OHIO DEPARTMENT OF TRANSPORTATION
CENTRAL OFFICE • 1980 WEST BROAD STREET • COLUMBUS, OH 43223
JOHN R. KASICH, GOVERNOR • JERRY WRAY, DIRECTOR

1/18/2013

Project 130002 **Addendum No. 10**
PID No. 76691
ALL – IR 75 – 5.53 Part 1; ALL – SR 117/309 – 18.65/15.17 Part 2
Major Reconstruction
Letting: January 24, 2013

Notice to all Bidders and Suppliers to please be advised of the attached Proposal Addendum.

For internet access to information referenced in this addendum, please see the ODOT web site at -> ftp://ftp.dot.state.oh.us/pub/Contracts/Attach/ALL-76691/

The Department utilizes Bid Express (http://www.bidx.com) as the official medium for electronic bid submittal. All bidders must prepare bids and submit them online via Bid Express.

Addenda amendments must be acknowledged in the miscellaneous section of the Expedite (EBS) file and all amendments loaded in order for your bid to be considered for award of this project. Bid express will not accept bids that do not have amendments incorporated. Failure to incorporate changed quantities or items in your Expedite (EBS) submissions will result in the rejection of your bid.

Proposal Addendum
For
ALL-75-5.53 (Part 1), ALL-117/309-18.65/15.17 (Part 2); PID 76691
Project 130002

Be advised of the following changes:

Completion Date Change: No

Bid Item Changes, Additions or Deletions: Yes

Funding Splits Required: Yes

Revised Bid Items:

Ref. No.	Item No.	Total Quantity	Unit	Description
0464	610E60000	LUMP		SPECIAL-RETAINING WALL MISC.: TEMPORARY MSE WALL
0577	509E10000	176,801	LB	EPOXY COATED REINFORCING STEEL
0614	509E10000	176,801	LB	EPOXY COATED REINFORCING STEEL
0651	509E10000	214,876	LB	EPOXY COATED REINFORCING STEEL
0687	509E10000	214,875	LB	EPOXY COATED REINFORCING STEEL

Add the following notes: Yes

Add SS 937 dated 4/20/07

Plan sheet revisions: Yes

Part 1 Sheets 60, 62, 940, 941, 951, 969, 974, 976, 978, 979, 989, 1009 & 1042 have been revised.

Revise the following notes: Yes

PID 76691

Utility Note
ALL-75-5.53 (Part 1)
REVISED 1/15/2013

"Bidders are advised that the following utility facilities will not be cleared from the construction area at the time of award of the contract. These utility facilities shall remain in place or be relocated within the construction limits of the project as set out below."

All utilities are required to have their relocation work completed on or before March 1, 2013.

The contractor shall exercise caution when working in proximity to the existing and/or relocated utility facilities.

Sections 105.06 and 107.17 of the Department of Transportation Construction and Material Specifications require, among other things, that the contractor cooperate with all utilities located within the limits of this construction project and take responsibility for the protection of the utility property and services.

It should also be noted utility companies need to monitor construction in areas their facilities are located by having an on-site representative.

All station locations listed below are approximate unless otherwise stated.

TIME WARNER CABLE

The company has existing aerial and buried facilities on American Electric Power poles, their facilities will be relocated along with the AEP relocation. The company has 3 existing buried conduits crossing I-75 @ 459+50, 1 containing fiber optic the other 2 are empty these will remain in place. A second buried cable runs from AEP pole #71 @ 448+61-235+/- Right (off SR 81) crossing I-75 along existing SR 81 behind the piers and to AEP pole #72 @ 451+31-240+/- Right is to be removed and relocated in an existing empty conduit @ 459+50 .

An aerial cable running from AEP pole #262@ Ramp "E" off Dean Avenue to AEP pole #203 will be removed and relocated on proposed AEP poles along the north side of the proposed Dean Avenue and Bryn Mawr intersection. These poles start at station 11+33-36' and being 2 feet south and 5 feet east of existing pole being removed #203 to #314, #68, #205, #69.
Time Warner point of contact will be Gary Hohenbrink #419-996-2272 or e-mail @ gary.hohenbrink@twcable.com

AMERICAN ELECTRIC POWER

The company has existing aerial facilities on both the left and right side of the project. These facilities are affected in the following manner. AEP's point of contact will be Jeff Meyers # 419-436-2008 or e-mail @ jdmeyers@aep.com

Pole #/Location	Disposition
I-75 / SR 309	
#25: Ramp "A" 361+22-164+/- Left	Proposed
#24: Ramp "A"	Remain
#28: Ramp "F"	Remain
#29: Ramp "F"	Remain
#30: Ramp "F"	Remain
#188: Ramp "A"	Remain
#189: Ramp "A" 895+05-64+/- Right	Proposed
#295: Ramp "C"	Remain
#390: Ramp "E"	Remove
#579: Ramp "E" (Pad)	Remove
#131: Ramp "C"	Remove
#132: Ramp "C"	Remain
#298: Ramp "C"	Remain
#133: Ramp "C"	Remain
#155: Ramp "C"	Remain
#178: Ramp "C"	Remain
#172: Ramp "C"	Remain
#262: Ramp "E"	Remove
#50/3: Dean Avenue 11+33-36+/- Right	Proposed
#203: Dean Avenue	Remove
#314: Bryn Mawr	Remain
#68: Bryn Mawr	Remain
#205: Bryn Mawr	Remain
#69: Bryn Mawr	Remain
#301: Bryn Mawr	Remove
#185: Bryn Mawr	Remove
I-75 / SR 81 Area Replace Existing With Larger Poles	
#72: SR 81 451+31-240+/- Right	Proposed
#73: SR 81 454+00-220+/- Right	Proposed
#70: SR 81 446+13.5-228+/- Right (from SR 81)	Proposed
#71: SR 81 449+00-230+/- Right (from SR 81)	Proposed
#110: SR 81	Remain

CENTURYLINK

The company has existing aerial and buried facilities with conflicts throughout the project and is explained as follows: Centurylink's point of contact is Bill Perrin #419-226-6220 or e-mail @ William.R.Perrin@centurylink.com

Size/Location	Disposition
Ramp "A" @ I-75 / SR 309	
367+80-500' Left	Remain
367+03-330' Left	Remain
366+40-110' Left	Removed
Existing cable from 366+40-110' Left to 363+00-620' Right	Abandon in place

Directional drill from pole at 367+03-330’ in a southerly direction
a distance of 150 to a point 365+50-330’ left C/L of I-75;
thence from 365+50-330’ left and crossing proposed C/L of ramp “A”
@ 365+70-’ to a manhole @ 365+20-110’ right of C/L of I-75; thence
Directional drilled to a manhole beyond exist
LA line @ 363+00-620’Right. Proposed

The company has existing buried facilities crossing at station 396+50 this buried cable will remain in place during construction.

S.R 81

The company has existing aerial facilities along the left side of the road from approximate station 428+00 to station 436+18 which will remain active and in place during the contractor’s construction activities. The company will remove their aerial cable from station 436+18 left to station 461+28 left. The company will bury their cable at the approximate following locations:

Location	Disposition
436+18, 110’ Left	Proposed
437+82, 139’ Left	Proposed
438+86, 115’ Left	Proposed
439+65, 115’ Left, Bore depth elevation 850.00	Proposed
446+75, 93’ Left, Bore depth elevation 858.00	Proposed
452+22, 105’ Left, Bore depth elevation 860.00	Proposed
453+70, 110’, Left	Proposed
458+37, 67’, Left	Proposed
461+20, 35’ Left	Proposed
461+20, 90’, Right	Proposed
459+90, 80’, Right	Proposed

The company will bury a cable from 430+26, 65 feet right to station 430+65, 49 feet left. The cable will be installed at a minimum elevation of 865.

Neubrecht Rd.

The company will remove aerial cable from station 12+67, 32 feet left to station16+25, 33 feet left. The company will bury their cable from station 12+67, 39 feet left to station16+25, 39 feet left.

The Company will relocate on the following AEP poles at Bryn Mawr.

#314: Bryn Mawr	Remain
#68: Bryn Mawr	Remain
#205: Bryn Mawr	Remain
#69: Bryn Mawr	Remain

QWEST (CENTURYLINK)

The company has buried facilities crossing I-75 that were relocated as part of the 4th Street project in the area south of the structure at station 320+00 +/- , 5feet below ditch line.

CITY of LIMA WATER & SEWER

The City has water and sewer facilities located on or across this project and therefore will remain in place unless replaced with new facilities as per construction plan. The City's point of contact is Kent Shoemaker # 419-221-5275 or e-mail @ kent.shoemaker@cityhall.lima.oh.us.

MARATHON PIPE LINE

The company has an existing 12" high pressure crude oil pipeline crossing I-75 and will be abandoned in place with a proposed line directional drilled at a minimum elevation of 880.00 a distance of 626.80 feet by December 31, 2012. The company has an 8" abandoned oil line which may be affected by the ditch cuts. Marathon's point of contact will be Davis Wisner # 1-419-421-2211 or e- mail @ dswisner@marathonpetroleum.com

Size/Location	Disposition
12" 292+80-130' Left Crossing C/L of I-75 @ 292+80 292+80-100' Right	Abandon in place
12" 292+80-243' Left of west side ditch flow line 292+80-213' Right of east side ditch flow line Install at minimum elevation of 880.00	Proposed

BP PIPELINE (nka SUNOCO LOGISTICS)

The company has existing facilities crossing I-75 diagonally that will remain in place. Changes in the size of the proposed pipes replacing existing pipes will remain at the existing elevation therefore relieving the conflict as originally designed. BP Pipelines point of contact will be Mike Lerma #419-655-2966 or 419-376-0449.

Size/Location	Disposition
8" 307+10-130' Left Crossing C/L of I-75 @ 308+50 310+35-167' Right	Remain in place
10" 307+15-130' Left Crossing C/L of I-75 @ 308+55 310+40-167' Right	Remain in place

BUCKEYE PIPELINE

The company has existing facilities at multiple locations shown as follows. A 12" pipeline crossing the C/L of I-75 @ 292+47 is to be relocated at a lower elevation by March 1, 2013. Listed below are other possible conflicts to be aware of during construction. Buckeye's point of contact is Marty White #419-993-8008 or e-mail @ mwhite@buckeye.com

Size/Location	Disposition
12" 292+60-130' Left C/L of I-75 @ 292+47 292+35-100' Right	Casing extended
12" 293+55-130' Left Crossing C/L of I-75 @ 293+55 293+55-100' Right	Casing extended

(5) 8" Between 389+30-120' Left	Remain
389+50-120' Left	Remain
391+40-100' Right	Remain
391+67-100' Right	Remain
(2) 8" 391+50-120' Left	Remain
391+75-100' Right	Remain
12" 391+50-120' Left	Remain
391+75-100' Right	Remain

COLUMBIA GAS

The company has an existing 16" pipeline crossing mainline I-75 affected by the project due to proposed ditch cuts. The company has two 12" pipelines affected the first crosses I-75 at 312+50 and having clearance concerns at the proposed side ditches. The second parallels I-75 with concerns of being exposed by proposed west side ditch. (These 12" lines are now being eliminated). These three lines having conflicts are located as follows: Columbia Gas point of contact will be Russ Johnson # 330-721-4163 or e-mail @ rgjohnson@nisource.com or Kevin Coppes #419-722-6801 or e-mail @ kcoppes@nisource.com

Size/Location	Disposition
16" 293+50-130' Left 293+50-100' Right	Abandon in place
16" 293+50-130' Left 293+50-100' Right Install at minimum elevation of 895.00	Proposed
12" 312+48-90' Left Crossing I-75 C/L @ 312+50 312+50-138' Right 311+70-185' Right	Abandon in place
12" Parallel Line 311+00-110' Left 318+00-110' Left	Removed

DOMINION EAST OHIO GAS

The company has existing facilities needing relocated based on clearance with the proposed 36" conduit on the east side of proposed ramp "A" and side ditch clearance east of proposed ramp "F" these conflicts are located at the following locations:
Dominion's point of contact will be Brian S. Holden # 419-226-4829 or e-mail @ Brian.S.Holden@dom.com

Note: 8" line at 319+90 crossing I-75 was originally said to be relocated as part of the 4th Street project was not and therefore will have to be directionally bored in coordination with construction. Line has shut-off valves located on both side of I-75.

Size/Location	Disposition
8” 319+90-172’ Left Crossing I-75 C/L @ 319+90 319+90-600’ Right	Abandon in place
8” 319+90-172’ Left Crossing I-75 C/L @ 319+90 319+90-600’ Right Install at minimum elevation of 892.00	Directional Bore
8” 367+60-457’ Left Crossing I-75 C/L @ 365+80 363+30-650’ Right	Abandon in place
8” 367+60-457’ Left Crossing I-75 C/L @ 365+80 363+30-650’ Right Install at minimum elevation of 875.00	Proposed
2” 384+40-84’ Left Crossing I-75 C/L @ 384+40 384+40-80’ Right	Remain
2” 396+50-100’ Left Crossing I-75 C/L @ 396+50 396+50-109’ Right	Remain
Line located along SR 309 west of I-75 C/L from the Pump Station @ 893+80-80’ Right. 4” 893+80- 30’ Left	
4” 892+09- 41’ Left - company will cap line (west of exit ramp “C “) 4” 893+82- 45’ Left - company will cap line (east of proposed culvert)	
Crossing I-75 C/L @ 370+06.25 /SR 309 896+ 02.62-30’ Left 899+15-70’ right and continuing north along Dean Avenue Existing	Remain
370+70-25’ right of proposed ramp “E”	Remain
Lines south along Service Road 3 & SR 81	
427+76-22’ Right	Proposed
427+76-40’ Right	Proposed
428+33-48’ Right	Proposed
428+33-162’ Right	Proposed
429+22-162’ Right	Proposed
430+08-70’ Right	Proposed
430+10-60’ Right	Proposed
427+76-22’ Right to 430+10-60’ Right	Abandon in place
30+10-10’ Right to 43+78-12’ Right Service Road 3 Stationing	Remain
43+78-12’ Right	Proposed
43+78-41’ Right	Proposed
44+18-42’ Right	Proposed
Line from 43+78-12’ Right to 44+18-42’ Right	Abandon in place
Line from 44+18-42’ Right to 46+45-105’ Right	Remain

46+45-105’ Right from service road 3 to SR 81 455+60-182’ Right	Abandon in place
SR 81 455+60-182’ Right to end of project 461+50	Remain

Line North of SR 81

437+88-149’ Left	Proposed
437+90-144’ Left	Proposed
439+33-98’ Left	Proposed
439+82-91’ Left	Proposed
440+49-99’ Left	Proposed
441+47-95’ Left	Proposed
443+49-99’ Left	Proposed
443+96-88’ Left	Proposed
446+48-94’ Left	Proposed
446+98-77’ Left	Proposed
448+48-45’ Left	Proposed
449+73-41’ Left	Proposed
449+73-29’ Left	Proposed
451+44-30’ Left	Proposed
452+63-112’ Left	Proposed
454+11-77’ Left	Proposed
456+52-58’ Left	Proposed
458+98-56’ Left	Proposed
459+20-57’ Left	Proposed
461+90-52’ Left	Proposed
461+90-48’ Left	Proposed
459+20-57’ Left to 461+90-48’ Left	Abandon in place
459+20-57’ Left to 459+21-76’ Right	Remain

MID VALLEY (SUNOCO LOGISTICS)

The company has an existing 22” pipeline crossing mainline I-75 @342+00 with minimal clearance at existing side ditches and is located as follows: Steve Roane #409-651-0290 or e-mail @ steve@smithcorp.org or Tracy Hoffman #610-223-3290 or e-mail @ thoffman@sunocologists.com

Note: Pipeline company will not have line relocated at start of construction and therefore will have to be coordinated with the contractor to avoid delays.

Size/Location	Disposition
22” 342+22-150’ Left Crossing I-75 C/L @ 342+00 341+81-150’ Right	Abandon in place
22” 342+22-150’ Left Crossing I-75 C/L @ 342+00 341+81-150’ Right Install at minimum elevation of 875.00	Proposed

GENERAL COMMENT

The contractor shall exercise caution when working in proximity to the existing and/or relocated utility facilities.

Sections 105.06 and 107.17 of the Department of Transportation Construction and Material Specifications require, among other things, that the contractor cooperate with all utilities located within the limits of this construction project and take responsibility for the protection of the utility property and services.

It is the position of the Ohio Department of Transportation that all utilities have considered their facilities in regards to the project scope and work involved in relocating or protected their facilities accordingly. This project will be constructed in accordance with the Ohio Department of Transportation applicable C&MS book including protection of utilities and density requirements for embankment and granular base materials

SS800 dated 10/19/12 section 451.08 shall be replaced with the below following information:

451.08

Starting on page 257, **Replace** the entire subsection 451.08 Joints with the following:

451.08 Joints. Unless otherwise directed, construct all transverse joints normal to the centerline of the pavement lane and of the type, dimensions, and at locations specified.

Determine contraction and longitudinal joint sawing time limits to protect the concrete from early cracking by using HIPERPAV software. Obtain the software according to Supplement 1033.

Twenty four (24) hours before placing concrete pavement create a HIPERPAV project date file according to Supplement 1033.

Provide the completed file and the printout to the Engineer. When HIPERPAV predicts early age slab cracking will occur, whether due to standard construction practices, joint sawing methods, mix design or curing, either do not start construction until modifications have been made to eliminate HIPERPAV's predicted slab cracking or do not pave.

Perform a HIPERPAV analysis for each pour.

If software analysis determines joint sawing could exceed twenty four (24) hours, assure all joints are sawed by the 24th hour.

A HIPERPAV analysis showing paving can proceed does not eliminate the requirements of 451.16.

Accurately mark the correct locations of all joints that will be saw cut along both edges of the pavement. Ensure the method of marking remains clearly visible after the paver passes and until the joint saw cut is completed.

A. Longitudinal Joint. Construct longitudinal joints between simultaneously placed lanes by sawing.

When a standard (water cooled diamond bladed) concrete saw is used to make the longitudinal joint between simultaneously placed lanes, saw the joint within the timeframe provided in the HIPERPAV output. For pavement less than or equal to 10 inches (255 mm), saw the joint to a minimum depth of one-fourth the specified pavement thickness. For pavements greater than 10 inches (255 mm) thick, saw the joint to a minimum depth of one-third the specified pavement thickness. Saw joints 1/4 ± 1/16 inch (6 ± 1.6 mm) wide measured at the time of sawing.

When using early-entry (dry cut, light weight) saws to make the longitudinal joint between simultaneously placed lanes, only use saw blades and skid plates as recommended by the saw manufacturer for the coarse aggregate type being used in the concrete. Perform the early-entry sawing after initial set and before final set. Saw the joint 1/8 inch (3 mm) wide and 2 1/4 to 2 1/2 inches (56 to 63 mm) deep.

Place deformed epoxy coated steel tiebars or the epoxy coated hook bolt alternate (wiggle bolt) with epoxy coated coupling, in longitudinal joints during consolidation of the concrete. Install them at mid-depth in the slab by approved mechanical equipment. As an alternate procedure, rigidly secure them on chairs or other approved supports to prevent displacement. Provide tie bars or wiggle bolts of the size and spaced as shown on the standard construction drawings. If used, securely fasten hook bolts or wiggle bolts with couplings to the form at the longitudinal construction joint as shown on the standard construction drawings.

B. Transverse Joints

Unless otherwise directed, construct all transverse joints normal to the centerline of the pavement lane and of the type, dimensions, and at locations specified.

For all transverse joints, install round, straight, smooth, steel dowel bars of the size shown in Table 451.08-1.

TABLE 451.08-1 DOWEL SIZE

Thickness of Pavement (T)	Diameter of Steel Dowel
Less than 8 1/2 inches (215 mm)	1 inch (25 mm)
8 1/2 to 10 inches (215 to 255 mm)	1 1/4 inches (32 mm)
Over 10 inches (255 mm)	1 1/2 inches (38 mm) or as shown on the plans

Within 2 hours prior of placing concrete coat the full length of all dowels with a thin uniform coat of new light form oil as a bond-breaking material.

Load Transfer Assemblies.

Use load transfer (dowel basket) assemblies in transverse contraction joints conforming to and placed according to the standard drawings to hold the dowels in a position parallel to the surface and centerline of the slab at mid-depth of the slab thickness.

Preset all dowel basket assemblies before the day's paving unless the Engineer determines complete presetting is impractical.

Completely install dowel basket assemblies before shipping and spacer wires are removed.

Immediately before paving, remove all shipping and spacer wires from the dowel basket assemblies; check the dowel basket assemblies are held firmly in place; check the dowels are parallel to the grade and parallel to centerline of pavement.

For each joint assembly used to hold dowels in position, provide a continuous assembly between longitudinal joints or between the longitudinal joint and pavement edge. Drive at least eight 1/2-inch (13 mm) diameter steel pins a minimum of 18 inches (460 mm) long at an angle to brace the assembly from lateral and vertical displacements during the placing of concrete. Drive two of these pins opposite each other at each end of the assembly, and drive the remaining pins in staggered positions on each side of the assembly. Where it is impractical to use the 18-inch (460 mm) length pins, such as where hardpan or rock is encountered, and provided the assembly is held firmly, the Engineer may authorize use of shorter pins. Where the dowel basket assembly is placed on granular material that may allow settlement or distortion, anchor the assembly with a combination of pins and steel plates, or by some other means satisfactory to the Engineer to prevent settlement.

When concrete pavement is placed on an existing concrete pavement or on a stabilized base, secure dowel basket assemblies from lateral and vertical displacement during concrete placement using power-driven fasteners and appropriate clips or pins driven in predrilled holes of a diameter slightly less than the pin diameter. Use either of the above methods or a combination of the two in sufficient numbers to adequately secure the basket assemblies.

Where widths other than 12 feet (3.6 m) are specified, the Contractor may use standard dowel basket assemblies with dowel spacings adjusted as follows. Maintain 6-inch (150 mm) dowel spacing at the longitudinal joint and increase the spacing at the outer edge of the lane up to 12 inches (300 mm). Where an odd width of lane occurs and if the standard dowel basket assembly would provide for a space exceeding 12 inches (300 m), place a dowel 6 inches (150 mm) from the outer edge of the lane). Hold such a dowel rigidly in proper position by a method satisfactory to the Engineer or cut and splice a dowel basket assembly of greater length than required to attain the required length.

Slip Form Paver with Mechanical Dowel Bar Inserter.

The Contractor may propose to use a slip form paver with mechanical dowel bar inserter (DBI) to place dowels in transverse contraction joints the full thickness of pavement and spaced per the requirements of the standard construction drawings. Submit details and specifications of the proposed equipment to the Engineer at least 14 calendar days prior to mobilizing the equipment to the project.

The use of any slip form paver with DBI is allowed only after acceptable performance is demonstrated with a test section and approved by the Engineer. Continued verification during all contract paving is required for each production day as detailed below.

Provide all equipment, perform all testing, and evaluate the slip form paver with DBI as detailed in the following sections.

1. MIT Scan-2 Equipment and Reporting

Provide MIT Scan-2 equipment to determine the location of dowel bars in either fresh or hardened concrete including horizontal translation, longitudinal translation, vertical translation, horizontal skew, vertical tilt, and cover.

Provide equipment for determining dowel bar alignment that has an onboard computer that runs the test; collects and stores the test data on a memory card; performs the preliminary evaluation; and provides a printout of results immediately after scanning. Provide MagnoProof software to provide a detailed report of all required alignment parameters in an Excel spreadsheet and a graphical color representation.

Ensure the equipment is properly calibrated conforming to the manufacturer's specifications and for the specific project conditions. Provide calibration documentation to the Engineer prior to the start of construction. Establish a standard protocol for scanning direction.

Provide trained personnel to operate the equipment and documentation of training prior to start of construction.

Provide a print out, at the time of scanning, for horizontal translation, longitudinal translation, vertical translation, horizontal skew, vertical tilt, and cover for each bar in each joint scanned. For each Test Section and daily, for each day of production, provide a complete report to the Engineer at the completion of scanning along with a digital copy of all data collected in the manufacturer's native file format as well as all calibration files. Include the standard report generated using the MagnoProof software in Excel format and with color graphical representation of each joint. Include in the report project contract number, county-route-section, placement date, scan date, station location and lane, joint ID number, name of operator, and all required alignment parameters.

If non-magnetic dowel bar materials are to be used, propose and demonstrate alternative measurement equipment to the Engineer showing capability to provide measures equal or similar to the acceptance and rejection criteria of Table 451.08-2. Obtain the Engineer's approval of alternative equipment prior to paving. If no alternative equipment can demonstrate the required capability, do not use the slip form paver with DBI.

Prior to paving, review the measurement equipment applicability for the project conditions with the Engineer, including: ambient moisture conditions, dowel material, metallic concrete aggregate and potential contributors to magnetic interference (presence of tiebars, reinforcing steel or other embedded or underlying steel items that may affect measurement accuracy). Establish how the measurement device can meet the project conditions. If the measurement device cannot meet the project conditions, do not use the slip form paver with DBI.

2. Acceptance/Rejection

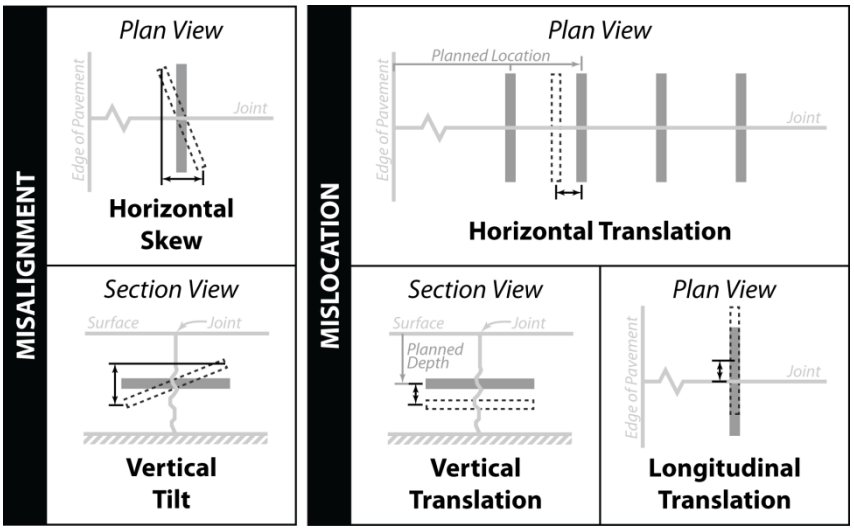
The required dowel bar tolerances are given in Table 451.08-2. Dowel bar alignment is measured as detailed below. Any dowel bar exceeding any Acceptance Tolerance in Table 451.08-2 is considered misaligned. Rejection Criteria is in absolute inches.

Table 451.08-2

Individual Dowel Bar Alignment Tolerances

Alignment Parameter	Acceptance Tolerance (inches)	Rejection Criteria (inches)
Horizontal Translation [a]	±2.0	±3.0
Longitudinal Translation [b]	±2.0	±4.0
Vertical Translation [c]	±1.0	± T/6
Horizontal Skew [d]	±0.60	±1.0
Vertical Tilt [e]	±0.60	±1.0
Cover [f]	-	2.5 minimum

a. Horizontal Translation - the total difference, measured horizontally, between the actual dowel bar location and the plan required dowel bar location along the transverse contraction joint.
b. Longitudinal Translation - the total difference, measured in the longitudinal direction, from the center of the transverse contraction joint to the actual dowel bar center. Also termed as "side shift".
c. Vertical Translation - the total difference, measured vertically, between the centerline of the actual dowel bar location and he mid-depth of the slab. (T = Pavement Thickness in inches)
d. Horizontal Skew - the total difference, measured from end to end of a dowel bar, of the dowel in the horizontal plane.
e. Vertical Tilt - the total difference, measured from end to end of a dowel bar, of the dowel bar in the vertical plane.
f. Cover - the least distance between the surface of embedded reinforcement and the outer surface of the concrete.



Perform a Joint Score Analysis conforming to CPTP Tech Brief *Best Practices for Dowel Placement Tolerances* (FHWA-HIF-07-021) for every joint. Joint Score is a measure of the combined effects of horizontal skew and vertical tilt. To calculate the Joint Score: calculate the Single Dowel Misalignment (SDM) by the square root of the sum of the squares of the Horizontal Skew and Vertical Tilt of each dowel in the joint; determine the weighing factor (W) for each bar from Table 451.08-3; sum the W values for every dowel in the joint and add one (1).

$$Single\ Dowel\ Misalignment\ (SDM) = \sqrt{(Horizontal\ Skew)^2 + (Vertical\ Tilt)^2}$$

Joint Score (JS) – Evaluated for a single transverse joint between adjacent longitudinal joint(s) and/or pavement edge(s) (i.e., a typical 12 ft [3.6 m] standard lane or up to 14 ft [4.3 m] widened lane), and calculated as:

$$Joint\ Score\ (JS) = 1 + \sum_{i=1}^{n} W_i$$

where:

n = number of dowels in the single joint

W_i = weighting factor (Table 451.08-3) for dowel i

Table 451.08-3

Weighting Factors in Joint Score (JS) Determination

Single Dowel Misalignment (SDM)	W, Weighting Factor
SDM ≤ 0.6 in. (15 mm)	0
0.6 in. (15 mm) < SDM ≤ 0.8 in. (20 mm)	2
0.8 in. (20 mm) < SDM ≤ 1 in. (25 mm)	4
1 in. (25 mm) < SDM ≤ 1.5 in. (38 mm)	5
1.5 in. (38 mm) < SDM	10

Joint Score Trigger (JST) – A scaling of the Joint Score risk value to account for the actual number of dowels required in a single joint for pavement width other than 12 ft (3.6 m), calculated as:

$$Joint\ Score\ Trigger\ (JST) = 10 * \frac{\#\ of\ Dowel\ Bars\ in\ Single\ Joint}{12}$$

Include the Joint Score and Joint Score Trigger for every joint scanned in the report to the Engineer. Any joint with a Joint Score equal to or greater than the Joint Score Trigger is considered locked and rejectable.

3. Test Section

Prior to production use of a DBI slip form paver, perform at least a 500-foot (150 m) long test section for acceptance of the machine. Measure the alignment and location of each dowel bar in the test section using the MIT Scan-2. The test section will be considered acceptable if the following acceptance criteria are met:

1. Each Joint Score (JS) is less than Joint Score Trigger (JST);

2. Ninety percent (90%) of the dowel bars meet the Acceptance Tolerances of Table 451.08-2;
3. None of the dowels exceed the Rejection Tolerances of 451.08-2.

If the test section acceptance criteria is not met, use the data to refine the paving process and reduce/eliminate misalignments and mislocations. Modify, repair or replace any slip form paver with DBI that does not meet the acceptance criteria and perform another test section. Do not begin production paving until the slip form paver with DBI test section acceptance criteria is met.

Perform corrective action of all joints in the test section according to Section 5 below.

Perform a new test section for any new slip form paver with DBI that will be used for any contract item of work.

Perform a new test section at the beginning of every construction season; after major paver maintenance/repairs; at mobilization or remobilization to a project, for major concrete mix design changes or different concrete mix designs; and as required by Section 4 of this specification.

If the length of the section to be paved makes it unreasonable to perform the test section, scan all joints for conformance with the requirements of Section 2, Acceptance/Rejection. Correct any joints with dowels found to be rejectable or JS greater than JST according to Section 5, Corrective Action.

Determine during the test section if embedded tiebars are affecting the Rejection Tolerances and JS's. If the test section demonstration shows interference, exclude from the JS and JST calculations any dowel bar(s) closer than 12 in. (300 mm) in any direction to tiebars in the longitudinal joint(s). At the Engineer's discretion, establish the location of excluded dowels by another equivalent non-destructive method or by probing.

4. Paving Quality Control Testing (QCT) for Dowel Bar Inserters

When using the accepted slip form paver and DBI for any contract item of work, perform quality control scans with the MIT-Scan 2 equipment at the following minimum:

a. Measure the alignments and location for every 10th joint and calculate the JS and JST for each measured joint. Acceptable QCT is when all measures are within the acceptance tolerances in Table 451.08-2 and JS is less than JST.

   i. When the daily QCT finds more than 10 percent of the joints scanned have dowels exceeding the acceptance tolerances of Table 451.08-2 but the JS is less than the JST, increase the scanning frequency to every 5th joint. Evaluate the paving process to reduce/eliminate misalignments and mislocations and continue to pave. The QCT frequency will revert back to every 10th joint when two consecutive days of scanning every 5th joint show no dowels exceeding the acceptance tolerances of Table 451.08-2 and all JSs are less than the JST.
   ii. When QCT finds any individual dowel bars exceeding the rejection criteria of Table 451.08-2 or the JS is found to exceed the JST, the joint is considered to be locked and immediate investigation needs to be made as follows:
      1. Scan joints in front and behind the locked joint location until five (5) consecutive joints in both directions are found with no dowel bars exceeding the rejection

criteria of Table 451.08-2 and no JS is found to exceed the JST.

2. If the additional scanned joints show no additional dowel bars exceeding the rejection criteria of Table 451.08-2 and no JS exceeding the JST, evaluate equipment to determine what caused the original problem. Before continuing paving increase the frequency of QCT to conform to 4.a.i.
3. If the additional scanned joints show additional dowel bars exceeding rejection criteria of Table 451.08-2 or joints with a JS exceeding the JST, stop paving. Investigate to determine the cause of the dowel bar rejection issues and provide the causes and alternative corrections to the Engineer.

   The Engineer will determine if the corrections will correct the problem and may allow paving to temporarily continue to validate if the corrections work. During any evaluation, scan all joints to determine if the corrections were successful. If successful, continue QCT scanning at the frequency of 4.a.i. If not successful, discontinue paving, repair or replace the slip form paver and DBI, and repeat the Test Section

b. All dowel bars found beyond rejection criteria of Table 451.08-2 or joints with a JS exceeding the JST require a corrective action proposal conforming to Section 5, Corrective Action.

Provide report formats as described in Section 1, MIT Scan-2 Equipment and Reporting.

5. Corrective Action

Submit a proposal for corrective action to the Engineer for any dowel that exceeds the rejection criteria in Table 451.08-2 or any joint that has a JS greater than the JST. As a minimum, include the following in the corrective action proposal:

1. Locations of rejectable dowels with identification information as described in Section 1, MIT Scan-2 Equipment and Reporting.
2. Locked joint identification information as described in Section 1, MIT Scan-2 Equipment and Reporting.
3. Proposed method of remediation for each identified location, including supporting documentation of the effectiveness of the means of proposed remediation.

The Department may not require corrective action for random dowels that exceed the rejection criteria of Table 451.08-2 depending on location; what alignment parameter was the cause for the rejection; and the frequency of the rejectable dowels.

The Department may not require corrective action for all JS exceeding the JST, if they are random in nature. Up to two (2) consecutive joints with a JS exceeding the JST may be accepted, provided that the adjacent three (3) joints before or after do not have dowels exceeding Table 451.08-2 rejection limits and have JS's less than the JST. The Department will require corrective action where there are more than two (2) consecutive joints with a JS exceeding the JST.

Do not proceed with any corrective action until the Engineer approves the proposed method(s) of correction.

C. Expansion Joints. Where a pressure relief joint is not provided adjacent to a bridge structure, construct expansion joints at the first two regularly spaced joint locations adjacent to the bridge approach slab on each side of the bridge. If the pavement is constructed in two or more separately placed lanes, construct the transverse expansion joints in a continuous line for the full width of the pavement and shoulders.

Construct expansion joints according to the standard construction drawings. Install the face of the expansion joint perpendicular to the concrete surface except when expansion joint is installed at a skewed bridge approach slab.

Use round, straight, smooth, steel dowels, and within 2 hours of placing concrete, coat the dowels with a thin uniform coat of new light form oil as a bond-breaking material to provide free movement. After coating the dowel, install a sleeve of metal or other approved material approximately 3 inches (75 mm) long, with crimped end, overlapping seams fitting closely around the dowel, and a depression or interior projection to stop the dowel a sufficient distance from the crimped end to allow 1 inch (25 mm) for longitudinal dowel movement with pavement expansion on one free end of each dowel. If approved by the Engineer, use other means to allow for 1 inch (25 mm) of expansion.

Punch or drill proper size dowel holes into the preformed expansion joint filler to assure a tight fit around each dowel.

Form a 1-inch (25 mm) wide and 1-inch (25 mm) deep opening on top of the expansion joint filler and seal this opening with 705.04 joint sealers.

D. Contraction Joints. For pavement less than or equal to 10 inches (225 mm) thick, saw contraction joints with a standard (water cooled diamond bladed) concrete saw to a minimum depth of one-fourth of the specified pavement thickness. For pavement greater than 10-inches (255 mm) thick, saw contraction joints to a minimum depth of one-third the specified pavement thickness. When cutting joints using a standard (water cooled diamond blade) saw assure the joint is 1/4 ± 1/16-inch (6 ± 1.6 mm) wide when measured at the time of sawing.

When using the option of early-entry (dry cut, light weight) saws, only use saw blades and skid plates as recommended by the saw manufacturer for the coarse aggregate type being used in the concrete. Perform the early entry contraction joint sawing after initial set and before final set. Saw the contraction joint 2-1/4 to 2-1/2-inches (56 to 63 mm) deep. Ensure any early entry saw joints are approximately 1/8-inch (3 mm) wide at the time of sawing.

If the pavement is constructed in two or more separately placed lanes, install the joints continuous for the full width of the pavement. Saw the pavement with sawing equipment approved by the Engineer as soon as the saw can be operated without damaging the concrete. Provide saws with adequate guides, blade guards, and a method of controlling the depth of cut. After wet sawing, clean the joint using a jet of water. After dry sawing clean the joint using air under pressure. During sawing of contraction joints, maintain a standby saw in working condition with an adequate supply of blades.

E. Construction Joints. Install dowelled construction joints at the end of each day's work and when work is suspended for a period of more than 30 minutes.

Use dowels in transverse construction joints. Within 2 hours of placing concrete, coat the free half of all dowels with a thin uniform coat of new light form oil. Use an adequate bulkhead, with openings provided for dowel bars spaced as specified and shaped to fit the typical section of the pavement, to form a straight joint. During placing of concrete, hold dowels rigidly in position.

Locate construction joints at or between contraction joints. If located between contraction joints, construct the construction joint no closer than 10 feet (3 m) to the last contraction joint.

451.09 Finishing

On page 261, **Replace** paragraph 3and 4 with the following two paragraphs:

Texture the surface in the longitudinal or transverse direction using a broom to produce a uniform, gritty, texture. Immediately following the broom drag texture, tine the pavement in the longitudinal direction using an approved device that produces uniform tine spacing 3/4 inches wide (19 mm), 1/8 inch deep (3 mm) and 1/8 inch wide (3 mm). Do not tine within 3 inches (75 mm) of pavement edges or longitudinal joints. Only use equipment that will tine the full width of the pavement in one operation and uses string line controls for line and grade to assure straight tining texture.

Use transverse tining in small areas only with the approval of the Engineer. Use equipment that produces a random pattern of grooves [0.05 inch (1.3 mm) to 0.08 inch (2.0 mm) deep and 0.10 inch (3 mm) wide] spaced at 3/8 to 1-3/4 inches (10 to 45 mm), with 50 percent of spacings less than 1 inch (25 mm). Transverse tining may be used as an option for shoulders of main line or shoulders of ramps and gore areas. Tine all mainline shoulders or all ramp shoulders in a consistent direction if choosing this option. Request the use of transverse tining and identify the locations for approval at the preconstruction meeting.

Answers to Prebid Questions: Yes

Q1: Submitted 1/15/2013 @ 2:12 PM
A1: Answer: It appears that the perception is that the bridge work cannot start until after all of the rear abutment embankment is in place and settled; which is not the case. Only the portion between the existing eastbound SR81 pavement and the proposed rear abutment MSE wall will need to be in place and settled. Another point worth mentioning is that the settlement time could potentially be significantly shorter than 90 days, perhaps as short as 60 days per the geotechnical report. With the surcharge and the platforms this can be closely monitored.

The rear abutment embankment construction must be split into phases which will allow the opening to maintain traffic on existing SR 81 eastbound lanes as depicted on sheet 62. To address the question in general, we have clarified sheet 62 and the pile driving constraints note in the bridge plans (sheet 1042). This should clear up any confusion and provide adequate time and overlap so that the bridge construction can start earlier.

Q1: Submitted 1/16/2013 @ 9:04 AM
A1: Answer: In response to the pre-bid question below we have revised the pay item on the MOT General Summary for Temp MSE Wall to be Lump Sum instead of Sq Ft. The Lump Sum will include all incidentals with the exception of Select Granular Embankment for which a pay item is provided.

Q1 submitted 1/16/2013 @ 9:59 AM
A1: Answer: Steel on the bridge is to be unpainted weathering steel. Revised sheets are attached clarifying this. No steel beam painting is necessary at either the abutments or the piers. Load plates are to be coated per the requirements of CMS 516.03, which references CMS items 513 and 514. The note was to direct the contractor to the fact that these require coatings and that the coating is to be included with the unit price of the bearings.

Q1: Submitted 1/16/2013 @ 4:31 PM
A1: Answer: Section 451.08 of SS800 dated 10/19/12 has been revised with this addenda.

Q1: Submitted 1/17/2013 @ 11:18 AM
A1: Answer: It appears that the perception is that the bridge work cannot start until after all of the rear abutment embankment is in place and settled; which is not the case. Only the portion between the existing eastbound SR81 pavement and the proposed rear abutment MSE wall will need to be in place and settled. Another point worth mentioning is that the settlement time could potentially be significantly shorter than 90 days, perhaps as short as 60 days per the geotechnical report. With the surcharge and the platforms this can be closely monitored.

The rear abutment embankment construction must be split into phases which will allow the opening to maintain traffic on existing SR 81 eastbound lanes as depicted on sheet 62. To address the question in general, we have clarified sheet 62 and the pile driving constraints note in the bridge plans (sheet 1042). This should clear up any confusion and provide adequate time and overlap so that the bridge construction can start earlier.

Q1: Submitted 1/17/2013 @ 1:55 PM
A1: Answer: SS 937 dated 4/20/07 added with this addendum