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Letting March 8, 2019

Notice to Bidders, Specifications and Proposal

Contract No. 85671
ROCK ISLAND County
Section 17-00374-00-PP
Routes FAU 5792 / FAS 207 (Knoxville Road)
Project ASMI-291 ()
District 2 Construction Funds

Prepared by

Checked by

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(Printed by authority of the State of Illinois)

Illinois Department of Transportation

NOTICE TO BIDDERS

1. **TIME AND PLACE OF OPENING BIDS.** Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 10:00 a.m. March 8, 2019 at which time the bids will be publicly opened from the iCX SecureVault.

2. **DESCRIPTION OF WORK**. The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

   Contract No. 85671
   ROCK ISLAND County
   Section 17-00374-00-PP
   Project ASMI-291 ()
   Routes FAU 5792 / FAS 207 (Knoxville Road)
   District 2 Construction Funds

   Concrete restoration of Knoxville Road from 78th Avenue to 134th Avenue.

3. **INSTRUCTIONS TO BIDDERS**. (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

   (b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.

4. **AWARD CRITERIA AND REJECTION OF BIDS**. This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Matt Magalis,
Acting Secretary

CONTRACT 85671

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2019

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS, frequently used RECURRING SPECIAL PROVISIONS, and LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 4-1-16) (Revised 1-1-19)

SUPPLEMENTAL SPECIFICATIONS

RECURRING SPECIAL PROVISIONS

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

The following LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

ROCK ISLAND COUNTY
CONTRACT 85671
SECTION 17-00374-00-PP
FAU 5792/FAS 207 (C.H. 7)
PROJECT NO. ASMI (291)
JOB NO. C-92-053-18

INDEX OF SPECIAL PROVISIONS

BDE SPECIAL PROVISIONS

The following special provisions indicated by an "X" are applicable to this contract. An * indicates a new or revised special provision for the letting.

	File Name	Pg.		Special Provision Title	Effective	Revised
	80099			Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2014
	80274			Aggregate Subgrade Improvement	April 1, 2012	April 1, 2016
	80192			Automated Flagger Assistance Device	Jan. 1, 2008	
	80173			Bituminous Materials Cost Adjustments	Nov. 2, 2006	Aug. 1, 2017
	80241			Bridge Demolition Debris	July 1, 2009	
	5026I			Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	April 1, 2010
	5048I			Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	April 1, 2010
	5049I			Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	April 1, 2010
	5053I			Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	April 1, 2010
*	80404			Coarse Aggregate Quality for Micro-Surfacing and Cape Seals	Jan. 1, 2019	
	80384	20	X	Compensable Delay Costs	June 2, 2017	
	80198			Completion Date (via calendar days)	April 1, 2008	
	80199			Completion Date (via calendar days) Plus Working Days	April 1, 2008	
	80293			Concrete Box Culverts with Skews > 30 Degrees and Design Fills ≤ 5 Feet	April 1, 2012	July 1, 2016
	80311			Concrete End Sections for Pipe Culverts	Jan. 1, 2013	April 1, 2016
	80277			Concrete Mix Design – Department Provided	Jan. 1, 2012	April 1, 2016
	80261			Construction Air Quality – Diesel Retrofit	June 1, 2010	Nov. 1, 2014
	80387			Contrast Preformed Plastic Pavement Marking	Nov. 1, 2017	
*	**80029**	24	X	**Disadvantaged Business Enterprise Participation**	**Sept. 1, 2000**	**Mar. 2, 2019**
	80402	35	X	Disposal Fees	Nov. 1, 2018	
	80378			Dowel Bar Inserter	Jan. 1, 2017	Jan. 1, 2018
*	80405			Elastomeric Bearings	Jan. 1, 2019	
	80388	37	X	Equipment Parking and Storage	Nov. 1, 2017	
	80229			Fuel Cost Adjustment	April 1, 2009	Aug. 1, 2017
	80304			Grooving for Recessed Pavement Markings	Nov. 1, 2012	Nov. 1, 2017
	80246			Hot-Mix Asphalt – Density Testing of Longitudinal Joints	Jan. 1, 2010	Aug. 1, 2018
*	80406			Hot-Mix Asphalt – Mixture Design Verification and Production (Modified for I-FIT Projects)	Jan. 1, 2019	
*	80398			Hot-Mix Asphalt – Longitudinal Joint Sealant	Aug. 1, 2018	Jan. 1, 2019
	80399			Hot-Mix Asphalt – Oscillatory Roller	Aug. 1, 2018	Nov. 1, 2018
	80347			Hot-Mix Asphalt – Pay for Performance Using Percent Within Limits – Jobsite Sampling	Nov. 1, 2014	Aug. 1, 2018
*	80383			Hot-Mix Asphalt – Quality Control for Performance	April 1, 2017	Jan. 1, 2019
	80376			Hot-Mix Asphalt – Tack Coat	Nov. 1, 2016	
	80392	38	X	Lights on Barricades	Jan. 1, 2018	
	80336			Longitudinal Joint and Crack Patching	April 1, 2014	April 1, 2016
*	**80393**			**Manholes, Valve Vaults, and Flat Slab Tops**	**Jan. 1, 2018**	**Mar. 1, 2019**
	80400			Mast Arm Assembly and Pole	Aug. 1, 2018	
	80045			Material Transfer Device	June 15, 1999	Aug. 1, 2014
	80394			Metal Flared End Section for Pipe Culverts	Jan. 1, 2018	April 1, 2018
	80165			Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2010
	80349			Pavement Marking Blackout Tape	Nov. 1, 2014	April 1, 2016
	80371			Pavement Marking Removal	July 1, 2016	
	80390	40	X	Payments to Subcontractors	Nov. 2, 2017	
	80389	41	X	Portland Cement Concrete	Nov. 1, 2017	
	80359			Portland Cement Concrete Bridge Deck Curing	April 1, 2015	Nov. 1, 2017
	~~80401~~			~~Portland Cement Concrete Pavement Connector for Bridge Approach Slab~~	~~Aug. 1, 2018~~	

	File Name	Pg.		Special Provision Title	Effective	Revised
	80300			Preformed Plastic Pavement Marking Type D - Inlaid	April 1, 2012	April 1, 2016
	80328	42	X	Progress Payments	Nov. 2, 2013	
	3426I			Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
	80157			Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
*	80306			Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)	Nov. 1, 2012	Jan. 1, 2019
*	80407	43	X	Removal and Disposal of Regulated Substances	Jan. 1, 2019	
	80395			Sloped Metal End Section for Pipe Culverts	Jan. 1, 2018	
	80340			Speed Display Trailer	April 2, 2014	Jan. 1, 2017
	80127			Steel Cost Adjustment	April 2, 2014	Aug. 1, 2017
*	80408			Steel Plate Beam Guardrail Manufacturing	Jan. 1, 2019	
	80397	55	X	Subcontractor and DBE Payment Reporting	April 2, 2018	
	80391	56	X	Subcontractor Mobilization Payments	Nov. 2, 2017	
	80317			Surface Testing of Hot-Mix Asphalt Overlays	Jan. 1, 2013	April 1, 2016
	80298			Temporary Pavement Marking	April 1, 2012	April 1, 2017
	20338			Training Special Provision	Oct. 15, 1975	
	80403			Traffic Barrier Terminal, Type 1 Special	Nov. 1, 2018	
*	80409	57	X	Traffic Control Devices – Cones	Jan. 1, 2019	
*	80410			Traffic Spotters	Jan. 1, 2019	
	80318			Traversable Pipe Grate for Concrete End Sections	Jan. 1, 2013	Jan. 1, 2018
	80288			Warm Mix Asphalt	Jan. 1, 2012	April 1, 2016
	80302	58	X	Weekly DBE Trucking Reports	June 2, 2012	April 2, 2015
	80071	59	X	Working Days	Jan. 1, 2002	

The following special provisions are in the 2019 Supplemental Specifications and Recurring Special Provisions.

File Name	Special Provision Title	New Location	Effective	Revised
80382	Adjusting Frames and Grates	Articles 602.02(s) and (t), 1043.04, and 1043.05	April 1, 2017	
80366	Butt Joints	Article 406.08(c)	July 1, 2016	
80386	Calcium Aluminate Cement for Class PP-5 Concrete Patching	Article 1001.01(e)	Nov. 1, 2017	
80396	Class A and B Patching	Articles 442.06(a)(1) and (2)	Jan. 1, 2018	Nov. 1, 2018
80377	Portable Changeable Message Signs	Articles 701.20(h) and 1106.02(i)	Nov. 1, 2016	April 1, 2017
80385	Portland Cement Concrete Sidewalk	Article 424.12	Aug. 1, 2017	

Illinois Department of Transportation

Special Provisions

Local Public Agency	County	Section Number
Rock Island County	Rock Island	17-00374-00-PP

The following Special Provision supplement the "Standard Specifications for Road and Bridge Construction", adopted April 1, 2016, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways", and the "Manual of Test Procedures of Materials" in effect on the date of invitation of bids, and the Supplemental Specification and Recurring Special Provisions indicated on the Check Sheet included here in which apply to and govern the construction of the above named section, and in case of conflict with any parts, or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF WORK:

Beginning at Station 1+050 (metric), a point on the centerline of Knoxville Road (FAU 5792/FAS 207/CH 7) approximately 64 feet south of the intersection with the Rock Island-Milan Parkway and extending in a southeasterly direction to Station 7+840 (metric), a point approximately 656 feet southeast of the centerline of 134th Avenue. The project has a length of 22,271.2 feet (4.22 miles) and is located within Rock Island County.

NATURE OF WORK:

This is a PCC pavement patching, dowel bar retrofit and profile diamond grinding improvement project and the work to be performed under this contract consists of Class B concrete pavement patching, partial depth concrete patching, dowel bar retrofit, profile diamond grinding of concrete pavement, concrete curb and gutter removal and replacement, placement of paint pavement markings and all incidental and collateral work necessary to complete the improvement as shown on the plans or described herein.

TRAFFIC CONTROL & PROTECTION SPECIAL

Traffic control shall be according to the applicable sections of the Standard Specifications for Road and Bridge Construction, the applicable guidelines contained in the National Manual on Uniform Traffic Control Devices for Streets and Highways, Illinois Supplement to the National Manual on Uniform Traffic Control Devices, these special provisions, and any special details and Highway Standards contained herein and in the plans.

Special attention is called to Article 107.09 and 107.14 of the Standard Specifications for Road and Bridge Construction and the following Highway Standards relating to traffic control.

1. Highway Standards:
   701001, 701006, 701011, 701201, 701301, 701306, 701311, 701601, 701701, 701901, 720011, 728001, and 729001.

2. On the date that the Contractor begins work, they shall assume responsibility for the normal maintenance of all existing pavements, drives, and temporary surfaces within the limits of the improvement. Normal maintenance shall include all repair work deemed necessary by the Engineer, but shall not include snow removal operations. This responsibility shall end upon the completion and acceptance of all the pay items in the contract.

General:

The Contractor shall coordinate his/her work and cooperate with the adjacent landowners and businesses along the project. A traffic control plan for urban operations must be submitted to the Engineer for approval prior to the start of work.

Signs:

No bracing shall be allowed on post-mounted signs.

Post mounted signs shall be installed using standard 720011, 728001, 729001, on 4" x 4" wood posts, or on any other "break away" connection if accepted by the FHWA and a corresponding letter is provided to the resident.

All signs are required on both sides of the road when the median is greater than 10 feet an on one way roadways.

The "WORKERS" (W21-1a(O)48) signs shall be replaced with symbol "Right or Left Lane Closed Ahead" (W4-2R or L(O)-48) signs on multilane roadways.

"BUMP" (W8-1(O)48) signs shall be installed as directed by the Engineer.

"UNEVEN LANES" (W8-11(O)48) signs shall be installed at 1 mile intervals or as directed by the Engineer.

"LOW SHOULDER" (W8-9(O)48 signs shall be installed at 1 mile intervals or as directed by the Engineer.

"NO PASSING ZONES NOT STRIPED NEXT __ MILES" (G20-1 I100(O)) signs shall be 60" X 36" and shall be installed at the terminal ends of the project, NB & SB at 106th Avenue, NB & SB at 127th Avenue and as directed by the Engineer.

When covering existing Department signs, no tape shall be used on the reflective portion of the sign. Contact the District sign shop for covering techniques.

Install a "TO ACTIVATE SIGNAL" sign below the "STOP HERE ON RED" sign. The detail of this sign is included in the plans.

All regulatory signs shall be maintained at a 5 foot minimum bottom (rural), 7 foot minimum (urban).

Any plates or direct applied sheeting used to alter signs shall have the same sheeting as the base sign.

No more than one (1) kind of alteration shall be used to alter a sign.

Any post stubs without a sign in place and visible shall have a reflector placed on each post.

Devices:

Cones or reflectorized cones shall not be used during hours of darkness.

A minimum of 3 drums spaced at 4 feet shall be placed at each return when the side road is open.

On all standards, and the devices listed in Section 701 of the Standard Specifications, the device spacing shall be revised to the following dimensions:

Where the spacing shown on the standard is 25 feet, the devices shall be placed at 20 feet.
Where the spacing shown on the standard is 50 feet, the devices shall be placed at 40 feet.
where the spacing shown on the standard is 100 feet, the devices shall be placed at 80 feet.

Lights:

Steady burn mono-directional lights are required on devices delineating a widening trench.

Flaggers:

Flaggers at Side roads and Commercial Entrances:
Effective: August 1, 2011

Flaggers shall comply with all requirements and signaling methods contained in the Department's "Traffic Control Field Manual" current at the time of letting. The flagger equipment listed for flaggers employed by the Illinois Department of Transportation shall apply to all flaggers.

All workers and flaggers shall wear ANSI Class E pants and an ANSI Class 2 vest that in combination meet the requirements of ANSI/ISEA 107-2004 for Conspicuity Class 3 garments during hours of darkness.

In addition to the flaggers shown on applicable standards, on major side roads, flaggers shall be required on all legs of the intersection. Major side roads for this project shall be: 106th Avenue, 120th Avenue, 127th Avenue and 134th Avenue.

In addition to the flaggers shown on applicable standards, a flagger shall be required on high volume commercial entrances listed below. High volume commercial entrances for this project shall be Jim's Knoxville Tap & Millennium Waste.

When the mainline flagger is within 200 feet of an intersection, the side road flagger shall be required.

When the road is closed to through traffic and it is necessary to provide access for local traffic, all flaggers as shown on the applicable standards will be required. No reduction in the number of flaggers shall be allowed.

Revise Article 701.20(i) of the Standard Specifications to read:

"Signs, barricades, or other traffic control devices required by the Engineer, over and above those shown in the contract
documents, will be paid for according to Article 109.04."

Pavement Marking:

Short term pavement markings shall conform to Section 403 of the Standard Specifications for Road and Bridge Construction adopted April 1, 2016. Short term markings on a milled surface shall be paint. Removal of all short term pavement markings will not be paid for separately, but will be considered as incidental to the pay item.

Temporary pavement markings shall not be included in the cost of the standard rather it shall be paid for separately at the contract unit prices of specified temporary pavement marking items.

Traffic Control and Protection Standard 701701:

This work shall be done according to Section 701 of the Standard Specifications and the Typical Application of Traffic Control Devices for Highway Construction, Standard 701701, and as specified herein.

The "left" leg of the intersection shown on this standard also applies when the right turn lane is closed. When the right turn lane is closed, "RIGHT TURN LANE CLOSED AHEAD" shall be substituted for the "LEFT TURN LANE CLOSED AHEAD" and the set up would be a mirror image of what is shown.

Maintenance of Traffic: The traffic shall be maintained using run-arounds as shown on the plans using Traffic Control and Protection Standard 701201.

The mainline shall be kept open to one-way traffic at all times during working hours and two-way during non-working hours.

The Contractor shall be required to notify the Rock Island County Highway Department, the corresponding Township Commissioner, emergency response agencies (i.e. fire, ambulance, police), school bus companies and the Department of Transportation (Bureau of Project Implementation) regarding any changes in traffic control.

The Contractor shall be required to notify the Rock Island County Highway Department and/or corresponding Township Commissioner for any side road closure or opening.

The pavement patch removal and replacement shall be completed using Traffic Control and Protection Standard 701201.

Placing and removing pavement marking shall be completed using Traffic Control and Protection Standard 701306 or 701311.

This work shall be included in the contract unit price per LUMP SUM for TRAFFIC CONTROL AND PROTECTION SPECIAL.

PROTECTION AND RESTORATION OF PROPERTY

Special attention is called to Article 107.20, paragraphs three and four. In addition, no parking of vehicles and equipment on private property will be allowed without the consent of the property owner.

CLASS B PATCHES, TYPE II, 8"
CLASS B PATCHES, TYPE III, 8"
CLASS B PATCHES, TYPE IV, 8"

This item shall conform to Section 442 of the Standard Specifications for Road and Bridge Construction adopted April 1, 2016. All contraction joints shall be sawed to match existing joints in the field and as directed by the Engineer. When applicable, dowel baskets shall also be placed to match existing joints and allow for proper alignment of dowel bars. All excavated material from the patch locations shall be disposed of by the Contractor off the jobsite. No extra compensation will be allowed for any costs incurred during disposal of the wasted material.

The cost of sawing and sealing the contraction joints and edges of patch shall be included in the contract unit price per SQUARE YARD for CLASS B PATCHES of the various types, 8" in depth.

PARTIAL DEPTH REPAIR - SPOT REPAIR
PARTIAL DEPTH REPAIR - EXTENDED LENGTH REPAIR
PARTIAL DEPTH REPAIR - BOTTOM HALF REPAIR

This item shall conform to applicable portions of Section 442 of the Standard Specifications for Road and Bridge Construction adopted April 1, 2016 and these additional requirements.

Description. This item shall include removal of existing pavement, preparation of patch location, furnishing backfill material and construction of Partial Depth Repair patch as shown in the Schedule of Quantities and as directed by the Engineer. Patch areas vary in size, shape and depth depending on the extent of pavement deterioration and shall be determined during the removal process. Patches may be identified and constructed as one of the following types:

(a) Spot Repair: Spot repair patches are square or rectangular in shape. They will be less than 6 feet in length when placed on a longitudinal or transverse joint or random crack. Depth will vary from a minimum of 2" to a maximum of 1/2 the pavement thickness. Patch size and location as identified in the Schedule of Quantities may be adjusted by the Engineer to fit conditions in the field.
(b) Extended Length Repair: Joint and crack repairs are square and rectangular in shape and are typically utilized at longitudinal or transverse joints or random cracks. Patch size is a minimum of 6 feet in length as shown in the Schedule of Quantities and may be adjusted by the Engineer to suit field conditions. Depth will vary from a minimum of 2" to a maximum of 1/2 the pavement thickness.
(c) Bottom Half Repair: Bottom-half repairs are irregular in shape. They are placed to the full depth of the existing pavement when areas of unsound concrete are identified during removal operations and as verified by the Engineer. Warrant for this repair, size and location will be determined at the time of construction.

Materials. The PCC Patching materials shall be Class PP concrete, and shall meet the requirements of Section 1020 of the Illinois Department of Transportation Standard Specifications for Road & Bridge Construction adopted April 1, 2016. The patching materials shall provide a high early strength of 3200 psi compressive or 600 psi flexural at 24 hour and will be opened to traffic according to Article 701.17(e)(3)b. For patches constructed as PARTIAL DEPTH REPAIR - SPOT REPAIR, PARTIAL DEPTH REPAIR - EXTENDED LENGTH REPAIR and PARTIAL DEPTH REPAIR - BOTTOM HALF REPAIR the coarse aggregate shall be a CA 16.

Joint Forms. Material for joint forms shall be suitable for forming the sealant reservoir to the width and depth as shown on the plans and of sufficient strength to retain its shape during concrete placement. Forms for recreating longitudinal and transverse joints shall be one piece. One piece forms will not be required in lengths exceeding 6 feet. Joint forms shall extend into the pavement to the bottom of the patch. No horizontal joints will be permitted. Joint forms shall be supplied with an approved bond breaking agent.

CONSTRUCTION. Deteriorated concrete shall be removed using a milling machine, jack hammer or similar equipment as approved by the Engineer. Milling machines shall be equipped to stop at preset depths. Hand equipment may be required to achieve designated shape.

The following additional equipment is required for the construction of patches:
(a) Sandblasting equipment for cleaning prepared patch area.
(b) Air chisel, 15 pound or less, to complete patch area preparation. Larger air chisel, not to exceed 35 pounds, may be used if it does not result in significant damage to the patch area and edges.
(c) Air compressor that emits oil-free and moisture-free air for cleaning prepared patch area.
(d) On-site paddle type concrete mixer for mixing patching material or other prepackaged materials.

General. Tabulations for partial depth patches shown in the Schedule of Quantities are for estimating purposes only. The Engineer will designate the locations and limits of patches as field conditions dictate. Hand operated equipment may be necessary for all or some of the removal. Concrete shall be removed to a minimum depth of 2 inches or to sound concrete as determined by the Engineer. All existing material removed from the patch area shall become the property of the Contractor and shall be removed from the jobsite. No additional compensation will be allowed for disposal of unsuitable material, rather the disposal shall be considered as incidental to the pay item.

Preparation of Patch Area.

a. Contractor shall remove concrete in designated repair area to a minimum width of 12 inches using either of the following methods:
   1) Mill transversely or longitudinally matching general alignment of patch. Use a mill that produces patch edges with a 30 to 60 degree angle or chip back patch edges to a 30 to 60 degree angle. Chip out secondary spalling resulting from milling at no additional cost to the Department.
   2) Place 2 inch saw cuts along perimeter of patch area and chip back patch edges to a 30 to 6 degree angle.
b. If a joint or crack is within patch area, construct bottom edge of patch at least 3 inches beyond joint or crack.
c. Form or saw patch edges to prevent them from protruding beyond edge of existing pavement by more than 3/8 inch.
d. Each patch will generally have a rectangular area. Remove concrete to a minimum depth of 2 inches. Many areas will require removal of unsound concrete to a greater depth to reach sound concrete. Maximum depth is one half existing pavement thickness.
e. Do not damage steel reinforcement during removal process. Damaged steel will be the responsibility of the Contractor. If the end of a dowel bar is exposed, cut or remove dowel. Place duct tape, form oil, grease or other method approved by the Engineer as a bond breaker on exposed dowels not removed.
f. When removal to a depth of one half of existing pavement thickness leaves unsound concrete within patch area, the Engineer may designate part of the patch area as a Bottom-Half Repair. Remove concrete for the full depth of the pavement. Consolidate subgrade or subbase material using mechanical tamper or other compaction equipment as directed by the Engineer. Furnish and install No. 4 tie bars at mid-depth of existing pavement using an approved non-shrink grout. Place bar to provide a minimum two inch cover.
g. When it is necessary to go below reinforcing steel to reach sound concrete, cut reinforcing steel flush with perimeter patch edges and remove.
h. Clean patch area by sandblasting, followed by cleaning with compressed air. Completed surfaces shall appear surface dry to visual examination.
i. Recreate a joint or crack in patch area with a joint board of proper size and shape. Extend board to bottom of patch area to completely separate patching material on both sides. Use board of a width approximately equal to joint or crack. For wide openings, several thicknesses may be used. For patches 6 feet or greater in length:
   1) Longitudinal joints may be reestablished by sawing to a depth of 1/3 the pavement thickness.
   2) With approval of the Engineer, transverse joints may be reestablished by sawing the full depth of the patch when use of a form board will not allow complete separation of patch material on both sides of the joint.

Backfilling and Finishing.

a. Scrub cement-sand-water grout of creamy consistency onto the patch surface, including edges. Grout shall consist of two parts of Type I or Type I/II Portland cement and one part sand mixed with water. Mix grout by mechanical means. Place patch material before grout dries. If grout dries before placement of patch material, clean patch area again by sandblasting and air blasting, then reapply grout.
b. Mix patching material and place in patch area. Consolidate and work into place in a manner ensuring good bonding. Level it with adjacent pavement to provide a smooth riding surface not varying from existing pavement surface by more than 1/8 inch when measured with a 10 foot straightedge placed over patch. Replace or grind patch to correct deficiencies. Texture patches longer than 1 foot in the manner of adjacent pavement surface.
c. Use of patch materials shall be according to manufacturer's recommendations and limitations, subject to approval of the Engineer. Furnish manufacturer's recommendations to the Engineer.

Curing.

Curing shall be as specified in Article 442 of the Standard Specifications for Road and Bridge Construction adopted April 1, 2016 as directed by the Engineer. Due to the thin section of repair material, it is imperative that curing appropriate compounds be applied quickly and thoroughly, and blankets used if appropriate, to ensure that the patch area achieves the anticipated strength on time. This step must be performed in a timely manner to ensure a long-lasting repair.

Joint and Crack Sealing.

Where joint and cracks cross patches; saw, seal and clean patch according to Article 452 of the Standard Specifications for Road and Bridge Construction adopted April 1, 2016. Complete sealing within 5 working days after patch is placed. When joint and crack sealing is included in the contract, perform sealing as part of that operation.

LIMITATIONS FOR OPERATIONS.

1. Unless road is closed, maintain traffic during construction operations. Conduct operations with minimum inconvenience to the traffic. On two-lane roads, limit operations to one lane of traffic at a time. For multiple lane roadways, work area may include one lane in each direction.
2. Adjacent lane shall be opened to traffic prior to the pavement being removed from a patch area.
3. When approved by the Engineer, patch areas may extend up to 2 feet into adjacent lane as allowed by the contract documents.
4. Place PCC patching material when ambient air and pavement temperatures are at least 45 degrees F.
5. The Engineer may limit advance sawing.
6. If an emergency situation does not allow for completion of an excavated patch, temporarily fill the excavated area following the joint with a suitable hot or cold paving mixture or stable granular material, as directed by the Engineer. The Engineer may direct the lane to remain closed to traffic overnight, providing proper traffic control is utilized.

AREA RESTORATION.

When a patch is completed, remove forms if they have been used. Fill excavated space along outside pavement edge with material similar to the existing shoulder, satisfactory to the Engineer. Thoroughly compact material before opening lane to traffic.

FAILURE REPAIR.

Repair failed patches that appear within 30 calendar days of original construction or subsequent repair at no cost to the Department. Failures may include, but are not limited to, loss of bond between patch and underlying pavement or random cracking.

METHOD OF MEASUREMENT.

The Engineer will determine quantities involved in satisfactory construction of partial depth patches for areas specified as follows:

(a) Partial Depth Repair - Spot Repair. The Engineer will calculate area of each patch in square feet from surface measurements. Area of each patch less than 1 square foot will be counted as one square foot for payment purposes. If patch area is increased by the Contractor to accommodate milling equipment, only the area designated by the Engineer will be measured for payment. Removal and repair of areas up to one-half of existing pavement thickness will be included in this payment.

(b) Partial Depth Repair - Extended Length Repair. Measurement for this item will be to the nearest 0.1 linear foot on the basis of a 12 inch wide repair. Areas designated for repair outside the 12 inch width will be measured as Partial Depth Repair Type 1 - Spot Repair. Removal and repair of areas up to one half existing pavement thickness will be included in this payment.

(c) Partial Depth Repair - Bottom-Half Repair. The Engineer will calculate the area of each Bottom-Half repair in square feet at the mid-depth of the pavement.

BASIS OF PAYMENT.

Payment for construction of the various types of partial depth patches, satisfactorily constructed, will be at the contract unit price as follows:

(a) PARTIAL DEPTH REPAIR – SPOT REPAIR will be paid for at the contract unit price bid per SQUARE FOOT for repairs up to one half of existing pavement thickness and includes removal of pavement, preparing patch area, furnishing and placing backfill material, construction of joints, sawing, finishing, curing and restoration of area.

(b) PARTIAL DEPTH REPAIR – EXTENDED LENGTH REPAIR will be paid for at the contract unit price bid per SQUARE FOOT for 12" wide repairs greater than 6 feet in length. Payment is for repairs up to one half existing pavement thickness and includes removal of pavement, preparing the patch area, furnishing and placing patch material, construction of joints, sawing, finishing, curing and restoration of area.

(c) PARTIAL DEPTH REPAIR –BOTTOM HALF will be paid for at the contract unit price bid per SQUARE FOOT for repairs designated in lower half of existing pavement and includes removal of pavement, preparing the patch area and furnishing and placing backfill material. This item will be paid in addition to Partial Depth Repair (Spot Repair) or Partial Depth Repair (Extended Length Repair) when these repairs exceed one half of the existing pavement depth.

DOWEL BARS, 1" RETROFIT

Description. This work shall consist of furnishing and installing epoxy coated round steel dowels into existing concrete pavement across transverse joints and/or cracks, in accordance with this Specification and the Dowel Bar Detail, at locations shown in the Plans and/or as directed by the Engineer. This work shall include sawing channels into the pavement, cleaning the channels, furnishing and placing the dowel bar into the channels, filling the channels and transverse joints with backfill material, sawing and sealing the retrofitted joints, cleanup and other related work.

Materials.
(a) Dowels. The dowel bars shall consist of a smooth, round, epoxy and bond breaker coated 15-inch long, 1-inch diameter steel dowel meeting the requirements of Article 1006.06(b).

(b) Bond Breaker. Acceptable bond-breaker compounds include white pigmented curing compound, concrete form oil, or other approved bond breaker materials.

(c) Expansion Caps. Use tight-fitting, commercial quality end caps made of a non-metallic, non-organic material that allows 1/2" of movement at each end of the dowel bar.

(d) Dowel Bar Support Chairs. Use chair devices for supporting the dowel bars that conform to the epoxy-coated steel requirements of ASTM A 884. Dowel bar chairs are used to firmly hold the dowels centered in the slots during the backfill operations. The dowel bar chairs must hold the bar a minimum of 1/2 inch above the bottom of the slot while the backfill material is placed and consolidated.

(e) Caulking Filler. Caulking filler used for sealing the existing transverse or crack at the bottom and sides of the slot shall be concrete sealant that is compatible with the patch backfill material being used.

(f) Non-Shrink Concrete Backfill Material. The R3 Concrete shall meet the requirements in Article 1018 of the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction adopted April 1, 2016 and be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening, Cementitious Materials for Concrete Repairs in addition to the following requirements: Mixing shall be per the manufacturer's recommendations.

1. Provide materials and test result submittals to the Illinois Department of Transportation Concrete Engineering Unit 30 days (minimum) prior to the start of DBR repair work. Once all the material and test results are submitted to the Concrete Engineering Unit, the Concrete Engineering Unit will either approve or disapprove the Packaged, Dry, Non-Shrink, and Rapid-Hardening Concrete Material for Dowel Bar Retrofit repairs within 30 days.

The Manufacturer must comply with the following:

A. REFERENCE MATERIALS

Submit a material sample for approval to the Illinois Department of Transportation Materials Lab. Also include a Materials Safety Data Sheet (MSDS) and a Technical Data Information Sheet.

B. REQUIREMENTS
Provide a Packaged, Dry, Non-Shrink, and Rapid-Hardening Concrete Material for Dowel Bar Retrofit Repairs conforming to ASTM C 928 (R3) and the following:

Required Hardened Concrete Properties for Packaged, Dry, Non-Shrink, Rapid- Hardening **Concrete Material (Type R3)**		
Test	Requirement	Test Method
Compressive Strength (Average of 3 cylinders)	• Per ASTM C928 for 3 hours, 1, 7 and 28 days • Info only compressive strengths at 4, 5, 6, 8, and 36 hours.	ASTM C31
Freeze-Thaw Durability	Greater than 80% at 300 cycles	ASTM C666 Procedure A
Shrinkage	No greater than 0.050 percent at 28 days	ASTM C157 as modified by ASTM C928
Hardened Air Content	Spacing Factor ≤ 0.008	ASTM C457

C. FINE AGGREGATE REQUIREMENTS

If required to meet the hardened concrete properties, provide a fine aggregate that is dried, blended, and packaged with the Non-Shrink Rapid Hardening, Concrete Material for Dowel Bar Retrofit. Field additions of fine aggregate is not allowed.

D. COARSE AGGREGATE REQUIREMENTS

If required to meet the hardened concrete properties, on site addition of coarse aggregate extender is allowed in accordance with the following:

(1) Limit the coarse aggregate extension to the manufacturer's recommended maximum or to a maximum of 50 percent by mass, whichever is less,
(2) Limit coarse aggregate extension to same source/same percent mass extension as was utilized in the AMRL certified laboratory trial-batch testing,
(3) Provide a coarse aggregate meeting the gradation requirements of IL DOT CA-16.

Coarse Aggregate Designations for DBR Backfill *Percent by weight passing square opening sieves*		
Sieve Sizes	Coarse Aggregate Designation	
	ASTM #89	IL DOT CA-16
½ inch	100	100
⅜ in	90-100	94-100
No.4	20-55	15-45
No.8	5-30	-
No.16	0-10	0-4
No.50	0-5	-

Provide Independent Testing form an AMRL Independent Laboratory for each material. Perform testing in accordance with ASTM Standards and Illinois Department of Transportation Methods as detailed.

Required testing procedures:

(1) ASTM C928 test results performed on Non-Shrink Rapid Hardening Concrete Material
(2) ASTM C928 test results performed using the same exact proposed coarse aggregate extender in the Non-Shrink Rapid Hardening Concrete Material
(3) ASTM C666 Procedure A, test results for Freeze-Thaw Durability
(4) ASTM C39 Compressive Strengths at 3 hours, 1,7 and 28 days required by ASTM C928. In addition, cast additional test specimens (sets of 3) and test at 4,5,6,8 and 36 hours
(5) ASTM C457, Determination of Air-Void System in Hardened Concrete.
(6) ASTM C143 Test method for Slump of Hydraulic-Cement Concrete, modified by ASTM C928, include manufacturer's minimum/maximum slump test requirements for DBR repairs on the test report.

F. APPROVAL REQUIREMENTS

Along with the required test data/test reports from the AMRL Certified Laboratory, provide the following:

(a) Provide as tested concrete mix design
(b) A signed letter from the Rapid-Hardening Cementitious Material manufacturer stating the means and methods specified in both this Special Provision and outlined on the Dowel Bar Retrofit detail sheets are acceptable procedures.
(c) Provide any field testing requirements recommended by the manufacturer of the Rapid Hardening Concrete Material, if any.

G. REPAIR WARRANTY

Remove and replace areas of failure that appear within thirty (30) calendar days at no cost to the Department. The 30 calendar day warranty will commence after all patching, dowel bar retrofits and profile diamond grinding are completed in a single traffic lane. Failures include (but are not limited to) the loss of bonding to the in place concrete or crack apparent in the repair or other than desired crack in the newly constructed joint or re-established crack.

Supply traffic control as requested by the Department for inspection of repairs within the 30 calendar day warranty period and for the removal and replacement of repair failures.

H. NON-COMPLIANCE

It is the manufacturer's responsibility to immediately notify the Illinois Department of Transportation if the chemical formulation of any product is changed or modified, or if the product is no longer being produced.

The list of approved products may be found on the Illinois Department of Transportation website at http://www.idot.illinois.gov/Assets/uploads/files/Doing-Business/Specialty-Lists/Highways/Materials/Materials-&-Physical-Research/indexQPLS.pdf.
Reference samples, test data, and certification shall be sent to:

Kevin F. Marchek, P.E.
Deputy Director of Highways
Region 2 Engineer
819 Depot Avenue
Dixon, IL 61021
Attn: Brenda Rhodes, Concrete Supervisor

(g) Curing Compound. Use a Type I, II or III curing compound to cure the approved concrete backfill material that conforms to Article 1022.01 of the Standard Specifications.

(h) Joint/Crack Sealer. Hot poured joint/crack sealer used at retrofitted joints shall be in accordance with Article 1050.02 of the Standard Specifications. Any proposed sealant product shall be approved in writing by the Engineer PRIOR to delivery to the work site. The backer rod, if needed, shall consist of a material capable of withstanding the application temperatures of hot poured sealant to 400 degrees F. The backer rod shall be extruded from a cross-linked, closed cell polyolefin and shall be available in a variety of diameters to readily meet the requirements of any particular application.

EQUIPMENT.

(a) A template shall be used to locate the saw cuts on any non-skewed crack or joint in order to align the saw cuts consistently. Either single diamond bladed saws or diamond bladed gang saws shall be used to make the saw cuts to allow for dowel bar placements within the specified tolerances.
(b) Chipping hammers shall be hand held and have a maximum weight of 35 lbs. prior to any handle modification where applicable to minimize damage to the concrete pavement that remains.
(c) The compressor for air blasting shall have a minimum capacity of 120 cu. ft. per minute. The compressed air shall be free from oil and other contaminants.
(d) Consolidation equipment used to consolidate the concrete repair material in the dowel bar slots shall be internal vibrators with a maximum diameter of 1 inch and shall have a resilient covering that will not damage the epoxy coated reinforcement during use.
(e) Equipment for mixing and pumping any backfill materials for retrofitting the dowel bars shall be in accordance with the material manufacturer's instructions and specifications.
(f) Routing or sawing equipment for crack sealant, where required, shall be power driven and be capable of cutting the cracks to the required dimensions without excessive spalling of the adjacent surface. Equipment for heating and placing hot poured sealant material shall be an oil jacketed, double boiler type, heating kettle or other thermostatically controlled equipment of a type approved by the Engineer, capable of heating the material to 400 degrees F (205 degrees C) and pumping the material into the prepared crack or joint.

Submittals.

Submit samples to the Engineer for approval PRIOR to the installation of the following items:

a. Dowel bars
b. Dowel bar chairs
c. Dowel bar end caps
d. Backfill material
e. Aggregate for extension of backfill material

Submit the material samples, except for the backfill and aggregate, at least 10 days prior to use. Submit backfill material and aggregate used for extension 30 days prior to use.

Drawings. The proposed location of the dowel bars is shown in the Plans. Some locations may be modified as directed by the Engineer. Before any fabrication is started, the Contractor shall prepare and submit shop drawings and/or catalog cuts to the Engineer for approval, in accordance with Article 105.04 of the Standard Specifications. The shop drawings shall give full detailed dimensions and sizes of the channels to be sawed and the dowel bar retrofit.

Construction Methods.

Install dowel bars in the existing portland cement concrete pavement as shown on the Plans and in the Specifications.

(a) Concrete Removal. Create slots to a depth and length that allows the center of the dowel bar to be placed at mid-depth in the pavement slab and parallel to the pavement surface. Slots can be created with a gang saw, or by making two saw cuts and removing the concrete between the saw cuts with a 35-lb. max. jackhammer or hand tools. Slots are to be parallel to each other and to the centerline of the roadway. For non-skewed cracks and joints, the saw cut locations shall be pre-marked using a template. Skewed joints or cracks may require slots longer than the length specified in the plans to allow for equal length of the dowel bar to be placed across the transverse joint or crack. Remove water and residue immediately after sawing.

If the concrete removal operations cause damage to the pavement that is to remain, discontinue concrete removal operations and only resume after taking corrective measures. Repair or replace pavement damaged during concrete removal operations at no additional expense to the Department. The bottom of the slot must be flat and level. Dispose of any concrete removal debris at no additional cost.

(b) Slot Cleaning and Preparation. Sandblast all exposed surfaces in the dowel bar slot to remove saw slurry and debris such that clean aggregate is exposed. After sandblasting, clean the slot by blowing with moisture-free, oil-free compressed air having a minimum capacity of 120 cu. ft. per minute to remove any dust, residue or debris left in the slot.

(c) Sealing Joints and Cracks in the Slot before Backfilling. Seal the existing transverse contraction joint and/or all cracks at the bottom and the sides of the dowel bar slot with an approved caulking or silicone filler to prevent any of the backfill material from entering these areas. The caulking filler should not be placed any farther than 1/2 inch outside either side of the joint. Excessive sealany around the slot does not allow the concrete patching material to bond to the sides of the slot. Prior to slot sealing, ensure that surfaces receiving the caulking filler are clean and free of moisture. Do not extend the caulking filler beyond 3/8 inches of each side of the existing joint or crack.

(d) Placing Dowel Assembly in Slot. Prevent contamination of the cleaned slot before or while placing the dowel assemblies to limit the potential of bonding loss with the backfill material. Place the dowel bars to within 1/2 inch of the midpoint of the slab. Ensure that the bar is parallel to the traffic lane centerline and the top of the roadway surface within a tolerance of 1/4 inch per 12 inches of dowel bar length. Center dowels at the non-skewed transverse joints such that at least 6 inches of the dowel extends into each adjacent panel. For dowel bars at any skewed joint and at all cracks, the dowel bar shall be centered over the joint or crack in each slot. Cease and adjust operations if the chairs do not hold dowel bars securely in place during the placement of the backfill material.

Place a foam core insert at the middle of the dowel bar and to the surface of the pavement. Place insert so it covers the existing transverse joint or crack and is capable of remaining in a vertical position, tight to all edges during backfill placement operations. Re-establish the joint or crack above the foam core insert within 4 hours of backfill placement by sawing after the backfill material has hardened sufficiently.

(e) Mixing and Placing Backfill Material. Mix backfill material in accordance with the manufacturer's instructions and the specifications. Refer to manufacturer's information on handling, mixing, and placing backfill material.

Fill each dowel bar slot with backfill material after placement of the caulking filler, the coated dowel bar, expansion caps, support chairs, and the foam core insert. Ensure that the foam core inserts remain upright, extend to the surface of existing pavement, and is over the existing joint or crack during the backfill process. Vibrate the backfill material with a small hand held vibrator capable of thoroughly consolidating the backfill material into the slot around the dowel bars and support chairs.

Slightly overfill the slot and finish the surface of the filled slot level with, to no more than 1/4 inch above the existing concrete. Any slots insufficiently filled below existing pavement surfaces shall be redone at the Contractor's expense. Cure the backfill material in accordance with the manufacturer's recommendations. Apply curing compound per the manufacturer's recommendation.

(f) Sawing Cracks after Backfilling. After installation of dowel bars and backfill material is completed for retrofitting mid-slab cracks, where the foam insert is not observed present on the finished surface of the patch, the patched channels shall be saw cut by the Contractor between existing crack openings within 24 hours of placement to a nominal 1-1/2 inch depth to reduce surface stress and spalling at the surface of the backfilled slot. Such saw cutting will be at no additional cost to the Department.

Method of Measurement. This work will be measured for payment in units of each dowel bar assembly installed.

Basis of Payment. This work will be paid at the contract unit price bid per EACH for DOWEL BARS, 1" RETROFIT of the diameter specified.

PROFILE DIAMOND GRINDING CONCRETE PAVEMENT

Description

This work shall consist of grinding an existing PCC pavement surface for profile and texture improvement, for use as a traffic surface using a diamond grinder. Grinding and texturing shall be performed in accordance with this specification, at the locations shown in the contract documents after all full or partial depth patching in the lane to be ground is completed.

Equipment

Grinding and texturing operations of concrete surfaces shall be done utilizing diamond blades, mounted on a self propelled machine that has been designed for grinding and texturing of concrete surfaces without causing strain or damage to the underlying surface of the pavement. The equipment shall be capable of accurately and automatically establishing profile grades by referencing from either the existing pavement or from an independent grade control and shall have a positive means for controlling slope elevations. The equipment shall grind the pavement to the specified texture and smoothness tolerances. Grinding and texturing equipment that causes excessive ravels, aggregate fractures, spalls, or disturbance of the transverse and/or longitudinal joints will not be permitted. The vacuuming equipment shall have positive means of extracting the slurry material from the pavement and for preventing dust from escaping into the air. The equipment used for the diamond grinding operation shall cover the width of a standard traffic lane in a maximum of four passes.

Construction Requirements

This work shall consist of grinding designated areas of the pavement surface in a longitudinal direction to a maximum depth of 3/4 inch, or to remove faulting. The entire surface of the lanes shall be ground so that the pavement surface on both sides of all transverse joints and cracks are in the same plane and the stipulated smoothness requirements are met. The grinding shall produce a uniform texture and shall not be left slick or polished.

Grinding shall be accomplished in a manner that eliminates joint or crack faults and provides drainage by maintaining a constant cross-slope between grinding extremities in each lane. A tolerance not to exceed 1/16 inch will be allowed for adjacent sides of joints and cracks, except that under no circumstances shall the grinding depth exceed 3/4 inch from the top of the original surface. When grinding across faulted joints, a minimum of a 20-foot transition onto the approach side slab shall be used. In each lane, at least 95 percent of the area in each 100 foot section shall have a newly ground surface.

The transverse slope of the pavement shall conform to the typical section shown on the plans and shall have no depressions or misalignment of slope greater than 1/4 inch in 12 feet when measured with a 12-foot straightedge placed perpendicular to the centerline. Areas of deviation shall be reground. Straightedge requirements do not apply across longitudinal joints or outside the ground area. For multiple passes, the equipment shall be carefully controlled to minimize overlap. Overlaps shall not exceed 1 inch. No un-ground surface area between passes will be permitted.

In order to match the outside edge of the pavement, adjacent paved areas (for example, shoulders, curb and gutter, ramps, tapers, paved crossovers, and so forth) shall be ground to minimize vertical projections.

The Contractor shall be responsible for quality control of the texture.

For complete grinding of a concrete pavement, substantially the entire surface area of the pavement shall be ground and textured until the pavement surface on both sides of the transverse joints and cracks are in the same plane and meet the smoothness criteria required. Grinding shall be performed in a longitudinal direction. All construction traffic entering or leaving the work area shall move in the direction of traffic of the open lane. Grinding shall begin and end at lines normal to the pavement center line within any one ground area and at the project limits. This will not be required at the end of each shift. Good transverse drainage shall be maintained at all times so that no ponding of water exists.

Grinding and texturing shall be discontinued when freezing temperatures are forecast and there is a potential for water to freeze on the pavement surface during grinding operations.

Disposal of Grinding Residue

Disposal of grinding residue shall meet the following requirements;

1. The Contractor shall submit in writing to the Engineer a detailed method of residue disposal. The slurry disposal shall be according to Article 202.03 of the Standard Specifications and be accepted by the Engineer prior to the start of the grinding operation.
2. At no time will the grinding residue be allowed to enter a closed drainage system, gutter or other drainage facility. The Contractor is responsible for providing suitable means to restrict the infiltration of the grinding residue into the closed drain system at no additional cost.
3. Removal of all slurry or residue resulting from the grinding operations shall be continuous and shall not be deposited on the slab or shoulder. Pavement and paved shoulders must be left in a clean condition.
4. The Contractor will be responsible for hauling the grinding residue to a suitable location at no additional cost.
5. Residue will not spread within 30 meters of any natural stream or lake.
6. Residue will not spread within 1.5 meters of a water filled ditch.
7. The spread rate will not generate surface run-off. The Contractor will haul the grinding residue to a suitable location when surface runoff occurs at the grinding location at no additional cost.
8. Residue shall not be permitted to flow across lanes occupied by public traffic.

PAVEMENT MARKINGS

Temporary Pavement Markings placed in accordance with Section 703 of the Standard Specifications for Road and Bridge Construction adopted April 1, 2016 shall be installed on the pavement immediately after permanent markings have been removed or ground. This is required on a daily basis when diamond grinding operations occur. Temporary pavement markings will be measured for payment in feet in place and accepted. Removal of temporary pavement markings will not be paid for separately but shall be considered incidental to the pay item.

SMOOTHNESS

1. The Engineer may partly profile the pavement using an inertial profiler. The latest inventory average international roughness index (IRI) for each area may be shown in the contract documents. The bidder is also advised that any available profile information is available electronically by contacting the County Engineer. This information represents a summary of conditions found to exist at the time the survey was made. The availability of this information will not constitute a guarantee that a profile other than that indicated will not be encountered at the time of milling.
2. Prior to performing grinding work, provide a profile using an inertial profiler meeting the requirements of 407.09 of the Standard Specifications for Road and Bridge Construction. This control profile will be used to identify the required smoothness for the project if a percent improvement is the controlling factor. Obtain a final average IRI for each 0.1 lane-mile segment as follows:
   a.) For speeds greater than 45 mph: 65.0 in/mile or less and no bumps exceeding 0.5 inches in 25 feet.
   b.) For speeds 45 mph or less: 115.0 in/mile or less and no bumps exceeding 0.5 inches in 25 feet.
   c.) For extremely rough conditions: the greater of 35% of the pre-grind profile or the aforementioned requirement shall be the required smoothness or less and no bumps exceeding 0.5 inches in 25 feet.
   d.) Identify depressed pavement areas and localized areas with excess faulting greater than 1 inch. Review these areas with the Engineer to determine the limits for exclusion from the profile index calculation.
3. Obtain the profile in both wheel paths of each mainline lane using a certified operator. A pavement segment is defined in Article 407.09 of the Standard Specifications for Road and Bridge Construction. Compute an average IRI for each segment of each lane by averaging the two wheel path IRI values. The wheel paths are at 3 feet and 9 feet from the center line or lane line.
4. Verification testing requirements will be according to Article 407.09(c) of the Standard Specifications for Road and Bridge Construction.
5. The Contractor shall be responsible for the quality of texture meeting the requirements listed. The ground pavement surface shall be uniform in appearance with longitudinal corduroy type texture. The grooves shall be between 0.10 and 0.15 inch wide. The land area between the grooves shall be between 0.065 and 0.125 inch. The texture depth or the distance between the peak of the ridges and the bottom of the grooves shall be approximately 1/16 of an inch, with an average of 1/32 to 3/32 of an inch. Adjusting the blade spacing may be necessary to achieve the specified texture.

LIMITATIONS

Work shall be completed between the hours of 1/2 hour after sunrise to 1/2 hour prior to sunset. No nighttime work will be permitted.

Uncompleted sections of fully ground pavement or isolated ground locations may be opened to traffic without completion of grinding across an entire lane or the repair area.

METHOD OF MEASUREMENT

This work will be measured for payment in square yards. Any portion of this work constructed outside the dimensions shown on the Plans or as directed by the Engineer will not be measured for payment.

The work of collection, hauling and spreading of the grinding residue is included in the contract unit price for Diamond Grinding Concrete Pavement. Payment for additional passes or regrinding to meet ride quality requirements will not be paid for separately.

BASIS OF PAYMENT

The completed work as measured for will be paid for at the contract unit price bid per SQUARE YARD for PROFILE DIAMOND GRINDING CONCRETE PAVEMENT. Payment is full compensation for furnishing all equipment, materials, and labor to grind the concrete surface, test for smoothness according to the contract documents, and remove slurry and residue from this operation.

In addition to the payment above, the Contract may receive an incentive payment based upon the number of qualifying segments. The incentive payment will be based upon the following schedule:

Incentives for Profile Diamond Grinding Existing Pavement		
International Roughness Index for greater than 45 MPH	International Roughness Index for 45 MPH or less	Dollars per 0.1 Mile Segment Per Lane
Inches Per Mile	Inches Per Mile	
0.00 - 30.00		400
30.01 - 50.00		1000 - (20 X IRI)
50.01 - 65.00	0.00 - 115.00	Contract Unit Price
> 65.01*	> 115.01*	Grind

*For extremely rough conditions, this limit may be higher as noted above.

State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION FOR INSURANCE

Effective: February 1, 2007
Revised: August 1, 2007

All references to Sections or Articles in this specification shall be construed to mean specific Section or Article of the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation.

The Contractor shall name the following entities as additional insured under the Contractor's general liability insurance policy in accordance with Article 107.27:

Rock Island County

The entities listed above and their officers, employees, and agents shall be indemnified and held harmless in accordance with Article 107.26.

State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION FOR CONSTRUCTION AND MAINTENANCE SIGNS

Effective: January 1, 2004
Revised: June 1, 2007

All references to Sections or Articles in this specification shall be construed to mean a specific Section or Article of the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation.

701.14. Signs. Add the following paragraph to Article 701.14:

All warning signs shall have minimum dimensions of 1200 mm x 1200 mm (48" x 48") and have a black legend on a fluorescent orange reflectorized background, meeting, as a minimum, Type AP reflectivity requirements of Table 1091-2 in Article 1091.02.

COMPENSABLE DELAY COSTS (BDE)

Effective: June 2, 2017

Revise Article 107.40(b) of the Standard Specifications to read:

"(b) Compensation. Compensation will not be allowed for delays, inconveniences, or damages sustained by the Contractor from conflicts with facilities not meeting the above definition; or if a conflict with a utility in an unanticipated location does not cause a shutdown of the work or a documentable reduction in the rate of progress exceeding the limits set herein. The provisions of Article 104.03 notwithstanding, compensation for delays caused by a utility in an unanticipated location will be paid according to the provisions of this Article governing minor and major delays or reduced rate of production which are defined as follows.

(1) Minor Delay. A minor delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two hours, but not to exceed two weeks.

(2) Major Delay. A major delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two weeks.

(3) Reduced Rate of Production Delay. A reduced rate of production delay occurs when the rate of production on the work in conflict with the utility in an unanticipated location decreases by more than 25 percent and lasts longer than seven calendar days."

Revise Article 107.40(c) of the Standard Specifications to read:

"(c) Payment. Payment for Minor, Major, and Reduced Rate of Production Delays will be made as follows.

(1) Minor Delay. Labor idled which cannot be used on other work will be paid for according to Article 109.04(b)(1) and (2) for the time between start of the delay and the minimum remaining hours in the work shift required by the prevailing practice in the area.

Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4).

(2) Major Delay. Labor will be the same as for a minor delay.

Equipment will be the same as for a minor delay, except Contractor-owned equipment will be limited to two weeks plus the cost of move-out to either the Contractor's yard or another job and the cost to re-mobilize, whichever is less.

Rental equipment may be paid for longer than two weeks provided the Contractor presents adequate support to the Department (including lease agreement) to show retaining equipment on the job is the most economical course to follow and in the public interest.

(3) Reduced Rate of Production Delay. The Contractor will be compensated for the reduced productivity for labor and equipment time in excess of the 25 percent threshold for that portion of the delay in excess of seven calendar days. Determination of compensation will be in accordance with Article 104.02, except labor and material additives will not be permitted.

Payment for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be determined according to Article 109.13."

Revise Article 108.04(b) of the Standard Specifications to read:

"(b) No working day will be charged under the following conditions.

(1) When adverse weather prevents work on the controlling item.

(2) When job conditions due to recent weather prevent work on the controlling item.

(3) When conduct or lack of conduct by the Department or its consultants, representatives, officers, agents, or employees; delay by the Department in making the site available; or delay in furnishing any items required to be furnished to the Contractor by the Department prevents work on the controlling item.

(4) When delays caused by utility or railroad adjustments prevent work on the controlling item.

(5) When strikes, lock-outs, extraordinary delays in transportation, or inability to procure critical materials prevent work on the controlling item, as long as these delays are not due to any fault of the Contractor.

(6) When any condition over which the Contractor has no control prevents work on the controlling item."

Revise Article 109.09(f) of the Standard Specifications to read:

"(f) Basis of Payment. After resolution of a claim in favor of the Contractor, any adjustment in time required for the work will be made according to Section 108. Any adjustment in the costs to be paid will be made for direct labor, direct materials, direct equipment, direct jobsite overhead, direct offsite overhead, and other direct costs allowed by the resolution. Adjustments in costs will not be made for interest charges, loss of anticipated profit, undocumented loss of efficiency, home office overhead and unabsorbed overhead

other than as allowed by Article 109.13, lost opportunity, preparation of claim expenses and other consequential indirect costs regardless of method of calculation.

The above Basis of Payment is an essential element of the contract and the claim cost recovery of the Contractor shall be so limited."

Add the following to Section 109 of the Standard Specifications.

"**109.13 Payment for Contract Delay.** Compensation for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be allowed when such costs result from a delay meeting the criteria in the following table.

Contract Type	Cause of Delay	Length of Delay
Working Days	Article 108.04(b)(3) or Article 108.04(b)(4)	No working days have been charged for two consecutive weeks.
Completion Date	Article 108.08(b)(1) or Article 108.08(b)(7)	The Contractor has been granted a minimum two week extension of contract time, according to Article 108.08.

Payment for each of the various costs will be according to the following.

(a) Escalated Material and/or Labor Costs. When the delay causes work, which would have otherwise been completed, to be done after material and/or labor costs have increased, such increases will be paid. Payment for escalated material costs will be limited to the increased costs substantiated by documentation furnished by the Contractor. Payment for escalated labor costs will be limited to those items in Article 109.04(b)(1) and (2), except the 35 percent and 10 percent additives will not be permitted.

(b) Extended Project Overhead. For the duration of the delay, payment for extended project overhead will be paid as follows.

(1) Direct Jobsite and Offsite Overhead. Payment for documented direct jobsite overhead and documented direct offsite overhead, including onsite supervisory and administrative personnel, will be allowed according to the following table.

Original Contract Amount	Supervisory and Administrative Personnel
Up to $5,000,000	One Project Superintendent
Over $ 5,000,000 - up to $25,000,000	One Project Manager, One Project Superintendent or Engineer, and One Clerk
Over $25,000,000 - up to $50,000,000	One Project Manager, One Project Superintendent, One Engineer, and

	One Clerk
Over $50,000,000	One Project Manager, Two Project Superintendents, One Engineer, and One Clerk

(2) Home Office and Unabsorbed Overhead. Payment for home office and unabsorbed overhead will be calculated as 8 percent of the total delay cost.

(c) Extended Traffic Control. Traffic control required for an extended period of time due to the delay will be paid. For working day contracts the payment will be made according to Article 109.04. For completion date contracts, an adjustment will be determined as follows.

Extended Traffic Control occurs between April 1 and November 30:

ETCP Adjustment ($) = TE x (%/100 x CUP / OCT)

Extended Traffic Control occurs between December 1 and March 31:

ETCP Adjustment ($) = TE x 1.5 (%/100 x CUP / OCT)

Where: TE = Duration of approved time extension in calendar days.
% = Percent maintenance for the traffic control, % (see table below).
CUP = Contract unit price for the traffic control pay item in place during the delay.
OCT = Original contract time in calendar days.

Original Contract Amount	Percent Maintenance
Up to $2,000,000	65%
$2,000,000 to $10,000,000	75%
$10,000,000 to $20,000,000	85%
Over $20,000,000	90%

When an ETCP adjustment is paid under this provision, an adjusted unit price as provided for in Article 701.20(a) for increase or decrease in the value of work by more than ten percent will not be paid.

Upon payment for a contract delay under this provision, the Contractor shall assign subrogation rights to the Department for the Department's efforts of recovery from any other party for monies paid by the Department as a result of any claim under this provision. The Contractor shall fully cooperate with the Department in its efforts to recover from another party any money paid to the Contractor for delay damages under this provision."

80384

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000
Revised: March 2, 2019

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor.

> The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:
>
> (a) Withholding progress payments;
>
> (b) Assessing sanctions;
>
> (c) Liquidated damages; and/or
>
> (d) Disqualifying the Contractor from future bidding as non-responsible.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE

companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform 0.00 % of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

(a) The bidder documents that enough DBE participation has been obtained to meet the goal or,

(b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217) 785-4611, or by visiting the Department's website at: http://www.idot.illinois.gov/doing-business/certifications/disadvantaged-business-enterprise-certification/il-ucp-directory/index.

BIDDING PROCEDURES. Compliance with this Special Provision is required prior to the award of the contract and the failure of the lowa material bidding requirement and failure of the bidder to comply will render the bid not responsive.

In order to assure the timely award of the contract, the low bidder shall submit:

(a) The bidder shall submit a DBE Utilization Plan on completed Department forms SBE 2025 and 2026.

(1) The final Utilization Plan must be submitted within five calendar days after the date of the letting in accordance with subsection (a)(2) of Bidding Procedures herein.

(2) To meet the five day requirement, the bidder may send the Utilization Plan electronically by scanning and sending to **DOT.DBE.UP@illinois.gov** or faxing to (217) 785-1524. The subject line must include the bid Item Number and the Letting date. The Utilization Plan should be sent as one .pdf file, rather than multiple files and emails for the same Item Number. It is the responsibility of the bidder to obtain confirmation of email or fax delivery.

Alternatively, the Utilization Plan may be sent by certified mail or delivery service within the five calendar day period. If a question arises concerning the mailing date of a Utilization Plan, the mailing date will be established by the U.S. Postal Service postmark on the certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service when the Utilization Plan is received by the Department. It is the responsibility of the bidder to ensure the postmark or receipt date is affixed within the five days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Utilization Plan is to be submitted to:

Illinois Department of Transportation
Bureau of Small Business Enterprises
Contract Compliance Section
2300 South Dirksen Parkway, Room 319
Springfield, Illinois 62764

The bidder shall submit a DBE Utilization Plan (form SBE 2026), and a DBE Participation Statement (form SBE 2025) for each DBE company proposed for the performance of work to achieve the contract goal, with the bid. If the Utilization Plan indicates the contract goal will not be met, documentation of good faith efforts shall also be submitted. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract. The required forms and documentation must be submitted as a single .pdf file using the "Integrated Contractor Exchange (iCX)" application within the Department's "EBids System".

The Department will not accept a Utilization Plan if it does not meet the five day submittal requirementbidding procedures set forth herein and the bid will be declared not responsive. In the event the bid is declared not responsive due to a failure to submit a Utilization Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration.

(b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of Utilization Plan approval or disapproval under the procedures of this Special Provision.

(c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and scanned or faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:

(1) The names and addresses of DBE firms that will participate in the contract;

(2) A description, including pay item numbers, of the work each DBE will perform;

(3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;

(4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;

(5) If the bidder is a joint venture comprised of DBE companies and non-DBE companies, the Utilization Plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,

(6) If the contract goal is not met, evidence of good faith efforts; the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document that enough DBE participation has been obtained or document that the good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. The Utilization Plan will not be approved by the Department if the Utilization Plan does not document sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma*

efforts, in other words efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

(a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases and will be considered by the Department.

(1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price

difference is excessive or unreasonable. In accordance with subsection (c)(6) of the above Bidding Procedures, the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

(5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

(6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

(7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.

(b) If the Department determines that the apparent successful bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification shall will also include a statement of reasons for the adverse determination. If the Utilization Plan is not approved because it is deficient as a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no more than a five calendar day period in order to cure the deficiency.

(c) The bidder may request administrative reconsideration of an adverse determination adverse to the bidderby emailing the Department at "DOT.DBE.UP@illinois.gov" within the five workingcalendar days after the receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217) 785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and deliveredon or before the fifth calendar day. A request may provide additional written documentation or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The

request will be forwarded toreviewed by the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

(a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.

(b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

(c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.

(d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:

    (1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

(2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission is receives as a result of the lease arrangement.

(e) DBE as a material supplier:

(1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.

(2) 100 percent goal credit for the cost of materials of supplies obtained from a DBE manufacturer.

(3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a DBE regular dealer or DBE manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the DBE Participation Commitment Statement.

(a) NO AMENDMENT. No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted emailed to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524at DOT.DBE.UP@illinois.gov.

(b) CHANGES TO WORK. Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A or AER 260A, must be signed and submitted.

If the commitment of work is in the form of additional tasks assigned to an existing subcontract, than a new Request for Approval of Subcontractor shall will not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

(c) SUBCONTRACT. The Contractor must provide copies of DBE subcontracts to IDOT the Department upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.

(d) ALTERNATIVE WORK METHODS. In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:

(1) That tThe replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or

(2) That tThe DBE is aware that its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or

(3) That tThe DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in this Special Provision. The Contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the Contractor obtains the Department's written consent as provided in subsection (a) of this part. Unless Department consent is provided for termination of a DBE subcontractor, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the DBE in the Utilization Plan.

As stated above, the Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with

another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

(1) The listed DBE subcontractor fails or refuses to execute a written contract;

(2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractorContractor;

(3) The listed DBE subcontractor fails or refuses to meet the prime Contractor's reasonable, nondiscriminatory bond requirements;

(4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;

(5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1200 or applicable state law.

(6) You haveThe Contractor has determined that the listed DBE subcontractor is not a responsible contractor;

(7) The listed DBE subcontractor voluntarily withdraws from the projects and provides to you written notice to the Contractor of its withdrawal;

(8) The listed DBE is ineligible to receive DBE credit for the type of work required;

(9) A DBE owner dies or becomes disabled with the result that the listed DBE subcontractor is unable to complete its work on the contract;

(10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the prime Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime Contractor can self-perform

the work for which the DBE contractor was engaged or so that the prime Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated or fails to complete its work on the Contract for any reason, the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal. The good faith efforts shall be documented by the Contractor. If the Department requests documentation under this provision, the Contractor shall submit the documentation within seven days, which may be extended for an additional seven days if necessary at the request of the Contractor. The Department shall will provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

(f) FINAL PAYMENT. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than thirty 30 calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Resident Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.

(g) ENFORCEMENT. The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

(h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor my may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of “Good Faith Effort Procedures” of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

80029

DISPOSAL FEES (BDE)

Effective: November 1, 2018

Replace Articles 109.04(b)(5) – 109.04(b)(8) of the Standard Specifications with the following:

"(5) Disposal Fees. When the extra work performed includes paying for disposal fees at a clean construction and demolition debris facility, an uncontaminated soil fill operation or a landfill, the Contractor shall receive, as administrative costs, an amount equal to five percent of the first $10,000 and one percent of any amount over $10,000 of the total approved costs of such fees.

(6) Miscellaneous. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

(7) Statements. No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer with itemized statements of the cost of such force account work. Statements shall be accompanied and supported by invoices for all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices, the Contractor shall furnish an affidavit certifying that such materials were taken from his/her stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

Itemized statements at the cost of force account work shall be detailed as follows.

a. Name, classification, date, daily hours, total hours, rate, and extension for each laborer and foreman. Payrolls shall be submitted to substantiate actual wages paid if so requested by the Engineer.

b. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.

c. Quantities of materials, prices and extensions.

d. Transportation of materials.

e. Cost of property damage, liability and workmen's compensation insurance premiums, unemployment insurance contributions, and social security tax.

(8) Work Performed by an Approved Subcontractor. When extra work is performed by an approved subcontractor, the Contractor shall receive, as administrative costs, an amount equal to five percent of the total approved costs of such work with the minimum payment being $100.

(9) All statements of the cost of force account work shall be furnished to the Engineer not later than 60 days after receipt of the Central Bureau of Construction form “Extra Work Daily Report”. If the statement is not received within the specified time frame, all demands for payment for the extra work are waived and the Department is released from any and all such demands. It is the responsibility of the Contractor to ensure that all statements are received within the specified time regardless of the manner or method of delivery.”

80402

EQUIPMENT PARKING AND STORAGE (BDE)

Effective: November 1, 2017

Replace the first paragraph of Article 701.11 of the Standard Specifications with the following.

"**701.11 Equipment Parking and Storage.** During working hours, all vehicles and/or nonoperating equipment which are parked, two hours or less, shall be parked at least 8 ft (2.5 m) from the open traffic lane. For other periods of time during working and for all nonworking hours, all vehicles, materials, and equipment shall be parked or stored as follows.

(a) When the project has adequate right-of-way, vehicles, materials, and equipment shall be located a minimum of 30 ft (9 m) from the pavement.

(b) When adequate right-of-way does not exist, vehicles, materials, and equipment shall be located a minimum of 15 ft (4.5 m) from the edge of any pavement open to traffic.

(c) Behind temporary concrete barrier, vehicles, materials, and equipment shall be located a minimum of 24 in. (600 mm) behind free standing barrier or a minimum of 6 in. (150 mm) behind barrier that is either pinned or restrained according to Article 704.04. The 24 in. or 6 in. measurement shall be from the base of the non-traffic side of the barrier.

(d) Behind other man-made or natural barriers meeting the approval of the Engineer."

80388

LIGHTS ON BARRICADES (BDE)

Effective: January 1, 2018

Revise Article 701.16 of the Standard Specifications to read:

"**701.16 Lights.** Lights shall be used on devices as required in the plans, the traffic control plan, and the following table.

Circumstance	Lights Required
Daylight operations	None
First two warning signs on each approach to the work involving a nighttime lane closure and "ROUGH GROOVED SURFACE" (W8-I107) signs	Flashing mono-directional lights
Devices delineating isolated obstacles, excavations, or hazards at night (Does not apply to patching)	Flashing bi-directional lights
Devices delineating obstacles, excavations, or hazards exceeding 100 ft (30 m) in length at night (Does not apply to widening)	Steady burn bi-directional lights
Channelizing devices for nighttime lane closures on two-lane roads	None
Channelizing devices for nighttime lane closures on multi-lane roads	None
Channelizing devices for nighttime lane closures on multi-lane roads separating opposing directions of traffic	None
Channelizing devices for nighttime along lane shifts on multilane roads	Steady burn mono-directional lights
Channelizing devices for night time along lane shifts on two lane roads	Steady burn bi-directional lights
Devices in nighttime lane closure tapers on Standards 701316 and 701321	Steady burn bi-directional lights
Devices in nighttime lane closure tapers	Steady burn mono-directional lights
Devices delineating a widening trench	None
Devices delineating patches at night on roadways with an ADT less than 25,000	None
Devices delineating patches at night on roadways with an ADT of 25,000 or more	None

Batteries for the lights shall be replaced on a group basis at such times as may be specified by the Engineer."

Delete the fourth sentence of the first paragraph of Article 701.17(c)(2) of the Standard Specifications.

Revise the first paragraph of Article 603.07 of the Standard Specifications to read:

"**603.07 Protection Under Traffic.** After the casting has been adjusted and Class SI concrete has been placed, the work shall be protected by a barricade for at least 72 hours."

80392

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: November 2, 2017

Add the following to the end of the fourth paragraph of Article 109.11 of the Standard Specifications:

"If reasonable cause is asserted, written notice shall be provided to the applicable subcontractor and/or material supplier and the Engineer within five days of the Contractor receiving payment. The written notice shall identify the contract number, the subcontract or material purchase agreement, a detailed reason for refusal, the value of payment being withheld, and the specific remedial actions required of the subcontractor and/or material supplier so that payment can be made."

80390

PORTLAND CEMENT CONCRETE (BDE)

Effective: November 1, 2017

Revise the Air Content % of Class PP Concrete in Table 1 Classes of Concrete and Mix Design Criteria in Article 1020.04 of the Standard Specifications to read:

"TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA		
Class of Conc.	Use	Air Content %
PP	Pavement Patching Bridge Deck Patching (10)	
	PP-1	4.0 - 8.0"
	PP-2	
	PP-3	
	PP-4	
	PP-5	

Revise Note (4) at the end of Table 1 Classes of Concrete and Mix Design Criteria in Article 1020.04 of the Standard Specifications to read:

"(4) For all classes of concrete, the maximum slump may be increased to 7 in (175 mm) when a high range water-reducing admixture is used. For Class SC, the maximum slump may be increased to 8 in. (200 mm). For Class PS, the maximum slump may be increased to 8 1/2 in. (215 mm) if the high range water-reducing admixture is the polycarboxylate type."

80389

PROGRESS PAYMENTS (BDE)

Effective: November 2, 2013

Revise Article 109.07(a) of the Standard Specifications to read:

"(a) Progress Payments. At least once each month, the Engineer will make a written estimate of the quantity of work performed in accordance with the contract, and the value thereof at the contract unit prices. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than $1000.00 will be approved for payment other than the final payment.

Progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics' Lien Act, 770 ILCS 60/23(c).

If a Contractor or subcontractor has defaulted on a loan issued under the Department's Disadvantaged Business Revolving Loan Program (20 ILCS 2705/2705-610), progress payments may be reduced pursuant to the terms of that loan agreement. In such cases, the amount of the estimate related to the work performed by the Contractor or subcontractor, in default of the loan agreement, will be offset, in whole or in part, and vouchered by the Department to the Working Capital Revolving Fund or designated escrow account. Payment for the work shall be considered as issued and received by the Contractor or subcontractor on the date of the offset voucher. Further, the amount of the offset voucher shall be a credit against the Department's obligation to pay the Contractor, the Contractor's obligation to pay the subcontractor, and the Contractor's or subcontractor's total loan indebtedness to the Department. The offset shall continue until such time as the entire loan indebtedness is satisfied. The Department will notify the Contractor and Fund Control Agent in a timely manner of such offset. The Contractor or subcontractor shall not be entitled to additional payment in consideration of the offset.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved."

80328

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)

Effective: January 1, 2019

Revise Section 669 of the Standard Specifications to read:

"**SECTION 669. REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES**

669.01 Description. This work shall consist of the transportation and proper disposal of contaminated soil and groundwater. This work shall also consist of the removal, transportation, and proper disposal of underground storage tanks (UST), their content and associated underground piping to the point where the piping is above the ground, including determining the content types and estimated quantities.

669.02 Equipment. The Contractor shall notify the Engineer of the delivery of all excavation, storage, and transportation equipment to a work area location. The equipment shall comply with OSHA and American Petroleum Institute (API) guidelines and shall be furnished in a clean condition. Clean condition means the equipment does not contain any residual material classified as a non-special waste, non-hazardous special waste, or hazardous waste. Residual materials include, but are not limited to, petroleum products, chemical products, sludges, or any other material present in or on equipment.

Before beginning any associated soil or groundwater management activity, the Contractor shall provide the Engineer with the opportunity to visually inspect and approve the equipment. If the equipment contains any contaminated residual material, decontamination shall be performed on the equipment as appropriate to the regulated substance and degree of contamination present according to OSHA and API guidelines. All cleaning fluids used shall be treated as the contaminant unless laboratory testing proves otherwise.

669.03 Pre-construction Submittals. Prior to beginning this work, or working in areas with regulated substances, the Contractor shall submit a Regulated Substance Pre-Construction Plan (RSPCP) to the Engineer for review and approval using form BDE 2730. The form shall be signed by an Illinois licensed Professional Engineer or Professional Geologist.

As part of the RSPCP, the qualifications of Contractor(s) or firm(s) performing the following work shall be listed.

(a) On-Site Monitoring. Qualification for on-site monitoring of regulated substance work and on-site monitoring of UST removal requires either pre-qualification in Hazardous Waste by the Department or demonstration of acceptable project experience in remediation and special waste operations for contaminated sites in accordance with applicable Federal, State, or local regulatory requirements.

Qualification for each individual performing on-site monitoring requires a minimum of one-year of experience in similar activities as those required for the project.

(b) Underground Storage Tank. Qualification for underground storage tank (UST) work requires licensing and certification with the Office of the State Fire Marshall (OSFM) and possession of all permits required to perform the work. A copy of the permit shall be provided to the Engineer prior to tank removal.

The qualified Contractor(s) or firm(s) shall also document it does not have any current or former ties with any of the properties contained within, adjoining, or potentially affecting the work.

The Engineer will require up to 30 calendar days for review of the RSPCP. The review may involve rejection or revision and resubmittal; in which case, an additional 30 days will be required for each subsequent review. Work shall not commence until the RSPCP has been approved by the Engineer. After approval, the RSPCP shall be revised as necessary to reflect changed conditions in the field.

CONSTRUCTION REQUIREMENTS

669.04 Contaminated Soil and/or Groundwater Monitoring. Prior to beginning excavation, the Contractor shall mark the limits of removal for approval by the Engineer. Once excavation begins, the work and work area involving regulated substances shall be monitored by qualified personnel. The qualified personnel shall be on-site continuously during excavation and loading of material containing regulated substances. The qualified personnel shall be equipped with either a photoionization detector (PID) (minimum 10.6eV lamp), or a flame ionization detector (FID), and other equipment, as appropriate, to monitor for potential contaminants associated with volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs). The PID or FID meter shall be calibrated on-site and background level readings taken and recorded daily, and as field and weather conditions change. Any field screen reading on the PID or FID in excess of background levels indicates the potential presence of contaminated material requiring handling as a non-special waste, special waste, or hazardous waste. PID or FID readings may be used as the basis of increasing the limits of removal with the approval of the Engineer but shall in no case be used to decrease the limits.

The qualified personnel shall document field activities using form BDE 2732 (Regulated Substances Monitoring Daily Record) including the name(s) of personnel conducting the monitoring, weather conditions, PID or FID calibration records, a list of equipment used on-site, a narrative of activities completed, photo log sheets, manifests and landfill tickets, monitoring results, how regulated substances were managed and other pertinent information.

Samples will be collected in accordance with the RSPCP. Samples shall be analyzed for the contaminants of concern (COCs), including pH, based on the property's land use history, the encountered abnormality and/or the parameters listed in the maximum allowable concentration (MAC) for chemical constituents in uncontaminated soil established pursuant to Subpart F of 35 Ill. Adm. Code 1100.605. The analytical results shall serve to document the level of contamination.

Samples shall be grab samples (not combined with other locations). The samples shall be taken with decontaminated or disposable instruments. The samples shall be placed in sealed containers and transported in an insulated container to the laboratory. The container shall maintain a temperature of 39 °F (4 °C). All samples shall be clearly labeled. The labels shall indicate the sample number, date sampled, collection location and depth, and any other relevant observations.

The laboratory shall use analytical methods which are able to meet the lowest appropriate practical quantitation limits (PQL) or estimated quantitation limit (EQL) specified in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA Publication No. SW-846; "Methods for the Determination of Organic Compounds in Drinking Water", EPA, EMSL, EPA-600/4-88/039; and “Methods for the Determination of Organic Compounds in Drinking Water, Supplement III”, EPA 600/R-95/131, August 1995. For parameters where the specified cleanup objective is below the acceptable detection limit (ADL), the ADL shall serve as the cleanup objective. For other parameters the ADL shall be equal to or below the specified cleanup objective.

669.05 Contaminated Soil and/or Groundwater Management and Disposal. The management and disposal of contaminated soil and/or groundwater shall be according to the following:

(a) Soil Analytical Results Exceed Most Stringent MAC. When the soil analytical results indicate that detected levels exceed the most stringent maximum allowable concentration (MAC) for chemical constituents in uncontaminated soil established pursuant to Subpart F of 35 Illinois Administrative Code 1100.605, the soil shall be managed as follows:

(1) When analytical results indicate inorganic chemical constituents exceed the most stringent MAC but they are still considered within area background levels by the Engineer, the excavated soil can be utilized within the construction limits as fill, when suitable. If the soils cannot be utilized within the construction limits, they shall be managed and disposed of off-site as a non-special waste, special waste, or hazardous waste as applicable.

(2) When analytical results indicate chemical constituents exceed the most stringent MAC but do not exceed the MAC for a Metropolitan Statistical Area (MSA) County, the excavated soil can be utilized within the construction limits as fill, when suitable, or managed and disposed of off-site as “uncontaminated soil” at a clean construction and demolition debris (CCDD) facility or an uncontaminated soil fill operation (USFO) within an MSA County provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.

(3) When analytical results indicate chemical constituents exceed the most stringent MAC but do not exceed the MAC for an MSA County excluding Chicago, or the MAC within the Chicago corporate limits, the excavated soil can be utilized within the construction limits as fill, when suitable, or managed and disposed of off-site as “uncontaminated soil” at a CCDD facility or an USFO within an MSA County excluding Chicago or within

the Chicago corporate limits provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.

(4) When analytical results indicate chemical constituents exceed the most stringent MAC but do not exceed the MAC for an MSA County excluding Chicago, the excavated soil can be utilized within the construction limits as fill, when suitable, or managed and disposed of off-site as "uncontaminated soil" at a CCDD facility or an USFO within an MSA County excluding Chicago provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.

(5) When the Engineer determines soil cannot be managed according to Articles 669.05(a)(1) through (a)(4) above, the soil shall be managed and disposed of off-site as a non-special waste, special waste, or hazardous waste as applicable.

(b) Soil Analytical Results Do Not Exceed Most Stringent MAC. When the soil analytical results indicate that detected levels do not exceed the most stringent MAC, the excavated soil can be utilized within the construction limits or managed and disposed off-site as "uncontaminated soil" according to Article 202.03. However, the excavated soil cannot be taken to a CCDD facility or an USFO for any of the following reasons.

(1) The pH of the soil is less than 6.25 or greater than 9.0.

(2) The soil exhibited PID or FID readings in excess of background levels.

(c) Soil Analytical Results Exceed Most Stringent MAC but Do Not Exceed Tiered Approach to Corrective Action Objectives (TACO) Residential. When the soil analytical results indicate that detected levels exceed the most stringent MAC but do not exceed TACO Tier 1 Soil Remediation Objectives for Residential Properties pursuant to 35 IAC 742 Appendix B Table A, the excavated soil can be utilized within the right-of-way or managed and disposed off-site as "uncontaminated soil" according to Article 202.03. However, the excavated soil cannot be taken to a CCDD facility or an USFO.

(d) Groundwater. When groundwater analytical results indicate the detected levels are above Appendix B, Table E of 35 Illinois Administrative Code 742, the most stringent Tier 1 Groundwater Remediation Objectives for Groundwater Component of the Groundwater Ingestion Route for Class 1 groundwater, the groundwater shall be managed off-site as a special waste. The groundwater shall be containerized and trucked to an off-site treatment facility or may be discharged to a sanitary sewer or combined sewer when permitted by the local sewer authority. Groundwater discharged to a sewer shall be pre-treated to remove particulates and measured with a calibrated flow meter to comply with applicable discharge limits. A copy of the permit shall be provided to the Engineer prior to discharging groundwater to the sewer.

All groundwater encountered within trenches may be managed within the trench and allowed to infiltrate back into the ground. If the groundwater cannot be managed within the trench it must be removed as a special or hazardous waste. The Contractor is

prohibited from managing groundwater within the trench by discharging it through any existing or new storm sewer. The Contractor shall install backfill plugs within the area of groundwater contamination.

One backfill plug shall be placed down gradient to the area of groundwater contamination. Backfill plugs shall be installed at intervals not to exceed 50 ft (15 m). Backfill plugs are to be 4 ft (1.2 m) long, measured parallel to the trench, full trench width and depth. Backfill plugs shall not have any fine aggregate bedding or backfill, but shall be entirely cohesive soil or any class of concrete. The Contractor shall provide test data that the material has a permeability of less than 10^{-7} cm/sec according to ASTM D 5084, Method A or per another test method approved by the Engineer.

The Contractor shall use due care when transferring contaminated material from the area of origin to the transporter. Should releases of contaminated material to the environment occur (i.e., spillage onto the ground, etc.), the Contractor shall clean-up spilled material and place in the appropriate storage containers as previously specified. Clean-up shall include, but not be limited to, sampling beneath the material staging area to determine complete removal of the spilled material.

The Contractor shall be responsible for transporting and disposing all material classified as a non-special waste, special waste, or hazardous waste from the job site to an appropriately permitted landfill facility. The transporter and the vehicles used for transportation shall comply with all federal, state, and local rules and regulations governing the transportation of non-special waste, special waste, or hazardous waste.

All equipment used by the Contractor to haul contaminated material to the landfill facility shall be lined with a 6 mil (150 micron) polyethylene liner and securely covered during transportation. The Contractor shall obtain all documentation including any permits and/or licenses required to transport the contaminated material to the disposal facility.

The Contractor shall provide engineered barriers, when required, and shall include materials sufficient to completely line excavation surfaces, including sloped surfaces, bottoms, and sidewall faces, within the areas designated for protection.

The Engineer shall coordinate with the Contractor on the completion of all documentation. The Contractor shall make all arrangements for collection and analysis of landfill acceptance testing. The Contractor shall coordinate for waste disposal approval with the disposal facility. After the Contractor completes these activities and upon receipt of authorization from the Engineer, the Contractor shall initiate the disposal process.

The Contractor shall provide the Engineer with all transport-related documentation within two days of transport or receipt of said document(s). The Engineer shall maintain the file for all such documentation. For management of special or hazardous waste, the Contractor shall provide the Engineer with documentation the Contractor (or subcontractor, if a subcontractor is used for transportation) is operating with a valid Illinois special waste transporter permit at least two weeks before transporting the first load of contaminated material.

The Contractor shall schedule and arrange the transport and disposal of each load of contaminated material produced. The Contractor shall make all transport and disposal arrangements so no contaminated material remains within the project area at the close of business each day. Exceptions to this specification require prior approval from the Engineer within 24 hours of close of business. The Contractor shall be responsible for all other pre-disposal/transport preparations necessary daily to accomplish management activities.

Any waste generated as a special or hazardous waste from a non-fixed facility shall be manifested off-site using the Department's county generator number. An authorized representative of the Department shall sign all manifests for the disposal of the contaminated material and confirm the Contractor's transported volume. Any waste generated as a non-special waste may be managed off-site without a manifest, a special waste transporter, or a generator number.

The Contractor shall select a landfill mandated by definition of the contaminant within the State of Illinois. The Department will review and approve or reject the facility proposed by the Contractor to use as a landfill. The Contractor shall verify whether the selected disposal facility is compliant with those applicable standards as mandated by definition of the contaminant and whether the disposal facility is presently, has previously been, or has never been, on the United States Environmental Protection Agency (U.S. EPA) National Priorities List or the Resource Conservation and Recovery Act (RCRA) List of Violating Facilities. The Contractor shall be responsible for coordinating permits with the IEPA. The use of a Contractor selected landfill shall in no manner delay the construction schedule or alter the Contractor's responsibilities as set forth.

669.06 Non-Special Waste Certification. An authorized representative of the Department shall sign and date all non-special waste certifications. The Contractor shall be responsible for providing the Engineer with the required information that will allow the Engineer to certify the waste is not a special waste.

(a) Definition. A waste is considered a non-special waste as long as it is not:

(1) a potentially infectious medical waste;

(2) a hazardous waste as defined in 35 IAC 721;

(3) an industrial process waste or pollution control waste that contains liquids, as determined using the paint filter test set forth in subdivision (3)(A) of subsection (m) of 35 IAC 811.107;

(4) a regulated asbestos-containing waste material, as defined under the National Emission Standards for Hazardous Air Pollutants in 40 CFR 61.141;

(5) a material containing polychlorinated biphenyls (PCB's) regulated pursuant to 40 CFR Part 761;

(6) a material subject to the waste analysis and recordkeeping requirements of 35 IAC 728.107 under land disposal restrictions of 35 IAC 728;

(7) a waste material generated by processing recyclable metals by shredding and required to be managed as a special waste under Section 22.29 of the Environmental Protection Act; or

(8) an empty portable device or container in which a special or hazardous waste has been stored, transported, treated, disposed of, or otherwise handled.

(b) Certification Information. All information used to determine the waste is not a special waste shall be attached to the certification. The information shall include but not be limited to:

(1) the means by which the generator has determined the waste is not a hazardous waste;

(2) the means by which the generator has determined the waste is not a liquid;

(3) if the waste undergoes testing, the analytic results obtained from testing, signed and dated by the person responsible for completing the analysis;

(4) if the waste does not undergo testing, an explanation as to why no testing is needed;

(5) a description of the process generating the waste; and

(6) relevant material safety data sheets.

669.07 Temporary Staging. The Contractor shall excavate and dispose of all waste material as mandated by the contaminants without temporary staging. If circumstances require temporary staging, he/she shall request in writing, approval from the Engineer.

When approved, the Contractor shall prepare a secure location within the project area capable of housing containerized waste materials. The Contractor shall contain all waste material in leak-proof storage containers such as lined roll-off boxes or 55 gal (208 L) drums, or stored in bulk fashion on storage pads. The design and construction of such storage pad(s) for bulk materials shall be subject to approval by the Engineer. The Contractor shall place the staged storage containers on an all-weather gravel-packed, asphalt, or concrete surface. The Contractor shall maintain a clearance both above and beside the storage units to provide maneuverability during loading and unloading. The Contractor shall provide any assistance or equipment requested by the Engineer for authorized personnel to inspect and/or sample contents of each storage container. All containers and their contents shall remain intact and undisturbed by unauthorized persons until the manner of disposal is determined. The Contractor shall keep the storage containers covered, except when access is requested by authorized personnel of the Department. The Engineer shall authorize any additional material added to the contents of any storage container before being filled.

The Contractor shall ensure the staging area is enclosed (by a fence or other structure) to ensure direct access to the area is restricted, and he/she shall procure and place all required regulatory identification signs applicable to an area containing the waste material. The Contractor shall be responsible for all activities associated with the storage containers including, but not limited to, the procurement, transport, and labeling of the containers. The Contractor shall clearly mark all containers in permanent marker or paint with the date of waste generation, location and/or area of waste generation, and type of waste (e.g., decontamination water, contaminated clothing, etc.). The Contractor shall place these identifying markings on an exterior side surface of the container. The Contractor shall separately containerize each contaminated medium, i.e. contaminated clothing is placed in a separate container from decontamination water. Containers used to store liquids shall not be filled in excess of 80 percent of the rated capacity. The Contractor shall not use a storage container if visual inspection of the container reveals the presence of free liquids or other substances that could classify the material as a hazardous waste in the container.

The Department will not be responsible for any additional costs incurred, if mismanagement of the staging area, storage containers, or their contents by the Contractor results in excess cost expenditure for disposal or other material management requirements.

669.08 Underground Storage Tank Removal. For the purposes of this section, an underground storage tank (UST) includes the underground storage tank, piping, electrical controls, pump island, vent pipes and appurtenances.

Prior to removing an UST, the Engineer shall determine whether the Department is considered an "owner" or "operator" of the UST as defined by the UST regulations (41 Ill. Adm. Code Part 176). Ownership of the UST refers to the Department's owning title to the UST during storage, use or dispensing of regulated substances. The Department may be considered an "operator" of the UST if it has control of, or has responsibility for, the daily operation of the UST. The Department may however voluntarily undertake actions to remove an UST from the ground without being deemed an "operator" of the UST.

In the event the Department is deemed not to be the "owner" or "operator" of the UST, the OSFM removal permit shall reflect who was the past "owner" or "operator" of the UST. If the "owner" or "operator" cannot be determined from past UST registration documents from OSFM, then the OSFM removal permit will state the "owner" or "operator" of the UST is the Department. The Department’s Office of Chief Counsel (OCC) will review all UST removal permits prior to submitting any removal permit to the OSFM. If the Department is not the “owner” or “operator” of the UST then it will not register the UST or pay any registration fee.

The Contractor shall be responsible for obtaining all permits required for removing the UST, notification to the OSFM, using an OSFM certified tank contractor, removal and disposal of the UST and its contents, and preparation and submittal of the OSFM Site Assessment Report in accordance with 41 Ill. Adm. Code Part 176.330.

The Contractor shall contact the Engineer and the OSFM's office at least 72 hours prior to removal to confirm the OSFM inspector's presence during the UST removal. Removal, transport,

and disposal of the UST shall be according to the applicable portions of the latest revision of the "American Petroleum Institute (API) Recommended Practice 1604".

The Contractor shall collect and analyze tank content (sludge) for disposal purposes. The Contractor shall remove as much of the regulated substance from the UST system as necessary to prevent further release into the environment. All contents within the tank shall be removed, transported and disposed of, or recycled. The tank shall be removed and rendered empty according to IEPA definition.

The Contractor shall collect soil samples from the bottom and sidewalls of the excavated area in accordance with 35 Ill. Adm. Code Part 734.210(h) after the required backfill has been removed during the initial response action, to determine the level of contamination remaining in the ground, regardless if a release is confirmed or not by the OSFM on-site inspector.

In the event the UST is designated a leaking underground storage tank (LUST) by the OSFM's inspector, or confirmation by analytical results, the Contractor shall notify the Engineer and the DESU. Upon confirmation of a release of contaminants from the UST and notifications to the Engineer and DESU, the Contractor shall report the release to the Illinois Emergency Management Agency (IEMA) (e.g., by telephone or electronic mail) and provide them with whatever information is available ("owner" or "operator" shall be stated as the past registered "owner" or "operator", or the IDOT District in which the UST is located and the DESU Manager);

The Contractor shall perform the following initial response actions if a release is indicated by the OSFM inspector:

(a) Take immediate action to prevent any further release of the regulated substance to the environment, which may include removing, at the Engineer's discretion, and disposing of up to 4 ft (1.2 m) of the contaminated material, as measured from the outside dimension of the tank

(b) Identify and mitigate fire, explosion and vapor hazards;

(c) Visually inspect any above ground releases or exposed below ground releases and prevent further migration of the released substance into surrounding soils and groundwater; and

(d) Continue to monitor and mitigate any additional fire and safety hazards posed by vapors and free product that have migrated from the UST excavation zone and entered into subsurface structures (such as sewers or basements).

The UST excavation shall be backfilled according to applicable portions of Sections 205, 208, and 550 with a material that will compact and develop stability. The material shall be approved prior to placement. All uncontaminated concrete and soil removed during tank extraction may be used to backfill the excavation, at the discretion of the Engineer.

After backfilling the excavation, the site shall be graded and cleaned.

669.09 Regulated Substance Final Construction Report. Not later than 90 days after completing this work, the Contractor shall submit a Regulated Substance Final Construction Report (RSFCR) to the Engineer using form BDE 2733 and required attachments. The form shall be signed by an Illinois licensed Professional Engineer or Professional Geologist.

669.10 Method of Measurement. Non-special waste, special waste, and hazardous waste soil will be measured for payment according to Article 202.07(b) when performing earth excavation, Article 502.12(b) when excavating for structures, or by computing the volume of the trench using the maximum trench width permitted and the actual depth of the trench.

Groundwater containerized and transported off-site for management, storage, and disposal will be measured for payment in gallons (liters).

Backfill plugs will be measured in cubic yards (cubic meters) in place, except the quantity for which payment will be made shall not exceed the volume of the trench, as computed by using the maximum width of trench permitted by the Specifications and the actual depth of the trench, with a deduction for the volume of the pipe.

Engineered Barriers will be measured for payment in square yards (square meters).

669.11 Basis of Payment. The work of preparing, submitting and administering a Regulated Substances Pre-Construction Plan will be paid for at the contract lump sum price for REGULATED SUBSTANCES PRE-CONSTRUCTION PLAN.

On-site monitoring of regulated substances, including completion of form BDE 2732 for each day of work, will be paid for at the contract unit price per calendar day, or faction thereof, for ON-SITE MONITORING OF REGULATED SUBSTANCES.

The installation of engineered barriers will be paid for at the contract unit price per square yard (square meter) for ENGINEERED BARRIER.

The work of removing a UST, soil excavation, soil and content sampling, and the excavated soil, UST content, and UST disposal will be paid for at the contract unit price per each for UNDERGROUND STORAGE TANK REMOVAL.

The transportation and disposal of soil and other materials from an excavation determined to be contaminated will be paid for at the contract unit price per cubic yard (cubic meter) for NON-SPECIAL WASTE DISPOSAL, SPECIAL WASTE DISPOSAL, or HAZARDOUS WASTE DISPOSAL.

The transportation and disposal of groundwater from an excavation determined to be contaminated will be paid for at the contract unit price per gallon (liter) for SPECIAL WASTE GROUNDWATER DISPOSAL or HAZARDOUS WASTE GROUNDWATER DISPOSAL. When groundwater is discharged to a sanitary or combined sewer by permit, the cost will be paid for according to Article 109.05.

Backfill plugs will be paid for at the contract unit price per cubic yard (cubic meter) for BACKFILL PLUGS.

Payment for temporary staging, if required, will be paid for according to Article 109.04.

Payment for accumulated stormwater removal and disposal will be according to Article 109.04. Payment will only be allowed if appropriate stormwater and erosion control methods were used.

Payment for decontamination, labor, material, and equipment for monitoring areas beyond the specified areas, with the Engineer's prior written approval, will be according to Article 109.04.

The sampling and testing associated with this work will be paid for as follows.

(a) BETX Soil/Groundwater Analysis. When the contaminants of concern are gasoline only, soil or groundwater samples shall be analyzed for benzene, ethylbenzene, toluene, and xylenes (BETX). The analysis will be paid for at the contract unit price per each for BETX SOIL ANALYSIS and/or BETX GROUNDWATER ANALYSIS using EPA Method 8021B.

(b) BETX-PNAS Soil/Groundwater Analysis. When the contaminants of concern are middle distillate and heavy ends, soil or groundwater samples shall be analyzed for BETX and polynuclear aromatics (PNAS). The analysis will be paid for at the contract unit price per each for BETX-PNAS SOIL ANALYSIS and/or BETX-PNAS GROUNDWATER ANALYSIS using EPA Method 8021B for BETX and EPA Method 8310 for PNAs.

(c) Priority Pollutants Soil Analysis. When the contaminants of concern are used oils, soil samples shall be analyzed for priority pollutant VOCs, priority pollutants SVOCs, and priority pollutants metals. The analysis will be paid for at the contract unit price per each for PRIORITY POLLUTANTS SOIL ANALYSIS using EPA Method 8260B for VOCs, EPA Method 8270C for SVOCs, and using an ICP instrument and EPA Methods 6010B and 7471A for metals.

(d) Priority Pollutant Groundwater Analysis. When the contaminants of concern are used oils, non-petroleum material, or unknowns, groundwater samples shall be analyzed for priority pollutant VOCs, priority pollutants SVOCs, and priority pollutants metals. The analysis will be paid for at the contract unit price per each for PRIORITY POLLUTANTS GROUNDWATER ANALYSIS using EPA Method 8260B for VOCs, EPA Method 8270C for SVOCs, and EPA Methods 6010B and 7470A for metals.

(e) Target Compound List (TCL) Soil Analysis. When the contaminants of concern are unknowns or non-petroleum material, soil samples shall be analyzed for priority pollutant VOCs, priority pollutants SVOCS, priority pollutants metals, pesticides, and Resource Conservation and Recovery Act (RCRA) metals by the toxicity characteristic leaching procedure (TCLP). The analysis will be paid for at the contract unit price per each for TCL SOIL ANALYSIS using EPA Method 8260B for VOCs, EPA Method 8270C for SVOCs,

EPA Method 8081 for pesticides, and ICP instrument and EPA Methods 6010B, 7471A, 1311 (extraction), 6010B, and 7470A for metals.

(f) Soil Disposal Analysis. When the waste material for disposal requires sampling for disposal acceptance, the samples shall be analyzed for TCLP VOCs, SVOCs, RCRA metals, pH, ignitability, and paint filter test. The analysis will be paid for at the contract unit price per each for SOIL DISPOSAL ANALYSIS using EPA Methods 1311 (extraction), 8260B for VOCs, 8270C for SVOCs, 6010B and 7470A for RCRA metals, 9045C for pH, 1030 for ignitability, and 9095A for paint filter.

The work of preparing, submitting and administering a Regulated Substances Final Construction Report will be paid for at the contract lump sum price REGULATED SUBSTANCES FINAL CONSTRUCTION REPORT."

80407

SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE)

Effective: April 2, 2018

Add the following to Section 109 of the Standard Specifications.

"**109.14 Subcontractor and Disadvantaged Business Enterprise Payment Reporting.** The Contractor shall report all payments made to the following parties:

(a) first tier subcontractors;

(b) lower tier subcontractors affecting disadvantaged business enterprise (DBE) goal credit;

(c) material suppliers or trucking firms that are part of the Contractor's submitted DBE utilization plan.

The report shall be made through the Department's on-line subcontractor payment reporting system within 21 days of making the payment."

80397

SUBCONTRACTOR MOBILILATION PAYMENTS (BDE)

Effective: November 2, 2017

Replace the second paragraph of Article 109.12 of the Standard Specifications with the following:

"This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be at the following percentage of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor's work.

Value of Subcontract Reported on Form BC 260A	Mobilization Percentage
Less than $10,000	25%
$10,000 to less than $20,000	20%
$20,000 to less than $40,000	18%
$40,000 to less than $60,000	16%
$60,000 to less than $80,000	14%
$80,000 to less than $100,000	12%
$100,000 to less than $250,000	10%
$250,000 to less than $500,000	9%
$500,000 to $750,000	8%
Over $750,000	7%"

80391

TRAFFIC CONTROL DEVICES - CONES (BDE)

Effective: January 1, 2019

Revise Article 701.15(a) of the Standard Specifications to read:

"(a) Cones. Cones are used to channelize traffic. Cones used to channelize traffic at night shall be reflectorized; however, cones shall not be used in nighttime lane closure tapers or nighttime lane shifts."

Revise Article 1106.02(b) of the Standard Specifications to read:

"(b) Cones. Cones shall be predominantly orange. Cones used at night that are 28 to 36 in. (700 to 900 mm) in height shall have two white circumferential stripes. If non-reflective spaces are left between the stripes, the spaces shall be no more than 2 in. (50mm) in width. Cones used at night that are taller than 36 in. (900 mm) shall have a minimum of two white and two fluorescent orange alternating, circumferential stripes with the top stripe being fluorescent orange. If non-reflective spaces are left between the stripes, the spaces shall be no more than 3 in. (75 mm) in width.

The minimum weights for the various cone heights shall be 4 lb for 18 in. (2 kg for 450 mm), 7 lb for 28 in. (3 kg for 700 mm), and 10 lb for 36 in. (5 kg for 900 mm) with a minimum of 60 percent of the total weight in the base. Cones taller than 36 in. shall be weighted per the manufacturer's specifications such that they are not moved by wind or passing traffic."

80409

WEEKLY DBE TRUCKING REPORTS (BDE)

Effective: June 2, 2012
Revised: April 2, 2015

The Contractor shall submit a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used for DBE goal credit.

The report shall be submitted to the Engineer on Department form "SBE 723" within ten business days following the reporting period. The reporting period shall be Monday through Sunday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

80302

WORKING DAYS (BDE)

Effective: January 1, 2002

The Contractor shall complete the work within 80 working days.

80071

ROCK ISLAND COUNTY
CONTRACT 85671
SECTION 17-00374-00-PP
FAU 5792/FAS 207 (C.H. 7)
PROJECT NO. ASMI (291)
JOB NO. C-92-053-18

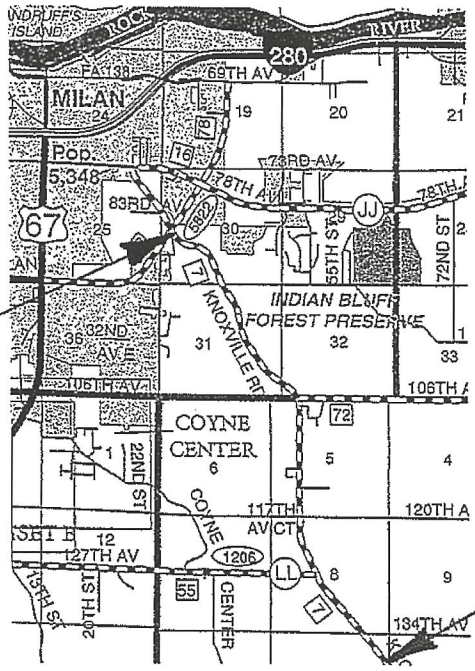
INDEX OF SHEETS

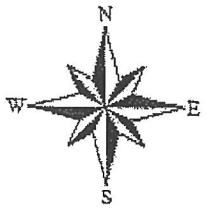
STANDARDS

APPENDIX

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED
ROCK ISLAND COUNTY
FAU 5792/FAS 207 - C.H. 7
(KNOXVILLE RD)
SECTION 17-00374-00-PP
PROJECT ASMI (291)
JOB NUMBER C-92-053-18





C.H. 7 - Begins
Sta. 1+050

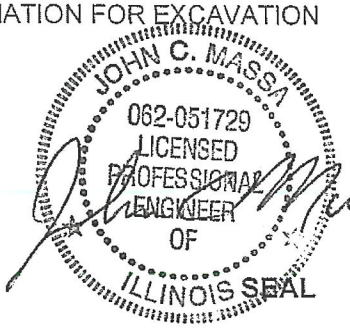
C.H. 7 - Ends
Sta. 7+840

Length of Project: C.H. 7 – 22,271.2 Feet (6,790.00 Meters)

CONTRACT NO. 85671

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123

ADT= 3400 (C.H. 7)
URBAN MINOR ARTERIAL
LAPP POLICY



APPROVED Dec 11 20 18
John C Massa
LOCAL AGENCY OFFICIAL

PASSED December 12 20 18
Mark M. Baustia
DIST. ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID BASED ON LIMITED REVIEW 12-12 20 18
DEPUTY DIRECTOR OF HIGHWAYS
REGION 2 ENGINEER
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROCK ISLAND COUNTY
CONTRACT 85671
SECTION 17-00374-00-PP
FAU 5792/FAS 207 (C.H. 7)
PROJECT NO. ASMI (291)
JOB NO. C-92-053-18

STATE OF ILLINOIS
SUMMARY OF QUANTITIES

CONSTRUCTION TYPE CODE: 0005

44000500	COMBINATION CURB & GUTTER REMOVAL	FOOT	240.0
44200934	CLASS B PATCHES, TYPE II, 8"	S.Y.	53.7
44200942	CLASS B PATCHES, TYPE III, 8"	S.Y.	130.9
44200944	CLASS B PATCHES, TYPE IV, 8"	S.Y.	246.9
44201297	DOWEL BARS, 1"	EACH	473.0
44213100	PAVEMENT FABRIC	S.Y.	377.8
44213200	SAW CUTS	FOOT	1,246.0
44213204	TIE BARS, 3/4"	EACH	181.0
45200100	JOINT OR CRACK ROUTING (PC CONC PVMNT)	FOOT	68,153.0
45200300	JOINT OR CRACK FILLING	POUNDS	26,580.0
60605000	COMBIN. CONCRETE CURB & GUTTER B-6.24	FOOT	240.0
67100100	MOBILIZATION	L.S.	1.0
70300100	SHORT TERM PAVEMENT MARKING	FOOT	2,228.0
△ 78001110	PAINT PAVEMENT MARKING LINE, 4"	FOOT	66,735.0
X0326767	PROFILE DIAMOND GRINDING CONC. PAVEMENT	S.Y.	61,764.0
XX009231	PARTIAL DEPTH REPAIR - BOTTOM-HALF	S.F.	60.0
XX009232	PARTIAL DEPTH REPAIR - EXT. LENGTH	S.F.	50.0
XX009233	PARTIAL DEPTH REPAIR - SPOT REPAIR	S.F.	108.1
X4423010	DOWEL BARS, 1" RETROFIT	EACH	14,860.0
X7010216	TRAFFIC CONTROL & PROTECTION SPECIAL	L.S.	1.0

△ SPECIALTY ITEMS

ROCK ISLAND COUNTY
CONTRACT 85671
SECTION 17-00374-00-PP
FAU 5792/FAS 207 (C.H. 7)
PROJECT NO. ASMI (291)
JOB NO. C-92-053-18

STATE OF ILLINOIS
SCHEDULE OF QUANTITIES

44000500	**COMBINATION CURB & GUTTER REMOVAL**		
C.H. 7	LT Sta. 1+430	Foot	12.0
	RT Sta. 1+500	Foot	16.0
	RT Sta. 1+550	Foot	12.0
	RT Sta.1+633	Foot	12.0
	RT Sta. 1+700	Foot	25.0
	RT Sta. 1+705	Foot	17.0
	RT Sta. 1+814	Foot	10.0
	RT Sta. 2+078	Foot	6.0
	RT Sta. 2+100	Foot	25.0
	RT Sta. 3+460	Foot	65.0
	RT Sta. 3+602	Foot	20.0
	RT Sta. 4+150	Foot	20.0
		Foot	**240.0**
44200934	**CLASS B PATCHES, TYPE II, 8"**		
C.H. 7	RT Sta. 1+550	S.Y.	13.7
	RT Sta. 1+705	S.Y.	12.3
	RT Sta. 3+128	S.Y.	10.7
	LT Sta. 3+650	S.Y.	12.0
	Contingency Patches	S.Y.	5.0
		S.Y.	**53.7**
44200942	**CLASS B PATCHES, TYPE III, 8"**		
C.H. 7	RT Sta. 1+500	S.Y.	24.6
	RT Sta. 1+700	S.Y.	16.1
	RT Sta. 2+100	S.Y.	17.3
	RT Sta. 3+460	S.Y.	15.8
	RT Sta. 3+602	S.Y.	15.8
	RT Sta. 4+150	S.Y.	26.3
	Contingency Patches	S.Y.	15.0
		S.Y.	**130.9**
44200944	**CLASS B PATCHES, TYPE IV, 8"**		
C.H. 7	LT Sta. 1+430	S.Y.	50.4
	RT Sta. 1+633	S.Y.	110.2
	RT Sta. 1+814	S.Y.	30.5
	RT Sta. 2+078	S.Y.	30.8
	Contingency Patches	S.Y.	25.0
		S.Y.	**246.9**

STATE OF ILLINOIS
SCHEDULE OF QUANTITIES

44201297	**DOWEL BARS, 1"**		
C.H. 7	LT Sta. 1+430	Each	42.0
	RT Sta. 1+500	Each	21.0
	RT Sta. 1+550	Each	14.0
	RT Sta.1+633	Each	70.0
	RT Sta. 1+700	Each	12.0
	RT Sta. 1+705	Each	28.0
	RT Sta. 1+814	Each	28.0
	RT Sta. 2+078	Each	36.0
	RT Sta. 2+100	Each	14.0
	RT Sta. 3+128	Each	22.0
	RT Sta. 3+460	Each	22.0
	RT Sta. 3+602	Each	22.0
	LT Sta. 3+650	Each	22.0
	RT Sta. 4+150	Each	22.0
	Contingency Patches	Each	98.0
		Each	**473.0**
44213100	**PAVEMENT FABRIC**		
C.H. 7	LT Sta. 1+430	S.Y.	50.4
	RT Sta. 1+500	S.Y.	24.6
	RT Sta.1+633	S.Y.	110.2
	RT Sta. 1+700	S.Y.	16.1
	RT Sta. 1+814	S.Y.	30.5
	RT Sta. 2+078	S.Y.	30.8
	RT Sta. 2+100	S.Y.	17.3
	RT Sta. 3+460	S.Y.	15.8
	RT Sta. 3+602	S.Y.	15.8
	RT Sta. 4+150	S.Y.	26.3
	Contingency Patches	S.Y.	40.0
		S.Y.	**377.8**
44213200	**SAW CUTS**		
C.H. 7	LT Sta. 1+430	Foot	105.3
	RT Sta. 1+500	Foot	78.6
	RT Sta. 1+550	Foot	54.6
	RT Sta.1+633	Foot	175.3
	RT Sta. 1+700	Foot	60.5
	RT Sta. 1+705	Foot	51.5
	RT Sta. 1+814	Foot	81.8
	RT Sta. 2+078	Foot	81.5
	RT Sta. 2+100	Foot	62.6
	RT Sta. 3+128	Foot	51.0
	RT Sta. 3+460	Foot	59.4
	RT Sta. 3+602	Foot	59.4
	LT Sta. 3+650	Foot	53.0
	RT Sta. 4+150	Foot	75.4
	Contingency Patches	Foot	195.5
		Foot	**1245.4**

STATE OF ILLINOIS
SCHEDULE OF QUANTITIES

44213204	**TIE BARS, 3/4"**		
C.H. 7	LT Sta. 1+430	Each	14.0
	RT Sta. 1+500	Each	26.0
	RT Sta.1+633	Each	64.0
	RT Sta. 2+078	Each	10.0
	RT Sta. 2+100	Each	10.0
	RT Sta. 4+150	Each	19.0
	Contingency Patches	Each	38.0
		Each	**181.0**
45200100	**JOINT OR CRACK ROUTING (PC CONC. PVMNT)**		
C.H. 7	Sta.1+050 - 7+840	Foot	68,153.0
		Foot	**68,153.0**
45200300	**JOINT OR CRACK FILLING**		
C.H. 7	Sta.1+050 - 7+840	Pounds	26,580.0
		Pounds	**26,580.0**
60605000	**COMBINATION CONCRETE CURB & GUTTER B-6.24**		
C.H. 7	LT Sta. 1+430	Foot	12.0
	RT Sta. 1+500	Foot	16.0
	RT Sta. 1+550	Foot	12.0
	RT Sta.1+633	Foot	12.0
	RT Sta. 1+700	Foot	25.0
	RT Sta. 1+705	Foot	17.0
	RT Sta. 1+814	Foot	10.0
	RT Sta. 2+078	Foot	6.0
	RT Sta. 2+100	Foot	25.0
	RT Sta. 3+460	Foot	65.0
	RT Sta. 3+602	Foot	20.0
	RT Sta. 4+150	Foot	20.0
		Foot	**240.0**
67100100	**MOBILIZATION**		
C.H. 7	Jobsite - FAU 5792/FAS 207	**L.S.**	**1.0**
70300100	**SHORT TERM PAVEMENT MARKING, 4"**		
C.H. 7	Sta.1+050 - 7+840	Foot	2,228.0
		Foot	**2,228.0**
78001110	**PAINT PAVEMENT MARKING LINE, 4"**		
C.H. 7	Sta.1+050 - 7+840 (YELLOW)	Foot	22,179.0
	Sta.1+050 - 7+840 (WHITE)	Foot	44,556.0
		Foot	**66,735.0**

STATE OF ILLINOIS
SCHEDULE OF QUANTITIES

X0326767	**PROFILE DIAMOND GRINDING CONCRETE PAVEMENT**		
C.H. 7	Sta.1+050 - 7+840	S.Y.	61,764.0
		S.Y.	**61,764.0**
XX009231	**PARTIAL DEPTH PATCHING - BOTTOM-HALF REPAIR**		
C.H. 7	Contingent Locations	Sq. Ft.	60.0
		Sq. Ft.	**60.0**
XX009232	**PART. DEPTH PATCHING - EXTENDED LENGTH REPAIR**		
C.H. 7	Contingent Locations	Sq. Ft.	50.0
		Sq. Ft.	**50.0**
XX009233	**PARTIAL DEPTH REPAIR - SPOT REPAIR**		
C.H. 7	RT Sta. 1+869	Sq. Ft.	2.3
	RT Sta. 1+908	Sq. Ft.	2.3
	LT Sta. 2+300	Sq. Ft.	2.3
	LT Sta. 2+422	Sq. Ft.	2.3
	RT Sta. 2+679	Sq. Ft.	2.3
	LT Sta. 2+679	Sq. Ft.	2.3
	RT Sta. 2+681	Sq. Ft.	2.3
	LT Sta. 2+681	Sq. Ft.	2.3
	LT Sta. 2+887	Sq. Ft.	2.3
	LT Sta. 3+131	Sq. Ft.	2.3
	LT Sta. 3+141	Sq. Ft.	2.3
	LT Sta. 3+456	Sq. Ft.	2.3
	RT Sta. 3+550	Sq. Ft.	2.3
	LT Sta. 3+607	Sq. Ft.	2.3
	LT Sta. 3+890	Sq. Ft.	2.3
	LT Sta. 3+902	Sq. Ft.	2.3
	LT Sta. 3+909	Sq. Ft.	2.3
	RT Sta. 3+925	Sq. Ft.	2.3
	LT Sta. 3+962	Sq. Ft.	2.3
	RT Sta. 4+182	Sq. Ft.	2.3
	RT Sta. 4+209	Sq. Ft.	2.3
	RT Sta. 4+230	Sq. Ft.	2.3
	RT Sta. 4+300	Sq. Ft.	2.3
	LT Sta. 4+450	Sq. Ft.	2.3
	LT Sta. 4+625	Sq. Ft.	2.3
	LT Sta. 4+650	Sq. Ft.	2.3
	RT Sta. 4+750	Sq. Ft.	2.3
	RT Sta. 4+850	Sq. Ft.	2.3
	LT Sta. 4+850	Sq. Ft.	2.3
	RT Sta. 5+086	Sq. Ft.	2.3
	LT Sta. 5+300	Sq. Ft.	2.3
	RT Sta. 5+549	Sq. Ft.	2.3
	RT Sta. 5+769	Sq. Ft.	2.3
	LT Sta. 5+769	Sq. Ft.	2.3
	LT Sta. 5+800	Sq. Ft.	2.3
	RT Sta. 5+883	Sq. Ft.	2.3
	RT Sta. 6+061	Sq. Ft.	2.3

STATE OF ILLINOIS
SCHEDULE OF QUANTITIES

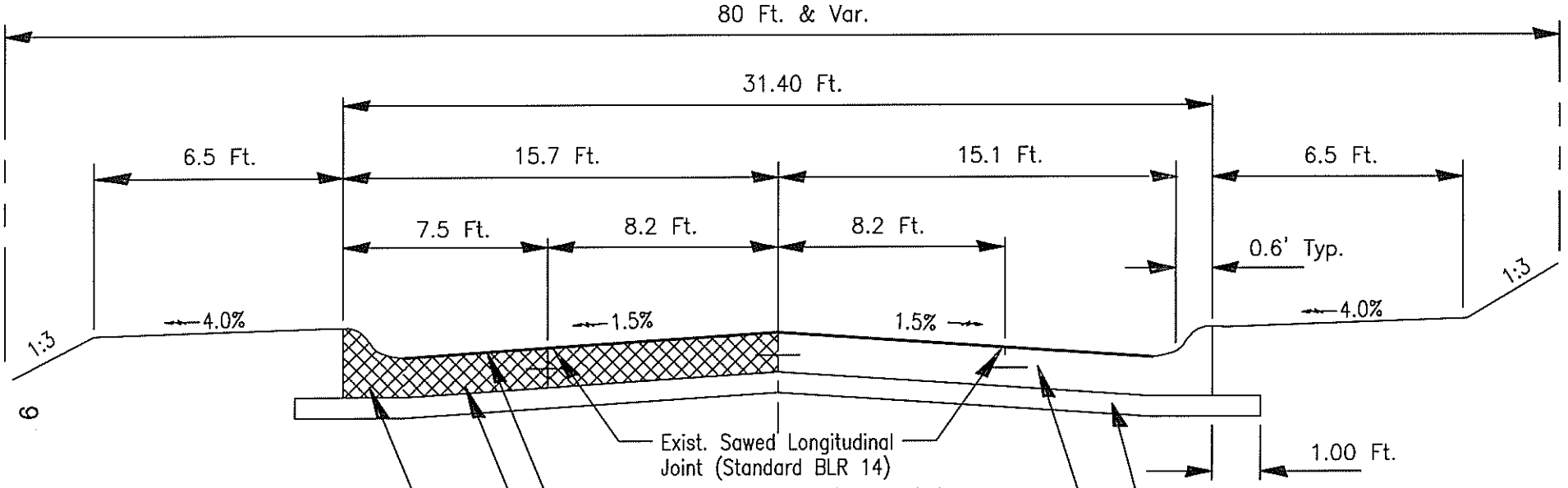
XX009233	PARTIAL DEPTH REPAIR - SPOT REPAIR		
	LT Sta. 6+061	Sq. Ft.	2.3
	RT Sta. 6+309	Sq. Ft.	2.3
	LT Sta. 6+554	Sq. Ft.	2.3
	LT Sta. 6+861	Sq. Ft.	2.3
	RT Sta. 6+981	Sq. Ft.	2.3
	RT Sta. 7+010	Sq. Ft.	2.3
	RT Sta. 7+060	Sq. Ft.	2.3
	RT Sta. 7+171	Sq. Ft.	2.3
	RT Sta. 7+217	Sq. Ft.	2.3
	LT Sta. 7+217	Sq. Ft.	2.3
		Sq. Ft.	**108.1**
X4423010	DOWEL BARS, 1" RETROFIT		
C.H. 7	RT/LT Sta. 1+050 - 7+840	Each	14,860.0
		Each	**14,860.0**
X7010216	TRAFFIC CONTROL & PROTECTION SPECIAL		
C.H. 7	Jobsite	Lump Sum	1.0
		Lump Sum	**1.0**

COUNTY HIGHWAY	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	2018		
ROCK ISLAND COUNTY	SECTION 17-00374-00-PP		

Contract # 85671

TYPICAL SECTION

F.A.U. 5792 (C.H. 7) – KNOXVILLE ROAD
Sta. 1+050 – 2+200



JOHN C. MASSA
062-051729
LICENSED PROFESSIONAL ENGINEER
OF

John C. Massa/County Engineer

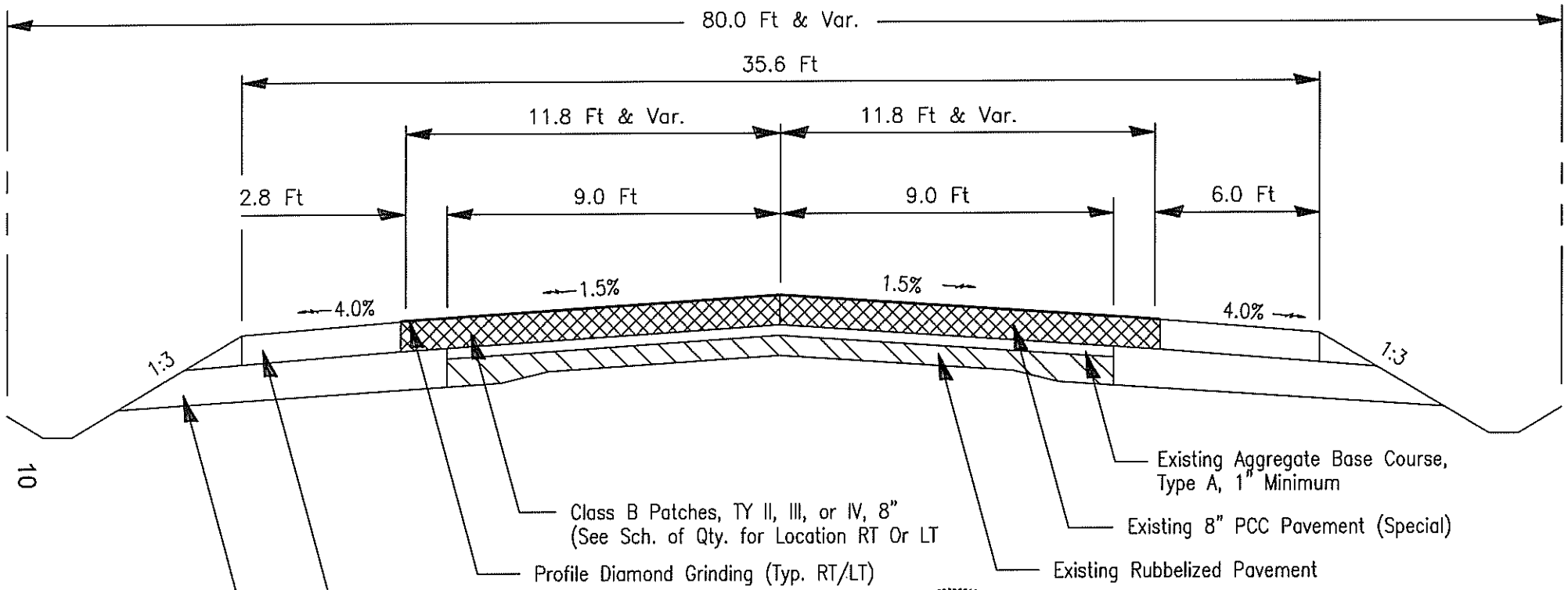
License Expires 11–30–2019

COUNTY HIGHWAY	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	2018		
ROCK ISLAND COUNTY	SECTION	17-00374-00-PP	

TYPICAL SECTION

F.A.S. 207 (C.H. 7) – KNOXVILLE ROAD
Sta. 2+200 – 7+840

Contract # 85671



10

JOHN C. MASSA
062-051729
LICENSED
PROFESSIONAL
ENGINEER
OF
ILLINOIS

John C. Massa/County Engineer

License Expires 11-30-2019

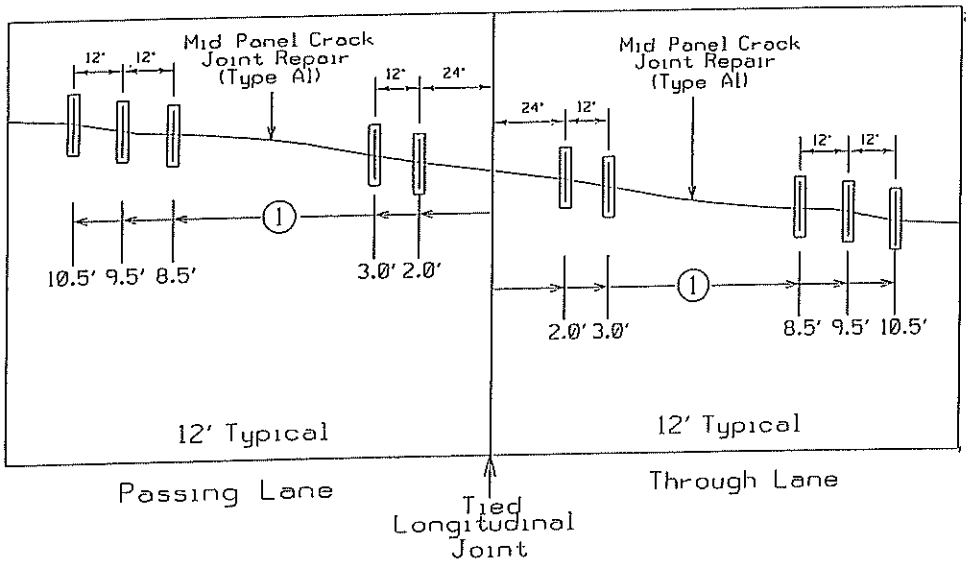
DOWEL BAR RETROFIT

DESCRIPTION: THIS REPAIR IS INTENDED TO BE USED TO ESTABLISH/RESTORE LOAD TRANSFER AT TRANSVERSE JOINTS OR CRACKS.

Sheet 1 of 3

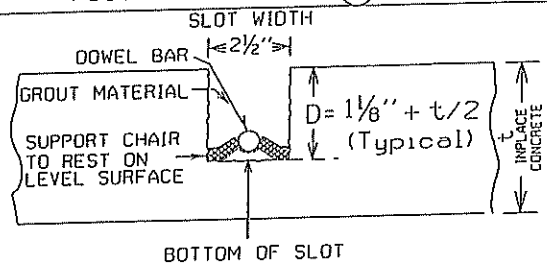
PLAN VIEW

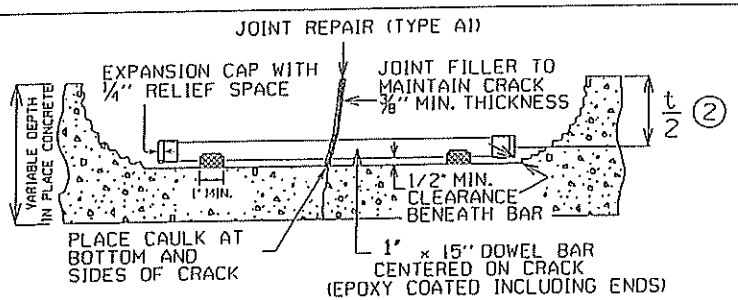
TYPICAL DOWEL BAR RETROFIT LAYOUT

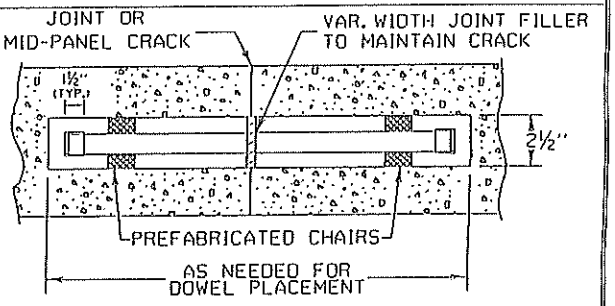


Notes:

* Not recommended for cracks that are ¾" or greater in width, use Full Depth Repair (Type CD)
* Chipping hammers are limited to a maximum weight of 35 pounds.
* Move retrofit dowels as needed to avoid in place dowel bars.
* Always measure from the roadway center line for dowel bar offsets. (1)
* For pavements of 8" or under contact the Concrete Engineering Unit for dowel bar depth and minimum cover recommendations. (2)





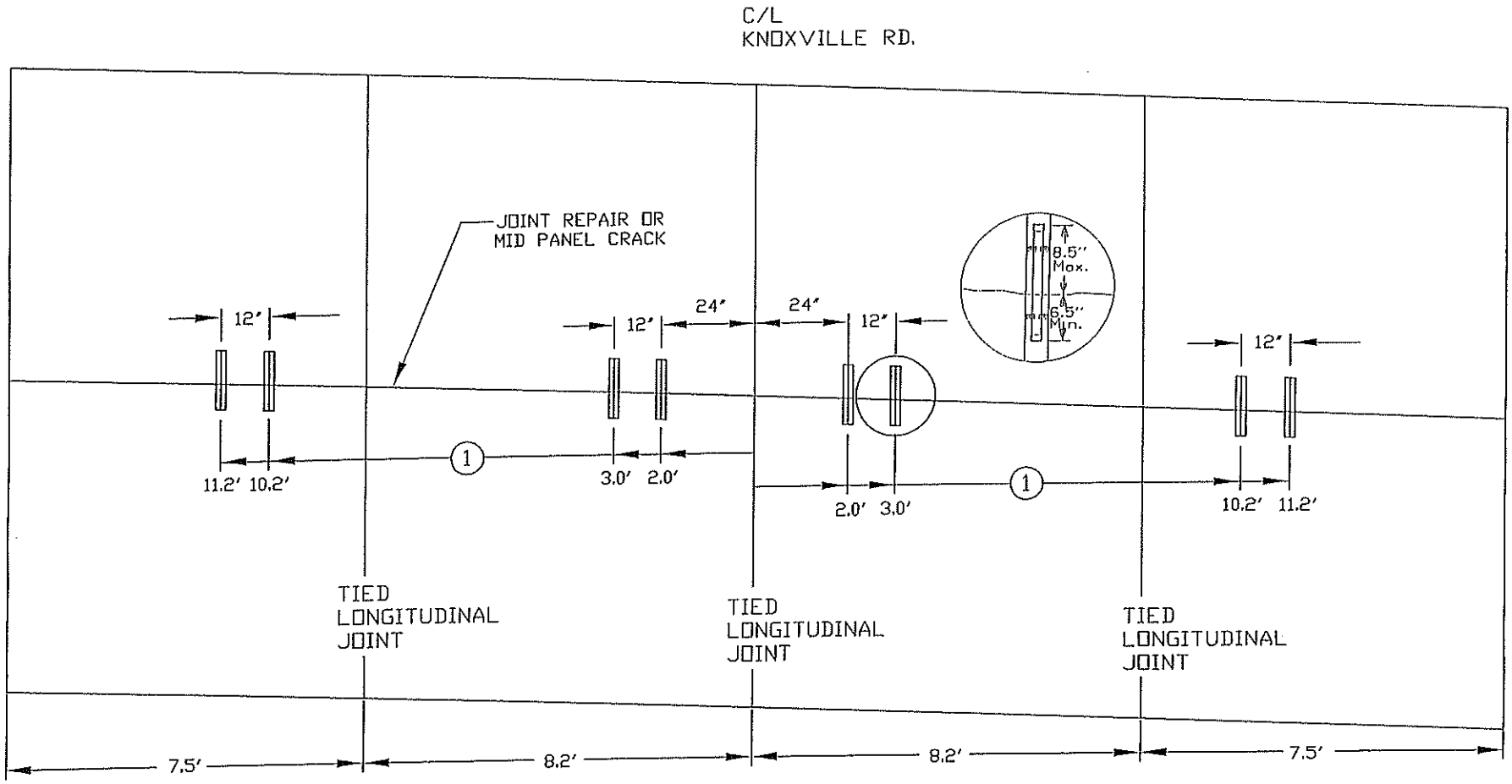


DOWEL BAR RETROFIT

DESCRIPTION: THIS REPAIR IS INTENDED TO BE USED IN CURB & GUTTER SECTIONS TO ESTABLISH/RESTORE LOAD TRANSFER AT TRANSVERSE JOINTS OR CRACKS

Sheet 2 of 3

PLAN VIEW TYPICAL DOWEL BAR RETROFIT LAYOUT IN CURB & GUTTER SECTION

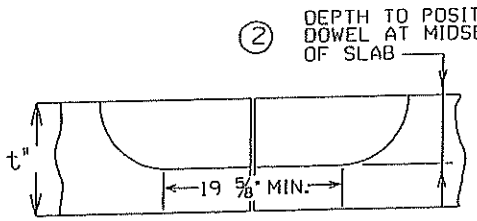


DOWEL BAR RETROFIT DETAILS

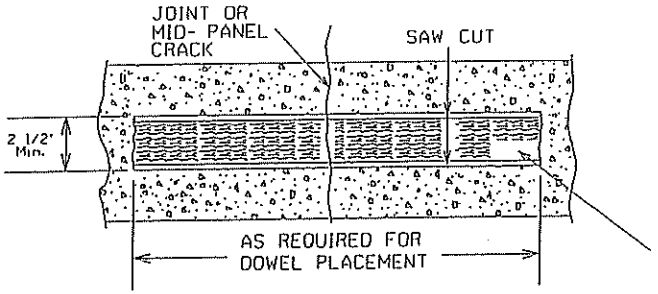
Sheet 3 of 3

STEP 1

SAW SLOT FOR EACH DOWEL BAR.
(AVOID IN- PLACE DOWEL BARS)

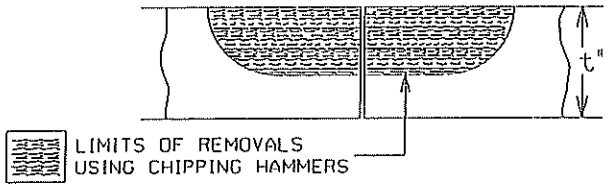


STEP 1 AND 2 PLAN VIEW



STEP 2

REMOVE CONCRETE BETWEEN SAW CUTS, INCLUDING CONCRETE TO FORM KERF.

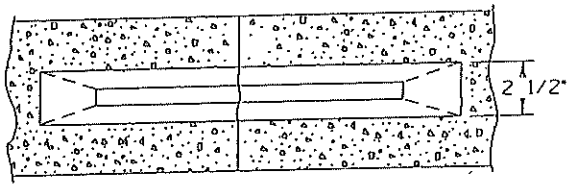


STEP 3

CLEAN EXPOSED SURFACES INSIDE THE SLOT BY SANDBLASTING, AIR BLASTING, AND VACUUM.

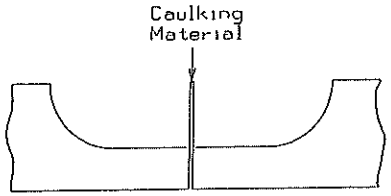
NOTE

CONTINUE TO SANDBLAST UNTIL THE VERTICAL SIDES ARE ROUGH TO THE TOUCH.



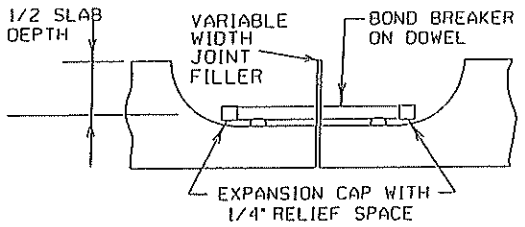
STEP 4

TO KEEP THE PATCHING MATERIAL FROM LEAKING INTO THE JOINT OR CRACK. SEAL THE CRACK WITHIN THE SLOT WITH CAULKING MATERIAL. PLACE THE JOINT FILLER IN CONJUNCTION WITH THE CRACK SEALER.



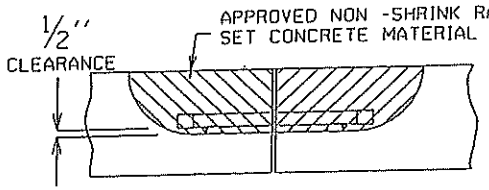
STEP 5

FURNISH AND INSTALL DOWEL BARS ALIGN DOWELS PARALLEL WITH THE PAVEMENT SURFACE AND CENTERLINE OF THE ROADWAY. FURNISH AND INSTALL JOINT FILLER TO MAINTAIN CRACK THROUGH THE SLOT.



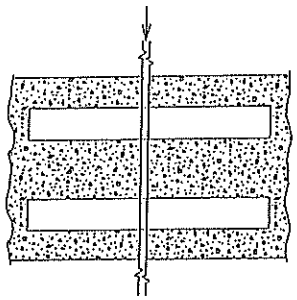
STEP 6

MOISTEN INSIDE OF SLOT WITH WATER.
(STANDING WATER IS NOT ALLOWED)
FURNISH AND PLACE APPROVED NON -SHRINK RAPID SET CONCRETE MATERIAL FOR DOWEL BAR RETROFIT REPAIRS, AND APPLY CURE.
(EDGING ONLY REQUIRED ALONG THE JOINT FILLER)



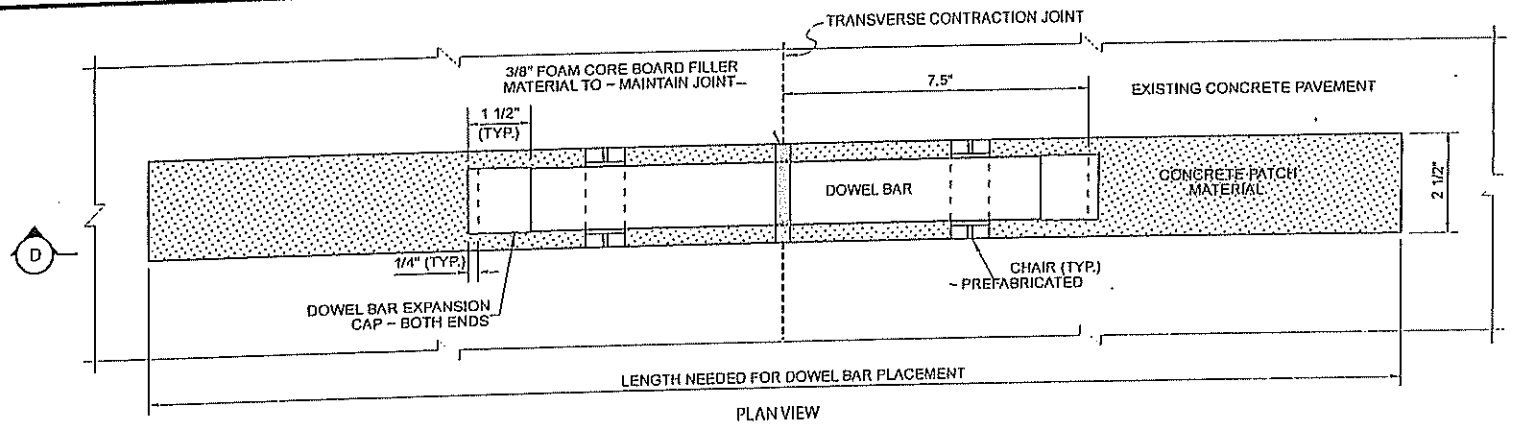
STEP 7

SAW AND SEAL THE JOINT OR CRACK THE ENTIRE ENTIRE WIDTH OF THE LANE IN ACCORDANCE WITH WITH JOINT REPAIR (TYPE A1) (INCIDENTAL)

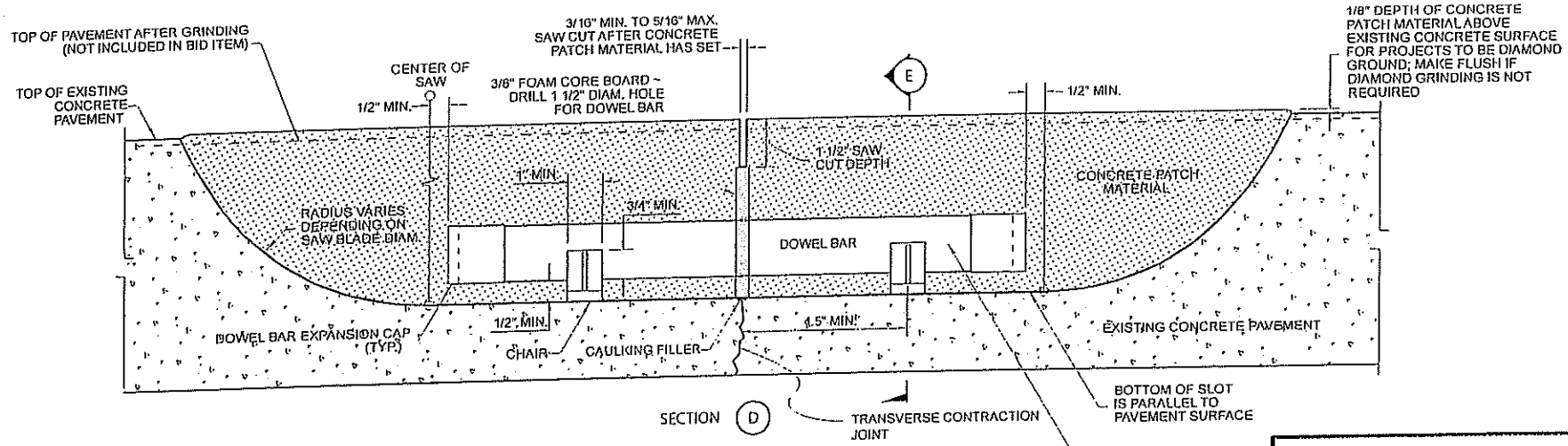


ROCK ISLAND COUNTY
SEC. 17-00374-00-PP
FAU 5792/ FAS 207/ CH 7

DOWEL BAR RETROFIT
FOR CONCRTE PAVEMENT

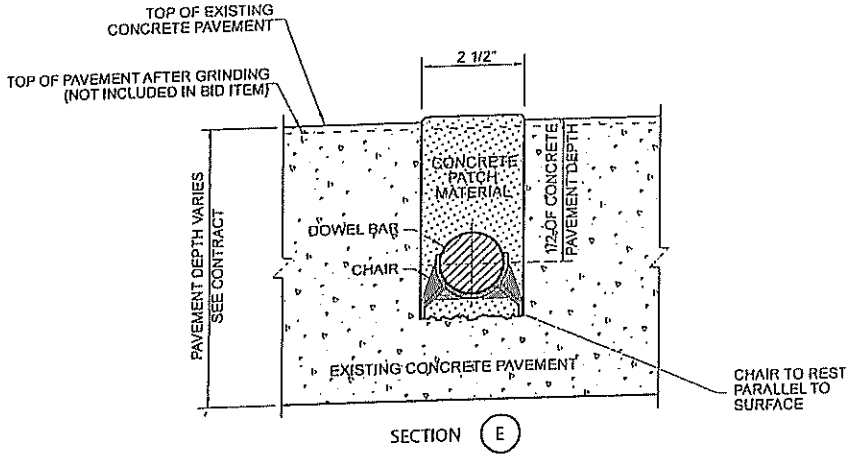


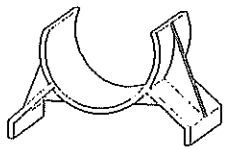
PLAN VIEW



DOWEL BAR PLACEMENT DETAIL

RECOMMENDED DOWEL DIAMETER	
PAVEMENT THICKNESS	DOWEL DIAMETER
≤ 8 inches	1 inch
8.5 to 10.5 inches	1 1/4 inches
≥ 11 inches	1 1/2 inches





CHAIR DETAIL

ROCK ISLAND COUNTY
HIGHWAY DEPARTMENT
SEC. 17-00374-00-PP
FAU5792/FAS 207/CH 7

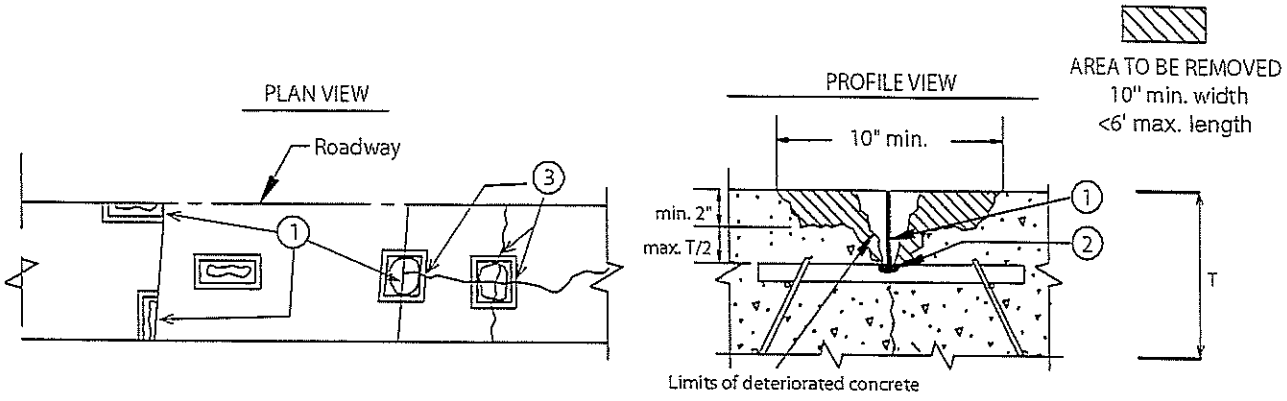
DOWEL BAR RETROFIT
FOR CONCRETE PAVEMENT

DETAIL SHEET
2/21/2018

PARTIAL-DEPTH REPAIR TYPE 1 - SPOT REPAIR (SR)

(Spot repair of joints, cracks, and spalls, less than 6' max. length)

GENERAL DESCRIPTION: REMOVE CONCRETE, FURNISH AND PLACE CONCRETE, SAW AND SEAL JOINTS/CRACKS.



JOINT and CRACK RE-ESTABLISHMENT shall be accomplished as quickly as possible to prevent failure.

Type 1 at Joints

(1) Joint compression relief for the upper part of the joint will be of equal width to the joint on either side of the repair. Compression relief will be provided either by installing preformed joint filler (such as wax-coated cardboard) as wide as the existing joint (¼-in. min.) before concrete placement or by tooling the plastic concrete, then accomplishing a relief saw cut (¼-in. min. width) to the full depth of the repair as soon as possible after concrete placement.

(2) If dowel bar is exposed, coat exposed area with duct tape as a bond breaker to allow movement of the joint.

Type 1 at Cracks

(3) Preformed compression material such as wax-coated cardboard ($^3/_{16}$-in. to ¼-in. thick) should be installed as deep as possible in the crack (below the patch area at least ½ in., up to an inch if possible) to provide compression relief.

WORK TO BE DONE

1 Define removal area and payment based on sq-ft of area to be patched, with a min. depth of 2 in.

2 Remove all concrete including unsound concrete using either saw-and-chip (35-lb max hammer) or milling. Remove concrete to limits shown in detail, with a min. depth of 2 in. and a max. depth of T/2 or the top of the dowels. The sides of the removed area must be tapered 30 to 60 degrees from vertical.

3 Prepare surfaces:
- Clean exposed surfaces by sand blasting and air blasting.
- Coat any exposed dowel surfaces with duct tape as a bond breaker.
- Immediately before placing the repair material, apply bonding grout to exposed concrete surfaces.

4 Restore joints and cracks by installing preformed filler ($^3/_{16}$-in. min.) as described above.

5 Furnish and place specified concrete mix. Finish to grade, slope, and texture. Seal edges with grout of specified concrete mix. Apply cure.

6 Saw and seal joints and cracks according to specifications.

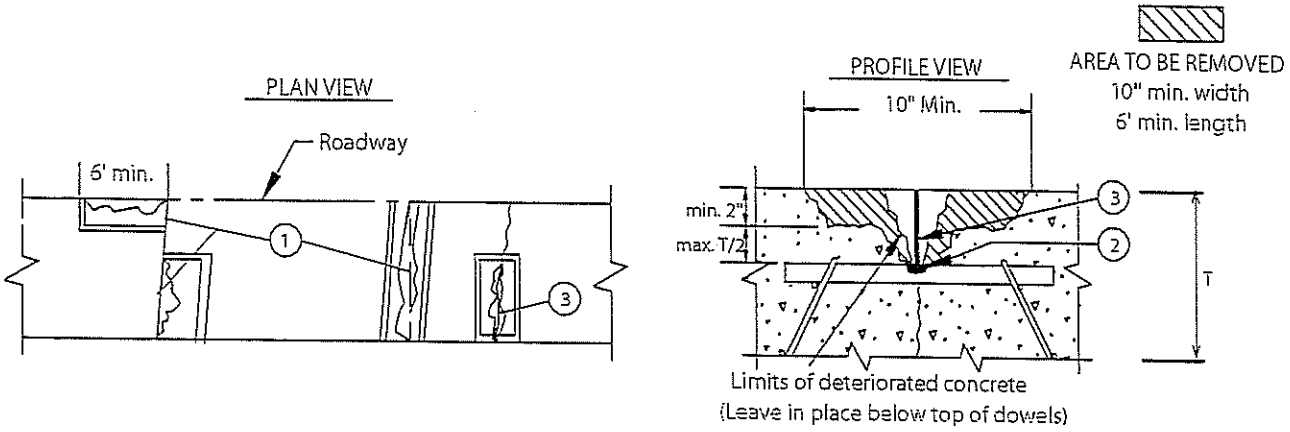
BASIS OF PAYMENT

- Type 1 partial-depth repairs are based on square feet of repair area. Measurements should be taken to the nearest tenth of a foot and rounded to the nearest square foot.
- The 30- to 60- degree taper, preformed filler, and sawing and sealing are incidental to Type 1 repairs.

PARTIAL-DEPTH REPAIR TYPE 2 - EXTENDED LENGTH (LJCR)

(Long [6' or greater] repairs of longitudinal and transverse joints [Type 2A] and cracks [Type 2B])

GENERAL DESCRIPTION: REMOVE CONCRETE, FURNISH & PLACE CONCRETE, SAW, AND SEAL JOINTS/CRACKS.



JOINT (2A) and CRACK (2B) RE-ESTABLISHMENT shall be accomplished as quickly as possible to prevent failure.

Type 2A at Joints

(1) Joint compression relief for the upper part of the joint will be of equal width to the joint on either side of the repair. Compression relief will be provided with a saw cut (¼-in. min. width) to the full depth of the repair (and, if possible, ½-in. deeper) as soon as possible after concrete placement.

(2) If dowel bar is exposed, coat exposed area with duct tape as a bond breaker to allow movement of the joint.

Type 2B at Cracks

(3) Preformed compression material such as wax-coated cardboard (3/16-in. to ¼-in. thick) should be installed as deep as possible in the crack (below the patch area at least ½ in., up to an inch if possible) to provide compression relief.

WORK TO BE DONE

1 Define removal area, with a 2-in. min. (T/2 max.) depth, 10-in. min. width, and 6-ft min. length.

2 Using milling and chipping hammer (35-lb max. hammer), remove all concrete including unsound concrete to limits shown in detail (min. depth of 2 in. and a max. depth of T/2 the pavement depth or the top of the dowels), tapering the sides of the removed area 30 to 60 degrees from vertical.

3 Prepare surfaces:
- Clean exposed surfaces by sand blasting and air blasting.
- Coat any exposed dowel surfaces with duct tape as a bond breaker.
- Immediately before placing the repair material, apply bonding grout to exposed concrete surfaces.

4 Restore cracks by installing preformed filler (3/16-in. min.) as described above.

5 Furnish and place specified concrete mix. Finish to grade, slope, and texture. Seal edges with grout of specified concrete mix. Apply cure.

6 Saw and seal joints and cracks according to specifications.

BASIS OF PAYMENT

- Type 2A (joint) repairs are based on square feet of repair area. Measurements should be taken to the nearest tenth of a foot and rounded to the nearest square foot.
- Type 2B (crack) repairs are based on square feet of repair area. Measurements should be taken to the nearest tenth of a foot and rounded to the nearest square foot.
- The 30- to 60- degree taper, preformed filler, and sawing and sealing are incidental to all Type 2 repairs.

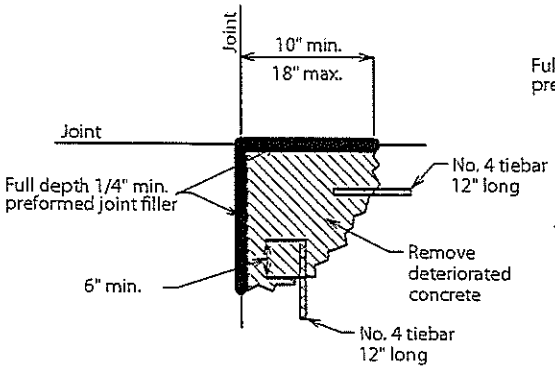
PARTIAL-DEPTH REPAIR TYPE 3 - BOTTOM-HALF REPAIR (BHR)

(Bottom-half spot repair at corner or edge; NOT intended to be placed in wheel paths)

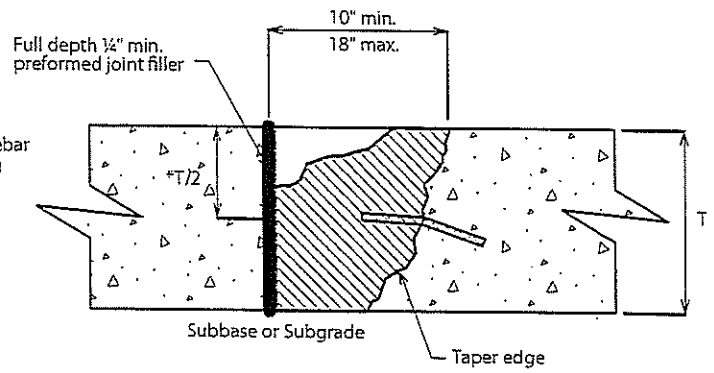
DESCRIPTION: REMOVE CONCRETE, INSTALL REINFORCING STEEL, FURNISH & PLACE CONCRETE.

AREA TO BE REMOVED

PLAN VIEW



PROFILE VIEW

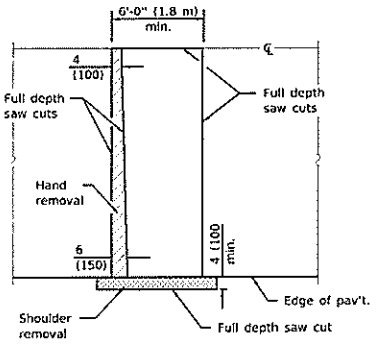


WORK TO BE DONE

1. Define removal area T/2 below in-place surface.
2. Remove all deteriorated concrete to limits shown in detail. Taper the sides of the removed area 30 to 60 degrees from vertical with a 35-lb max. chipping hammer.
3. Prepare surface:
   - Clean exposed surfaces by sand blasting and air blasting.
   - Coat any exposed dowel surfaces with approved bond breaker.
   - Immediately before placing the repair material, apply bonding grout to exposed concrete surfaces.
4. Furnish and install No. 4 reinforcement tiebars at mid-depth, as shown in detail. Ensure that there is at least 1 in. of concrete around the bar. Place with an approved non-shrink grout.
5. Restore joints and cracks by installing preformed joint filler such as wax-coated cardboard ($^3/_{16}$-in. to ¼-in. thick) as deep as possible in the crack (below the patch area at least ½ in., up to an inch if possible) to provide compression relief.
6. Furnish and place specified concrete mix. Finish to grade, slope, and texture. Seal edges with grout of specified concrete mix. Apply cure.
7. Saw and seal joints and cracks according to specifications.

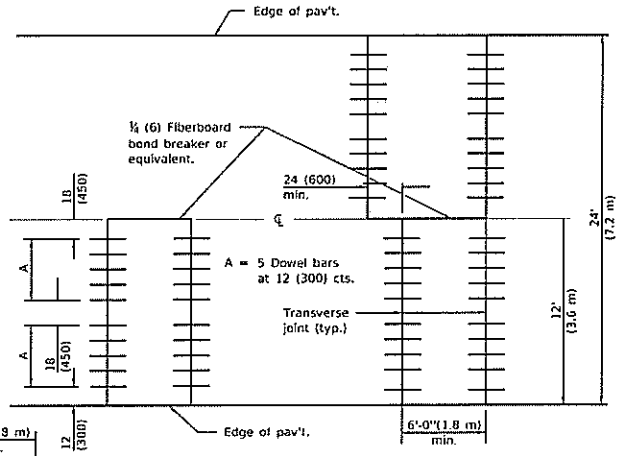
BASIS OF PAYMENT

- Payment for Type 3 repairs (bottom half of repair area) is based on square feet of repair area. Since the repair will have a sloping face, payment should be measured at mid-depth of the pavement thickness. Measurements should be taken to the nearest tenth of a foot and rounded to the nearest square foot.
- Payment for the top half of the repair is treated as a Type 1 or Type 2B repair, both of which are based on sq ft. The 30- to 60-degree edge taper will be included in the top half measurement.
- The 30- to 60-degree edge taper, furnish and installation of preformed joint filler (such as wax-coated cardboard) are incidental to the repair.

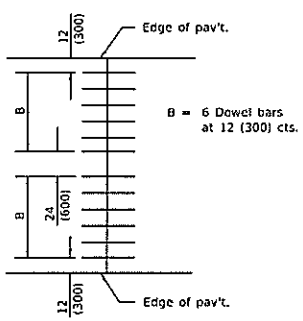


PAVEMENT SAWING DETAIL

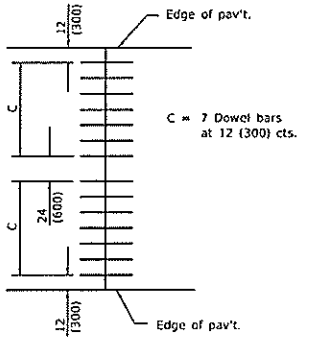
(HMA SHOULDER)



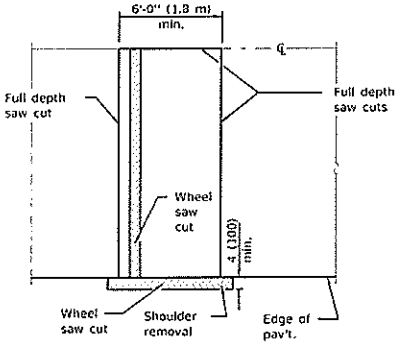
12' (3.6 m) WIDE LANES



14' (4.2 m) WIDE RAMP

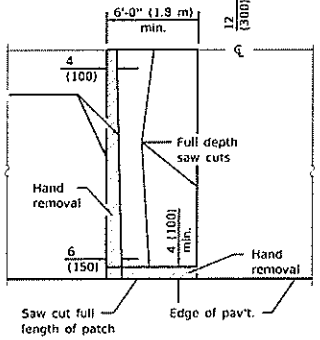


16' (4.8 m) WIDE RAMP



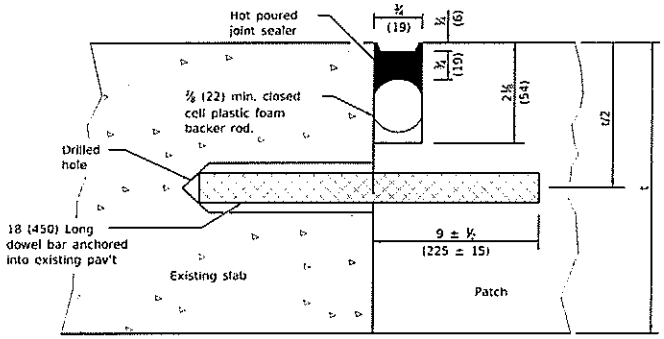
ALTERNATE SAWING DETAIL

(HMA SHOULDER)

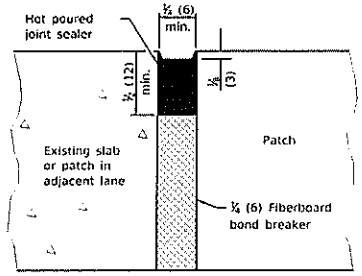


PAVEMENT SAWING DETAIL

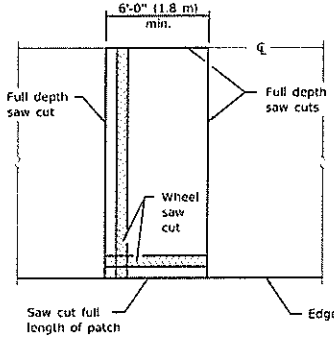
(PCC SHOULDER)



TRANSVERSE JOINT



CENTERLINE JOINT



ALTERNATE SAWING DETAIL

(PCC SHOULDER)

DOWEL BAR TABLE		
PAVEMENT THICKNESS	DOWEL BAR DIAMETER	HOLE DIAMETER
10 (250) or greater	1½ (38)	1⅝ (41)
8 (200) thru 9.99 (249)	1¼ (32)	1⅜ (35)
Less than 8 (200)	1 (25)	1⅛ (29)

GENERAL NOTES

The transverse joints for Class B patches shall align with joints or cracks in the adjacent lane whenever possible.

See Standard 420701 for details of welded wire reinforcement.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2019
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-19

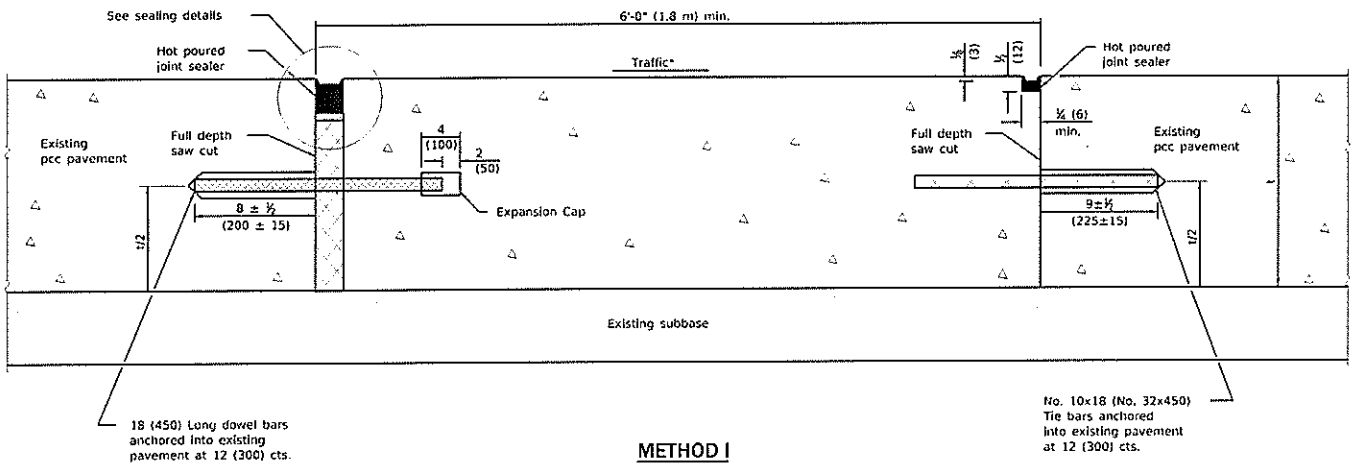
DATE	REVISIONS
1-1-19	Revised reference to Standard 420701 in General Notes.
1-1-18	Revised DOWEL BAR TABLE.

CLASS B PATCHES

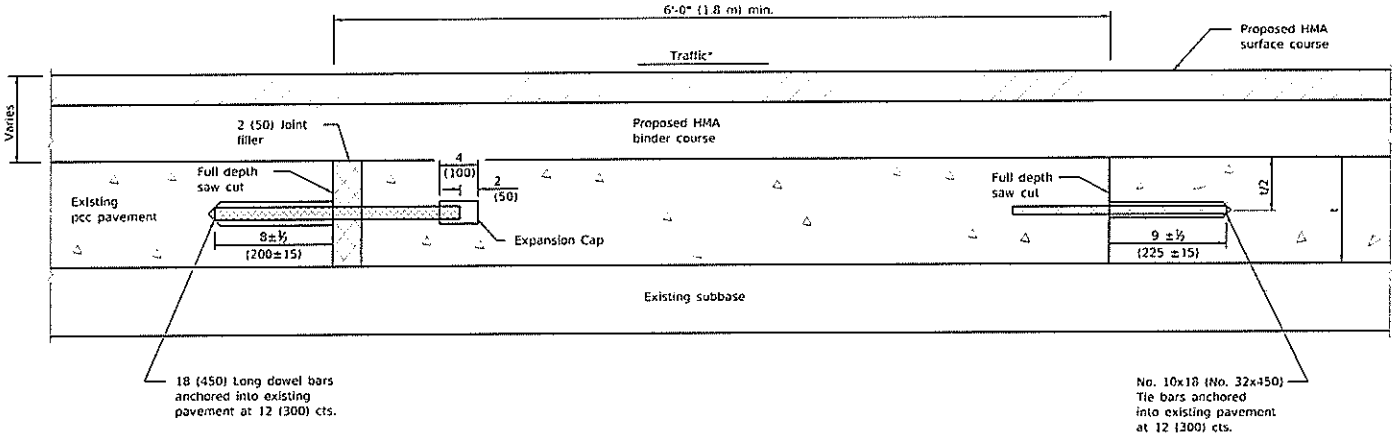
(Sheet 1 of 2)

STANDARD 442101-09

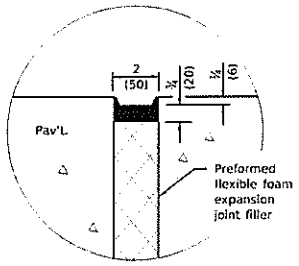
TRANSVERSE EXPANSION JOINTS



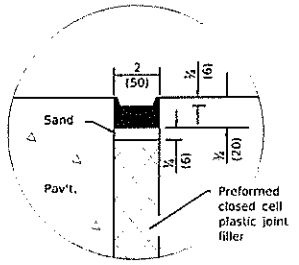
METHOD I
(Without Resurfacing)



METHOD II
(With Resurfacing)



SEALING DETAIL



SEALING DETAIL

NOTE

- When re-establishing a transverse expansion joint on a two-lane, two-way road, reverse the orientation of the dowel bars with respect to traffic for one of the patches such that the joint will be continuous across both lanes.

Illinois Department of Transportation

PASSED January 1 2019
ENGINEER OF POLICY AND PROCEDURES

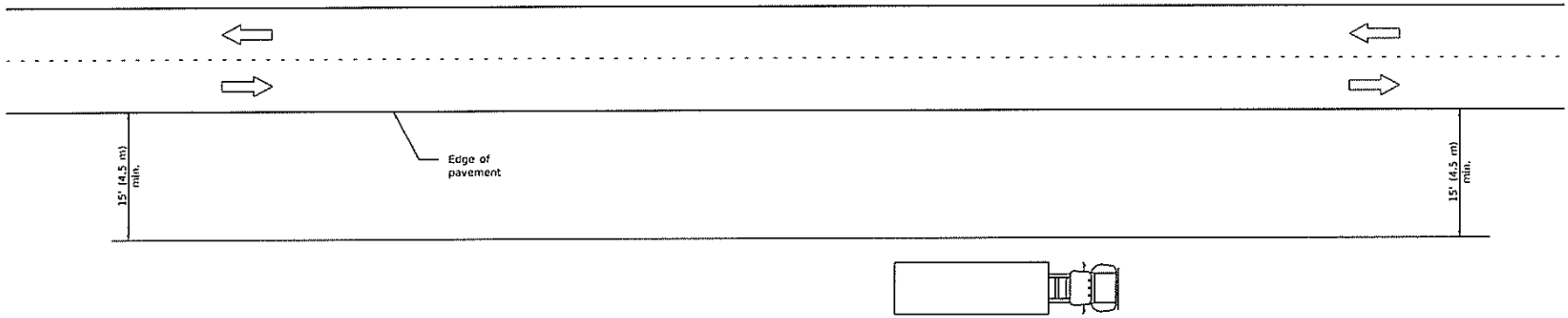
APPROVED January 1 2019
ENGINEER OF DESIGN AND ENVIRONMENT

BDE 1-1-19 ISSUED

CLASS B PATCHES

(Sheet 2 of 2)

STANDARD 442101-09



TYPICAL APPLICATIONS

Landscaping work

Utility work

Fencing contracts and maintenance

Cleaning culverts

GENERAL NOTES

This Standard is used where at all times all vehicles, equipment, workers or their activities are more than 15' (4.5 m) from the edge of pavement.

When the work operation requires that two or more work vehicles cross the 15' (4.5 m) clear zone in any one hour, traffic control shall be according to Standard 701006.

All dimensions are in inches (millimeters) unless otherwise shown

Illinois Department of Transportation

PASSED January 1, 2009
ENGINEER OF OPERATIONS

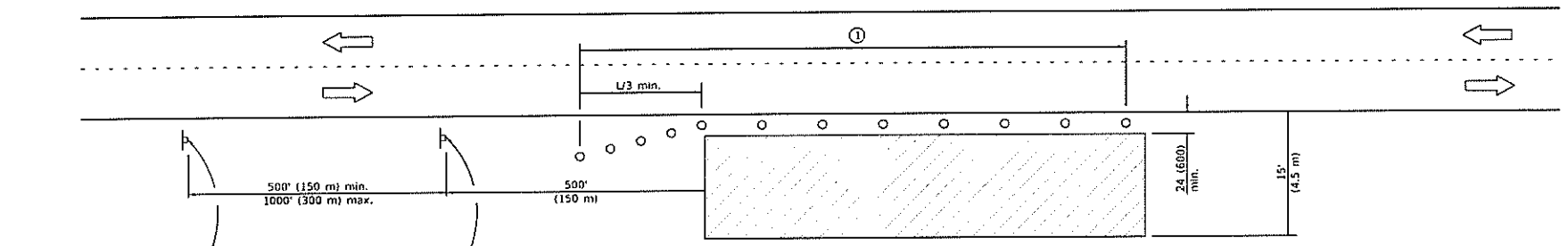
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

BSLRD 1-1-97

DATE	REVISIONS
1-1-09	Switched units to English (metric)
1-1-05	Revised title and notes.

OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' (4.5 m) AWAY

STANDARD 701001-02



For contract construction projects

W20-1103(0)-48

W21-1(0)-48

For maintenance and utility projects

W20-1(0)-48

TYPICAL APPLICATIONS

Utility operations
Culvert extensions
Side slope changes
Guardrail installation and maintenance
Delineator installation
Landscaping operations
Shoulder repair
Sign installation and maintenance

SYMBOLS

Work area

Sign

Cone, drum or barricade

① When the work operation exceeds one hour, cones, drums or barricades shall be placed at 25' (8 m) centers for L/3 distance, and at 50' (15 m) centers through the remainder of the work area.

GENERAL NOTES

This Standard is used where any vehicles, equipment, workers or their activities will encroach in the area 15' (4.5 m) to 24 (600) from the edge of pavement.

Calculate L as follows:

SPEED LIMIT	FORMULAS English	(Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	L=(W)(S)	L=0.65(W)(S)

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1 2014
ENGINEER OF SAFETY ENGINEERING

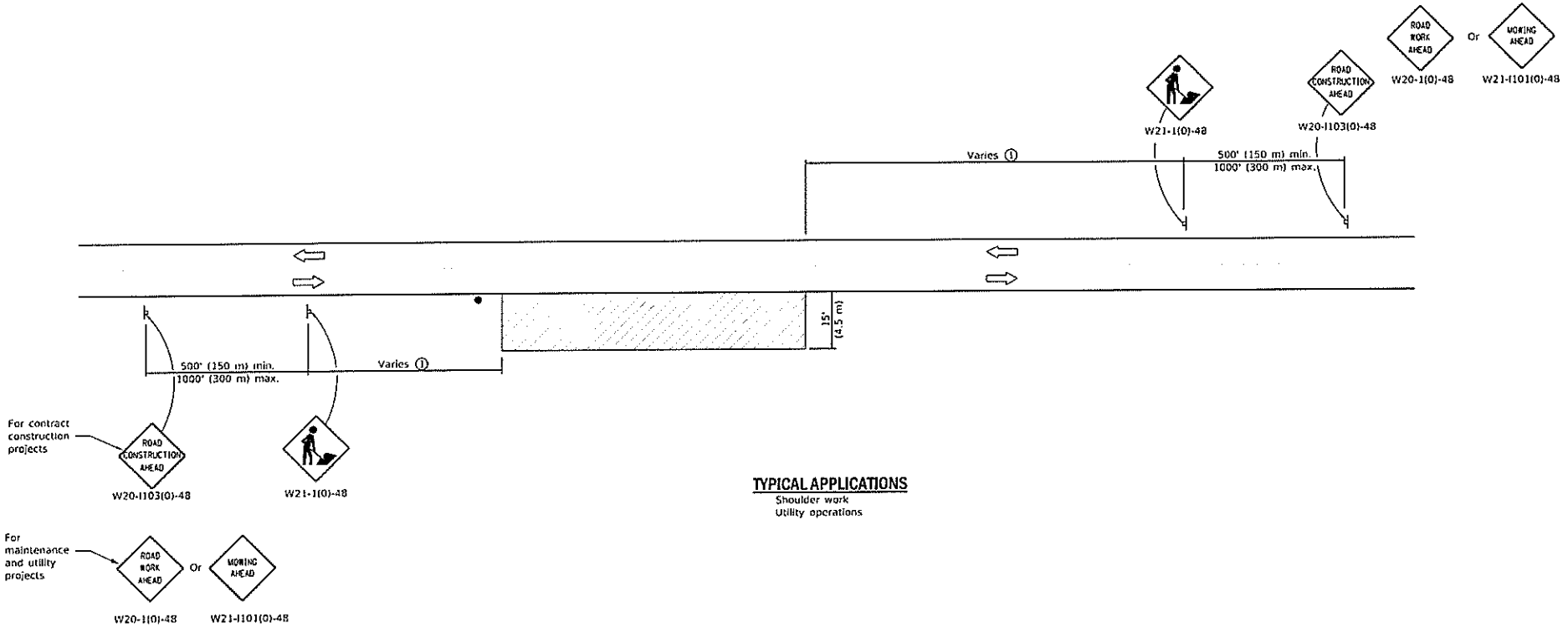
APPROVED January 1 2014
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-14

DATE	REVISIONS
1-1-14	Revised workers sign
	number to agree with
	current MUTCD.
1-1-13	Omitted text "WORKERS"
	sign.

OFF-RD OPERATIONS, 2L, 2W, 15' (4.5 m) TO 24" (600 mm) FROM PAVEMENT EDGE

STANDARD 701006-05



TYPICAL APPLICATIONS

Shoulder work
Utility operations

SYMBOLS

Work area

Sign

Flagger with traffic control sign when required

① Minimum distance is 200' (60 m). Maximum distance to be determined by the Engineer but should not exceed ½ the length required for one normal working day's operation, or 4 miles (6.4 km) whichever is less.

GENERAL NOTES

This Standard is used where at any time, any vehicle, equipment, workers or their activities require an intermittent or continuous moving operation on the shoulder, where the average speed is 1 mph (2 km/h) or less.

When the work operation does not exceed 60 minutes, traffic control may be according to Standard 701301.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1 2014
ENGINEER OF SAFETY ENGINEERING

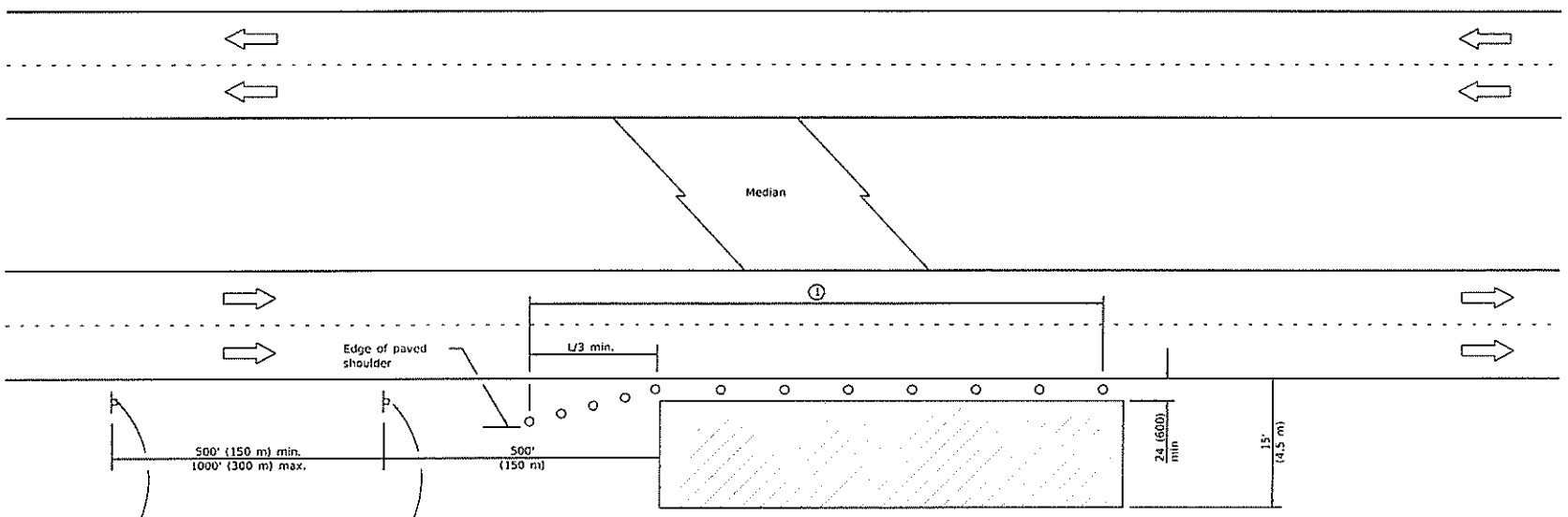
APPROVED January 1 2014
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-14

DATE	REVISIONS
1-1-14	Revised workers sign
	number to agree with
	current MUTCD.
1-1-13	Omitted text "WORKERS"
	sign.

OFF-RD MOVING OPERATIONS, 2L, 2W, DAY ONLY

STANDARD 701011-04



For contract construction projects

W20-I103(0)-48

W21-1(0)-48

For maintenance and utility projects

W20-1(0)-48

TYPICAL APPLICATIONS

Utility operations
Culvert extensions
Side slope changes
Guardrail installation and maintenance
Delineator installation
Landscaping operations
Shoulder repair
Sign installation and maintenance

① When the work operation exceeds one hour, cones, drums or barricades shall be placed at 25' (8 m) centers for L/3 distance, and at 50' (15 m) centers through the remainder of the work area.

GENERAL NOTES

This Standard is used where any vehicles, equipment, workers or their activities will encroach in the area 15' (4.5 m) to 24 (600) from the edge of pavement.

Calculate L as follows:

SPEED LIMIT	FORMULAS English	(Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	L=(W)(S)	L=0.65(W)(S)

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

SYMBOLS

Work area
Sign
Cone, drum or barricade

Illinois Department of Transportation

PASSED April 1, 2016
ENGINEER OF SAFETY ENGINEERING

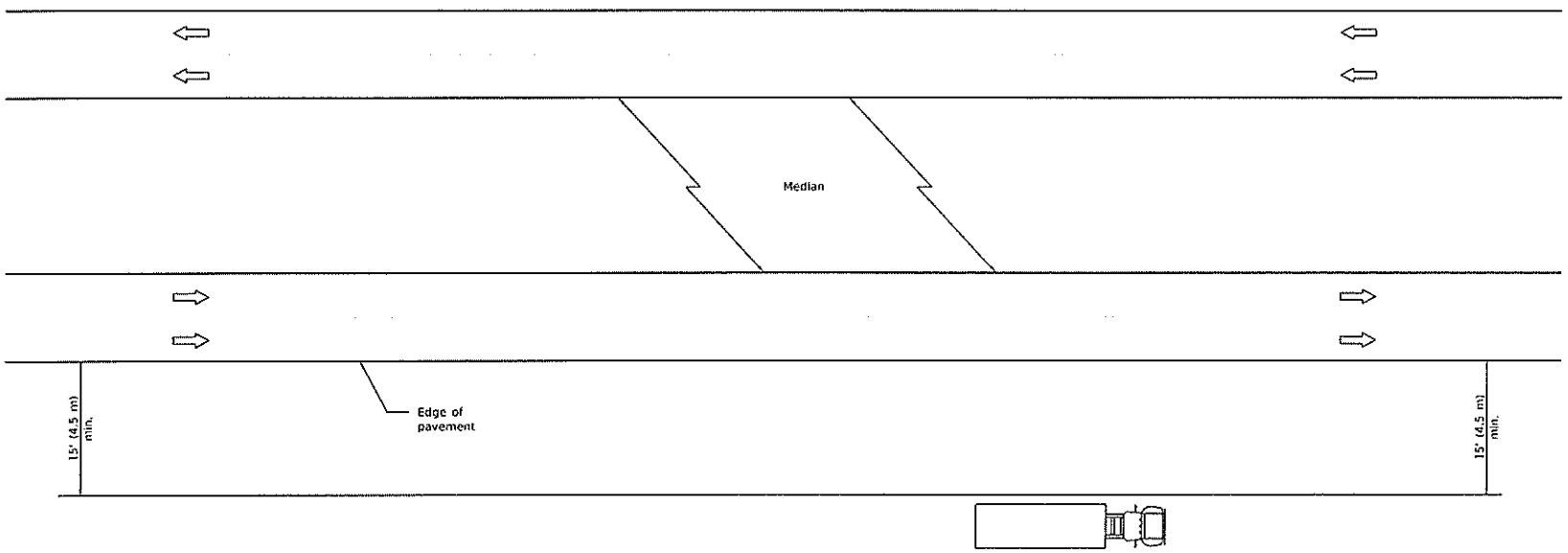
APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

BDE 1197

DATE	REVISIONS
4-1-16	Corrected typo in title.
1-1-14	Revised workers sign
	number to agree with
	current MUTCD.

OFF-RD OPERATIONS, MULTILANE, 15' (4.5 m) TO 24" (600 mm) FROM PAVEMENT EDGE

STANDARD 701101-05



TYPICAL APPLICATIONS

Landscaping work
Utility work
Fencing contracts

GENERAL NOTES

This Standard is used where at all times all vehicles, equipment, workers or their activities are more than 15' (4.5 m) from the edge of pavement.

When the work operation requires that two or more work vehicles cross the 15' (4.5 m) clear zone in any one hour, traffic control shall be according to Standard 701101.

This Standard also applies to work performed in the median more than 15' (4.5 m) from either pavement.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2009
ENGINEER OF OPERATIONS

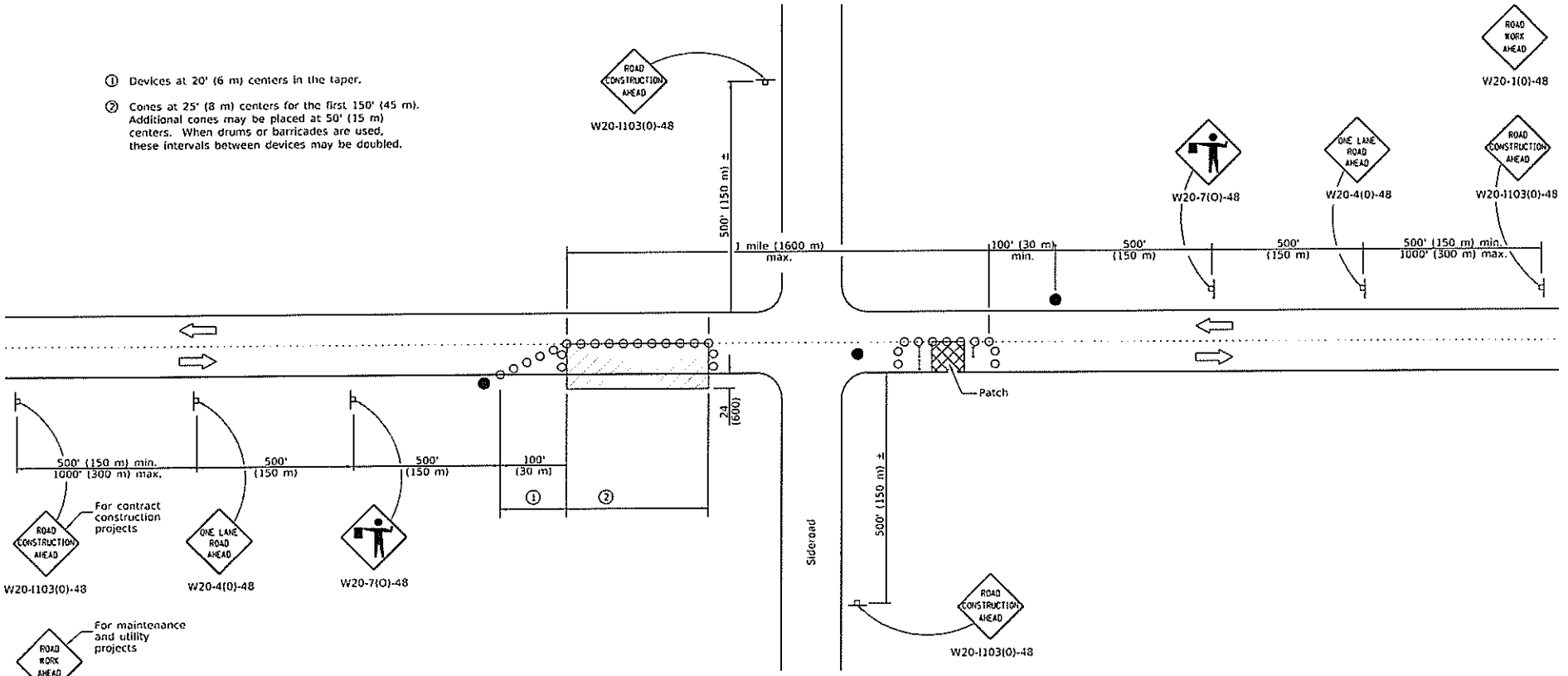
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-05

DATE	REVISIONS
1-1-05	Switched units to English (metric).
1-1-05	Revised title.

OFF-RD OPERATIONS, MULTILANE, MORE THAN 15' (4.5 m) AWAY

STANDARD 701106-02



TYPICAL APPLICATIONS

Isolated patching
Utility operations
Storm sewer
Culverts
Cable placement

SYMBOLS

- Work area
- Sign
- Barricade or drum
- Cone, drum or barricade
- Flagger with traffic control sign

GENERAL NOTES

This Standard is used where at any time, any vehicles, equipment, workers or their activities will encroach in the area between the center line and a line 24 (600) outside the edge of pavement for daylight operation.

When the distance between successive work areas exceeds 2000' (600 m), additional warning signs, flaggers, and taper shall be placed as shown.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

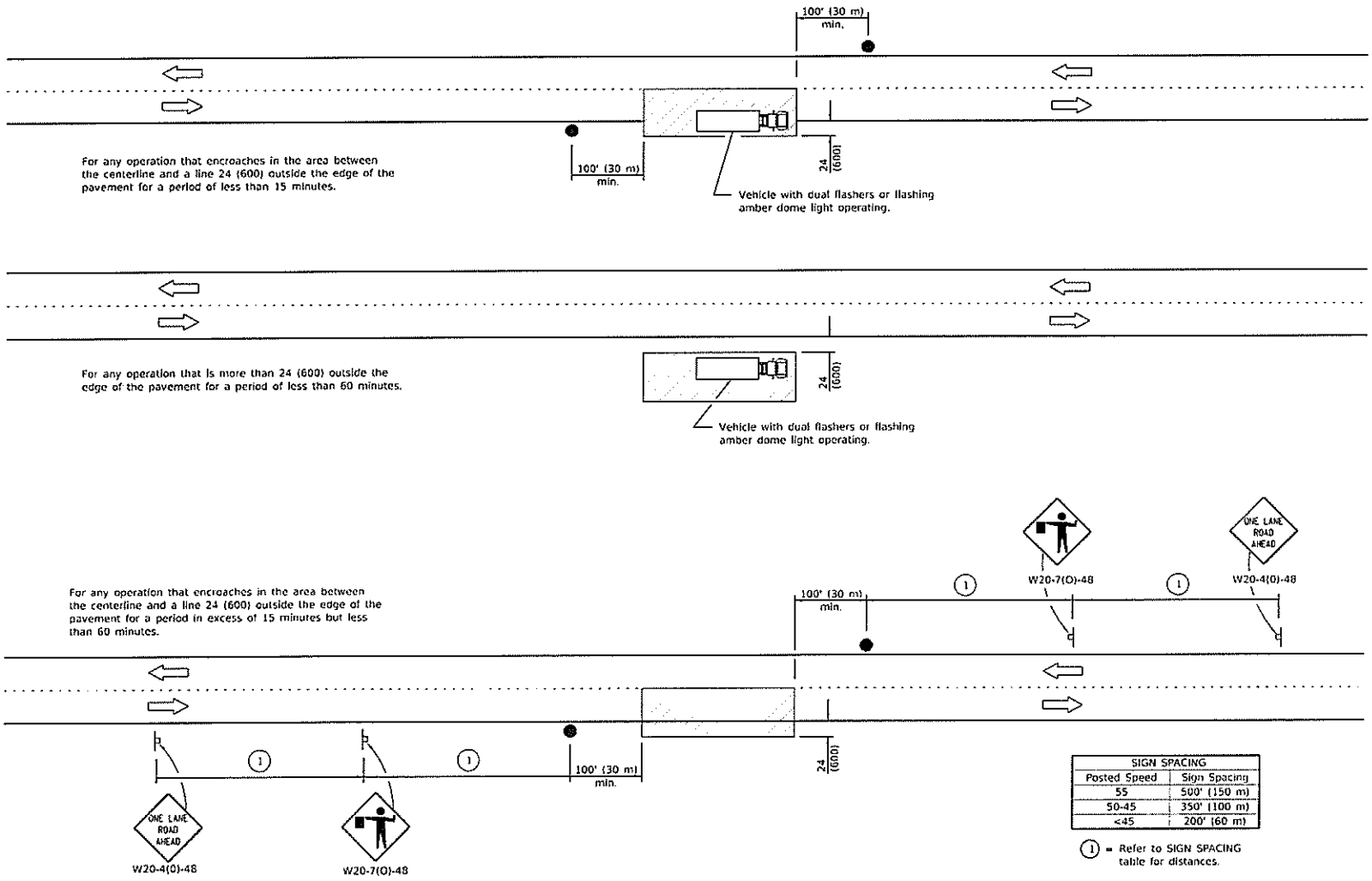
APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-19

DATE	REVISIONS
1-1-19	Revised device spacing in taper.
1-1-11	Revised flagger sign.

LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS ≥ 45 MPH

STANDARD 701201-05



All dimensions are in inches (millimeters) unless otherwise shown.

TYPICAL APPLICATIONS

Marking patches
Field survey
String line
Utility operations
Cleaning up debris on pavement

SYMBOLS

Work area
Sign on portable or permanent support
Flagger with traffic control sign

Illinois Department of Transportation

PASSED January 3 2011
ENGINEER OF SAFETY ENGINEERING

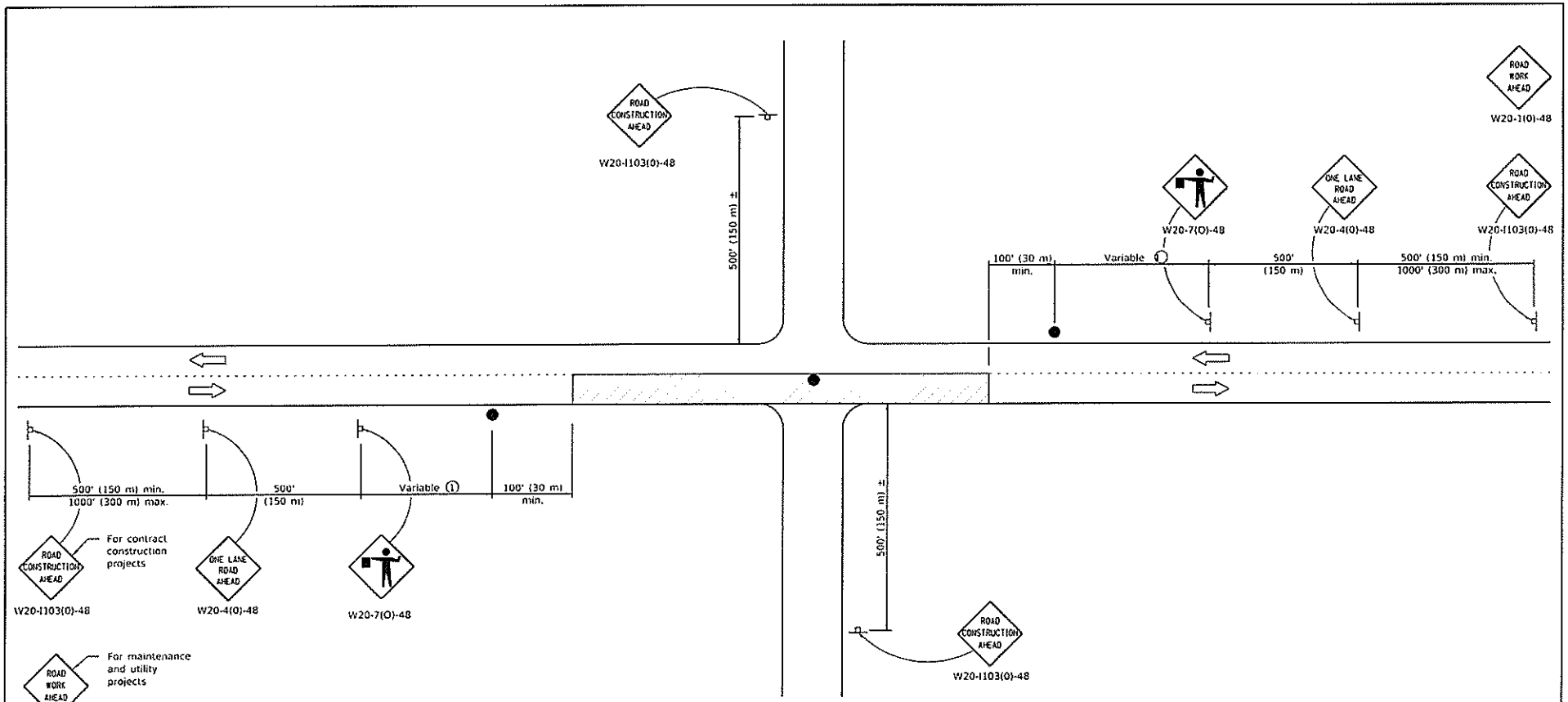
APPROVED January 3 2011
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-11

DATE	REVISIONS
1-1-11	Revised flagger sign.
1-1-09	Switched units to
	English (metric).

LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS

STANDARD 701301-04



TYPICAL APPLICATIONS

Bituminous resurfacing
Milling operations
Utility operations
Shoulder operations

(1) Minimum distance is 200' (60 m). Maximum distance to be determined by the Engineer but should not exceed ½ the length required for one normal working day's operation or 2 miles (3200 m), whichever is less.

SYMBOLS

Work area

Sign on portable or permanent support

Flagger with traffic control sign

GENERAL NOTES

This Standard is used where at any time, any vehicle, equipment, workers or their activities require an intermittent or continuous moving operation on the pavement where the average speed of movement is greater than ½ mph (1 km/h) and less than 4 mph (6 km/h).

When the operation does not exceed 60 minutes, traffic control may be according to Standard 701301.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 3, 2018
ENGINEER OF SAFETY PROG. AND ENGINEERING

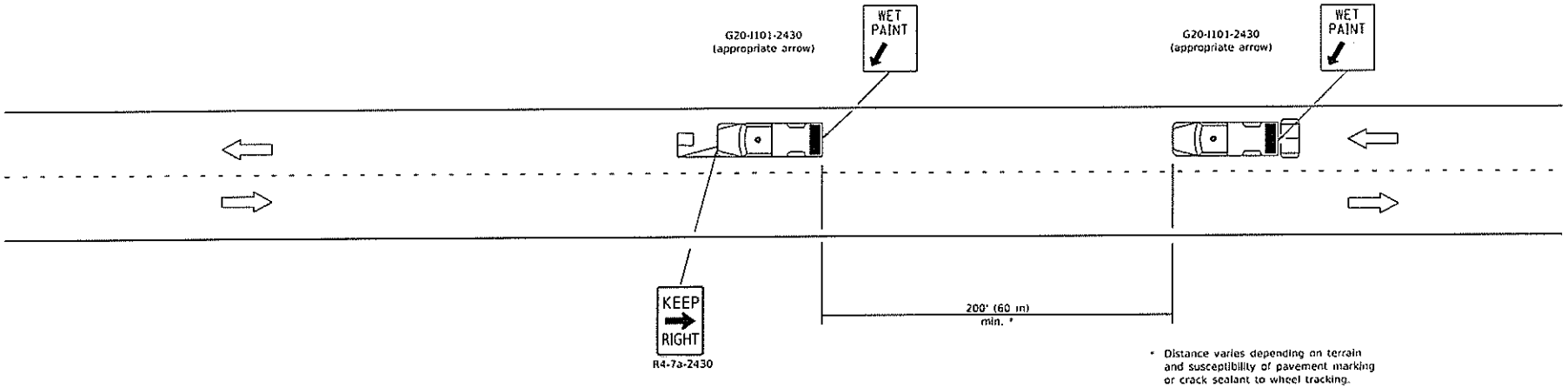
APPROVED January 3, 2018
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-18

DATE	REVISIONS
1-1-18	Revised lower speed limit for operation to ½ mph.
1-1-11	Revised flagger sign.

LANE CLOSURE, 2L, 2W, SLOW MOVING OPERATIONS DAY ONLY, FOR SPEEDS ≥ 45 MPH

STANDARD 701306-04



* Distance varies depending on terrain and susceptibility of pavement marking or crack sealant to wheel tracking.

TYPICAL APPLICATIONS

Landscaping work
Utility work
Pavement marking
Weed spraying
Roadometer measurements
Debris cleanup
Crack pouring

SYMBOLS

Arrow board (Hazard Mode only)

Truck with headlights, emergency flashers and flashing amber light. (visible from all directions)

18x18 (450x450) min. orange flag (use when guide wheel is used)

Truck mounted attenuator

GENERAL NOTES

This Standard is used where any vehicle, equipment, workers or their activities will require a continuous moving operation where the average speed is greater than 3 mph (5 km/h).

For shoulder operations not encroaching on the pavement, use DETAIL A, Standard 701426.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2009
ENGINEER OF OPERATIONS

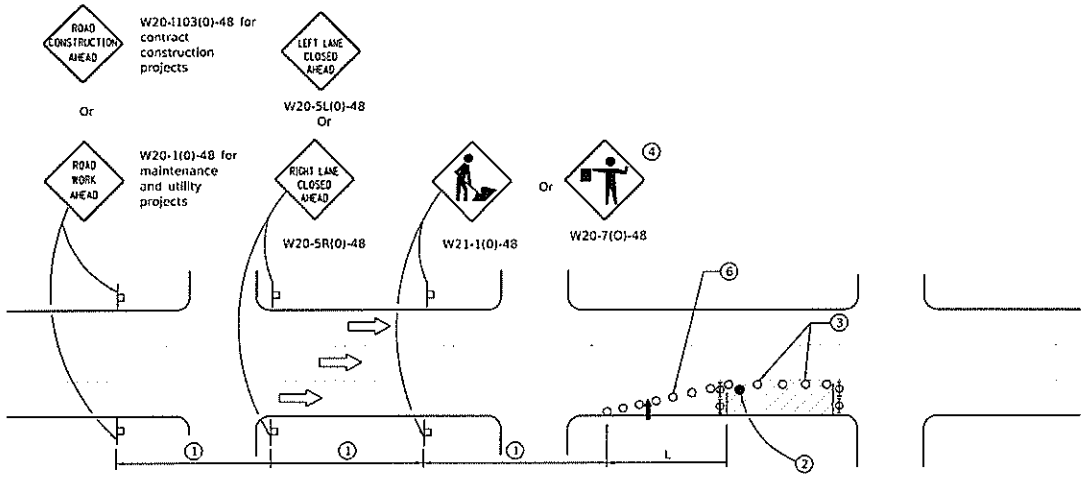
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

BSDES 1-1-07

DATE	REVISIONS
1-1-09	Switched units to
	English (metric). Omitted
	Pass With Care sign.
1-1-00	Elim. speed restrictions
	in Standard title.

LANE CLOSURE 2L, 2W MOVING OPERATIONS- DAY ONLY

STANDARD 701311-03



SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

SYMBOLS

- Arrow board
- Cone, drum or barricade
- Sign on portable or permanent support
- Work area
- Barricade or drum with flashing light
- Type III barricade with flashing lights
- Flagger with traffic control sign.

1. Refer to SIGN SPACING TABLE for distances.
2. Required for speeds > 40 MPH
3. Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or Type I or Type II barricades are used, the interval between devices may be doubled.
4. Use flagger sign only when flagger is present.
5. For approved sideroad closures.
6. Cones, drums or barricades at 20' (6 m) in taper.

GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement during shoulder operations or where construction requires lane closures in urban areas.

Calculate L as follows:

SPEED LIMIT	FORMULAS English	(Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	L=(W)(S)	L=0.65(W)(S)

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2014
ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2014
ENGINEER OF DESIGN AND ENVIRONMENT

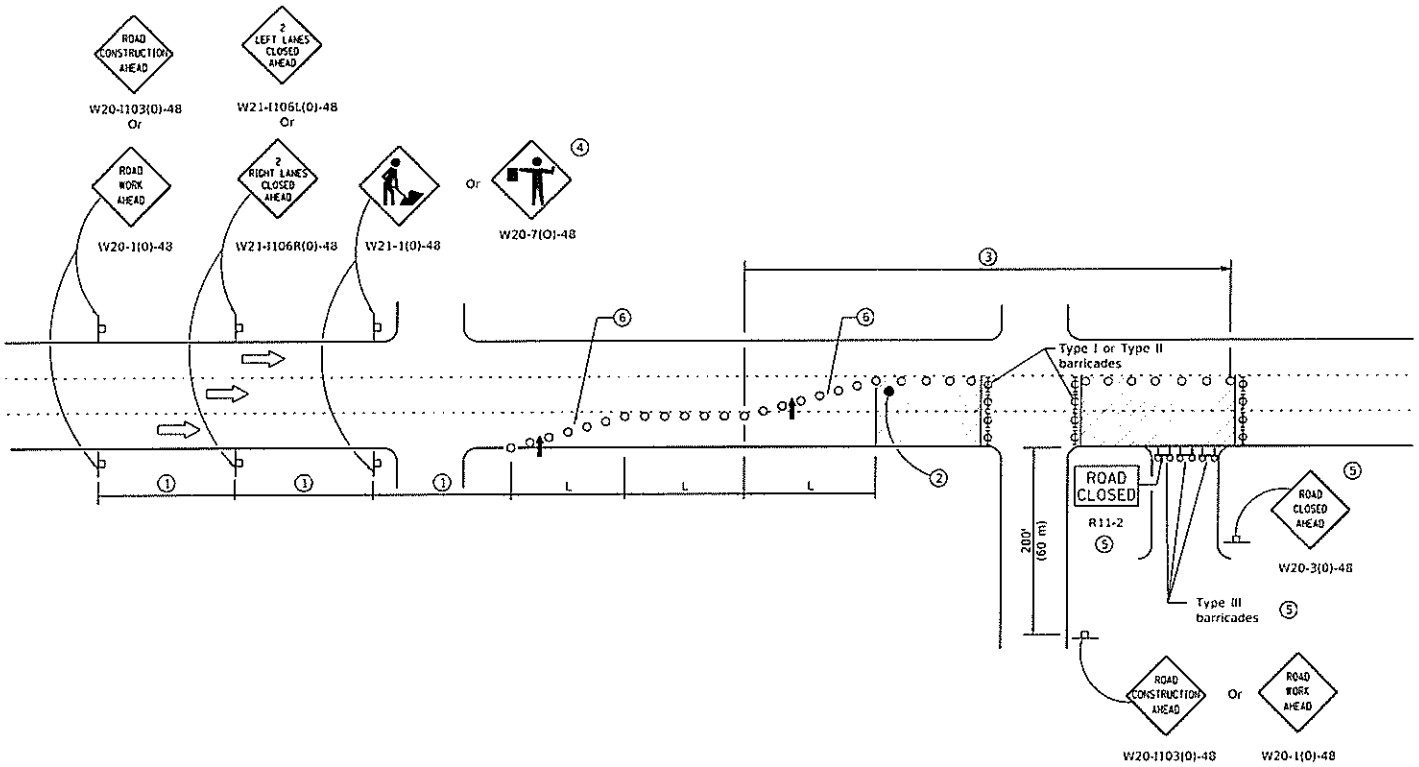
ISSUED 1-1-14

DATE	REVISIONS
1-1-14	Revised workers sign
	number to agree with
	current MUTCD.
1-1-13	Omitted text 'WORKERS'
	sign.

URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE MEDIAN

(Sheet 1 of 2)

STANDARD 701601-09



Illinois Department of Transportation

PASSED January 1 2014
ENGINEER OF SAFETY ENGINEERING

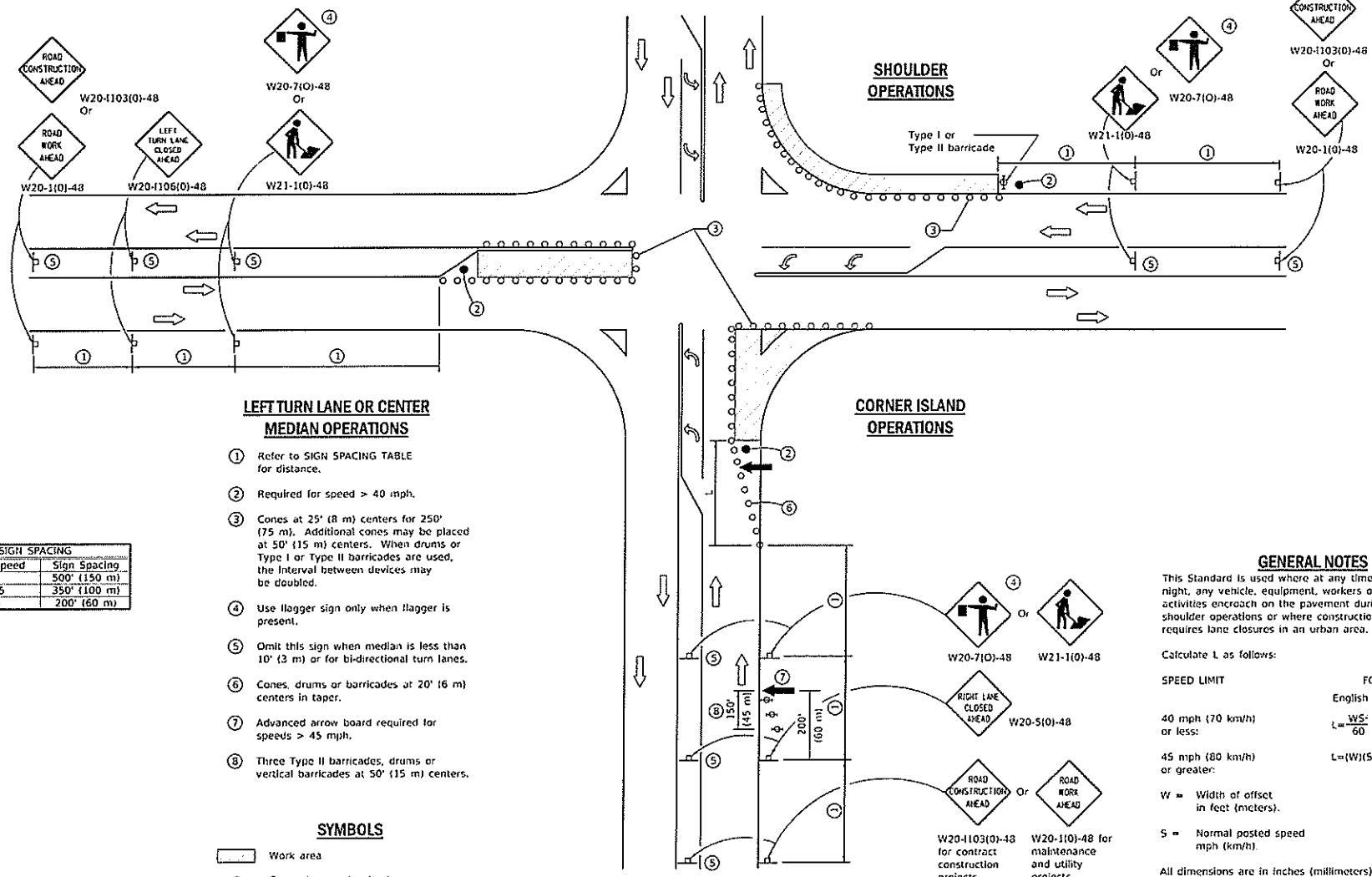
APPROVED January 1 2014
ENGINEER OF DESIGN AND ENVIRONMENT

BDE 1-14-07

URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE MEDIAN

(Sheet 2 of 2)

STANDARD 701601-09



SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

LEFT TURN LANE OR CENTER MEDIAN OPERATIONS

1. Refer to SIGN SPACING TABLE for distance.
2. Required for speed > 40 mph.
3. Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or Type I or Type II barricades are used, the interval between devices may be doubled.
4. Use flagger sign only when flagger is present.
5. Omit this sign when median is less than 10' (3 m) or for bi-directional turn lanes.
6. Cones, drums or barricades at 20' (6 m) centers in taper.
7. Advanced arrow board required for speeds > 45 mph.
8. Three Type II barricades, drums or vertical barricades at 50' (15 m) centers.

SYMBOLS

- Work area
- Cone, drum or barricade
- Sign on portable or permanent support
- Arrow board
- Barricade or drum with flashing light
- Flagger with traffic control sign

GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement during shoulder operations or where construction requires lane closures in an urban area.

Calculate L as follows:

SPEED LIMIT	FORMULAS English	(Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	$L=(W)(S)$	$L=0.65(W)(S)$

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED April 1, 2016
ENGINEER OF SAFETY ENGINEERING

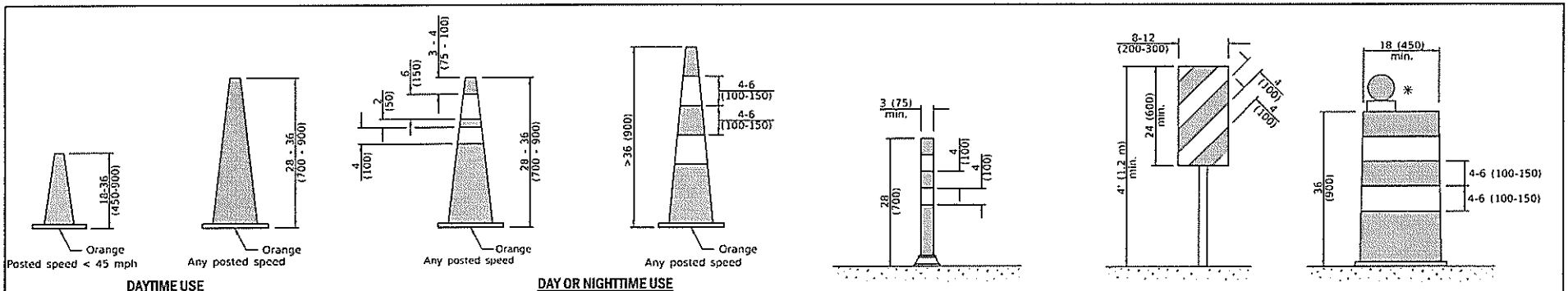
APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

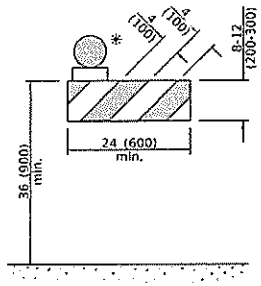
BSSD 1-1-16

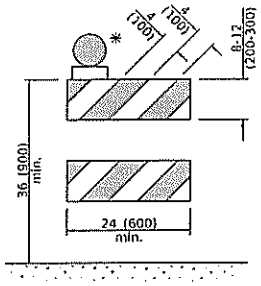
DATE	REVISIONS
4-1-16	Corrected sign number for
	LEFT TURN LANE CLOSED
	AHEAD.
1-1-14	Added devices at arrow
	board upstream from taper.
	Rev. workers sign number.

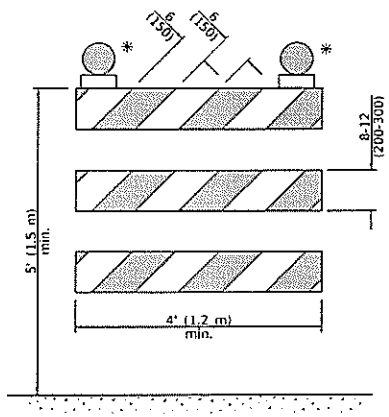
URBAN LANE CLOSURE, MULTILANE INTERSECTION

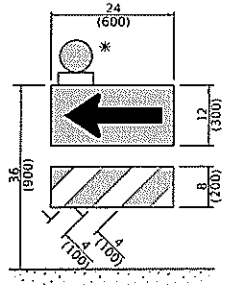
STANDARD 701701-10

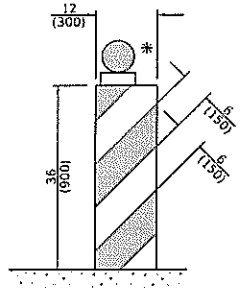


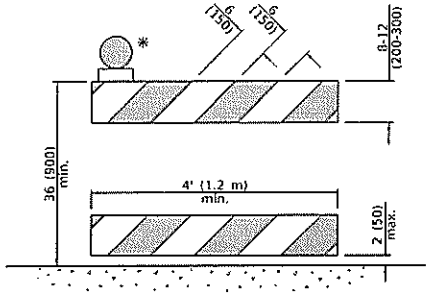












* Warning lights (if required)

GENERAL NOTES

All heights shown shall be measured above the pavement surface.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

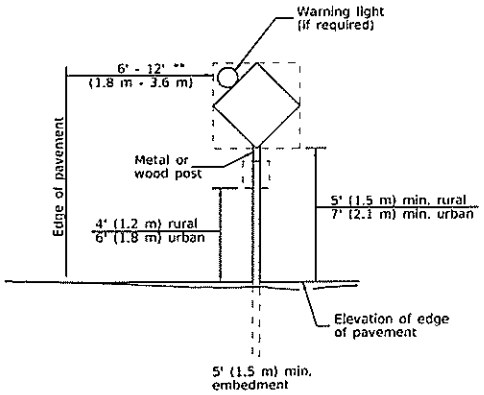
BDE 1-1-13 CROSS

DATE	REVISIONS
1-1-19	Revised cone usage and
	added cones >36" (900 m) height.
1-1-18	Revised END WORK ZONE
	SPEED LIMIT sign from
	orange to white background.

TRAFFIC CONTROL DEVICES

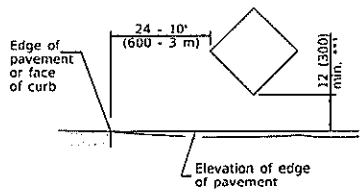
(Sheet 1 of 3)

STANDARD 701901-08



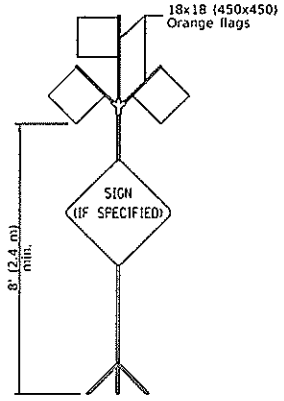
POST MOUNTED SIGNS

** When curb or paved shoulder are present this dimension shall be 24 (600) to the face of curb or 6' (1.8 m) to the outside edge of the paved shoulder.

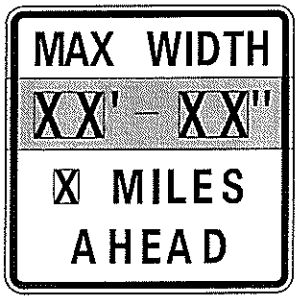


SIGNS ON TEMPORARY SUPPORTS

*** When work operations exceed four days, this dimension shall be 5' (1.5 m) min. If located behind other devices, the height shall be sufficient to be seen completely above the devices.



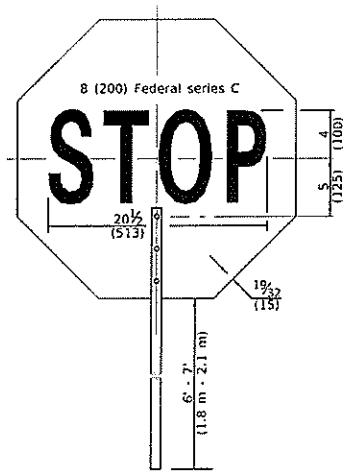
HIGH LEVEL WARNING DEVICE



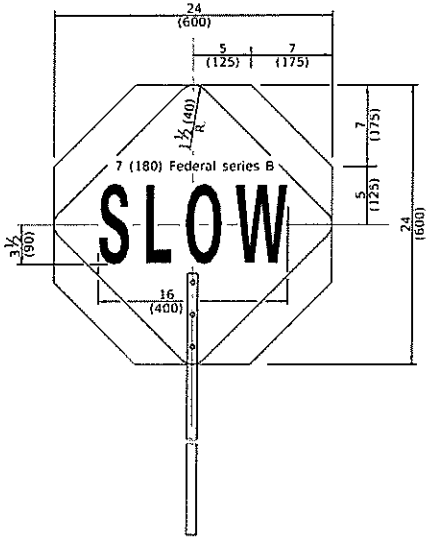
W12-1103-4848

WIDTH RESTRICTION SIGN

XX'-XX" width and X miles are variable.

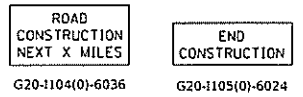


FRONT SIDE



REVERSE SIDE

FLAGGER TRAFFIC CONTROL SIGN



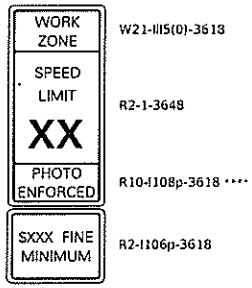
This signing is required for all projects 2 miles (3200 m) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 500' (150 m) in advance of project limits.

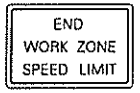
END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 2 miles (3200 m).

Dual sign displays shall be utilized on multi-lane highways.

WORK LIMIT SIGNING



Sign assembly as shown on Standards or as allowed by District Operations.



This sign shall be used when the above sign assembly is used.

HIGHWAY CONSTRUCTION SPEED ZONE SIGNS

**** R10-1103p shall only be used along roadways under the juristiction of the State.

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

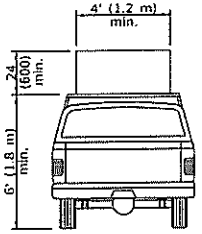
APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

BSDDR 1-1-19

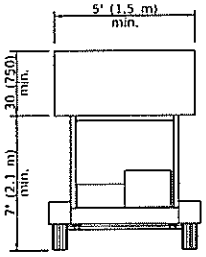
TRAFFIC CONTROL DEVICES

(Sheet 2 of 3)

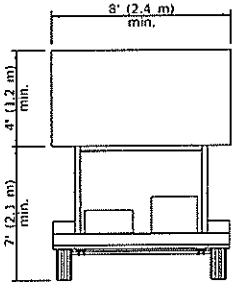
STANDARD 701901-08



TYPE A ROOF MOUNTED

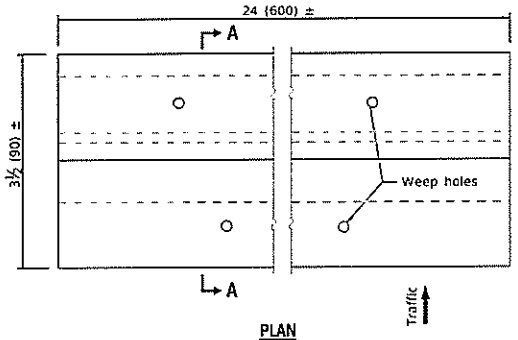


TYPE B ROOF OR TRAILER MOUNTED

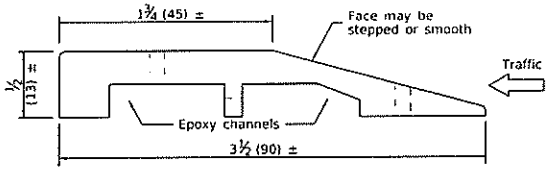


TYPE C TRAILER MOUNTED

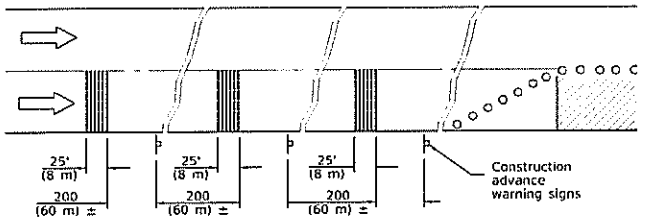
ARROW BOARDS

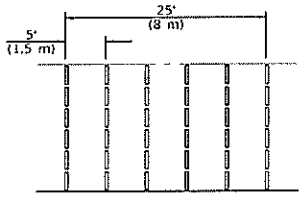


PLAN



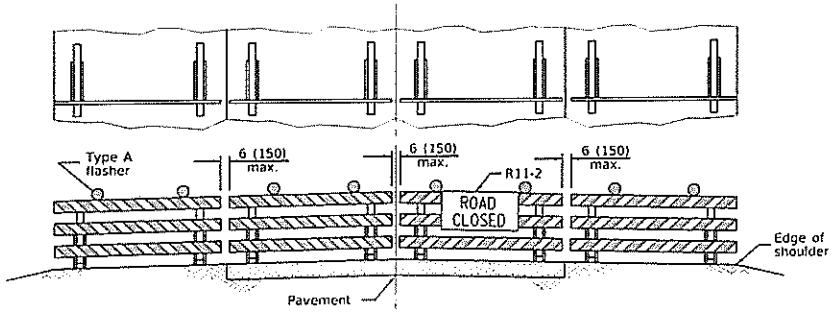
SECTION A-A





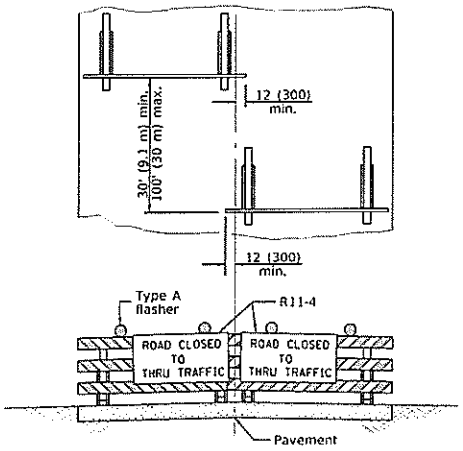
TYPICAL INSTALLATION

TEMPORARY RUMBLE STRIPS



ROAD CLOSED TO ALL TRAFFIC

Reflectorized striping may be omitted on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the sign may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.



ROAD CLOSED TO THRU TRAFFIC

Reflectorized striping shall appear on both sides of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on NCHRP 350 temporary sign supports directly in front of the barricade.

TYPICAL APPLICATIONS OF TYPE III BARRICADES CLOSING A ROAD

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

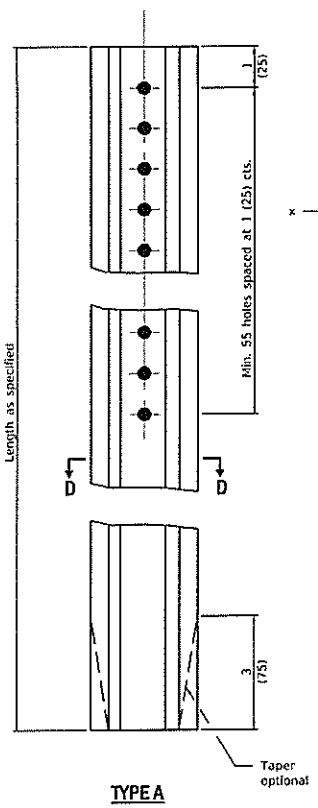
APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-19

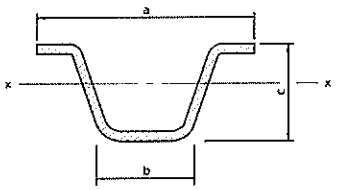
TRAFFIC CONTROL DEVICES

(Sheet 3 of 3)

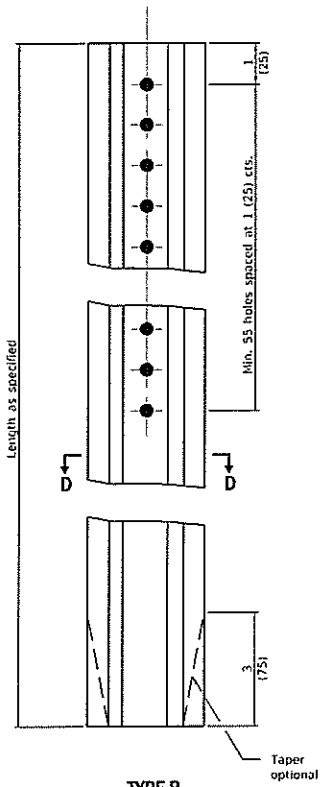
STANDARD 701901-08



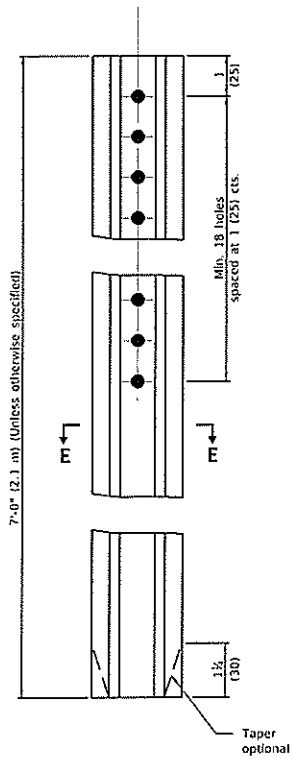
TYPE A



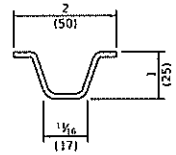
SECTION D-D



TYPE B



TYPE C



SECTION E-E

Steel - 1.12 lbs./ft. (1.67 kg/m)

		a	b	c	Sx-x in.³ (mm³)	lbs./ft. (kg/m)
TYPE A	Steel	3 3/16 (78)	1¼ (32)	1 7/16 (37)	0.223 (3,654)	2.00 (2.98)
	Aluminum	3¼ (83)	1⅝ (41)	1¾ (48)	0.435 (7,128)	0.92 (1.34)
TYPE B	Steel	3 3/16 (81)	1¼ (32)	1½ (38)	0.341 (5,589)	3.00 (4.46)
	Aluminum	4⅝ (118)	2⅛ (57)	2⅜ (60)	0.888 (14,552)	1.33 (1.93)

GENERAL NOTES

Dimensions shown for cross sections are minimum.

All holes are ⅜ (10).

Sx-x is the minimum section modulus about the x-x axis of the post as shown. For posts in which holes are punched or drilled for more than half their length, Sx-x shall be computed for the net section.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2009
ENGINEER OF POLICY AND PROCEDURES

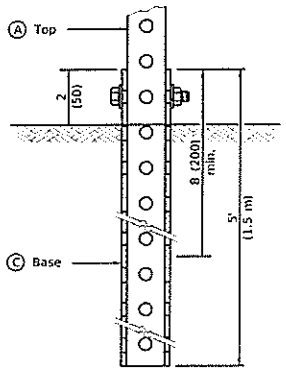
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

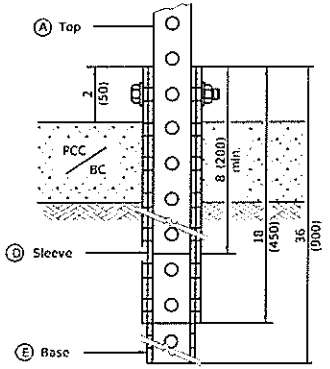
DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-97	Renum. Standard 2350-4.

METAL POSTS FOR SIGNS, MARKERS & DELINEATORS

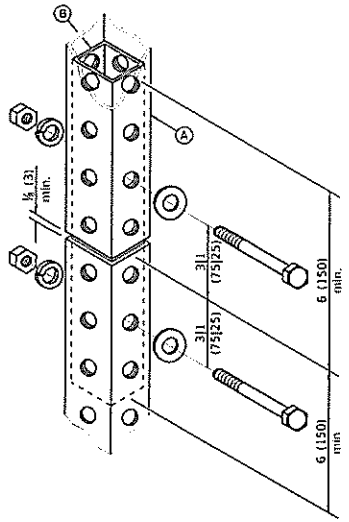
STANDARD 720011-01



GROUND MOUNT DETAIL



PAVEMENT MOUNT DETAIL



SPLICE DETAIL

Ⓐ	2 x 2 x var. (51 x 51 var.)
Ⓑ	1¾ x 1¾ x 12 (44 x 44 x 300)
Ⓒ	2¼ x 2¼ x 60 (57 x 57 x 1500)
Ⓓ	2½ x 2½ x 18 (64 x 64 x 450)
Ⓔ	2¼ x 2¼ x 36) (57 x 57 x 900)

GENERAL NOTES

All bolts ⅜ (M10) hex head zinc or cadmium plated.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2009
ENGINEER OF OPERATIONS

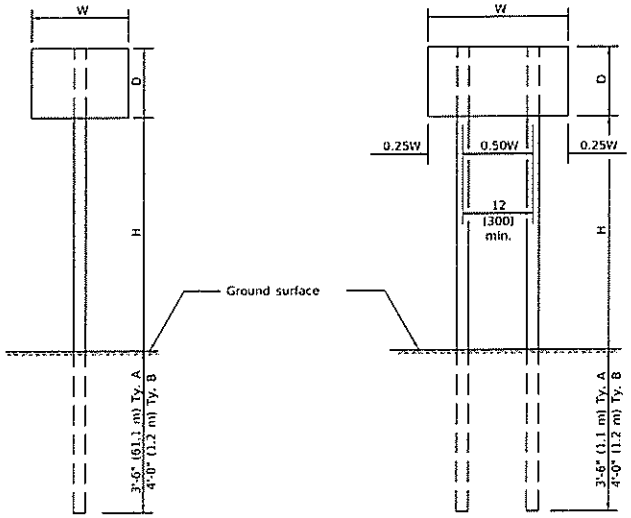
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-07

DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
1-1-07	New Standard. Used to
	be part of Standard
	720006.

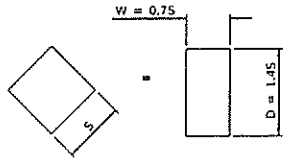
TELESCOPING STEEL SIGN SUPPORT

STANDARD 728001-01



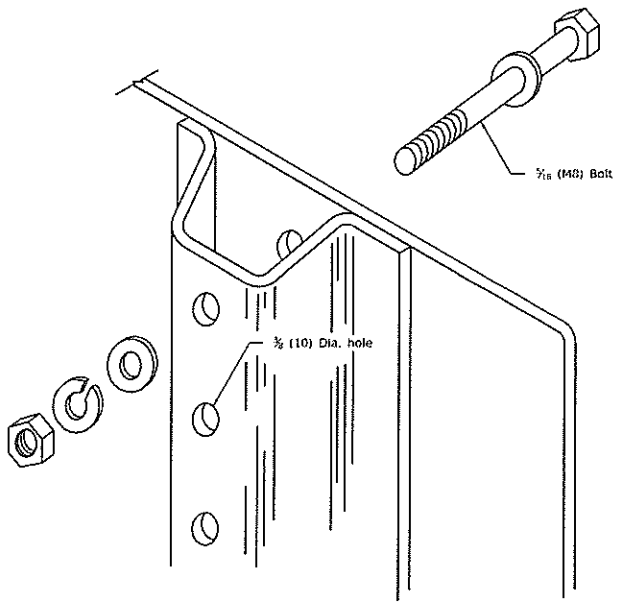
ONE POST INSTALLATION

TWO POST INSTALLATION



For diamond shaped sign with side S as shown, use required post size for a sign with W = 0.7S and D = 1.4S.

SIGN DEPTH (D)	H	NO. AND TYPE OF POST FOR SIGN WIDTH (W)				
		12 (300)	18 (450)	24 (600)	30 (750)	36 (900)
18 (450)	5'-0" (1.5 m)	A	A	A	A	A
	5'-6" (1.7 m)	A	A	A	A	A
	6'-0" (1.8 m)	A	A	A	A	B
	6'-6" (2.0 m)	A	A	A	A	B
	7'-0" (2.1 m)	A	A	A	A	B
	7'-6" (2.3 m)	A	A	A	A	B
	8'-0" (2.4 m)	A	A	A	A	B
	8'-6" (2.6 m)	A	A	A	B	B
	9'-0" (2.7 m)	A	A	A	B	B
24 (600)	5'-0" (1.5 m)	A	A	A	A	B
	5'-6" (1.7 m)	A	A	A	A	B
	6'-0" (1.8 m)	A	A	A	B	B
	6'-6" (2.0 m)	A	A	A	B	B
	7'-0" (2.1 m)	A	A	A	B	B
	7'-6" (2.3 m)	A	A	A	B	B
	8'-0" (2.4 m)	A	A	A	B	2A
	8'-6" (2.6 m)	A	A	B	B	2A
	9'-0" (2.7 m)	A	A	B	B	2A
30 (750)	5'-0" (1.5 m)	A	A	A	B	B
	5'-6" (1.7 m)	A	A	A	B	2A
	6'-0" (1.8 m)	A	A	A	B	2A
	6'-6" (2.0 m)	A	A	A	B	2A
	7'-0" (2.1 m)	A	A	B	B	2A
	7'-6" (2.3 m)	A	A	B	B	2A
	8'-0" (2.4 m)	A	A	B	B	2A
	8'-6" (2.6 m)	A	A	B	2A	2A
	9'-0" (2.7 m)	A	A	B	2A	2A
36 (900)	5'-0" (1.5 m)	A	A	B	B	2A
	5'-6" (1.7 m)	A	A	B	B	2A
	6'-0" (1.8 m)	A	A	B	B	2A
	6'-6" (2.0 m)	A	A	B	2A	2A
	7'-0" (2.1 m)	A	A	B	2A	2A
	7'-6" (2.3 m)	A	A	B	2A	2A
	8'-0" (2.4 m)	A	B	B	2A	2A
	8'-6" (2.6 m)	A	B	B	2A	2B
	9'-0" (2.7 m)	A	B	2A	2A	2B
4'-0" (1.2 m)	5'-0" (1.5 m)	A	A	B	2A	2A
	5'-6" (1.7 m)	A	B	B	2A	2A
	6'-0" (1.8 m)	A	B	B	2A	2A
	6'-6" (2.0 m)	A	B	2A	2A	2B
	7'-0" (2.1 m)	A	B	2A	2A	2B
	7'-6" (2.3 m)	A	B	2A	2B	2B
	8'-0" (2.4 m)	A	B	2A	2B	2B
	8'-6" (2.6 m)	B	B	2B	2B	2B
	9'-0" (2.7 m)	B	2A	2B	2B	2B



DETAIL OF MOUNTING SIGN TO POST

NOTE: Minimum of 2 bolts per post required.

GENERAL NOTES

DESIGN: Current AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

LOADING: for 60 mph (95 km/h) wind velocity with 30% gust factor, normal to sign.

SOIL PRESSURE: Minimum allowable soil pressure 1.25 tsf (120 kPa).

See Standard 720011 for details of Types A and B posts.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2009
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
1-1-97	Renum. Standard 2363-2.

APPLICATIONS OF TYPES A & B METAL POSTS (FOR SIGNS & MARKERS)

STANDARD 729001-01

APPENDIX

RESULTS OF INERTIAL PROFILOGRAPH

TEST COMPLETED 10/01/2018

SSI Profiler Version 3.2.7.44
Licensed to Illinois Dept of Transportation - Springfield, Il

Data File: 1810011115.rsd

Stations: Run 1 - 10+00.0 to 118+79.0
Start GPS: 41 26' 03.02" N 90 32' 46.82" W
End GPS: 41 24' 39.10" N 90 31' 31.16" W

Run Speed (Avg, Max, Min):
Run 1 - 38.5, 45.8, 12.5 mph

Total Distance: 108+78.9

Date [Paved/Corrected]:
Run 1 - 9/30/2018 11:05:53 AM

Date Tested:
Run 1 - 10/1/2018 11:05:53 AM

File Modifications:
Run 1 - Start Station Changed to 1000.0 ft

Project Parameters
Project Number:
State: Illinois
County: Rock Island
Contractor: TBD
Pavement Type: Surface
Traffic Direction: EB
Highway: Knoxville Rd
Number of Lanes: 1
Direction of Paving:
Tested by: Scott Vesely, Lucas Megli
Paving Action:
Special Provisions:
Report Specification:
Report Memo: Bounce Test Verification

Calibration Settings
Distance: 336317 encoder counts in 528.00 ft.
Track 1:
Height Sensor Type: RoLine 1145 / Gocator
Height Sensor Level Reading: 0.00 in.
Accelerometer Constant: 8539.794
Track 2:
Height Sensor Type: RoLine 1145 / Gocator
Height Sensor Level Reading: 0.00 in.
Accelerometer Constant: 14527.4115
IMU/Inclinometer:
Type: Inertial Inclinometer
Cross Slope Level Reading: NaN rad.

Filter Settings
Filter Type: None

Localized Roughness Settings
Simulated Profilograph Data Used for Defects Analysis
Bump Height: 0.30 in
Bump Width: 25.00 ft
Dip Depth: 0.30 in
Dip Width: 25.00 ft

Summary - Run 1 - EB Knoxville RD Section 1 from Knoxville to midpoint.						
Track 1			Track 2			Average
Segment	Station (ft)	IRI (in/mi)	Segment	Station (ft)	IRI (in/mi)	IRI (in/mi)
1	10+00.0 15+28.0	290.76	1	10+00.0 15+28.0	236.59	263.67

Summary - Run 1 - EB Knoxville RD Section 1 from Knoxville to midpoint.						
Track 1			Track 2			Average
Segment	Station (ft)	IRI (in/mi)	Segment	Station (ft)	IRI (in/mi)	IRI (in/mi)
2	15+28.0 20+56.0	262.46	2	15+28.0 20+56.0	216.31	239.38
3	20+56.0 25+84.0	267.96	3	20+56.0 25+84.0	241.32	254.64
4	25+84.0 31+12.0	243.24	4	25+84.0 31+12.0	256.28	249.76
5	31+12.0 36+40.0	209.98	5	31+12.0 36+40.0	183.54	196.76
6	36+40.0 41+68.0	290.10	6	36+40.0 41+68.0	243.16	266.63
7	41+68.0 46+96.0	274.90	7	41+68.0 46+96.0	224.08	249.49
8	46+96.0 52+24.0	306.01	8	46+96.0 52+24.0	221.70	263.85
9	52+24.0 57+52.0	268.18	9	52+24.0 57+52.0	185.94	227.06
10	57+52.0 62+80.0	312.01	10	57+52.0 62+80.0	238.10	275.06
11	62+80.0 68+08.0	270.30	11	62+80.0 68+08.0	209.65	239.93
12	68+08.0 73+36.0	234.69	12	68+08.0 73+36.0	195.21	214.95
13	73+36.0 78+64.0	257.85	13	73+36.0 78+64.0	231.44	244.65
14	78+64.0 83+92.0	256.78	14	78+64.0 83+92.0	192.64	224.71
15	83+92.0 89+20.0	218.85	15	83+92.0 89+20.0	202.10	210.48
16	89+20.0 94+48.0	176.55	16	89+20.0 94+48.0	180.28	178.42
17	94+48.0 99+76.0	275.55	17	94+48.0 99+76.0	234.35	254.95
18	99+76.0 105+04.0	292.81	18	99+76.0 105+04.0	235.02	263.91
19	105+04.0 110+32.0	334.49	19	105+04.0 110+32.0	278.01	306.25
20	110+32.0 115+60.0	307.98	20	110+32.0 115+60.0	264.40	286.19
21	115+60.0 118+78.9	296.70	21	115+60.0 118+78.9	238.95	267.83
	10+00.0 118+78.9	268.42		10+00.0 118+78.9	223.96	246.19

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
1	Dip	2	1	10+12.9	10+18.9	6.0	-0.56	10+14.4
2	Bump	2	1	10+18.5	10+34.3	15.7	0.74	10+27.8
3	Bump	1	1	10+24.0	10+29.8	5.7	0.50	10+28.1
4	Dip	2	1	10+38.3	10+54.8	16.5	-0.77	10+44.5
5	Dip	1	1	10+38.8	10+51.7	12.8	-0.69	10+44.8
6	Bump	1	1	10+49.3	10+60.5	11.3	0.79	10+58.9
7	Bump	2	1	10+51.6	10+60.8	9.2	0.80	10+58.8
8	Dip	2	1	10+60.2	10+76.5	16.3	-0.50	10+61.3
9	Dip	1	1	10+60.2	10+71.8	11.6	-0.69	10+61.5
10	Bump	1	1	10+72.2	10+75.3	3.2	0.53	10+74.2
11	Dip	1	1	10+75.3	10+87.0	11.7	-0.58	10+76.8

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
12	Bump	2	1	10+87.1	11+02.8	15.7	0.43	11+01.7
13	Bump	1	1	10+87.5	11+04.0	16.5	0.57	10+95.4
14	Dip	2	1	11+03.3	11+14.1	10.8	-0.45	11+04.8
15	Dip	1	1	11+04.5	11+07.7	3.2	-0.39	11+05.3
16	Dip	1	1	11+16.4	11+32.8	16.4	-0.89	11+22.8
17	Bump	2	1	11+16.8	11+20.3	3.5	0.44	11+19.2
18	Bump	1	1	11+18.2	11+21.1	2.9	0.43	11+20.1
19	Dip	2	1	11+20.7	11+33.2	12.5	-0.48	11+22.1
20	Bump	1	1	11+27.3	11+47.2	19.8	1.19	11+37.8
21	Bump	2	1	11+33.3	11+41.1	7.8	0.61	11+37.0
22	Dip	1	1	11+41.2	11+59.0	17.8	-0.84	11+48.7
23	Dip	2	1	11+45.1	11+51.2	6.1	-0.49	11+46.9
24	Bump	2	1	11+53.3	11+62.4	9.2	0.35	11+61.7
25	Bump	1	1	11+55.0	11+63.8	8.8	0.32	11+55.6
26	Dip	2	1	11+63.8	11+79.3	15.4	-0.33	11+64.9
27	Bump	2	1	11+88.2	11+93.0	4.8	0.42	11+91.9
28	Bump	1	1	11+89.7	11+93.9	4.2	0.43	11+92.8
29	Dip	2	1	11+93.6	11+99.2	5.6	-0.42	11+94.6
30	Dip	1	1	11+94.7	11+97.2	2.5	-0.39	11+95.5
31	Bump	1	1	12+02.5	12+08.6	6.1	0.63	12+07.1
32	Bump	2	1	12+04.6	12+07.6	3.0	0.47	12+06.4
33	Dip	2	1	12+08.2	12+19.4	11.2	-0.41	12+15.9
34	Dip	1	1	12+08.4	12+21.7	13.3	-0.59	12+13.6
35	Bump	1	1	12+22.7	12+40.2	17.5	0.46	12+39.2
36	Bump	2	1	12+22.9	12+39.3	16.4	0.42	12+38.4
37	Dip	2	1	12+39.9	12+42.8	2.9	-0.43	12+40.9
38	Dip	1	1	12+40.5	12+45.4	4.9	-0.46	12+41.6
39	Bump	1	1	12+62.3	12+71.2	8.9	0.60	12+66.8
40	Bump	2	1	12+62.7	12+67.3	4.7	0.43	12+65.7
41	Dip	1	1	12+70.2	12+86.2	16.0	-0.70	12+77.6
42	Dip	2	1	12+73.0	12+81.2	8.2	-0.46	12+75.3
43	Bump	1	1	12+89.7	13+06.7	17.0	0.61	12+94.8
44	Bump	2	1	12+93.6	13+05.5	11.9	0.35	12+94.7
45	Dip	1	1	13+07.3	13+13.8	6.4	-0.43	13+08.5
46	Bump	1	1	13+20.7	13+22.7	2.0	0.38	13+21.8
47	Dip	1	1	13+23.5	13+32.0	8.5	-0.39	13+24.5
48	Bump	2	1	13+33.9	13+36.3	2.3	0.36	13+35.1
49	Bump	1	1	13+36.5	13+45.6	9.1	0.33	13+42.5
50	Dip	2	1	13+53.0	13+55.9	2.9	-0.33	13+54.1
51	Dip	1	1	13+53.8	13+61.9	8.2	-0.42	13+55.3
52	Bump	2	1	13+65.3	13+67.6	2.3	0.36	13+66.7
53	Bump	1	1	13+66.7	13+69.1	2.4	0.37	13+67.8
54	Bump	1	1	14+10.3	14+13.8	3.5	0.36	14+12.8
55	Dip	1	1	14+15.7	14+26.4	10.7	-0.51	14+24.0
56	Bump	2	1	14+28.8	14+31.4	2.7	0.38	14+30.3
57	Bump	1	1	14+29.0	14+32.8	3.7	0.44	14+31.3
58	Dip	2	1	14+37.9	14+50.8	12.9	-0.38	14+42.3
59	Bump	2	1	14+53.8	14+69.2	15.4	0.76	14+63.9
60	Bump	1	1	14+56.7	14+68.8	12.1	0.58	14+63.8
61	Dip	2	1	14+66.7	14+81.3	14.7	-0.70	14+75.9
62	Dip	1	1	14+68.5	14+81.3	12.8	-0.65	14+74.0
63	Bump	1	1	14+83.3	14+86.9	3.6	0.44	14+85.8
64	Bump	2	1	14+83.8	14+85.8	2.1	0.34	14+85.0
65	Dip	1	1	14+87.8	14+95.9	8.1	-0.34	14+88.7

Defect Locations - Run 1 - By Station							
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
66	Bump	1	1	15+06.8	15+17.3	10.5	0.36	15+16.5
67	Dip	1	1	15+18.4	15+21.6	3.2	-0.35	15+19.3
68	Bump	1	2	16+24.8	16+27.7	2.8	0.37	16+26.3
69	Bump	2	2	16+24.9	16+40.7	15.8	0.58	16+33.5
70	Dip	1	2	16+34.0	16+45.7	11.7	-0.73	16+43.6
71	Dip	2	2	16+40.2	16+45.2	5.0	-0.77	16+41.7
72	Bump	2	2	16+42.9	16+60.5	17.6	0.58	16+49.9
73	Bump	1	2	16+45.0	16+65.3	20.3	0.65	16+51.6
74	Dip	1	2	16+66.2	16+76.2	10.0	-0.46	16+68.0
75	Dip	2	2	16+66.3	16+72.4	6.1	-0.33	16+69.0
76	Bump	1	2	16+78.8	16+88.8	10.0	0.48	16+81.2
77	Bump	2	2	16+79.0	16+81.3	2.3	0.36	16+80.3
78	Dip	2	2	16+95.4	17+01.2	5.8	-0.40	16+96.8
79	Dip	1	2	16+96.1	17+05.5	9.4	-0.51	16+97.8
80	Bump	1	2	17+10.0	17+26.8	16.8	0.45	17+12.2
81	Dip	1	2	17+27.8	17+34.3	6.5	-0.44	17+29.1
82	Bump	2	2	17+40.3	17+43.8	3.5	0.41	17+42.4
83	Bump	1	2	17+40.3	17+44.9	4.6	0.45	17+43.4
84	Dip	1	2	17+57.6	17+59.8	2.2	-0.36	17+58.5
85	Bump	2	2	18+03.4	18+07.9	4.5	0.38	18+06.6
86	Bump	1	2	18+04.8	18+08.6	3.8	0.38	18+07.3
87	Dip	1	2	18+12.1	18+21.9	9.8	-0.48	18+18.1
88	Dip	2	2	18+12.7	18+20.4	7.8	-0.45	18+17.0
89	Bump	1	2	18+30.3	18+33.3	3.0	0.34	18+32.4
90	Bump	2	2	18+46.0	18+50.4	4.4	0.44	18+49.3
91	Bump	1	2	18+48.8	18+51.2	2.4	0.39	18+50.3
92	Dip	2	2	18+51.2	18+61.8	10.6	-0.36	18+52.3
93	Dip	1	2	18+52.2	18+62.1	9.9	-0.37	18+53.1
94	Bump	1	2	18+66.1	18+68.2	2.1	0.38	18+67.2
95	Dip	1	2	18+69.2	18+86.2	16.9	-0.60	18+80.4
96	Dip	2	2	18+77.3	18+83.7	6.3	-0.49	18+80.1
97	Bump	2	2	18+85.0	18+95.3	10.3	0.75	18+93.6
98	Bump	1	2	18+86.5	18+96.5	10.0	0.73	18+94.7
99	Dip	2	2	18+94.9	19+06.9	12.0	-0.56	18+96.4
100	Dip	1	2	18+96.2	19+06.7	10.5	-0.47	18+97.3
101	Bump	2	2	19+57.1	19+69.2	12.2	0.60	19+67.5
102	Dip	2	2	19+69.2	19+87.8	18.7	-0.67	19+77.6
103	Dip	1	2	19+84.4	19+97.7	13.3	-0.51	19+90.4
104	Bump	1	2	19+94.6	20+13.8	19.2	0.98	20+03.3
105	Bump	2	2	19+96.6	20+10.1	13.5	0.64	20+01.6
106	Dip	1	2	20+04.8	20+24.8	20.1	-0.99	20+15.8
107	Dip	2	2	20+10.3	20+22.3	12.0	-0.57	20+14.9
108	Bump	1	2	20+26.8	20+36.1	9.3	0.55	20+34.3
109	Bump	2	2	20+27.3	20+35.1	7.8	0.46	20+33.4
110	Dip	1	2	20+51.3	20+55.1	3.8	-0.43	20+52.6
111	Bump	1	3	20+62.3	20+65.7	3.3	0.45	20+64.5
112	Dip	1	3	20+66.5	20+70.8	4.3	-0.35	20+68.3
113	Dip	1	3	20+83.0	20+85.0	2.0	-0.37	20+83.7
114	Bump	1	3	20+91.8	20+97.6	5.8	0.50	20+96.4
115	Dip	2	3	20+97.3	21+01.3	4.1	-0.37	20+98.2
116	Dip	1	3	20+97.8	21+08.8	11.0	-0.49	20+99.3
117	Dip	1	3	21+29.0	21+32.3	3.2	-0.31	21+29.7
118	Bump	1	3	21+38.5	21+51.6	13.1	0.70	21+42.9
119	Bump	2	3	21+38.8	21+44.1	5.2	0.47	21+41.9

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
120	Dip	1	3	21+51.8	21+69.4	17.6	-0.96	21+59.8
121	Dip	2	3	21+52.8	21+70.0	17.2	-0.77	21+60.8
122	Bump	1	3	21+68.3	21+84.2	16.0	0.74	21+74.0
123	Bump	2	3	21+68.6	21+82.5	13.9	0.69	21+73.4
124	Dip	2	3	22+04.5	22+09.4	4.9	-0.44	22+05.8
125	Dip	1	3	22+05.8	22+11.5	5.8	-0.41	22+06.8
126	Bump	2	3	22+13.2	22+22.8	9.6	0.55	22+16.9
127	Bump	1	3	22+13.5	22+25.8	12.2	0.60	22+17.8
128	Dip	2	3	22+27.8	22+36.3	8.5	-0.39	22+30.1
129	Dip	1	3	22+28.9	22+38.2	9.3	-0.42	22+31.6
130	Bump	2	3	22+41.2	22+44.2	3.0	0.42	22+42.9
131	Bump	1	3	22+42.8	22+53.6	10.8	0.45	22+45.0
132	Dip	2	3	22+52.3	22+57.4	5.1	-0.45	22+53.8
133	Dip	1	3	22+54.4	22+58.2	3.8	-0.44	22+55.7
134	Bump	2	3	22+62.8	22+67.2	4.3	0.42	22+66.2
135	Dip	2	3	22+68.2	22+72.9	4.7	-0.33	22+71.3
136	Bump	2	3	22+93.9	22+97.7	3.8	0.50	22+96.4
137	Dip	2	3	22+98.0	23+09.9	11.9	-0.43	23+08.1
138	Dip	1	3	23+06.3	23+09.9	3.6	-0.40	23+07.6
139	Bump	1	3	23+13.3	23+15.6	2.2	0.38	23+14.7
140	Dip	1	3	23+66.5	23+69.7	3.2	-0.31	23+67.1
141	Bump	1	3	23+80.5	23+98.6	18.1	0.41	23+89.8
142	Dip	1	3	24+00.2	24+15.4	15.3	-0.60	24+09.3
143	Dip	2	3	24+01.6	24+15.5	13.9	-0.60	24+08.0
144	Bump	2	3	24+15.2	24+25.8	10.6	0.62	24+21.1
145	Bump	1	3	24+15.3	24+27.8	12.5	0.62	24+21.9
146	Dip	2	3	24+38.8	24+46.4	7.7	-0.38	24+40.1
147	Dip	1	3	24+39.1	24+47.7	8.6	-0.49	24+40.8
148	Bump	1	3	24+50.1	24+53.7	3.6	0.49	24+52.4
149	Bump	2	3	24+50.8	24+60.3	9.5	0.35	24+51.8
150	Dip	1	3	24+54.2	24+65.6	11.3	-0.36	24+62.8
151	Dip	2	3	24+69.5	24+78.7	9.2	-0.56	24+71.6
152	Bump	2	3	24+78.6	24+87.7	9.1	0.63	24+84.2
153	Dip	2	3	24+87.9	24+98.7	10.7	-0.49	24+94.6
154	Bump	2	3	25+00.3	25+11.6	11.3	0.41	25+01.7
155	Dip	2	3	25+16.7	25+30.7	14.1	-0.48	25+23.3
156	Dip	1	3	25+22.1	25+28.1	6.0	-0.46	25+23.6
157	Bump	2	3	25+28.1	25+39.0	10.9	0.51	25+36.7
158	Bump	1	3	25+37.8	25+40.5	2.7	0.34	25+39.1
159	Dip	1	3	25+58.7	25+68.8	10.1	-0.56	25+65.6
160	Dip	2	3	25+64.4	25+74.1	9.7	-0.46	25+66.2
161	Bump	1	3	25+69.3	25+78.9	9.6	0.49	25+72.7
162	Bump	2	3	25+78.7	25+84.2	5.4	0.45	25+82.5
163	Dip	2	4	26+30.6	26+37.5	6.9	-0.38	26+34.0
164	Dip	1	4	26+33.1	26+36.9	3.8	-0.32	26+35.7
165	Bump	2	4	26+42.1	26+51.3	9.2	0.43	26+44.3
166	Bump	1	4	26+43.0	26+51.0	8.0	0.40	26+44.9
167	Dip	2	4	26+59.2	26+70.7	11.5	-0.39	26+62.5
168	Dip	1	4	26+60.0	26+71.1	11.1	-0.39	26+63.9
169	Bump	2	4	26+74.1	26+84.6	10.5	0.42	26+83.6
170	Bump	1	4	26+74.8	26+78.3	3.5	0.44	26+77.1
171	Dip	2	4	26+85.3	26+90.3	5.0	-0.40	26+86.5
172	Dip	1	4	26+86.5	26+92.3	5.8	-0.46	26+88.1
173	Dip	1	4	28+29.1	28+49.8	20.8	-0.50	28+34.3

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
174	Dip	2	4	28+33.8	28+50.4	16.7	-0.60	28+43.8
175	Bump	2	4	28+49.1	28+62.1	13.0	0.91	28+54.3
176	Bump	1	4	28+49.8	28+61.5	11.7	0.69	28+52.9
177	Dip	2	4	28+60.0	28+74.5	14.5	-0.78	28+66.4
178	Dip	1	4	28+61.8	28+75.5	13.7	-0.62	28+66.0
179	Bump	2	4	28+73.3	28+93.3	20.0	0.99	28+91.9
180	Bump	1	4	28+77.2	28+80.7	3.5	0.40	28+79.5
181	Dip	1	4	28+82.3	28+84.5	2.2	-0.32	28+83.7
182	Dip	2	4	28+92.7	29+06.9	14.2	-1.11	28+94.0
183	Bump	2	4	28+94.8	29+12.7	17.9	0.70	29+08.8
184	Dip	1	4	28+96.4	28+98.5	2.1	-0.31	28+97.0
185	Bump	1	4	29+04.9	29+11.7	6.8	0.57	29+10.0
186	Dip	1	4	29+12.0	29+24.8	12.8	-0.54	29+22.1
187	Dip	2	4	29+14.0	29+23.9	9.9	-0.55	29+21.7
188	Bump	1	4	29+30.7	29+32.8	2.2	0.33	29+32.0
189	Bump	1	4	29+55.2	29+57.6	2.3	0.38	29+56.7
190	Dip	1	4	29+58.6	29+63.7	5.1	-0.36	29+59.7
191	Bump	2	4	29+69.7	29+73.7	4.0	0.46	29+72.6
192	Dip	2	4	29+73.9	29+85.9	12.0	-0.59	29+78.7
193	Bump	2	4	29+86.1	29+98.3	12.2	0.63	29+92.4
194	Dip	2	4	30+04.0	30+09.2	5.2	-0.34	30+04.8
195	Dip	1	4	30+07.2	30+12.4	5.2	-0.32	30+08.8
196	Bump	2	4	30+54.0	30+56.8	2.8	0.39	30+55.7
197	Dip	2	4	30+57.5	30+64.8	7.3	-0.41	30+58.7
198	Bump	2	4	30+70.2	30+73.1	2.9	0.39	30+72.0
199	Bump	2	4	30+98.8	31+00.8	2.1	0.38	30+99.9
200	Bump	1	4	30+99.0	31+01.7	2.7	0.42	31+00.7
201	Dip	2	4	31+05.1	31+20.8	15.7	-0.47	31+12.1
202	Dip	1	5	31+12.0	31+24.7	12.7	-0.48	31+21.9
203	Bump	2	5	31+26.1	31+34.9	8.8	0.33	31+26.8
204	Bump	1	5	31+26.9	31+35.2	8.2	0.40	31+28.8
205	Dip	2	5	31+52.0	31+60.9	8.9	-0.33	31+59.5
206	Dip	1	5	31+52.5	31+60.1	7.6	-0.35	31+53.3
207	Dip	1	5	32+29.9	32+32.3	2.4	-0.32	32+31.3
208	Bump	1	5	33+23.7	33+36.5	12.8	0.52	33+28.2
209	Bump	2	5	33+24.2	33+29.1	4.9	0.43	33+27.3
210	Dip	2	5	33+32.2	33+49.3	17.0	-0.65	33+39.5
211	Dip	1	5	33+33.2	33+51.2	18.0	-0.80	33+40.4
212	Bump	2	5	33+49.2	33+59.9	10.7	0.60	33+52.8
213	Bump	1	5	33+49.7	33+65.8	16.1	0.86	33+55.0
214	Dip	1	5	33+64.9	33+80.3	15.4	-0.70	33+73.7
215	Dip	2	5	33+65.0	33+78.9	13.9	-0.49	33+70.9
216	Bump	1	5	33+80.2	33+86.5	6.2	0.53	33+84.6
217	Bump	2	5	33+81.9	33+85.3	3.3	0.43	33+83.9
218	Dip	1	5	34+51.8	34+53.8	2.0	-0.31	34+52.8
219	Bump	2	5	34+60.8	34+68.2	7.4	0.47	34+63.7
220	Bump	1	5	34+60.8	34+77.9	17.2	0.62	34+65.2
221	Dip	2	5	34+76.8	34+84.0	7.2	-0.50	34+78.8
222	Dip	1	5	34+77.7	34+88.4	10.7	-0.66	34+79.7
223	Bump	1	5	34+92.3	35+07.6	15.3	0.33	34+93.3
224	Bump	2	5	35+49.2	35+60.2	11.0	0.52	35+54.9
225	Bump	1	5	35+52.2	35+59.9	7.7	0.46	35+56.3
226	Dip	2	5	35+61.2	35+74.5	13.3	-0.62	35+66.7
227	Dip	1	5	35+61.4	35+74.7	13.3	-0.64	35+67.3

Defect Locations - Run 1 - By Station

Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
228	Bump	2	5	35+76.8	35+81.7	4.8	0.38	35+80.1
229	Bump	1	5	35+78.8	35+83.0	4.2	0.35	35+81.8
230	Dip	1	6	36+44.8	36+47.2	2.3	-0.32	36+45.6
231	Dip	1	6	37+21.0	37+23.5	2.5	-0.31	37+21.7
232	Dip	1	6	37+72.1	37+84.0	11.9	-0.42	37+81.2
233	Dip	2	6	37+78.5	37+80.9	2.4	-0.33	37+79.3
234	Bump	1	6	38+08.6	38+10.6	2.0	0.36	38+09.8
235	Dip	2	6	38+10.6	38+15.5	4.9	-0.39	38+11.6
236	Dip	1	6	38+11.5	38+15.6	4.1	-0.41	38+12.5
237	Bump	2	6	38+19.5	38+26.5	7.0	0.68	38+24.9
238	Bump	1	6	38+21.2	38+26.8	5.6	0.62	38+25.6
239	Dip	2	6	38+26.2	38+42.1	15.8	-0.52	38+27.6
240	Dip	1	6	38+26.8	38+44.1	17.3	-0.54	38+27.9
241	Bump	1	6	38+54.3	38+57.9	3.7	0.44	38+56.8
242	Dip	1	6	38+58.5	38+67.1	8.6	-0.42	38+59.6
243	Bump	2	6	39+16.8	39+31.9	15.1	0.33	39+31.4
244	Bump	1	6	39+17.6	39+33.3	15.7	0.45	39+32.3
245	Dip	2	6	39+33.2	39+35.9	2.7	-0.34	39+33.9
246	Dip	1	6	39+33.7	39+44.3	10.6	-0.47	39+34.9
247	Bump	1	6	39+47.6	39+50.1	2.5	0.37	39+49.2
248	Dip	1	6	39+51.1	39+53.3	2.2	-0.35	39+51.8
249	Dip	2	6	39+65.4	39+74.0	8.6	-0.37	39+67.2
250	Dip	1	6	39+66.3	39+76.3	10.0	-0.39	39+69.8
251	Bump	2	6	39+76.2	39+82.1	5.9	0.60	39+80.2
252	Bump	1	6	39+80.3	39+83.3	3.0	0.39	39+81.8
253	Dip	2	6	39+82.1	39+95.0	12.9	-0.48	39+91.3
254	Bump	1	6	39+90.4	40+08.3	17.9	0.53	39+98.2
255	Bump	2	6	39+96.7	40+00.0	3.3	0.45	39+98.7
256	Dip	2	6	40+01.0	40+18.6	17.6	-0.58	40+10.3
257	Dip	1	6	40+01.3	40+16.3	15.0	-1.08	40+10.2
258	Bump	1	6	40+14.0	40+27.9	13.9	0.63	40+17.2
259	Bump	2	6	40+21.2	40+39.3	18.2	0.48	40+38.1
260	Bump	1	6	40+22.2	40+40.4	18.2	0.53	40+39.1
261	Dip	2	6	40+39.2	40+50.3	11.1	-0.65	40+40.8
262	Dip	1	6	40+40.5	40+51.1	10.6	-0.57	40+41.8
263	Bump	2	6	40+50.1	40+55.6	5.5	0.59	40+54.1
264	Bump	1	6	40+53.6	40+56.2	2.6	0.42	40+55.2
265	Dip	2	6	40+55.7	40+63.8	8.1	-0.40	40+56.7
266	Dip	1	6	40+71.4	40+82.5	11.1	-0.40	40+75.2
267	Bump	1	6	40+82.3	40+97.6	15.2	0.74	40+87.3
268	Bump	2	6	40+84.4	40+86.4	2.0	0.35	40+85.6
269	Dip	1	6	40+97.6	41+13.0	15.4	-0.78	41+04.0
270	Bump	1	6	41+14.4	41+31.7	17.3	0.57	41+18.7
271	Dip	1	6	41+32.7	41+40.1	7.4	-0.54	41+34.3
272	Bump	1	6	41+44.2	41+49.0	4.8	0.49	41+47.6
273	Bump	2	6	41+45.2	41+47.8	2.7	0.42	41+46.8
274	Dip	2	7	41+79.7	41+82.0	2.3	-0.33	41+80.3
275	Dip	1	7	41+80.8	41+82.8	2.1	-0.33	41+81.4
276	Bump	2	7	41+91.1	41+94.6	3.5	0.41	41+93.1
277	Bump	1	7	41+92.8	41+94.8	2.1	0.36	41+94.0
278	Dip	1	7	42+12.6	42+14.9	2.3	-0.33	42+13.3
279	Bump	1	7	42+42.8	42+47.3	4.5	0.41	42+45.7
280	Dip	1	7	42+48.8	42+62.6	13.8	-0.80	42+57.5
281	Dip	2	7	42+53.5	42+60.8	7.3	-0.45	42+58.7

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
282	Bump	1	7	42+61.7	42+73.1	11.4	0.50	42+70.8
283	Dip	1	7	43+34.0	43+44.4	10.4	-0.36	43+34.8
284	Bump	2	7	43+62.4	43+76.8	14.4	0.39	43+76.0
285	Bump	1	7	43+63.1	43+78.2	15.1	0.52	43+77.1
286	Dip	2	7	43+77.6	43+81.7	4.2	-0.38	43+78.5
287	Dip	1	7	43+78.2	43+88.2	10.0	-0.55	43+79.7
288	Bump	1	7	43+92.1	44+08.3	16.2	0.56	44+07.1
289	Dip	2	7	44+08.0	44+12.4	4.4	-0.35	44+08.7
290	Dip	1	7	44+08.3	44+19.4	11.1	-0.55	44+09.7
291	Bump	2	7	44+21.3	44+24.1	2.8	0.42	44+23.0
292	Bump	1	7	44+21.9	44+25.0	3.1	0.42	44+24.0
293	Dip	2	7	44+24.6	44+32.4	7.8	-0.43	44+25.6
294	Dip	1	7	44+26.0	44+28.7	2.7	-0.35	44+26.7
295	Bump	1	7	44+33.7	44+40.9	7.3	0.75	44+39.3
296	Bump	2	7	44+37.1	44+39.3	2.2	0.41	44+38.3
297	Dip	1	7	44+40.5	44+54.2	13.8	-0.65	44+50.7
298	Bump	1	7	44+54.9	44+57.5	2.6	0.40	44+56.4
299	Bump	1	7	44+84.0	44+94.2	10.2	0.56	44+92.7
300	Dip	1	7	44+94.2	45+07.5	13.3	-0.59	45+02.2
301	Bump	1	7	45+09.0	45+15.9	6.9	0.38	45+10.8
302	Bump	1	7	45+59.7	45+64.2	4.5	0.45	45+62.7
303	Bump	2	7	45+59.9	45+62.7	2.8	0.40	45+61.8
304	Dip	2	7	45+80.2	45+84.1	3.9	-0.42	45+81.2
305	Dip	1	7	45+81.2	45+84.6	3.4	-0.39	45+82.2
306	Bump	2	7	45+91.6	45+94.7	3.2	0.40	45+93.8
307	Bump	1	7	45+92.2	45+96.2	3.9	0.45	45+94.9
308	Dip	1	7	46+13.3	46+15.9	2.6	-0.37	46+14.2
309	Bump	1	7	46+49.2	46+62.7	13.6	0.67	46+54.2
310	Bump	2	7	46+51.8	46+67.8	15.9	0.66	46+58.7
311	Dip	1	7	46+62.3	46+79.0	16.7	-0.97	46+70.2
312	Dip	2	7	46+66.7	46+79.2	12.4	-0.80	46+70.2
313	Bump	1	7	46+80.2	46+83.8	3.6	0.37	46+81.8
314	Bump	2	7	46+86.6	46+97.8	11.2	0.43	46+96.4
315	Bump	1	7	46+93.9	46+99.2	5.3	0.47	46+98.1
316	Dip	1	8	47+13.7	47+19.1	5.4	-0.42	47+16.7
317	Bump	2	8	47+40.6	47+44.2	3.6	0.43	47+42.9
318	Bump	1	8	48+19.0	48+22.3	3.3	0.37	48+21.2
319	Dip	1	8	48+23.6	48+40.7	17.2	-0.44	48+38.8
320	Dip	2	8	48+29.8	48+37.8	8.0	-0.48	48+36.7
321	Bump	2	8	48+40.3	48+52.4	12.2	0.38	48+43.2
322	Bump	1	8	48+42.7	48+54.6	11.8	0.58	48+53.1
323	Dip	1	8	48+54.6	48+68.7	14.2	-0.56	48+55.9
324	Bump	2	8	48+67.8	48+82.3	14.6	0.58	48+81.0
325	Bump	1	8	48+69.3	48+83.8	14.5	0.73	48+82.3
326	Dip	2	8	48+82.0	48+92.4	10.4	-0.72	48+83.7
327	Dip	1	8	48+83.2	48+94.8	11.6	-0.87	48+85.1
328	Bump	2	8	48+93.6	48+98.8	5.3	0.46	48+96.1
329	Bump	1	8	48+95.2	49+15.0	19.8	0.54	49+13.6
330	Dip	2	8	49+14.2	49+21.7	7.5	-0.37	49+15.0
331	Dip	1	8	49+15.1	49+25.9	10.8	-0.50	49+16.4
332	Bump	2	8	49+26.5	49+28.5	2.0	0.38	49+27.6
333	Dip	1	8	49+30.7	49+35.0	4.2	-0.35	49+31.8
334	Dip	2	8	49+33.3	49+40.2	6.8	-0.34	49+38.7
335	Bump	1	8	49+85.5	49+90.6	5.1	0.52	49+89.1

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
336	Bump	2	8	49+85.6	49+89.2	3.6	0.44	49+87.8
337	Dip	1	8	49+90.9	50+03.0	12.1	-0.46	49+97.9
338	Dip	2	8	49+92.4	50+00.4	8.0	-0.35	49+98.5
339	Bump	1	8	50+05.2	50+22.4	17.2	0.43	50+21.4
340	Dip	1	8	50+23.0	50+33.7	10.7	-0.42	50+24.4
341	Bump	1	8	50+78.7	50+82.7	4.1	0.46	50+81.5
342	Bump	2	8	50+79.0	50+81.2	2.2	0.35	50+80.3
343	Dip	1	8	50+83.9	50+93.6	9.7	-0.32	50+85.6
344	Dip	1	8	50+99.9	51+03.6	3.7	-0.37	51+00.7
345	Bump	2	8	51+10.5	51+13.0	2.5	0.38	51+12.0
346	Bump	1	8	51+11.0	51+14.4	3.4	0.44	51+13.2
347	Dip	1	8	51+16.0	51+19.2	3.2	-0.31	51+17.2
348	Dip	2	8	51+16.8	51+19.0	2.2	-0.31	51+17.8
349	Bump	1	8	51+85.6	51+96.8	11.3	0.39	51+86.7
350	Dip	1	8	51+97.1	52+07.2	10.2	-0.59	51+98.8
351	Dip	2	8	51+97.7	52+06.3	8.6	-0.43	51+99.0
352	Bump	1	8	52+07.8	52+13.6	5.8	0.57	52+11.8
353	Bump	2	8	52+09.2	52+14.4	5.2	0.44	52+10.9
354	Dip	1	8	52+21.9	52+23.9	2.0	-0.32	52+23.1
355	Dip	1	9	52+60.4	52+64.3	3.9	-0.35	52+61.2
356	Bump	1	9	52+72.0	52+74.6	2.6	0.40	52+73.6
357	Bump	2	9	52+72.6	52+89.5	16.9	0.32	52+89.1
358	Dip	1	9	52+92.3	52+95.2	2.8	-0.34	52+93.1
359	Bump	1	9	53+48.2	53+50.8	2.6	0.39	53+50.0
360	Dip	1	9	53+51.7	53+60.5	8.8	-0.37	53+52.5
361	Dip	1	9	53+66.8	53+68.8	2.0	-0.35	53+67.6
362	Bump	2	9	53+92.2	53+95.9	3.8	0.41	53+94.0
363	Dip	1	9	54+12.7	54+17.1	4.4	-0.35	54+13.4
364	Bump	1	9	54+54.9	54+57.6	2.7	0.42	54+56.6
365	Dip	1	9	54+58.1	54+68.4	10.3	-0.45	54+59.3
366	Bump	1	9	54+71.2	54+74.9	3.7	0.49	54+73.7
367	Bump	2	9	54+71.3	54+73.6	2.2	0.38	54+72.6
368	Dip	1	9	54+88.2	54+90.3	2.1	-0.35	54+89.2
369	Bump	1	9	55+14.3	55+17.3	3.0	0.38	55+16.2
370	Dip	1	9	55+20.0	55+27.5	7.5	-0.41	55+22.4
371	Bump	1	9	55+32.8	55+49.4	16.7	0.49	55+48.2
372	Dip	1	9	55+49.7	55+60.4	10.7	-0.48	55+51.2
373	Bump	1	9	56+06.1	56+09.3	3.2	0.46	56+08.0
374	Bump	1	9	56+37.7	56+40.9	3.2	0.46	56+39.7
375	Dip	1	9	56+41.7	56+52.5	10.8	-0.34	56+42.7
376	Dip	1	9	57+18.7	57+22.5	3.8	-0.32	57+19.2
377	Bump	1	9	57+31.8	57+34.4	2.6	0.38	57+33.5
378	Dip	1	9	57+35.6	57+38.5	2.9	-0.32	57+36.2
379	Bump	1	10	57+93.3	58+08.3	15.0	0.34	57+94.2
380	Dip	2	10	58+08.6	58+13.4	4.8	-0.35	58+10.7
381	Dip	1	10	58+09.2	58+21.5	12.3	-0.55	58+10.9
382	Bump	1	10	58+20.8	58+26.3	5.5	0.69	58+24.8
383	Bump	2	10	58+21.1	58+25.0	3.9	0.51	58+23.7
384	Dip	2	10	58+25.6	58+28.2	2.6	-0.34	58+26.3
385	Dip	1	10	58+26.1	58+36.4	10.3	-0.56	58+27.3
386	Dip	1	10	58+41.8	58+53.0	11.2	-0.42	58+45.3
387	Bump	1	10	58+98.2	59+00.4	2.2	0.37	58+99.5
388	Dip	1	10	59+18.0	59+21.1	3.1	-0.37	59+18.7
389	Bump	1	10	59+30.8	59+48.9	18.1	0.38	59+48.2

Defect Locations - Run 1 - By Station

Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
390	Dip	1	10	59+49.7	59+51.8	2.2	-0.39	59+50.5
391	Bump	1	10	59+76.5	59+91.5	15.0	0.42	59+90.5
392	Dip	1	10	59+92.1	60+03.1	11.0	-0.45	59+93.4
393	Bump	2	10	60+05.5	60+21.6	16.1	0.36	60+06.6
394	Bump	1	10	60+05.8	60+23.5	17.7	0.46	60+07.8
395	Dip	1	10	60+09.4	60+14.3	4.9	-0.38	60+10.2
396	Dip	2	10	60+23.4	60+28.5	5.1	-0.34	60+24.9
397	Dip	1	10	60+24.2	60+34.0	9.8	-0.42	60+25.2
398	Bump	1	10	60+98.0	61+00.2	2.2	0.37	60+99.5
399	Dip	2	10	61+14.8	61+17.9	3.1	-0.35	61+15.8
400	Bump	2	10	61+27.7	61+31.2	3.5	0.44	61+30.2
401	Bump	1	10	61+28.9	61+32.6	3.7	0.44	61+31.6
402	Dip	2	10	61+31.6	61+37.5	5.9	-0.45	61+32.6
403	Dip	1	10	61+33.1	61+47.3	14.2	-0.41	61+33.9
404	Bump	2	10	61+42.5	61+59.7	17.2	0.47	61+50.4
405	Bump	1	10	61+58.7	61+60.9	2.2	0.38	61+60.1
406	Dip	2	10	61+60.7	61+68.3	7.6	-0.37	61+62.1
407	Dip	1	10	61+62.0	61+64.2	2.2	-0.35	61+62.7
408	Dip	1	10	61+76.4	61+81.0	4.6	-0.34	61+77.2
409	Bump	1	10	61+87.6	61+92.5	4.9	0.49	61+91.3
410	Bump	2	10	61+88.6	61+90.7	2.2	0.37	61+89.9
411	Dip	1	10	61+93.0	61+97.3	4.3	-0.38	61+93.8
412	Dip	1	10	62+07.9	62+14.2	6.2	-0.37	62+08.9
413	Bump	2	10	62+20.6	62+22.7	2.1	0.38	62+21.8
414	Bump	1	10	62+21.2	62+24.3	3.2	0.41	62+23.1
415	Dip	2	10	62+23.9	62+31.3	7.4	-0.32	62+30.3
416	Dip	1	10	62+37.5	62+41.0	3.5	-0.40	62+38.8
417	Bump	1	10	62+49.7	62+52.8	3.1	0.44	62+51.8
418	Dip	1	10	62+53.3	62+57.4	4.1	-0.43	62+54.3
419	Bump	2	10	62+61.0	62+66.3	5.3	0.56	62+64.6
420	Bump	1	10	62+63.1	62+67.1	4.0	0.54	62+65.7
421	Dip	1	10	62+67.2	62+79.6	12.3	-0.48	62+68.5
422	Bump	1	11	62+81.5	62+98.6	17.1	0.41	62+83.0
423	Dip	1	11	62+99.6	63+10.1	10.5	-0.38	63+00.7
424	Bump	1	11	63+13.5	63+15.7	2.2	0.38	63+14.7
425	Bump	2	11	63+54.7	63+57.2	2.4	0.37	63+56.2
426	Bump	1	11	63+55.7	63+58.5	2.8	0.40	63+57.4
427	Dip	1	11	63+67.1	63+77.3	10.2	-0.35	63+76.5
428	Bump	1	11	63+83.6	63+90.6	7.0	0.54	63+89.2
429	Bump	2	11	63+85.2	63+89.1	3.9	0.45	63+88.0
430	Dip	2	11	63+89.7	64+00.9	11.3	-0.39	63+92.3
431	Dip	1	11	63+90.7	64+02.3	11.6	-0.46	63+92.1
432	Bump	1	11	64+06.2	64+20.4	14.3	0.44	64+19.4
433	Bump	2	11	64+16.9	64+18.9	2.0	0.38	64+18.1
434	Dip	1	11	64+20.9	64+25.3	4.4	-0.41	64+22.0
435	Dip	1	11	64+37.0	64+40.3	3.3	-0.39	64+38.0
436	Bump	1	11	64+47.7	64+50.5	2.8	0.44	64+49.3
437	Dip	1	11	64+51.4	64+59.6	8.2	-0.33	64+52.0
438	Bump	1	11	64+79.9	64+82.3	2.4	0.41	64+81.4
439	Dip	2	11	64+82.2	64+84.7	2.5	-0.32	64+83.0
440	Dip	1	11	64+83.2	64+85.4	2.2	-0.33	64+83.9
441	Dip	1	11	66+36.2	66+38.8	2.6	-0.32	66+37.6
442	Bump	1	11	66+47.4	66+52.0	4.6	0.44	66+51.0
443	Dip	1	11	66+52.8	66+55.8	3.0	-0.35	66+53.7

Defect Locations - Run 1 - By Station

Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
444	Dip	1	11	66+97.5	66+99.9	2.4	-0.35	66+98.4
445	Dip	1	11	67+28.5	67+37.6	9.1	-0.32	67+29.1
446	Bump	2	11	67+41.3	67+43.3	2.0	0.36	67+42.4
447	Bump	1	11	67+42.1	67+44.5	2.4	0.38	67+43.5
448	Dip	1	11	67+61.8	67+67.6	5.8	-0.31	67+62.9
449	Bump	1	12	68+16.5	68+19.9	3.4	0.42	68+19.0
450	Dip	1	12	68+20.5	68+31.2	10.8	-0.45	68+21.8
451	Bump	2	12	68+33.4	68+35.6	2.2	0.35	68+34.8
452	Bump	2	12	69+26.3	69+28.9	2.6	0.36	69+27.7
453	Bump	1	12	69+27.4	69+29.8	2.3	0.37	69+28.8
454	Dip	1	12	69+31.0	69+33.3	2.3	-0.33	69+31.7
455	Dip	2	12	69+44.7	69+48.7	4.1	-0.35	69+46.5
456	Dip	1	12	69+45.9	69+48.0	2.1	-0.33	69+46.5
457	Dip	1	12	69+75.8	69+77.9	2.1	-0.35	69+76.7
458	Bump	1	12	69+88.5	69+91.6	3.1	0.42	69+90.3
459	Dip	2	12	70+05.0	70+10.3	5.3	-0.34	70+06.4
460	Dip	1	12	70+06.6	70+10.2	3.6	-0.31	70+06.8
461	Bump	2	12	70+17.9	70+21.8	3.8	0.41	70+20.2
462	Bump	1	12	71+73.2	71+76.5	3.3	0.38	71+75.3
463	Bump	1	12	72+98.8	73+15.4	16.6	0.45	73+14.4
464	Dip	1	12	73+15.8	73+27.5	11.7	-0.45	73+17.2
465	Dip	2	12	73+17.1	73+24.2	7.1	-0.33	73+20.1
466	Bump	1	12	73+30.8	73+45.0	14.2	0.35	73+31.8
467	Dip	2	13	73+45.7	73+55.8	10.2	-0.37	73+47.8
468	Dip	1	13	73+47.3	73+55.5	8.2	-0.33	73+54.4
469	Bump	2	13	73+58.7	73+61.0	2.3	0.37	73+59.9
470	Bump	1	13	73+69.9	73+75.6	5.7	0.35	73+74.8
471	Dip	1	13	73+79.0	73+81.1	2.1	-0.31	73+79.9
472	Dip	1	13	74+09.5	74+16.7	7.3	-0.35	74+11.2
473	Bump	2	13	74+72.5	74+84.2	11.8	0.59	74+82.9
474	Dip	2	13	74+84.2	74+96.4	12.2	-0.60	74+85.6
475	Bump	2	13	74+97.7	75+05.5	7.8	0.39	74+99.0
476	Dip	2	13	75+10.3	75+18.7	8.4	-0.34	75+17.7
477	Bump	1	13	75+28.2	75+31.1	2.8	0.40	75+30.0
478	Bump	1	13	75+58.8	75+60.7	2.0	0.37	75+59.9
479	Dip	1	13	75+61.6	75+63.9	2.3	-0.37	75+62.3
480	Bump	2	13	75+65.1	75+76.3	11.3	0.36	75+66.4
481	Dip	2	13	75+92.3	75+95.3	3.0	-0.38	75+93.2
482	Bump	1	13	76+08.7	76+22.2	13.6	0.31	76+09.2
483	Dip	1	13	76+23.3	76+26.2	2.9	-0.45	76+24.4
484	Bump	2	13	76+27.2	76+37.6	10.4	0.41	76+36.4
485	Bump	1	13	76+28.6	76+39.1	10.5	0.49	76+37.7
486	Dip	2	13	76+38.4	76+43.9	5.5	-0.37	76+39.3
487	Dip	1	13	76+39.4	76+47.8	8.3	-0.46	76+40.7
488	Bump	1	13	77+60.7	77+62.8	2.1	0.39	77+62.0
489	Dip	2	13	77+62.4	77+65.6	3.2	-0.37	77+63.2
490	Dip	1	13	77+63.6	77+67.5	3.9	-0.41	77+64.5
491	Bump	2	13	77+74.1	77+77.4	3.3	0.41	77+76.1
492	Bump	1	13	77+75.8	77+78.3	2.5	0.40	77+77.2
493	Dip	2	14	78+72.0	78+74.0	2.0	-0.31	78+73.0
494	Dip	1	14	78+72.3	78+78.9	6.6	-0.34	78+73.9
495	Dip	1	14	79+31.4	79+41.1	9.7	-0.43	79+35.4
496	Bump	2	14	79+42.3	79+47.7	5.4	0.50	79+45.7
497	Bump	1	14	79+42.9	79+48.4	5.5	0.56	79+46.8

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
498	Dip	1	14	79+64.1	79+70.8	6.7	-0.36	79+67.7
499	Bump	1	14	80+20.3	80+22.7	2.4	0.36	80+21.8
500	Dip	2	14	80+22.5	80+27.8	5.3	-0.38	80+24.9
501	Dip	1	14	80+23.1	80+34.0	10.9	-0.51	80+24.5
502	Bump	1	14	80+30.6	80+40.8	10.2	0.80	80+39.0
503	Bump	2	14	80+34.1	80+39.6	5.5	0.57	80+37.9
504	Dip	1	14	80+40.3	80+53.1	12.8	-0.57	80+41.7
505	Dip	2	14	80+40.3	80+49.5	9.2	-0.32	80+47.5
506	Dip	1	14	82+09.7	82+13.3	3.6	-0.31	82+11.0
507	Dip	1	14	82+41.4	82+45.7	4.2	-0.31	82+41.8
508	Bump	1	14	82+73.3	82+86.8	13.4	0.71	82+85.3
509	Dip	1	14	82+86.5	82+98.5	12.0	-0.69	82+87.9
510	Bump	1	14	83+15.8	83+32.8	17.0	0.52	83+31.5
511	Bump	2	14	83+28.8	83+31.3	2.5	0.40	83+30.3
512	Dip	2	14	83+31.8	83+45.1	13.2	-0.47	83+39.9
513	Dip	1	14	83+32.9	83+46.8	13.9	-0.56	83+37.5
514	Bump	1	14	83+48.2	83+62.8	14.6	0.36	83+49.2
515	Bump	1	14	83+90.3	83+93.1	2.8	0.39	83+92.1
516	Dip	1	15	83+94.1	83+98.3	4.2	-0.34	83+94.8
517	Dip	1	15	85+04.0	85+07.8	3.8	-0.30	85+04.1
518	Bump	2	15	85+14.1	85+16.5	2.4	0.40	85+15.5
519	Dip	2	15	85+26.8	85+35.9	9.2	-0.44	85+33.1
520	Bump	2	15	85+41.3	85+47.4	6.2	0.47	85+45.6
521	Bump	1	15	85+77.1	85+95.0	17.9	0.40	85+94.1
522	Dip	1	15	85+95.8	86+01.4	5.7	-0.39	85+96.7
523	Bump	2	15	86+52.3	86+55.1	2.8	0.36	86+53.9
524	Bump	1	15	86+52.4	86+56.2	3.8	0.33	86+55.4
525	Bump	1	15	86+84.4	86+86.8	2.4	0.35	86+85.9
526	Bump	2	15	87+75.5	87+77.7	2.2	0.34	87+76.9
527	Dip	2	15	88+54.4	88+58.9	4.5	-0.35	88+55.2
528	Bump	2	16	90+43.1	90+55.2	12.1	0.34	90+44.9
529	Dip	2	16	90+56.6	90+65.2	8.6	-0.35	90+57.5
530	Dip	2	16	91+31.2	91+36.6	5.4	-0.41	91+33.1
531	Bump	2	16	91+41.6	91+49.8	8.2	0.43	91+47.0
532	Dip	2	16	91+61.3	91+68.2	6.8	-0.44	91+63.7
533	Dip	1	16	91+63.0	91+68.7	5.7	-0.40	91+64.8
534	Bump	2	16	91+75.7	91+82.9	7.3	0.33	91+79.3
535	Bump	1	16	91+78.9	91+84.6	5.7	0.35	91+83.5
536	Dip	2	16	92+28.2	92+32.0	3.8	-0.36	92+29.2
537	Dip	1	16	92+29.2	92+35.3	6.2	-0.47	92+30.8
538	Bump	1	16	92+38.1	92+47.2	9.1	0.53	92+44.8
539	Bump	2	16	92+38.4	92+45.6	7.2	0.47	92+43.8
540	Dip	2	16	93+20.3	93+22.7	2.4	-0.40	93+21.3
541	Bump	2	16	93+26.9	93+37.8	10.8	0.50	93+35.8
542	Bump	1	16	93+34.3	93+39.7	5.4	0.36	93+37.8
543	Dip	2	16	93+46.7	93+53.2	6.5	-0.32	93+47.8
544	Bump	2	16	93+65.9	93+69.1	3.2	0.33	93+67.9
545	Dip	2	16	94+12.6	94+16.2	3.6	-0.38	94+13.5
546	Bump	2	16	94+24.3	94+28.5	4.2	0.34	94+27.3
547	Dip	2	16	94+44.3	94+53.6	9.3	-0.47	94+45.8
548	Dip	1	16	94+45.8	94+51.8	6.0	-0.40	94+47.1
549	Bump	2	17	94+58.6	94+61.2	2.6	0.38	94+59.9
550	Dip	2	17	95+84.3	95+86.8	2.5	-0.32	95+85.3
551	Dip	1	17	95+85.3	95+87.4	2.1	-0.35	95+86.2

Defect Locations - Run 1 - By Station							
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
552	Bump	1	17	95+96.5	95+98.5	2.0	0.37	95+97.6
553	Dip	1	17	96+16.0	96+24.4	8.4	-0.39	96+17.0
554	Bump	1	17	96+41.8	96+48.3	6.6	0.51	96+46.8
555	Bump	2	17	96+43.1	96+52.0	8.9	0.42	96+45.2
556	Dip	1	17	96+51.8	96+65.3	13.5	-0.52	96+62.0
557	Dip	2	17	96+59.5	96+65.8	6.3	-0.45	96+61.1
558	Bump	1	17	96+67.8	96+77.1	9.3	0.49	96+75.7
559	Bump	2	17	96+72.8	96+75.5	2.7	0.38	96+74.4
560	Dip	1	17	96+77.8	96+94.0	16.2	-0.40	96+92.3
561	Bump	1	17	97+02.8	97+08.0	5.2	0.43	97+06.8
562	Bump	2	17	97+03.6	97+06.4	2.8	0.37	97+05.5
563	Dip	1	17	97+08.7	97+25.9	17.2	-0.35	97+09.5
564	Bump	1	17	97+37.9	97+40.0	2.1	0.35	97+39.3
565	Bump	1	17	97+78.6	97+83.5	4.9	0.49	97+82.3
566	Bump	2	17	97+79.6	97+82.0	2.4	0.38	97+81.1
567	Dip	1	17	97+83.8	97+94.1	10.3	-0.43	97+85.0
568	Bump	1	17	97+98.8	98+15.0	16.2	0.34	98+14.4
569	Dip	1	17	98+16.1	98+21.8	5.8	-0.36	98+17.0
570	Bump	1	17	98+29.7	98+45.1	15.4	0.44	98+31.6
571	Dip	2	17	98+44.3	98+51.0	6.8	-0.50	98+45.8
572	Dip	1	17	98+45.6	98+55.8	10.2	-0.50	98+47.1
573	Bump	2	17	98+56.3	98+60.4	4.2	0.48	98+59.3
574	Bump	1	17	98+58.6	98+61.6	3.0	0.43	98+60.5
575	Dip	2	17	98+61.0	98+63.0	2.0	-0.36	98+61.8
576	Dip	1	17	98+76.6	98+81.2	4.6	-0.33	98+77.2
577	Dip	1	17	99+08.7	99+12.9	4.2	-0.33	99+09.3
578	Bump	2	17	99+64.8	99+66.9	2.2	0.39	99+66.0
579	Bump	1	17	99+65.8	99+68.3	2.5	0.41	99+67.3
580	Dip	1	17	99+69.0	99+73.7	4.7	-0.38	99+69.8
581	Dip	2	18	99+85.1	99+87.1	2.0	-0.32	99+85.6
582	Dip	1	18	99+85.8	99+90.8	5.0	-0.42	99+86.8
583	Bump	1	18	99+97.5	100+00.7	3.2	0.42	99+99.5
584	Bump	1	18	100+59.6	100+77.4	17.8	0.33	100+76.8
585	Dip	1	18	100+61.6	100+64.8	3.2	-0.35	100+62.3
586	Dip	2	18	100+77.2	100+80.9	3.7	-0.36	100+78.1
587	Dip	1	18	100+78.4	100+81.2	2.7	-0.38	100+79.3
588	Bump	1	18	100+90.4	100+92.6	2.2	0.39	100+91.8
589	Dip	1	18	100+93.6	100+97.2	3.6	-0.33	100+94.2
590	Dip	1	18	101+11.2	101+25.1	13.9	-0.33	101+24.3
591	Bump	1	18	101+36.0	101+38.9	2.9	0.43	101+37.8
592	Dip	1	18	101+39.6	101+42.9	3.3	-0.40	101+40.5
593	Dip	1	18	101+69.5	101+73.3	3.8	-0.33	101+70.3
594	Bump	1	18	102+23.5	102+28.4	4.9	0.45	102+27.2
595	Dip	1	18	102+46.5	102+48.7	2.2	-0.33	102+47.2
596	Bump	1	18	103+05.2	103+20.5	15.3	0.33	103+19.9
597	Dip	2	18	103+22.7	103+28.3	5.7	-0.30	103+23.2
598	Dip	1	18	103+24.5	103+31.9	7.4	-0.33	103+28.8
599	Bump	2	18	103+49.6	103+52.0	2.4	0.38	103+50.9
600	Bump	1	18	103+50.9	103+53.0	2.1	0.40	103+52.1
601	Bump	1	18	104+05.7	104+12.8	7.2	0.39	104+12.0
602	Dip	2	18	104+12.7	104+22.8	10.2	-0.40	104+14.6
603	Dip	1	18	104+12.9	104+23.9	11.0	-0.60	104+14.7
604	Bump	1	18	104+22.9	104+35.2	12.2	0.72	104+29.3
605	Bump	2	18	104+24.8	104+31.8	7.0	0.52	104+28.0

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
606	Dip	2	18	104+38.0	104+40.8	2.8	-0.34	104+39.8
607	Dip	1	18	104+45.0	104+50.8	5.8	-0.46	104+46.8
608	Bump	1	18	104+59.3	104+74.7	15.4	0.42	104+73.8
609	Dip	1	18	104+75.2	104+80.3	5.2	-0.47	104+76.3
610	Bump	1	18	104+88.4	104+90.7	2.3	0.41	104+89.8
611	Dip	1	18	104+91.5	104+93.7	2.2	-0.37	104+92.3
612	Bump	2	18	105+01.3	105+20.2	18.8	0.43	105+19.2
613	Bump	1	18	105+02.3	105+04.7	2.3	0.40	105+03.8
614	Dip	1	19	105+05.5	105+10.5	5.0	-0.39	105+08.0
615	Bump	1	19	105+19.2	105+21.6	2.4	0.42	105+20.6
616	Dip	2	19	105+20.0	105+30.2	10.2	-0.67	105+21.9
617	Dip	1	19	105+21.9	105+33.6	11.7	-0.60	105+26.0
618	Bump	2	19	105+30.1	105+42.0	11.9	0.70	105+37.5
619	Bump	1	19	105+33.7	105+43.8	10.1	0.69	105+39.0
620	Dip	2	19	105+42.2	105+58.8	16.6	-0.54	105+53.3
621	Dip	1	19	105+43.4	105+58.5	15.1	-0.59	105+54.6
622	Bump	2	19	105+63.8	105+81.1	17.2	0.37	105+80.3
623	Bump	1	19	105+77.7	105+83.2	5.5	0.64	105+81.7
624	Dip	2	19	105+82.3	105+97.3	15.0	-0.33	105+83.0
625	Dip	1	19	105+83.1	105+98.5	15.4	-0.50	105+84.3
626	Dip	1	19	105+97.9	106+07.2	9.3	-0.31	106+06.1
627	Bump	2	19	106+08.6	106+12.1	3.5	0.39	106+11.1
628	Bump	1	19	106+11.3	106+13.5	2.2	0.39	106+12.7
629	Dip	2	19	106+13.0	106+23.8	10.8	-0.39	106+14.2
630	Dip	1	19	106+14.4	106+17.9	3.5	-0.36	106+15.3
631	Bump	2	19	106+25.6	106+27.6	2.0	0.35	106+26.6
632	Bump	1	19	106+27.2	106+45.6	18.4	0.55	106+44.3
633	Dip	1	19	106+45.7	106+58.3	12.7	-0.56	106+47.2
634	Bump	1	19	106+65.5	106+73.9	8.4	0.32	106+73.5
635	Dip	2	19	107+04.8	107+06.8	2.0	-0.35	107+05.5
636	Dip	1	19	107+05.8	107+09.0	3.2	-0.40	107+06.8
637	Bump	2	19	107+16.8	107+18.9	2.1	0.36	107+18.1
638	Bump	1	19	107+17.5	107+20.3	2.8	0.41	107+19.3
639	Dip	2	19	107+20.3	107+25.5	5.2	-0.37	107+21.8
640	Dip	1	19	107+21.3	107+23.6	2.3	-0.34	107+22.0
641	Dip	2	19	107+37.0	107+50.8	13.8	-0.32	107+50.2
642	Bump	2	19	107+61.4	107+64.7	3.3	0.38	107+63.8
643	Bump	2	19	107+62.9	107+79.0	16.1	0.46	107+77.8
644	Bump	1	19	107+63.8	107+65.8	2.0	0.37	107+65.0
645	Dip	1	19	107+66.7	107+70.2	3.5	-0.40	107+67.7
646	Bump	1	19	107+74.7	107+80.3	5.6	0.53	107+79.0
647	Dip	2	19	107+79.2	107+91.3	12.2	-0.54	107+80.6
648	Dip	1	19	107+80.4	107+91.7	11.3	-0.55	107+81.8
649	Bump	2	19	107+92.6	108+10.8	18.3	0.48	107+94.3
650	Bump	1	19	107+93.2	107+97.2	4.0	0.43	107+94.8
651	Dip	1	19	107+98.4	108+05.1	6.7	-0.43	107+99.9
652	Bump	1	19	108+09.2	108+12.2	3.0	0.43	108+11.0
653	Dip	2	19	108+11.7	108+23.1	11.4	-0.38	108+14.2
654	Dip	1	19	108+13.1	108+15.9	2.8	-0.33	108+13.8
655	Dip	1	19	108+30.0	108+34.5	4.5	-0.34	108+30.5
656	Bump	1	19	108+39.9	108+42.1	2.2	0.40	108+41.2
657	Bump	1	19	108+54.0	108+60.5	6.5	0.66	108+58.8
658	Bump	2	19	108+55.6	108+59.0	3.4	0.41	108+57.8
659	Dip	1	19	108+60.3	108+73.1	12.8	-0.64	108+65.3

Defect Locations - Run 1 - By Station

Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
660	Dip	2	19	108+60.8	108+70.3	9.4	-0.42	108+66.5
661	Bump	1	19	108+73.7	108+77.5	3.8	0.48	108+76.0
662	Bump	2	19	108+73.7	108+75.8	2.2	0.37	108+74.8
663	Dip	1	19	108+98.3	109+01.5	3.2	-0.32	108+99.4
664	Bump	1	19	109+19.0	109+31.3	12.2	0.48	109+29.9
665	Bump	2	19	109+23.6	109+31.2	7.6	0.42	109+29.8
666	Dip	1	19	109+31.4	109+43.4	12.0	-0.56	109+35.8
667	Dip	2	19	109+31.8	109+43.3	11.4	-0.43	109+34.9
668	Bump	1	19	109+45.3	109+51.2	5.8	0.52	109+49.6
669	Bump	2	19	109+47.4	109+61.2	13.7	0.35	109+48.4
670	Bump	1	19	109+82.7	109+93.8	11.1	0.55	109+92.4
671	Bump	2	19	109+89.8	109+92.2	2.3	0.36	109+91.3
672	Dip	1	19	109+93.8	110+05.1	11.3	-0.59	109+96.8
673	Bump	1	19	110+06.8	110+10.5	3.7	0.44	110+09.4
674	Dip	1	19	110+11.1	110+16.5	5.4	-0.38	110+11.9
675	Dip	1	19	110+28.1	110+31.8	3.7	-0.34	110+29.8
676	Bump	2	20	110+49.2	110+54.2	5.0	0.55	110+52.9
677	Dip	2	20	110+54.2	110+66.0	11.8	-0.57	110+55.6
678	Bump	2	20	110+66.2	110+78.6	12.4	0.51	110+68.9
679	Dip	1	20	110+72.1	110+74.5	2.4	-0.36	110+73.0
680	Bump	1	20	110+82.9	110+86.0	3.1	0.44	110+84.8
681	Dip	1	20	110+87.9	110+98.2	10.2	-0.41	110+95.8
682	Bump	1	20	111+01.1	111+17.3	16.2	0.38	111+16.4
683	Dip	2	20	111+17.2	111+20.7	3.5	-0.34	111+18.5
684	Dip	1	20	111+17.9	111+29.7	11.8	-0.45	111+19.4
685	Bump	2	20	111+28.8	111+33.5	4.7	0.55	111+32.0
686	Bump	1	20	111+29.2	111+35.0	5.8	0.71	111+33.3
687	Dip	2	20	111+33.8	111+47.3	13.6	-0.35	111+46.2
688	Dip	1	20	111+34.7	111+48.0	13.3	-0.44	111+35.7
689	Dip	2	20	111+93.2	111+98.8	5.6	-0.41	111+94.5
690	Dip	1	20	111+94.3	111+98.8	4.5	-0.46	111+95.6
691	Bump	1	20	111+99.5	112+10.0	10.5	0.76	112+08.3
692	Bump	2	20	112+01.8	112+08.6	6.8	0.60	112+07.0
693	Dip	2	20	112+08.6	112+20.7	12.1	-0.43	112+09.8
694	Dip	1	20	112+09.6	112+23.3	13.7	-0.56	112+11.1
695	Bump	2	20	112+22.7	112+36.3	13.6	0.45	112+35.2
696	Bump	1	20	112+23.6	112+36.6	13.0	0.57	112+35.2
697	Dip	2	20	112+25.7	112+45.9	20.2	-0.72	112+37.5
698	Dip	1	20	112+26.6	112+46.8	20.2	-0.98	112+38.1
699	Bump	1	20	112+40.7	112+55.8	15.2	0.93	112+53.6
700	Bump	2	20	112+45.5	112+56.4	10.9	0.78	112+52.8
701	Dip	1	20	112+55.0	112+68.3	13.3	-0.68	112+56.9
702	Dip	2	20	112+55.0	112+67.0	12.0	-0.45	112+63.1
703	Bump	1	20	112+68.4	112+72.1	3.7	0.55	112+70.5
704	Dip	1	20	112+72.4	112+91.8	19.4	-0.54	112+82.4
705	Bump	1	20	112+93.6	112+96.3	2.7	0.45	112+95.2
706	Dip	2	20	113+46.4	113+49.4	3.0	-0.36	113+47.4
707	Dip	1	20	113+47.6	113+50.5	2.9	-0.40	113+48.6
708	Bump	1	20	113+58.1	113+61.4	3.3	0.44	113+60.2
709	Bump	2	20	113+58.8	113+77.0	18.3	0.41	113+76.0
710	Dip	2	20	113+77.6	113+82.5	4.9	-0.41	113+78.6
711	Dip	1	20	113+79.2	113+81.4	2.3	-0.35	113+79.8
712	Dip	2	20	114+22.5	114+25.2	2.7	-0.41	114+23.5
713	Dip	1	20	114+23.9	114+26.3	2.4	-0.39	114+24.8

Defect Locations - Run 1 - By Station							
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
714	Bump	2	20	114+33.0	114+37.0	4.0	0.42	114+36.0
715	Dip	2	20	114+53.1	114+55.6	2.5	-0.36	114+53.8
716	Dip	1	20	114+54.4	114+56.4	2.0	-0.35	114+55.1
717	Dip	1	20	114+71.7	114+73.8	2.0	-0.34	114+72.3
718	Bump	1	20	114+83.4	114+86.0	2.6	0.42	114+85.0
719	Dip	1	20	114+86.5	114+91.9	5.4	-0.44	114+87.6
720	Bump	1	20	115+00.5	115+15.4	14.9	0.40	115+02.1
721	Dip	1	20	115+16.6	115+19.5	2.9	-0.37	115+17.4
722	Bump	2	20	115+28.3	115+30.7	2.4	0.40	115+29.8
723	Dip	2	20	115+31.4	115+34.8	3.4	-0.39	115+32.4
724	Dip	1	20	115+32.8	115+35.1	2.2	-0.36	115+33.6
725	Dip	1	20	115+47.1	115+49.4	2.3	-0.34	115+47.7
726	Bump	2	20	115+58.0	115+61.9	3.9	0.45	115+60.8
727	Dip	2	21	115+62.3	115+73.1	10.8	-0.44	115+63.4
728	Dip	1	21	115+78.8	115+84.0	5.2	-0.42	115+80.7
729	Bump	1	21	115+91.6	115+95.5	3.9	0.42	115+94.3
730	Dip	1	21	115+96.6	116+11.1	14.5	-0.36	116+10.0
731	Bump	1	21	116+22.5	116+38.3	15.8	0.41	116+37.4
732	Dip	2	21	116+38.1	116+40.5	2.4	-0.35	116+38.9
733	Dip	1	21	116+39.0	116+50.3	11.3	-0.42	116+39.9
734	Bump	2	21	116+67.0	116+69.2	2.2	0.37	116+68.3
735	Bump	1	21	116+68.3	116+70.4	2.2	0.36	116+69.6
736	Dip	2	21	116+70.7	116+74.3	3.6	-0.33	116+71.7
737	Bump	2	21	116+85.3	116+99.0	13.7	0.33	116+98.5
738	Bump	1	21	116+86.4	117+00.6	14.2	0.37	116+99.7
739	Dip	2	21	117+00.1	117+02.2	2.1	-0.37	117+00.9
740	Dip	1	21	117+01.3	117+04.2	3.0	-0.45	117+02.4
741	Bump	1	21	117+12.7	117+16.8	4.1	0.44	117+15.6
742	Dip	1	21	117+17.3	117+20.6	3.3	-0.42	117+18.3
743	Bump	1	21	117+28.6	117+31.1	2.5	0.42	117+30.1
744	Bump	1	21	117+29.6	117+47.8	18.2	0.42	117+46.8
745	Bump	2	21	117+44.0	117+46.5	2.5	0.37	117+45.6
746	Dip	2	21	117+47.1	117+57.3	10.2	-0.51	117+50.9
747	Dip	1	21	117+47.7	117+58.8	11.1	-0.68	117+49.5
748	Bump	1	21	117+54.5	117+64.7	10.2	0.83	117+62.0
749	Bump	2	21	117+59.2	117+64.8	5.7	0.45	117+61.4
750	Dip	1	21	117+63.5	117+76.4	12.9	-0.46	117+67.8

Track 1 defects: 452
Track 2 defects: 298
Total defects: 750

No user events found for Run 1

Certified by: _____

Title: _____

Organization: _____

SSI Profiler Version 3.2.7.44
Licensed to Illinois Dept of Transportation - Springfield, Il

Data File: 1810011157.rsd

Stations: Run 1 - 118+79.0 to 10+09.6
Start GPS: 41 24' 39.07" N 90 31' 30.96" W
End GPS: 41 26' 03.10" N 90 32' 46.46" W

Run Speed (Avg, Max, Min):
Run 1 - 43.7, 53.2, 20.7 mph

Total Distance: 108+55.1

Date [Paved/Corrected]:
Run 1 - 9/30/2018 11:45:13 AM

Date Tested:
Run 1 - 10/1/2018 11:53:08 AM

File Modifications:
Run 1 - Start Station Changed to 11879.0 ft

Project Parameters
Project Number:
State: Illinois
County: Rock Island
Contractor: TBD
Pavement Type: Surface
Traffic Direction: WB
Highway: Knoxville Rd
Number of Lanes: 1
Direction of Paving: WB
Tested by: Scott Vesely, Lucas Megli
Paving Action:
Special Provisions:
Report Specification:
Report Memo: Bounce Test Verification

Calibration Settings
Distance: 336317 encoder counts in 528.00 ft.
Track 1:
Height Sensor Type: RoLine 1145 / Gocator
Height Sensor Level Reading: 0.00 in.
Accelerometer Constant: 8539.794
Track 2:
Height Sensor Type: RoLine 1145 / Gocator
Height Sensor Level Reading: 0.00 in.
Accelerometer Constant: 14527.4115
IMU/Inclinometer:
Type: Inertial Inclinometer
Cross Slope Level Reading: NaN rad.

Filter Settings
Filter Type: None

Localized Roughness Settings
Simulated Profilograph Data Used for Defects Analysis
Bump Height: 0.30 in
Bump Width: 25.00 ft
Dip Depth: 0.30 in
Dip Width: 25.00 ft

Summary - Run 1 - WB Knoxville Rd, Section 1 midpoint at Station stamp 4+40 to Knoxville Rd						
Track 1			Track 2			Average
Segment	Station (ft)	IRI (in/mi)	Segment	Station (ft)	IRI (in/mi)	IRI (in/mi)
1	118+64.7 113+36.8	276.62	1	118+64.7 113+36.8	213.13	244.87

Summary - Run 1 - WB Knoxville Rd, Section 1 midpoint at Station stamp 4+40 to Knoxville Rd						
Track 1			Track 2			Average
Segment	Station (ft)	IRI (in/mi)	Segment	Station (ft)	IRI (in/mi)	IRI (in/mi)
2	113+36.8 108+08.8	174.98	2	113+36.8 108+08.8	154.93	164.95
3	108+08.8 102+80.8	176.51	3	108+08.8 102+80.8	168.02	172.27
4	102+80.8 97+52.7	184.31	4	102+80.8 97+52.7	144.06	164.19
5	97+52.7 92+24.8	230.81	5	97+52.7 92+24.8	171.15	200.98
6	92+24.8 86+96.8	237.56	6	92+24.8 86+96.8	164.79	201.18
7	86+96.8 81+68.8	225.19	7	86+96.8 81+68.8	164.53	194.86
8	81+68.8 76+40.7	201.41	8	81+68.8 76+40.7	147.94	174.67
9	76+40.7 71+12.7	227.94	9	76+40.7 71+12.7	176.21	202.07
10	71+12.7 65+84.8	242.05	10	71+12.7 65+84.8	189.90	215.98
11	65+84.8 60+56.8	230.33	11	65+84.8 60+56.8	163.31	196.82
12	60+56.8 55+28.8	164.54	12	60+56.8 55+28.8	125.93	145.23
13	55+28.8 50+00.7	196.86	13	55+28.8 50+00.7	145.48	171.17
14	50+00.7 44+72.8	191.74	14	50+00.7 44+72.8	162.38	177.06
15	44+72.8 39+44.8	166.02	15	44+72.8 39+44.8	152.42	159.22
16	39+44.8 34+16.8	139.81	16	39+44.8 34+16.8	129.50	134.65
17	34+16.8 28+88.8	157.72	17	34+16.8 28+88.8	147.70	152.71
18	28+88.8 23+60.8	122.54	18	28+88.8 23+60.8	146.57	134.56
19	23+60.8 18+32.8	178.09	19	23+60.8 18+32.8	165.02	171.56
20	18+32.8 13+04.8	134.34	20	18+32.8 13+04.8	122.84	128.59
21	13+04.8 10+09.7	136.35	21	13+04.8 10+09.7	143.11	139.73
	118+64.7 10+09.7	191.43		118+64.7 10+09.7	157.39	174.41

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
1	Dip	1	21	10+26.4	10+20.3	6.1	-0.37	10+22.4
2	Dip	2	21	10+28.0	10+17.7	10.3	-0.43	10+23.4
3	Bump	2	21	10+85.3	10+81.8	3.5	0.31	10+82.2
4	Bump	1	21	10+86.8	10+81.1	5.7	0.38	10+82.8
5	Bump	2	21	12+14.9	12+10.1	4.8	0.42	12+12.7
6	Dip	1	21	12+35.6	12+31.4	4.2	-0.32	12+32.7
7	Bump	1	21	12+46.8	12+44.3	2.6	0.34	12+45.4
8	Dip	1	21	12+84.2	12+80.8	3.4	-0.34	12+82.9
9	Dip	2	21	12+86.5	12+79.3	7.2	-0.38	12+82.9
10	Bump	2	21	12+96.8	12+94.1	2.8	0.36	12+95.3
11	Dip	2	20	13+54.7	13+45.0	9.7	-0.34	13+50.5

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
12	Bump	2	20	13+72.7	13+65.6	7.1	0.39	13+70.4
13	Bump	1	20	15+02.1	14+99.8	2.2	0.36	15+00.9
14	Dip	2	20	16+16.5	16+11.4	5.1	-0.34	16+14.3
15	Bump	1	20	16+27.5	16+22.8	4.7	0.39	16+25.4
16	Bump	2	20	16+28.6	16+22.5	6.1	0.41	16+26.3
17	Dip	1	20	16+40.2	16+32.8	7.4	-0.37	16+35.5
18	Dip	2	20	16+40.4	16+31.8	8.6	-0.40	16+37.8
19	Bump	2	20	16+50.7	16+45.2	5.6	0.36	16+48.7
20	Bump	1	20	17+27.2	17+24.2	3.1	0.35	17+25.4
21	Dip	1	20	17+39.9	17+36.3	3.6	-0.31	17+37.8
22	Bump	2	20	17+56.6	17+54.6	2.0	0.32	17+55.6
23	Bump	1	20	17+56.7	17+51.7	5.0	0.39	17+54.5
24	Dip	1	20	17+68.3	17+64.7	3.6	-0.33	17+66.1
25	Dip	2	20	17+98.9	17+89.7	9.2	-0.47	17+94.0
26	Dip	1	20	18+00.3	17+90.8	9.5	-0.40	17+94.8
27	Bump	2	20	18+10.2	18+00.8	9.3	0.60	18+05.9
28	Bump	1	20	18+12.7	18+02.5	10.2	0.53	18+05.3
29	Dip	2	20	18+21.7	18+14.8	6.8	-0.37	18+18.5
30	Dip	1	20	18+26.2	18+18.6	7.6	-0.36	18+22.9
31	Dip	1	19	18+81.4	18+75.9	5.5	-0.36	18+77.8
32	Dip	2	19	18+82.2	18+74.5	7.7	-0.40	18+77.7
33	Bump	1	19	18+94.1	18+86.2	7.9	0.49	18+90.8
34	Bump	2	19	18+94.6	18+84.3	10.2	0.66	18+90.9
35	Dip	2	19	19+05.4	18+94.4	11.0	-0.49	19+01.8
36	Dip	2	19	19+52.3	19+47.7	4.6	-0.39	19+50.6
37	Dip	1	19	19+61.0	19+49.3	11.8	-0.39	19+56.1
38	Bump	2	19	19+72.4	19+56.8	15.6	0.79	19+65.3
39	Bump	1	19	19+73.1	19+60.0	13.1	0.81	19+65.1
40	Dip	2	19	19+89.2	19+70.9	18.3	-0.67	19+77.0
41	Dip	1	19	19+95.0	19+74.8	20.2	-0.86	19+89.4
42	Bump	1	19	20+08.9	19+94.3	14.7	0.99	20+02.9
43	Bump	2	19	20+10.7	19+93.8	16.9	0.86	20+00.7
44	Dip	1	19	20+21.0	20+06.6	14.4	-0.76	20+12.1
45	Dip	2	19	20+21.7	20+09.5	12.2	-0.65	20+13.8
46	Bump	2	19	20+33.3	20+26.2	7.1	0.41	20+31.4
47	Bump	1	19	20+34.9	20+25.6	9.3	0.56	20+30.6
48	Dip	1	19	20+58.5	20+52.3	6.2	-0.30	20+52.8
49	Bump	2	19	20+79.7	20+77.6	2.1	0.35	20+78.5
50	Bump	1	19	21+70.9	21+67.8	3.2	0.38	21+69.5
51	Bump	1	19	22+64.4	22+62.2	2.2	0.36	22+63.1
52	Dip	2	19	23+22.3	23+17.1	5.2	-0.33	23+19.8
53	Dip	1	19	23+24.2	23+10.8	13.5	-0.56	23+16.4
54	Bump	2	19	23+29.7	23+25.5	4.2	0.40	23+26.8
55	Bump	1	19	23+34.8	23+24.2	10.6	0.60	23+26.1
56	Bump	2	18	23+63.1	23+59.9	3.2	0.35	23+61.2
57	Dip	2	18	23+74.9	23+69.4	5.5	-0.34	23+74.0
58	Dip	1	18	23+75.6	23+67.5	8.1	-0.40	23+72.3
59	Bump	2	18	23+82.5	23+78.6	3.9	0.32	23+80.5
60	Bump	1	18	23+89.5	23+77.3	12.2	0.45	23+83.2
61	Dip	1	18	23+99.4	23+94.0	5.4	-0.38	23+96.5
62	Dip	2	18	24+13.5	24+00.0	13.5	-0.69	24+04.6
63	Bump	2	18	24+23.3	24+13.5	9.7	0.59	24+19.0
64	Dip	2	18	24+79.0	24+68.5	10.5	-0.46	24+73.9
65	Bump	1	18	24+84.0	24+81.3	2.7	0.34	24+82.6

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
66	Bump	2	18	24+86.6	24+80.2	6.4	0.49	24+82.5
67	Dip	2	18	25+16.7	25+06.9	9.7	-0.34	25+14.7
68	Bump	1	18	25+28.0	25+24.2	3.8	0.32	25+25.2
69	Bump	2	18	25+29.1	25+22.4	6.7	0.41	25+25.2
70	Dip	1	18	25+44.0	25+39.2	4.8	-0.33	25+41.3
71	Bump	2	18	25+72.3	25+70.3	2.0	0.32	25+71.0
72	Dip	2	18	25+92.1	25+85.3	6.8	-0.36	25+88.2
73	Bump	1	18	26+01.8	25+97.2	4.6	0.38	25+99.3
74	Bump	2	18	26+06.3	25+97.1	9.2	0.47	26+00.5
75	Dip	2	18	26+21.4	26+11.3	10.1	-0.38	26+18.1
76	Bump	1	18	28+17.1	28+09.9	7.2	0.42	28+13.8
77	Bump	2	18	28+19.8	28+12.3	7.4	0.44	28+14.9
78	Dip	1	18	28+31.5	28+21.6	9.9	-0.45	28+25.4
79	Dip	2	18	28+36.3	28+23.3	13.0	-0.53	28+27.6
80	Bump	2	18	28+44.3	28+41.4	2.8	0.39	28+42.6
81	Dip	2	17	32+22.8	32+20.7	2.1	-0.34	32+21.7
82	Bump	1	17	32+30.9	32+28.6	2.3	0.36	32+29.6
83	Bump	2	17	32+37.6	32+30.2	7.4	0.40	32+33.9
84	Dip	1	17	32+43.9	32+38.3	5.6	-0.47	32+42.3
85	Dip	2	17	32+46.1	32+42.1	4.0	-0.39	32+44.3
86	Bump	1	17	33+33.7	33+30.7	3.1	0.39	33+32.1
87	Bump	2	17	33+36.8	33+31.8	5.0	0.41	33+33.0
88	Dip	1	17	33+50.2	33+36.4	13.7	-0.71	33+43.5
89	Dip	2	17	33+52.3	33+39.1	13.2	-0.63	33+45.3
90	Bump	2	17	33+63.3	33+52.5	10.8	0.57	33+56.6
91	Bump	1	17	33+63.4	33+48.2	15.3	0.68	33+54.9
92	Dip	2	17	33+78.1	33+65.7	12.3	-0.41	33+71.6
93	Dip	1	17	33+78.4	33+64.3	14.1	-0.52	33+70.9
94	Bump	2	17	33+89.7	33+79.3	10.3	0.34	33+80.1
95	Bump	1	17	33+90.7	33+79.1	11.6	0.51	33+88.2
96	Dip	1	16	34+16.8	34+14.7	2.2	-0.35	34+16.0
97	Bump	1	16	35+68.5	35+57.9	10.6	0.34	35+58.7
98	Dip	2	16	35+75.1	35+72.8	2.3	-0.33	35+74.1
99	Dip	1	16	35+80.6	35+71.2	9.4	-0.46	35+73.8
100	Bump	2	16	37+75.7	37+70.0	5.7	0.39	37+72.6
101	Dip	1	16	37+87.6	37+81.7	5.9	-0.32	37+86.2
102	Dip	2	16	37+91.3	37+78.9	12.4	-0.55	37+84.6
103	Bump	2	16	38+00.1	37+93.0	7.1	0.44	37+96.3
104	Bump	2	16	38+31.6	38+28.1	3.5	0.33	38+29.2
105	Bump	1	15	40+03.9	39+99.7	4.2	0.44	40+01.5
106	Bump	2	15	40+06.2	39+99.8	6.4	0.50	40+02.5
107	Dip	1	15	40+18.5	40+05.7	12.8	-0.68	40+13.8
108	Dip	2	15	40+20.8	40+06.3	14.4	-0.77	40+15.9
109	Bump	1	15	40+28.8	40+17.7	11.2	0.54	40+23.6
110	Bump	2	15	40+31.8	40+18.6	13.3	0.60	40+25.4
111	Dip	2	15	41+90.2	41+86.7	3.5	-0.33	41+88.3
112	Dip	1	15	42+36.3	42+32.3	4.0	-0.40	42+34.4
113	Bump	2	15	42+51.0	42+43.9	7.1	0.51	42+47.6
114	Bump	1	15	42+53.3	42+39.0	14.3	0.83	42+46.3
115	Dip	2	15	42+66.0	42+51.2	14.8	-0.73	42+60.8
116	Dip	1	15	42+66.8	42+48.3	18.5	-1.10	42+59.3
117	Bump	2	15	42+76.4	42+63.3	13.2	0.66	42+70.7
118	Bump	1	15	42+76.5	42+61.0	15.5	0.79	42+70.3
119	Dip	2	15	42+85.4	42+78.3	7.2	-0.36	42+83.6

Defect Locations - Run 1 - By Station							
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
120	Dip	1	15	43+31.2	43+28.7	2.5	-0.31	43+29.9
121	Bump	1	15	43+78.1	43+73.2	4.9	0.36	43+75.8
122	Bump	2	15	43+79.7	43+73.4	6.3	0.36	43+77.9
123	Dip	2	15	43+92.6	43+84.3	8.3	-0.38	43+89.5
124	Dip	2	15	44+36.8	44+28.8	7.9	-0.37	44+32.3
125	Dip	1	15	44+38.1	44+28.8	9.2	-0.41	44+35.3
126	Bump	1	15	44+44.0	44+38.8	5.2	0.47	44+40.1
127	Bump	2	15	44+44.4	44+39.7	4.7	0.41	44+41.0
128	Dip	1	15	44+55.7	44+48.6	7.1	-0.45	44+54.3
129	Dip	2	15	44+69.3	44+65.6	3.8	-0.33	44+68.7
130	Bump	1	14	44+73.4	44+56.8	16.6	0.44	44+70.2
131	Dip	1	14	44+87.8	44+81.4	6.3	-0.38	44+86.0
132	Dip	2	14	45+32.1	45+25.2	6.9	-0.34	45+30.8
133	Dip	1	14	46+22.8	46+10.1	12.7	-0.43	46+15.1
134	Bump	2	14	46+27.6	46+24.8	2.8	0.40	46+25.8
135	Bump	1	14	46+29.5	46+23.6	5.9	0.50	46+25.1
136	Dip	2	14	46+41.1	46+34.3	6.8	-0.41	46+39.0
137	Dip	1	14	46+47.8	46+37.1	10.7	-0.41	46+43.2
138	Bump	2	14	46+56.8	46+47.8	9.1	0.49	46+55.0
139	Bump	1	14	46+60.4	46+52.8	7.6	0.50	46+54.9
140	Dip	2	14	46+77.3	46+66.8	10.5	-0.40	46+73.3
141	Dip	1	14	46+79.6	46+71.2	8.4	-0.45	46+74.9
142	Bump	1	14	46+98.2	46+94.7	3.5	0.41	46+96.2
143	Dip	1	14	47+57.6	47+51.5	6.1	-0.37	47+53.7
144	Dip	1	14	49+24.5	49+16.0	8.5	-0.35	49+23.7
145	Bump	1	14	49+29.1	49+25.3	3.8	0.46	49+26.4
146	Bump	2	14	49+30.3	49+26.1	4.2	0.42	49+27.5
147	Dip	1	14	49+41.3	49+36.8	4.5	-0.33	49+39.7
148	Dip	2	14	49+43.4	49+33.7	9.7	-0.44	49+39.3
149	Bump	2	14	49+58.7	49+56.0	2.7	0.37	49+57.3
150	Dip	1	14	49+70.4	49+68.3	2.1	-0.32	49+69.5
151	Dip	2	13	51+77.2	51+69.8	7.4	-0.37	51+73.7
152	Bump	2	13	51+91.5	51+80.3	11.3	0.56	51+84.7
153	Dip	2	13	52+03.5	51+91.8	11.7	-0.57	51+96.0
154	Bump	2	13	52+11.6	52+07.9	3.7	0.37	52+10.0
155	Dip	1	13	52+37.3	52+34.9	2.3	-0.34	52+36.5
156	Dip	1	13	52+69.3	52+63.7	5.6	-0.38	52+68.3
157	Bump	1	13	52+73.1	52+70.0	3.1	0.43	52+71.0
158	Dip	1	13	52+98.8	52+94.7	4.2	-0.34	52+98.1
159	Dip	1	12	59+66.0	59+61.6	4.4	-0.33	59+64.1
160	Bump	1	12	59+78.1	59+73.4	4.7	0.46	59+75.2
161	Dip	1	12	60+27.8	60+25.4	2.3	-0.32	60+26.5
162	Dip	2	12	60+28.8	60+24.4	4.3	-0.33	60+27.2
163	Bump	1	12	60+41.0	60+36.5	4.5	0.46	60+38.0
164	Bump	2	12	60+41.7	60+36.4	5.2	0.42	60+39.0
165	Dip	1	11	60+93.7	60+87.3	6.3	-0.36	60+92.1
166	Dip	2	11	60+94.5	60+91.7	2.8	-0.33	60+93.4
167	Bump	2	11	61+00.8	60+97.9	2.8	0.36	60+99.1
168	Dip	2	11	61+24.8	61+19.2	5.7	-0.32	61+21.8
169	Bump	2	11	61+32.6	61+29.9	2.7	0.38	61+30.8
170	Bump	1	11	62+22.1	62+13.1	9.0	0.41	62+20.4
171	Bump	2	11	62+24.2	62+20.8	3.3	0.41	62+22.2
172	Dip	1	11	62+33.5	62+24.4	9.1	-0.64	62+31.5
173	Dip	2	11	62+34.7	62+27.3	7.4	-0.56	62+32.9

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
174	Bump	2	11	62+65.3	62+59.8	5.4	0.41	62+63.2
175	Bump	1	11	62+66.3	62+59.9	6.4	0.54	62+63.4
176	Dip	1	11	62+77.4	62+68.6	8.8	-0.35	62+74.5
177	Bump	1	11	64+18.0	64+15.3	2.7	0.41	64+16.5
178	Bump	1	11	65+11.8	65+07.9	3.9	0.42	65+09.0
179	Dip	1	11	65+36.8	65+25.3	11.6	-0.42	65+29.3
180	Bump	1	11	65+40.6	65+38.3	2.3	0.37	65+39.1
181	Bump	1	11	65+72.3	65+70.3	2.1	0.37	65+71.2
182	Dip	1	10	66+92.3	66+81.8	10.5	-0.44	66+91.1
183	Bump	2	10	66+97.9	66+93.5	4.4	0.46	66+94.8
184	Bump	1	10	67+04.4	66+92.4	12.0	0.56	66+93.9
185	Dip	1	10	67+22.3	67+05.2	17.2	-0.71	67+13.3
186	Dip	2	10	67+22.5	67+07.2	15.3	-0.45	67+13.7
187	Bump	2	10	67+26.0	67+23.9	2.1	0.37	67+24.8
188	Bump	1	10	67+30.5	67+22.3	8.2	0.59	67+23.8
189	Dip	1	10	67+83.9	67+81.9	2.0	-0.33	67+83.2
190	Bump	1	10	67+87.5	67+85.0	2.5	0.40	67+85.9
191	Dip	1	10	68+13.6	67+97.8	15.8	-0.37	67+99.4
192	Dip	2	10	68+14.6	68+04.7	9.9	-0.37	68+10.8
193	Bump	1	10	68+17.0	68+15.0	2.0	0.38	68+15.8
194	Bump	2	10	68+68.9	68+64.8	4.1	0.41	68+66.1
195	Dip	2	10	68+83.4	68+73.9	9.5	-0.43	68+77.1
196	Dip	1	10	68+88.5	68+81.1	7.4	-0.35	68+83.8
197	Bump	1	10	68+96.0	68+92.9	3.1	0.40	68+94.0
198	Bump	2	10	68+96.1	68+94.0	2.1	0.35	68+94.9
199	Dip	1	10	69+38.3	69+29.4	8.8	-0.40	69+37.2
200	Bump	1	10	69+41.8	69+39.0	2.8	0.41	69+40.0
201	Dip	1	10	69+55.2	69+50.2	5.0	-0.35	69+53.9
202	Dip	1	10	70+46.9	70+38.6	8.3	-0.33	70+45.3
203	Bump	1	10	70+63.5	70+60.3	3.2	0.41	70+61.8
204	Dip	1	10	70+76.0	70+74.0	2.0	-0.32	70+75.3
205	Dip	1	9	71+52.1	71+43.3	8.8	-0.33	71+45.1
206	Bump	1	9	71+55.9	71+53.4	2.5	0.40	71+54.4
207	Dip	1	9	71+82.7	71+77.2	5.4	-0.36	71+81.8
208	Bump	1	9	71+85.8	71+83.7	2.2	0.37	71+84.5
209	Dip	1	9	72+14.9	72+10.9	4.0	-0.38	72+14.0
210	Bump	1	9	72+18.1	72+15.8	2.3	0.39	72+16.6
211	Dip	1	9	72+92.1	72+81.8	10.2	-0.42	72+91.1
212	Bump	1	9	72+96.2	72+92.8	3.5	0.42	72+93.8
213	Dip	1	9	73+80.8	73+77.7	3.1	-0.34	73+79.4
214	Dip	1	9	74+11.5	74+07.1	4.4	-0.31	74+10.0
215	Bump	1	9	74+19.2	74+17.2	2.0	0.34	74+18.0
216	Bump	1	9	74+62.1	74+60.0	2.1	0.39	74+60.8
217	Dip	2	9	74+89.9	74+81.1	8.8	-0.36	74+85.8
218	Dip	1	8	76+44.1	76+36.3	7.8	-0.36	76+43.2
219	Bump	1	8	76+47.8	76+45.1	2.7	0.37	76+45.9
220	Bump	2	8	78+03.3	78+00.4	2.9	0.43	78+01.5
221	Bump	1	8	78+03.4	77+99.2	4.2	0.45	78+00.3
222	Dip	2	8	78+15.9	78+12.7	3.2	-0.36	78+14.8
223	Dip	1	8	78+21.8	78+12.4	9.4	-0.36	78+14.0
224	Bump	1	8	78+32.1	78+28.9	3.2	0.45	78+30.3
225	Bump	1	8	79+09.8	79+07.4	2.4	0.35	79+08.4
226	Bump	1	8	79+40.7	79+38.5	2.2	0.37	79+39.5
227	Bump	2	8	79+42.3	79+38.7	3.6	0.36	79+40.5

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
228	Bump	1	8	80+78.3	80+75.3	3.0	0.36	80+76.9
229	Dip	1	8	80+89.2	80+85.9	3.2	-0.33	80+88.2
230	Dip	1	8	81+55.2	81+46.5	8.7	-0.37	81+51.4
231	Dip	1	7	83+40.4	83+30.7	9.7	-0.41	83+38.7
232	Dip	2	7	83+41.1	83+31.8	9.2	-0.36	83+37.7
233	Bump	1	7	83+56.0	83+53.5	2.5	0.38	83+54.7
234	Dip	1	7	84+00.3	83+89.6	10.7	-0.38	83+96.5
235	Bump	1	7	84+03.6	84+01.3	2.2	0.38	84+02.3
236	Dip	1	7	84+29.2	84+22.2	7.0	-0.32	84+23.6
237	Bump	1	7	84+36.8	84+33.1	3.8	0.41	84+34.3
238	Bump	1	7	84+79.5	84+75.8	3.7	0.44	84+77.4
239	Dip	1	7	84+93.3	84+81.0	12.2	-0.60	84+88.4
240	Bump	1	7	85+05.3	84+93.4	11.8	0.44	84+94.7
241	Dip	1	7	86+92.2	86+82.2	10.0	-0.39	86+84.6
242	Bump	1	6	86+98.7	86+92.9	5.7	0.48	86+94.3
243	Dip	1	6	87+16.9	87+07.1	9.8	-0.38	87+08.9
244	Bump	1	6	87+25.9	87+23.3	2.6	0.40	87+24.3
245	Dip	1	6	87+68.8	87+60.0	8.8	-0.31	87+68.5
246	Dip	1	6	87+84.2	87+81.8	2.3	-0.31	87+83.8
247	Dip	1	6	88+86.0	88+83.0	3.0	-0.31	88+84.3
248	Bump	1	6	88+96.5	88+94.3	2.3	0.38	88+95.3
249	Dip	2	6	89+16.2	89+12.1	4.1	-0.33	89+13.5
250	Dip	2	6	90+29.6	90+21.6	8.0	-0.33	90+25.6
251	Bump	1	6	90+32.8	90+29.6	3.2	0.41	90+30.7
252	Bump	2	6	90+34.2	90+30.8	3.3	0.40	90+31.9
253	Dip	1	6	90+45.9	90+39.8	6.2	-0.39	90+43.7
254	Bump	1	6	90+63.9	90+61.3	2.6	0.41	90+62.4
255	Bump	1	6	90+94.0	90+91.8	2.3	0.39	90+92.6
256	Dip	2	6	91+85.0	91+78.7	6.3	-0.35	91+83.3
257	Bump	2	6	91+92.8	91+90.6	2.2	0.35	91+91.6
258	Dip	1	5	93+40.9	93+32.7	8.2	-0.36	93+40.0
259	Bump	1	5	93+59.8	93+42.1	17.7	0.34	93+42.8
260	Dip	1	5	95+09.1	94+99.3	9.8	-0.37	95+05.8
261	Bump	2	5	95+14.8	95+11.2	3.7	0.40	95+12.6
262	Bump	1	5	95+16.0	95+10.2	5.8	0.49	95+11.6
263	Dip	1	5	95+25.1	95+21.9	3.2	-0.41	95+24.1
264	Dip	2	5	95+26.4	95+21.6	4.8	-0.39	95+25.3
265	Dip	1	5	97+09.2	97+04.7	4.6	-0.36	97+08.5
266	Bump	1	5	97+12.5	97+10.3	2.2	0.36	97+11.2
267	Bump	1	4	97+73.7	97+67.1	6.7	0.47	97+71.1
268	Bump	2	4	97+74.3	97+70.5	3.8	0.43	97+72.4
269	Dip	1	4	97+85.6	97+77.7	7.9	-0.37	97+82.7
270	Dip	1	4	98+36.2	98+29.8	6.3	-0.36	98+31.7
271	Dip	2	4	98+37.2	98+31.8	5.4	-0.35	98+33.1
272	Bump	1	4	98+50.0	98+46.8	3.2	0.36	98+48.5
273	Bump	2	4	98+50.6	98+44.6	6.0	0.44	98+49.1
274	Dip	2	4	98+61.2	98+54.4	6.8	-0.32	98+59.5
275	Dip	2	4	101+19.5	101+14.8	4.7	-0.32	101+16.4
276	Dip	2	3	103+20.7	103+16.4	4.2	-0.33	103+18.8
277	Dip	2	3	103+56.6	103+47.2	9.4	-0.37	103+53.3
278	Bump	2	3	103+72.0	103+59.4	12.6	0.42	103+68.2
279	Bump	2	3	104+05.7	103+99.5	6.2	0.46	104+02.9
280	Dip	2	3	104+17.6	104+10.8	6.8	-0.38	104+14.8
281	Dip	2	3	104+54.8	104+49.8	5.0	-0.32	104+50.8

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
282	Bump	2	3	104+72.4	104+61.2	11.3	0.50	104+65.4
283	Dip	1	3	104+90.2	104+83.0	7.2	-0.38	104+85.8
284	Dip	2	3	104+91.6	104+76.3	15.3	-0.53	104+86.1
285	Bump	1	3	104+98.5	104+93.3	5.2	0.40	104+94.4
286	Bump	2	3	105+04.1	104+92.9	11.2	0.53	104+95.8
287	Dip	2	3	105+20.1	105+08.8	11.3	-0.38	105+17.8
288	Bump	2	3	105+32.6	105+26.3	6.3	0.38	105+27.8
289	Bump	2	3	105+74.4	105+68.6	5.8	0.33	105+73.5
290	Dip	2	3	105+86.6	105+77.8	8.8	-0.40	105+84.7
291	Bump	2	3	105+98.2	105+89.4	8.8	0.31	105+90.3
292	Dip	2	3	106+54.4	106+51.9	2.5	-0.32	106+53.0
293	Bump	2	3	106+68.3	106+64.0	4.3	0.41	106+66.1
294	Dip	2	3	106+79.0	106+76.2	2.8	-0.35	106+78.0
295	Bump	1	3	106+98.0	106+94.9	3.1	0.39	106+96.2
296	Bump	2	3	107+04.1	106+94.7	9.4	0.54	106+97.7
297	Dip	2	3	107+22.7	107+10.3	12.3	-0.41	107+17.9
298	Dip	2	3	107+85.3	107+80.6	4.7	-0.33	107+83.7
299	Bump	2	3	108+05.6	107+90.1	15.5	0.31	108+05.1
300	Dip	1	2	108+18.0	108+11.9	6.1	-0.36	108+15.0
301	Dip	2	2	108+18.8	108+10.1	8.7	-0.40	108+15.3
302	Bump	2	2	108+36.2	108+22.2	14.0	0.35	108+27.6
303	Dip	1	2	108+47.5	108+44.8	2.8	-0.33	108+46.3
304	Dip	2	2	108+48.3	108+39.7	8.7	-0.36	108+45.9
305	Dip	1	2	108+83.6	108+73.4	10.2	-0.47	108+78.5
306	Dip	2	2	108+83.8	108+74.0	9.8	-0.50	108+79.2
307	Bump	2	2	108+93.0	108+85.6	7.4	0.49	108+87.8
308	Bump	1	2	108+94.9	108+84.5	10.4	0.52	108+86.4
309	Dip	1	2	109+07.8	108+97.1	10.7	-0.41	109+04.3
310	Bump	1	2	109+18.1	109+11.2	6.8	0.36	109+16.3
311	Bump	1	2	109+57.5	109+55.5	2.0	0.34	109+56.4
312	Dip	2	2	109+81.2	109+70.8	10.3	-0.39	109+77.0
313	Bump	1	2	109+87.9	109+85.7	2.3	0.34	109+86.5
314	Bump	2	2	109+92.3	109+85.9	6.3	0.42	109+88.1
315	Dip	2	2	111+39.5	111+35.7	3.8	-0.33	111+37.8
316	Bump	2	2	112+53.3	112+51.2	2.0	0.33	112+52.1
317	Bump	1	1	113+59.0	113+55.9	3.1	0.41	113+57.3
318	Bump	2	1	113+59.8	113+57.5	2.3	0.37	113+58.5
319	Dip	1	1	113+72.6	113+61.8	10.8	-0.43	113+68.8
320	Bump	1	1	113+76.5	113+73.5	3.0	0.42	113+74.6
321	Dip	1	1	113+88.1	113+85.3	2.8	-0.36	113+87.2
322	Dip	1	1	114+34.0	114+23.0	11.0	-0.38	114+25.6
323	Bump	2	1	114+39.4	114+34.8	4.7	0.45	114+37.0
324	Bump	1	1	114+40.2	114+34.5	5.7	0.53	114+35.9
325	Dip	1	1	114+48.8	114+44.3	4.5	-0.40	114+47.7
326	Dip	2	1	114+50.0	114+45.1	4.9	-0.36	114+48.5
327	Bump	1	1	114+72.2	114+65.3	7.0	0.62	114+67.2
328	Bump	2	1	114+72.3	114+65.5	6.8	0.55	114+68.4
329	Dip	1	1	114+81.5	114+72.6	8.9	-0.53	114+79.8
330	Dip	2	1	114+82.6	114+74.1	8.5	-0.47	114+81.2
331	Dip	1	1	115+27.3	115+15.8	11.5	-0.44	115+26.0
332	Dip	2	1	115+28.0	115+17.5	10.5	-0.37	115+24.2
333	Bump	2	1	115+34.8	115+29.3	5.6	0.39	115+30.3
334	Bump	1	1	115+43.4	115+27.9	15.5	0.43	115+28.9
335	Dip	1	1	115+57.5	115+47.8	9.7	-0.33	115+55.2

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
336	Dip	2	1	115+57.8	115+47.3	10.4	-0.38	115+49.9
337	Bump	2	1	115+63.6	115+60.3	3.3	0.40	115+61.4
338	Dip	2	1	116+35.3	116+30.9	4.4	-0.38	116+34.4
339	Bump	1	1	116+37.1	116+35.0	2.1	0.37	116+35.8
340	Bump	2	1	116+39.0	116+36.2	2.8	0.40	116+37.1
341	Dip	1	1	116+51.7	116+40.2	11.4	-0.50	116+50.3
342	Bump	1	1	116+55.2	116+51.8	3.3	0.52	116+52.9
343	Dip	1	1	116+66.8	116+57.4	9.4	-0.52	116+65.7
344	Bump	1	1	116+70.8	116+67.0	3.8	0.51	116+68.2
345	Dip	1	1	116+84.0	116+71.9	12.1	-0.55	116+82.4
346	Bump	2	1	116+90.5	116+85.0	5.5	0.48	116+86.4
347	Bump	1	1	116+90.6	116+84.0	6.6	0.58	116+85.3
348	Dip	2	1	116+98.3	116+94.9	3.3	-0.42	116+97.3
349	Dip	1	1	117+12.8	116+95.1	17.7	-0.43	117+02.8
350	Bump	1	1	117+29.5	117+13.7	15.8	0.38	117+14.7
351	Bump	2	1	117+31.0	117+29.0	2.0	0.38	117+29.8
352	Dip	1	1	117+43.0	117+34.1	8.9	-0.36	117+38.6
353	Dip	2	1	117+45.2	117+34.4	10.8	-0.35	117+44.2
354	Bump	1	1	117+51.1	117+44.3	6.8	0.49	117+45.9
355	Bump	2	1	117+51.3	117+45.6	5.7	0.54	117+47.1
356	Dip	2	1	117+67.4	117+50.8	16.6	-0.79	117+59.8
357	Dip	1	1	117+67.5	117+52.1	15.4	-0.67	117+58.7
358	Bump	2	1	117+82.8	117+70.3	12.6	0.61	117+77.5
359	Bump	1	1	117+83.2	117+70.1	13.1	0.63	117+77.2
360	Dip	2	1	117+90.8	117+86.3	4.5	-0.34	117+89.5
361	Dip	1	1	118+20.2	118+15.4	4.7	-0.38	118+19.2
362	Bump	1	1	118+24.3	118+20.9	3.4	0.41	118+21.9
363	Dip	1	1	118+36.7	118+33.8	3.0	-0.32	118+36.2

Track 1 defects: 200
Track 2 defects: 163
Total defects: 363

No user events found for Run 1

Certified by: _____

Title: _____

Organization: _____

SSI Profiler Version 3.2.7.44
Licensed to Illinois Dept of Transportation - Springfield, Il

Data File: 1810011122.rsd

Stations: Run 1 - 118+79.0 to 231+67.3
Start GPS: 41 24' 39.11" N 90 31' 31.18" W
End GPS: 41 22' 58.19" N 90 30' 47.78" W

Run Speed (Avg, Max, Min):
Run 1 - 44.4, 49.3, 27.4 mph

Total Distance: 112+88.3

Date [Paved/Corrected]:
Run 1 - 9/30/2018 11:05:53 AM

Date Tested:
Run 1 - 10/1/2018 11:16:54 AM

File Modifications:
Run 1 - Start Station Changed to 11879.0 ft

Project Parameters
Project Number:
State: Illinois
County: Rock Island
Contractor: TBD
Pavement Type: Surface
Traffic Direction: EB
Highway: Knoxville Rd
Number of Lanes: 1
Direction of Paving: EB
Tested by: Scott Vesely, Lucas Megli
Paving Action:
Special Provisions:
Report Specification:
Report Memo: Bounce Test Verification

Calibration Settings
Distance: 336317 encoder counts in 528.00 ft.
Track 1:
Height Sensor Type: RoLine 1145 / Gocator
Height Sensor Level Reading: 0.00 in.
Accelerometer Constant: 8539.794
Track 2:
Height Sensor Type: RoLine 1145 / Gocator
Height Sensor Level Reading: 0.00 in.
Accelerometer Constant: 14527.4115
IMU/Inclinometer:
Type: Inertial Inclinometer
Cross Slope Level Reading: NaN rad.

Filter Settings
Filter Type: None

Localized Roughness Settings
Simulated Profilograph Data Used for Defects Analysis
Bump Height: 0.30 in
Bump Width: 25.00 ft
Dip Depth: 0.30 in
Dip Width: 25.00 ft

Summary - Run 1 - EB Knoxville RD Section 2 from to midpoint to end near dump.						
Track 1			Track 2			Average
Segment	Station (ft)	IRI (in/mi)	Segment	Station (ft)	IRI (in/mi)	IRI (in/mi)
1	118+79.0 124+07.0	288.90	1	118+79.0 124+07.0	232.87	260.88

Summary - Run 1 - EB Knoxville RD Section 2 from to midpoint to end near dump.						
Track 1			Track 2			Average
Segment	Station (ft)	IRI (in/mi)	Segment	Station (ft)	IRI (in/mi)	IRI (in/mi)
2	124+07.0 129+35.0	329.32	2	124+07.0 129+35.0	264.56	296.94
3	129+35.0 134+63.0	311.31	3	129+35.0 134+63.0	250.73	281.02
4	134+63.0 139+91.0	276.92	4	134+63.0 139+91.0	210.19	243.56
5	139+91.0 145+19.0	230.41	5	139+91.0 145+19.0	173.45	201.93
6	145+19.0 150+47.0	248.65	6	145+19.0 150+47.0	193.59	221.12
7	150+47.0 155+75.0	252.46	7	150+47.0 155+75.0	188.41	220.44
8	155+75.0 161+03.0	247.25	8	155+75.0 161+03.0	186.13	216.69
9	161+03.0 166+31.0	249.47	9	161+03.0 166+31.0	193.14	221.31
10	166+31.0 171+59.0	205.67	10	166+31.0 171+59.0	167.10	186.38
11	171+59.0 176+87.0	217.82	11	171+59.0 176+87.0	179.53	198.67
12	176+87.0 182+15.0	303.87	12	176+87.0 182+15.0	242.93	273.40
13	182+15.0 187+43.0	256.56	13	182+15.0 187+43.0	199.63	228.09
14	187+43.0 192+71.0	254.68	14	187+43.0 192+71.0	208.55	231.61
15	192+71.0 197+99.0	202.11	15	192+71.0 197+99.0	172.75	187.43
16	197+99.0 203+27.0	222.29	16	197+99.0 203+27.0	178.93	200.61
17	203+27.0 208+55.0	261.18	17	203+27.0 208+55.0	179.37	220.28
18	208+55.0 213+83.0	214.89	18	208+55.0 213+83.0	150.86	182.87
19	213+83.0 219+11.0	209.44	19	213+83.0 219+11.0	147.40	178.42
20	219+11.0 224+39.0	215.21	20	219+11.0 224+39.0	150.65	182.93
21	224+39.0 231+67.3	232.06	21	224+39.0 231+67.3	176.04	204.05
	118+79.0 231+67.3	248.77		118+79.0 231+67.3	192.41	220.59

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
1	Bump	1	1	118+99.6	119+02.0	2.4	0.40	119+01.1
2	Dip	1	1	119+02.8	119+18.5	15.7	-0.37	119+03.8
3	Bump	1	1	119+28.2	119+33.8	5.6	0.49	119+32.2
4	Dip	2	1	119+47.6	119+54.9	7.3	-0.36	119+48.7
5	Dip	1	1	119+48.2	119+55.2	6.9	-0.45	119+49.8
6	Bump	1	1	119+60.4	119+72.2	11.8	0.51	119+64.5
7	Bump	2	1	119+60.6	119+70.4	9.8	0.46	119+63.3
8	Dip	2	1	119+77.8	119+82.8	5.0	-0.37	119+78.8
9	Dip	1	1	119+78.2	119+84.4	6.2	-0.47	119+79.8
10	Bump	2	1	119+90.8	120+06.3	15.5	0.37	119+92.3
11	Bump	1	1	119+91.1	120+08.1	17.0	0.46	119+93.6

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
12	Dip	1	1	120+05.0	120+19.8	14.8	-0.87	120+10.0
13	Dip	2	1	120+05.8	120+16.9	11.1	-0.72	120+08.7
14	Bump	2	1	120+14.7	120+28.5	13.8	0.77	120+23.3
15	Bump	1	1	120+15.5	120+31.8	16.2	0.90	120+24.6
16	Dip	2	1	120+29.8	120+41.7	11.8	-0.38	120+40.4
17	Dip	1	1	120+40.2	120+51.0	10.8	-0.62	120+42.1
18	Dip	2	1	120+55.7	120+62.2	6.5	-0.56	120+57.6
19	Dip	1	1	120+58.1	120+60.1	2.0	-0.37	120+58.8
20	Bump	2	1	120+60.2	120+78.8	18.6	1.19	120+68.7
21	Bump	1	1	120+61.3	120+79.7	18.3	1.12	120+69.9
22	Dip	2	1	120+75.9	120+96.6	20.7	-1.61	120+86.3
23	Dip	1	1	120+76.8	120+98.0	21.2	-1.72	120+87.5
24	Bump	2	1	120+90.2	121+07.2	17.0	1.06	120+98.8
25	Bump	1	1	120+90.8	121+08.4	17.7	1.24	120+99.8
26	Dip	1	1	121+03.2	121+13.3	10.2	-0.40	121+10.2
27	Bump	1	1	121+15.6	121+17.8	2.3	0.39	121+16.9
28	Dip	1	1	121+19.0	121+28.3	9.3	-0.31	121+19.6
29	Dip	2	1	121+19.6	121+29.9	10.3	-0.41	121+26.8
30	Dip	2	1	122+25.2	122+30.8	5.5	-0.33	122+27.5
31	Dip	1	1	122+26.3	122+31.1	4.8	-0.35	122+27.3
32	Bump	1	1	122+82.9	122+85.6	2.7	0.39	122+84.6
33	Bump	1	1	122+84.3	123+02.8	18.5	0.42	123+01.8
34	Dip	1	1	123+03.3	123+13.7	10.5	-0.51	123+06.5
35	Bump	2	1	123+23.2	123+33.4	10.2	0.35	123+32.7
36	Dip	1	1	124+03.5	124+12.3	8.8	-0.34	124+05.1
37	Bump	1	2	124+26.3	124+40.3	14.0	0.31	124+26.7
38	Dip	1	2	124+41.2	124+43.9	2.7	-0.41	124+42.3
39	Bump	1	2	124+54.0	124+56.5	2.5	0.39	124+55.6
40	Dip	1	2	124+71.3	124+74.9	3.7	-0.41	124+72.4
41	Bump	1	2	124+82.0	124+87.8	5.7	0.43	124+86.7
42	Bump	1	2	124+86.0	125+02.8	16.8	0.45	125+01.7
43	Bump	2	2	124+98.6	125+01.6	3.0	0.42	125+00.6
44	Dip	2	2	125+02.0	125+10.9	8.9	-0.50	125+03.3
45	Dip	1	2	125+02.8	125+13.4	10.7	-0.64	125+04.5
46	Bump	1	2	125+13.7	125+32.9	19.2	0.76	125+18.9
47	Bump	2	2	125+14.3	125+19.7	5.4	0.53	125+17.8
48	Dip	1	2	125+33.3	125+44.3	11.0	-0.50	125+34.6
49	Bump	1	2	125+47.4	125+63.1	15.7	0.42	125+62.2
50	Dip	1	2	125+63.8	125+74.3	10.6	-0.40	125+64.8
51	Bump	1	2	125+78.1	125+95.0	16.9	0.39	125+94.2
52	Dip	2	2	125+80.0	125+83.8	3.8	-0.33	125+80.7
53	Dip	1	2	125+95.8	126+06.8	11.0	-0.39	125+96.8
54	Bump	2	2	126+38.6	126+54.3	15.7	0.42	126+53.2
55	Bump	1	2	126+39.1	126+41.4	2.3	0.43	126+40.5
56	Dip	1	2	126+42.1	126+44.3	2.2	-0.38	126+42.9
57	Dip	2	2	126+54.6	126+63.7	9.1	-0.49	126+56.0
58	Dip	1	2	126+56.0	126+63.5	7.5	-0.42	126+57.0
59	Bump	2	2	126+68.9	126+71.2	2.3	0.36	126+70.3
60	Bump	1	2	126+69.0	126+72.9	3.9	0.49	126+71.8
61	Dip	1	2	126+73.1	126+80.8	7.8	-0.50	126+74.3
62	Bump	2	2	126+82.3	126+86.8	4.5	0.47	126+85.5
63	Bump	1	2	126+84.4	126+88.3	3.9	0.49	126+86.9
64	Dip	2	2	126+87.9	126+97.4	9.5	-0.35	126+94.2
65	Dip	1	2	126+90.9	126+98.5	7.6	-0.34	126+92.5

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
66	Bump	2	2	127+58.0	127+76.8	18.8	0.50	127+66.2
67	Bump	1	2	127+59.3	127+77.2	18.0	0.36	127+60.3
68	Dip	2	2	127+77.2	127+95.8	18.6	-0.47	127+78.4
69	Dip	1	2	127+92.9	128+04.5	11.6	-0.63	127+94.9
70	Bump	1	2	128+00.8	128+10.9	10.1	0.84	128+09.1
71	Bump	2	2	128+04.3	128+09.9	5.7	0.58	128+08.1
72	Dip	1	2	128+10.4	128+25.3	14.9	-0.57	128+11.7
73	Bump	1	2	128+68.3	128+70.3	2.0	0.38	128+69.6
74	Dip	1	2	128+71.1	128+74.2	3.2	-0.40	128+71.9
75	Dip	1	2	128+86.2	128+91.2	5.0	-0.36	128+87.3
76	Bump	1	2	129+00.4	129+15.3	14.9	0.40	129+14.5
77	Dip	1	2	129+16.1	129+21.3	5.2	-0.41	129+17.2
78	Bump	1	3	129+42.9	129+45.7	2.7	0.40	129+44.7
79	Dip	2	3	129+45.9	129+49.7	3.8	-0.33	129+46.7
80	Dip	1	3	129+46.4	129+56.8	10.3	-0.40	129+47.6
81	Bump	2	3	129+59.3	129+61.3	2.0	0.36	129+60.5
82	Bump	1	3	129+59.8	129+62.8	3.0	0.44	129+61.8
83	Dip	2	3	129+62.5	129+66.0	3.5	-0.34	129+63.2
84	Dip	1	3	129+63.4	129+70.0	6.6	-0.42	129+64.4
85	Bump	1	3	129+75.3	129+78.2	2.9	0.45	129+77.1
86	Dip	1	3	129+81.3	129+96.7	15.4	-0.32	129+82.5
87	Bump	2	3	130+04.8	130+06.8	2.0	0.37	130+05.9
88	Dip	2	3	130+17.2	130+24.3	7.2	-0.31	130+18.1
89	Dip	1	3	130+24.8	130+26.9	2.1	-0.37	130+25.5
90	Bump	2	3	130+31.5	130+35.9	4.4	0.49	130+34.7
91	Bump	1	3	130+33.3	130+35.7	2.4	0.41	130+34.7
92	Dip	2	3	130+36.3	130+47.4	11.1	-0.40	130+37.5
93	Dip	1	3	130+36.4	130+46.7	10.2	-0.39	130+37.3
94	Bump	1	3	130+53.9	130+70.2	16.3	0.45	130+69.1
95	Dip	2	3	130+54.9	130+57.3	2.3	-0.33	130+55.5
96	Dip	1	3	130+70.6	130+82.1	11.5	-0.47	130+72.0
97	Dip	1	3	130+88.0	130+90.1	2.1	-0.36	130+88.7
98	Bump	2	3	130+96.8	130+99.1	2.2	0.42	130+98.2
99	Dip	1	3	131+29.3	131+32.1	2.8	-0.33	131+29.9
100	Dip	2	3	131+30.1	131+32.8	2.7	-0.31	131+30.4
101	Bump	1	3	131+46.1	131+60.4	14.3	0.38	131+59.7
102	Dip	2	3	131+47.2	131+49.2	2.0	-0.34	131+47.8
103	Dip	1	3	131+61.2	131+65.3	4.2	-0.40	131+62.2
104	Bump	1	3	131+88.3	131+90.7	2.4	0.38	131+89.8
105	Dip	1	3	131+91.5	132+01.8	10.3	-0.44	131+93.9
106	Bump	1	3	132+04.4	132+08.0	3.6	0.45	132+06.9
107	Dip	1	3	132+08.4	132+16.8	8.3	-0.43	132+09.4
108	Bump	2	3	132+18.9	132+21.8	2.9	0.43	132+20.8
109	Bump	1	3	132+20.4	132+23.0	2.6	0.43	132+22.0
110	Dip	2	3	132+22.7	132+33.6	10.8	-0.39	132+26.7
111	Dip	1	3	132+23.8	132+34.6	10.7	-0.43	132+27.1
112	Dip	1	3	133+03.7	133+07.4	3.8	-0.35	133+04.4
113	Bump	1	3	133+31.8	133+46.9	15.1	0.38	133+32.9
114	Dip	2	3	133+47.7	133+50.9	3.2	-0.32	133+49.3
115	Dip	1	3	133+48.8	133+59.4	10.7	-0.35	133+52.3
116	Bump	2	3	133+61.0	133+63.2	2.2	0.38	133+62.3
117	Bump	1	3	133+62.3	133+79.0	16.7	0.41	133+63.6
118	Dip	1	3	133+80.1	133+91.1	11.0	-0.36	133+81.0
119	Bump	1	3	133+94.6	134+08.4	13.8	0.36	133+95.5

Defect Locations - Run 1 - By Station							
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
120	Dip	1	3	134+10.8	134+20.1	9.3	-0.32	134+19.2
121	Bump	1	3	134+36.6	134+39.2	2.6	0.38	134+38.2
122	Dip	1	3	134+40.9	134+44.7	3.8	-0.32	134+43.6
123	Bump	2	4	134+83.9	134+86.8	2.9	0.44	134+85.7
124	Bump	1	4	134+85.8	134+87.8	2.0	0.37	134+87.0
125	Dip	1	4	135+63.2	135+68.2	4.9	-0.38	135+64.3
126	Bump	2	4	135+69.7	135+80.2	10.6	0.68	135+77.3
127	Bump	1	4	135+72.9	135+82.8	9.8	0.68	135+78.6
128	Dip	2	4	135+79.4	135+94.7	15.3	-0.51	135+88.8
129	Dip	1	4	135+83.7	135+96.7	13.0	-0.49	135+93.4
130	Dip	2	4	136+07.5	136+10.2	2.7	-0.36	136+08.6
131	Bump	2	4	136+15.4	136+23.5	8.1	0.59	136+20.1
132	Bump	1	4	136+16.5	136+23.4	6.9	0.59	136+21.2
133	Dip	2	4	136+38.4	136+43.2	4.7	-0.36	136+40.4
134	Dip	1	4	136+39.4	136+44.0	4.6	-0.42	136+40.7
135	Dip	1	4	136+84.2	136+89.3	5.0	-0.43	136+85.3
136	Bump	1	4	136+97.8	137+13.0	15.2	0.36	136+98.7
137	Dip	1	4	137+14.7	137+18.9	4.2	-0.33	137+15.3
138	Dip	1	4	137+46.4	137+50.7	4.2	-0.35	137+47.2
139	Dip	1	4	137+92.3	137+95.0	2.7	-0.37	137+93.2
140	Dip	1	4	138+06.9	138+11.5	4.6	-0.33	138+08.0
141	Dip	2	4	138+07.1	138+09.7	2.6	-0.31	138+08.1
142	Bump	2	4	138+17.9	138+22.0	4.1	0.48	138+20.3
143	Bump	1	4	138+19.2	138+37.2	17.9	0.54	138+21.6
144	Dip	1	4	138+23.3	138+25.4	2.2	-0.36	138+23.9
145	Dip	1	4	138+38.3	138+49.2	10.9	-0.38	138+42.1
146	Dip	2	4	138+96.5	139+04.3	7.8	-0.39	139+00.0
147	Dip	1	4	138+98.4	139+05.1	6.7	-0.35	139+00.2
148	Bump	2	4	139+10.3	139+13.1	2.8	0.39	139+12.0
149	Bump	1	4	139+11.7	139+28.8	17.2	0.42	139+13.3
150	Dip	1	4	139+29.9	139+40.3	10.4	-0.42	139+34.2
151	Dip	2	5	141+16.6	141+25.5	8.9	-0.39	141+21.4
152	Dip	1	5	141+19.5	141+27.9	8.4	-0.43	141+23.2
153	Bump	2	5	141+28.3	141+37.5	9.2	0.42	141+34.2
154	Bump	1	5	141+29.7	141+39.5	9.8	0.56	141+35.0
155	Dip	1	5	141+40.8	141+51.0	10.2	-0.54	141+45.6
156	Dip	2	5	141+41.3	141+48.2	6.8	-0.38	141+45.0
157	Bump	1	5	141+55.7	141+58.1	2.3	0.38	141+57.1
158	Dip	2	5	141+73.6	141+76.6	3.0	-0.31	141+75.8
159	Dip	1	5	141+75.5	141+79.3	3.8	-0.33	141+77.4
160	Bump	2	5	141+85.4	141+87.7	2.3	0.39	141+86.8
161	Bump	1	5	141+86.2	142+03.6	17.4	0.42	141+88.2
162	Dip	1	5	142+04.7	142+15.4	10.8	-0.40	142+08.3
163	Bump	1	5	142+18.3	142+33.8	15.5	0.40	142+20.0
164	Dip	1	5	142+34.9	142+44.7	9.8	-0.36	142+35.7
165	Bump	1	5	142+61.2	142+63.9	2.7	0.42	142+62.9
166	Dip	1	5	142+64.9	142+76.5	11.6	-0.35	142+71.5
167	Bump	1	5	142+92.8	142+95.4	2.6	0.37	142+94.5
168	Dip	1	5	142+96.7	143+09.2	12.5	-0.40	143+04.9
169	Bump	1	5	143+17.8	143+25.5	7.7	0.45	143+24.3
170	Dip	1	5	143+26.2	143+38.4	12.2	-0.42	143+35.8
171	Bump	1	5	143+50.0	143+55.2	5.2	0.42	143+53.9
172	Bump	2	5	143+50.6	143+53.8	3.3	0.36	143+52.7
173	Bump	2	6	145+59.3	145+63.8	4.6	0.33	145+61.8

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
174	Dip	2	6	145+69.3	145+79.6	10.3	-0.40	145+73.2
175	Bump	2	6	145+84.7	145+91.7	7.1	0.37	145+87.3
176	Bump	1	6	147+06.6	147+21.6	15.0	0.34	147+07.3
177	Dip	2	6	147+21.3	147+27.0	5.7	-0.41	147+22.8
178	Dip	1	6	147+22.5	147+30.3	7.8	-0.46	147+23.8
179	Bump	2	6	147+32.9	147+38.3	5.4	0.51	147+37.1
180	Bump	1	6	147+34.2	147+39.5	5.2	0.51	147+38.3
181	Dip	2	6	147+38.7	147+42.0	3.3	-0.40	147+39.6
182	Dip	1	6	147+39.8	147+45.4	5.7	-0.47	147+40.7
183	Bump	1	6	147+52.2	147+54.3	2.2	0.40	147+53.5
184	Dip	2	6	147+54.2	147+62.3	8.2	-0.36	147+56.4
185	Dip	1	6	147+55.0	147+66.1	11.1	-0.41	147+56.4
186	Bump	1	6	147+69.8	147+83.9	14.2	0.36	147+70.7
187	Dip	1	6	148+15.9	148+20.5	4.6	-0.33	148+16.9
188	Bump	2	6	148+25.3	148+31.1	5.7	0.58	148+29.6
189	Bump	1	6	148+26.2	148+32.3	6.1	0.62	148+30.8
190	Dip	2	6	148+31.2	148+41.2	10.0	-0.45	148+32.3
191	Dip	1	6	148+32.2	148+42.9	10.8	-0.58	148+33.4
192	Bump	1	6	148+44.8	148+46.9	2.1	0.40	148+46.0
193	Dip	1	6	148+47.9	148+58.4	10.5	-0.36	148+51.9
194	Bump	1	6	149+83.2	149+85.3	2.0	0.33	149+84.4
195	Dip	1	7	150+93.4	151+00.9	7.5	-0.37	150+96.3
196	Bump	1	7	151+07.0	151+09.0	2.0	0.34	151+08.2
197	Dip	1	7	153+56.7	153+59.6	2.9	-0.32	153+58.3
198	Dip	1	7	153+87.3	153+92.6	5.3	-0.34	153+87.9
199	Dip	1	7	154+94.7	154+98.2	3.4	-0.33	154+95.4
200	Dip	1	7	155+24.7	155+26.9	2.2	-0.35	155+25.3
201	Dip	1	7	155+55.7	155+57.7	2.0	-0.31	155+56.2
202	Bump	1	7	155+67.5	155+71.3	3.8	0.38	155+70.3
203	Bump	2	8	156+43.5	156+45.7	2.3	0.37	156+44.8
204	Bump	1	8	156+44.8	156+46.7	2.0	0.37	156+45.9
205	Dip	1	8	156+48.6	156+57.6	9.0	-0.35	156+51.8
206	Dip	2	8	156+50.0	156+55.4	5.4	-0.32	156+52.9
207	Bump	1	8	156+76.3	156+79.2	2.8	0.41	156+78.0
208	Dip	1	8	156+80.5	156+91.3	10.8	-0.44	156+87.2
209	Bump	1	8	156+93.7	157+00.6	6.9	0.41	156+95.3
210	Bump	1	8	157+36.7	157+39.2	2.5	0.37	157+38.2
211	Dip	1	8	157+40.4	157+48.2	7.7	-0.39	157+42.8
212	Dip	1	8	157+77.7	157+83.1	5.4	-0.33	157+81.7
213	Dip	1	8	158+32.8	158+37.3	4.5	-0.33	158+33.5
214	Dip	1	8	158+65.2	158+68.8	3.6	-0.32	158+66.8
215	Bump	2	8	158+72.6	158+80.2	7.6	0.61	158+78.7
216	Bump	1	8	158+75.3	158+81.2	6.0	0.58	158+79.9
217	Dip	2	8	158+80.1	158+95.4	15.3	-0.49	158+84.4
218	Dip	1	8	158+81.3	158+96.0	14.7	-0.53	158+82.7
219	Dip	1	8	159+41.3	159+49.9	8.7	-0.34	159+42.1
220	Dip	1	8	160+47.7	160+52.5	4.8	-0.35	160+48.5
221	Bump	1	8	160+61.3	160+63.7	2.4	0.36	160+62.8
222	Dip	1	8	160+79.7	160+89.9	10.2	-0.40	160+83.8
223	Dip	2	8	160+80.9	160+87.1	6.2	-0.34	160+83.3
224	Bump	2	8	160+90.8	161+02.1	11.3	0.55	160+94.7
225	Bump	1	8	160+91.1	161+05.4	14.3	0.67	160+95.7
226	Dip	2	9	161+07.3	161+13.8	6.6	-0.43	161+09.5
227	Dip	1	9	161+08.1	161+17.5	9.4	-0.54	161+10.5

Defect Locations - Run 1 - By Station							
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
228	Dip	1	9	161+54.8	161+64.4	9.6	-0.32	161+55.3
229	Bump	1	9	161+69.6	161+71.8	2.2	0.36	161+70.9
230	Dip	1	9	161+72.9	161+82.3	9.4	-0.35	161+73.8
231	Bump	1	9	161+86.2	161+88.5	2.3	0.39	161+87.5
232	Bump	1	9	162+16.2	162+30.9	14.7	0.33	162+16.9
233	Dip	1	9	162+33.2	162+37.8	4.5	-0.33	162+36.7
234	Dip	1	9	162+67.0	162+78.0	11.0	-0.41	162+74.2
235	Bump	1	9	162+84.9	162+93.8	8.8	0.49	162+92.2
236	Bump	2	9	162+87.6	162+92.4	4.8	0.41	162+91.3
237	Dip	2	9	162+93.4	163+07.5	14.1	-0.69	163+00.3
238	Dip	1	9	162+94.3	163+09.1	14.8	-0.60	163+01.6
239	Bump	2	9	163+05.1	163+19.3	14.2	0.93	163+13.2
240	Bump	1	9	163+08.8	163+19.6	10.8	0.64	163+14.6
241	Dip	2	9	163+15.5	163+29.8	14.3	-0.54	163+24.4
242	Dip	1	9	163+23.8	163+26.1	2.3	-0.31	163+24.3
243	Dip	1	9	163+37.7	163+48.7	11.0	-0.56	163+41.5
244	Bump	2	9	163+47.2	163+53.3	6.2	0.56	163+51.6
245	Bump	1	9	163+48.0	163+57.2	9.2	0.69	163+52.7
246	Dip	1	9	163+59.7	163+69.6	9.9	-0.34	163+62.0
247	Dip	1	9	163+68.8	163+72.4	3.6	-0.32	163+69.9
248	Bump	1	9	163+97.7	164+00.1	2.4	0.40	163+99.1
249	Dip	1	9	164+02.3	164+12.5	10.2	-0.42	164+08.8
250	Dip	2	9	164+76.3	164+83.7	7.5	-0.46	164+77.9
251	Dip	1	9	164+77.7	164+82.1	4.4	-0.44	164+78.9
252	Bump	1	9	164+85.4	164+93.5	8.1	0.60	164+91.6
253	Bump	2	9	164+86.3	164+92.5	6.2	0.54	164+90.5
254	Dip	1	9	164+93.8	165+05.7	11.9	-0.35	165+02.4
255	Bump	1	9	165+82.5	165+84.8	2.3	0.37	165+83.9
256	Bump	1	9	166+13.3	166+19.1	5.8	0.37	166+14.4
257	Bump	2	9	166+13.6	166+17.2	3.7	0.32	166+14.5
258	Dip	1	9	166+27.8	166+30.7	2.8	-0.36	166+28.8
259	Bump	2	10	166+73.9	166+76.2	2.3	0.36	166+75.2
260	Dip	2	10	166+82.0	166+88.8	6.8	-0.34	166+86.9
261	Dip	2	10	167+36.3	167+46.7	10.3	-0.47	167+41.0
262	Dip	1	10	167+37.4	167+48.1	10.7	-0.54	167+40.7
263	Bump	2	10	167+46.8	167+58.3	11.5	0.70	167+52.6
264	Bump	1	10	167+47.0	167+58.9	11.9	0.76	167+53.6
265	Dip	1	10	167+57.7	167+73.4	15.8	-0.53	167+65.7
266	Dip	2	10	167+58.3	167+70.8	12.6	-0.48	167+64.7
267	Bump	1	10	168+13.8	168+16.1	2.3	0.36	168+15.1
268	Bump	2	10	168+14.7	168+17.4	2.8	0.33	168+15.8
269	Dip	1	10	168+25.0	168+31.9	6.9	-0.32	168+26.6
270	Dip	2	10	168+29.0	168+35.0	6.0	-0.36	168+31.0
271	Bump	1	10	168+43.2	168+47.1	3.8	0.38	168+46.1
272	Dip	2	10	168+62.2	168+69.8	7.6	-0.38	168+65.9
273	Dip	1	10	168+63.4	168+70.7	7.3	-0.36	168+66.9
274	Bump	2	10	168+75.4	168+82.1	6.7	0.41	168+77.4
275	Bump	1	10	168+75.8	168+79.8	4.1	0.45	168+78.3
276	Dip	1	10	169+23.8	169+27.4	3.7	-0.31	169+24.1
277	Dip	1	10	170+15.8	170+20.7	4.8	-0.36	170+17.3
278	Dip	2	10	170+17.0	170+19.5	2.5	-0.33	170+17.8
279	Bump	2	10	170+27.6	170+31.4	3.8	0.38	170+30.0
280	Bump	1	10	170+28.5	170+32.3	3.8	0.39	170+31.2
281	Dip	1	10	171+25.8	171+31.1	5.3	-0.34	171+29.8

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
282	Dip	2	11	173+70.6	173+76.3	5.7	-0.38	173+72.0
283	Bump	2	11	173+82.1	173+85.7	3.6	0.42	173+83.9
284	Dip	1	11	174+79.1	174+84.1	5.0	-0.35	174+79.9
285	Bump	1	11	174+94.1	175+09.3	15.2	0.31	174+94.5
286	Dip	1	11	175+71.4	175+76.3	4.9	-0.36	175+72.4
287	Bump	2	11	175+83.3	175+86.7	3.4	0.41	175+85.5
288	Bump	1	11	175+83.7	175+87.7	4.0	0.46	175+86.3
289	Dip	1	11	175+88.2	175+95.7	7.5	-0.45	175+89.5
290	Bump	2	11	176+56.9	176+62.7	5.7	0.53	176+60.6
291	Bump	1	11	176+60.4	176+63.6	3.2	0.40	176+62.0
292	Dip	2	11	176+65.0	176+80.2	15.2	-0.48	176+73.0
293	Dip	2	12	177+33.3	177+43.7	10.4	-0.47	177+40.7
294	Dip	1	12	177+40.8	177+43.8	3.1	-0.46	177+41.9
295	Bump	2	12	177+44.8	177+54.4	9.6	0.68	177+52.3
296	Bump	1	12	177+46.5	177+54.8	8.3	0.57	177+53.5
297	Dip	2	12	177+54.3	177+56.9	2.7	-0.34	177+55.0
298	Dip	1	12	177+55.0	177+60.8	5.7	-0.47	177+56.1
299	Bump	1	12	177+67.4	177+71.5	4.1	0.46	177+70.4
300	Dip	1	12	177+71.9	177+90.2	18.3	-0.47	177+73.0
301	Bump	1	12	177+99.6	178+16.5	16.9	0.49	178+02.4
302	Bump	2	12	178+00.5	178+14.8	14.3	0.34	178+01.4
303	Dip	2	12	178+15.8	178+24.8	9.0	-0.46	178+17.1
304	Dip	1	12	178+16.4	178+27.6	11.2	-0.66	178+18.6
305	Bump	1	12	178+24.3	178+34.1	9.8	0.79	178+31.7
306	Bump	2	12	178+27.6	178+35.2	7.6	0.54	178+30.5
307	Dip	2	12	178+46.3	178+53.3	7.1	-0.36	178+47.3
308	Dip	1	12	178+47.5	178+56.9	9.4	-0.44	178+52.2
309	Bump	1	12	178+61.5	178+63.8	2.3	0.36	178+62.8
310	Dip	1	12	178+80.9	178+86.2	5.3	-0.31	178+81.4
311	Dip	2	12	179+08.7	179+18.0	9.3	-0.33	179+09.4
312	Dip	1	12	179+10.0	179+19.7	9.7	-0.37	179+17.5
313	Dip	2	12	179+38.7	179+45.8	7.1	-0.36	179+40.6
314	Dip	1	12	179+39.5	179+44.7	5.2	-0.37	179+40.5
315	Bump	2	12	179+52.4	179+69.2	16.8	0.38	179+53.8
316	Bump	1	12	179+52.4	179+55.8	3.4	0.47	179+54.8
317	Dip	1	12	179+56.2	179+61.0	4.8	-0.44	179+57.1
318	Dip	2	12	179+70.3	179+72.8	2.5	-0.34	179+71.2
319	Dip	1	12	179+71.7	179+82.8	11.1	-0.35	179+72.6
320	Dip	1	12	180+17.3	180+19.8	2.5	-0.38	180+18.2
321	Bump	1	12	180+28.7	180+31.0	2.3	0.40	180+30.0
322	Dip	1	12	180+80.5	180+82.7	2.2	-0.38	180+81.3
323	Dip	1	12	181+38.1	181+49.0	10.9	-0.43	181+41.6
324	Dip	2	12	181+38.4	181+42.8	4.4	-0.37	181+41.2
325	Bump	2	12	181+49.7	181+54.5	4.7	0.46	181+52.5
326	Bump	1	12	181+51.3	181+55.2	3.9	0.51	181+53.9
327	Dip	1	12	181+55.6	181+58.7	3.1	-0.37	181+56.6
328	Dip	2	12	181+71.2	181+73.4	2.3	-0.35	181+72.1
329	Dip	1	12	181+72.2	181+75.3	3.1	-0.39	181+73.2
330	Bump	2	12	181+81.2	181+83.8	2.6	0.38	181+82.7
331	Bump	1	12	181+82.1	181+85.1	3.0	0.44	181+83.9
332	Bump	2	13	183+03.3	183+05.7	2.3	0.40	183+04.8
333	Bump	1	13	183+04.7	183+06.9	2.3	0.40	183+05.9
334	Dip	2	13	183+06.4	183+12.0	5.6	-0.38	183+07.3
335	Dip	1	13	183+07.6	183+16.8	9.3	-0.42	183+08.6

Defect Locations - Run 1 - By Station							
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
336	Bump	1	13	183+21.0	183+24.0	3.0	0.40	183+23.0
337	Dip	1	13	183+24.7	183+29.7	4.9	-0.37	183+25.6
338	Dip	1	13	183+40.2	183+48.9	8.7	-0.38	183+44.4
339	Dip	2	13	183+45.3	183+49.0	3.8	-0.33	183+47.0
340	Bump	1	13	183+54.1	183+68.6	14.5	0.36	183+55.3
341	Bump	2	13	183+60.9	183+67.9	7.0	0.44	183+66.8
342	Dip	2	13	183+68.8	183+80.0	11.3	-0.37	183+76.1
343	Dip	1	13	184+07.7	184+10.3	2.6	-0.32	184+08.7
344	Dip	1	13	184+32.0	184+41.7	9.7	-0.37	184+33.2
345	Dip	2	13	184+32.6	184+35.4	2.8	-0.31	184+33.3
346	Bump	1	13	184+45.8	184+48.3	2.5	0.39	184+47.3
347	Dip	1	13	185+08.7	185+12.0	3.3	-0.37	185+09.5
348	Bump	1	13	185+20.9	185+23.3	2.3	0.38	185+22.3
349	Dip	1	13	186+00.9	186+06.6	5.7	-0.37	186+02.0
350	Bump	1	13	186+12.6	186+15.5	2.9	0.42	186+14.3
351	Bump	1	13	186+89.8	186+92.7	2.9	0.39	186+91.7
352	Dip	1	13	186+96.9	187+04.2	7.2	-0.33	187+00.8
353	Bump	1	13	187+19.0	187+22.1	3.1	0.38	187+21.2
354	Dip	1	13	187+23.2	187+28.5	5.3	-0.37	187+25.5
355	Bump	2	14	187+47.2	187+52.2	5.1	0.39	187+50.6
356	Bump	1	14	187+48.2	187+52.9	4.8	0.41	187+51.7
357	Dip	2	14	188+28.4	188+30.8	2.4	-0.34	188+29.1
358	Dip	1	14	188+29.3	188+34.0	4.7	-0.37	188+30.2
359	Bump	1	14	188+41.3	188+59.0	17.7	0.33	188+42.2
360	Dip	2	14	188+96.8	189+00.3	3.4	-0.32	188+98.4
361	Bump	2	14	189+23.8	189+26.8	3.0	0.37	189+25.8
362	Bump	1	14	189+24.6	189+28.1	3.5	0.41	189+27.1
363	Dip	2	14	189+27.4	189+38.0	10.6	-0.47	189+29.3
364	Dip	1	14	189+28.6	189+39.8	11.2	-0.48	189+32.4
365	Bump	2	14	189+38.8	189+56.6	17.8	0.60	189+42.5
366	Bump	1	14	189+39.8	189+58.0	18.3	0.70	189+43.5
367	Dip	2	14	189+57.4	189+66.4	9.0	-0.47	189+58.9
368	Dip	1	14	189+58.4	189+70.2	11.7	-0.53	189+59.9
369	Bump	1	14	189+86.9	189+90.8	3.8	0.46	189+89.5
370	Dip	1	14	189+91.3	190+03.0	11.7	-0.41	189+99.9
371	Bump	1	14	190+05.8	190+20.2	14.3	0.35	190+06.7
372	Dip	1	14	190+22.0	190+32.0	10.0	-0.32	190+29.0
373	Bump	2	14	190+47.4	190+49.8	2.3	0.36	190+48.7
374	Bump	1	14	190+47.7	190+51.3	3.6	0.40	190+49.8
375	Dip	2	14	190+55.3	190+65.0	9.7	-0.37	190+59.8
376	Dip	1	14	190+58.5	190+65.8	7.3	-0.37	190+61.9
377	Bump	1	14	190+71.2	190+82.8	11.6	0.46	190+77.5
378	Dip	1	14	190+83.2	190+86.8	3.6	-0.49	190+84.5
379	Dip	1	14	191+13.3	191+19.7	6.4	-0.43	191+15.1
380	Bump	1	14	191+26.3	191+29.3	3.1	0.42	191+28.2
381	Dip	2	14	191+45.9	191+51.2	5.3	-0.32	191+50.0
382	Dip	1	14	191+80.8	191+83.5	2.7	-0.30	191+82.8
383	Dip	1	15	193+91.7	193+93.9	2.3	-0.34	193+92.8
384	Bump	1	15	194+03.8	194+07.0	3.3	0.36	194+06.1
385	Dip	1	15	195+48.2	195+57.3	9.2	-0.32	195+49.1
386	Bump	1	15	196+34.5	196+38.9	4.4	0.41	196+37.7
387	Dip	1	15	196+42.9	196+57.1	14.2	-0.35	196+49.6
388	Dip	2	15	196+46.8	196+49.0	2.2	-0.31	196+48.2
389	Bump	2	15	196+63.1	196+67.5	4.4	0.40	196+66.4

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
390	Bump	1	15	196+65.3	196+68.8	3.4	0.38	196+67.8
391	Bump	1	15	197+28.8	197+32.7	3.8	0.42	197+30.9
392	Dip	2	15	197+38.1	197+47.7	9.6	-0.42	197+45.5
393	Dip	1	15	197+42.0	197+45.5	3.5	-0.32	197+43.1
394	Dip	1	15	197+44.2	197+47.1	2.9	-0.31	197+45.6
395	Bump	2	15	197+57.8	197+60.1	2.3	0.34	197+59.2
396	Bump	1	16	200+67.1	200+69.8	2.7	0.39	200+68.8
397	Dip	1	16	200+70.9	200+81.2	10.3	-0.35	200+78.5
398	Bump	1	16	201+59.6	201+62.2	2.7	0.38	201+61.2
399	Dip	1	17	203+65.3	203+68.4	3.1	-0.33	203+65.9
400	Bump	1	17	204+21.7	204+23.7	2.1	0.39	204+22.9
401	Dip	1	17	204+24.4	204+34.5	10.1	-0.42	204+25.3
402	Dip	1	17	204+41.7	204+46.1	4.3	-0.34	204+43.7
403	Bump	1	17	204+54.4	204+56.9	2.5	0.37	204+55.8
404	Dip	1	17	204+74.8	204+81.0	6.2	-0.34	204+77.2
405	Bump	1	17	204+87.2	205+01.9	14.7	0.39	205+01.0
406	Dip	1	17	205+02.9	205+12.9	10.0	-0.36	205+04.2
407	Bump	1	17	205+16.9	205+32.3	15.3	0.38	205+31.3
408	Dip	1	17	205+33.3	205+44.2	11.0	-0.38	205+36.0
409	Bump	1	17	205+46.8	205+49.7	2.9	0.42	205+48.5
410	Dip	2	17	205+63.3	205+74.9	11.6	-0.54	205+67.7
411	Dip	1	17	205+64.1	205+77.8	13.7	-0.68	205+67.9
412	Bump	1	17	205+72.5	205+90.9	18.4	1.11	205+81.2
413	Bump	2	17	205+73.8	205+87.0	13.2	0.75	205+79.9
414	Dip	1	17	205+82.8	206+02.3	19.4	-0.71	205+93.4
415	Dip	2	17	205+87.2	205+97.2	10.0	-0.47	205+92.1
416	Bump	1	17	206+21.8	206+24.7	2.9	0.39	206+23.7
417	Dip	1	17	206+25.7	206+33.2	7.5	-0.37	206+27.1
418	Bump	1	17	206+39.5	206+41.8	2.3	0.36	206+40.8
419	Dip	2	17	206+41.9	206+45.0	3.1	-0.32	206+42.4
420	Bump	1	17	206+53.4	206+57.4	4.0	0.49	206+56.2
421	Dip	1	17	206+58.0	206+69.3	11.3	-0.41	206+61.9
422	Dip	1	17	207+04.7	207+08.3	3.7	-0.31	207+05.1
423	Dip	1	17	207+52.4	207+59.7	7.3	-0.32	207+54.4
424	Dip	1	17	208+27.7	208+32.8	5.0	-0.33	208+28.4
425	Bump	1	18	208+85.6	208+88.7	3.2	0.39	208+87.3
426	Bump	2	18	208+85.8	208+88.6	2.8	0.34	208+87.1
427	Dip	1	18	209+02.3	209+07.8	5.5	-0.40	209+03.9
428	Bump	1	18	209+16.3	209+18.8	2.5	0.35	209+18.0
429	Bump	1	18	209+47.7	209+51.0	3.3	0.41	209+49.8
430	Dip	1	18	209+67.8	209+69.8	2.0	-0.32	209+68.7
431	Bump	1	18	209+78.4	209+94.1	15.7	0.40	209+93.1
432	Dip	1	18	209+94.8	210+05.6	10.8	-0.41	209+95.8
433	Dip	1	18	211+80.3	211+85.5	5.2	-0.34	211+83.7
434	Bump	1	18	212+08.1	212+11.6	3.5	0.42	212+10.4
435	Dip	1	19	214+27.0	214+32.4	5.4	-0.35	214+29.4
436	Bump	1	19	215+78.1	215+80.7	2.7	0.39	215+79.7
437	Dip	1	19	215+82.3	215+92.6	10.3	-0.35	215+85.9
438	Bump	1	19	217+31.7	217+33.8	2.1	0.39	217+32.9
439	Dip	1	19	217+34.7	217+43.0	8.3	-0.37	217+35.5
440	Dip	1	19	217+51.8	217+56.7	5.0	-0.32	217+52.3
441	Bump	1	19	218+40.4	218+43.0	2.6	0.39	218+42.1
442	Bump	2	20	219+13.0	219+17.3	4.3	0.41	219+16.0
443	Bump	1	20	219+15.1	219+18.3	3.2	0.38	219+17.3

Defect Locations - Run 1 - By Station

Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
444	Dip	1	20	219+19.7	219+24.0	4.3	-0.34	219+21.2
445	Bump	2	20	219+47.7	219+50.6	2.8	0.32	219+48.7
446	Dip	1	20	220+12.3	220+21.6	9.3	-0.36	220+18.8
447	Bump	1	20	220+24.6	220+28.4	3.8	0.43	220+26.8
448	Dip	1	20	220+74.1	220+76.7	2.7	-0.32	220+75.0
449	Bump	1	20	221+31.2	221+35.8	4.6	0.48	221+34.3
450	Dip	1	20	221+36.3	221+51.4	15.1	-0.52	221+46.5
451	Bump	1	20	221+53.8	221+65.8	11.9	0.65	221+64.0
452	Dip	1	20	221+65.6	221+83.4	17.8	-0.53	221+69.3
453	Dip	1	20	221+99.6	222+05.0	5.4	-0.32	222+00.6
454	Bump	1	20	222+09.5	222+12.7	3.2	0.44	222+11.5
455	Dip	1	20	222+13.4	222+17.3	3.8	-0.33	222+14.2
456	Bump	1	20	223+16.2	223+19.4	3.3	0.47	223+18.3
457	Dip	1	20	223+19.9	223+30.4	10.5	-0.36	223+24.0
458	Bump	1	21	224+86.6	224+88.6	2.0	0.36	224+87.8
459	Dip	1	21	224+89.8	224+97.9	8.2	-0.33	224+90.3
460	Dip	2	21	225+80.5	225+88.8	8.3	-0.38	225+83.9
461	Dip	1	21	225+81.8	225+86.7	4.9	-0.37	225+82.8
462	Bump	1	21	225+92.4	225+97.2	4.7	0.49	225+95.5
463	Bump	2	21	225+93.3	225+99.8	6.6	0.39	225+94.9
464	Bump	1	21	226+53.6	226+56.2	2.6	0.37	226+55.2
465	Dip	1	21	226+58.0	226+68.1	10.1	-0.38	226+61.3
466	Dip	1	21	227+06.4	227+08.4	2.0	-0.33	227+07.2
467	Dip	1	21	227+66.7	227+68.8	2.1	-0.33	227+67.3
468	Bump	2	21	228+85.1	228+88.4	3.3	0.37	228+87.5
469	Dip	2	21	228+89.5	228+92.5	3.0	-0.36	228+90.3
470	Dip	1	21	229+50.9	229+55.9	5.0	-0.38	229+51.8
471	Bump	2	21	229+59.6	229+64.2	4.6	0.48	229+62.9
472	Bump	1	21	229+62.0	229+65.4	3.4	0.47	229+64.3
473	Dip	2	21	229+64.6	229+76.2	11.6	-0.47	229+70.7
474	Dip	1	21	229+65.8	229+77.3	11.6	-0.51	229+69.7
475	Bump	1	21	229+79.6	229+82.7	3.1	0.45	229+81.4
476	Dip	1	21	230+29.8	230+36.7	6.9	-0.32	230+32.3
477	Dip	2	21	230+75.0	230+85.3	10.3	-0.52	230+81.9
478	Bump	2	21	230+86.6	230+95.8	9.2	0.45	230+90.1
479	Dip	1	21	230+91.0	231+01.4	10.4	-0.45	230+97.0
480	Bump	1	21	231+05.6	231+15.2	9.6	0.41	231+07.2
481	Bump	2	21	231+09.0	231+18.3	9.3	0.40	231+14.8
482	Dip	2	21	231+20.1	231+30.9	10.8	-0.53	231+27.9
483	Bump	2	21	231+31.9	231+45.3	13.3	0.48	231+39.5
484	Dip	2	21	231+43.4	231+60.2	16.8	-0.94	231+50.4
485	Dip	1	21	231+43.5	231+60.6	17.1	-0.84	231+51.3

Track 1 defects: 334
Track 2 defects: 151
Total defects: 485

No user events found for Run 1

Certified by: _____

Title: _____

Organization: _____

SSI Profiler Version 3.2.7.44
Licensed to Illinois Dept of Transportation - Springfield, Il

Data File: 1810011152.rsd

Stations: Run 1 - 231+67.3 to 118+90.5
Start GPS: 41 22' 58.23" N 90 30' 47.31" W
End GPS: 41 24' 39.14" N 90 31' 30.90" W

Run Speed (Avg, Max, Min):
Run 1 - 47.3, 51.5, 23.2 mph

Total Distance: 112+67.2

Date [Paved/Corrected]:
Run 1 - 9/30/2018 11:45:13 AM

Date Tested:
Run 1 - 10/1/2018 11:45:13 AM

File Modifications:
Run 1 - Start Station Changed to 231+67.3 ft

Project Parameters
Project Number:
State: Illinois
County: Rock Island
Contractor: TBD
Pavement Type: Surface
Traffic Direction: WB
Highway: Knoxville Rd
Number of Lanes: 1
Direction of Paving: WB
Tested by: Scott Vesely, Lucas Megli
Paving Action:
Special Provisions:
Report Specification:
Report Memo: Bounce Test Verification

Calibration Settings
Distance: 336317 encoder counts in 528.00 ft.
Track 1:
Height Sensor Type: RoLine 1145 / Gocator
Height Sensor Level Reading: 0.00 in.
Accelerometer Constant: 8539.794
Track 2:
Height Sensor Type: RoLine 1145 / Gocator
Height Sensor Level Reading: 0.00 in.
Accelerometer Constant: 14527.4115
IMU/Inclinometer:
Type: Inertial Inclinometer
Cross Slope Level Reading: NaN rad.

Filter Settings
Filter Type: None

Localized Roughness Settings
Simulated Profilograph Data Used for Defects Analysis
Bump Height: 0.30 in
Bump Width: 25.00 ft
Dip Depth: 0.30 in
Dip Width: 25.00 ft

Summary - Run 1 - WB Knoxville Rd, Section 2 from end near dump to midpoint at Station stamp 4+400						
Track 1			Track 2			Average
Segment	Station (ft)	IRI (in/mi)	Segment	Station (ft)	IRI (in/mi)	IRI (in/mi)
1	231+57.8 226+29.8	150.73	1	231+57.8 226+29.8	115.21	132.97

Summary - Run 1 - WB Knoxville Rd, Section 2 from end near dump to midpoint at Station stamp 4+400						
Track 1			Track 2			Average
Segment	Station (ft)	IRI (in/mi)	Segment	Station (ft)	IRI (in/mi)	IRI (in/mi)
2	226+29.8 221+01.8	118.56	2	226+29.8 221+01.8	102.13	110.34
3	221+01.8 215+73.8	134.34	3	221+01.8 215+73.8	96.95	115.64
4	215+73.8 210+45.8	177.11	4	215+73.8 210+45.8	122.44	149.77
5	210+45.8 205+17.8	175.92	5	210+45.8 205+17.8	129.27	152.60
6	205+17.8 199+89.8	223.68	6	205+17.8 199+89.8	163.61	193.64
7	199+89.8 194+61.8	241.70	7	199+89.8 194+61.8	175.00	208.35
8	194+61.8 189+33.8	238.15	8	194+61.8 189+33.8	162.95	200.55
9	189+33.8 184+05.8	198.96	9	189+33.8 184+05.8	150.43	174.70
10	184+05.8 178+77.8	208.25	10	184+05.8 178+77.8	162.71	185.48
11	178+77.8 173+49.8	258.02	11	178+77.8 173+49.8	202.12	230.07
12	173+49.8 168+21.8	266.80	12	173+49.8 168+21.8	185.16	225.98
13	168+21.8 162+93.8	198.57	13	168+21.8 162+93.8	173.63	186.10
14	162+93.8 157+65.8	212.95	14	162+93.8 157+65.8	162.93	187.94
15	157+65.8 152+37.8	214.82	15	157+65.8 152+37.8	155.31	185.07
16	152+37.8 147+09.8	208.39	16	152+37.8 147+09.8	144.23	176.31
17	147+09.8 141+81.8	203.75	17	147+09.8 141+81.8	152.69	178.22
18	141+81.8 136+53.8	206.44	18	141+81.8 136+53.8	153.74	180.09
19	136+53.8 131+25.8	218.68	19	136+53.8 131+25.8	159.61	189.14
20	131+25.8 125+97.8	235.85	20	131+25.8 125+97.8	176.31	206.08
21	125+97.8 118+90.6	248.63	21	125+97.8 118+90.6	193.56	221.10
	231+57.8 118+90.6	207.35		231+57.8 118+90.6	154.91	181.13

Defect Locations - Run 1 - By Station							
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
1	Bump	1	21	119+17.0	119+10.2	6.8	0.58	119+11.7
2	Dip	1	21	119+56.5	119+46.6	9.9	-0.44	119+55.4
3	Bump	1	21	119+60.3	119+57.1	3.3	0.43	119+58.1
4	Dip	1	21	119+73.2	119+70.4	2.8	-0.36	119+72.4
5	Dip	1	21	120+17.7	120+08.4	9.3	-0.56	120+15.7
6	Dip	2	21	120+20.8	120+12.4	8.4	-0.49	120+17.3
7	Bump	1	21	120+35.7	120+17.7	18.0	0.78	120+27.7
8	Bump	2	21	120+36.3	120+22.5	13.8	0.61	120+29.2
9	Dip	2	21	120+48.8	120+37.2	11.7	-0.50	120+42.6
10	Dip	1	21	120+49.2	120+32.7	16.4	-0.81	120+41.4
11	Bump	2	21	120+55.7	120+50.1	5.7	0.47	120+51.7

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
12	Bump	1	21	120+60.9	120+48.7	12.2	0.70	120+50.6
13	Dip	2	21	120+76.8	120+61.5	15.3	-0.60	120+66.2
14	Dip	1	21	120+77.7	120+61.1	16.6	-0.66	120+68.7
15	Bump	1	21	120+90.5	120+71.7	18.8	1.45	120+80.2
16	Bump	2	21	120+92.3	120+73.4	18.9	1.30	120+81.4
17	Dip	1	21	121+03.6	120+82.6	21.0	-2.10	120+94.0
18	Dip	2	21	121+05.1	120+84.7	20.3	-1.71	120+95.4
19	Bump	1	21	121+16.6	120+95.2	21.3	1.26	121+06.1
20	Bump	2	21	121+17.4	120+99.7	17.7	1.05	121+10.9
21	Dip	1	21	121+40.9	121+33.2	7.8	-0.43	121+36.4
22	Dip	2	21	121+41.5	121+33.6	7.9	-0.37	121+38.7
23	Dip	1	21	122+10.7	122+05.6	5.2	-0.37	122+07.7
24	Bump	2	21	122+23.9	122+18.8	5.1	0.43	122+20.5
25	Bump	1	21	122+24.6	122+17.7	6.9	0.54	122+19.6
26	Dip	1	21	122+33.2	122+29.7	3.6	-0.37	122+32.1
27	Dip	2	21	122+41.4	122+38.0	3.4	-0.32	122+40.0
28	Bump	1	21	122+88.3	122+79.7	8.7	0.39	122+80.7
29	Bump	2	21	123+37.4	123+27.1	10.3	0.34	123+27.9
30	Dip	2	21	123+46.7	123+44.2	2.5	-0.33	123+45.0
31	Dip	1	21	124+17.1	124+14.7	2.4	-0.34	124+16.3
32	Bump	1	21	124+20.1	124+18.1	2.0	0.38	124+18.9
33	Dip	1	21	124+34.2	124+26.7	7.4	-0.37	124+29.9
34	Bump	1	21	124+50.1	124+47.7	2.3	0.37	124+48.7
35	Dip	1	21	124+63.8	124+58.6	5.3	-0.42	124+62.3
36	Dip	2	21	124+64.6	124+60.2	4.4	-0.35	124+63.4
37	Bump	2	21	124+81.7	124+79.2	2.5	0.34	124+80.2
38	Dip	2	21	124+95.2	124+91.7	3.4	-0.33	124+93.5
39	Bump	1	21	125+44.9	125+38.9	6.0	0.55	125+41.0
40	Bump	2	21	125+48.5	125+40.5	8.0	0.55	125+42.3
41	Dip	1	21	125+56.1	125+52.1	4.0	-0.40	125+54.7
42	Dip	2	21	125+57.2	125+52.9	4.2	-0.37	125+55.7
43	Dip	1	20	126+47.5	126+37.3	10.2	-0.38	126+46.3
44	Dip	2	20	126+48.9	126+37.4	11.5	-0.44	126+45.2
45	Bump	1	20	126+57.5	126+47.9	9.6	0.53	126+49.5
46	Bump	2	20	126+59.4	126+48.9	10.5	0.61	126+50.7
47	Dip	2	20	126+73.0	126+61.7	11.3	-0.45	126+66.8
48	Dip	1	20	126+78.0	126+63.2	14.8	-0.56	126+70.2
49	Bump	1	20	126+82.0	126+78.9	3.1	0.44	126+80.1
50	Dip	1	20	127+24.4	127+20.7	3.8	-0.36	127+23.0
51	Bump	2	20	127+39.2	127+32.2	7.0	0.44	127+37.2
52	Bump	1	20	127+39.5	127+33.1	6.4	0.40	127+37.7
53	Dip	1	20	127+67.2	127+50.2	17.0	-0.59	127+59.3
54	Dip	2	20	127+68.2	127+52.8	15.3	-0.60	127+60.5
55	Bump	1	20	127+78.5	127+64.7	13.8	1.02	127+68.5
56	Bump	2	20	127+79.4	127+65.2	14.2	1.00	127+69.7
57	Dip	1	20	127+84.8	127+73.6	11.3	-0.65	127+82.2
58	Dip	2	20	127+86.1	127+77.9	8.2	-0.54	127+84.1
59	Dip	1	20	128+07.2	128+01.9	5.2	-0.36	128+05.2
60	Bump	2	20	128+19.6	128+15.4	4.2	0.38	128+17.5
61	Bump	1	20	128+19.7	128+13.4	6.3	0.47	128+16.9
62	Bump	1	20	128+94.8	128+91.2	3.7	0.45	128+92.4
63	Bump	2	20	128+96.1	128+92.6	3.5	0.44	128+93.7
64	Dip	1	20	129+07.4	129+03.2	4.2	-0.33	129+05.3
65	Bump	1	20	129+23.6	129+21.6	2.0	0.36	129+22.4

Defect Locations - Run 1 - By Station							
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
66	Dip	1	20	129+82.9	129+74.2	8.7	-0.38	129+81.8
67	Bump	1	20	129+87.5	129+83.4	4.1	0.48	129+84.7
68	Dip	2	20	130+00.2	129+95.7	4.5	-0.33	129+97.2
69	Dip	1	20	130+00.3	129+92.7	7.7	-0.44	129+98.5
70	Bump	1	20	130+15.7	130+13.5	2.2	0.37	130+14.4
71	Bump	2	20	130+17.1	130+14.9	2.2	0.36	130+15.8
72	Bump	2	20	130+46.8	130+44.6	2.2	0.36	130+45.6
73	Bump	1	20	130+47.2	130+43.1	4.2	0.47	130+44.6
74	Dip	1	20	130+60.1	130+51.0	9.1	-0.42	130+58.9
75	Bump	1	20	130+76.9	130+60.8	16.1	0.37	130+61.7
76	Dip	1	20	131+05.2	130+95.2	10.0	-0.44	131+04.1
77	Bump	1	20	131+10.1	131+05.6	4.5	0.48	131+06.7
78	Dip	1	19	132+12.0	132+02.4	9.6	-0.37	132+10.9
79	Bump	1	19	132+15.2	132+12.8	2.3	0.41	132+13.7
80	Dip	1	19	132+26.8	132+24.6	2.2	-0.34	132+26.2
81	Dip	2	19	133+10.9	133+05.4	5.5	-0.36	133+07.5
82	Dip	1	19	133+11.2	133+06.2	5.1	-0.33	133+07.5
83	Bump	1	19	133+23.9	133+17.4	6.5	0.39	133+22.2
84	Bump	2	19	133+24.3	133+18.7	5.6	0.38	133+22.5
85	Dip	2	19	133+34.9	133+28.3	6.6	-0.32	133+34.1
86	Dip	1	19	133+37.5	133+25.8	11.7	-0.48	133+30.1
87	Bump	2	19	133+41.4	133+39.4	2.0	0.35	133+40.3
88	Bump	1	19	133+44.7	133+37.5	7.3	0.60	133+39.2
89	Dip	1	19	133+51.9	133+47.4	4.5	-0.42	133+50.5
90	Bump	1	19	134+02.9	133+98.7	4.2	0.40	134+00.8
91	Bump	1	19	134+94.9	134+91.7	3.2	0.38	134+92.8
92	Bump	1	19	136+28.2	136+26.2	2.0	0.37	136+27.0
93	Bump	2	19	136+29.4	136+27.3	2.1	0.35	136+28.2
94	Dip	2	19	136+41.9	136+38.7	3.3	-0.31	136+40.8
95	Bump	1	18	136+59.9	136+57.9	2.0	0.34	136+58.7
96	Bump	2	18	136+62.3	136+58.2	4.1	0.45	136+59.8
97	Bump	1	18	137+51.7	137+49.4	2.3	0.36	137+50.3
98	Dip	1	18	137+63.9	137+58.6	5.3	-0.37	137+60.9
99	Dip	2	18	138+83.4	138+75.0	8.4	-0.37	138+79.0
100	Dip	1	18	138+84.0	138+74.2	9.8	-0.38	138+77.3
101	Bump	1	18	138+89.3	138+87.0	2.3	0.36	138+87.9
102	Bump	2	18	138+90.7	138+88.0	2.7	0.37	138+89.0
103	Dip	1	18	141+60.9	141+51.5	9.4	-0.43	141+59.7
104	Dip	2	18	141+62.1	141+52.0	10.1	-0.40	141+61.0
105	Bump	1	18	141+64.6	141+61.5	3.1	0.42	141+62.5
106	Bump	2	18	141+65.7	141+62.8	2.8	0.40	141+63.8
107	Dip	1	17	144+31.6	144+24.3	7.2	-0.33	144+26.3
108	Dip	2	17	144+81.2	144+73.2	8.0	-0.35	144+80.4
109	Bump	1	17	144+83.2	144+81.0	2.2	0.37	144+81.8
110	Bump	2	17	144+86.5	144+81.9	4.6	0.46	144+83.2
111	Dip	1	17	144+97.0	144+94.2	2.8	-0.33	144+96.2
112	Dip	2	17	144+98.2	144+93.7	4.5	-0.35	144+96.5
113	Dip	1	17	145+55.8	145+48.0	7.8	-0.34	145+53.1
114	Dip	2	17	145+56.9	145+48.0	8.9	-0.35	145+53.7
115	Bump	2	17	145+62.7	145+58.4	4.2	0.41	145+59.6
116	Dip	2	17	145+89.2	145+76.5	12.7	-0.42	145+82.1
117	Bump	2	17	145+96.3	145+90.1	6.2	0.44	145+91.2
118	Dip	1	17	146+63.3	146+55.6	7.8	-0.34	146+62.6
119	Dip	1	16	148+32.7	148+24.7	8.0	-0.34	148+29.3

Defect Locations - Run 1 - By Station

Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
120	Bump	2	16	148+37.4	148+34.7	2.7	0.39	148+36.0
121	Bump	1	16	148+37.6	148+33.7	3.8	0.46	148+35.0
122	Dip	1	16	151+71.6	151+61.5	10.1	-0.33	151+70.8
123	Bump	1	16	151+74.8	151+72.6	2.3	0.39	151+73.5
124	Dip	1	15	152+59.4	152+54.2	5.2	-0.32	152+56.7
125	Dip	1	15	155+41.4	155+39.4	2.0	-0.35	155+40.7
126	Bump	1	15	155+58.2	155+42.7	15.5	0.37	155+56.9
127	Dip	1	15	155+71.9	155+62.2	9.7	-0.38	155+68.2
128	Bump	1	15	155+75.7	155+73.5	2.2	0.37	155+74.3
129	Dip	1	15	157+57.5	157+47.6	9.9	-0.35	157+56.6
130	Bump	1	14	158+82.7	158+76.7	6.0	0.39	158+81.4
131	Bump	2	14	158+83.9	158+77.5	6.4	0.43	158+82.7
132	Dip	2	14	158+94.3	158+85.1	9.2	-0.35	158+92.2
133	Dip	1	14	158+95.1	158+85.6	9.5	-0.39	158+91.4
134	Dip	1	14	159+55.2	159+47.1	8.2	-0.32	159+54.6
135	Bump	1	14	159+58.7	159+56.6	2.1	0.37	159+57.4
136	Dip	1	14	160+14.3	160+07.7	6.7	-0.33	160+09.2
137	Bump	1	14	160+21.7	160+18.2	3.5	0.47	160+19.5
138	Bump	2	14	160+21.9	160+19.2	2.8	0.36	160+20.4
139	Dip	2	14	160+32.4	160+30.2	2.3	-0.31	160+31.2
140	Dip	1	14	160+33.2	160+30.3	2.8	-0.31	160+30.7
141	Dip	1	14	160+65.0	160+55.2	9.8	-0.36	160+63.8
142	Bump	1	14	160+82.4	160+66.1	16.3	0.37	160+66.8
143	Dip	2	14	160+92.6	160+90.6	2.0	-0.31	160+91.8
144	Dip	1	14	160+97.3	160+86.1	11.3	-0.45	160+92.9
145	Bump	2	14	161+03.2	160+98.9	4.3	0.40	161+00.2
146	Bump	1	14	161+06.2	160+97.8	8.3	0.51	160+99.2
147	Dip	1	14	161+72.6	161+62.7	9.8	-0.37	161+71.6
148	Bump	1	14	161+75.7	161+73.7	2.1	0.36	161+74.5
149	Dip	1	13	163+09.7	162+99.6	10.1	-0.47	163+04.5
150	Dip	2	13	163+12.2	162+98.2	14.0	-0.68	163+04.9
151	Bump	1	13	163+23.1	163+09.5	13.6	0.77	163+15.9
152	Bump	2	13	163+25.5	163+09.2	16.3	1.03	163+16.5
153	Dip	1	13	163+36.4	163+21.6	14.8	-0.63	163+28.8
154	Dip	2	13	163+38.1	163+22.5	15.6	-0.77	163+28.9
155	Bump	1	13	165+13.2	165+11.1	2.2	0.37	165+12.0
156	Dip	2	13	165+71.7	165+62.8	8.8	-0.37	165+67.5
157	Bump	2	13	165+87.1	165+72.7	14.3	0.45	165+78.3
158	Dip	2	13	165+98.1	165+88.7	9.4	-0.35	165+94.2
159	Bump	1	13	166+18.9	166+16.6	2.3	0.39	166+17.6
160	Bump	2	13	166+20.2	166+17.9	2.3	0.37	166+18.8
161	Dip	1	13	166+94.9	166+85.5	9.4	-0.32	166+94.2
162	Dip	2	13	166+96.5	166+85.9	10.6	-0.37	166+92.2
163	Bump	2	13	167+01.5	166+97.5	4.0	0.40	166+98.5
164	Dip	2	13	167+48.2	167+44.1	4.1	-0.32	167+45.6
165	Dip	1	13	167+53.7	167+43.2	10.5	-0.42	167+47.1
166	Bump	2	13	167+62.0	167+53.2	8.8	0.57	167+58.2
167	Bump	1	13	167+64.4	167+53.3	11.1	0.72	167+57.5
168	Dip	1	13	167+71.6	167+65.6	6.0	-0.44	167+70.1
169	Dip	2	13	167+72.2	167+64.7	7.5	-0.38	167+70.7
170	Dip	1	12	168+48.2	168+37.2	11.1	-0.43	168+44.7
171	Dip	2	12	168+48.8	168+40.1	8.7	-0.36	168+45.8
172	Bump	2	12	168+60.7	168+50.5	10.2	0.37	168+51.4
173	Bump	1	12	168+65.7	168+49.0	16.7	0.43	168+50.2

Defect Locations - Run 1 - By Station

Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
174	Dip	2	12	168+76.8	168+69.9	6.9	-0.36	168+73.3
175	Dip	1	12	168+79.3	168+68.5	10.8	-0.41	168+72.7
176	Bump	1	12	168+84.3	168+81.0	3.3	0.42	168+82.2
177	Dip	1	12	169+23.7	169+21.7	2.1	-0.35	169+23.0
178	Dip	1	12	170+29.8	170+19.5	10.3	-0.49	170+23.0
179	Bump	2	12	170+37.3	170+32.7	4.6	0.41	170+35.4
180	Bump	1	12	170+40.0	170+30.1	9.9	0.65	170+34.5
181	Dip	1	12	170+48.3	170+42.6	5.7	-0.40	170+47.1
182	Dip	1	12	170+94.0	170+82.4	11.6	-0.42	170+86.3
183	Bump	1	12	171+10.6	170+94.8	15.8	0.43	170+96.0
184	Dip	2	12	171+23.6	171+18.4	5.2	-0.33	171+22.4
185	Dip	1	12	171+25.1	171+14.5	10.6	-0.40	171+21.4
186	Dip	1	12	171+55.0	171+51.4	3.6	-0.32	171+52.9
187	Bump	1	12	171+72.7	171+58.6	14.2	0.37	171+71.7
188	Dip	1	12	171+86.2	171+76.4	9.8	-0.36	171+84.9
189	Bump	1	12	172+03.8	171+94.8	9.0	0.42	172+02.1
190	Dip	1	12	172+17.9	172+07.7	10.3	-0.42	172+15.5
191	Bump	1	12	172+36.5	172+28.5	8.0	0.52	172+33.8
192	Bump	2	12	172+37.1	172+34.1	3.0	0.42	172+35.2
193	Dip	1	12	172+47.9	172+38.2	9.7	-0.40	172+45.1
194	Bump	1	12	172+53.0	172+50.6	2.4	0.35	172+51.4
195	Dip	1	12	172+78.9	172+65.5	13.4	-0.56	172+73.1
196	Bump	1	12	172+95.9	172+79.2	16.8	0.53	172+94.0
197	Bump	2	12	172+97.6	172+93.8	3.8	0.40	172+95.2
198	Dip	1	12	173+09.5	173+02.2	7.3	-0.40	173+05.6
199	Dip	1	12	173+24.5	173+06.7	17.8	-0.39	173+23.4
200	Bump	1	12	173+29.3	173+25.0	4.3	0.48	173+26.2
201	Dip	2	11	173+51.7	173+46.6	5.1	-0.35	173+48.9
202	Bump	2	11	173+63.5	173+56.0	7.5	0.43	173+57.4
203	Dip	2	11	173+83.0	173+70.0	13.0	-0.43	173+76.5
204	Dip	1	11	173+84.1	173+69.7	14.4	-0.39	173+76.6
205	Bump	1	11	173+87.4	173+85.4	2.0	0.37	173+86.2
206	Bump	2	11	173+88.7	173+86.3	2.3	0.36	173+87.2
207	Bump	1	11	174+04.5	174+02.2	2.3	0.42	174+03.2
208	Dip	1	11	174+16.4	174+08.0	8.4	-0.36	174+15.5
209	Dip	2	11	174+17.2	174+08.6	8.6	-0.39	174+14.2
210	Bump	2	11	174+22.3	174+18.5	3.8	0.40	174+19.7
211	Dip	1	11	174+46.9	174+38.7	8.2	-0.37	174+46.0
212	Dip	2	11	174+47.1	174+38.7	8.3	-0.35	174+41.2
213	Bump	1	11	174+50.1	174+47.8	2.3	0.39	174+48.7
214	Dip	2	11	174+76.9	174+68.4	8.5	-0.38	174+71.5
215	Dip	1	11	174+77.0	174+70.5	6.5	-0.41	174+75.7
216	Bump	2	11	174+82.1	174+78.8	3.3	0.39	174+79.9
217	Bump	1	11	174+96.2	174+77.7	18.6	0.42	174+78.7
218	Dip	1	11	175+09.2	174+99.6	9.6	-0.41	175+07.9
219	Dip	2	11	175+10.1	175+05.2	4.9	-0.34	175+09.3
220	Bump	1	11	175+12.2	175+09.8	2.3	0.40	175+10.7
221	Dip	1	11	175+39.5	175+33.7	5.8	-0.43	175+38.3
222	Bump	1	11	175+42.2	175+40.1	2.1	0.40	175+40.9
223	Dip	2	11	175+48.1	175+35.7	12.3	-0.43	175+39.8
224	Bump	2	11	175+60.7	175+52.3	8.3	0.53	175+58.2
225	Dip	2	11	175+83.0	175+72.6	10.4	-0.45	175+76.5
226	Dip	1	11	175+83.3	175+73.7	9.6	-0.41	175+75.8
227	Bump	1	11	175+90.2	175+86.0	4.2	0.51	175+87.7

Defect Locations - Run 1 - By Station								
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
228	Bump	2	11	175+91.7	175+84.8	6.8	0.49	175+88.4
229	Dip	1	11	176+16.0	176+08.7	7.2	-0.33	176+13.7
230	Bump	1	11	176+33.3	176+19.8	13.5	0.33	176+32.7
231	Dip	1	11	176+46.6	176+36.2	10.3	-0.39	176+42.6
232	Dip	2	11	176+48.3	176+35.7	12.6	-0.48	176+40.3
233	Bump	1	11	176+65.2	176+48.2	17.1	0.49	176+62.8
234	Bump	2	11	176+66.7	176+49.0	17.7	0.60	176+59.1
235	Dip	1	11	176+78.9	176+66.3	12.6	-0.62	176+74.2
236	Dip	2	11	176+80.0	176+66.7	13.3	-0.70	176+74.7
237	Bump	2	11	176+91.9	176+80.0	11.9	0.48	176+81.4
238	Bump	1	11	176+94.8	176+79.0	15.8	0.41	176+87.2
239	Bump	1	11	177+27.2	177+22.3	4.8	0.44	177+24.7
240	Bump	2	11	177+28.8	177+23.9	4.9	0.46	177+25.9
241	Dip	1	11	177+43.4	177+29.5	13.9	-0.54	177+36.2
242	Dip	2	11	177+44.2	177+31.1	13.1	-0.53	177+39.1
243	Bump	2	11	177+59.7	177+48.7	11.0	0.59	177+55.3
244	Bump	1	11	177+60.8	177+49.7	11.2	0.68	177+54.6
245	Dip	2	11	177+69.7	177+64.7	5.0	-0.36	177+67.1
246	Dip	1	11	177+69.9	177+63.7	6.2	-0.41	177+67.6
247	Bump	1	11	177+87.6	177+85.5	2.1	0.35	177+86.4
248	Dip	2	11	178+00.0	177+95.3	4.7	-0.31	177+99.4
249	Dip	1	11	178+01.0	177+92.7	8.3	-0.38	177+97.7
250	Dip	1	11	178+44.0	178+37.8	6.2	-0.33	178+41.3
251	Bump	1	10	178+80.2	178+77.8	2.4	0.35	178+78.7
252	Dip	1	10	179+06.8	178+97.2	9.6	-0.40	178+99.9
253	Bump	1	10	179+11.2	179+07.8	3.3	0.39	179+08.9
254	Dip	1	10	180+28.7	180+23.8	4.8	-0.34	180+27.9
255	Bump	1	10	180+32.3	180+29.6	2.7	0.41	180+30.5
256	Dip	1	10	180+44.8	180+40.5	4.3	-0.33	180+41.7
257	Dip	2	10	181+37.1	181+28.7	8.3	-0.35	181+35.1
258	Bump	1	10	181+55.5	181+53.2	2.3	0.38	181+54.1
259	Bump	1	10	181+85.9	181+82.7	3.2	0.46	181+84.1
260	Bump	2	10	181+88.0	181+84.2	3.8	0.45	181+85.5
261	Dip	1	10	181+98.7	181+92.0	6.7	-0.41	181+97.1
262	Dip	2	10	182+00.2	181+94.3	5.9	-0.39	181+98.8
263	Bump	1	10	182+15.1	182+13.0	2.1	0.36	182+13.9
264	Dip	1	10	182+27.7	182+23.7	4.0	-0.34	182+26.2
265	Bump	2	10	183+06.4	183+02.7	3.8	0.39	183+05.2
266	Bump	1	10	183+06.7	183+03.0	3.7	0.37	183+05.1
267	Dip	2	10	183+17.7	183+09.7	8.1	-0.34	183+15.7
268	Dip	1	10	183+18.5	183+10.4	8.1	-0.35	183+16.4
269	Bump	1	9	184+91.2	184+89.2	2.0	0.36	184+90.1
270	Bump	1	9	186+92.4	186+90.4	2.0	0.37	186+91.3
271	Dip	1	9	187+04.1	186+99.8	4.2	-0.32	187+02.1
272	Dip	1	9	187+33.6	187+25.5	8.1	-0.35	187+29.1
273	Bump	1	9	187+40.8	187+37.2	3.7	0.39	187+38.4
274	Bump	2	9	187+55.7	187+48.0	7.7	0.45	187+52.7
275	Dip	2	9	187+66.1	187+61.2	4.8	-0.31	187+63.5
276	Dip	1	9	189+17.7	189+10.4	7.3	-0.38	189+15.7
277	Dip	2	8	189+39.9	189+31.2	8.7	-0.36	189+38.3
278	Dip	1	8	189+40.6	189+31.8	8.8	-0.34	189+38.7
279	Bump	1	8	189+47.7	189+41.2	6.5	0.56	189+42.9
280	Bump	2	8	189+49.5	189+42.4	7.1	0.50	189+44.0
281	Dip	1	8	189+55.7	189+52.7	3.0	-0.42	189+54.7

Defect Locations - Run 1 - By Station

Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
282	Dip	2	8	189+67.0	189+60.2	6.8	-0.37	189+62.4
283	Dip	1	8	190+62.2	190+59.1	3.1	-0.33	190+60.8
284	Bump	1	8	191+43.1	191+41.0	2.1	0.35	191+41.9
285	Dip	1	8	191+57.4	191+46.7	10.8	-0.43	191+52.6
286	Dip	2	8	191+58.7	191+47.2	11.6	-0.44	191+54.9
287	Bump	1	8	191+75.4	191+58.7	16.7	0.40	191+73.8
288	Bump	2	8	191+75.4	191+59.6	15.8	0.36	191+60.4
289	Dip	1	8	191+89.2	191+78.4	10.8	-0.39	191+87.8
290	Bump	1	8	192+04.7	191+90.1	14.6	0.43	191+91.2
291	Dip	1	8	192+18.4	192+08.1	10.3	-0.39	192+16.7
292	Bump	1	8	192+35.9	192+19.7	16.2	0.41	192+34.2
293	Bump	2	8	192+36.2	192+34.2	2.0	0.35	192+35.2
294	Dip	2	8	192+48.2	192+41.7	6.4	-0.33	192+46.9
295	Dip	1	8	192+49.0	192+39.2	9.8	-0.37	192+46.8
296	Dip	2	8	193+07.6	192+98.9	8.7	-0.38	193+01.3
297	Dip	1	8	193+10.2	192+99.7	10.5	-0.34	193+02.2
298	Bump	1	8	193+16.8	193+10.2	6.6	0.64	193+12.2
299	Bump	2	8	193+17.2	193+10.9	6.3	0.54	193+13.2
300	Dip	1	8	193+25.2	193+17.4	7.8	-0.49	193+23.7
301	Dip	1	8	194+48.7	194+44.9	3.8	-0.32	194+48.1
302	Bump	1	8	194+52.2	194+49.9	2.3	0.37	194+50.8
303	Dip	1	7	194+79.7	194+68.8	10.8	-0.56	194+78.3
304	Dip	2	7	194+80.3	194+73.7	6.6	-0.39	194+79.4
305	Bump	2	7	194+84.9	194+80.8	4.1	0.48	194+82.1
306	Bump	1	7	194+85.7	194+79.7	6.0	0.59	194+81.0
307	Dip	1	7	195+41.5	195+32.4	9.1	-0.43	195+40.3
308	Bump	2	7	195+45.7	195+43.2	2.4	0.37	195+44.2
309	Bump	1	7	195+45.9	195+41.9	4.0	0.47	195+43.1
310	Dip	1	7	195+58.2	195+54.7	3.5	-0.34	195+56.3
311	Dip	2	7	195+59.3	195+53.9	5.4	-0.34	195+56.8
312	Dip	1	7	196+18.5	196+08.8	9.7	-0.41	196+15.0
313	Bump	1	7	196+25.4	196+19.2	6.3	0.44	196+20.3
314	Dip	2	7	196+48.3	196+38.3	10.0	-0.42	196+42.0
315	Dip	1	7	196+50.6	196+32.6	18.0	-0.58	196+41.5
316	Bump	2	7	196+62.3	196+50.9	11.4	0.54	196+53.5
317	Bump	1	7	196+62.4	196+50.0	12.4	0.68	196+52.6
318	Dip	2	7	196+76.6	196+67.5	9.1	-0.38	196+71.9
319	Dip	1	7	196+77.0	196+65.7	11.3	-0.41	196+69.7
320	Bump	1	7	197+29.6	197+26.6	3.0	0.43	197+27.7
321	Bump	2	7	197+30.1	197+27.4	2.7	0.39	197+28.7
322	Dip	1	7	197+41.8	197+32.6	9.3	-0.37	197+38.6
323	Dip	2	7	197+42.0	197+34.5	7.5	-0.35	197+39.9
324	Bump	1	7	197+89.4	197+87.0	2.4	0.39	197+88.0
325	Bump	1	7	198+22.2	198+18.4	3.8	0.43	198+19.8
326	Dip	1	7	198+34.5	198+25.8	8.7	-0.38	198+30.6
327	Dip	1	7	199+10.0	199+07.6	2.4	-0.32	199+09.4
328	Dip	1	7	199+56.7	199+48.0	8.8	-0.37	199+55.7
329	Dip	2	7	199+57.6	199+49.8	7.7	-0.33	199+54.5
330	Bump	1	7	199+60.7	199+57.7	2.9	0.37	199+58.6
331	Bump	2	7	199+63.4	199+59.2	4.2	0.35	199+59.9
332	Dip	2	7	199+84.8	199+76.9	7.9	-0.35	199+80.9
333	Dip	1	7	199+87.6	199+75.2	12.4	-0.42	199+80.3
334	Bump	2	6	199+91.8	199+89.6	2.3	0.36	199+90.7
335	Bump	1	6	199+92.4	199+88.2	4.2	0.51	199+89.7

Defect Locations - Run 1 - By Station							
Defect	Type	Track	Segment	Start (ft)	End (ft)	Length (ft)	Peak Height (in)	Peak Station (ft)
336	Dip	1	6	201+12.0	201+06.5	5.5	-0.34	201+10.2
337	Dip	2	6	201+51.0	201+47.9	3.1	-0.32	201+49.6
338	Bump	1	6	201+60.2	201+56.7	3.6	0.41	201+57.7
339	Bump	2	6	201+61.2	201+57.8	3.4	0.38	201+58.9
340	Dip	2	6	202+45.9	202+40.8	5.1	-0.32	202+42.6
341	Dip	1	6	202+46.5	202+35.5	11.0	-0.40	202+38.8
342	Bump	1	6	202+51.2	202+49.2	2.1	0.36	202+50.1
343	Dip	2	5	205+59.2	205+53.7	5.6	-0.33	205+58.6
344	Dip	1	5	205+74.2	205+66.2	8.0	-0.32	205+70.7
345	Bump	1	5	205+82.5	205+75.7	6.7	0.45	205+77.1
346	Dip	1	5	205+97.6	205+92.2	5.4	-0.34	205+94.3
347	Bump	1	5	206+38.2	206+35.7	2.5	0.38	206+36.9
348	Bump	1	5	208+84.7	208+82.0	2.7	0.39	208+83.2
349	Bump	2	5	208+86.1	208+83.0	3.1	0.38	208+84.4
350	Dip	1	4	214+79.0	214+73.6	5.4	-0.36	214+76.0
351	Bump	1	4	214+87.2	214+82.7	4.5	0.40	214+84.2
352	Dip	1	4	215+59.0	215+50.6	8.4	-0.38	215+56.2
353	Bump	1	4	215+68.2	215+61.0	7.2	0.33	215+66.8
354	Bump	2	3	219+14.8	219+09.5	5.3	0.37	219+13.1
355	Bump	1	3	219+15.4	219+12.2	3.3	0.36	219+13.4
356	Bump	1	2	222+08.2	222+05.9	2.3	0.33	222+07.0
357	Bump	1	1	226+70.7	226+68.4	2.3	0.35	226+69.3
358	Dip	1	1	230+38.3	230+28.8	9.5	-0.36	230+37.4
359	Bump	1	1	230+41.9	230+39.4	2.5	0.37	230+40.2

Track 1 defects: 227
Track 2 defects: 132
Total defects: 359

No user events found for Run 1

Certified by: _____

Title: _____

Organization: _____

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection

for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each

classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of

Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

Contract Provision - Cargo Preference Requirements

In accordance with Title 46 CFR § 381.7 (b), the contractor agrees—

"(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract."

Provisions (1) and (2) apply to materials or equipment that are acquired solely for the project. The two provisions do not apply to goods or materials that come into inventories independent of the project, such as shipments of Portland cement, asphalt cement, or aggregates, when industry suppliers and contractors use these materials to replenish existing inventories.

MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONSTRUCTION CONTRACTS

This project is funded, in part, with Federal-aid funds and, as such, is subject to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Sta. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in a 29 CFR Part 1, Appendix A, as well as such additional statutes as may from time to time be enacted containing provisions for the payment of wages determined to be prevailing by the Secretary of Labor in accordance with the Davis-Bacon Act and pursuant to the provisions of 29 CFR Part 1. The prevailing rates and fringe benefits shown in the General Wage Determination Decisions issued by the U.S. Department of Labor shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

General Wage Determination Decisions, modifications and supersedes decisions thereto are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision, together with any modifications issued, must be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable DBRA Federal prevailing wage law and 29 CFR Part 5. The wage rates and fringe benefits contained in the General Wage Determination Decision shall be the minimum paid by contractors and subcontractors to laborers and mechanics.