1. THE END ANCHOR AS DEPICTED ON THIS SHEET SHALL BE INSTALLED IN ACCORDANCE WITH INSTRUCTIONS AND RECOMMENDATIONS FOR TRINITY INDUSTRIES, Inc., 2525 STEMMONS FREEWAY, DALLAS, TX., 75356. 1-800-631-4420

2. BREAKAWAY POSTS ARE REQUIRED WITH THIS END ANCHOR. SHALL BE GALVANIZED.

3. ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND PLATES

4. REFLECTORIZED OBJECT SAFETY MARKER SHALL BE DIAGONAL YELLOW ON A BLACKGROUND. TYPE III SHEETING, AND SHOULD BE INSTALLED AFTER INSTALLATION OF THE IMPACT HEAD. THE YELLOW DIAGONAL STRIPES SHOULD SLOPE DOWNWARD TO THE SIDE OF TRAFFIC FLOW.

5. THE C-A-T HAS BEEN APPROVED FOR USE AS A NCHRP REPORT 350 TL-2

NOTE: THIS DRAWING REFLECTS AN APPROVED POST SPACING AND POST TYPE. THE CONTRACTOR MAY SUPPLY ANOTHER NCHRP REPORT 350 APPROVED POST SPACING AND TYPE FOR THIS PRODUCT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
1. No punching, drilling, cutting or welding will be permitted after galvanization is applied.

2. The guardrail posts depicted in these details are for illustrative purposes and shall not be constructed as indicating the number of posts required.

3. The length of the guardrail is for the purpose of illustrating the required length of the guardrail. The end anchor may be either wood or steel.

4. The second rail element of the nested W-beam guardrail shall not be measured separately for payment, but shall be included in the unit price bid for Item 630-A, Widenings of Shoulder.

5. The length of need shown is for the culvert only. Additional guardrail posts shall not be included in the unit price bid for Item 630-A, Widenings of Shoulder.

6. The guardrail shown in these details is for illustrative purposes and shall not be constructed as indicating the number of guardrail posts required.

7. The guardrail posts shown in these details are for illustrative purposes and shall not be constructed as indicating the number of guardrail posts required.

8. The guardrail shown in these details is for illustrative purposes and shall not be constructed as indicating the number of guardrail posts required.

9. The guardrail shown in these details is for illustrative purposes and shall not be constructed as indicating the number of guardrail posts required.

10. The guardrail shown in these details is for illustrative purposes and shall not be constructed as indicating the number of guardrail posts required.
1. The React 350 system shall be installed in accordance with the instructions and recommendations of Eastern Manufacturing Systems, Inc. or other similar system.

2. The React 350 is intended for use in frequent impact locations such as gore and chicane transitions, and to be employed where high frequency impacts occur. It is non-gating, with a self-restoring mechanism.

3. The React 350 system does not require concrete pad preparations, and may be installed using metal or concrete pad preparations. It is not to be used in heavy freeze conditions.

4. The React 350 system is not to be used in areas where the ground is not firm or where the ground is unsuitable for installation.

5. The React 350 system may be installed on either side of the roadway, and may be used in either uni- or bi-directional traffic.

6. The React 350 system shall be installed on the shoulder of the roadway, and may be used in either uni- or bi-directional traffic.

7. The React 350 system shall be installed on the shoulder of the roadway, and may be used in either uni- or bi-directional traffic.

8. The React 350 system shall be installed on the shoulder of the roadway, and may be used in either uni- or bi-directional traffic.

9. The React 350 system shall be installed on the shoulder of the roadway, and may be used in either uni- or bi-directional traffic.

10. The React 350 system shall be installed on the shoulder of the roadway, and may be used in either uni- or bi-directional traffic.

NOTE 7: See note 7 for information on hazard markers.
SEVERAL NOTES

1. The HEART attenuator shall be installed in accordance with the instructions and recommendations of Trinity HIGHWAY PRODUCTS, LLC, 2525 Stemmons Freeway, Dallas, TX. 75207  1-800-631-4420.

2. The HEART is a restorable, redirective, non-gating attenuator that has met NCHRP Report 350 TL-2 requirements. It can be used in unidirectional locations only that are not susceptible to a reverse angle hit. The HEART may be used in Work Zones as Item 726-D, Portable Impact Attenuator as a drainage line support when necessary.

3. The HEART may be used in unidirectional locations only if the site is not susceptible to a reverse angle hit.

4. The HEART shall be installed in accordance with the instructions and recommendations given.

5. The HEART shall be installed in accordance with the instructions and recommendations given.

6. The HEART shall be installed in accordance with the instructions and recommendations given.

7. The HEART may be used in Work Zones as Item 726-D, Portable Impact Attenuator as a drainage line support when necessary.)

8. The HEART shall be installed in accordance with the instructions and recommendations given.

9. The HEART shall be installed in accordance with the instructions and recommendations given.
GENERAL NOTES

1. COST OF EXCAVATION FOR POSTS TO BE INCLUDED IN COST OF HANDRAIL.
2. MATERIALS TO BE SPECIFIED AND TREATED IN ACCORDANCE WITH NAPA STANDARD P-48, USING A
   WATERBORNE PRESERVATIVE.
3. MORTAR FOR COURSED RUBBLE MASONRY SHALL BE A DARK PORTLAND CEMENT MORTAR MIX.
4. MONOLITHICALLY POURED CONCRETE POST AND FOOTING MAY BE PRECAST OR CAST IN PLACE USING
   CLASS A2 CONCRETE HARDENS). REMAINS PLUMB UNTIL TAKEN TO INSURE THAT BEAM REMAINS LEVEL
5. DOWELS TO BE TREATED WITH PRESERVATIVE, SAME RATE AS HANDRAIL.
6. HANDRAILS TO BE S4S AND TREATED IN ACCORDANCE WITH A.W.P.A. STANDARD C14, USING A
   WATERBORNE PRESERVATIVE.
7. TYPE OF HANDRAIL TO BE CONSTRUCTED IS OPTIONAL UNLESS OTHERWISE SPECIFIED.
8. HANDRAIL TO BE PAID FOR AS PER LINEAR FEET.
9. W4 x 13 BEAMS TO CONFORM WITH ASTM A-36 AND GALVANIZED AFTER FABRICATION WITH ZINC @ 2 OUNCE/SQ FT
10. DOWELS TO BE TREATED WITH PRESERVATIVE, SAME RATE AS HANDRAIL.
11. SUGGESTED REPLACEMENT OF HANDRAIL FOR TYPE NO. 1 IS TO USE EITHER A LAMINATED TIMBER WITH STAGGERED
    BOLT SPLICE OR AN ADEQUATE BOLTED SPLICE JOINT FOR 3" x 6" TIMBER. BOLT REMOVAL CAN BE ACCOMPLISHED
    BY REMOVING MORTAR WITH A MASONRY DRILL AND USE OF A SOCKET WRENCH. REMOVED MORTAR SHALL
    BE REPLACED.
12. DOWEL DETAIL
13. END VIEW
14. ELEVATION
15. TYPE # 1
16. ELEVATION
17. TYPE # 2
18. FRONT VIEW
19. END VIEW
20. DOWEL DETAIL

NOT TO SCALE

ALABAMA DEPARTMENT
OF TRANSPORTATION

NOT TO SCALE
TEST LEVEL-2 7 BAY

TEST LEVEL-3 8-BAY
**TEST LEVEL 3  4-BAY**

1. **THE QUEST SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS AND REQUIREMENTS OF THE CORRECT ATTENUATOR,** whether or not specified.

2. **MANUFACTURER RECOMMENDS REMOVAL OF ALL CURBS AND ISLANDS TO ENSURE PROPER IMPACT PERFORMANCE.**

3. **THE QUEST SYSTEM MUST BE CORRECTLY ANCHORED FOR PROPER IMPACT PERFORMANCE.**

4. **THE QUEST SYSTEM MAY BE CORRECTLY ANCHORED FOR PROPER IMPACT PERFORMANCE.**

5. **THE QUEST SYSTEM MAY BE USED AS EITHER UNI-DIRECTIONAL (AS SHOWN ON THE TL-2) OR BI-DIRECTIONAL WITH TRANSITIONAL PANEL (AS SHOWN ON THE TL-3).**

6. **STEEL BACKUP AND CONCRETE PAD SPECIFICALLY DESIGNED TO NEST AROUND 24" WIDE HAZARDS WITH TYPE IV REFLECTIVE SHEETING.**

7. **THE TL-2 AND THE TL-3 DEPICTED ON THIS SHEET MAY BE USED AS EITHER UNI-DIRECTIONAL (AS SHOWN ON THE TL-2) OR BI-DIRECTIONAL WITH TRANSITIONAL PANEL (AS SHOWN ON THE TL-3).**

8. **THE QUEST IMPACT ATTENUATOR IS A REDIRECTING, NON-GATING IMPACT ATTENUATOR INTENDED FOR LOW IMPACT FREQUENCY AREAS.**

9. **THE TOTAL QUEST SYSTEM, INCLUDING FOUNDATION PAD, ANCHOR SYSTEM, HAZARD MARKER, CONNECTIONS AND ANY INCIDENTALS COSTS SHALL BE PAID AS FOLLOWS:**

10. **THE QUEST SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS AND REQUIREMENTS OF THE CORRECT ATTENUATOR, AS SHOWN.**

**GENERAL NOTES:**

- **CONCRETE BARRIER**
- **CONCRETE PAD**
- **VARIABLE ELEVATION**
- **HATCHING SHOULD POINT LEFT**
- **NOTE 3**

**SYSTEM WIDTH**

1. **PORTABLE IMPACT ATTENUATOR ASSEMBLY (UNIDIRECTIONAL OR BI-DIRECTIONAL), TL-___, PER EACH UNIT.**

2. **VEHICULAR IMPACT ATTENUATOR ASSEMBLY (UNIDIRECTIONAL OR BI-DIRECTIONAL), TL-___, PER EACH UNIT.**

3. **ALTERNATE NCHRP-350, TL-3, PORTABLE BARRIER DESIGNS THAT HAVE BEEN APPROVED BY THE ALDOT PRODUCT EVALUATION BOARD MAY BE CONSIDERED FOR USE THROUGH SUBMITTAL TO THE STATE CONSTRUCTION ENGINEER.**

4. **PORTABLE IMPACT ATTENUATOR ASSEMBLY (UNIDIRECTIONAL OR BI-DIRECTIONAL), TL-___, PER EACH UNIT.**
1. The ACZ-350 system shall be installed in accordance with the manufacturer's recommendations and installation instructions.

The manufacturer is Energy Absorption Systems, Inc., 35 East Wacker Dr., Chicago, IL 60601-2076; 1(888) 323-6374.

2. The total ACZ-350 system including surface preparation, hazard markers, connections to concrete barrier and any incidental costs shall be as follows:

Total ACZ-350 Portable Impact Attenuation Assembly (unidirectional): $3,500

3. The ACZ-350 system is a narrow, non-directive, gating crash cushion. It is intended to shield the blunt end of both permanent and movable length portable concrete median barriers, as well as concreteside steel median barrier systems. It provides no protection to workers or equipment behind the attenuator. Vehicles impacting the attenuator may pass through the attenuator. Designers and contractors should be aware of the elements surrounding the work zone. See Exhibit 1 for clear area guidance when the attenuator is used for approximately equivalent crashworthiness. The hazard marker is provided by selecting a red航运 attenuator. The ACZ-350 attenuator is 31'-6" in length and should be attached to the end of established median barriers as protection to the barrier end.

4. The ACZ-350 is intended for work zone use only. It is intended for traffic on one side of the barrier and attenuator. However, it is placed so that its forward direction of travel may be used for traffic on both sides of the attenuator.

5. The ACZ-350 may be installed on any firm surface including a graded shoulder. Maximum side slope is limited to 50.

6. The hazard marker shall be constructed of 0.08" aluminum flat sign panel with the type IV reflective sheeting. The hazard marker shall be attached to the nose section using bolts, not a anchor or by using pop rivets.

7. The attenuator consists of a sheet metal nose, a ward-ended segments, and a steel transition. All 4 barrier segments should be bolted with washers to the steel module on both ends. The potential for flexible parts. The elements should be bolted with water and anti-shearing capable of protection at work. The disposal of this material shall be in accordance with local ordinances relating to environmental issues.

8. Alternative manufacturer, TL-3, portable barrier designs that meet the ALDOT Product Evaluation Board may be considered for use through the Request For Proposal process. The ALDOT Product Evaluation Board may also be consulted for use through the ALDOT Product Evaluation Board process. The ALDOT Standard Specifications for Highway Construction, 2012 Edition, includes the ACZ-350 portable impact attenuator as an approved design.
1. The Triton shall be installed in accordance with the manufacturer's recommendations and installation instructions. The manufacturer is Energy Absorption Systems, Inc., 35 East Wacker Dr., Chicago, IL 60601-2076, 1 (888) 323-6374.

2. The total Triton system including surface preparation, hazard markers, connection to concrete barrier and any incidental costs shall be as follows:
   - TL-2 Transition barrier assembly (100% paid as work zone only)
   - TL-2 Portable barrier assembly (100% paid as work zone only)
   - TL-3 Portable barrier assembly (100% paid as work zone only)
   - TL-3 Transition barrier assembly (100% paid as work zone only)

3. The Triton is a non-redirecive, gating crash cushion. It is intended to shield the barrier end only. It provides no protection to workers or equipment behind the attenuator. Vehicles impacting the attenuator may pass through the attenuator. Designers and contractors should be aware of placement restrictions and should extend the barrier wall a sufficient distance to shield the work area. See "DETAIL A" for clear area guidance behind the attenuator. For approximate distance clear, see "DETAIL A" for clearance guidance behind the attenuator.

4. Alternative non-350 TL-3 portable barrier designs that have been approved by the ALDOT Product Evaluation Board may be considered for the non-consumer to the same construction criteria as in accordance with Section 748-2016.53 of the ALDOT standard specifications for highway construction, 2012 edition.

5. The first attenuator element is empty. The remaining elements to be filled with water to the level indicator shown.

6. The required hazard marker shall be constructed of 0.08" thick aluminum flat sign panel with the type IV reflective material. The hazard marker shall be attached to the nose section using bolts, nuts, and washers or by using pop rivets.

7. The hazard marker shall be constructed of 0.08" thick aluminum flat sign panel with the type IV reflective material. The hazard marker shall be attached to the nose section using bolts, nuts, and washers or by using pop rivets.

8. The Triton shall be installed in accordance with the manufacturer's recommendations and installation instructions. The manufacturer is Energy Absorption Systems, Inc., 35 East Wacker Dr., Chicago, IL 60601-2076, 1 (888) 323-6374.

9. The total Triton system including surface preparation, hazard markers, connection to concrete barrier and any incidental costs shall be as follows:
   - TL-2 Transition barrier assembly (100% paid as work zone only)
   - TL-2 Portable barrier assembly (100% paid as work zone only)
   - TL-3 Portable barrier assembly (100% paid as work zone only)
   - TL-3 Transition barrier assembly (100% paid as work zone only)

10. The required hazard marker shall be constructed of 0.08" thick aluminum flat sign panel with the type IV reflective material. The hazard marker shall be attached to the nose section using bolts, nuts, and washers or by using pop rivets.

11. The hazard marker shall be constructed of 0.08" thick aluminum flat sign panel with the type IV reflective material. The hazard marker shall be attached to the nose section using bolts, nuts, and washers or by using pop rivets.

12. The hazard marker shall be constructed of 0.08" thick aluminum flat sign panel with the type IV reflective material. The hazard marker shall be attached to the nose section using bolts, nuts, and washers or by using pop rivets.

13. The hazard marker shall be constructed of 0.08" thick aluminum flat sign panel with the type IV reflective material. The hazard marker shall be attached to the nose section using bolts, nuts, and washers or by using pop rivets.

14. The hazard marker shall be constructed of 0.08" thick aluminum flat sign panel with the type IV reflective material. The hazard marker shall be attached to the nose section using bolts, nuts, and washers or by using pop rivets.

15. The hazard marker shall be constructed of 0.08" thick aluminum flat sign panel with the type IV reflective material. The hazard marker shall be attached to the nose section using bolts, nuts, and washers or by using pop rivets.

16. The hazard marker shall be constructed of 0.08" thick aluminum flat sign panel with the type IV reflective material. The hazard marker shall be attached to the nose section using bolts, nuts, and washers or by using pop rivets.

17. The hazard marker shall be constructed of 0.08" thick aluminum flat sign panel with the type IV reflective material. The hazard marker shall be attached to the nose section using bolts, nuts, and washers or by using pop rivets.

18. The hazard marker shall be constructed of 0.08" thick aluminum flat sign panel with the type IV reflective material. The hazard marker shall be attached to the nose section using bolts, nuts, and washers or by using pop rivets.
**Note:** The diagram represents the details of the QuadGuard System, a redirecting, non-gating attenuator designed for use by the Alabama Department of Transportation. The system is not to be copied, reproduced, altered, or used by anyone, or for any other purpose.

### STANDARD UNIT MODEL NUMBERS

<table>
<thead>
<tr>
<th>POSTED SPEED LIMIT</th>
<th>BAYS</th>
<th>SYSTEM LENGTH</th>
<th>EFFECTIVE LENGTH</th>
<th>PAD LENGTH</th>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
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<td>N/A</td>
<td>N/A</td>
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**DIAPHRAGM**

**50 T**

**339**

**L.V.S.**

**IMPACT ATTENUATOR**

**DETAILS OF QUADGUARD SYSTEM**

1. **THE QUADGUARD SYSTEM** may be used in either unidirectional or bidirectional locations, and should be specified.

2. The total QuadGuard System, including concrete pad, backup, hazard marker, monorail, and any incidental costs, shall be paid for as follows:

3. The system shall be made of either concrete panels to slide downward upon impact or poles with:

4. The QuadGuard System shall be installed in accordance with the specifications and recommendations of the manufacturer for recommendations and design criteria.

5. The system is designed to work with either a tension strut backup or a concrete backup, a tension strut shall be used to prevent sway, but may be used with a concrete backup. The hazard marker shall be made of aluminum or plastic, and shall be a minimum of 24" wide.

6. Cross slope of pad shall not exceed 8% and not vary more than 2% from front to back.

7. Cross slope of pad shall not exceed 8% and not vary more than 2% from front to back.

8. Cross slope of pad shall not exceed 8% and not vary more than 2% from front to back.

9. Cross slope of pad shall not exceed 8% and not vary more than 2% from front to back.

10. **THE QUADGUARD IS A REDIRECTING, NON-GATING ATTENUATOR.** ANY ORGANIZATION, WITHOUT THE EXPRESSED WRITTEN CONSENT OF THE ALABAMA DEPARTMENT OF TRANSPORTATION AND IS NOT TO BE COPIED, REPRODUCED, ALTERED, OR USED BY ANYONE, OR FOR ANY OTHER PURPOSE.

**NOT TO SCALE**
1. The TAU-II system shall be installed in accordance with the instructions and recommendations of Lindsey Transportation Solutions, Inc. (See Note No. 6).

2. The total system,包括分隔物的连接, must be designed to meet the following.

3. The total system shall be capable of supporting the loads indicated in the table below.

4. The TAU-II system shall be installed in accordance with the instructions and recommendations of Lindsey Transportation Solutions, Inc. (See Note No. 6).

5. The total system shall be capable of supporting the loads indicated in the table below.

6. The total system shall be installed in accordance with the instructions and recommendations of Lindsey Transportation Solutions, Inc. (See Note No. 6).

7. The total system shall be installed in accordance with the instructions and recommendations of Lindsey Transportation Solutions, Inc. (See Note No. 6).

8. The total system shall be installed in accordance with the instructions and recommendations of Lindsey Transportation Solutions, Inc. (See Note No. 6).

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31. The total system shall be installed in accordance with the instructions and recommendations of Lindsey Transportation Solutions, Inc. (See Note No. 6).

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39. The total system shall be installed in accordance with the instructions and recommendations of Lindsey Transportation Solutions, Inc. (See Note No. 6).

40. The total system shall be installed in accordance with the instructions and recommendations of Lindsey Transportation Solutions, Inc. (See Note No. 6).
Concrete Obstruction

**ELEVATION VIEW**

**PLAN VIEW**

**GENERAL NOTES**

1. The attenuator system represented on this standard is a proprietary design by SCI Products Inc. 635 Lucknow Road, Harrisburg, PA 17110, (717) 234-3106. Installation shall be in accordance with the manufacturer's instructions and recommendations.

2. These systems are re-directive, non-gating crash cushions that are restorable and therefore effective in high frequency impact locations. It may be used in work zones or permanent locations.

3. Permanent and portable Portland cement concrete foundations shall be constructed with aggregates in minimum compressive strength concrete. Anchoring into the foundation to be as per manufacturer's requirements.

4. Both the TL-2 and TL-3 attenuators shall be constructed parallel to the approach travel lane and on cross slopes of 8% or flatter.

5. A clear space of 3' will be required on both sides of the last terminal brace at the rear of the attenuator to allow the side panels to retract upon impact.

6. The SCI attenuator has a projection width of 2'

7. The required hazard markers shall be constructed of .08' thick aluminum flat side panel with type IV reflective sheeting. The hazard marker shall be attached to the top section using bolt, nut & washers or by using rivets.

8. The SCI attenuators may be used in either unidirectional or bidirectional locations, and should be specified when crossing the system for installation.

9. The total SCI system including foundation and transition require hardened concrete and a minimum compressive strength concrete. Anchoring into the foundation to be as per manufacturer's requirements.

10. Alternate non-SCI-120-XTL-2 portable barrier designs that have been approved by the ALDOT Product Evaluation Board may be considered for use through submission to the State Construction Engineer in accordance with Section 740.02(c)3 of the ALDOT Standard Specifications for Highway Construction, 2012 Edition.

**ALABAMA DEPARTMENT OF TRANSPORTATION**

REFERENCES OF SCI IMPACT ATTENUATOR

NOT TO SCALE
NOTE: SEE SHEET 3 OF 4
FOR TEMPORARY CONCRETE BARRIER
BOLTED TO BRIDGE DECK.

GENERAL NOTES

1. THIS DRAWING IS TO BE USED FOR ALL NEW BARRIER CAST AFTER 10/01/2002. BARRIER
CAST PRIOR TO 10/01/2002 AND IN ACCORDANCE WITH SHEET 2 OF 4 MAY BE SUPPLIED
CAST PRIOR TO 10/01/2002 AND IN ACCORDANCE WITH SHEET 2 OF 4 MAY BE SUPPLIED
CAST PRIOR TO 10/01/2002 AND IN ACCORDANCE WITH SHEET 2 OF 4 MAY BE SUPPLIED
CAST PRIOR TO 10/01/2002 AND IN ACCORDANCE WITH SHEET 2 OF 4 MAY BE SUPPLIED

2. SUPPLY ONE (1) CONNECTOR PIN ASSEMBLY WITH EACH 10' BARRIER SECTION.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING THE TIGHTNESS OF THE 1" HEX
NUT AT BOTH ENDS OF THE 1" DIA BOLT TO ENSURE THAT NO HEX NUT COMES LOOSE

4. ALL COMPONENTS MUST BE HOT DIP GALVANIZED-ASTM A153

5. ALTERNATE HEX HEAD MACHINE BOLT- ASTM A307 GRADE A

6. BARRIERS SHALL INITIALLY BE PLACED CLOSE TOGETHER (CLOSED JOINT) SO THAT THE PIN
CAN BE EASILY INSERTED THROUGH THE HINGE BAR LOOP. THE BARRIERS SHOULD THEN BE
OPENED (OPEN JOINT) BEFORE THE NUT IS TIGHTENED ON THE PIN.

7. ALL DEFORMED REINFORCING BARS SHALL BE GRADE 40 OR 60 AASHTO M31 OR ASTM A615.

8. ALTERNATE NCHRP 350, TL-3, PORTABLE BARRIER DESIGNS THAT HAVE BEEN APPROVED BY
THE ALABAMA DEPARTMENT OF TRANSPORTATION REPRESENTATIVE AUTHORIZED TO APPROVE THIS USE. ANYONE MAKING
ANY ORGANIZATION, WITHOUT THE EXPRESSED WRITTEN CONSENT OF THE ALABAMA DEPARTMENT
OF TRANSPORTATION, IS PROHIBITED FROM USING THIS DESIGN.  THIS DRAWING REPRESENTS DESIGNS PREPARED FOR USE BY THE ALABAMA DEPARTMENT OF TRANSPORTATION. THE DRAWING IS NOT TO SCALE.

ALABAMA DEPARTMENT OF TRANSPORTATION

550, 9" PORTABLE CONCRETE BARRIER - TYPE 6

PNHD-629 (SHEET 1 OF 4) 351
1. FOR DETAILS OF THE CONNECTOR PIN ASSEMBLY, DETAILED CONNECTION, REFLECTORS, AND DETAILS OF LIFT HOOK, SEE SHEET 1 OF 4.

2. REFER TO GENERAL NOTES 1 SHOWN 1 SHEET 1 OF 4.

3. ALL DECK SPALLS THAT OCCUR AS A RESULT OF DRILLING THROUGH THE DECK OR TO INSTALL ANCHOR BOLTS OR AS A RESULT OF REMOVING ANCHOR BOLTS FROM TEMPORARY BARRIERS ARE EXCLUDED FROM BEING SUBJECT TO THE SATISFACTION OF THE REQUIREMENTS FOR MANDATORY MATERIALS AND METHODS TO BE USED IN MAKING THESE REPAIRS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ALL COSTS ASSOCIATED WITH REMOVING SPALLED CONCRETE FROM DECK SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION OF PAY ITEM 726-A, PORTABLE CONCRETE SAFETY BARRIER, TYPE 6.

4. IF THE BARRIER IS TO BE POSITIONED SUCH THAT A GIRDER PREVENTS BOLTING THROUGH THE DECK, THEN ANCHOR BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH PROCEDURE PROVIDED IN DETAIL No. 5. IF THE TRAFFIC SIDE BOLT CANNOT BE BOLTED THROUGH THE DECK DUE TO GIRDER THEN BOTH SIDES OF THE BARRIER SHALL BE BOLTED.

5. ALL HOLES DRILLED THROUGH THE DECK SHALL BE FILLED WITH AN APPROVED EPOXY GROUT AFTER REMOVAL OF THE TEMPORARY BARRIER. IF THE ANCHOR BOLT WAS DRILLED AND REMOVED THEN THE ANCHOR BOLT SHALL BE CUT PRIOR TO THE TOP OF THE DECK AND FILLED WITH AN APPROVED EPOXY.

6. ALL COSTS FOR MATERIALS, EQUIPMENT, TOOLS, LABOR, AND INSTRUCTIONS TO INSTALL AND REMOVE ANCHORS AND TO PATCH THE DECK WITH EPOXY GROUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PAY ITEM 726-A, PORTABLE CONCRETE SAFETY BARRIER, TYPE 6.

7. ALTERNATE NOTES AND DRAWING VARIATIONS THAT HAVE BEEN APPROVED BY THE ALDOT PRODUCT EVALUATION BOARD MAY BE CONSIDERED FOR USE THROUGH SUBMITTAL TO THE STATE CONSTRUCTION ENGINEER IN ACCORDANCE WITH SECTION 726.12 OF THE ALDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2006 EDITION.
NOT TO SCALE

**Project No:**

**Bureau Std Engr:**

**Date Drawn:** 08-31-14

**Drawing By:**

**General Information:**

- **Elevation:** at end positive connector
- **Minimum Horizontal Curve:** radius = 107
- **Minimum Vertical Curve:** radius = 107
- **Horizontal Rotation:**
- **Vertical Rotation:**
- **Notes:**
  - 3-4.5 x 11' - 7.5' sheet: ASTM A-706 bars welded to end connector (ASTM A-416 bars used in non-welded conditions with 26 inch embedment connector plate is used in place of conventional 12 foot barrier).
  - 3/8" plastic insert with NC thread
  - 3-#5 ASTM A-706 grade 60 bars
  - Connector plate detail
  - Center mesh over length of barrier
  - Each end: 3/8" plastic insert with NC thread
  - Tack top & bottom (typ)
  - Vertically rotated
  - Verteical rotation
  - Maximum separation
  - Max displacement: 3/16" - 1-1/2" depending on barrier width + 1/4" connector plate size + 1/8" width of connector @ B + 1/32" connector location ± 1/6"
  - 3. Tolerance:
  - 2. Banners are self-aligning with no loose hardware.
  - 1. J-J Hooks barrier, NC-HP 350 test level III approved for lengths 8 feet to 30 feet.
  - Maximum separation
  - Minimum separation
  - Vertical rotation
  - Horizontal rotation
  - Overall height of barrier is 4' - 8 1/2" (see note 4).
  - Reflective sheeting mounted on flatsheet blanks shall be installed for both directions of traffic. Cost of the reflectors and mounts shall be a subsidiary obligation of the concrete barrier, type 6.
  - When 24 inch embedment connector plate is used, reflectors shall be installed for both directions of traffic. Cost of the reflectors and mounts shall be a subsidiary obligation of the concrete barrier, type 6.
  - Center mesh over length of barrier.
  - J-J Hooks barrier, NC-HP 350 test level III approved for lengths 8 feet to 30 feet.
  - Vertical rotation
  - Horizontal rotation
  - Maximum separation
  - Minimum separation
  - Vertical rotation
  - Horizontal rotation

**References:**

- PNJB-029 (sheet 1 of 4)
- PNJB-029 (sheet 2 of 4)
- PNJB-029 (sheet 3 of 4)
- PNJB-029 (sheet 4 of 4)

**Not to scale**