**CALL NO. 332**

**CONTRACT ID. 213206**

**OHIO COUNTY**

**FED/STATE PROJECT NUMBER CB06 092 1414 004 007**

**DESCRIPTION REPLACE TWO CULVERTS ON KY 1414 IN OHIO COUNTY**

**WORK TYPE CULVERT REPLACEMENT**

**PRIMARY COMPLETION DATE 7/15/2022**

**LETTING DATE: December 10,2021**

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 am EASTERN STANDARD TIME December 10,2021. Bids will be publicly announced at 10:00 am EASTERN STANDARD TIME.

**NO PLANS ASSOCIATED WITH THIS PROJECT.**

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

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# PART I

# SCOPE OF WORK

# ADMINISTRATIVE DISTRICT - 02

**CONTRACT ID - 213206**

**CB06 092 1414 004 007**

**COUNTY - OHIO**

**PCN - 0209214142101**
**CB06 092 1414 004 007**

KY 1414 (MP 4.380) REPLACE TWO CULVERTS ON KY 1414 (MP 6.400), A DISTANCE OF 02.02 MILES.CULVERT REPLACEMENT

GEOGRAPHIC COORDINATES LATITUDE 37:31:59.25 LONGITUDE 86:53:58.95

**COMPLETION DATE(S):**

COMPLETED BY 07/15/2022 APPLIES TO ENTIRE CONTRACT

# 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.

# 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

**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 asphalt mixtures established in the proposal estimated quantities required for resurfacing or surfacing mailbox turnouts, farm field entrances, residential and commercial entrances, curve widening, ramp gores and tapers, and road and street approaches, as applicable. Pave these areas to the limits as shown on Standard Drawing RPM-110-06 or as directed by the Engineer. In the event signal detectors are present in the intersecting streets or roads, pave the crossroads to the right of way limit or back of the signal detector, whichever is the farthest back of the mainline. 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 the asphalt mixtures.

**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 NOTES FOR CULVERT REPLACEMENT

## I. DESCRIPTION

Perform all work in accordance with the Department's 2019 Standard and Supplemental Specifications, applicable Special Provisions and Special Notes, and Standard and Sepia Drawings, except as hereafter specified. Article references are to the Standard Specifications. This work shall consist of:

(1) Site preparation; (2) Clearing and grubbing and removal of all obstructions; (3) Removal of existing structure; (4) Drilling and blasting, if required, and common and solid rock excavation; (5) Constructing aluminum structural plate box culvert; (6) Constructing embankment, roadway, pavement, and shoulders; (7) Restoration, final dressing, cleanup, and seeding; (8) Maintain and control traffic; and (9) Any other work as specified by this contract.

## I. MATERIALS AND DESIGN

All materials shall be sampled and tested 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. Aluminum or Steel Box Culvert.** Provide meeting the requirements of Special Note for Aluminum and Steel Structural Plate Culverts 9V.

**B. Foundation Preparation and Bedding.** Contrary to Special Note 9V, furnish Crushed Limestone Size No. 57 wrapped in Geotextile Fabric Class II.

**C. Pavement and Shoulders.** Use DGA, Class 2 Asphalt Base 0.75D PG64-22, and Class 2 asphalt Surface 0.38D PG64-22.

**D. Seeding and Protection.** Use Seed Mixture No. III.

**E. Erosion Control.** See Special Notes for erosion Control Plan.

**F. Maintain and Control Traffic.** See Traffic Control Plan.

## III. CONSTRUCTION METHODS

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

**B. Site Preparation.** Be responsible for all site preparation, including, but not limited to: clearing and grubbing; tree removal, common and solid rock excavation, backfilling and embankment in place; removal of existing culvert, obstructions, or any other items; disposal of materials, waste, and debris; temporary fencing to provide positive barrier to adjacent property owners livestock; temporary and permanent erosion control; restoration, final dressing, cleanup, and seeding and protection. Perform all site preparation only as approved or directed by the Engineer.

**C. Excavation and Removal of Existing Structures.** Sawcut pavement to a neat edge and remove the existing culvert. Be responsible for all common and solid rock excavation, pavement removal, and removal of existing structure. Provide positive drainage of slopes and ditches at all times during and upon completion of construction. Waste all removed materials at sites off the right of way obtained by the Contractor at no additional cost to the Department. Perform all excavation and removal of existing structure only as approved or directed by the Engineer.

**D. Structure Excavation.** Be responsible for all excavation required for foundation preparation, box culvert, head walls or end walls, wing walls, toe walls, and all other excavation required by the work. Excavate rock in channel as required to allow for installation of bedding and culvert with the designed fill cover height. Provide positive drainage of slopes and ditches at all times during and upon completion of construction. Waste all excavation at sites off the right of way obtained by the Contractor at no additional cost to the Department. Perform all structure excavation only as approved or directed by the Engineer.

**E. Foundation Preparation and Bedding.** Contrary to Special Note 9V, construct bedding of Crushed Limestone Size No. 57 wrapped in Geotextile Fabric Class II as directed by the Engineer. Construct minimum 2-foot thickness.

**F. Aluminum Box Culvert.** Construct the box culvert in accordance with Special Note 9V, except as specified in these notes. Provide for the box culvert manufacturer to furnish an expert field engineer on site during all phases of the fabrication, construction, backfilling, and guardrail installation over culvert for consulting purposes. Deliver the culvert fully assembled or assemble the box culvert adjacent to the project site prior to any excavation or structure removal. Be responsible for field layout and survey of the proposed culvert. Contrary to special Note 9V, after removal of the existing structure stabilize the foundation with the fabric wrapped granular bedding. Obtain the Engineer’s approval of the final centerline, flow line and skew prior to backfilling. Provide positive drainage upon completion of the project.

**G. Head walls, End Walls, Wing Walls, Toe Walls and Aprons.** Construct head walls, end walls, wing walls, and toe walls according to the box culvert manufacturer's approved design or as approved by the Engineer.

**H. Backfill and Embankment.** Construct granular backfill and embankments as directed by the Engineer. Warp finished slopes to match existing undisturbed slopes as directed by the Engineer. Provide positive drainage of slopes and ditches at all times during and upon completion of construction.

**I. Channel Lining.** Place channel lining to protect wing walls and slopes as directed by the Engineer. In addition to the requirements of section 703, additional hand placement may be required.

**J. Clean and Re-establish the Existing Shoulders and Ditches.** Grade and restore the shoulders and ditches in the project limits to match the existing adjacent features to be left in place or as directed by the Engineer. Provide positive drainage of slopes and ditches at all times during and upon completion of construction.

**K. Pavement & Shoulder Restoration.** Restore pavement and shoulders over the culvert trench and transition to match the adjacent undisturbed typical section. Provide positive drainage of pavement and shoulders at all times during and upon completion of construction. After constructing culvert, backfill, and embankment, construct DGA and approach base widening and reopen the road to traffic. After opening to traffic, correct settlement, as applicable, until the Engineer determines the culvert backfill and base are sufficiently stabilized to allow placement of asphalt base and surface. Once stabilized, construct final asphalt base and surface courses. Restore pavement and shoulders outside the culvert trench and base widening areas.

**L. Final Dressing, Clean Up, and Seeding and Protection.** After all work is completed, completely remove debris from the construction site. Perform Class A Final Dressing on all disturbed areas, both on and off the Right of-Way. Sow all disturbed earthen areas with Seed Mixture No. III.

**M. Restoration.** Be responsible for all damage to public an/or private property resulting from the work. Restore all damaged features in like kind materials and design.

**N. 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 resulting from site conditions.

**O. Caution.** Do not take information shown on the plans 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. Without regard to the materials encountered, all roadway excavation shall be unclassified. It shall be distinctly understood that any reference to rock, earth, or any other material on the plans or cross sections, whether in numbers or words, letters, or lines, is solely for the Department's information and is not to

be taken as an indication of classified excavation or the quantity of either rock, earth, or any other material involved. 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 if the conditions encountered are not in accordance with the information shown.

**P. Right-of-Way Limits.** The department has not determined exact limits of 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.

**Q. Utility Clearance.** Work around and do not disturb existing utilities. It is not anticipated that any utility facilities will require relocation and/or adjustment; however, in the event utilities are discovered, the utility companies will work concurrently with the Contractor while relocating their facilities. Working days will not be charged for those days on which work on the controlling item is delayed due to the utility company's phase of the work, as provided in the Specifications. If the total delay exceeds ten working days, an extension of the specified completion date will be negotiated with the Contractor for delay to the Contractor's work.

## IV. METHOD OF MEASUREMENT

Only the bid items listed will be measured for payment. All other items required to complete the work shall be incidental to the listed items.

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

**B. Site Preparation.** Site Preparation will not be measured for payment and will be considered incidental to new culvert installation.

**C. Foundation Preparation.** Foundation Preparation will not be measured for payment. Crushed Limestone and Geotextile fabric used in culvert bedding will be measured for payment.

**D. Channel Lining Class II.** Channel Lining Class II will be measured in tons.

**E. Erosion Control Plan.** See Special Notes for Erosion Control Plan.

**F. Clearing and Grubbing, Excavation and Embankment.** Contrary to Sections 202, 204, 205, and 206, Clearing and Grubbing, Roadway Excavation, Structure Excavation, Borrow Excavation, Embankment in Place, and granular backfill (See SN 9V) will not be measured for separate payment, but shall be incidental to Site Preparation.

**G. Backfill Material.** Backfill materials will not be measured for payment but shall be incidental to the box culvert.

**H. Box Culvert.** See Special Note 9V; however, contrary to Special Note 9V, culvert design, manufacturer's technical representative, head walls, end walls, wing walls, corner panels, toe walls and invert will not be measured for separate payment, but shall be incidental to the box culvert.

**I. Restoration, Final Dressing, Clean Up, and Seeding and Protection.** Restoration, final dressing, clean up, and seeding and protection will not be measured for payment, but shall be incidental to Site Preparation and erosion Control plan as applicable.

## V. Basis of Payment

No direct payment will be made other than 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. Box Culvert.** Payment at the contract unit price per linear foot shall be full compensation for all materials, equipment, labor and incidentals necessary to complete the work as specified in these notes and the Standard Specifications for site preparation, culvert design and manufacturer's representative; structural plate box culvert, headwalls, end walls, corner panels, wing walls, and toe walls.

# SPECIAL NOTE FOR COMPLETION DATE AND LIQUIDATED DAMAGES

The specified date of completion shall be July 15, 2022. Liquidated damages shall be charged according to Section 108.09 of the 2019 Standard Specifications for Road and Bridge Construction for days beyond the specified completion date. There will be a maximum 7 consecutive calendar day road closure allowed in order to complete the culverts at each location and reopen the road to traffic. Liquidated damages of $5,000.00 shall be charged for every calendar day or part of a day the road remains closed beyond the allowable 7 calendar days for each location.

Contrary to section 108.09, Liquidated damages will be assessed for the months of December through March.

Contrary to Section 108.09, Liquidated Damages will be assessed regardless of whether seasonal limitations prohibit the Contractor from performing work on the controlling operation.

All liquidated damages will be applied 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

October 2021

# SPECIAL NOTE FOR NON-TRACKING TACK COAT

1. DESCRIPTION AND USEAGE. This specification covers the requirements and practices for applying a non-tracking tack asphalt coating. Place this material on the existing pavement course, prior to placement of a new asphalt pavement layer. Use when expedited paving is necessary or when asphalt tracking would negatively impact the surrounding area. This material is not suitable for other uses. Ensure material can "break" within 15 minutes under conditions listed in 3.2.

2. MATERIALS, EQUIPMENT, AND PERSONNEL.

2.1 Non-Tracking Tack. Provide material conforming to Subsection 2.1.1.

2.1.1 Provide a tack conforming to the following material requirements:

| Property | Specification | Test Procedure |
|---|---|---|
| Viscosity, SFS, 77 ˚ F | 20 – 100 | AASHTO T 72 |
| Sieve, % | 0.3 max. | AASHTO T 59 |
| Asphalt Residue[1], % | 50 min. | AASHTO T 59 |
| Oil Distillate, % | 1.0 max. | AASHTO T 59 |
| Residue Penetration, 77 ˚ F | 20 max. | AASHTO T 49 |
| Original Dynamic Shear (G*/sin δ), 82 ˚ C | 1.0 min. | AASHTO T 315 |
| Softening Point, ˚ F | 149 min. | AASHTO T 53 |
| Solubility, % | 97.5 min. | AASHTO T 44 |

[1] Bring sample to 212 ˚F over a 10-15 minute period. Maintain 212 ˚F for 15-20 minutes or until 30-40 mL of water has distilled. Continue distillation as specified in T59.

2.2. Equipment. Provide a distributor truck capable of heating, circulating, and spraying the tack between 170 ˚F and 180 ˚F. Do not exceed 180 ˚F. Circulate the material while heating. Provide the correct nozzles that is recommend by the producer to ensure proper coverage of tack is obtained. Ensure the bar can be raised to between 14" and 18" from the roadway.

2.3. Personnel. Ensure the tack supplier has provided training to the contractor on the installation procedures for this product. Make a technical representative from the supplier available at the request of the Engineer.

3. CONSTRUCTION.

3.1 Surface Preparation. Prior to the application of the non-tracking tack, ensure the pavement surface is thoroughly dry and free from dust or any other debris that would inhibit adhesion. Clean the surface by scraping, sweeping, and the use of compressed air. Ensure this preparation process occurs shortly before application to prevent the return of debris on to the pavement. If rain is expected within one hour after application, do not apply material. Apply material only when the surface is dry, and no precipitation is expected.

3.2 Non-tracking Tack Application. Placement of non-tracking tack is not permitted from October 1st to May 15th. When applying material, ensure the roadway temperature is a minimum of 40˚F and rising. Prior to application, demonstrate competence in applying the tack according to this note to the satisfaction of the Engineer. Heat the tack in the distributor to between 170 – 180 ˚F. After the initial heating, between 170 – 180 ˚F, the material may be sprayed between 165 ˚F and 180 ˚F. Do not apply outside this temperature range. Apply material at a minimum rate of 0.70 pounds (0.08 gallons) per square yard. Ensure full coverage of the material on the pavement surface. Full coverage of this material is critical. Increase material application rate if needed to achieve full coverage. Schedule the work so that, at the end of the day's production, all non-tracking tack is covered with the asphalt mixture. If for some reason the non-tracking tack cannot be covered by an asphalt mixture, ensure the non-tracking tack material is clean and reapply the non-tracking tack prior to placing the asphalt mixture. Do not heat material more than twice in one day.

3.3 Non-tracking Tack Certification. Furnish the tack certification to the Engineer stating the material conforms to all requirements herein prior to use.

3.4 Sampling and Testing. The Department will require a sample of non-tracking tack be taken from the distributor at a rate of one sample per 15,000 tons of mix. Take two 1 gallon samples of the heated material and forward the sample to the Division of Materials for testing within 7 days. Ensure the product temperature is between 170 and 180 °F at the time of sampling.

4. MEASUREMENT. The Department will measure the quantity of non-tracking tack in tons. The Department will not measure for payment any extra materials, labor, methods, equipment, or construction techniques used to satisfy the requirements of this note. The Department will not measure for payment any trial applications of non-tracking tack, the cleaning of the pavement surface, or furnishing and placing the non-tracking tack. The Department will consider all such items incidental to the non-tracking tack.

5. PAYMENT. The Department will pay for the non-tracking tack at the Contract unit bid price and apply an adjustment for each manufacturer's lot of material based on the degree of compliance as defined in the following schedule. Non-tracking tack will not be permitted for use from October 1st to May 15th. From September 1st to June 1st, the department will allow the use of an approved asphalt emulsion in lieu of a non-tracking tack product but will not adjust the unit bid price of the material. When a sample fails on two or more tests, the Department may add the deductions, but the total deduction will not exceed 100 percent.

October 2021

| Non-Tracking Tack Price Adjustment Schedule | | | | | | |
|---|---|---|---|---|---|---|
| Test | Specification | 100% Pay | 90% Pay | 80% Pay | 50% Pay | 0% Pay |
| Viscosity, SFS, 77 ˚ F | 20 – 100 | 19 - 102 | 17 - 18<br>103 - 105 | 15 - 16<br>106 - 107 | 14<br>108 - 109 | ≤13<br>≥ 110 |
| Sieve, % | 0.30 max. | ≤ 0.40 | 0.41 - 0.50 | 0.51 - 0.60 | 0.61 - 0.70 | ≥ 0.71 |
| Asphalt Residue, % | 50 min. | ≥49.0 | 48.5 – 48.9 | 48.0 – 48.4 | 47.5-47.9 | ≤ 47.4 |
| Oil Distillate, % | 1.0 max. | ≤1.0 | 1.1-1.5 | 1.6 - 1.7 | 1.8-1.9 | >2.0 |
| Residue Penetration, 77 ° F | 20 max. | ≤ 21 | 22 - 23 | 24 - 25 | 26 - 27 | ≥ 28 |
| Original Dynamic Shear (G*/sin δ), 82 ˚ C | 1.0 min. | ≥0.95 | 0.92 – 0.94 | 0.90 – 0.91 | 0.85 - 0.89 | ≤ 0.84 |
| Softening Point, º F | 149 min. | ≥145 | 142 - 144 | 140 - 141 | 138 - 139 | ≤ 137 |
| Solubility, % | 97.5 min. | ≥ 97.0 | 96.8 – 96.9 | 96.6 – 96.7 | 96.4 – 96.5 | ≤ 96.3 |

| Code | Pay Item | Pay Unit |
|---|---|---|
| 24970EC | Asphalt Material for Tack Non-Tracking | Ton |

# TRAFFIC CONTROL PLAN

## TRAFFIC CONTROL GENERAL

Except as provided herein, maintain and control traffic in accordance with the 2019 Standard and Supplemental Specifications, Special Notes and Special Provisions, 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

The Engineer may specify days and hours when lane and/or road closures will not be allowed.

The Contractor may close the road to through traffic during construction for seven (7) consecutive calendar days at each culvert replacement location. Construction shall take place May 17, 2022 through July 15, 2022 when the Ohio County School system is not in session. The Engineer may change the start date of allowable closures depending on the actual last day of school for students. At all other times during construction, maintain alternating one way local traffic during construction. Provide a minimum clear lane width of 9 feet. If traffic should be 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.

## SIGNS

Contrary to section 112.04.02, only long term signs (signs intended to be continuously in place for more than 3 days) will be measured for payment; short term signs (signs intended to be left in place for 3 days or less) will not be measured for payment but will be incidental to Maintain and Control Traffic.

## CHANGEABLE MESSAGE SIGNS

If deemed necessary by the Engineer, the Department will furnish, operate, and maintain Changeable Message Signs.

**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 for road closures and 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. Retain possession of the Barricades upon completion of construction.

**PAVEMENT MARKINGS**

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 Striping according to Section 112 with the following exception:

> If the Contractor's operations or phasing requires temporary markings that must subsequently be removed from the final surface course, use an approved removable lane tape; however, the Department will not measure removable lane tape for separate payment, but will measure and pay for removable lane tape as temporary 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.

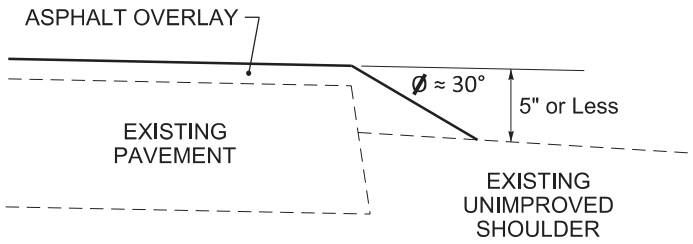
2” to 4” - Place plastic drums, vertical panels, or barricades every 50 feet. During daylight working hours only, the Engineer will allow the Contractor to use cones in lieu of plastic drums, panels, and barricades. Wedge the drop-off with DGA or asphalt mixture for leveling and wedging with a 1:1 or 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

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

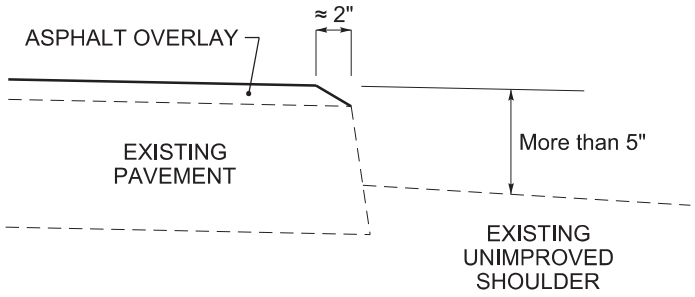
## DURABLE PAVEMENT EDGE DETAIL

(Resurfacing adjacent to low shoulder with dropoff of 5 inches or less)



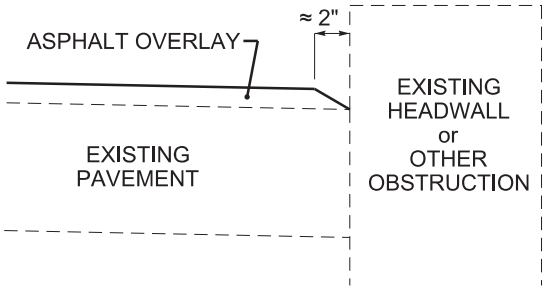

## DURABLE PAVEMENT EDGE DETAIL

(Resurfacing adjacent to low shoulder with dropoff of more than 5 inches)



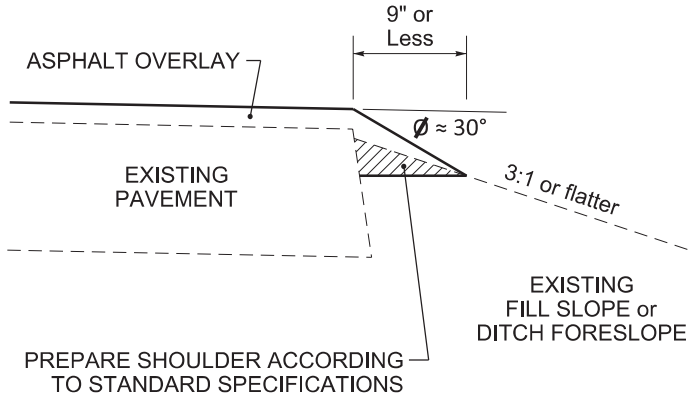

## DURABLE PAVEMENT EDGE DETAIL

(Resurfacing adjacent to an obstruction, such as an existing headwall)



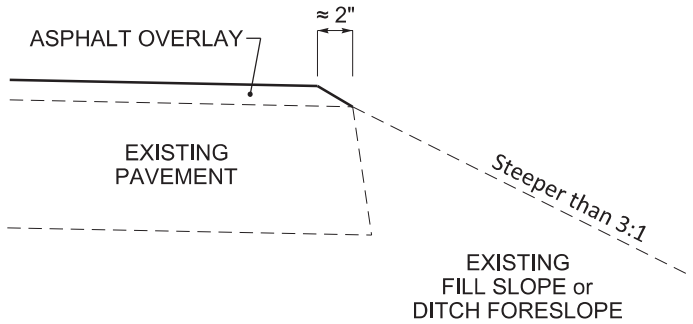

## DURABLE PAVEMENT EDGE DETAIL

(Resurfacing adjacent to fill slope or ditch foreslope that is 3:1 or less)




## DURABLE PAVEMENT EDGE DETAIL

(Resurfacing adjacent to fill slope or ditch foreslope that is steeper than 3:1)




## NOTES

1. DETAILS DO NOT APPLY TO OVERLAYS LESS THAN 1 INCH THICK.
2. THE DURABLE PAVEMENT EDGE DEVICE MAY BE DISENGAGED AT DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT, AS APROVED BY THE ENGINEER.

DRAWING NOT TO SCALE

DURABLE PAVEMENT EDGE DETAILS

# SPECIAL NOTE FOR EROSION CONTROL

## I. DESCRIPTION

Perform all erosion and water pollution control work in accordance with the Department's 2019 Standard Specifications, these notes, 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-RI) 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 and the supplemental specifications. 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 steam.

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

**Channel Lining.** If required by the BMP, the Department will measure Channel Lining according to Sections 703.04.04-703.04.07.

**Erosion Control.** Contrary to Sections 212.04 and 213.04, the Department will not measure Erosion Control, 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; erosion control blanket; sodding; 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; and Temporary Ditches and clean Temporary Ditches; and all other erosion and water pollution control items required by the BMP or the Engineer, but shall be incidental to the new culverts, as applicable.

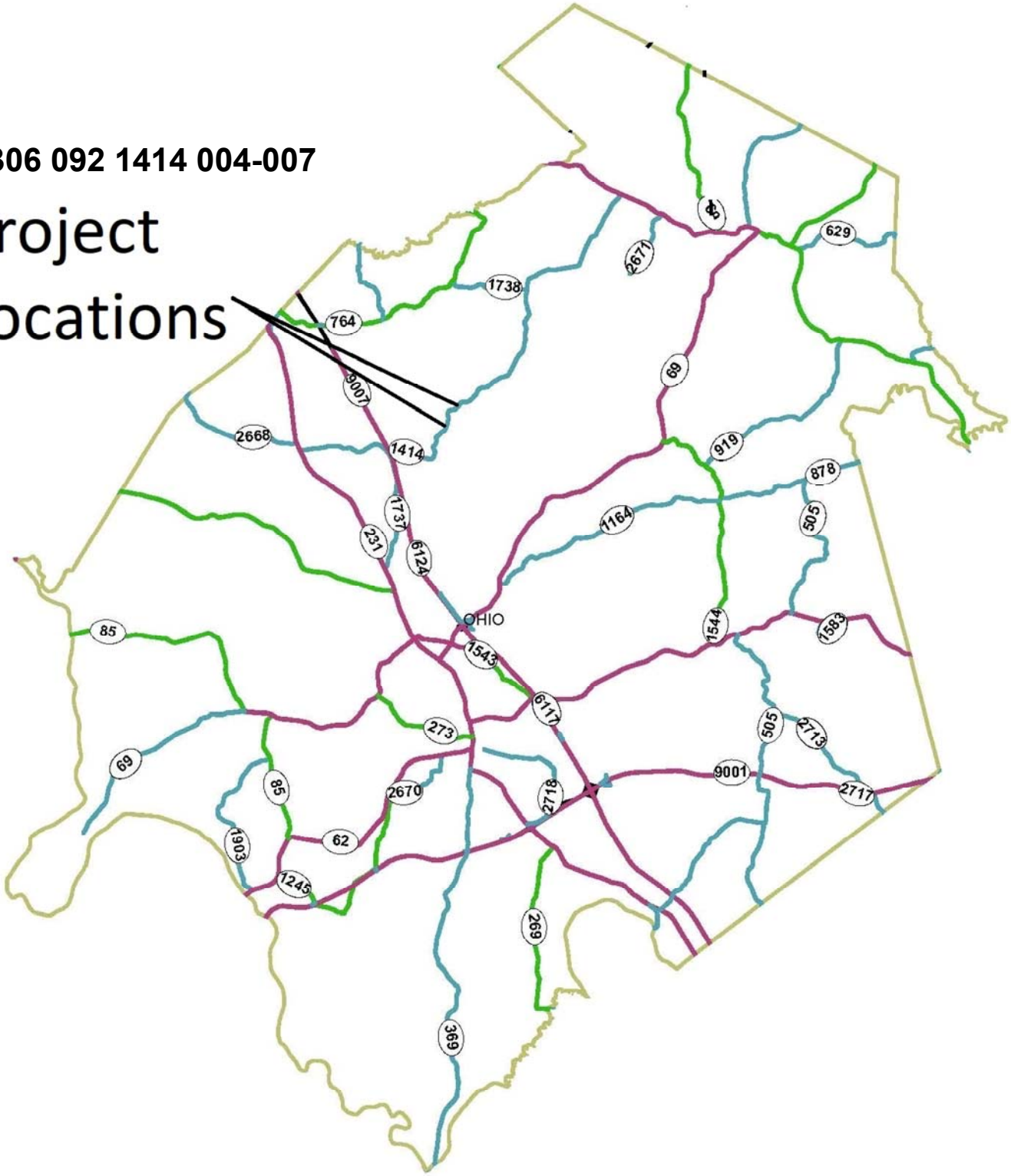
## V. BASIS OF PAYMENT

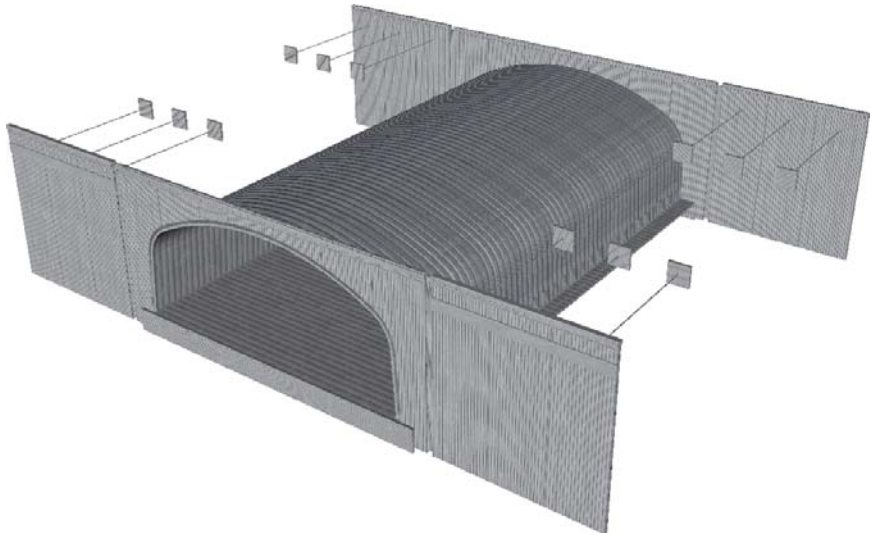
**Channel Lining.** If not listed as a bid item, but required by the BMP, the Department will pay for Channel Lining as Extra Work according to Sections 104.03 and 109.04.

# OHIO

**CB06 092 1414 004-007**

## Project Locations





# CONTECH ALBC DYOB

**PRELIMINARY**
NOT FOR CONSTRUCTION



| MARK | DATE | REVISION DESCRIPTION | BY |
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CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

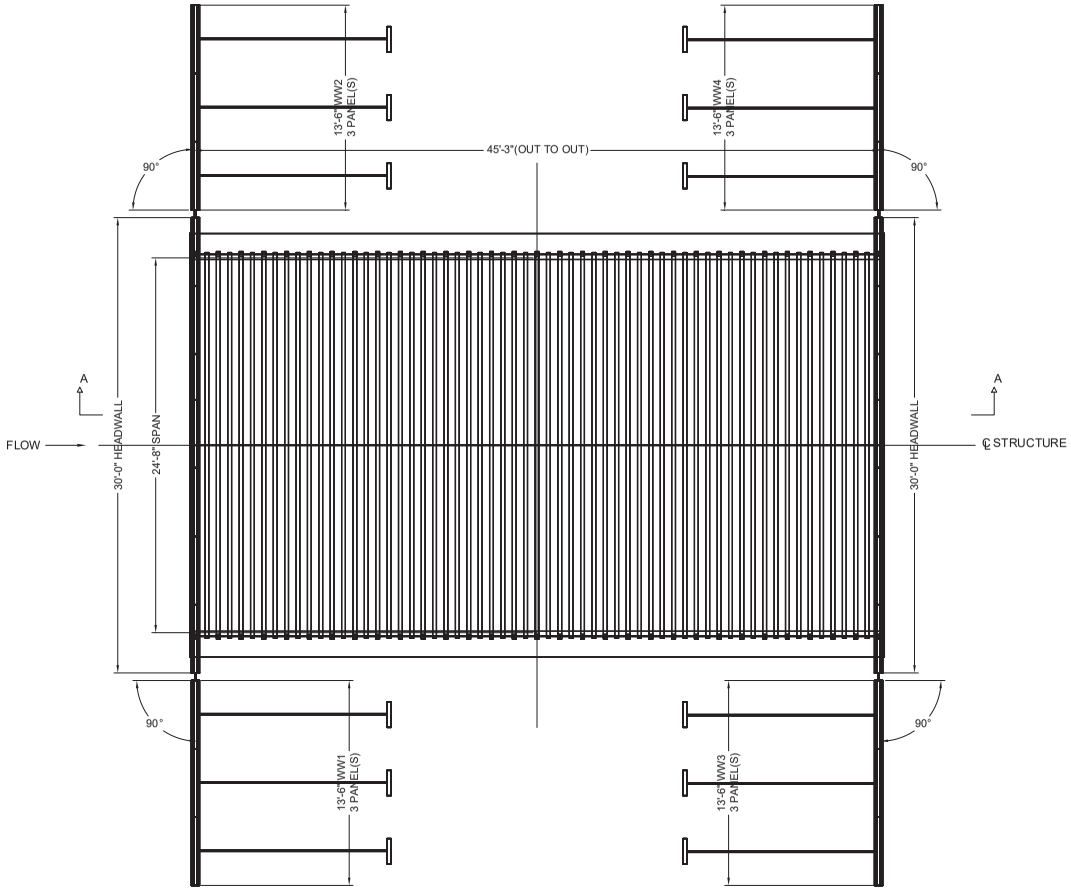
CONTECH STRUCTURAL PLATE

DYOB
DRAWING

ALBC 81, 24'-8" Span x 10'-6" Rise
Shell Designation = R3
KY-1414 MP 4.38
Hartford, Kentucky

| PROJECT No.: | DATE: |
|---|---|
| DYO218556 | 12/11/2020 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |

COVER SHEET




BRIDGE PLAN

0 2' 4' 8'

**PRELIMINARY**
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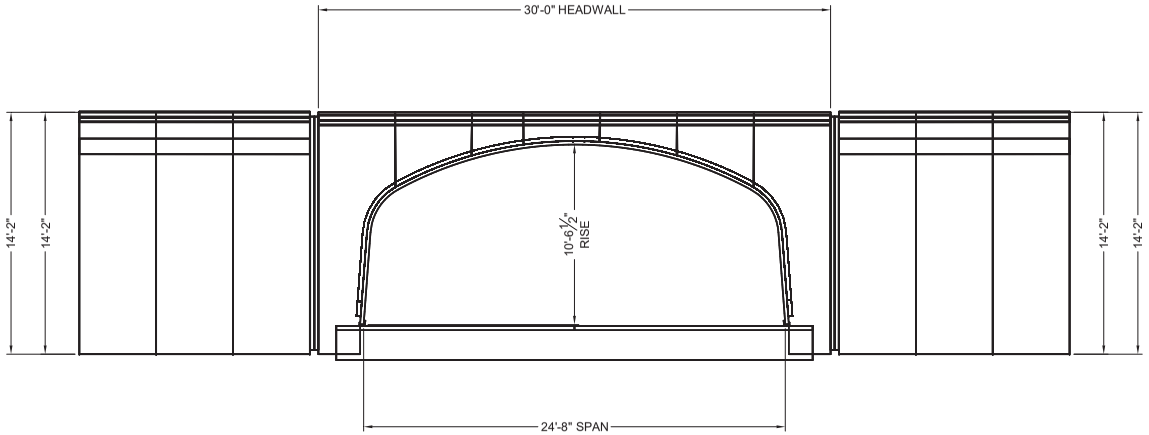
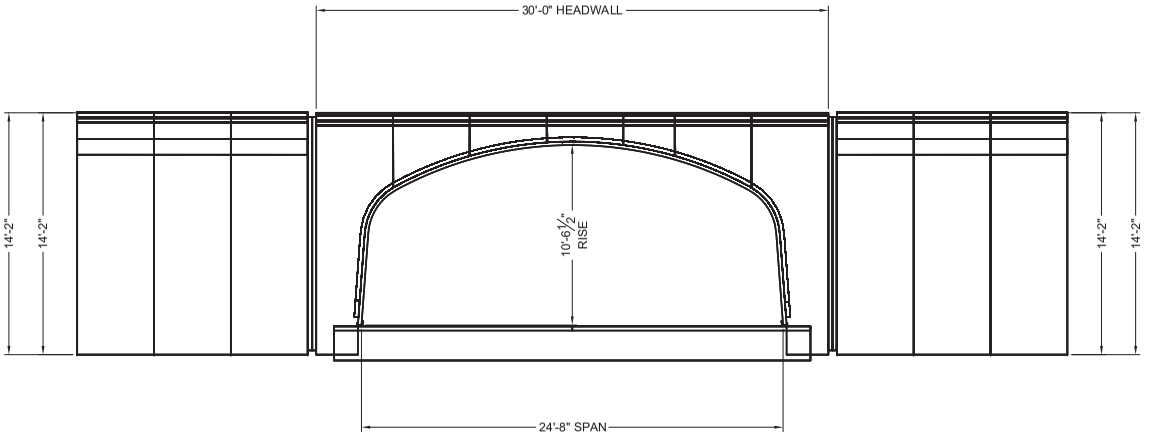
ALBC 81, 24'-8" Span x 10'-6" Rise
Shell Designation = R3
KY-1414
Hartford, Kentucky

| PROJECT No.: | DATE: |
|---|---|
| DYO218556 | 12/11/2020 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 1 OF 6 | |




INLET END ELEVATION

0 2' 4' 8'




OUTLET END ELEVATION

0 2' 4' 8'

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CONTECH STRUCTURAL PLATE

DYOB
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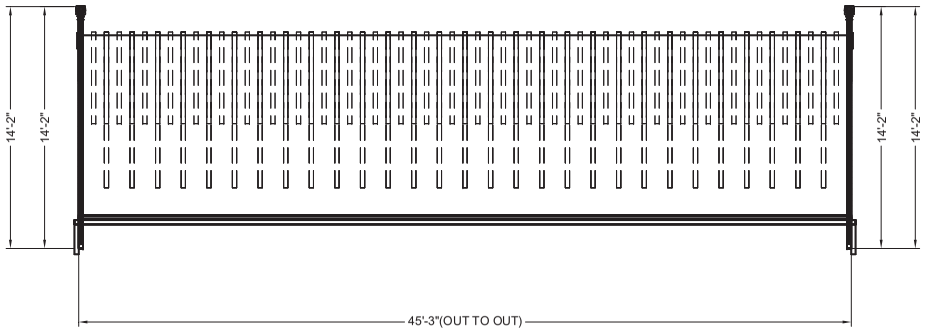
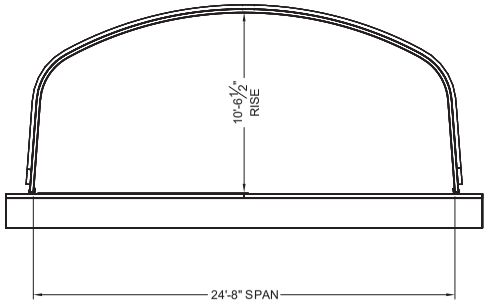
ALBC 81, 24'-8" Span x 10'-6" Rise
Shell Designation = R3
KY-1414
Hartford, Kentucky

| PROJECT No.: | DATE: |
|---|---|
| DYO218556 | 12/11/2020 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 2 OF 6 | |




SECTION A-A
0 2' 4' 8'




CROSS SECTION
0 2' 4' 8'

**PRELIMINARY**
NOT FOR CONSTRUCTION



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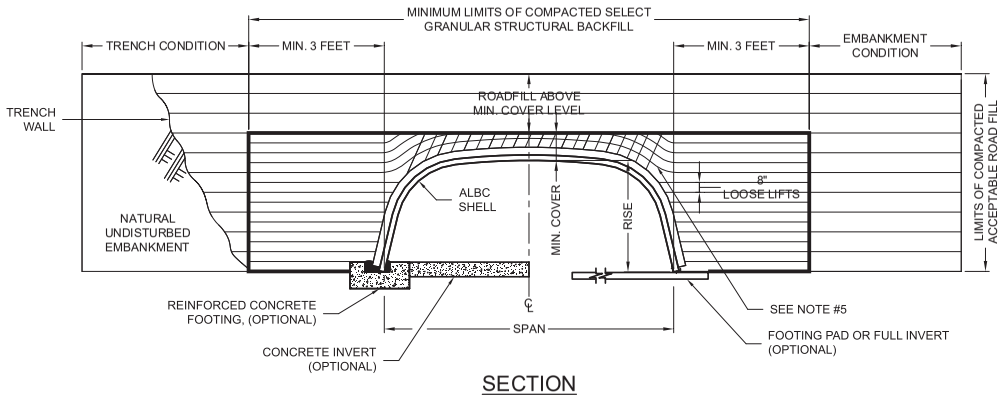
CONTECH STRUCTURAL PLATE

**DYOB**
DRAWING

ALBC 81, 24'-8" Span x 10'-6" Rise
Shell Designation = R3
KY-1414
Hartford, Kentucky

| PROJECT No.: | DATE: |
|---|---|
| DYO218556 | 12/11/2020 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 3 OF 6 | |




## SECTION

SELECT GRANULAR STRUCTURAL BACKFILL LIMITS.

INITIAL LIFTS OVER THE CROWN OF STRUCTURE AS INDICATED BY SHADED AREA TO BE COMPACTED TO REQUIRED DENSITY WITH HAND OPERATED EQUIPMENT OR WITH LIGHTWEIGHT(D-4 OR LIGHTER) EQUIPMENT.

NOTES:

1. ALL SELECT GRANULAR BACKFILL TO BE PLACED IN A BALANCED FASHION IN THIN LIFTS (8" LOOSE TYPICALLY) AND COMPACTED TO 90 PERCENT DENSITY PER AASHTO T-180.
2. COMPLETE AND REGULAR MONITORING OF THE ALUMINUM BOX CULVERT SHAPE IS NECESSARY DURING ALL BACKFILLING OF THE STRUCTURE.
3. PREVENT DISTORTION OF SHAPE AS NECESSARY BY VARYING COMPACTION METHODS AND EQUIPMENT.
4. TRENCH WIDTH OTHER THAN 3 FEET SHALL BE BY DIRECTION OF THE ENGINEER OF RECORD.
5. SWITCH TO PLACING SELECT GRANULAR BACKFILL NEAR IN RADIAL LIFTS THE MIDDLE OF THE HAUNCH CURVE.

ADDITIONAL SELECT GRANULAR STRUCTURAL BACKFILL NOTES:

SATISFACTORY BACKFILL MATERIAL, PROPER PLACEMENT, AND COMPACTION ARE KEY FACTORS IN OBTAINING MAXIMUM STRENGTH AND STABILITY.

THE BACKFILL MATERIAL SHOULD BE FREE OF ROCKS, FROZEN LUMPS, AND FOREIGN MATERIAL THAT COULD CAUSE HARD SPOTS OR DECOMPOSE TO CREATE VOIDS. BACKFILL MATERIAL SHOULD BE WELL GRADED GRANULAR MATERIAL THAT MEETS THE REQUIREMENTS OF AASHTO M-145 FOR SOIL CLASSIFICATIONS A-1, A-2-4, A-2-5, OR A-3 MODIFIED.

*SEE THE STRUCTURAL PLATE BACKFILL GROUP CLASSIFICATION TABLE ON THIS SHEET.* BACKFILL MUST BE PLACED SYMMETRICALLY ON EACH SIDE OF THE STRUCTURE IN 8" LOOSE LIFTS. EACH LIFT IS TO BE COMPACTED TO A MINIMUM OF 90% DENSITY PER AASHTO T-180.

A HIGH PERCENTAGE OF SILT OR FINE SAND IN THE NATIVE SOILS SUGGESTS THE NEED FOR A WELL GRADED GRANULAR BACKFILL MATERIAL TO PREVENT SOIL MIGRATION. IF THE PROPOSED BACKFILL IS NOT A WELL-GRADED MATERIAL, A NON-WOVEN GEOTEXTILE FILTER FABRIC SHALL BE PLACED BETWEEN THE SELECT BACKFILL AND THE IN SITU MATERIAL.

DURING BACKFILL, ONLY LIGHTWEIGHT TRACKED VEHICLES (D-4 OR LIGHTER) SHOULD BE NEAR THE STRUCTURE AS FILL PROGRESSES ABOVE THE CROWN AND TO THE FINISHED GRADE. THE ENGINEER AND CONTRACTOR ARE CAUTIONED THAT THE MINIMUM COVER MAY NEED TO BE INCREASED TO HANDLE TEMPORARY CONSTRUCTION VEHICLE LOADS (HEAVIER THAN D-4).

| STRUCTURAL PLATE BACKFILL GROUP CLASSIFICATION, REFERENCE AASHTO M-145 | | | | | |
|---|---|---|---|---|---|
| GROUP CLASSIFICATION | **A-1-a** | **A-1-b** | **A-2-4** | **A-2-5** | **A-3** |
| Sieve Analysis Percent Passing | | | | | |
| No. 10 (2.000 mm) | **50 max.** | --- | --- | --- | --- |
| No. 40 (0.425 mm) | **30 max.** | **50 max.** | --- | --- | **51 max.*** |
| No. 200 (0.075 mm) | **15 max.** | **25 max.** | **35 max.** | **35 max.** | **10 max.** |
| Atterberg Limits for Fraction Passing No. 40 (0.425 mm) | | | | | |
| Liquid Limits | --- | --- | **40 max.** | **41 min.** | --- |
| Plasticity Index | **6 max.** | **6 max.** | **10 max.** | **10 max.** | **Non Plastic** |
| Usual Materials | **Stone Fragment, Gravel and Sand** | | **Silty or Clayey Gravel and Sand** | | **Coarse Sand** |

*Modified from M-145.

Fine beach sands, windblown sands, stream deposited sands, etc., exhibiting fine, rounded particles and typically Classified by AASHTO M-145 as A-3 materials should not be used.

Reference the most current version of ASTM D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System), for comparable soil groups.

1.0 STANDARDS AND DEFINITIONS

1.1 STANDARDS - All standards refer to the current ASTM/AASHTO edition unless otherwise noted.

1.1.1 ASTM B-864 "Standard Specification for Corrugated Aluminum Box Culverts" (AASHTO Designation M-219).

1.1.2 AASHTO Standard Specification for Highway Bridges - Section 12 Division I - Design, AASHTO LRFD Bridge Design Specifications Section 12.

1.1.3 AASHTO Standard Specification for Highway Bridges - Section 26 Division II - Construction, AASHTO LRFD Bridge Construction Specifications - Section 26. ASTM B789, Standard Practice for Installing Corrugated Aluminum Structural Plate Pipe.

1.2 DEFINITIONS

1.2.1 Owner - In these specifications the word "Owner" shall mean .

1.2.2 Engineer - In these specifications the word "Engineer" shall mean the Engineer of Record or Owner's designated engineering representative.

1.2.3 Manufacturer - In these specifications the word "Manufacturer" shall mean CONTECH ENGINEERED SOLUTIONS 800-338-1122 .

1.2.4 Contractor - In these specifications the word "Contractor" shall mean the firm or corporation undertaking the execution of any installation work under the terms of these specifications.

1.2.5 Approved - In these specifications the word "approved" shall refer to the approval of the Engineer or his designated representative.

1.2.6 As Directed - In these specifications the words "as directed" shall refer to the directions to the Contractor from the Owner or his designated representative.

2.0 GENERAL CONDITIONS

2.1 Any installation guidance provided herein shall be endorsed by the engineer; discrepancies herein are governed by the Engineer's plans and specifications.

2.2 The Contractor shall furnish all labor, material and equipment and perform all work and services except those set out and furnished by the Owner, necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction, grading as shown on the plans and as described therein. This work shall consist of all mobilization clearing and grading, grubbing, stripping, removal of existing material unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications. This work is to be accomplished under the observation of the Owner or his designated representative.

2.3 Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work.

If conditions other than those indicated are discovered by the Contractor, the Owner shall be notified immediately. The material which the Contractor believes to be a changed condition shall not be disturbed so that the owner can investigate the condition.

2.4 The construction shall be performed under the direction of the Engineer.

2.5 All aspects of the structure design and site layout including foundations, backfill, end treatments and necessary scour consideration shall be performed by the Engineer.

3.0 ASSEMBLY AND INSTALLATION

3.1 Bolts and nuts shall conform to the requirements of ASTM A-307 and/or ASTM A-449. The box culvert shall be assembled in accordance with the plate layout drawings provided by the manufacturer and per the manufacturer's recommendations.

Bolts shall be tightened using an applied torque of between 100 and 150 ft.-lbs.

3.2 The box culvert shall be installed in accordance with the plans and specifications, the manufacturer's recommendations, and AASHTO Standard Specification for Highway Bridges - Section 26 Division II - Construction/AASHTO LRFD Bridge Construction Specifications - Section 26.

3.3 Trench excavation shall be made in embankment material that is structurally adequate. The trench width shall be shown on the plans. Poor quality in situ embankment material must be removed and replaced with suitable backfill as directed by the Engineer.

3.4 Aluminum Box Culvert designs require a minimum allowable soil-bearing pressure of 4,000 psf. Lower bearing capacities may be accommodated with a site specific design for an aluminum foundation or a concrete footing.

If the engineer determines the natural foundation is inadequate to support the structure's backfill, the poor material shall be excavated, removed and replaced to a suitable depth with competent material. The specific depth of excavation required may be reduced by utilizing a geosynthetic reinforced foundation as designed by a qualified geotechnical engineer. For additional information contact your local Contech representative.

3.5 When a metal foundation is used, the soil bedding requires a minimum of 6 inches of loose granular material with a maximum particle size of one half the corrugation depth. The proper width of the bedding material required shall conform to the project plans and specifications.

Bedding preparation is critical to both structure performance and service life. The bedding should be constructed to uniform line and grade to avoid distortions that may create undesirable stresses in the structure and/or rapid deterioration of the roadway. The bed should be free of rock formations, protruding stones, frozen lumps, roots, and other foreign matter that may cause unequal settlement.

3.6 The structure shall be assembled in accordance with the Manufacturer's instructions. All plates shall be unloaded and handled with reasonable care. Plates shall not be rolled or dragged over gravel rock and shall be prevented from striking rock or other hard objects during placement in trench or on bedding.

When installed on a full invert or on flexible footing pads, assembly of the invert or footing pads shall start at the downstream end. Circumferential seam laps shall shingle over the top of the downstream plates as assembly progresses upstream. Whether the box culvert is installed on a concrete footing, full metal invert, or flexible footing pad, assembly of the structure shell shall start at the upstream end. Downstream rings of plates shall be assembled outside of the upstream rings (Circumferential seams are shingled downstream when viewed from the inside of the shell).

3.7 The structure shall be backfilled using clean well graded granular material that meets the requirements for soil classifications A-1, A-2-4, A-2-5, or A-3 modified per AASHTO M-145. See the structural plate backfill group classification table on this sheet.

Backfill must be placed symmetrically on each side of the structure in 8 inch loose lifts. Each lift shall be compacted to a minimum of 90 percent density per AASHTO T-180.

3.8 Standard highway loads that meet the permissible design load limits for an Aluminum Box Culvert are not allowed on the structure until it is backfilled completely and pavement is in place.

The addition of temporary soil for heavy construction loads is not feasible or permissible for Aluminum Box Culverts. By design, these structures are limited in the range of permissible fill heights and live loads.

Heavy construction loads that exceed that of the particular highway live load design limits are not allowed on Aluminum Box Culverts without approval from the Engineer.

3.9 If an aluminum headwall and/or wingwall system is specified, the select granular structural backfill limits shall extend past the deadman anchor system. Contact the Engineer if stiff material or rock is encountered where the wingwalls and deadmen are to be installed.



| MARK | DATE | REVISION DESCRIPTION | BY |
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800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH STRUCTURAL PLATE

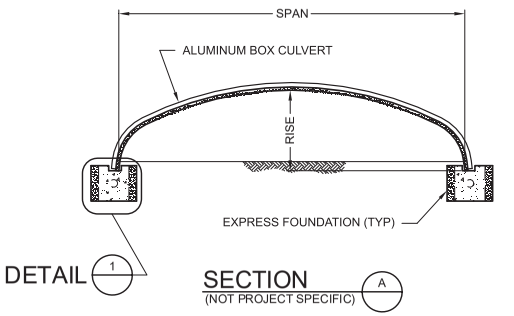
DYOB DRAWING

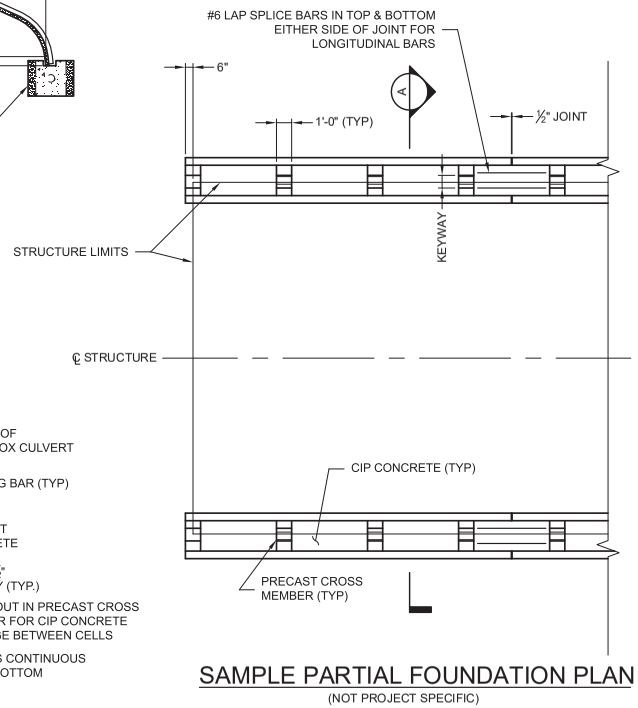
# ALBC 81, 24'-8" Span x 10'-6" Rise
## Shell Designation = R3
## KY-1414
## Hartford, Kentucky

| PROJECT No.: | DATE: |
|---|---|
| DYO218556 | 12/11/2020 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 4 OF 6 | |

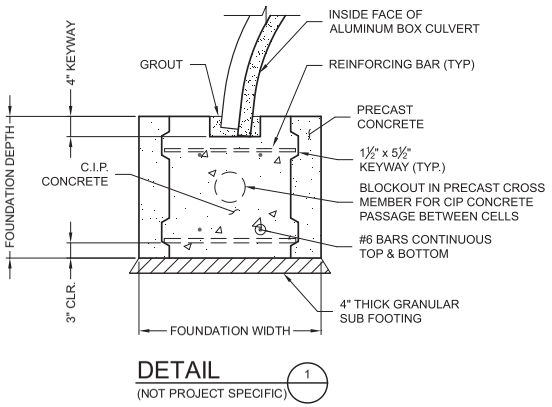
SAMPLE DRAWING ONLY

## EXPRESS FOUNDATIONS

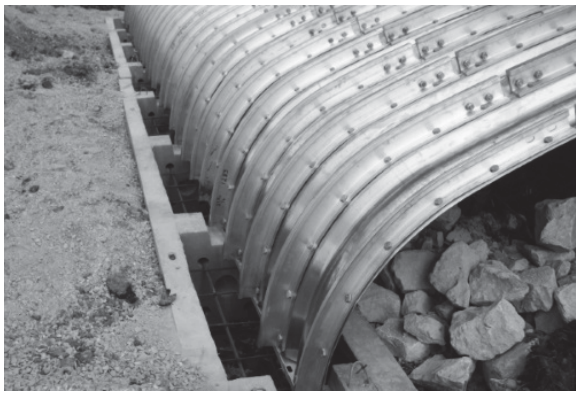



SAMPLE PARTIAL FOUNDATION PLAN
(NOT PROJECT SPECIFIC)




DETAIL 1
(NOT PROJECT SPECIFIC)





| MARK | DATE | REVISION DESCRIPTION | BY |
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CONTECH STRUCTURAL PLATE

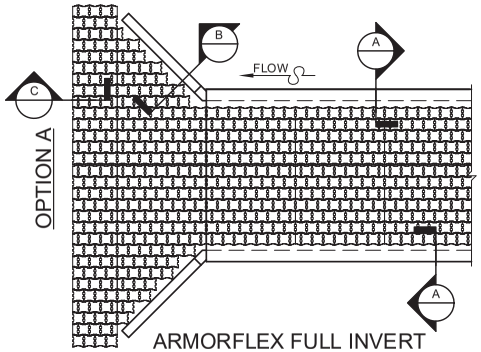
DYOB DRAWING

ALBC 81, 24'-8" Span x 10'-6" Rise
Shell Designation = R3
KY-1414
Hartford, Kentucky

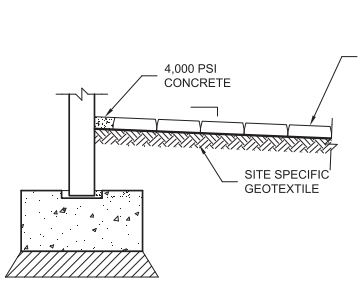
| PROJECT No.: | DATE: |
|---|---|
| DYO218556 | 12/11/2020 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 5 OF 6 | |

SAMPLE DRAWING ONLY

A-JACKS PARTIAL INVERT
N.T.S.




ARMORFLEX FULL INVERT
PARTIAL LAYOUT PLAN
N.T.S.




ARMORFLEX STRUCTURE TERMINATION A
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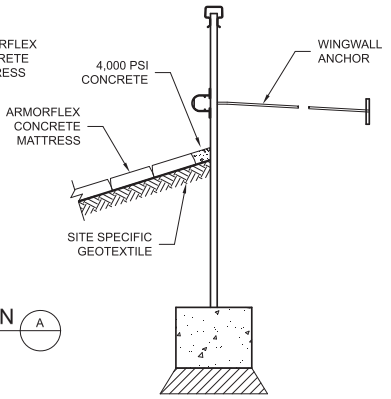
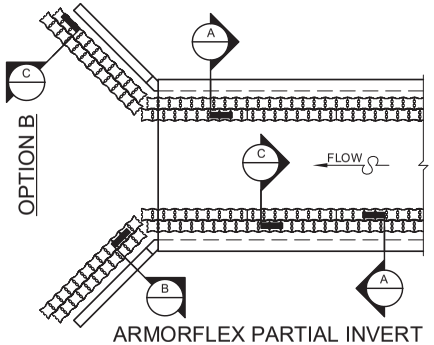
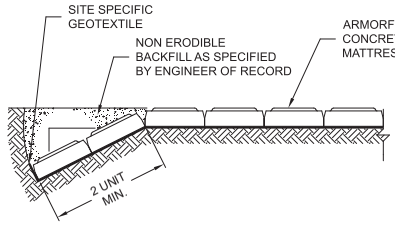



ARMORFLEX WINGWALL
TERMINATION B
N.T.S.




ARMORFLEX PARTIAL INVERT
PARTIAL LAYOUT PLAN
N.T.S.




STANDARD TERMINATION C
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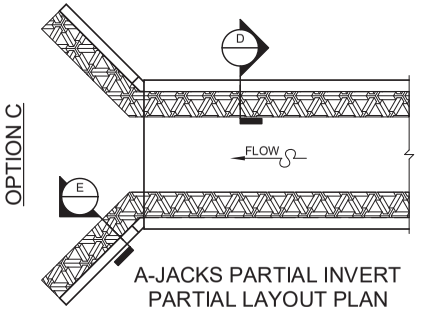
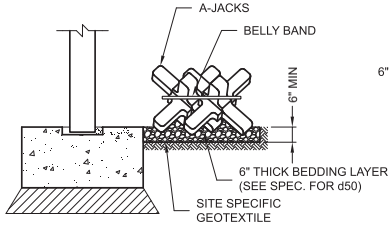



A-JACKS PARTIAL INVERT
PARTIAL LAYOUT PLAN
N.T.S.




A-JACKS STRUCTURE
TERMINATION D
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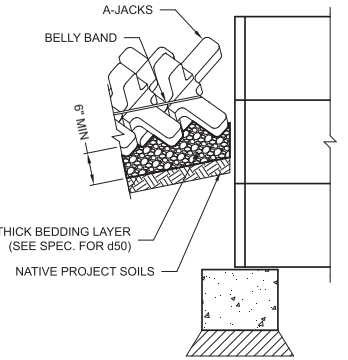


A-JACKS WINGWALL
TERMINATION E
N.T.S.



| MARK | DATE | REVISION DESCRIPTION | BY |
|---|---|---|---|
| | | | |

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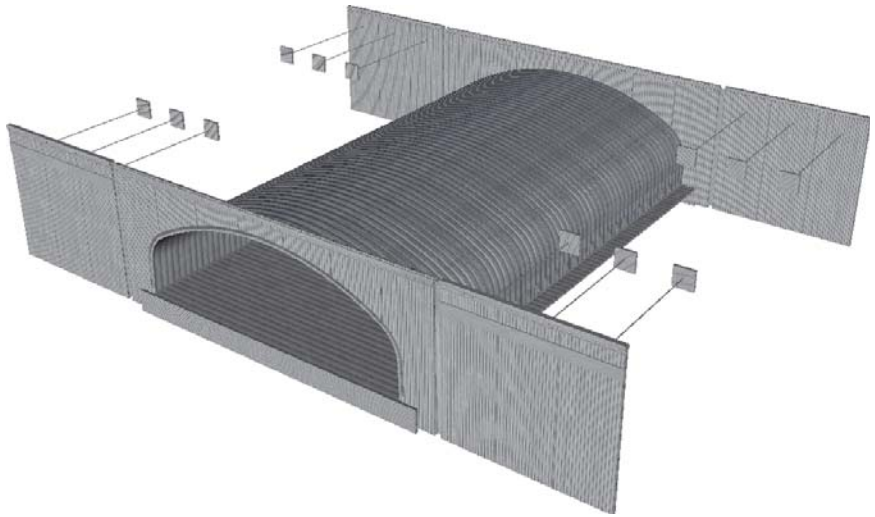
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH STRUCTURAL PLATE

DYOB
DRAWING

ALBC 81, 24'-8" Span x 10'-6" Rise
Shell Designation = R3
KY-1414
Hartford, Kentucky

| PROJECT No.: | DATE: |
|---|---|
| DYO218556 | 12/11/2020 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 6 OF 6 | |



# CONTECH ALBC DYOB

**PRELIMINARY**
NOT FOR CONSTRUCTION



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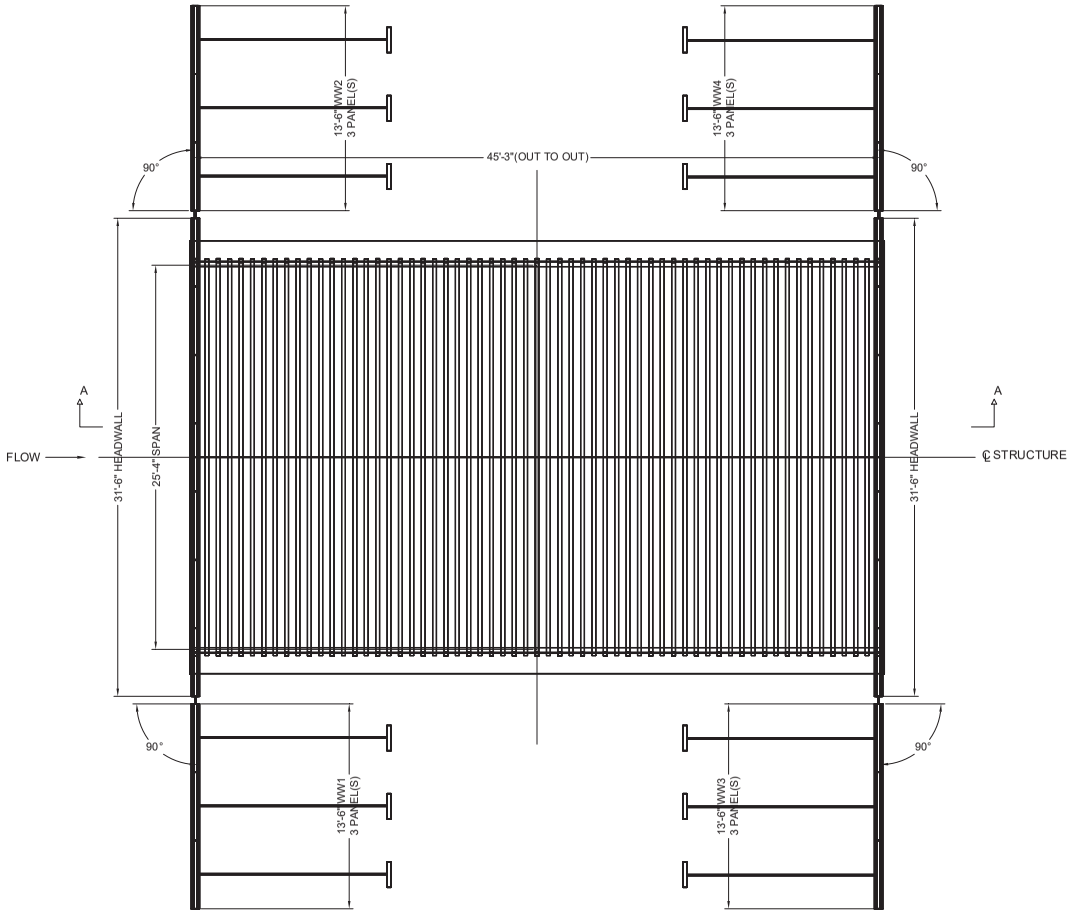
CONTECH STRUCTURAL PLATE

DYOB
DRAWING

ALBC 85, 25'-4" Span x 8'-7" Rise
Shell Designation = R3
KY 1414 - MP 6.3 - Ohio County
Hartford, Kentucky

| PROJECT No.: | DATE: |
|---|---|
| DYO219728 | 6/7/2021 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |

COVER SHEET




BRIDGE PLAN

0 2' 4' 8'

**PRELIMINARY**
NOT FOR CONSTRUCTION



| MARK | DATE | REVISION DESCRIPTION | BY |
|---|---|---|---|
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CONTECH STRUCTURAL PLATE

**DYOB**
DRAWING

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Shell Designation = R3
KY 1414 - MP 6.3 - Ohio County
Hartford, Kentucky

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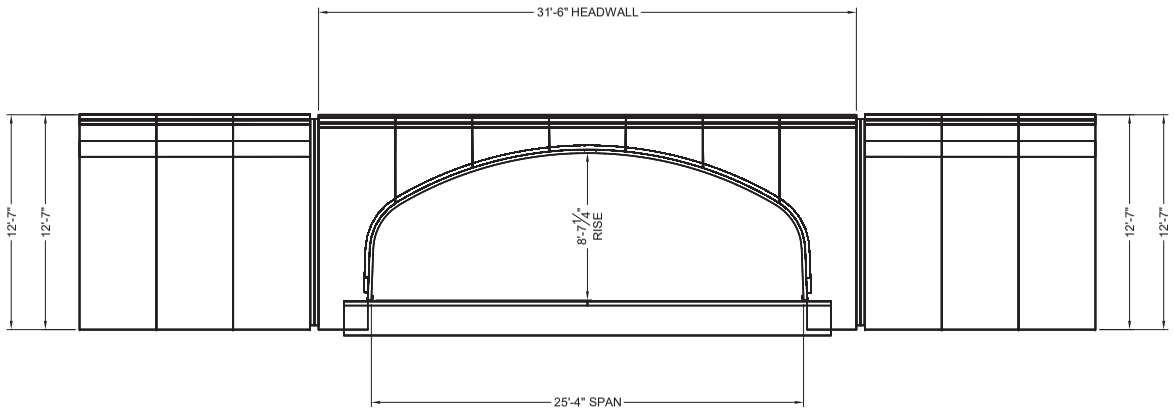
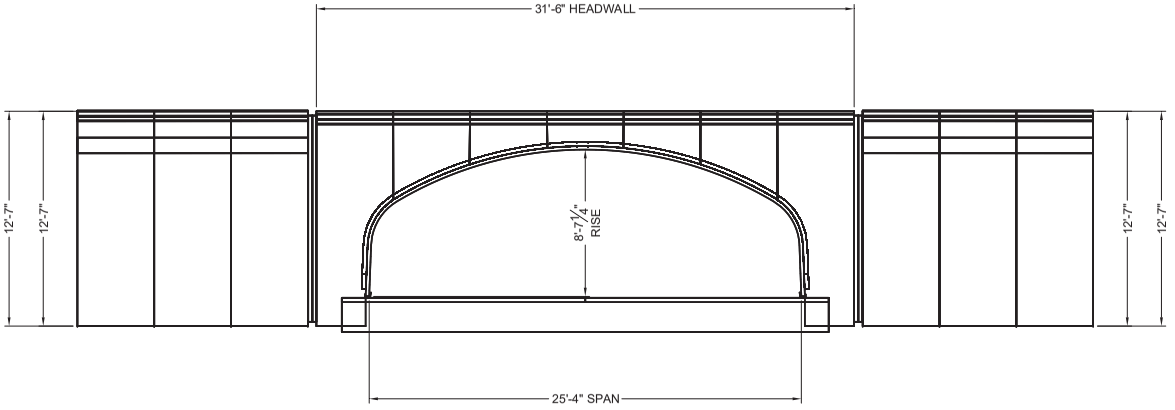
|---|---|
| DYO219728 | 6/7/2021 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 1 OF 6 | |




INLET END ELEVATION

0 2' 4' 8'




OUTLET END ELEVATION

0 2' 4' 8'

**PRELIMINARY**
NOT FOR CONSTRUCTION



| MARK | DATE | REVISION DESCRIPTION | BY |
|---|---|---|---|
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CONTECH STRUCTURAL PLATE

**DYOB**
DRAWING

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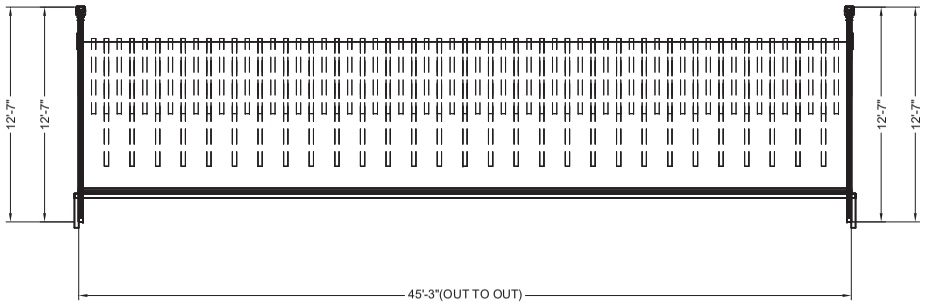
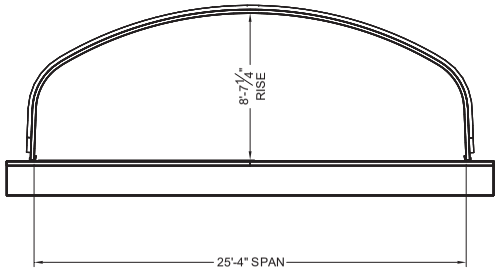
Shell Designation = R3
KY 1414 - MP 6.3 - Ohio County
Hartford, Kentucky

| PROJECT No.: | DATE: |
|---|---|
| DYO219728 | 6/7/2021 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 2 OF 6 | |




SECTION A-A

0 2' 4' 8'




CROSS SECTION

0 2' 4' 8'

**PRELIMINARY**
NOT FOR CONSTRUCTION



| MARK | DATE | REVISION DESCRIPTION | BY |
|---|---|---|---|
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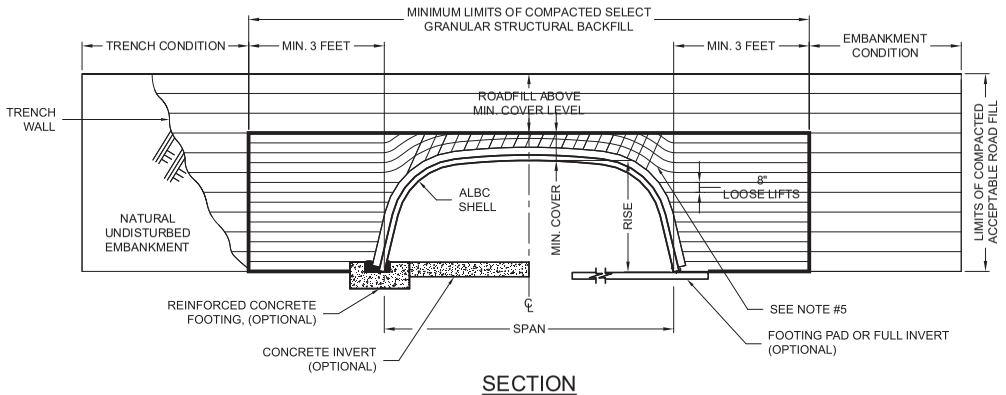
CONTECH STRUCTURAL PLATE

**DYOB**
DRAWING

ALBC 85, 25'-4" Span x 8'-7" Rise
Shell Designation = R3
KY 1414 - MP 6.3 - Ohio County
Hartford, Kentucky

| PROJECT No.: | DATE: |
|---|---|
| DYO219728 | 6/7/2021 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 3 OF 6 | |




## SECTION

SELECT GRANULAR STRUCTURAL BACKFILL LIMITS.

INITIAL LIFTS OVER THE CROWN OF STRUCTURE AS INDICATED BY SHADED AREA TO BE COMPACTED TO REQUIRED DENSITY WITH HAND OPERATED EQUIPMENT OR WITH LIGHTWEIGHT(D-4 OR LIGHTER) EQUIPMENT.

NOTES:

1. ALL SELECT GRANULAR BACKFILL TO BE PLACED IN A BALANCED FASHION IN THIN LIFTS (8" LOOSE TYPICALLY) AND COMPACTED TO 90 PERCENT DENSITY PER AASHTO T-180.
2. COMPLETE AND REGULAR MONITORING OF THE ALUMINUM BOX CULVERT SHAPE IS NECESSARY DURING ALL BACKFILLING OF THE STRUCTURE.
3. PREVENT DISTORTION OF SHAPE AS NECESSARY BY VARYING COMPACTION METHODS AND EQUIPMENT.
4. TRENCH WIDTH OTHER THAN 3 FEET SHALL BE BY DIRECTION OF THE ENGINEER OF RECORD.
5. SWITCH TO PLACING SELECT GRANULAR BACKFILL NEAR IN RADIAL LIFTS THE MIDDLE OF THE HAUNCH CURVE.

ADDITIONAL SELECT GRANULAR STRUCTURAL BACKFILL NOTES:

SATISFACTORY BACKFILL MATERIAL, PROPER PLACEMENT, AND COMPACTION ARE KEY FACTORS IN OBTAINING MAXIMUM STRENGTH AND STABILITY.

THE BACKFILL MATERIAL SHOULD BE FREE OF ROCKS, FROZEN LUMPS, AND FOREIGN MATERIAL THAT COULD CAUSE HARD SPOTS OR DECOMPOSE TO CREATE VOIDS. BACKFILL MATERIAL SHOULD BE WELL GRADED GRANULAR MATERIAL THAT MEETS THE REQUIREMENTS OF AASHTO M-145 FOR SOIL CLASSIFICATIONS A-1, A-2-4, A-2-5, OR A-3 MODIFIED.

*SEE THE STRUCTURAL PLATE BACKFILL GROUP CLASSIFICATION TABLE ON THIS SHEET.* BACKFILL MUST BE PLACED SYMMETRICALLY ON EACH SIDE OF THE STRUCTURE IN 8" LOOSE LIFTS. EACH LIFT IS TO BE COMPACTED TO A MINIMUM OF 90% DENSITY PER AASHTO T-180.

A HIGH PERCENTAGE OF SILT OR FINE SAND IN THE NATIVE SOILS SUGGESTS THE NEED FOR A WELL GRADED GRANULAR BACKFILL MATERIAL TO PREVENT SOIL MIGRATION. IF THE PROPOSED BACKFILL IS NOT A WELL-GRADED MATERIAL, A NON-WOVEN GEOTEXTILE FILTER FABRIC SHALL BE PLACED BETWEEN THE SELECT BACKFILL AND THE IN SITU MATERIAL.

DURING BACKFILL, ONLY LIGHTWEIGHT TRACKED VEHICLES (D-4 OR LIGHTER) SHOULD BE NEAR THE STRUCTURE AS FILL PROGRESSES ABOVE THE CROWN AND TO THE FINISHED GRADE. THE ENGINEER AND CONTRACTOR ARE CAUTIONED THAT THE MINIMUM COVER MAY NEED TO BE INCREASED TO HANDLE TEMPORARY CONSTRUCTION VEHICLE LOADS (HEAVIER THAN D-4).

| STRUCTURAL PLATE BACKFILL GROUP CLASSIFICATION, REFERENCE AASHTO M-145 | | | | | |
|---|---|---|---|---|---|
| GROUP CLASSIFICATION | **A-1-a** | **A-1-b** | **A-2-4** | **A-2-5** | **A-3** |
| Sieve Analysis Percent Passing | | | | | |
| No. 10 (2.000 mm) | **50 max.** | --- | --- | --- | --- |
| No. 40 (0.425 mm) | **30 max.** | **50 max.** | --- | --- | **51 max.*** |
| No. 200 (0.075 mm) | **15 max.** | **25 max.** | **35 max.** | **35 max.** | **10 max.** |
| Atterberg Limits for Fraction Passing No. 40 (0.425 mm) | | | | | |
| Liquid Limits | --- | --- | **40 max.** | **41 min.** | --- |
| Plasticity Index | **6 max.** | **6 max.** | **10 max.** | **10 max.** | **Non Plastic** |
| Usual Materials | **Stone Fragment, Gravel and Sand** | | **Silty or Clayey Gravel and Sand** | | **Coarse Sand** |

*Modified from M-145.

Fine beach sands, windblown sands, stream deposited sands, etc., exhibiting fine, rounded particles and typically Classified by AASHTO M-145 as A-3 materials should not be used.

Reference the most current version of ASTM D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System), for comparable soil groups.

1.0 STANDARDS AND DEFINITIONS

1.1 STANDARDS - All standards refer to the current ASTM/AASHTO edition unless otherwise noted.

1.1.1 ASTM B-864 "Standard Specification for Corrugated Aluminum Box Culverts" (AASHTO Designation M-219).

1.1.2 AASHTO Standard Specification for Highway Bridges - Section 12 Division I - Design, AASHTO LRFD Bridge Design Specifications Section 12.

1.1.3 AASHTO Standard Specification for Highway Bridges - Section 26 Division II - Construction, AASHTO LRFD Bridge Construction Specifications - Section 26. ASTM B789, Standard Practice for Installing Corrugated Aluminum Structural Plate Pipe.

1.2 DEFINITIONS

1.2.1 Owner - In these specifications the word "Owner" shall mean .

1.2.2 Engineer - In these specifications the word "Engineer" shall mean the Engineer of Record or Owner's designated engineering representative.

1.2.3 Manufacturer - In these specifications the word "Manufacturer" shall mean CONTECH ENGINEERED SOLUTIONS 800-338-1122 .

1.2.4 Contractor - In these specifications the word "Contractor" shall mean the firm or corporation undertaking the execution of any installation work under the terms of these specifications.

1.2.5 Approved - In these specifications the word "approved" shall refer to the approval of the Engineer or his designated representative.

1.2.6 As Directed - In these specifications the words "as directed" shall refer to the directions to the Contractor from the Owner or his designated representative.

2.0 GENERAL CONDITIONS

2.1 Any installation guidance provided herein shall be endorsed by the engineer; discrepancies herein are governed by the Engineer's plans and specifications.

2.2 The Contractor shall furnish all labor, material and equipment and perform all work and services except those set out and furnished by the Owner, necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction, grading as shown on the plans and as described therein. This work shall consist of all mobilization clearing and grading, grubbing, stripping, removal of existing material unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications. This work is to be accomplished under the observation of the Owner or his designated representative.

2.3 Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work.

If conditions other than those indicated are discovered by the Contractor, the Owner shall be notified immediately. The material which the Contractor believes to be a changed condition shall not be disturbed so that the owner can investigate the condition.

2.4 The construction shall be performed under the direction of the Engineer.

2.5 All aspects of the structure design and site layout including foundations, backfill, end treatments and necessary scour consideration shall be performed by the Engineer.

3.0 ASSEMBLY AND INSTALLATION

3.1 Bolts and nuts shall conform to the requirements of ASTM A-307 and/or ASTM A-449. The box culvert shall be assembled in accordance with the plate layout drawings provided by the manufacturer and per the manufacturer's recommendations.

Bolts shall be tightened using an applied torque of between 100 and 150 ft.-lbs.

3.2 The box culvert shall be installed in accordance with the plans and specifications, the manufacturer's recommendations, and AASHTO Standard Specification for Highway Bridges - Section 26 Division II - Construction/AASHTO LRFD Bridge Construction Specifications - Section 26.

3.3 Trench excavation shall be made in embankment material that is structurally adequate. The trench width shall be shown on the plans. Poor quality in situ embankment material must be removed and replaced with suitable backfill as directed by the Engineer.

3.4 Aluminum Box Culvert designs require a minimum allowable soil-bearing pressure of 4,000 psf. Lower bearing capacities may be accommodated with a site specific design for an aluminum foundation or a concrete footing.

If the engineer determines the natural foundation is inadequate to support the structure's backfill, the poor material shall be excavated, removed and replaced to a suitable depth with competent material. The specific depth of excavation required may be reduced by utilizing a geosynthetic reinforced foundation as designed by a qualified geotechnical engineer. For additional information contact your local Contech representative.

3.5 When a metal foundation is used, the soil bedding requires a minimum of 6 inches of loose granular material with a maximum particle size of one half the corrugation depth. The proper width of the bedding material required shall conform to the project plans and specifications.

Bedding preparation is critical to both structure performance and service life. The bedding should be constructed to uniform line and grade to avoid distortions that may create undesirable stresses in the structure and/or rapid deterioration of the roadway. The bed should be free of rock formations, protruding stones, frozen lumps, roots, and other foreign matter that may cause unequal settlement.

3.6 The structure shall be assembled in accordance with the Manufacturer's instructions. All plates shall be unloaded and handled with reasonable care. Plates shall not be rolled or dragged over gravel rock and shall be prevented from striking rock or other hard objects during placement in trench or on bedding.

When installed on a full invert or on flexible footing pads, assembly of the invert or footing pads shall start at the downstream end. Circumferential seam laps shall shingle over the top of the downstream plates as assembly progresses upstream. Whether the box culvert is installed on a concrete footing, full metal invert, or flexible footing pad, assembly of the structure shell shall start at the upstream end. Downstream rings of plates shall be assembled outside of the upstream rings (Circumferential seams are shingled downstream when viewed from the inside of the shell).

3.7 The structure shall be backfilled using clean well graded granular material that meets the requirements for soil classifications A-1, A-2-4, A-2-5, or A-3 modified per AASHTO M-145. See the structural plate backfill group classification table on this sheet.

Backfill must be placed symmetrically on each side of the structure in 8 inch loose lifts. Each lift shall be compacted to a minimum of 90 percent density per AASHTO T-180.

3.8 Standard highway loads that meet the permissible design load limits for an Aluminum Box Culvert are not allowed on the structure until it is backfilled completely and pavement is in place.

The addition of temporary soil for heavy construction loads is not feasible or permissible for Aluminum Box Culverts. By design, these structures are limited in the range of permissible fill heights and live loads.

Heavy construction loads that exceed that of the particular highway live load design limits are not allowed on Aluminum Box Culverts without approval from the Engineer.

3.9 If an aluminum headwall and/or wingwall system is specified, the select granular structural backfill limits shall extend past the deadman anchor system. Contact the Engineer if stiff material or rock is encountered where the wingwalls and deadmen are to be installed.



| MARK | DATE | REVISION DESCRIPTION | BY |
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www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH STRUCTURAL PLATE

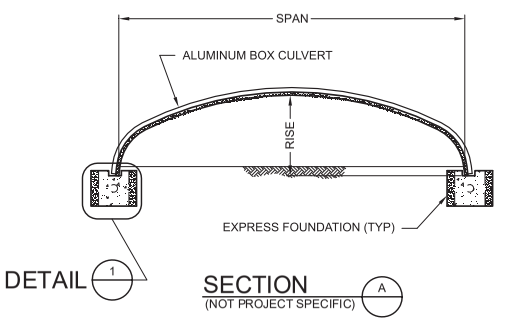
DYOB DRAWING

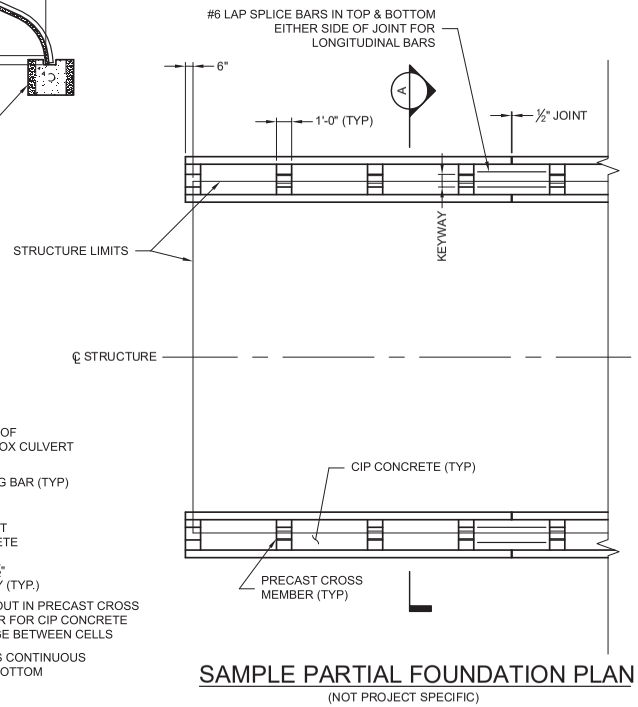
# ALBC 85, 25'-4" Span x 8'-7" Rise
## Shell Designation = R3
## KY 1414 - MP 6.3 - Ohio County
## Hartford, Kentucky

| PROJECT No.: | DATE: |
|---|---|
| DYO219728 | 6/7/2021 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 4 OF 6 | |

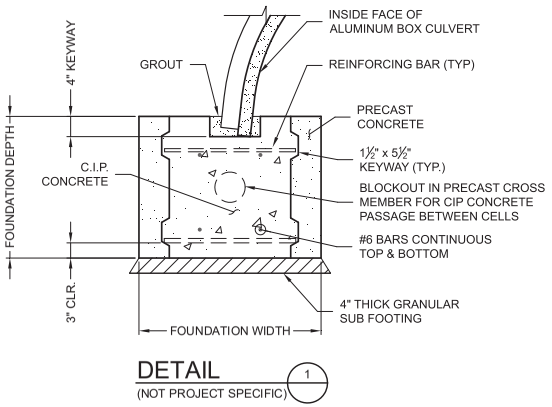
SAMPLE DRAWING ONLY

## EXPRESS FOUNDATIONS

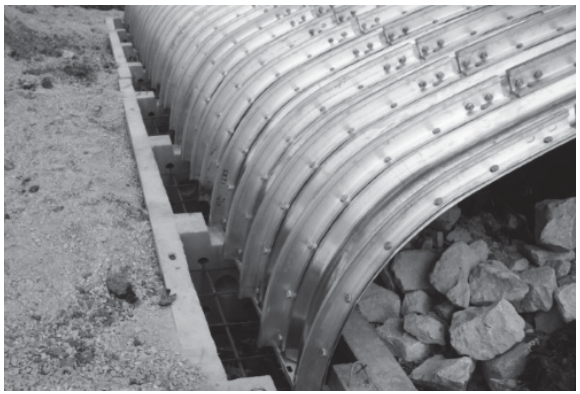



SAMPLE PARTIAL FOUNDATION PLAN
(NOT PROJECT SPECIFIC)




DETAIL 1
(NOT PROJECT SPECIFIC)





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CONTECH STRUCTURAL PLATE

DYOB
DRAWING

ALBC 85, 25'-4" Span x 8'-7" Rise
Shell Designation = R3
KY 1414 - MP 6.3 - Ohio County
Hartford, Kentucky

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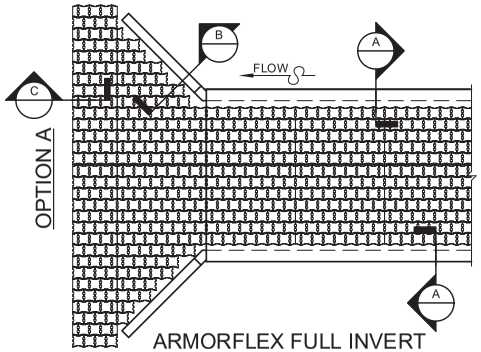
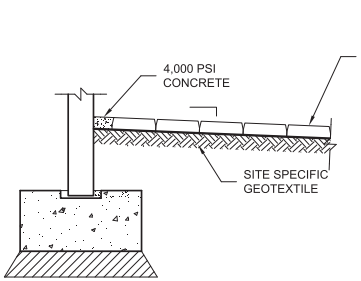
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 5 OF 6 | |

SAMPLE DRAWING ONLY

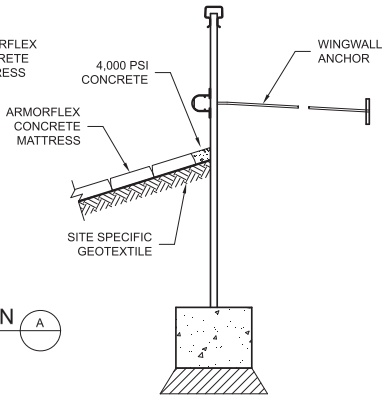
A-JACKS PARTIAL INVERT
N.T.S.



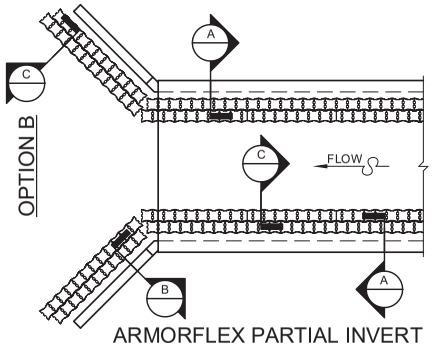

ARMORFLEX FULL INVERT
PARTIAL LAYOUT PLAN
N.T.S.



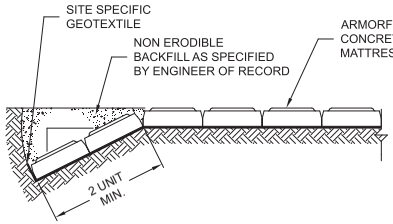

ARMORFLEX STRUCTURE TERMINATION A
N.T.S.



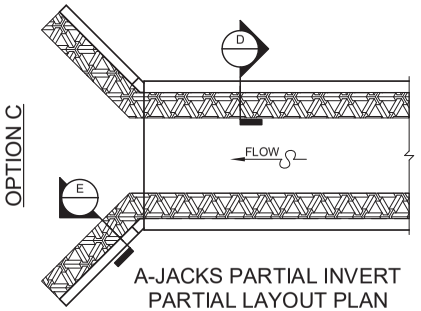

ARMORFLEX WINGWALL
TERMINATION B
N.T.S.



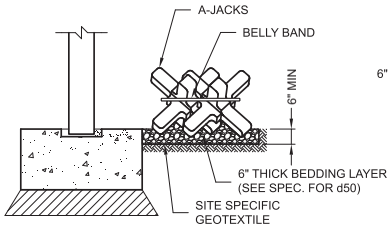

ARMORFLEX PARTIAL INVERT
PARTIAL LAYOUT PLAN
N.T.S.



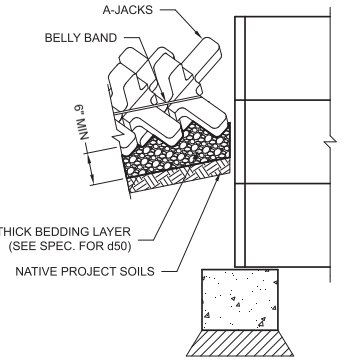

STANDARD TERMINATION C
N.T.S.




A-JACKS PARTIAL INVERT
PARTIAL LAYOUT PLAN
N.T.S.




A-JACKS STRUCTURE
TERMINATION D
N.T.S.




A-JACKS WINGWALL
TERMINATION E
N.T.S.



| MARK | DATE | REVISION DESCRIPTION | BY |
|---|---|---|---|
| | | | |

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH STRUCTURAL PLATE

DYOB DRAWING

ALBC 85, 25'-4" Span x 8'-7" Rise
Shell Designation = R3
KY 1414 - MP 6.3 - Ohio County
Hartford, Kentucky

| PROJECT No.: | DATE: |
|---|---|
| DYO219728 | 6/7/2021 |
| DESIGNED: DYO | DRAWN: DYO |
| CHECKED: DYO | APPROVED: DYO |
| SHEET NO.: 6 OF 6 | |

# 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 2019* and *Standard Drawings, Edition of 2020.*

# 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 ALUMINUM AND STEEL STRUCTURAL PLATE BOX CULVERTS**

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction, current edition.

**1.0 DESCRIPTION.** Furnish and install either an aluminum or a steel structural plate box culvert as the Contract specifies.

**2.0 MATERIALS.**

**2.1 Structure.** These structures consist of prefabricated sections assembled and erected at the site. Prefabricated sections consist of corrugated aluminum or steel plates, as the Contract specifies, which have been factory shaped, punched, and coated when required. The Department will not permit field modification except for tapping saddles or other devices to permit passage of other conduits or utilities through the structure. Furnish and install all auxiliary items such as ribs, wales, stiffeners, footing pads, etc. that the design requires. Furnish and install endwalls and toewalls when the plans require them. When endwalls are required, construct full height wing sections. Do not field bevel cut wing sections.

Before beginning erection, furnish to the Engineer applicable shop drawings, erection layouts, and manufacturer's brochures for submittal to the Division of Construction. Indicate the location of the drawing number, design load (as applicable), contract award year, and contractor stencils on the shop drawings. If a drawing number has not been assigned for the structure, obtain one from the Division of Structural Design. The Department will accept plates and accessories by certificate of compliance from the manufacturer. Upon completion of construction, submit to the Division of Structural Design an as-built set of structure plans and reviewed shop drawings in 22 inch by 36 inch Portable Document Format (PDF) for archiving.

**2.1.1 Aluminum Structure.** Obtain the aluminum structural plate box culvert, and aluminum endwalls or toewalls when required, from either Contech Construction Products or Lane Metal Products.

The Department will accept comparable aluminum structures produced by other companies when the Engineer approves. For such approval, submit sufficient data and design calculations to show that the proposed structures are equal in all respects to the Contech product and also include evidence of actual installations now in service that are performing satisfactorily. Design according to the current AASHTO LRFD Bridge Design Specifications, except design for KYHL-93 live load. The KYHL-93 live load is arrived at by increasing the standard AASHTO HL-93 truck and lane loads as specified in the AASHTO Specifications by 25%. Do not consider as a tunnel or tunnel liner plate for design. Before beginning erection, furnish the Engineer applicable shop drawings and structural design calculations performed, stamped, and signed by a qualified Professional Engineer licensed to practice in the State of Kentucky.

Use aluminum accessories and plates, of the plan specified thickness, that conforms to AASHTO M 219 or ASTM B 308 as applicable.

Where non-aluminum utilities are passed through, insulate with an alumilastic compound or approved equal, to prevent bi-metallic contact.

**2.1.2 Steel Structure.** Use either (1) Contech Construction Products'

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Multi-Plate Steel Box Culvert; or (2) Lane Metal Products Company's Low Profile Box Culvert.

The Department will accept comparable steel structures produced by other companies when the Engineer approves. For such approval, submit sufficient data and design calculations to show that the proposed structures are equal in all respects to those specified above and also include evidence of actual installations now in service that are performing satisfactorily. Design according to the current AASHTO LRFD Bridge Design Specifications, except design for KYHL-93 live load. The KYHL-93 live load is arrived at by increasing the standard AASHTO HL-93 truck and lane loads as specified in the AASHTO Specifications by 25%. Do not consider as a tunnel or tunnel liner plate for design. Before beginning erection, furnish the Engineer applicable shop drawings and structural design calculations performed, stamped, and signed by a qualified Professional Engineer licensed to practice in the State of Kentucky.

Use steel accessories and plates, of the plan specified thickness, that conform to AASHTO M 167 for galvanized steel.

**2.2 Asphalt Coating.** On all steel drainage structures, except those installed as railroad tunnels, cattle underpasses, bicycle or pedestrian underpasses, or similar dry conditions, apply an asphalt coating conforming to Subsection 806.06.

**2.3 Bedding Material.** Use granular material with 100% passing 1 inch sieve that conforms to Subsection 804.08. Bedding shall be placed at a minimum thickness of twice the corrugation depth.

**2.4 Backfill Material.** Select any of the following alternates and obtain the Engineers approval.

1) well graded or uniformly graded bank or creek gravel, crushed or uncrushed, up to 3 inches maximum size;
2) well graded or uniformly graded natural or crushed sand;
3) finely shot limestone or sandstone providing no individual fragment is larger than 3 inches and the material contains no more than 5 percent dirt and/or shale, as determined by visual inspection by the Engineer;
4) crushed stone or crushed slag up to 3 inches maximum size (except DGA or Size No. 610);
5) other locally available materials meeting the approval of the Engineer (local soils conforming to soil classifications A-2-4 or A-2-5 from AASHTO M 145 will be acceptable). Do not use plastic soils, or materials containing significant amounts of nondurable shale (SDI < 95 by KM 64-513); or
6) flowable fill conforming to Subsection 601.03.03, B), 5).

**2.5 Foundation Material.** Use material capable of supporting the imposed loads due to backfill weight and footing pressures of 2 tons per square foot.

**3.0 CONSTRUCTION.**

**3.1 Technical Representative.** Provide a technical representative from the structure manufacturer to advise at the start of the project. Ensure the technical representative is available thereafter to assist in the event problems or special circumstances arise.

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Technical assistance shall be provided at no additional cost to the Department.

**3.2 Site Preparation.** Perform structure excavation according to Section 603, except as modified herein.

On structures with footing pads, excavate trenches 3 inches below the elevation shown on the plans, and level the bottom of the trench with 3 inches of bedding material before placing the footing pads.

On structures with a full metal invert, excavate the entire area covered by the invert plates to accommodate bedding material placement to a minimum thickness of twice the corrugation depth before placing the invert plates.

Take soundings for foundation design at the inlet and outlet of each culvert and at intervals no greater than 20 feet along the grade line of the bottom of the culvert, to a depth of one foot. Make soundings on the centerline and at each edge of the culvert. Where ledge rock, gravel, hardpan, or other unyielding material is encountered or known to exist within the limits stated, perform excavation in the area under the invert plates or footing pads. Extend the additional excavation to a depth of 0.042 H below the bottom of the metal plates, where H is the height of fill above the top of the culvert. However, regardless of the height of fill, the Department will require the additional depth to be a minimum of one foot and will not require it to be more than 0.75 Hc, where Hc is the total height of the culvert.

Backfill the additional excavation with an earth cushion of firmly compacted fine soils in layers of 6 inches or less, prior to placing the sand bedding layer.

Excavate cross trenches as necessary to place metal toewalls when the plans require them.

Excavate a minimum width of the outside dimension of the box culvert including footing pads or invert plates plus 6 inches on each side.

Proper bedding preparation is critical for satisfactory performance of the box culvert. Place the bed for footing pads or invert plates to uniform lines and grade to avoid distortions and undesirable stresses in the structure.

Construct concrete footings or bottom slabs in accordance with the plans and standard specifications.

**3.3 Installation.** Erect the culvert, and endwalls when required, in strict accordance with the manufacturer's recommendations. The Department will allow offsite assembly of the structure, provided prior approval is obtained, and assembly is in accordance with the manufacturer's instructions. Structural plates shall be assembled with their inside circumferential sheet laps pointing downstream. Align plates circumferentially to avoid permanent distortion from the specified shape. Ensure the width and height of the completed structure is within 2 percent of the specified dimensions or 2 inches, whichever is greater.

Tighten bolts in the erected structure according to the manufacturer's recommendations, with good seam laps, while in proper shape, using nuts and bolts the manufacturer supplies. Construct concrete footings and headwalls in accordance with the plans.

Install the ribs, wales, and toewalls when required, according to the manufacturer’s recommendations.

In side-by-side installations, install the box culverts with footing pads or invert plates of each culvert no closer than 2 feet to the footing pads or invert plates of the adjacent culvert, unless the plans show otherwise. Excavate the entire volume between the culverts and place backfill.

**3.4 Backfill.** Proper placement and compaction of backfill are essential to obtain

maximum strength and stability of the finished structure. Use equipment and construction procedures to prevent excessive structure distortion from occurring. The manufacturer of the structure will specify the magnitude of allowable shape changes during backfill. Monitor the shape of the structure to control distortion until all backfilling operations are completed.

On structures with concrete footing pads, backfill the trench for the pads to the flowline inside the culvert before outside backfilling begins.

Place granular backfill material in horizontal layers not exceeding 6 inches loose depth, and bring up uniformly on both sides of the structure. Compact each layer to the same level on all sides before proceeding to the next lift. Do not use compaction equipment or methods that produce earth pressures that cause distortion or damage. Place material on top of the structure at right angles to the centerline of the structure. Compact each layer of backfill to a density of at least 95 percent of the maximum density according to KM 64-511. The Department will determine the in-place density using nuclear gages. The Engineer may waive density testing when not feasible due to the nature of the material. When using flowable fill, place according to Subsection 601.03.09, C).

If the structure is not installed in a full depth trench, use backfill material for embankment adjacent to the structure for a distance equal to the span width on each side of the box culvert and to a height of 2 feet or subgrade elevation, whichever is lower, above the structure.

**3.5 Construction Loads.** Do not allow construction loads in excess of HS-20 vehicles to cross the completed box culvert unless it is internally braced. Design the support for such bracing so as not to impair the structural integrity or severely interfere with the hydraulics of the box culvert or its invert. Have the culvert manufacturer review the details of the bracing and submit them to the Engineer for approval.

**3.6 Headwalls.** Construct concrete headwalls, when required, according to the plans. Apply masonry coating to exposed surfaces of the headwalls when required by Subsection 601.03.18, B). When using an aluminum structure, coat aluminum surfaces that will be in contact with concrete with alumilastic compound or an approved equal prior to placing concrete.

**4.0 MEASUREMENT.**

**4.1 Structure Excavation.** The Department will measure Structure Excavation as Structure Excavation, Common or Structure Excavation, Solid Rock according to Subsection 206.04.03, except on the sides of the structure the volume will be bounded by vertical planes 6 inches outside the footing pads or invert plates and parallel thereto.

The Department will measure material necessary for backfill in excess of the material excavated as Borrow Excavation, Roadway Excavation, or Embankment-in-Place, as applicable.

The Department will measure granular material used to replace excavated material that is unsuitable for backfill as Borrow Excavation, Roadway Excavation, or Embankment-in-Place. The Department will not measure earthwork for payment when the bid item is Embankment-in-Place unless the unsuitable material is wasted.

The Department will not measure flowable fill for payment and will consider it incidental to the structure.

The Department will not measure bedding for payment and will consider it incidental to the structure.

**4.2 Aluminum Structural Plate Box Culvert.** The Department will measure the

quantity in linear feet at each location. The Department will consider the number of linear feet in each installation to be the plan length, increased or decreased by authorized adjustments. The Department will not measure ribs, wales, stiffeners, footing pads, toewalls, endwalls, internal braces, or asphalt coating for payment and will consider them incidental to the structure.

**4.3 Steel Structural Plate Box Culvert.** See 4.2.

**4.4 Class A Concrete.** The Department will measure Class A Concrete in footings and headwalls according to Subsection 601.04.

**4.5 Reinforcement.** The Department will measure Steel Reinforcement in the footings and headwalls according to Subsection 602.04.

**5.0 PAYMENT.** The Department will make payment for the completed and accepted quantities under the following:

| Code | Pay Item | Pay Unit |
|---|---|---|
| 20694EN | Aluminum Structural Plate Box Culvert | Linear Foot |
| 20695EN | Steel Structural Plate Box Culvert | Linear Foot |
| ---- | Structure Excavation, as classified | See Section 603.05 |
| ---- | Concrete, Class | See Section 601.05 |
| ---- | Steel Reinforcement | See Section 602.05 |

The Department will consider payment as full compensation for all work required in this note.

June 15, 2012

# 2020 KENTUCKY STANDARD DRAWINGS

# 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

Refer to
*Kentucky Standard Specifications for Road and Bridge Construction,*
current edition

# PART V

# BID ITEMS

213206

# PROPOSAL BID ITEMS



**Report Date** 11/9/21

## Section: 0001 - ROADWAY

| LINE | BID CODE | ALT | DESCRIPTION | QUANTITY | UNIT | UNIT PRIC | FP | AMOUNT |
|---|---|---|---|---|---|---|---|---|
| 0010 | 00001 | | DGA BASE | 200.00 | TON | | $ | |
| 0020 | 00221 | | CL2 ASPH BASE 0.75D PG64-22 | 150.00 | TON | | $ | |
| 0030 | 00301 | | CL2 ASPH SURF 0.38D PG64-22 | 30.00 | TON | | $ | |
| 0040 | 02014 | | BARRICADE-TYPE III | 6.00 | EACH | | $ | |
| 0050 | 02483 | | CHANNEL LINING CLASS II | 275.00 | TON | | $ | |
| 0060 | 02562 | | TEMPORARY SIGNS | 550.00 | SQFT | | $ | |
| 0070 | 02603 | | FABRIC-GEOTEXTILE CLASS 2 | 4,000.00 | SQYD | | $ | |
| 0080 | 02650 | | MAINTAIN & CONTROL TRAFFIC | 1.00 | LS | | $ | |
| 0090 | 02731 | | REMOVE STRUCTURE<br>MP 4.38 | 1.00 | LS | | $ | |
| 0100 | 02731 | | REMOVE STRUCTURE<br>MP 6.3 | 1.00 | LS | | $ | |
| 0110 | 06510 | | PAVE STRIPING-TEMP PAINT-4 IN | 2,000.00 | LF | | $ | |
| 0120 | 06514 | | PAVE STRIPING-PERM PAINT-4 IN | 2,000.00 | LF | | $ | |
| 0130 | 20694EN | | ALUMINUM STRUCTURAL PLATE BOX CULVERT<br>MP 4.38 - 24'-8" Span x 10'-6" Rise | 46.00 | LF | | $ | |
| 0140 | 20694EN | | ALUMINUM STRUCTURAL PLATE BOX CULVERT<br>MP 6.30 - 25'-4" Span x 8'-7" Rise | 46.00 | LF | | $ | |
| 0150 | 23322EC | | AGGREGATE SIZE NO. 57 | 100.00 | CUYD | | $ | |
| 0160 | 24970EC | | ASPHALT MATERIAL FOR TACK NON-TRACKING | 2.00 | TON | | $ | |

## Section: 0002 - DEMOBILIZATION

| LINE | BID CODE | ALT | DESCRIPTION | QUANTITY | UNIT | UNIT PRIC | FP | AMOUNT |
|---|---|---|---|---|---|---|---|---|
| 0170 | 02569 | | DEMOBILIZATION | 1.00 | LS | | $ | |