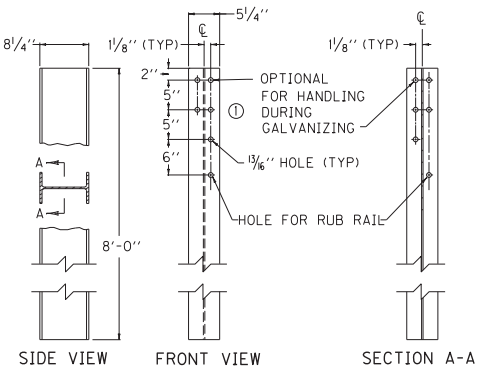
COUNTY OF	ITEM NO.	SHEET NO.



~ W6 X 9.0 STEEL GUARDRAIL POST ~
(USED WITH C6 X 8.2 RUB RAIL)

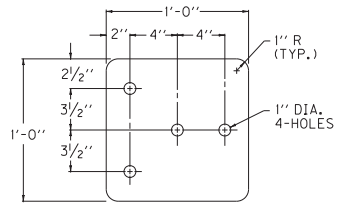


OFFSET BLOCK TYPE 6
(TIMBER OR APPROVED COMPOSITE)

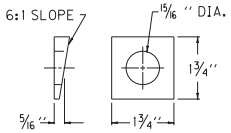


~ W8 X 21 STEEL GUARDRAIL POST ~

~ NOTES ~
① THESE HOLES ARE REQUIRED FOR ATTACHING RAIL.



5/8'' STEEL PLATE ''A''



BEVELED WASHER

USE WITH CUR. STD. DWGS.
RBC-002, RBC-005, RBC-006

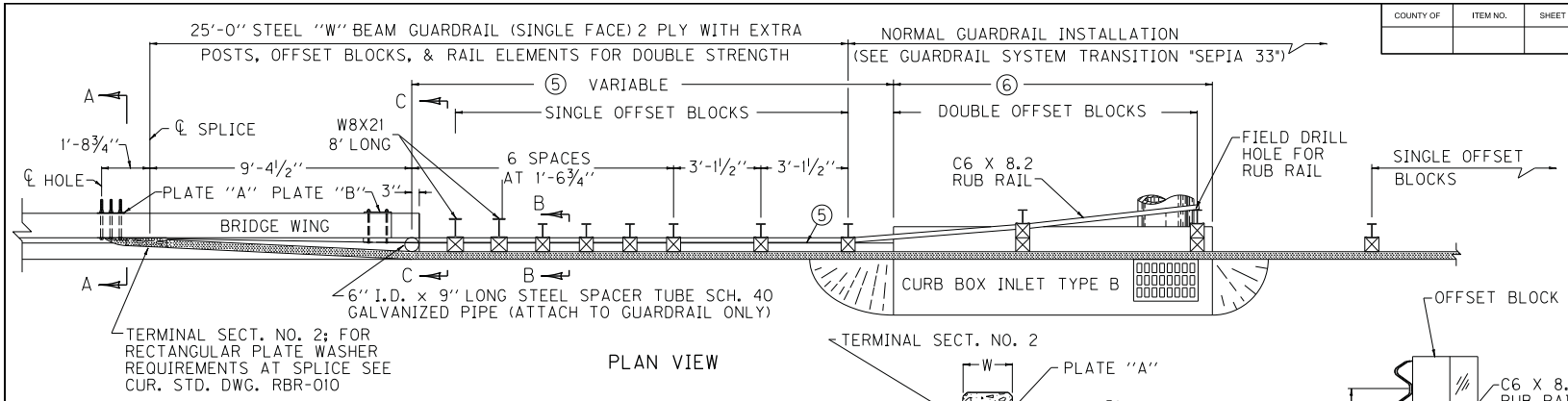
KENTUCKY DEPARTMENT OF HIGHWAYS

GUARDRAIL CONNECTOR TO BRIDGE END TYPE A AND A-1 COMPONENTS

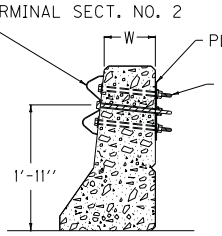
SUBMITTED _____ ACTING DIRECTOR DIVISION OF DESIGN — 12-20-18 DATE

013

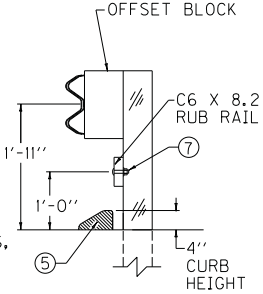
COUNTY OF	ITEM NO.	SHEET NO.



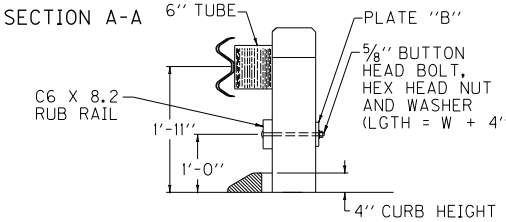
PLAN VIEW



SECTION A-A



SECTION B-B



SECTION C-C

~ NOTES ~

1. GENERAL
   a. SEE CUR. STD. DWGS. IN THE RBB, RBI, RBR, AND RPM-SERIES FOR OTHER RELATED GUARDRAIL DETAILS AND BRIDGE PLANS FOR BRIDGE WING DETAIL.
   b. SEE CUR. STD. DWG. RDB-SERIES FOR CURB BOX INLET TYPE B.
   c. GUARDRAIL CONNECTOR TO BRIDGE END TYPE A IS FOR USE ON BOTH BRIDGE ENDS OF AN UNDIVIDED HIGHWAY AND ON THE APPROACH BRIDGE ENDS OF A DIVIDED HIGHWAY.
2. MATERIAL REQUIREMENTS
   ALL HARDWARE SHALL BE GALVANIZED. (AASHTO M-232)
   ⅝" STEEL PLATE "A" AND "B" (AASHTO M-270)
   ⅞" HEX HEAD BOLTS OR STEEL THREADED RODS (LENGTH AS SHOWN)
   ⅞" HEAVY HEX NUTS (⅞" THICK) (AASHTO M-291)
   ⅞" FLAT WASHERS (3/16" THICK) (AASHTO M-293)
   ⅞" BEVELED WASHERS (5/16" MEAN THICKNESS) (AASHTO M-293)
   BOTH THE BOLT AND THREADED ROD SHALL HAVE A MINIMUM OF 50,000 LBS. TENSILE STRENGTH AT THE NARROWEST POINT.
3. CONSTRUCTION METHODS
   a. ELIMINATE EXTRA OFFSET BLOCKS WHEN CURB BOX INLET TYPE B IS NOT REQUIRED.
   b. HOLES TO BE FORMED THROUGH BRIDGE WING WITH 1" I.D. PLASTIC PIPE FOR ⅞" BOLTS AND ¾" I.D. PLASTIC PIPE FOR ⅝" BOLTS, PIPE SHALL REMAIN IN PLACE.
4. METHOD OF MEASUREMENT AND BASIS OF PAYMENT
   a. GUARDRAIL CONNECTOR TO BRIDGE END TYPE A SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, AND INCLUDES: TERMINAL SECTION NO. 2; ALL ITEMS WHICH ARE IN ADDITION TO THE NORMAL INSTALLATION OF STEEL BEAM GUARDRAIL (EXTRA POSTS, OFFSET BLOCKS, RAIL ELEMENTS, SPACER TUBE, HARDWARE, RUB RAIL, ETC.), AND OTHER INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION AS DETAILED. STEEL "W" BEAM GUARDRAIL (SINGLE FACE) AND ISLAND HEADER CURB ARE SEPARATE BID ITEMS WHICH ARE ALWAYS REQUIRED. CURB BOX INLET TYPE B IS A SEPARATE BID ITEM THAT WILL BE USED WHEN REQUIRED FOR BRIDGE END DRAINAGE.

BID ITEMS AND UNIT TO BID	
GUARDRAIL CONNECTOR TO BRIDGE END TY A	EACH
GUARDRAIL-STEEL "W" BEAM-S FACE	LF
ISLAND HEADER CURB TYPE 1 OR 2	LF
CURB BOX INLET TYPE B (AS REQUIRED)	EACH

   b. THE PLASTIC PIPE AND COST OF FORMING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR BRIDGE SUPERSTRUCTURE CONCRETE.

⑤ ISLAND HEADER CURB. TRANSITION FROM ISLAND CURB SHAPE TO SHAPE ON BRIDGE WING WITHIN 7'-3". LENGTH OF CURB VARIABLE (22'-3" WHEN L=5'-0") (17'-3" WHEN L=10'-0") (12'-3" WHEN L=15'-0") (7'-3" WHEN L=20'-0"). ON APPROACH END CONSTRUCT 25'-0" OF ISLAND HEADER CURB EVEN WHEN CURB BOX INLET TYPE B IS NOT REQUIRED.

⑥ 6'-4" WHEN L=5'-0"
11'-4" WHEN L=10'-0" ☆
16'-4" WHEN L=15'-0"
21'-4" WHEN L=20'-0"

⑦ ⅝" X 3½" BUTTON HEAD BOLT, HEX HEAD NUT.

8. CURB BOX NOT REQUIRED UNLESS NEEDED FOR DRAINAGE.

☆ 10'-0" LENGTH IS REQUIRED UNLESS OTHERWISE NOTED.

L EQUALS THROAT LENGTH OF BOX.

USE WITH CUR. STD. DWGS.
BHS-008, RBC-002, RBC-003
RBR-010

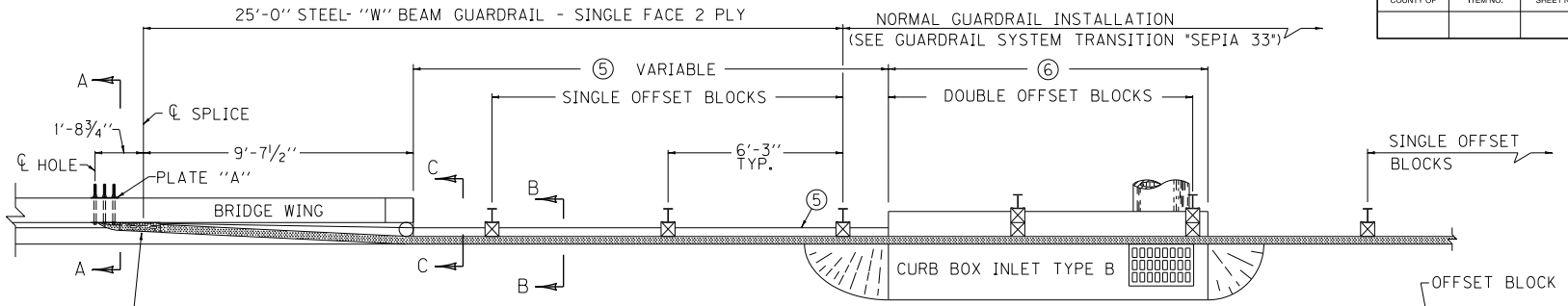
KENTUCKY DEPARTMENT OF HIGHWAYS

GUARDRAIL CONNECTOR TO BRIDGE END TYPE A

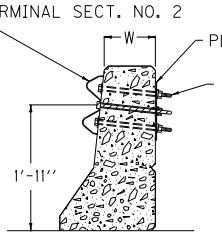
SUBMITTED William S. Ballard DIRECTOR DIVISION OF DESIGN 4-04-18 DATE

015

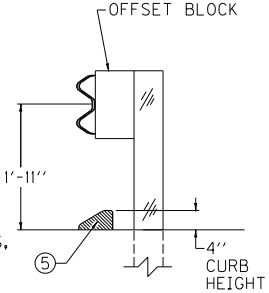
COUNTY OF	ITEM NO.	SHEET NO.



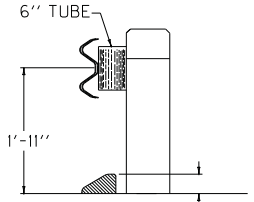
PLAN VIEW



SECTION A-A



SECTION B-B



SECTION C-C

~ NOTES ~

1. GENERAL
   a. SEE CUR. STD. DWGS. IN THE RBB, RBI, RBR, AND RPM-SERIES FOR OTHER RELATED GUARDRAIL DETAILS AND BRIDGE PLANS FOR BRIDGE WING DETAIL.
   b. SEE CUR. STD. DWG. RDB-SERIES FOR CURB BOX INLET TYPE B.
   c. GUARDRAIL CONNECTOR TO BRIDGE END TYPE A-1 IS FOR USE ON THE EXIT END OF A DIVIDED HIGHWAY.
2. MATERIAL REQUIREMENTS
   ALL HARDWARE SHALL BE GALVANIZED. (AASHTO M-232)
   ⅝" STEEL PLATE "A" (AASHTO M-270)
   ⅞" HEX HEAD BOLTS OR STEEL THREADED RODS (LENGTH AS SHOWN)
   ⅞" HEAVY HEX NUTS (⅞" THICK) (AASHTO M-291)
   ⅞" FLAT WASHERS (3⁄16" THICK) (AASHTO M-293)
   ⅞" BEVELED WASHERS (5⁄16" MEAN THICKNESS) (AASHTO M-293)
   BOTH THE BOLT AND THREADED ROD SHALL HAVE A MINIMUM OF 50,000 LBS. TENSILE STRENGTH AT THE NARROWEST POINT.
3. CONSTRUCTION METHODS
   a. ELIMINATE EXTRA OFFSET BLOCKS WHEN CURB BOX INLET TYPE B IS NOT REQUIRED.
   b. HOLES TO BE FORMED THROUGH BRIDGE WING WITH 1" I.D. PLASTIC PIPE FOR ⅞" BOLTS. PLASTIC PIPE SHALL REMAIN IN PLACE.
4. METHOD OF MEASUREMENT AND BASIS OF PAYMENT
   a. GUARDRAIL CONNECTOR TO BRIDGE END TYPE A-1 SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, WHICH INCLUDES TERMINAL SECT. NO. 2, RAIL ELEMENTS, SPACER TUBE, HARDWARE AND ALL OTHER INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION. STEEL "W" BEAM GUARDRAIL (SINGLE FACE) AND ISLAND HEADER CURB ARE SEPARATE BID ITEMS WHICH ARE ALWAYS REQUIRED. CURB BOX INLET TYPE B IS A SEPARATE BID ITEM THAT WILL BE USED WHEN REQUIRED FOR BRIDGE END DRAINAGE.

BID ITEMS AND UNIT TO BID	
GUARDRAIL CONNECTOR TO BRIDGE END TY A-1	EACH
GUARDRAIL-STEEL "W" BEAM-S FACE	LF
ISLAND HEADER CURB TYPE 1 OR 2	LF
CURB BOX INLET TYPE B (AS REQUIRED)	EACH

   b. THE PLASTIC PIPE AND COST OF FORMING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR BRIDGE SUPERSTRUCTURE CONCRETE.

⑤ ISLAND HEADER CURB. TRANSITION FROM ISLAND CURB SHAPE TO SHAPE ON BRIDGE WING WITHIN 7'-3". LENGTH OF CURB VARIABLE (22'-3" WHEN L=5'-0") (17'-3" WHEN L=10'-0") (12'-3" WHEN L=15'-0") (7'-3" WHEN L=20'-0"). ON THE APPROACH END CONSTRUCT 25'-0" OF ISLAND HEADER CURB EVEN WHEN CURB BOX INLET TYPE B IS NOT REQUIRED.

⑥ 6'-4" WHEN L=5'-0"
11'-4" WHEN L=10'-0" ☆
16'-4" WHEN L=15'-0"
21'-4" WHEN L=20'-0"

7. CURB BOX NOT REQUIRED UNLESS NEEDED FOR DRAINAGE.

☆ 10'-0" LENGTH IS REQUIRED UNLESS OTHERWISE NOTED.

L EQUALS THROAT LENGTH OF BOX.

USE WITH CUR. STD. DWGS. BHS-008, RBC-002, RBC-003, RBR-010

KENTUCKY DEPARTMENT OF HIGHWAYS

GUARDRAIL CONNECTOR TO BRIDGE END TYPE A-1

SUBMITTED William S. Stallard DIRECTOR DIVISION OF DESIGN 4-04-18 DATE

016

COUNTY OF	ITEM NO.	SHEET NO.
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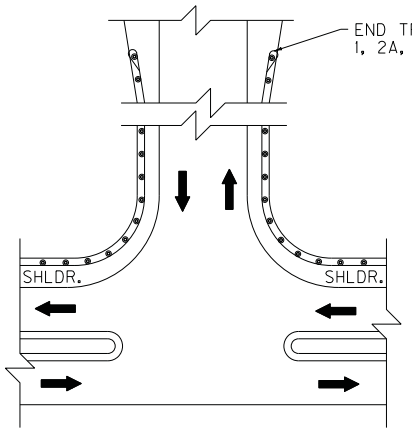
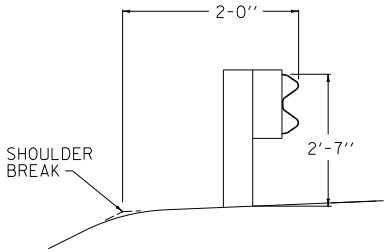


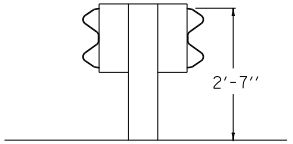
APPROACH ROADS

~ NOTES ~

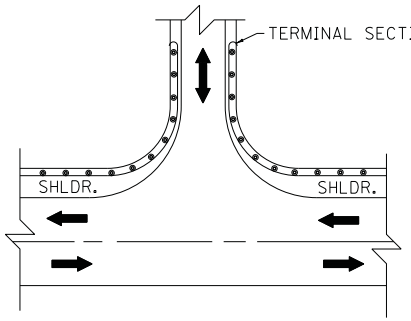
1. FOR END TREATMENT TYPE 4A USE CUR. STD. DWG. RBR-035 FOR OFFSETS.
2. THE MINIMUM LENGTH OF GUARDRAIL, INCLUDING THE END TREATMENT, PRECEDING A FIXED OBJECT IS 200 FEET: (LENGTH MAY BE REDUCED SHOULD FIELD CONDITIONS WARRANT).



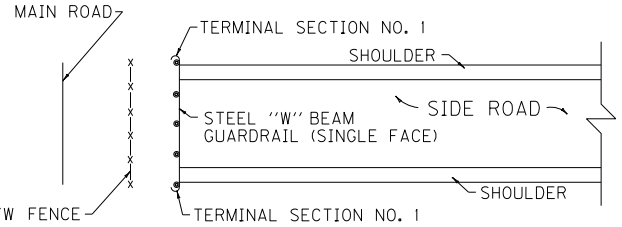
NORMAL GUARDRAIL INSTALLATION



TYPICAL DOUBLE FACE
GUARDRAIL INSTALLATION



ENTRANCES



GUARDRAIL USED AS A BARRICADE

USE WITH CUR. STD. DWG.
RBI-002, RBR-035

KENTUCKY
DEPARTMENT OF HIGHWAYS

TYPICAL GUARDRAIL
INSTALLATIONS

SUBMITTED William S. Ballard 11-17-17
DIRECTOR DIVISION OF DESIGN DATE

024

COUNTY OF	ITEM NO.	SHEET NO.
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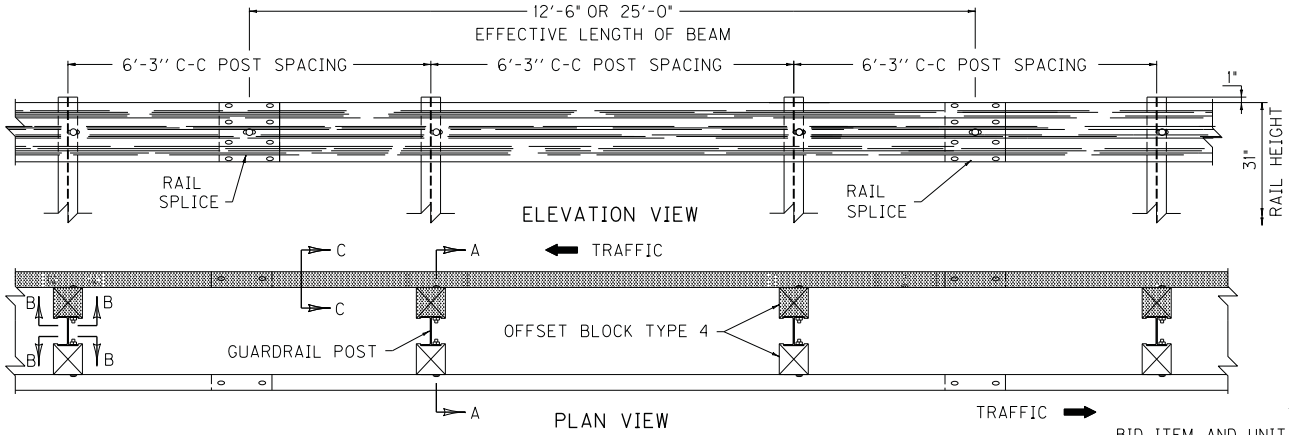
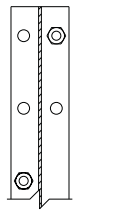
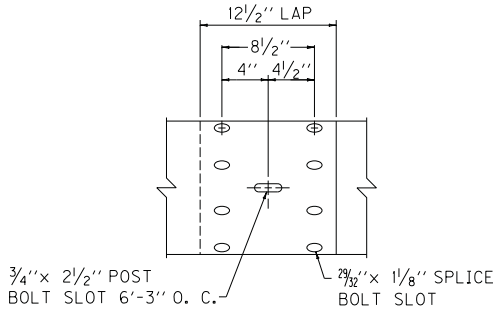


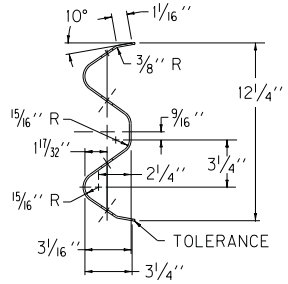
(DOUBLE FACE RAIL OR SINGLE FACE RAIL)



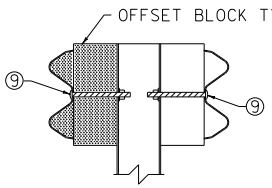
SECTION B-B



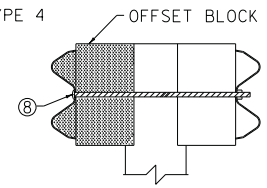
RAIL SPLICE ⑤



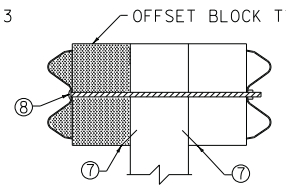
SECTION C-C
(RAIL CORRUGATED SHEET STEEL BEAM)



SECTION A-A
DOUBLE FACE RAIL WITH STEEL POST (W6x9) (TIMBER OR APPROVED COMPOSITE OFFSET BLOCK)



SECTION A-A
DOUBLE FACE RAIL WITH ROUND TIMBER POST



SECTION A-A
DOUBLE FACE RAIL WITH TIMBER POST

~ NOTES ~

BID ITEM AND UNIT TO BID
GUARDRAIL-STEEL W BEAM-S FACE LF
OR
GUARDRAIL-STEEL W BEAM-D FACE LF

1. DIMENSIONAL TOLERANCES NOT SHOWN OR IMPLIED ARE INTENDED TO BE THOSE CONSISTENT WITH THE PROPER FUNCTIONING OF THE PART, INCLUDING ITS APPEARANCE AND ACCEPTED MANUFACTURING PRACTICES.
2. THE RAIL ELEMENT SHALL COMPLY WITH AASHTO M-180 -CLASS A, TYPE II.
3. ALL LAPS SHALL BE PLACED IN THE DIRECTION OF TRAFFIC FLOW.
4. TOLERANCE + 1¼", -¼"
5. 8-⅝"× 1¼" LONG BUTTON HEAD BOLTS AND HEX HEAD RECESS NUTS REQUIRED FOR EACH RAIL SPLICE.
6. LENGTH EQUALS POST AND BLOCK WIDTH PLUS 2" FOR BOLT OR 2¼" FOR THREADED ROD.
7. GALVANIZED STEEL 10d COMMON COATED NAIL (DRIVE NAIL AT THE TOP OR BOTTOM CENTER OF BLOCK AND POST AFTER BOLT IS INSTALLED).
8. ⅝"× ⑥ STEEL THREADED ROD AND TWO (2) HEX HEAD NUTS OR ⅝"× ⑥ BUTTON OR HEX HEAD BOLT AND HEX HEAD NUT.
9. ⅝"×8" BUTTON HEAD BOLT, HEX HEAD RECESS NUT AND ONE ⅝" ROUND WASHER (TYP.). BOLT SHALL HAVE A MINIMUM THREAD LENGTH OF 2".

▨ REQUIRED FOR DOUBLE RAIL

10. BOTH 12'-6" AND 25' LENGTHS OF "W" BEAM GUARDRAIL SECTIONS WILL BE PERMITTED UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

KENTUCKY DEPARTMENT OF HIGHWAYS

STEEL BEAM GUARDRAIL ("W" BEAM)

SUBMITTED William S. Ballard 11-17-17
DIRECTOR DIVISION OF DESIGN DATE

027

COUNTY OF	ITEM NO.	SHEET NO.
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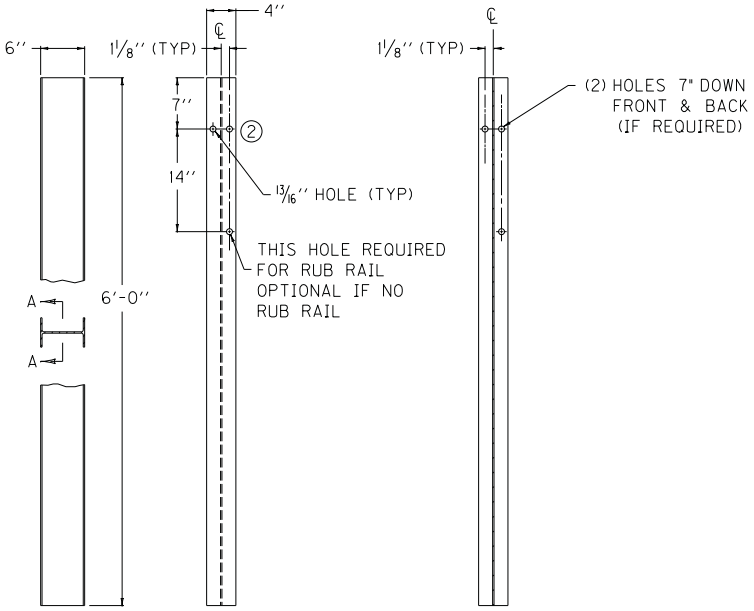


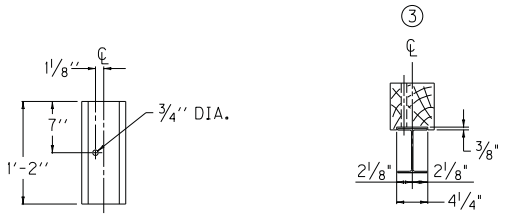
~ W6 X 9.0 STEEL POST ① ~

~ NOTES ~

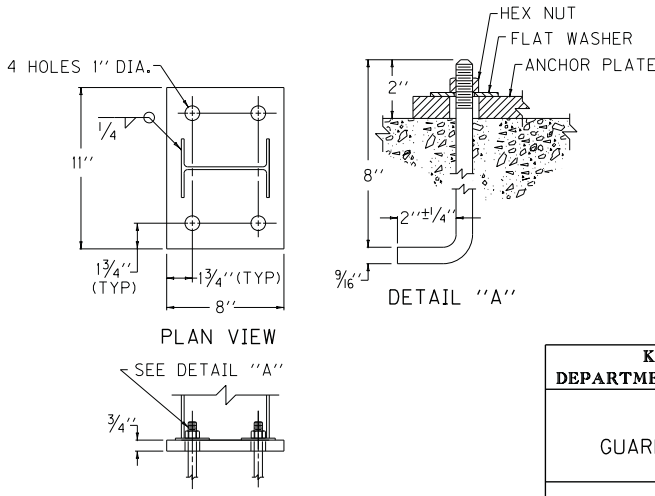
① W6 X 8.5 IS AN ACCEPTABLE ALTERNATE.

② THESE HOLES ARE REQUIRED FOR ATTACHING RAIL.

③ TIMBER OR COMPOSITE BLOCKOUTS MAY BE USED WITH STEEL POST.



OFFSET BLOCK TYPE 4
6" X 8" (Nominal Size)
(TIMBER OR APPROVED COMPOSITE)
(FOR USE WITH STEEL POST ONLY)



KENTUCKY DEPARTMENT OF HIGHWAYS

STEEL
GUARDRAIL POSTS

SUBMITTED William S. Stallard — DIRECTOR DIVISION OF DESIGN — 3-06-18 DATE

028

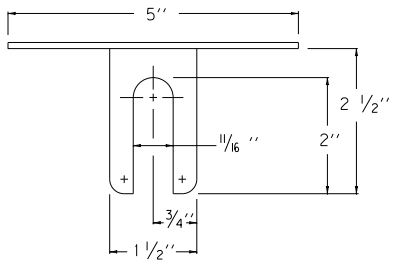
COUNTY OF	ITEM NO.	SHEET NO.

~ NOTES ~

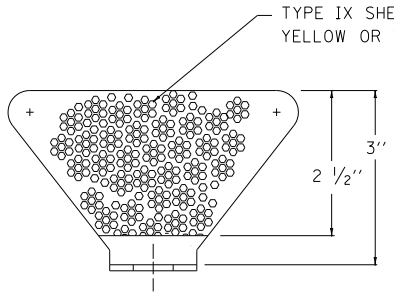
BID ITEMS AND UNIT TO BID

DELINEATOR FOR GUARDRAIL B/W	EACH
DELINEATOR FOR GUARDRAIL M/W	EACH
DELINEATOR FOR GUARDRAIL M/Y	EACH

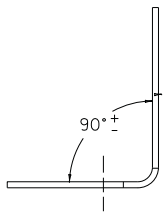
1. DELINEATORS SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE EACH AND SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR ONE COMPLETE INSTALLATION.
2. DELINEATOR SHAPE AND DIMENSIONS ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY. TYPES OF DELINEATORS PERMITTED SHALL BE FROM THE LIST OF APPROVED MATERIALS.
3. GUARDRAIL DELINEATORS SHALL BE REQUIRED ON ALL GUARDRAIL.
4. DELINEATORS SHALL NOT BE INSTALLED WITHIN THE PAY LIMITS OF THE END TREATMENT.
5. DELINEATORS SHALL BE MANUFACTURED FROM 12 GA. GALVANIZED STEEL.
6. DIMENSIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MANUFACTURER'S TOLERANCES.
7. WHEN CONCRETE BARRIERS EXTEND ACROSS BRIDGE STRUCTURES IN LIEU OF STEEL BEAM GUARDRAIL, DELINEATORS SHALL BE INSTALLED AT SAME VERTICAL ALIGNMENT AS ON THE GUARDRAIL, AND DELINEATORS SHALL COMPLY WITH CURRENT STANDARD DRAWING RBM-020.
8. DELINEATORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



PLAN VIEW

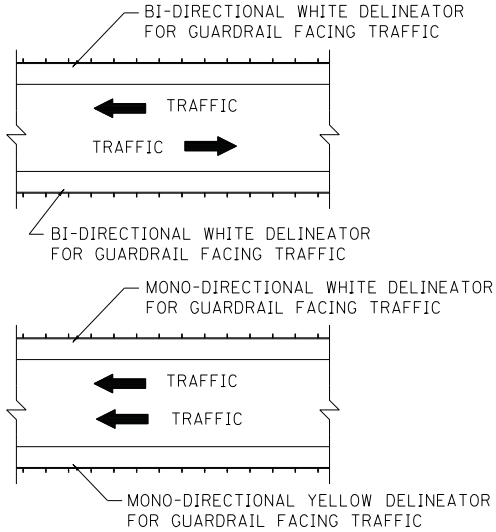


FRONT VIEW

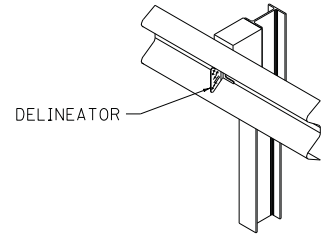


SIDE VIEW

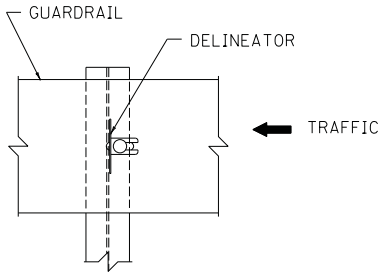
DIMENSIONS SHOWN ARE FOR ONE VERSION OF A WEB-MOUNTED GUARDRAIL DELINEATOR. DELINEATORS WITH ALTERNATE DIMENSIONS MAY BE CONSIDERED FOR INCLUSION ON THE APPROVED PRODUCTS LIST.



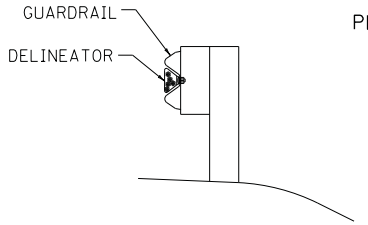
PLACEMENT OF DELINEATORS FOR GUARDRAIL



ISOMETRIC VIEW



FRONT VIEW



SIDE VIEW

APPROXIMATE DELINEATOR SPACING	
TANGENT	100'
CURVE	50'

SPACING SHOULD BE ADJUSTED IN CURVES SO THAT SEVERAL DELINEATORS ARE ALWAYS SIMULTANEOUSLY VISIBLE TO THE ROAD USER.

USE WITH CUR. STD. DWGS. RBM-020, RBR-060

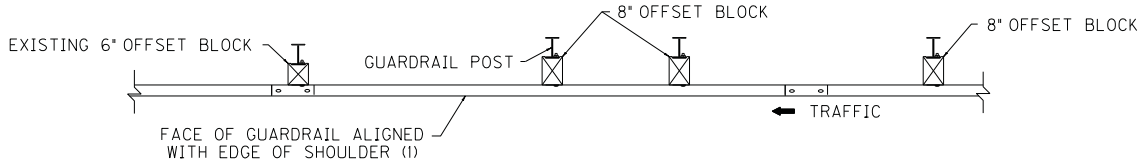
KENTUCKY DEPARTMENT OF HIGHWAYS

DELINEATORS FOR GUARDRAIL

SUBMITTED William S. Stalker DIRECTOR DIVISION OF DESIGN 11-17-17 DATE

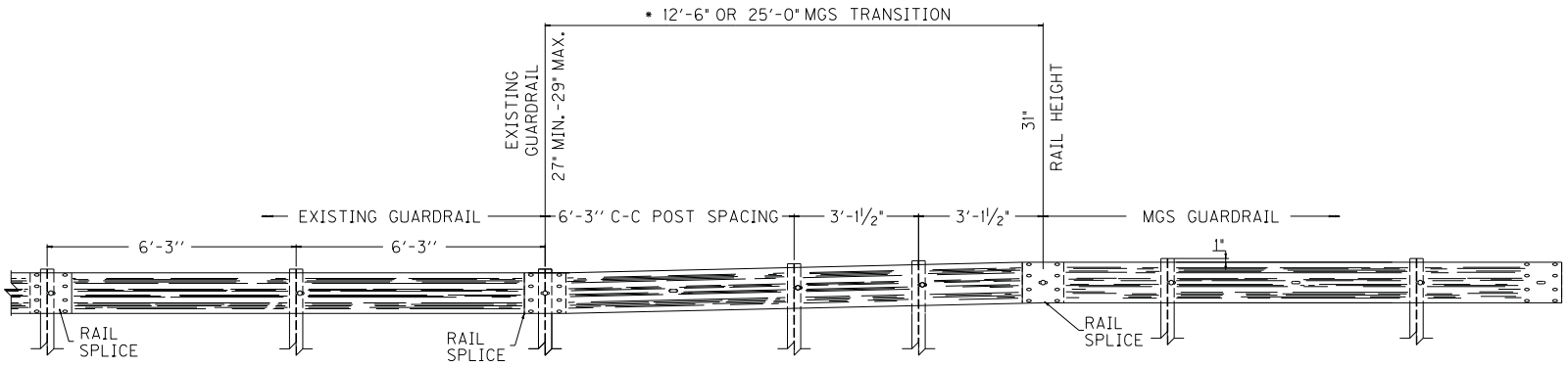
032

COUNTY OF	ITEM NO.	SHEET NO.
————	————	——



PLAN VIEW

* 12'-6" TRANSITION FROM 29" TO 31" SHOWN,
25'-0" REQUIRED FOR 27" TO 31" TRANSITION.



ELEVATION VIEW

~ NOTES ~

1) WHERE POST OFFSET IS CONSTRAINED, AND WHEN THE EXISTING SHOULDER IS WIDER THAN 4 FEET, THE EXISTING SHOULDER MAY BE REDUCED UP TO 2 INCHES TO ACCOMMODATE THE 8 INCH BLOCKS OF THE MGS GUARDRAIL. WHERE SITE CONSTRAINTS PROHIBIT THE POST FROM BEING PLACED AT LEAST 6 INCHES IN FRONT OF THE SLOPE BREAK POINT, USE 7 FOOT POSTS.

2) MGS TRANSITION FROM EXISTING GUARDRAIL SHALL BE COMPLETED OUTSIDE THE 50 FEET MGS END TERMINAL LIMITS.

KENTUCKY DEPARTMENT OF HIGHWAYS

GUARDRAIL SYSTEM TRANSITION

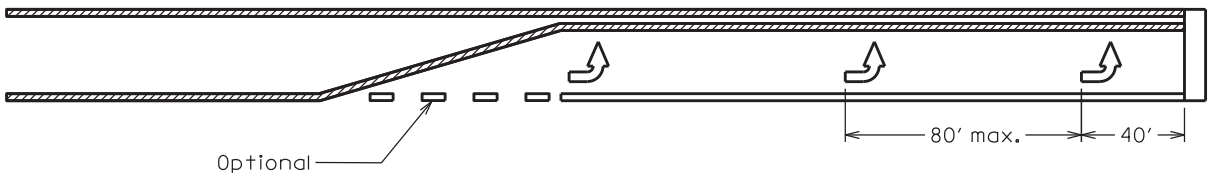
SUBMITTED William S. Ballard 4-04-18
DIRECTOR DIVISION OF DESIGN — DATE

033

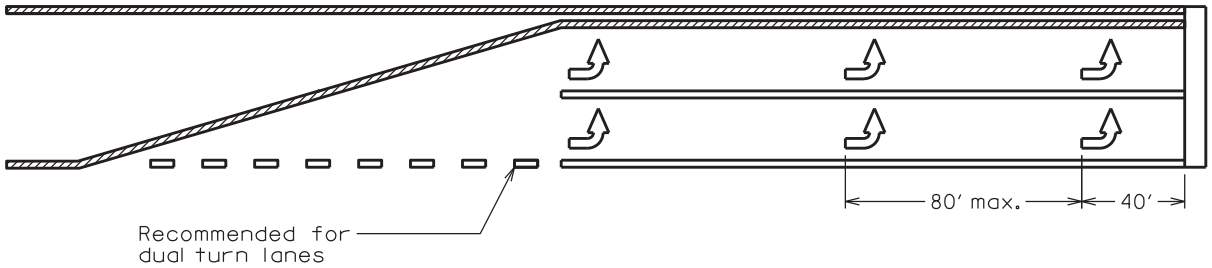
COUNTY OF	ITEM NO.	SHEET NO.

BOYD COUNTY
FD94 010 0023 010-011

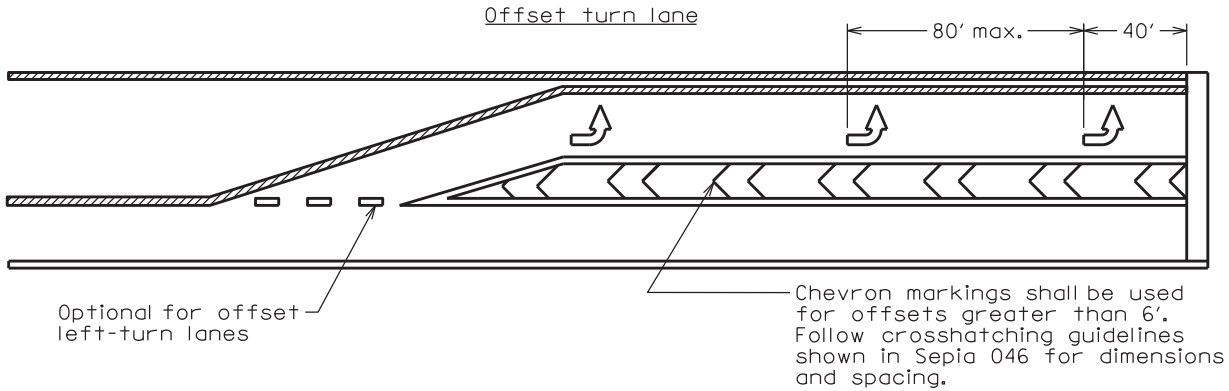
Single turn lane



Dual turn lane



Offset turn lane



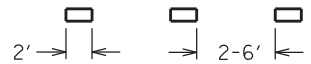
STRIPING NOTES:

-ARROWS SHALL BE USED IN ANY EXCLUSIVE TURN LANES.
-IN A SINGLE TURN LANE, DOTTED WHITE LANE LINE EXTENSIONS MAY BE USED THROUGH THE TAPER OF THE TURN LANE.
-IF USED, DOTTED WHITE LANE LINE EXTENSIONS SHALL BE NORMAL WIDTH, AND SHOULD BE 2' LONG, WITH A GAP OF 2-6' BETWEEN EACH LINE.
-IN DUAL TURN LANES, DOTTED WHITE LANE LINE EXTENSIONS SHOULD BE USED THROUGH THE TAPER OF THE TURN LANE. BOTH SOLID LINES FORMING THE TURN LANES SHALL BEGIN AT THE DOWNSTREAM END OF THE TAPER.

ARROW SPACING NOTES:

IN SINGLE-DIRECTION TURN LANES, ARROWS SHOULD BE SPACED AS FOLLOWS:
-AT LEAST TWO ARROWS SHOULD BE USED IN EACH TURN LANE. HOWEVER, IF A TURN LANE IS LESS THAN 80' IN LENGTH, THE DOWNSTREAM ARROW MAY BE ELIMINATED.
-THE FIRST UPSTREAM ARROW SHALL BE PLACED AT THE BEGINNING OF THE SOLID LINE FOR THE TURN LANE.
-THE LAST DOWNSTREAM ARROW SHOULD BE PLACED 40' FROM THE STOP BAR.
-ANY ADDITIONAL ARROWS SHOULD BE EVENLY SPACED. SPACING SHOULD NOT EXCEED 80'.
-ARROW SPACING AND NUMBER OF ARROWS MAY VARY BASED ON SITE CONDITIONS.

DOTTED EXTENSION DIMENSIONS:



Dotted extensions shall be normal width.

DRAWING NOT TO SCALE

LEGEND

MARKINGS

WHITE

YELLOW

KENTUCKY
DEPARTMENT OF HIGHWAYS

TYPICAL MARKINGS
FOR TURN LANES

SUBMITTED R. Allen Wolfe 11-30-18
DATE

042

Contract ID: 192121
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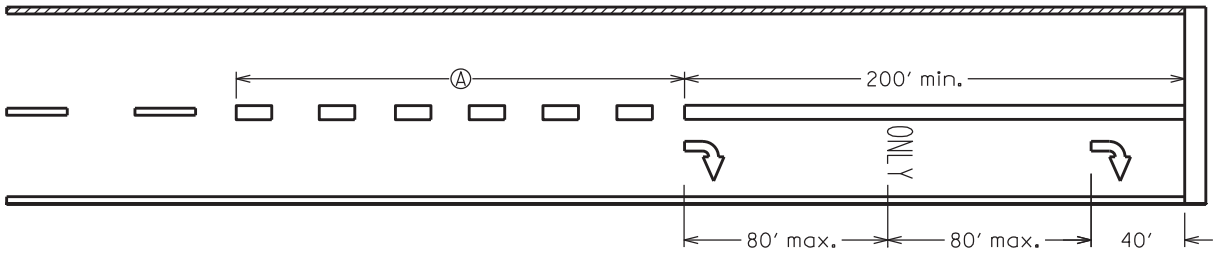
Lane drop scenario

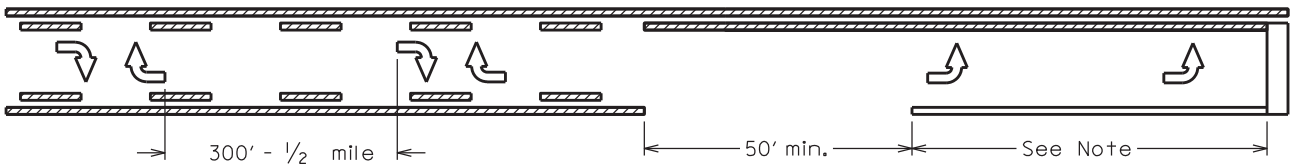


WIDE DOTTED LANE LINE DIMENSIONS:

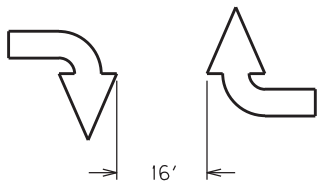
Dotted lane lines shall be twice the normal width in lane drop scenarios.

Speed Limit	Ⓐ
25	125′
35	245′
45	540′
55	660′
65	780′

Two-way left-turn lane



TWLTL ARROW DETAILS:



LANE DROP MARKINGS NOTES:

IN SITUATIONS WHERE A THROUGH LANE BECOMES A MANDATORY TURN LANE, THE FOLLOWING GUIDELINES APPLY:
- A WIDE SOLID LINE SHOULD EXTEND BACK A MINIMUM OF 200′ FROM THE STOP BAR.
- A WIDE, DOTTED LINE SHALL EXTEND FROM THE END OF THE SOLID LINE BACK A MINIMUM OF THE DISTANCE SHOWN IN THE CHART (A). THESE LINES SHALL BE 3′ LONG, WITH A SPACE OF 9′ BETWEEN LINES.
- ALTERNATING ARROWS AND "ONLY" WORD MESSAGES SHALL BE USED, WITH THE FIRST AND LAST MARKING BEING AN ARROW.
- ALTERNATING ARROWS AND "ONLY" WORD MESSAGES SHOULD BE SPACED EVENLY, FOLLOWING GUIDELINES FOR ARROW SPACING. THESE SYMBOLS SHALL EXTEND BACK AT LEAST TO THE END OF THE SOLID STRIPE, BUT MAY BE EXTENDED BACK FARTHER IF ADDITIONAL GUIDANCE IS NEEDED.

TWO-WAY LEFT-TURN LANE NOTES:

IN A TWO-WAY LEFT-TURN LANE, THE FOLLOWING GUIDELINES APPLY:
- ONE SET OF ARROWS SHOULD BE PLACED AT OR NEAR THE BEGINNING OF THE TWO-WAY LEFT-TURN LANE.
- ADDITIONAL SETS OF ARROWS SHOULD BE PLACED THROUGHOUT THE TWO-WAY LEFT-TURN LANE IF LEFT TURN MOVEMENTS ARE EXPECTED. THEY SHOULD BE SPACED NO LESS THAN 300′ AND NO MORE THAN 1/2 MILE.
- THE SPACING BETWEEN EACH ARROW IN A SINGLE ARROW SET SHOULD BE 16 FEET.
- TWO-WAY LEFT-TURN LANES SHALL TERMINATE IN A DEDICATED LEFT-TURN LANE AT A SIGNALIZED INTERSECTION. THEY MAY TERMINATE IN A DEDICATED LEFT-TURN LANE AT OTHER LOCATIONS IF DEEMED NECESSARY.
- CONTACT TRAFFIC ENGINEER FOR RECOMMENDED DISTANCE FOR LEFT TURN STORAGE AT INTERSECTIONS.
- REFER TO THE TRAFFIC OPERATIONS GUIDANCE MANUAL SECTION TO-504 FOR MORE GUIDANCE ON TWO-WAY LEFT-TURN LANES.

DRAWING NOT TO SCALE

LEGEND

MARKINGS

WHITE

YELLOW

KENTUCKY DEPARTMENT OF HIGHWAYS

TYPICAL MARKINGS FOR TURN LANES

SUBMITTED R. Allen Wolfe 11-30-18 DATE

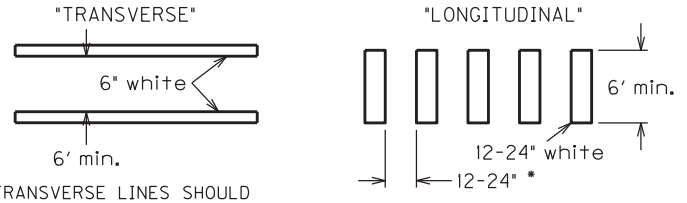
043

COUNTY OF	ITEM NO.	SHEET NO.

STOP LINE NOTES

1. STOP LINES SHALL BE 24" WHITE AND SHALL EXTEND ACROSS ALL APPROACH LANES.
2. STOP LINES SHOULD BE PLACED A MINIMUM OF 4' IN ADVANCE OF THE NEAREST EDGE OF A MARKED CROSSWALK. IN THE ABSENCE OF A MARKED CROSSWALK, STOP LINES SHOULD BE PLACED NO MORE THAN 30' OR NO LESS THAN 4' FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY.
3. STOP LINES IN LEFT TURN LANES MAY BE PULLED BACK SO AS NOT TO INTERFERE WITH THE WHEEL PATH OF TURNING VEHICLES.

CROSSWALK DETAIL

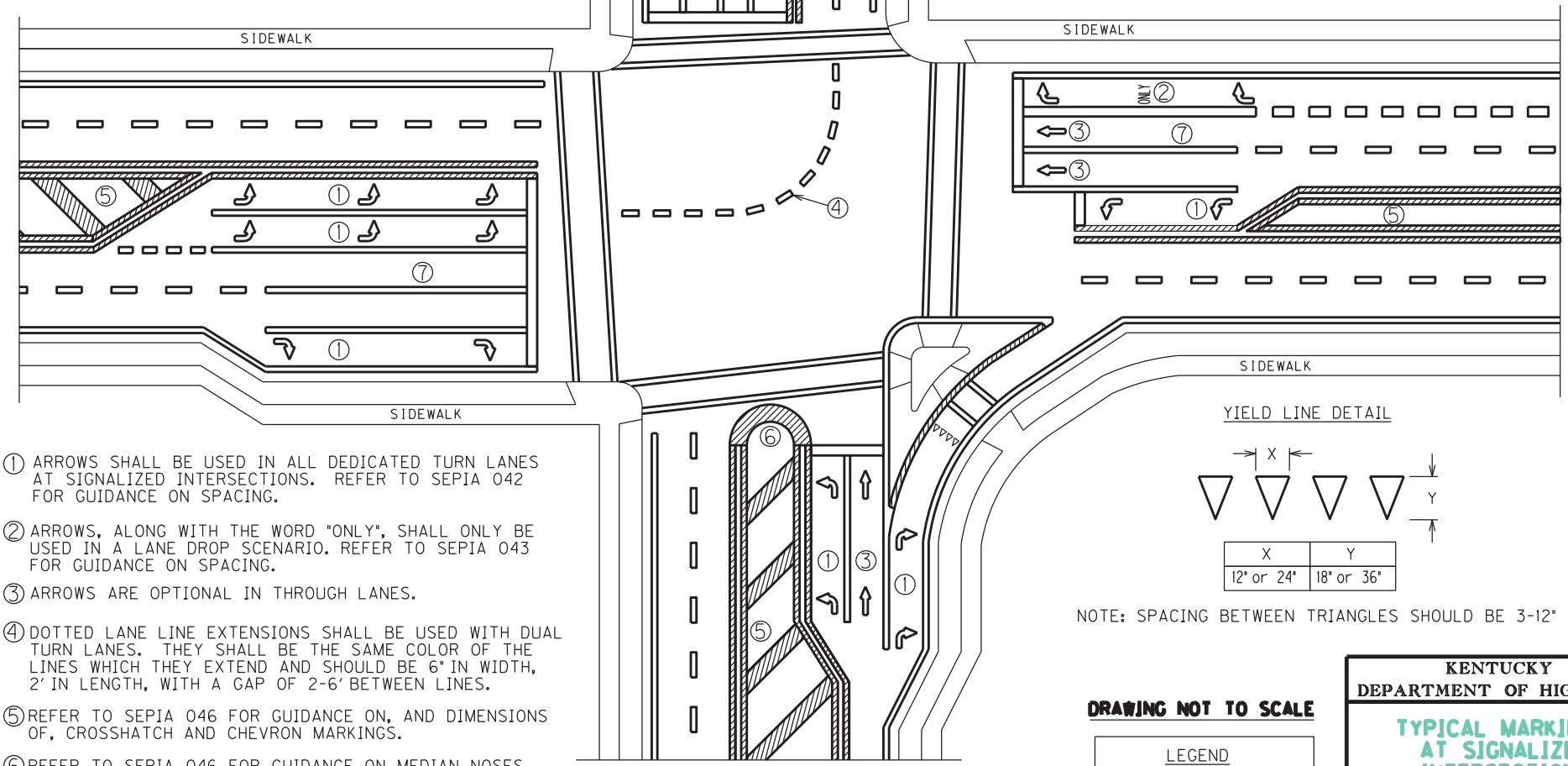


TRANSVERSE LINES SHOULD EXTEND ACROSS THE FULL WIDTH OF THE APPROACH PAVEMENT.

TRANSVERSE LINES MAY BE COMBINED WITH LONGITUDINAL LINES TO FORM A "LADDER-STYLE" CROSSWALK.

CROSSWALK BARS SHALL BE INSTALLED PARALLEL WITH ONCOMING TRAFFIC.

*SPACING OF BARS SHOULD BE MODIFIED SO AS TO AVOID TIRE PATHS OF APPROACHING VEHICLES.



① ARROWS SHALL BE USED IN ALL DEDICATED TURN LANES AT SIGNALIZED INTERSECTIONS. REFER TO SEPIA 042 FOR GUIDANCE ON SPACING.

② ARROWS, ALONG WITH THE WORD "ONLY", SHALL ONLY BE USED IN A LANE DROP SCENARIO. REFER TO SEPIA 043 FOR GUIDANCE ON SPACING.

③ ARROWS ARE OPTIONAL IN THROUGH LANES.

④ DOTTED LANE LINE EXTENSIONS SHALL BE USED WITH DUAL TURN LANES. THEY SHALL BE THE SAME COLOR OF THE LINES WHICH THEY EXTEND AND SHOULD BE 6" IN WIDTH, 2' IN LENGTH, WITH A GAP OF 2-6' BETWEEN LINES.

⑤ REFER TO SEPIA 046 FOR GUIDANCE ON, AND DIMENSIONS OF, CROSSHATCH AND CHEVRON MARKINGS.

⑥ REFER TO SEPIA 046 FOR GUIDANCE ON MEDIAN NOSES.

⑦ SOLID LINE SEPARATING THROUGH LANES SHOULD EXTEND BACK A MINIMUM OF 50' FROM THE STOP BAR.

*NOTE: OTHER THAN LONGITUDINAL STRIPING, ALL MARKINGS SHOWN ON THIS DRAWING SHOULD BE THERMOPLASTIC.

YIELD LINE DETAIL

X	Y
12" or 24"	18" or 36"

NOTE: SPACING BETWEEN TRIANGLES SHOULD BE 3-12"

DRAWING NOT TO SCALE

LEGEND
MARKINGS
WHITE
YELLOW

KENTUCKY DEPARTMENT OF HIGHWAYS

TYPICAL MARKINGS AT SIGNALIZED INTERSECTIONS

SUBMITTED R. Jeffrey Wolfe 11-30-18 DATE

048

PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

LABOR AND WAGE REQUIREMENTS
APPLICABLE TO OTHER THAN FEDERAL-AID SYSTEM PROJECTS

I. APPLICATION

1. These contract provisions shall apply to all work performed on the contract by the contractor with his own organization and with the assistance of workmen under his immediate superintendence and to all work performed on the contract by piecework, station work or by subcontract. The contractor's organization shall be construed to include only workmen employed and paid directly by the contractor and equipment owned or rented by him, with or without operators.

2. The contractor shall insert in each of his subcontracts all of the stipulations contained in these Required Provisions and such other stipulations as may be required.

3. A breach of any of the stipulations contained in these Required Provisions may be grounds for termination of the contract.

II. NONDISCRIMINATION OF EMPLOYEES

AN ACT OF THE KENTUCKY
GENERAL ASSEMBLY TO PREVENT
DISCRIMINATION IN EMPLOYMENT
KRS CHAPTER 344
EFFECTIVE JUNE 16, 1972

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (forty and above); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age forty (40) and over. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, except that such a notice or advertisement may indicate a preference, limitation, or specification based on religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, when religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age forty (40) and over, in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administrating agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

Revised: January 25, 2017

EXECUTIVE BRANCH CODE OF ETHICS

In the 1992 regular legislative session, the General Assembly passed and Governor Brereton Jones signed Senate Bill 63 (codified as KRS 11A), the Executive Branch Code of Ethics, which states, in part:

KRS 11A.040 (7) provides:

No present or former public servant shall, within six (6) months following termination of his office or employment, accept employment, compensation, or other economic benefit from any person or business that contracts or does business with, or is regulated by, the state in matters in which he was directly involved during the last thirty-six (36) months of his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, or for which he received, prior to his state employment, a professional degree or license, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved during the last thirty-six (36) months of his tenure in state government. This subsection shall not prohibit the performance of ministerial functions, including but not limited to filing tax returns, filing applications for permits or licenses, or filing incorporation papers, nor shall it prohibit the former officer or public servant from receiving public funds disbursed through entitlement programs.

KRS 11A.040 (9) states:

A former public servant shall not represent a person or business before a state agency in a matter in which the former public servant was directly involved during the last thirty-six (36) months of his tenure, for a period of one (1) year after the latter of:

a) The date of leaving office or termination of employment; or
b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, 3 Fountain Place, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: January 27, 2017

Kentucky Equal Employment Opportunity Act of 1978

The requirements of the Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) shall apply to this Contract. The apparent low Bidder will be required to submit EEO forms to the Division of Construction Procurement, which will then forward to the Finance and Administration Cabinet for review and approval. No award will become effective until all forms are submitted and EEO/CC has certified compliance. The required EEO forms are as follows:

- EEO-1: Employer Information Report
- Affidavit of Intent to Comply
- Employee Data Sheet
- Subcontractor Report

These forms are available on the Finance and Administration's web page under ***Vendor Information, Standard Attachments and General Terms*** at the following address: **https://www.eProcurement.ky.gov**.

Bidders currently certified as being in compliance by the Finance and Administration Cabinet may submit a copy of their approval letter in lieu of the referenced EEO forms.

For questions or assistance please contact the Finance and Administration Cabinet by email at **finance.contractcompliance@ky.gov** or by phone at 502-564-2874.

EMPLOYEE RIGHTS
UNDER THE FAIR LABOR STANDARDS ACT

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

FEDERAL MINIMUM WAGE
$7.25 PER HOUR
BEGINNING JULY 24, 2009

OVERTIME PAY

At least 1½ times your regular rate of pay for all hours worked over 40 in a workweek.

CHILD LABOR

An employee must be at least **16** years old to work in most non-farm jobs and at least **18** to work in non-farm jobs declared hazardous by the Secretary of Labor.

Youths **14** and **15** years old may work outside school hours in various non-manufacturing, non-mining, non-hazardous jobs under the following conditions:

No more than

- **3** hours on a school day or **18** hours in a school week;
- **8** hours on a non-school day or **40** hours in a non-school week.

Also, work may not begin before **7 a.m.** or end after **7 p.m.**, except from June 1 through Labor Day, when evening hours are extended to **9 p.m.** Different rules apply in agricultural employment.

TIP CREDIT

Employers of "tipped employees" must pay a cash wage of at least $2.13 per hour if they claim a tip credit against their minimum wage obligation. If an employee's tips combined with the employer's cash wage of at least $2.13 per hour do not equal the minimum hourly wage, the employer must make up the difference. Certain other conditions must also be met.

ENFORCEMENT

The Department of Labor may recover back wages either administratively or through court action, for the employees that have been underpaid in violation of the law. Violations may result in civil or criminal action.

Employers may be assessed civil money penalties of up to $1,100 for each willful or repeated violation of the minimum wage or overtime pay provisions of the law and up to $11,000 for each employee who is the subject of a violation of the Act's child labor provisions. In addition, a civil money penalty of up to $50,000 may be assessed for each child labor violation that causes the death or serious injury of any minor employee, and such assessments may be doubled, up to $100,000, when the violations are determined to be willful or repeated. The law also prohibits discriminating against or discharging workers who file a complaint or participate in any proceeding under the Act.

ADDITIONAL INFORMATION

- Certain occupations and establishments are exempt from the minimum wage and/or overtime pay provisions.
- Special provisions apply to workers in American Samoa and the Commonwealth of the Northern Mariana Islands.
- Some state laws provide greater employee protections; employers must comply with both.
- The law requires employers to display this poster where employees can readily see it.
- Employees under 20 years of age may be paid $4.25 per hour during their first 90 consecutive calendar days of employment with an employer.
- Certain full-time students, student learners, apprentices, and workers with disabilities may be paid less than the minimum wage under special certificates issued by the Department of Labor.

For additional information:

1-866-4-USWAGE

(1-866-487-9243) TTY: 1-877-889-5627

WHD U.S. Wage and Hour Division

WWW.WAGEHOUR.DOL.GOV

U.S. Department of Labor | Wage and Hour Division

WHD Publication 1088 (Revised July 2009)

PART IV

INSURANCE

INSURANCE

The Contractor shall procure and maintain the following insurance in addition to the insurance required by law:

1) Commercial General Liability-Occurrence form – not less than $2,000,000 General aggregate, $2,000,000 Products & Completed Aggregate, $1,000,000 Personal & Advertising, $1,000,000 each occurrence.

2) Automobile Liability- $1,000,000 per accident

3) Employers Liability:

   a) $100,000 Each Accident Bodily Injury
   b) $500,000 Policy limit Bodily Injury by Disease
   c) $100,000 Each Employee Bodily Injury by Disease

4) The insurance required above must be evidenced by a Certificate of Insurance and this Certificate of Insurance must contain one of the following statements:
   a) "policy contains no deductible clauses."
   b) "policy contains _____ (amount) deductible property damage clause but company will pay claim and collect the deductible from the insured."

5) KENTUCKY WORKMEN'S COMPENSATION INSURANCE. The contractor shall furnish evidence of coverage of all his employees or give evidence of self-insurance by submitting a copy of a certificate issued by the Workmen's Compensation Board.

The cost of insurance is incidental to all contract items. All subcontractors must meet the same minimum insurance requirements.

PART V

BID ITEMS

192121

PROPOSAL BID ITEMS

Report Date 2/26/19

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00001		DGA BASE	300.00	TON		$	
0020	00190		LEVELING & WEDGING PG64-22	25.00	TON		$	
0030	01690		FLUME INLET TYPE 1	1.00	EACH		$	
0040	01831		STANDARD INTEGRAL CURB MOD	200.00	LF		$	
0050	01845		ISLAND INTEGRAL CURB REMOVE AND REPLACE	70.00	LF		$	
0060	01982		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	10.00	EACH		$	
0070	02014		BARRICADE-TYPE III	4.00	EACH		$	
0080	02060		PCC PAVEMENT DIAMOND GRINDING	3,500.00	SQYD		$	
0090	02069		JPC PAVEMENT-10 IN	3,500.00	SQYD		$	
0100	02091		REMOVE PAVEMENT	3,500.00	SQYD		$	
0110	02351		GUARDRAIL-STEEL W BEAM-S FACE	600.00	LF		$	
0120	02363		GUARDRAIL CONNECTOR TO BRIDGE END TY A	1.00	EACH		$	
0130	02381		REMOVE GUARDRAIL	600.00	LF		$	
0140	02387		GUARDRAIL CONNECTOR TO BRIDGE END TY A-1	1.00	EACH		$	
0150	02483		CHANNEL LINING CLASS II	100.00	TON		$	
0160	02562		TEMPORARY SIGNS	375.00	SQFT		$	
0170	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
0180	02671		PORTABLE CHANGEABLE MESSAGE SIGN	4.00	EACH		$	
0190	02726		STAKING	1.00	LS		$	
0200	02775		ARROW PANEL	2.00	EACH		$	
0210	04792		CONDUIT-1 IN	30.00	LF		$	
0220	04811		ELECTRICAL JUNCTION BOX TYPE B	2.00	EACH		$	
0230	04850		CABLE-NO. 14/1 PAIR	680.00	LF		$	
0240	04894		PREFORMED LOOP/LEAD-IN	85.00	LF		$	
0250	06549		PAVE STRIPING-TEMP REM TAPE-B 4 INCH	500.00	LF		$	
0260	06550		PAVE STRIPING-TEMP REM TAPE-W 4 INCH	4,000.00	LF		$	
0270	06551		PAVE STRIPING-TEMP REM TAPE-Y 4 INCH	2,000.00	LF		$	
0280	06554		PAVE STRIPING-DUR TY 1-4 IN W	600.00	LF		$	
0290	06555		PAVE STRIPING-DUR TY 1-4 IN Y	500.00	LF		$	
0300	06556		PAVE STRIPING-DUR TY 1-6 IN W	100.00	LF		$	
0310	06557		PAVE STRIPING-DUR TY 1-6 IN Y	100.00	LF		$	
0320	10020NS		FUEL ADJUSTMENT	1,017.00	DOLL	$1.00	$	$1,017.00
0330	20453ES835		PREFORMED QUADRAPOLE LOOPS	204.00	LF		$	
0340	21415ND		EROSION CONTROL	1.00	LS		$	
0350	23265ES717		PAVE MARK TY 1 TAPE STOP BAR-24 IN	90.00	LF		$	
0360	23270ES717		PAVE MARK TY 1 TAPE-CURV ARROW	4.00	EACH		$	
0370	24489EC		INLAID PAVEMENT MARKER	20.00	EACH		$	
0380	24963ED		LOOP TEST	2.00	EACH		$	

Section: 0002 - DEMOBILIZATION

192121

PROPOSAL BID ITEMS

Report Date 2/26/19

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0390	**02569**		**DEMOBILIZATION**	**1.00**	**LS**		**$**	