Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

July 14, 2006

SUBJECT: FAI Route 94/90
Section 2003-029I
Cook County
Contract No. 62581
Item No. 1P, August 4, 2006 Letting
Addendum A

NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Revised pages 1, 2, 3, 4 & 5 of the Schedule of Prices.
2. Revised the Recurring Special Provision Check Sheet.
3. Revised the Table of Contents to the Special Provisions.
4. Revised pages 1, 5, 6, 30 – 37, 39 – 61, 70 & 137 of the Special Provisions.
5. Added pages 221 - 226 to the Special Provisions.
6. Revised sheets 2, 4, 6, 7, 159, 160, 174 – 192, 199, 201 – 211, 245, 246, 248, 250, 261 – 266, 268 – 272, 272A, 273 – 278 & 280 of the Plans.
7. Added sheet 23A to the Plans.

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

Michael L. Hine
Engineer of Design
and Environment

By: Ted B. Walschleger, P. E.
Engineer of Project Management

cc: Diane O'Keefe, Region 1, District 1; Roger Driskell; R. E. Anderson; Estimates; Design & Environment File

TBW:MS:jc

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 62581

State Job # - C-91-083-03
PPS NBR - 1-76073-0400
County Name - COOK- -
Code - 31 - -
District - 1 - -
Section Number - 2003-029I

Project Number

Route
FAI 94/90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
XX005128	STRIP SEAL EXP JT ASY	FOOT	3,558.000				
* XX005213	CL D PATCH SUP T3 12	SQ YD	87.000				
* XZ193500	BR DK MIC C OVL 2 1/4	SQ YD	103,742.000				
X0320622	FIELD MEASUREMENTS	L SUM	1.000				
X0321472	REM TEMP CONC BARRIER	FOOT	720.000				
X0321743	SILICONE JT SEAL 1	FOOT	10,486.000				
* X0321781	MECHANICAL SPLICE	EACH	1,124.000				
X0321866	RM STOR & RE-E SN PAN	SQ FT	885.000				
* X0322215	CLEAN BRG SCUP/DWNSPT	EACH	276.000				
X0322256	TEMP INFO SIGNING	SQ FT	3,297.000				
X0323557	BR JOINT SYS EXPAN 1	FOOT	325.000				
X0323558	BR JT SYS EXPAN 1-5/8	FOOT	1,137.000				
X0323559	BR JOINT SYS FIXED	FOOT	395.000				
X0323574	MAINTAIN LIGHTING SYS	CAL MO	9.000				
X0324112	BARRIER BASE	FOOT	362.000				
X0324292	MAIN EX TRAFFIC SURV	CAL MO	9.000				
			* REVISED : JULY 11, 2006				

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	X0325085	TEMP PAVT INTERSTATE	SQ YD	297.000				
*	X0325114	ADJ DR SCUPPERS TY A	EACH	110.000				
*	X0325115	ADJ DR SCUPPERS TY B	EACH	72.000				
*	X0325116	ADJ DR SCUPPERS TY C	EACH	94.000				
	X0325122	TC-PROT DTR RTE SN 1	CAL MO	2.500				
	X0325123	TC-PROT DTR RTE SN 2	CAL MO	1.300				
	X0325124	TC-PROT DTR RTE SN 3	CAL MO	1.300				
	X0325125	TC-PROT DTR RTE SN 4	CAL MO	1.300				
	X0325126	TC-PROT SURF STREETS	L SUM	1.000				
	X0325434	TC-PROT DTR RTE SN 5	CAL MO	1.500				
	X0325435	TC-PROT DTR RTE SN 6	CAL MO	1.500				
	X0325436	TEMP PAVEMT VAR DEPTH	SQ YD	324.000				
	X0325437	MOD EXPAN JT REPAIR	L SUM	1.000				
*	X0325438	DECK SIL JT SEAL 1	FOOT	117.000				
	X0919000	TEMP PAVT REMOVAL	SQ YD	621.000				
				* REVISED : JULY 11, 2006				

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FAI 94/90

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X4834090	PCC SHOULDERS 14	SQ YD	875.000				
X6370930	CONC BAR 2F 32HT	FOOT	362.000				
X6700410	ENGR FLD OFF A SPL	CAL MO	16.000				
X6700600	ENGR FIELD LAB SPL	CAL MO	10.000				
X7011015	TR C-PROT EXPRESSWAYS	L SUM	1.000				
X7013820	TR CONT SURVEIL EXPWY	CAL DA	240.000				
X7015000	CHANGEABLE MESSAGE SN	CAL MO	84.000				
X7040600	FUR TEMP CONC BARRIER	FOOT	360.000				
* Z0002600	BAR SPLICERS	EACH	1,524.000				
* Z0006204	BR DECK HY-SCAR 1/2	SQ YD	103,742.000				
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000				
Z0016001	DECK SLAB REP (FD-T1)	SQ YD	200.000				
Z0022400	FAB REINF ELAS TROUGH	FOOT	447.000				
Z0029999	IMPACT ATTENUATOR REM	EACH	4.000				
Z0030150	IMPACT ATTEN NRD TL3	EACH	4.000				
			* REVISED : JULY 11, 2006				

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Route FAI 94/90

	Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
	Z0030250	IMP ATTN TEMP NRD TL3	EACH	11.000				
	Z0030350	IMP ATTN REL NRD TL3	EACH	1.000				
*	Z0047300	PROTECTIVE SHIELD	SQ YD	32,783.000				
	Z0048665	RR PROT LIABILITY INS	L SUM	1.000				
	Z0073200	TEMP SHORING & CRIB	EACH	5.000				
*	40602000	BIT REPL OV PATCH SUP	TON	13.600				
*	44000108	BIT RM OV PATCH 2	SQ YD	242.000				
	44004250	PAVED SHLD REMOVAL	SQ YD	779.000				
*	50102400	CONC REM	CU YD	1,101.000				
*	50300255	CONC SUP-STR	CU YD	1,211.100				
	50300260	BR DECK GROOVING	SQ YD	101,406.000				
	50300300	PROTECTIVE COAT	SQ YD	3,114.000				
	50500105	F & E STRUCT STEEL	L SUM	1.000				
	50500715	JACK & REM EX BEARING	EACH	5.000				
*	50501110	STRUCT STEEL REMOV	POUND	40,030.000				
*	50501130	STRUCT STEEL REPAIR	POUND	3,955.000				
*	50800205	REINF BARS, EPOXY CTD	POUND	175,860.000				
				* REVISED : JULY 11, 2006				

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60250400	CB ADJ NEW T1F OL	EACH	1.000				
* 60255410	CB CLEANED	EACH	177.000				
60255800	MAN ADJ NEW T1F CL	EACH	4.000				
60260300	INLETS ADJ NEW T1F OL	EACH	1.000				
60261510	INLETS ADJ NEW T20F&G	EACH	6.000				
60404910	FR & GRATES T20	EACH	8.000				
63801200	MOD GLARE SCRN SYS	FOOT	9,974.000				
66400530	CH LK FENCE 4 BRIDGE	FOOT	300.000				
67100100	MOBILIZATION	L SUM	1.000				
70300240	TEMP PVT MK LINE 6	FOOT	29,041.000				
70300510	PAVT MARK TAPE T3 L&S	SQ FT	73.000				
70300520	PAVT MARK TAPE T3 4	FOOT	46,119.000				
70300530	PAVT MARK TAPE T3 5	FOOT	4,479.000				
70300550	PAVT MARK TAPE T3 8	FOOT	12,889.000				
70300560	PAVT MARK TAPE T3 12	FOOT	1,346.000				
			* REVISED : JULY 11, 2006				

RECURRING SPECIAL PROVISIONS

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

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STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2002, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAI ROUTE 94/90 (DAN RYAN EXPRESSWAY) SB DAN RYAN ELEVATED BRIDGE REPAIR FROM 15TH TO 28TH STREETS, Section 2003-029I, in Cook County and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

FAI Route 94/90 (Dan Ryan Expressway)
SB Dan Ryan Elevated Bridge
Repair from 15th to 28th Streets
Section 2003-029I
Cook County

LOCATION OF IMPROVEMENT

The project improvement begins at approximately 28th Street along the elevated portion (viaduct) of Southbound F.A.I. 94/90 (Dan Ryan Expressway), and extends in a northerly direction to approximately 15th Street. The net length of the project improvement is approximately 10,487 feet. The improvement is located in the City of Chicago, Cook County.

DESCRIPTION OF PROJECT

Project includes the rehabilitation of the southbound viaduct portion of the Dan Ryan Expressway from north of 15th Street to 28th Street. Work for this portion of this contract includes bridge deck scarification, concrete overlay, bridge deck slab repairs, expansion joint removal and replacement (including finger plate expansion joints), furnishing and erection of structural steel (including the replacement of diaphragms under the existing finger plate expansion joints), jacking and removing existing bearings, structural steel and modular expansion joint repairs and scupper adjustments. All incidental and collateral work necessary to complete this project as shown on the plans and described herein are also included in the project.

MAINTENANCE OF ROADWAYS

Effective: September 30, 1985 Revised: November 1, 1996

Beginning on the date that work begins on this project, the Contractor shall assume responsibility for normal maintenance of all existing roadways within the limits of the

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START DATE - RAMPS

The contractor will not be allowed to proceed with any construction operations on RAMP (*) that may require daily and overnight lane closures prior to (**). Nighttime lane closures can be allowed with written permission from District's Bureau of Traffic.

(*) = Ramp Identification	(**) = Start Date (ADT)
ROOSEVELT RD ENTRANCE to EB I-94/90	March 1, 2007 (16000)
I-94/90 EB EXIT to 18th St	March 1, 2007 (9300)
C (I-55 NB to I-94/90 EB)	March 1, 2007 (14509)
F (I-94/90 EB to I-55 SB)	April 13, 2007 (16900)
CANALPORT ENTRANCE TO I-94/90 EB	May 19, 2007 (4100)
G (I-94/90 EB to I-55 NB)	May 19, 2007 (14809)

COMPLETION DATE - RAMPS

The Contractor shall complete all contract items for Ramp (*) and safely open the ramp to traffic by 11:59 PM on, (***).

(*) = Ramp Identification	(**) = Completion Date
ROOSEVELT RD ENTRANCE to EB I-94/90	May 18, 2007
I-94/90 EB EXIT to 18th St	April 12, 2007
C (I-55 NB to I-94/90 EB)	April 12, 2007
F (I-94/90 EB to I-55 SB)	May 18, 2007
CANALPORT ENTRANCE TO I-94/90 EB	June 30, 2007
G (I-94/90 EB to I-55 NB)	June 30, 2007

FAILURE TO COMPLETE THE WORK ON TIME - RAMPS

Effective: September 30, 1985 Revised: June 28, 1996

Should the Contractor fail to complete the work on or before the completion date as specified in the Special Provision for "Completion Date - Ramps", or within such extended time as may have been allowed by the Department, the Contractor shall be liable to the Department in the amount of ___(****) , not as a penalty but as liquidated damages, for each calendar day or a portion thereof of overrun in the contract time or such extended time as may have been allowed.

In fixing the damages as set out herein, the desire is to establish a certain mode of calculation for the work since the Department's actual loss, in the event of delay, cannot be predetermined, would be difficult

to ascertain, and a matter of argument and unprofitable litigation. This said mode is an equitable rule for measurement of the Department's actual loss and fairly takes into account the loss of use of the roadway if the project is delayed in completion. The Department shall not be required to provide any actual loss in order to recover these liquidated damages provided herein, as said damages are very difficult to ascertain. Furthermore, no provision of this clause shall be construed as a penalty, as such is not the intention of the parties.

A calendar day is every day shown on the calendar and starts at 12:00 midnight and ends at the following 12:00 midnight, twenty-four hours later.

(*) = Ramp Identification	(****) = Amount
ROOSEVELT RD ENTRANCE to EB I-94/90	**$5,700.00**
I-94/90 EB EXIT to 18th St	**$3,300.00**
C (I-55 NB to I-94/90 EB)	**$15,500.00**
F (I-94/90 EB to I-55 SB)	**$14,200.00**
CANALPORT ENTRANCE TO I-94/90 EB	**$1,450.00**
G (I-94/90 EB to I-55 NB)	**$23,800.00**

MOBILIZATION

Description: This item shall be performed in accordance with Section 671 of the Standard Specifications as amended by the Supplemental Specifications thereof.

CTA COORDINATION

All work to be done by the Contractor on, over or in close proximity of the CTA (Chicago Transit Authority) right-of-way shall be performed in accordance with Article 107.12 of the Standard Specifications and the following additional CTA requirements.

1. The CTA's Representative for this project will be:
   Mr. Marvin A. Watson
   General Manager, Construction
   567 W. Lake Street
   P. O. Box 7598
   Chicago, IL 60680-7598
   (312) 681-3860

2. NOTIFICATION TO CTA:

   A. After the letting of the contract and prior to performing any work, the CTA Representative shall be notified by the Department to attend the pre-construction meeting. In this meeting, the Contractor shall confer with the CTA's Representative regarding the CTA's requirements for the protection of CTA utilities clearances, operations, and safety.

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trimming of the stabilized subbase will not be required as per Article 311.06 except that the subbase shall be brought to true shape by placing the material in two equal lifts with a grade controlled mechanical paver as approved by the Engineer.

The additional costs to meet the various Material, Placing, Stability, Compaction, Trimming, and Finishing requirements for the bituminous stabilized subbase beneath 30 year extended life pavement will not be paid for separately, but included in the cost per square yard for STABILIZED SUBBASE, of the thickness specified.

The additional costs to meet the various Material, Equipment, Placement, Finishing, Curing, and Sealing requirements for 30 year extended life pavement will not be paid for separately but included in the cost per square yard for CONTINUOUSLY REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT, of the thickness specified; per square yard for PORTLAND CEMENT CONCRETE SHOULDER, of the thickness specified; per each for LUG SYSTEM COMPLETE, of the width specified; per square yard of BRIDGE APPROACH PAVEMENT (SPECIAL).

EXAMINATION OF EXISTING PLANS

Available plans for the existing structure involved in this contract will be made available for examination by all prospective bidders in the District One office at 201 West Center Court, Schaumburg, Illinois. The prospective bidder shall contact Mr. Rajendra Shah at phone no. (847) 705-4555 to arrange for examination of these documents.

The completeness of these plans is not guaranteed and no responsibility is assumed by the Department for their accuracy. Information is furnished for whatever value may be derived by the bidder, and is to be used solely at his/her risk.

TOP OF DECK ELEVATIONS

Description. This work shall consist of obtaining the existing top of deck elevations before and after scarification and after overlay placement as directed by the Engineer and as specified herein.
General. The overlay project will remove 1/2" of the existing concrete deck of the SB viaduct and associated ramps by scarification and then will furnish and place 2 1/4" of new microsilica concrete deck overlay. The new overlay shall match the existing profile grade lines, deck cross slopes, superelevations and transitions with a total 1 3/4” raise.

Prior to commencing any work, it is the Contractor’s responsibility to verify all the horizontal and vertical controls and transfer these controls to the top of the bridge deck. Prior to commencing any concrete removal or scarification operations, the Contractor shall survey the top of existing deck to obtain existing deck elevations. The Contractor must take and record these elevations along all edge lines, lane lines and staged construction joints at intervals not to exceed 25 feet and at all joint locations. After the deck is scarified 1/2" the Contractor should survey the deck in the same format as done before the scarification, it is the Contractor’s responsibiliuty to make appropriate adjustments to the final theoretical grades as necessary in order to achieve a smooth riding profile. It is the Contractor’s responsibility to devise a survey procedure that ensures the intent of the overlay work consistently removes 1/2” total existing deck and adds a 2 1/4” overlay. The Contractor shall submit, in writing, his intended survey procedure to the Engineer for approval at least 21 days prior to commencing the survey work.

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The Contractor shall utilize the same survey procedure to determine the deck elevations after overlay placement. This survey should be conducted after a minimum of seven days of overlay curing but prior to any grooving operations.

The Contractor shall provide a copy of both deck elevation surveys, depicting existing and new deck elevations side by side in an organized table to the Engineer for review not more than 3 days after they are taken. The Contractor shall establish benchmark(s) for determining the deck elevations and shall also provide this information to the Engineer.

Measurement and Payment. The requirements to perform this item of work, including any lane closures associated with this work, will not be measured for payment, but shall be included in the cost of CONSTRUCTION LAYOUT as specified elsewhere in these Special Provisions.

FIELD MEASUREMENTS

Date: June 19, 2004 Revised : March 1, 2006

Description: This work shall consist of field measuring the existing structural elements that will support new structural steel, including all appurtenant work as required to correctly detail and fabricate the new structural steel for the SB Viaduct only.

All pertinent dimensions shall be field verified prior to final preparation and submittal of shop drawings. The Engineer shall be provided with copies of field notes to facilitate the checking of shop drawings, and original field notes shall become the property of the Department at the end of the contract. The Contractor must detail and fabricate new members to the proper dimensions for erection under a later contract. The Contractor shall be responsible for correcting the improper fit of new steel that is attributable to inadequate field measurements.

The following is a list of the major elements requiring field measurements. However, the Contractor shall obtain all measurements required to accurately detail and fabricate materials.

1. Existing structural steel elements that require repair or removal and replacement at all diaphragm replacement locations. Elements to verify shall include elevations, lengths, sizes, and skew angle of diaphragms, sizes and locations of connecting plates, existing bolt locations, existing fixed bearing dimensions and thicknesses and seat elevations.

2. The contractor shall obtain all field measurements necessary to ensure proper dimensions of the finger plates, stools and diaphragms on both sides of the joints. This includes but it is not limited to stool heights, stool spacing, finger plate lengths, widths, skews, grade and cross slopes and verification of distance between supporting diaphragms or cross frames on opposite sides of the joint. In addition the contractor shall verify elevations, locations (with respect to centerline of pier or bearing), lengths, sizes, and skew angle of supporting diaphragms or top members of cross frames on both side of the joint, sizes and locations of angle plates and bolts connecting diaphragms or top members of cross frames to the existing girders, and locations and elevations of the existing downspouts at troughs.

Any adjustments needed in the dimensions of these elements as a result of field measurements found to be different than those detailed in the contract plans shall be coordinated with the Engineer.

The Contractor will be allowed to do the Field Measurements after Contract 62580 completion and prior to March 1, 2007 with lane closures hours as indicated in the Special Provision “Keeping the Expressway Open To Traffic”.

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Any requests to temporarily close part or the entire roadway upon or under the bridge to traffic to facilitate field measurements shall be submitted to the Engineer for review and/or approval prior to the beginning of the work. Partial closures for interstate traffic will only be permitted in strict compliance with the Engineer's requirements. Traffic control for such closure, including all signing, flaggers and construction zone safety requirements shall satisfy Department requirements and shall be the Contractor's responsibility.

Basis of Payment: This work shall be paid for at the contract lump sum price for FIELD MEASUREMENTS, which price shall be payment in full for measuring existing structural elements including all appurtenant work and necessary equipment including, but not limited to survey tools, lift trucks or platforms, flaggers, barriers and other traffic control devices.

UNITED STATES COAST GUARD SERVICE REQUIIREMENTS

The following conditions must be met before the Contractor may proceed with work to the structures over and adjacent to the Chicago River (S/N 016-1114 and 016-1066):

- All work shall be performed so that the free flow of navigation is not reasonably interfered with and the navigational depths are not impaired
- Floating equipment working in the channel shall display lights and signals required by the "Inland Navigational Rules of 1980".
- Any obstruction that may constitute a hazard to navigation, accidentally dropped into the river, shall be promptly and completely removed to the satisfaction of the USCGS District Commander.
- Floating equipment shall not be permanently moored in the navigation channel or between the navigation channel piers. Floating equipment shall be immediately moved upon the request for passage of river traffic.
- Floating equipment shall be equipped with marine radio to allow communication with approaching river traffic.
- If scaffolding or nets are suspended below low steel or in the navigation span, this office must be advised in advance, so that temporary reductions in clearance for river traffic can be checked for reasonableness and appropriate notices can be published. Plans should include provisions for removing such scaffolding or nets at night or when no actual work is taking place.

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- Work shall not be allowed to interfere with the proper display of navigation lights on the bridge at night.
- The Contractor is advised that the Federal Water Pollution Control Act, as amended, prohibits the discharge of oil (including oil based paints) or hazardous substances into the water of the United States. The law requires any person in charge of a vessel or facility from which oil or hazardous substances are discharged to immediately report the discharge to the U.S. Coat Guard National Response Center, 800-424-8802 (toll free).

The USCGS office must be kept informed on the status of this work to enable the USCGS to issue cautionary notices to mariners. The Contractor shall provide the USCGS with the call sign and operating frequency of the marine radio at the job site, so that the information can be included in any such notices.

Cost of complying with these requirements shall not be paid for separately but shall be included in the various items of work in this contract.

STRUCTURAL STEEL REPAIR

Description. This item consists of furnishing, fabricating, transporting and erecting all the structural steel (including diaphragms, filler plates, angles, shims and fixed bearing assemblies) required for steel repairs along the south diaphragm line at Pier A13, SN 016-1067 as shown on the Plans, as directed by the Engineer and as specified herein. This item of work shall also include any field drilling or reaming of bolt holes as necessary. Also, included is any cleaning and painting of new and existing structural steel required to complete the repairs.

Any temporary shoring or cribbing required to support structural members will be as specified in the Special Provision for Temporary Shoring and Cribbing.

Work under this item must be performed in accordance with the applicable portions of Section 505 of the Standard Specifications.

Materials. Structural steel must conform to the requirements of AASHTO M270 Grade 50 as indicated on the Plans. High strength steel bolts, nuts and washers must be galvanized and conform to the requirements of AASHTO M164. The zinc coating must be by the mechanical plating method conforming to AASHTO M298, Class 50.

Painting. Cleaning and painting new structural steel must be in accordance with Section 506 of the Standard Specifications and the Guide Bridge Special Provisions, “Cleaning and Painting New Metal Structures” and “Cleaning and Painting Contact Surface Areas of Existing Steel Structures”. The color must be as specified in the plans or as directed by the Engineer.

General Requirements. The Contractor must verify all existing dimensions and elevations in the field before ordering and fabricating any structural steel. See the Special Provision for FIELD MEASUREMENTS.

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Work shall be coordinated with the removal of the structural steel elements as indicated in the Special Provision for STRUCTURAL STEEL REMOVAL.

Method of Measurement. This item of work will be measured for payment by weight, the weight will be the weight of permanent structural steel furnished and erected, as shown on the Plans. Additional steel added for erection or other purposes will not be measured for payment, but will be at the Contractor's expense and considered included in the cost of this item. No measurement will be made or allowed for the weight of field weld material. The structural steel will be measured in pounds using the approved shipping weight or by measuring on approved platform scales.

Bolts (including anchor bolts), nuts, washers and/or lock nuts will be included in the measured weight.

Any removal and replacement of sound members that is required to remove deteriorated members will not be measured for payment but shall be considered included with this item.

Basis of Payment. The work under this item will be paid for at the contract unit price per pound for STRUCTURAL STEEL REPAIR, which will include all materials, tools, equipment and labor to furnish and erect all new structural steel at Pier A13, SN 016-1067, including diaphragms, connection plates or seats, beam stitch plates and angles and fixed bearing assemblies, bolts, washers, nuts and anchor bolts.
Shop and field painting of structural steel, field drilling or reaming of holes will not be paid for separately but will be included in the cost of this item.

The cost for furnishing and erecting structural steel for the finger plate expansion joints and associated diaphragms will be paid for as FURNISHING AND ERECTING STRUCTURAL STEEL.

STRUCTURAL STEEL REMOVAL

Description. This work shall consist of furnishing all labor, materials, tools and equipment required for the removal and satisfactory disposal of deteriorated structural steel consisting of, but not necessarily limited to the following: diaphragms, bearing stiffeners or connection plates and fixed bearing assemblies (including anchor bolts) along the south bearing line at Piers A13 of SN 016-1067 and all steel for the replacement of diaphragms under the new finger plate expansion joints as shown on the Plans or as directed by the Engineer. The removal shall include removing existing bolts and welds.

The work shall be performed in accordance with the requirements of Article 501.03 of the Standard Specifications except as modified herein, shown on the Plans or as directed by the Engineer.

This item shall also include removing any deteriorated elements or parts thereof for additional repair work not shown or specified in these contract documents which may be discovered in the course of the work. No specific items of work under this item are shown or indicated on the

Plans or called for in these Special Provision. An examination of underlying conditions will be made by the Engineer as elements of the structure are uncovered in the course of the work and their specific instructions concerning removal under this item will be issued by the Engineer in writing.

The Contractor shall provide all temporary support and protection from damage for all existing equipment, machinery, conduits and other accessories that are to remain in place, either permanently or on a temporary basis.

Construction Requirements. Prior to commencing removal of the existing structural steel, the Contractor shall submit the following for review by the Engineer:

1. Proposed sequence of removal and the methods to be employed in such work.
2. List of equipment and tools he proposes to employ in executing the removal.
3. Copies of legal evidence for the lawful disposal of materials.

The Contractor shall coordinate the complete or partial removal of the members with the erection of their replacement members. The Contractor shall remove the steel in such a manner as to leave the structure stable, undamaged and in proper condition.

If necessary, the Contractor shall install temporary supports or connections to maintain the structure in a safe and stable condition until the new structural steel member is in place. Any temporary supports or connections required for the safe and stable condition of the structures shall be included with this item. No shoring or support members shall interfere with the operation of any elements required to remain functional during this work.

Work shall be performed in such a manner so as not to damage the existing structural steel that is to remain in place. If structural steel is damaged due to negligence on the part of the Contractor, the additional costs for material and labor necessary to restore the member or member components to its original condition will not be measured for payment but will be done at the Contractor's expense and as directed by the Engineer.

Any removal and replacement of sound members that is required to remove deteriorated members will not be measured for payment but shall be considered included with this item.

Welds to be removed shall be removed by mechanical methods or by air arc.

Bolts to be removed shall be removed by mechanical methods.

Areas of structural steel or welds to be cut or chipped shall be cleaned in accordance with the Special Provisions for "Cleaning and Painting Existing Steel Structures", Method 3.

Existing structural steel, which is to remain in place, shall be modified by drilling, sawing or a combination of drilling and sawing. No welding, burning of holes or flame cutting shall be permitted in steel members that are to remain in place. Existing structural steel, which has been modified, shall have the modified edges dressed to a smooth, uniform surface with no notches or gouges. Welding, burning of holes or flame cutting of other structural steel may be permitted with the prior approval of the Engineer.

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The Contractor shall provide adequate protection for vehicular traffic, which may be endangered by falling material during removal operations. The cost for any such protection, or any supports for steel to remain or working platforms for steel removal shall be considered included in the cost of this item.

Method of Measurement. The weight of the structural steel to be removed will be measured in pounds and calculated in accordance with actual dimensions of the member removed using the original shop drawings. (No deductions for holes, etc.; shall be considered.) The weight of the welds or bolts will not be measured for separate payment but shall be included with this item.

Basis of Payment. The work under this item will be paid for at the contract unit price in pounds for STRUCTURAL STEEL REMOVAL, as specified herein and shall be payment in full for removal and disposal, shoring, jacking, protection of members and other appurtenant and collateral work necessary to remove and dispose of deteriorated structural steel as shown on the Plans, directed by the Engineer, as specified herein or as required.

TEMPORARY SHORING AND CRIBBING

Description: This work consists of furnishing all labor, tools and equipment for cribbing and supporting the existing beams/slab while removing and replacing the existing bearings and the necessary steel repairs. The Contractor is responsible for the complete design of the temporary shoring and cribbing procedures and the materials used. The Contractor shall furnish and place all bracing, shoring, blocking, temporary structural steel, timber, shims, wedges, and any other materials and equipment necessary for safe and proper execution of the work.

Construction Requirement: The Contractor shall submit to the Engineer for approval the method with calculations proposed for performing this work, including plans for temporary support. Jacking and cribbing under and against the existing diaphragms, if applicable, will not be allowed. Beams shall be shored to a minimum of 10 kips each. The Contractor's shoring plans shall be prepared and sealed by an Illinois Licensed Structural Engineer.

At any time during the shoring, the Engineer may require the Contractor to provide additional supports or measures in order to furnish an added degree of safety. The Contractor shall provide such additional supports or measures at no extra cost to the Department.

The Contractor shall be responsible for restoring to their original condition, prior to shoring, the pavement, shoulder, curb and gutter or embankment disturbed by the cribbing footings.

The Contractor shall assume all responsibility and be liable for any damage caused by improper supports for shoring in all. Neither added precautions nor the failure of the Engineer to order additional protection will in any way relieve the Contractor of sole responsibility for the safety of lives, equipment and structure.

Temporary shoring and cribbing shall be protected from traffic with a temporary concrete barrier, which is paid for as TEMPORARY CONCRETE BARRIER.

Basis of Payment: This work will be paid for at the contract unit price per each for TEMPORARY SHORING AND CRIBBING, which price shall be payment in full to satisfactorily complete the work of shoring and cribbing.

Jacking and removing the existing bearings is not included in this pay item, but paid for under JACK AND REMOVE EXISTING BEARINGS.

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Installation of new bearing assemblies shall be paid for as STRUCTURAL STEEL REPAIRS.

ADJUSTING DRAINAGE SCUPPERS

Description. This item of work shall consist of adjusting the existing bridge drainage scuppers for the new elevation resulting from the concrete overlay as shown on the plans, as directed by the Engineer an as specified herein. The adjustment shall be done by fabricating and installing a new adjusting ring and grate to compensate for the elevation increase resulting from the overlay.

General Requirements. All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B. Bolts, washers and nuts shall conform to the requirements of ASTM A 307. All bolts, washers and nuts shall be galvanized according to ASHTO M 232.

The existing scupper grates shall be salvaged and delivered, as directed by the Engineer, to:

IDOT, District 1 Bridge Office
1101 Biesterfield Road
Elk Grove, Illinois 6007
Telephone: 847-956-1501

A 24 hr. notice shall be given before delivery. Only those grates deemed salvageable by the Engineer shall be delivered to the Department. Non-salvageable grates shall be disposed by the Contractor at his own expense. Any existing scuppers that are going to have traffic pass over the frame due to traffic staging shall have their frames welded to the grates.

The existing scuppers are provided with 2 stainless steel pins to secure the grate in position; these pins shall be utilized for the adjusted scupper. The Contractor shall drill holes in the adjusting frame and grate to match the existing pin locations. Damaged, missing or pins of insufficient length shall be replaced as directed by the Engineer.

A painted stripe on the concrete barrier wall shall be required at each drainage scupper location (adjacent to a bridge parapet) as indicated on the plans. The color of the stripe shall be as directed by the Engineer.

Basis of Payment. Adjusting drainage scuppers shall be paid for at the contract unit price per each for ADJUSTING DRAINAGE SCUPPERS of the type specified which price shall include full compensation for all tools, equipment, material and labor required to complete the work as indicated on the plans, directed by the Engineer and as specified herein. This item of work shall also include the painting of the stripe as indicated on the plans and as directed by the Engineer and drilling for and providing stainless steel pins as required..

Cleaning the existing scuppers shall be included for payment in Cleaning Bridge Scuppers and Downspouts contained elsewhere within these Special Provisions.

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The timing of the cleaning shall be determined by the Contractor to coincide with the scarification, overlay and drainage repair operations. The requirements of this item of work are meant to ensure that, at the completion of the contract, the scuppers and downspouts are cleaned and functioning as intended. Multiple cleanings of the same scupper and downspout , as may be required, shall not be measured separately.

Method of Measurement. This item of work shall be measured per each scupper cleaned and accepted. All downspouts and horizontal pipe runs attached to the scupper will be cleaned as required to ensure proper flow of storm water run-off but will not be measured separately.

Downspouts receiving run-off from finger plate expansion joint troughs shall be measured per each location.

Basis of Payment. This item of work shall be paid for at the contract unit price per each for CLEANING BRIDGE SCUPPERS AND DOWNSPOUTS.

STRIP SEAL EXPANSION JOINT ASSEMBLY

Description. This work consists of furnishing and installing an expansion joint system as shown on the plans and as specified herein. The joint system must be comprised of steel locking edge rails, with studs and a preformed elastomeric seal. This item of work applies to all joints not covered under BRIDGE JOINT SYSTEM (FIXED), BRIDGE JOINT SYSTEM (EXPANSION), 1" OR BRIDGE JOINT SYSTEM (EXPANSION), 1 5/8" as specified elsewhere herein.

Materials.

(a) Steel Locking Edge Rails for the Preformed Elastomeric Strip Seal. The steel locking edge rails must be either a one-piece extrusion (rolled section) or a combination of extruded and stock plate, shop welded according to Section 505. All steel must be AASHTO M270, Grade 36 minimum. The locking portion of the steel edge rail must be extruded, with a cavity, properly shaped to allow the insertion of the strip seal gland and the development of a mechanical interlock. The top edge of the steel edge rails must not contain any horizontal projections.

(b) Anchor Studs. The steel locking edge rails or plates must contain anchor studs and/or anchor plates of the size shown on the plans for the purpose of firmly anchoring the expansion joint system in either Portland cement concrete or polymer concrete, depending on the application. The anchor studs must be according to Article 1006.32 and must be installed in the shop prior to painting or galvanizing.

(c) Preformed Elastomeric Strip Seal. The elastomeric gland must meet the physical requirements of ASTM D5973. The gland material must have a shallow "v" profile and must contain "locking ears" that, when inserted in the steel locking edge rails, forms a mechanical interlock. The elastomeric gland must be of an appropriate size to accommodate the rated movement specified on the plans.

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(d) Adhesive/Lubricant. The adhesive/lubricant must comply with the requirements of ASTM D4070.

Shop Drawings. The Contractor must submit shop drawings in accordance with the provisions of 105.04 of the Standard Specifications for all expansion joint devices. No materials detailed in the Plans and/or as described herein, or covered by shop drawings may be delivered to the site of the work until the shop drawings have been approved.

Construction.

(a) Steel Plates or locking edge rails. After fabrication the locking edge rails must be given one shop coat of the paint specified for structural steel. The steel components may be hot dip galvanized according to AASHTO M111 and ASTM A385 in lieu of shop painting at the manufacturer's option. The steel components of the joint system must be properly aligned and set prior to pouring the anchorage material. For expansion joints, the joint opening must be adjusted according to the temperature at the time of placing so that the specified opening will be secured at a temperature of 50 °F.

The joint opening for each 100 ft. of bridge length between the nearest fixed bearings each way from the joint must be reduced 1/8 in. from the amount specified, for each 15 °F the temperature at the time of placing exceeds 50 °F and increased 1/8 in. from the amount specified, for each 15 °F the temperature at the time of placing is below 50 °F.

(b) Preformed Elastomeric Strip Seal. Once the anchoring material has fully cured according to specifications, preparation for the placement of the gland can begin.

(1) Surface Preparation. The cavity portion of the locking edge rails must be cleaned of all foreign material prior to placement of the strip seal. Surface rusting must be removed and any bare steel touched up according to Article 506.05. The cavity must be cleaned of debris using compressed air with a minimum pressure of 90 psi. The air compressor must be equipped with traps to prevent the inclusion of water and/or oil in the air line. Any oil left on the surface of the steel extrusion at this stage must be removed using a solvent recommended by the strip seal manufacturer. Once the surface preparation has been completed, the steel extrusion cavities must be kept clean and dry until the strip seal is placed.

(2) Placement of Elastomeric Strip Seal. The placement of the strip seal will only be permitted when the steel locking edge rail cavities are in a clean and dry state and the ambient air and steel substrate temperature are above the minimum temperature recommended by the strip seal manufacturer. Prior to inserting the strip seal in the steel retainer cavities, the "locking ears" portion of the seal must be coated with the approved adhesive/lubricant. Only about 5 ft of gland should be coated at a time to prevent the lubricant/adhesive from drying prior to insertion into the cavities of the steel locking edge rails. After each section is coated, the coated portion of the seal should be inserted in the steel locking edge rail cavities using tools and procedures recommended by the strip seal manufacturer. Under no circumstances must any uncoated "locking ears" be permitted in the joint.

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(c) End Treatment. The end treatment for curbs, parapets and sidewalks must be as detailed on the plans and as recommended by the manufacturer of the joint system.

(d) Technical Support. The manufacturer must supply technical support during surface preparation and the installation of the entire joint system.

Supplemental reinforcing steel must be included and paid for as REINFORCEMENT BARS, EPOXY COATED. The Contractor must establish the grade to which the expansion joint device is to be placed based on the specified elevations of the finished bridge deck or BRIDGE DECK MICROSILICA CONCRETE OVERLAY in accordance with the Special Provision for "Top of Deck Elevations". The opening for the bridge expansion joint must be formed with rigid forms and with the proper adjustment for temperature. The use of Styrofoam will not be allowed.

Method of Measurement. The completed joint system will be measured in feet along the centerline of the joint.

Basis of Payment. The expansion joint systems, measured as specified, will be paid for at the contract unit price per foot for STRIP SEAL EXPANSION JOINT ASSEMBLY. These prices will be payment in full for all labor, materials, equipment, and manufacturer's technical support required for surface preparation and joint installation.

MODULAR EXPANSION JOINT REPAIR

Description. This work shall consist of repairing an existing modular expansion joint at Pier 62 of S.N. 016-1046 as shown on the plans, and according to applicable portions of the Standard Specifications.

General. The expansion joint replacement material and parts shall be from the following pre-approved system:

- WABO system, by the Watson Bowman Acme Corporation

and shall be a like-for-like replacement of parts based on the original shop drawings.

Pre-approval of the expansion joint system does not include material acceptance at the jobsite.
Submittals. Shop drawings and support documents shall be submitted to the Engineer for approval according to Article 105.04 of the Standard Specifications. In addition the Contractor shall provide the Department with a certification of compliance by the manufacturer listing all materials in the system. The certification shall attest that the system conforms to the design and material requirements and be supported by a copy of the successful results of the fatigue tests performed on the system in accordance with NCHRP Report 402. Submittals with insufficient test data and supporting certifications will be rejected.

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Materials:

(a) Metals. The hot-rolled or extruded steel sections and the stiffener plates shall meet the material requirements specified by the manufacturer.

The use of aluminum components in the modular joint will not be allowed.

(b) Preformed Elastomeric Seals. The elastomeric sealing element shall be strip seal meeting the requirements of Article 1052.02(a) of the Standard Specifications.

Lubricant/Adhesive for installing the preformed elastomeric elements in place shall be a one-part, moisture-curing, polyurethane and hydrocarbon solvent mixture as recommended by the manufacturer and containing not less than 65 percent solids.

Construction Requirements. Installation of expansion devices shall be according to the plans and shop drawings.

The fabricator of the modular joint parts shall be AISC certified according to Article 106.08(a) of the Standard Specifications. In lieu of AISC certification, the Contractor may have all welding on main members (edge beams) observed and inspected by independent (third party) personnel at the Contractor's expense. Welding shall then be observed by a Certified Welding Inspector (CWI) in addition to the manufacturer's own welding inspection. Third party Non Destructive Examination (NDE) shall be performed by inspector(s), certified as level II in applicable methods, and all complete penetration beam-to-bar welds and butt joints in beams shall be UT inspected and 10 percent of fillets and partial pen welds shall be MT inspected.

The manufacturer of the expansion device shall provide a qualified technical service representative to supervise installation.

Unless otherwise shown on the plans, the neoprene seals shall be continuous without any field splices.

All steel surfaces of the replacement edge beam shall be shop painted with the primer specified for structural steel, except areas in direct contact with the seals.

The metal surfaces in direct contact with the neoprene seals shall be blast cleaned to permit a high strength bond of the lubricant/adhesive between the neoprene seal and mating metal surfaces.

The prefabricated joint parts shall be properly positioned and attached to the structure according to the manufacturer's approved shop drawings prior to casting the concrete around the repair area. Concrete shall be well consolidated to fill any void during casting process.

After the joint system is repaired, the joint area shall be flooded with water and inspected, from below for leakage. If leakage is observed, the joint system shall be repaired, at the expense of the Contractor, as recommended by the manufacturer and approved by the Engineer.

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Basis of Payment. This work will be paid for at the contract lump sum price MODULAR EXPANSION JOINT REPAIR. Payment for MODULAR EXPANSION JOINT REPAIR shall be full compensation for providing shop drawings; removal and disposal of broken material and existing strip seals; fabricating, furnishing and installing all steel pieces, including field cutting, bolting or welding; furnishing and installing new strip seals and for furnishing all tools, equipment and labor to satisfactorily complete the work as specified.

This item will also include the requirement to have a qualified technical service representative on site during the joint repair work.

This item also includes the removal and replacement of the sliding plates at parapets to facilitate seal replacement and includes any required replacement of these parts due to damage during removal.

The work required to remove and replace the concrete deck to facilitate the modular joint repair (including reinforcement bars) shall not be included for payment here, but shall be measured and paid as CONCRETE REMOVAL and CONCRETE SUPERSTUTURES as specified elsewhere.

SILICONE BRIDGE JOINT SEALER
Revised: May 24, 2006

Description. This work shall consist of furnishing all labor, equipment, technical assistance and materials necessary to install the silicone joint sealer as shown on the plans and as specified herein.

When specified, a polymer concrete nosing compatible with the silicone sealant as required by the sealant manufacturer shall be installed. The minimum dimensions for a polymer concrete nosing cross section are 40 mm (1 1/2 in.) deep by 90 mm (3 1/2 in.) wide. The polymer concrete shall be furnished and installed according to the Special Provision for "Polymer Modified Portland Cement Mortar".

Materials:

(a) Silicone Joint Sealer. The silicone joint sealer shall be rapid cure, self-leveling, cold applied, two component silicone sealant. The sealant, upon curing, shall demonstrate resilience, flexibility and resistance to moisture and puncture. The sealant shall also demonstrate excellent adhesion to Portland cement concrete, polymer concrete and steel over a range of temperatures from -34 to 54°C (-30 to 130°F) while maintaining a watertight seal. The sealant shall not contain any solvents or diluents that cause shrinkage or expansion during curing. Acid cure sealants are not acceptable. The date of manufacture shall be provided with each lot. Materials twelve months old or older from the date of manufacture will not be accepted. The manufacturer shall certify that the sealant meets or exceeds the following test requirements before installation begins. The Department reserves the right to test representative samples from material proposed for use.

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Physical Properties:

Each component as supplied:	
Specific Gravity (ASTM D1475)	1.2-1.4
Extrusion Rate (MIL-5-8802)	200 - 600 grams per minute
Flow	Self-leveling
Durometer Hardness, Shore (ASTM D 2240) "00" (0° and 25°C + 1°C (32°F and 77+3°F.)	40-80
Ozone and U.V. (ASTM C 793) Resistance	No chalking, cracking or bond loss after 5,000 hours.
After Mixing:	
Tack Free Time (ASTM C679)	60 minutes max.
Joint Cure Rate (% of total cure)	50% within 4 - 6 hours 75% within 24 hours 100% within 48 - 160 hours
Upon Complete Cure: (ASTM D-35691)	
Joint Elongation (adhesion to concrete/steel/polymer concrete)	600% min
Joint Modulus	21-103 kPa (3-15 psi) @ 100% elongation

[1]Modified; Sample cured 2 days at 25±1°C (77±2°F) 50±5% relative humidity

(b) Backer Rod. The backer rod shall conform to ASTM D5249, Type 3.

CONSTRUCTION REQUIREMENTS:

General. Technical assistance provided by the manufacturer during surface preparation and installation shall be furnished at no additional cost to the Department. The Contractor shall furnish the Engineer with the manufacturer's written product information, installation procedures, and instructional video at least two weeks prior to installation. The Contractor, the manufacturer's representative, and the Engineer shall meet to review and clarify installation procedures, and requirements prior to starting the work. A technical representative must be present for the start of surface preparations and installation for at least one day. The Contractor shall contact the manufacturer at least two weeks prior to installation.

When placing the silicone against concrete, the concrete surface shall be dry. For newly placed concrete, the concrete shall be fully cured and allowed to dry out a minimum of 7 additional days prior to placement of the silicone. Cold, wet, inclement weather will require an extended drying time.

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(a) Surface Preparation:

(1) Sandblasting. Both faces of the joint shall be sandblasted. A separate pass for each face for the full length of the joint and to the design depth of the center of the backer rod will be required. The nozzle shall be held at an angle of 30-90 degrees to the joint face, at a distance of 25-50 mm (1 - 2 in.).

For Portland cement concrete and polymer concrete surfaces, sandblasting will be considered acceptable when both joint faces have a roughened surface with clean, exposed aggregate. The surface shall be free of foreign matter or plastic residue.

For steel surfaces, sandblasting will be considered acceptable when the steel surfaces have been cleaned to an SSPC-SP10 degree of cleanliness.

After sandblasting is completed, the joint shall be cleaned of debris using compressed air with a minimum pressure of 620 kPa (90 psi). The air compressor shall be equipped with traps to prevent the inclusion of water and/or oil in the air line.

(2) Priming. This operation will immediately follow sandblasting and cleaning and will only be permitted to proceed with the air and substrate temperatures are at least 5°C (41°F) and rising. Sandblasting, priming and sealing must be performed on the same day. The entire sandblasted surface shall be primed using a brush applied primer. The primer shall be allowed to dry a minimum of one hour or more until it is thoroughly dry, whichever is longer, before proceeding. For steel surfaces, the minimum drying time shall be extended to 90 minutes when the substrate temperature is below 15°C (60°F).

For Portland cement concrete and polymer concrete, the primer shall be in according to the manufacturer's recommendations. For steel surfaces, the primer shall be a rust inhibiting primer recommended by the sealant manufacturer.

The primer shall be supplied in original containers and shall have a “use-by” date clearly marked on them. Only primer, freshly poured from the original container into clean pails will be permitted. The primer must be used immediately. All primer left in the pail after priming shall be disposed of and shall not be reused.

(b) Joint Installation:

(1) Backer Rod Placement. The backer rod shall be installed to a uniform depth as specified on the plans and as recommended by the manufacturer. All splices in the backer rod shall be taped to prevent material loss during sealing. The backer rod shall be installed to within 3 mm (1/8 in.) tolerance prior to sealing.

(2) Sealant Placement. The sealant shall be 13 mm (1/2 in.) thick within ± 3 mm (1/8 in.) tolerance as measured in the center of the joint at the thinnest point. The sealant thickness shall be measured during installation every ±600 mm (±2 ft). Adjustments

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to correct sealant thickness to within tolerance shall be made immediately before the sealant begins to set up. Sealant placement will only be permitted when the air and substrate temperatures are above 5°C (41°F) and 2.8°C (5°F) above the dew point. The joint must be kept clean and dry during sealing. If the joint becomes wet and/or dirty during sealing, the operation will be halted until the joint has been restored to a clean and dry state.

Sealing shall be performed using a pneumatic gun approved by the sealant manufacturer. Prior to sealing, the gun shall be inspected to insure that it is in proper working order and that it is being operated at the recommended air pressure.

The gun must demonstrate proper mixing action before sealant will be allowed into the joint. Unmixed sealant will not be permitted in the joint. All unmixed sealant found in the joint will be removed and replaced at the Contractors expense.

After the Engineer has determined that the pneumatic gun is functioning properly, the joint shall be sealed to the thickness and depth as shown on the plans. The sealant must be allowed to achieve initial set before opening the joint to traffic.

End of seal treatment at vertical faces of curbs, sidewalks or parapets shall be as recommended by the manufacturer and as shown on the plans.

Sealant placed incorrectly shall be removed and replaced by the Contractor at no additional cost to the Department.

(3) Field Testing. A minimum of one joint per bridge per joint configuration will be tested by the Engineer by performing a Pull Test. The sealant shall be allowed to cure for a minimum of 24 hours before testing. The locations for the tests will be determined by the Engineer. The tests will be performed per the manufacture's written instructions. As part of the test, the depth and thickness of the sealant will be verified. All joint system installations failing to meet the specifications shall be removed and replaced, by the Contractor, to the satisfaction of the Engineer at no additional cost to the Department. In addition, the "Pull Test" is a destructive test, the Contractor shall repair the joint after completion of the test per the manufacturer's written instructions at no additional cost to the Department.

Method of Measurement. The installed joint sealer will be measured in meters (feet) along the centerline of the joint.

Basis of Payment. The silicone joint sealer measured as specified will be paid for at the contract unit price per meter (foot), as DECK SILICONE JOINT SEALER, 1" at deck locations for the replacement of existing longitudinal joints . At parapet locations between Northbound and Southbound structures for the replacement of the existing longitudinal joint, the silicone joint sealer, measured as specified, will be paid for at the contract unit price per meter (foot) as SILICONE JOINT SEALER, 1". When a polymer concrete nosing or steel plates are required it shall be included with "DECK SILICONE JOINT SEALER, 1".

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No polymer concrete or steel plates shall be required for the silicone joint between parapet.

BRIDGE DECK MICROSILICA CONCRETE OVERLAY

Description. This work shall consist of the preparation of the existing concrete bridge deck and the construction of a microsilica concrete overlay to the specified thickness. The minimum thickness of the overlay shall be 60 mm (2 1/4 in.).

Materials. Materials shall meet the requirements of the following Articles of Section 1000:

Item	Article/Section
(a) Microsilica	1014
(b) Portland Cement (Notes 1-6)	1020
(c) Grout (Note 7)	
(d) Rapid Set Materials (Note 8)	
(e) Concrete Curing Materials (Note 9)	
(f) Synthetic Fibers (Note 10)	

Note 1: Cement shall be Type I Portland cement. Fine aggregate shall be natural sand and the coarse aggregate shall be crushed stone or crushed gravel. The gradation of the coarse aggregate shall be CA 13, CA 14 or CA 16.

Note 2: Mix Design Criteria.

Article 1020.04 shall not apply. The microsilica concrete mix design shall meet the following requirements:

Cement Factor	335 kg/cu m (565 lb/cu yd)
Microsilica Solids	20 kg/cu m (33 lb/cu yd)
Water/Cement Ratio (including water in the slurry)	0.37 to 0.41
Mortar Factor	0.88 to 0.92
Slump	75 to 150 mm (3 to 6 in.)
Air Content	5.0 to 8.0 percent
Compressive Strength (14 days)	27,500 kPa (4000 psi) minimum
Flexural Strength (14 days)	4,650 kPa (675 psi) minimum

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Note 3: Admixtures.

Article 1020.05(b) shall apply except as follows:

High-range water reducing admixtures (superplasticizers) shall be added as determined by the Engineer.

Note 4: Fly Ash.

Fly Ash will not be permitted as a cement replacement in this contract.

Note 5: Ground Granulated Blast-Furnace Slag.

Grade 100 or 120 ground granulated blast-furnace slag may replace Portland cement. The cement replacement shall not exceed 25 percent by mass (weight) at a minimum replacement ratio of 1:1.

Note 6: Mixing.

The mixing requirements shall be according to Article 1020.11(d), except as follows:

(a) Water-based microsilica slurry:

(1) Truck Mixer:
- Combine simultaneously air entraining admixture, water-reducing admixture and/or retarding admixture, microsilica slurry and 80 percent of the water with cement, fly ash or GGBFS cement (if used) and aggregates.
- Add remaining water.
- Mix 30-40 revolutions at 12-15 RPM.
- Add high range water-reducing admixture.
- Mix 60-70 revolutions at 12-15 RPM.

(2) Stationary Mixer:
- The microsilica slurry shall be diluted into the water stream or weigh box prior to adding into mixer. Combine simultaneously air entraining admixture, water-reducing admixture and/or retarding admixture, microsilica slurry and 80 percent of the water with cement, fly ash or GGBFS cement (if used) and aggregates.
- Add remaining water.
- After mixing cycle is completed deposit into truck mixer.
- Add high range water-reducing admixture.
- Mix 60-70 revolutions at 12-15 RPM.

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(b) Densified microsilica (bulk):

(1) Truck Mixer:

- Same as (a)1 above except the densified microsilica shall be added with the cement.

(2) Stationary Mixer:

- Same as (a) 2 above except the densified microsilica shall be added with the cement.

(c) Densified microsilica (bag):

Bagged microsilica shall be kept dry. No bag or material containing moisture shall be introduced into the concrete mixer.

(1) Truck Mixer:

- Combine air entraining admixture, water-reducing admixture and/or retarding admixture and 80 percent of the water.
- Add cement, fly ash or GGBFS cement (if used), and aggregates.
- Add remaining water.
- Mix 30-40 revolutions at 12-15 RPM.
- Add microsilica.
- Mix 70-80 revolutions at 12-15 RPM.
- Add high range water-reducing admixture.
- Mix 60-70 revolutions at 12-15 RPM.

(2) Stationary Mixer:

- Combine air entraining admixture, water-reducing admixture and/or retarding admixture and 80% of the water.
- Add cement, fly ash or GGBFS cement (if used), and aggregates.
- Add remaining water.
- After mixing cycle is completed deposit into truck mixer.
- Add microsilica to truck.
- Mix 70-80 revolutions at 12-15 RPM.
- Add high range water-reducing admixture.
- Mix 60-70 revolutions at 12-15 RPM.

Note 7: Grout. The grout for bonding new concrete to old concrete shall be proportioned by mass (weight) and mixed at the job site, or it may be ready-mixed if agitated while at the job site. The bonding grout shall consist of one part Portland cement and two parts sand, mixed with sufficient water to form a slurry. The bonding grout shall have a consistency allowing it to be scrubbed onto the prepared surface with a stiff brush or broom leaving a thin, uniform coating that will not run or puddle in low spots. Grout that can not be easily and evenly applied or has lost its consistency may be rejected by the Engineer. Grout that is more than two hours old shall not be used.

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At the option of the Contractor the grout may be applied by mechanical applicators. If this option is chosen, the sand shall be eliminated from the grout mix.

Note 8: Rapid set materials shall be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs.

Note 9: Cotton mats shall consist of a cotton fill material, minimum 400 g/sq m (11.8 oz/sq yd), covered with unsized cloth or burlap, minimum 200 g/sq m (5.9 oz/sq yd), and be tufted or stitched to maintain stability. Cotton mats shall be free from tears and in good condition.

Note 10: Synthetic fibers shall be Type III according to ASTM C 1116. The synthetic fiber shall be a monofilament with a minimum length of 13 mm (0.5 in.) and a maximum length of 63 mm (2.5 in.), and shall have a maximum aspect ratio (length divided by the equivalent diameter of the fiber) of 100. The synthetic fiber shall have a minimum toughness index I_{20} of 4.5 according to Illinois Modified ASTM C 1018. The maximum dosage rate shall not exceed 3.0 kg/cu m (5.0 lb/cu yd).

Synthetic fibers, when required, shall be added to the load after all other mix design components (with the exception of any jobsite added super plasticizer) have been batched and thoroughly mixed. If the fibers are packaged in bags, the bags shall be opened first and then discarded. Fiber only shall be added to the load in a manner that promotes consistent and effective distribution throughout the load. A minimum of 80 revolutions shall be completed at mixing speed after the addition of fiber, although additional mixing may be required to provide complete and even distribution of the fiber throughout the load.

The actual dosage rate of the fibers in the mix shall be determined in the field based on a trial batch, but shall not exceed the maximum dosage rate mentioned above.

The department will maintain an "Approved List of Synthetic Fibers".

Equipment: The equipment used shall be subject to the approval of the Engineer and shall meet the following requirements:

(a) Surface Preparation Equipment. Surface preparation equipment shall be according to the applicable portions of Section 1100 and the following:

(1) Sawing Equipment. Sawing equipment shall be a concrete saw capable of sawing concrete to the specified depth.

(2) Mechanical Blast Cleaning Equipment. Mechanical blast cleaning may be performed by high-pressure waterblasting or shotblasting. Mechanical blast cleaning equipment shall be capable of removing weak concrete at the surface, including the microfractured concrete surface layer remaining as a result of mechanical scarification, and shall have oil traps.

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Mechanical high-pressure waterblasting equipment shall be mounted on a wheeled carriage and shall include multiple nozzles mounted on a rotating assembly. The distance between the nozzles and the deck surface shall be kept constant and the wheels shall maintain contact with the deck surface during operation.

(3) Hand-Held Blast Cleaning Equipment. Blast cleaning using hand-held equipment may be performed by high-pressure waterblasting or abrasive blasting. Hand-held blast cleaning equipment shall have oil traps.

Hand-held high-pressure waterblasting equipment that is used in areas inaccessible to mechanical blast cleaning equipment shall have a minimum pressure of 48 MPa (7,000 psi).

(4) Mechanical Scarifying Equipment. Scarifying equipment shall be a power-operated, mechanical scarifier capable of uniformly scarifying or removing the old concrete surface and new patches to the depths required in a satisfactory manner. Other types of removal devices may be used if their operation is suitable and they can be demonstrated to the satisfaction of the Engineer.

(5) Hydro-Scarification Equipment. The hydro-scarification equipment shall consist of filtering and pumping units operating with a remote-controlled robotic device. The equipment shall use potable water according to Section 1002. Operation of the equipment shall be performed and supervised by qualified personnel certified by the equipment manufacturer. Evidence of certification shall be presented to the Engineer. The equipment shall be capable of removing concrete to the specified depth and be capable of removing rust and old concrete particles from exposed reinforcement bars. The hydro-scarification equipment shall be calibrated before being used and shall operate at a uniform pressure sufficient to remove the specified depth of concrete in a timely manner.

(6) Vacuum Cleanup Equipment. The equipment shall be equipped with fugitive duct control devices capable of removing wet debris and water all in the same pass. Vacuum equipment shall also be capable of washing the deck with pressurized water prior to the vacuum operation to dislodge all debris and slurry from the deck surface.

(7) Power-Driven Hand Tools. Power-driven hand tools will be permitted including jackhammers lighter than the nominal 20 kg. (45 lb) class. Jackhammers or chipping hammers shall not be operated at an angle in excess of 45 degrees measured from the surface of the slab.

(b) Pull-off Test Equipment. Equipment used to perform pull-off testing shall be either approved by the Engineer, or obtained from one of the following approved sources:

James Equipment
007 Bond Tester
800-426-6500

Germann Instruments, Inc.
BOND-TEST Pull-off System
847-329-9999

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SDS Company
DYNA Pull-off Tester
805-238-3229

Pull-off test equipment shall include all miscellaneous equipment and materials to perform the test and clean the equipment, as indicated in the Illinois Test Procedures 304 and 305 “Pull-off Test (Surface or Overlay Method)”. Prior to the start of testing, the Contractor shall submit to the Engineer a technical data sheet and material safety data sheet for the epoxy used to perform the testing. For solvents used to clean the equipment, a material safety data sheet shall be submitted.

(c) Concrete Equipment. Equipment for proportioning and mixing the concrete shall be according to Article1020.03.

(d) Finishing Equipment. Finishing equipment shall be according to Article 503.03.

(e) Mechanical Fogging Equipment. Mechanical fogging equipment shall consist of a mechanically operated, pressurized system using a triple headed nozzle or an equivalent nozzle. The fogging nozzle shall be capable of producing a fine fog mist that will increase the relative humidity of the air just above the fresh concrete surface without accumulating any water on the concrete. The fogging equipment shall be mounted on either the finishing equipment or a separate foot bridge. Controls shall be designed to vary the volume of water flow, be easily accessible and immediately shut off the water when in the off position.

(f) Hand-Held Fogging Equipment. Hand-held fogging equipment shall use a triple headed nozzle or an equivalent nozzle. The fogging nozzle shall be capable of producing a fine fog mist that will increase the relative humidity of the air just above the fresh concrete surface without accumulating any water on the concrete.

Construction Requirements: Sidewalks, curbs, drains, reinforcement and/or existing transverse and longitudinal joints which are to remain in place shall be protected from damage during scarification and cleaning operations. All damage caused by the Contractor shall be corrected, at the Contractor’s expense, to the satisfaction of the Engineer.

The Contractor shall control the runoff water generated by the various construction activities in such a manner as to minimize, to the maximum extent practicable, the discharge of construction debris into adjacent waters, and shall properly dispose of the solids generated according to Article 202.03. Runoff water will not be allowed to constitute a hazard on adjacent or underlying roadways, waterways, drainage areas or railroads nor be allowed to erode existing slopes.

(a) Deck Preparation:

(1) Bridge Deck Scarification. The scarification work shall consist of removing the designated concrete deck surface using mechanical or hydro-scarifying equipment as specified. The areas designated shall be scarified uniformly to the depth as specified on the plans. In areas of the deck not accessible to the scarifying equipment, power-driven hand tools will be permitted. Power driven hand tools shall be used for removal around areas to remain in place.

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A trial section on the existing deck surface will be designated by the Engineer to demonstrate that the equipment, personnel and methods of operation are capable of producing results satisfactory to the Engineer. The trial section will consist of approximately 3 sq m (30 sq ft).

Once the settings for the equipment are established, they shall not be changed without the permission of the Engineer. The removal shall be verified, as necessary, at least every 5 m (16 ft) along the cutting path. If concrete is being removed below the desired depth, the equipment shall be reset or recalibrated.

If the use of hydro-scarification equipment is specified, the Contractor may use mechanical scarification equipment to remove an initial depth of concrete provided that the last 13 mm (½ in.) of removal is accomplished with hydro-scarification equipment. If the Contractor's use of mechanical scarifying equipment results in exposing, snagging, or dislodging the top mat of reinforcing steel, the scarifying shall be stopped immediately and the remaining removal shall be accomplished using the hydro-scarification equipment. All damage to the existing reinforcement resulting from the Contractor's operation shall be repaired or replaced at the Contractor's expense as directed by the Engineer. Replacement shall include the removal of any additional concrete required to position or splice the new reinforcing steel. Undercutting of exposed reinforcement bars shall only be as required to replace or repair damaged or corroded reinforcement. Repairs to existing reinforcement shall be according to the Special Provision for "Deck Slab Repair".

After hydro-scarification, the deck shall be vacuum cleaned in a timely manner before the water and debris are allowed to dry and re-solidify to the deck. The uses of alternative cleaning and debris removal methods to minimize driving heavy vacuum equipment over exposed deck reinforcement may be subject to the approval of the Engineer.

(2) Deck Patching. After bridge deck scarification, all designated patching, except as note below, shall be completed according to the Special Provision for "Deck Slab Repair". All full depth patching shall be completed prior to final surface preparation. When mechanical scarification is specified, partial depth patches may be fill with overlay material at the time of overlay placement.

All patches placed prior to overlay placement shall be struck off and then roughened with a suitable stiff bristled broom or wire brush to provide a rough texture designed to promote bonding of the overlay. Hand finishing of the patch surface shall be kept to a minimum to prevent overworking of the surface.

After scarification, the deck shall be thoroughly cleaned of broken concrete and other debris. The Engineer will sound the scarified deck and all remaining unsound areas will be marked for additional removal and/or repairs as applicable. If the bottom mat of reinforcement is exposed, that area shall be defined as a full depth repair.

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In areas where hydro-scarification is specified, no separate payment for partial depth patching will be made regardless of whether it was detailed in the plans or not. Just prior to performing hydro-scarification, the deck shall be sounded, with unsound areas marked on the deck to assist the hydro-scarification process in performing the partial depth removal simultaneously with the hydro-scarification operation. If in the opinion of the Engineer additional removal is required after the hydro-scarification process, which could have been anticipated or accounted for by normal modifications to the scarification process, such removal shall be paid for according to Article 109.04. Any removal required or made below the specified depth for scarification of the bridge deck, which does not result in full depth patching, shall be filled with the overlay material at the time of the overlay placement.

(3) Final Surface Preparation. Final surface preparation shall consist of the operation of mechanical blast cleaning equipment to remove any weak concrete at the surface, including the microfractured concrete surface layer remaining as a result of mechanical scarification. Any areas determined by the Engineer to be inaccessible to mechanical equipment shall be thoroughly blast cleaned with hand-held equipment. When hydro-scarification equipment is used for concrete removal, the deck surface need not be blast cleaned with mechanical equipment unless the spoils from the scarification operation are allowed to dry and re-solidify on the deck surface.

Final surface preparation shall also include the cleaning of all dust, debris, and concrete fines from the deck surface including vertical faces of curbs, previously placed adjacent overlays, barrier walls up to a height of 25 mm (1 in.) above the overlay, depressions, and beneath reinforcement bars. Hand-held high-pressure waterblasting equipment shall be used for this operation.

If mechanical scarification is used to produce the final deck surface texture, surface pull-off testing will be required. After the final surface preparation has been completed and before placement of the overlay, the prepared deck surface will be tested by the Engineer according to the Illinois Test Procedure 304 “Pull-off Test (Surface Method).” The Contractor shall provide the test equipment.

a. Start-up Testing. Prior to the first overlay placement, the Engineer will evaluate the blast cleaning method. The start-up area shall be a minimum of 56 sq m (600 sq ft). After the area has been prepared, six random test locations will be determined by the Engineer, and tested according to the Illinois Test Procedure 304 “Pull-off Test (Surface Method)”.

   The average of the six tests shall be a minimum of 1,207 kPa (175 psi) and each individual test shall have a minimum strength of 1,103 kPa (160 psi). If the criteria are not met, the Contractor shall adjust the blast cleaning method. Startup testing will be repeated until satisfactory results are attained.

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Once an acceptable surface preparation method is established, it shall be continued for the balance of the work. The Contractor may, with the permission of the Engineer, change the surface preparation method, in which case, additional start-up testing will be required.

b. Lot Testing. After start-up testing has been completed, the following testing frequency will be used. For each structure, each stage will be divided into lots of not more than 420 sq m (4500 sq ft). Three random test locations will be determined by the Engineer for each lot, and tested according to the Illinois Test Procedure 304 “Pull-off Test (Surface Method)”.

The average of the three tests shall be a minimum of 1,207 kPa (175 psi) and each individual test shall have a minimum strength of 1,103 kPa (160 psi). In the case of a failing individual test or a failing average of three tests, the Engineer will determine the area that requires additional surface preparation by the Contractor. Additional test locations will be determined by the Engineer.

In addition to start-up and lot testing, the Department may require surface pull-off testing of areas inaccessible to mechanical blast cleaning equipment and blast cleaned with hand-held equipment. The Engineer shall determine each test location, and each individual test shall have a minimum strength of 1,207 kPa (175 psi).

Exposed reinforcement bars shall be free of dirt, detrimental scale, paint, oil, and other foreign substances which may reduce bond with the concrete. A tight non-scaling coating of rust is not considered objectionable. Loose, scaling rust shall be removed by rubbing with burlap, wire brushing, blast cleaning or other methods approved by the Engineer. All loose reinforcement bars, as determined by the Engineer, shall be retied at the Contractor's expense.

All dust, concrete fines, debris, including water, resulting from the surface preparation shall be confined and shall be immediately and thoroughly removed from all areas of accumulation. If concrete placement does not follow immediately after the final surface preparation, the area shall be carefully protected with well-anchored white polyethylene sheeting.

(b) Pre-placement Procedure. Prior to placing the overlay, the Engineer will inspect the deck surface. All contaminated areas shall be blast cleaned again at the Contractor's expense.

Before placing the overlay, the finishing machine shall be operated over the full length of bridge segment to be overlaid to check support rails for deflection and confirm the minimum overlay thickness. All necessary adjustments shall be made and another check performed, unless otherwise directed by the Engineer.

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(c) Placement Procedure:

(1) Bonding Methods. The Contractor shall prepare the deck prior to overlay placement by one of the following methods unless restricted as specified on the plans:

a. Grout Method. The deck shall be cleaned to the satisfaction of the Engineer and shall be thoroughly wetted and maintained in a dampened condition for at least 12 hours before placement of the grout is started. Any excess water shall be removed by compressed air or by vacuuming prior to grout placement. Water shall not be applied to the deck surface within one hour before or at any time during placement of the grout. Immediately before placing the overlay mixture, the exposed area shall be thoroughly covered with a thin layer of grout. The grout shall be thoroughly scrubbed into the surface. All vertical as well as horizontal surfaces shall receive a thorough, even coating. The rate of grout placement shall be limited so the brushed grout does not dry out before it is covered with the concrete.

Grout that is allowed to become dry and chalky shall be blast cleaned and replaced at the Contractor's expense. No concrete shall be placed over dry grout.

b. Direct Bond Method. The deck shall be cleaned to the satisfaction of the Engineer and shall be thoroughly wetted and maintained in a dampened condition for at least 12 hours before placement of the overlay. Any excess water shall be removed by compressed air or by vacuuming prior to beginning overlay placement. Water shall not be applied to the deck surface within one hour before or at any time during placement of the overlay.

(2) Overlay Placement. For the overlay pour, fogging equipment shall be in operation unless the evaporation rate is less than 0.5 kg/sq m/hr. (0.1 lb./sq ft/hr.) and the Engineer gives permission to turn off the equipment. The evaporation rate shall be determined according to the figure in the Portland Cement Association’s publication, “Design and Control of Concrete Mixtures” (refer to the section on plastic shrinkage cracking).
The fogging equipment shall be adjusted to adequately cover the entire width of the pour.

Hand-held fogging equipment shall be allowed only when a vibratory screed is used. The fog mist shall not be used to apply water to a specific location to aid finishing.

Placement of the concrete shall be a continuous operation throughout the pour. The overlay shall be placed as close to its final position as possible and then mechanically consolidated and screeded to final grade. All finishing and texturing shall be according to Article 503.17 except that the use of vibrating screeds will be allowed for pour widths of 3.6 m (12 feet) or less without length restrictions.

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Internal vibration shall be performed along edges, adjacent to bulkheads, and where the overlay thickness exceeds 75 mm (3 in.). Internal vibration along the longitudinal edges of a pour shall be performed with a minimum of 2 hand-held vibrators, one on each edge of the pour. Hand finishing shall be performed along the edges of the pour and shall be done from sidewalks, curbs or work bridges.

A construction dam or bulkhead shall be installed in case of a delay of 30 minutes or more in the concrete placement operation. If there is a delay of more than ten minutes during overlay placement, wet burlap shall be used to protect the concrete until operations resume.

Concrete placement operations shall be coordinated to limit the distance between the point of concrete placement and concrete covered with cotton mats for curing.

The distance shall not exceed 10.5 m (35 ft). For overlay pour widths greater than 15 m (50 ft), the distance shall not exceed 7.5 m (25 ft).

All construction joints shall be formed. When required by the Engineer the previously placed overlay shall be sawed full-depth to a straight and vertical edge before fresh concrete is placed. The Engineer will determine the extent of the removal. When longitudinal joints are not shown on the plans, the locations shall be subject to approval by the Engineer and shall not be located in the wheel paths.

The Contractor shall stencil the date of construction (month and year) and the appropriate letters MS, or MSFA when fly ash is used in the mix design, into the overlay before it takes its final set. The stencil shall be located in a conspicuous location, as determined by the Engineer, for each stage of construction. This location shall be outside of the grooving where possible and within 1 m (3 ft) of an abutment joint. The characters shall be 75 mm to 100 mm (3 to 4 in.) in height, 5 mm (1/4 in.) in depth and face the centerline of the roadway.

(3) Limitations of Operations:

a. Weather limitations. Concrete shall not be placed unless the deck temperature is above 10°C (50°F) and the air temperature is predicted to be above 10°C (50°F) for at least 12 hours after placement. The concrete shall be maintained at a minimum of 10°C (50°F) during the curing period according to Article 1020.13. The temperature of the concrete mixture as placed shall not be less than 10°C (50°F) nor more than 32°C (90°F). If night placement is required, illumination and placement procedures will be subject to approval of the Engineer. No additional compensation will be allowed if night work is required.

b. Other Limitations. Concrete delivery trucks shall be limited to a maximum load of 4.6 cu m (6 cu yd).

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Truck mixers, concrete pumps, or other heavy equipment will not be permitted on any portion of the deck where the top reinforcing mat has been exposed. Conveyors, buggy ramps and pump piping shall be installed in a way that will not displace undercut reinforcement bars. Air compressors may be operated on the deck only if located directly over a pier and supported off undercut reinforcement bars. Compressors will not be allowed to travel over undercut reinforcement bars. Concrete removal may proceed during final cleaning and concrete placement on adjacent portions of the deck, provided the removal does not interfere in any way with the cleaning or placement operations.

If water or contaminants from the hydro-scarification flow into the area of final cleaning or concrete placement, hydro-scarification shall be suspended until the concrete has been placed and has cured a minimum of 24 hours. No concrete shall be removed within 1.8 m (6 ft) of a newly-placed overlay until the concrete has obtained a minimum compressive strength of 20,700 kPa (3000 psi) or flexural strength of 4,150 kPa (600 psi).

(4) Curing Procedure. The surface shall be continuously wet cured for at least 7 days according to Article 1020.13(a)(5) Wetted Cotton Mat Method.

(5) Opening to Traffic. No traffic or construction equipment will be permitted on the overlay until after the specified cure period and the concrete has obtained a minimum compressive strength of 27,500 kPa (4000 psi) or flexural strength of 4,650 kPa (675 psi) unless permitted by the Engineer.

(6) Overlay Testing. The Engineer reserves the right to conduct pull-off tests on the overlay to determine if any areas are not bonded to the underlying concrete, and at a time determined by the Engineer. The overlay will be tested according to the Illinois Test Procedure 305 “Pull-off Test (Overlay Method)”, and the Contractor shall provide the test equipment. Each individual test shall have a minimum strength of 1,034 kPa (150 psi). Unacceptable test results will require removal and replacement of the overlay at the Contractor’s expense, and the locations will be determined by the Engineer. When removing portions of an overlay, the saw cut shall be a minimum depth of 25 mm (1 in.).

If the overlay is to remain in place, all core holes due to testing shall be filled with a rapid set mortar or concrete. Only enough water to permit placement and consolidation by rodding shall be used, and the material shall be struck-off flush with the adjacent material.

For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume; or a packaged rapid set mortar shall be used. For a rapid set concrete mixture, a packaged rapid set mortar shall be combined with coarse aggregate according to the manufacturer’s instructions; or a packaged rapid set concrete shall be used. Mixing of a rapid set mortar or concrete shall be according to the manufacturer’s instructions.

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Method of Measurement. The areas of mechanical and/or hydro scarification on the bridge deck will be measured for payment in square meters (square yards). No additional payment will be made for multiple passes of the equipment required to achieve the specified scarification depth.

The concrete overlay will be measured for payment in square meters (square yards).

When Bridge Deck Hydro-Scarification is specified, the additional concrete placed with the overlay, required to fill all depressions below the specified thickness will be measured for payment in cubic meters (cubic yards). The volume will be determined by subtracting the theoretical volume of the overlay from the ticketed volume of overlay delivered minus the volume estimated by the Engineer left in the last truck at the end of the overlay placement. The theoretical cubic meter (cubic yard) quantity for the overlay will be determined by multiplying the plan surface area of the overlay times the specified thickness of the overlay.

Basis of Payment. Concrete scarification of the bridge deck using mechanical scarification equipment will be paid for at the contract unit price per square meter (square yard) for CONCRETE BRIDGE DECK SCARIFICATION of the thickness specified. Concrete scarification of the bridge deck using hydro scarification equipment will be paid for at the contract unit price per square meter (square yard) for BRIDGE DECK HYDROSCARIFICATION of the thickness specified.

Microsilica concrete overlay will be paid for at the contract unit price per square meter (square yard) for BRIDGE DECK MICROSILICA CONCRETE OVERLAY, of the thickness specified. When hydro-scarification equipment is used, the additional volume of overlay required to fill all depressions below the specified thickness will be paid for at the Contractor's actual material cost for the microsilica concrete per cubic meter (cubic yard) plus 15 percent.

When mechanical scarification equipment is used, additional partial depth patches poured monolithically with the overlay will be paid for at the contract unit price bid per square meter (square yard) for DECK SLAB REPAIR (PARTIAL).

When the Engineer conducts pull-off tests on the overlay and they are acceptable, Contractor expenses incurred due to testing and for filling core holes will be paid according to Article 109.04. Unacceptable pull-off tests will be at the Contractor's expense.

When specified, the Contractor has the option of choosing the type of overlay. The options will be limited to those specified in the plans and will be paid for at the contract unit price per square meter (square yard) for BRIDGE DECK CONCRETE OVERLAY OPTION, of the thickness specified.

Overlay material placed off the deck in abutment backwalls, and/or other locations will not be measured for payment but will be included in the pay item involved.

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USE OF MULTIPLE PLANTS IN THE SAME CONSTRUCTION ITEM

The Contractor has the option to simultaneously use central-mixed, or shrink-mixed concrete from more than one plant, in the same construction item. However, the following criteria shall be met:

a) For each plant the cement, fly ash, ground granulated blast-furnace slag, microsilica, and high-reactivity metakaolin shall be the same materials and from the same source. This requirement may not be changed by Articles 1001.04, 1010.03, 1014.02, 1015.02, and 1016.02.

b) For each plant the fine aggregate shall be the same type and gradation.

c) For each plant the coarse aggregate shall be the same material and from the same source. This requirement may not be changed by Article 1004.02 (e).

d) For each plant the admixtures shall be the same material and from the same source.

e) For each plant the mix design material proportions and water/cement ratio shall be the same. The required cement factor for central-mixed concrete shall be increased to match truck-mixed or shrink-mixed concrete, if the latter two types of mixed concrete are used.

f) The maximum slump difference between deliveries of concrete shall be 19mm (0.75 in.) when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and test subsequent deliveries of concrete until the tolerance has been met, for each day, the first three truck loads of delivered concrete from each plant shall be tested for slump. Thereafter, when a specified test frequency for slump is to be performed, it shall be conducted for each plant at the same time.

g) The maximum air content difference between deliveries of concrete shall be 0.9 percent when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The contractor shall take immediate corrective action and test subsequent deliveries of concrete, until the tolerance has been met for each day, the first three truck loads of delivered concrete form each plant shall be tested for air content. Thereafter, when a specified test frequency for air content is to be performed, it shall be conducted for each plant at the same time.

h) Compressive strength tests shall be performed and taken at the jobsite for each plant. When a specified compressive strength is to be performed, it shall be conducted for each plant at the same time. The difference between plants for their compressive strength mean shall not exceed 2070 kPA (300 psi). The compressive strength standard deviation for each plant shall not exceed 3450 kPA (500 psi). The mean and standard deviation requirements shall apply to any point of time for testing. Corrective action will be required if the tolerance is exceeded.

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The Maximum haul time difference between deliveries of concrete shall be 15 minutes. If the difference is exceeded, but haul time is within specification limits, the concrete may be used. The contractor shall take immediate corrective action and check subsequent deliveries of concrete. Until the tolerance has been met.

If the Contractor does not consistently meet all criteria for providing uniform concrete during construction, the Engineer shall not allow delivery from multiple plants or require the Contractor to take additional corrective action. If the Engineer allows additional corrective action and it is unsuccessful, delivery from multiple plants will not be allowed.

IMPACT ATTENUATOR REMOVAL

Description. This work consists of removing existing impact attenuators.

Removal. When the Engineer determines existing impact attenuator systems are no longer required, or removal are call out on plans, the installation must be dismantled with all hardware becoming the property of the Contractor.

Surplus material must be disposed of according to Article 202.03. Anti-freeze, when present, must be disposed of/recycled according to local ordinances.

When impact attenuators have been anchored to the pavement in locations where traffic will be traversing, the anchor holes must be repaired with rapid set mortar. Only enough water to permit placement and consolidation by rodding will be used and the material must be struck-off flush.

Method of Measurement. This work will be measured for payment as each, where each is defined as one complete installation.

Basis of Payment. This work will be paid for at the contract unit price per each for IMPACT ATTENUATOR REMOVAL.

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If the Contractor fails to correct the deficiency within the specified time frame, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency exists. The calendar day(s) will begin with Contractor's notification and end with the Engineer's acceptance of the correction. The daily monetary deduction will be either $1,000.00 or 0.05 percent of the awarded contract value, whichever is greater.

In addition, if the Contractor or sub-contractor fails to respond within the allotted time frame, the Engineer may take action to correct the deficiency, or may cause the correction of the deficiency to be made by others, the cost thereof being deducted from monies due or which may become due the Contractor or sub-contractor. This corrective action will in no way relieve the Contractor or sub-contractor of his/her contractual requirements or responsibilities, and shall not be grounds for any claim.

If a Contractor or sub-contractor accumulates three (3) Deficiency Deductions for the same deficiency, in a contract period, the contractor will be shut down until the deficiency is corrected. Such a shut down will not be grounds for any extension of the completion date, waiver of penalties, or be grounds for any claim.

MAINTENANCE OF EXISTING TRAFFIC SURVEILLANCE

Description. Effective the date the Contractor's activities (electrical or otherwise) at the job site begin, the Contractor shall be responsible for the proper operation and maintenance of all existing traffic surveillance systems which are located within the limits of improvement or as otherwise determined by the Engineer.

The existing traffic surveillance system cabling is routed in existing conduits embedded in the center barrier wall within the limits of improvement and must also be properly maintained in operation. This cabling is located specifically at the area of existing barrier removal for the MOT and consists of two 4” PVC conduits embedded in the lower base of the barrier wall. These conduits were to remain in place after the removal of the upper portion of the barrier and the resurfacing for MOT. When the permanent barrier wall is replaced it will extend from the existing base that contains the existing surveillance conduits as directed by the Engineer unless they are removed , replaced or rendered inoperable by the planned construction activities of the project or as otherwise determined by the Engineer.

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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 firms 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. This 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 **5.0%** 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 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 forth in this Special Provision:

(a) The bidder documents that firmly committed 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 may consult the DBE Directory as a reference source for DBE companies certified by the Department. 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 web site at www.dot.il.gov.

BIDDING PROCEDURES. Compliance with the bidding procedures of this Special Provision is required prior to the award of the contract and the failure of the as-read low bidder to comply will render the bid not responsive.

(a) In order to assure the timely award of the contract, the as-read low bidder shall submit a Disadvantaged Business Utilization Plan on Department form SBE 2026 within seven (7) working days after the date of letting. To meet the seven (7) day requirement, the bidder may send the Plan by certified mail or delivery service within the seven (7) working day period. If a question arises concerning the mailing date of a Plan, the mailing date will be established by the U.S. Postal Service postmark on the original certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service. It is the

REINFORCEMENT BARS (BDE)
Effective: November 1, 2005 Revised: November 2, 2005

Revise Article 1006.10(a) of the Supplemental Specifications to read:

"(a) Reinforcement Bars. Reinforcement bars will be accepted according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reinforcement Bar and Dowel Bar Plant Certification Procedure". The Department will maintain an approved list of producers.

(1) Reinforcement Bars (Non-Coated). Reinforcement bars shall be according to ASTM A 706M (A 706), Grade 420 (60) for deformed bars and the following.

a. Chemical Composition. The chemical composition of the bars shall be according to the following table.

CHEMICAL COMPOSITION		
Element [1/]	Heat Analysis (% maximum)	Product Analysis (% maximum)
Carbon	0.30	0.33
Manganese	1.50	1.56
Phosphorus	0.035	0.045
Sulfur	0.045	0.055
Silicon	0.50	0.55
Nickel	[2/]	[2/]
Chromium	[2/]	[2/]
Molybdenum	[2/]	[2/]
Copper	[2/]	[2/]
Titanium	[2/]	[2/]
Vanadium	[2/]	[2/]
Columbium	[2/]	[2/]
Aluminum	[2/, 3/]	[2/, 3/]
Tin [4/]	0.040	0.044

Note 1/. The bars shall not contain any traces of radioactive elements.

Note 2/. There is no composition limit but the element must be reported.

Note 3/. If aluminum is not an intentional addition to the steel for deoxidation or killing purposes, residual aluminum content need not be reported.

Note 4/. If producer bar testing indicates an elongation of 15 percent or more and passing of the bend test, the tin composition requirement may be waived.
Added 07/14/2006

b. Heat Numbers. Bundles or bars at the construction site shall be marked or tagged with heat identification numbers of the bar producer.

c. Guided Bend Test. Bars may be subject to a guided bend test across two pins which are free to rotate, where the bending force shall be centrally applied with a fixed or rotating pin of a certain diameter as specified in Table 3 of ASTM A 706M (A 706). The dimensions and clearances of this guided bend test shall be according to ASTM E 190.

d. Spiral Reinforcment. Spiral reinforcement shall be deformed or plain bars conforming to the above requirements or cold-drawn steel wire conforming to AASHTO M 32.

(2) Epoxy Coated Reinforcement Bars. Epoxy coated reinforcement bars shall be according to Article 1006.10(a)(1) and shall be epoxy coated according to AASHTO M 284M (M 284) and the following.

a. Certification. The epoxy coating applicator shall be certified under the Concrete Reinforcing Steel Institute's (CRSI) Epoxy Plant Certification Program.

b. Coating Thickness. The thickness of the epoxy coating shall be 0.18 to 0.30 mm (7 to 12 mils). When spiral reinforcment is coated after fabrication, the thickness of the epoxy coating shall be 0.18 to 0.50 mm (7 to 20 mils).

c. Cutting Reinforcement. Reinforcement bars may be sheared or sawn to length after coating, providing the end damage to the coating does not extend more than 13 mm (0.5 in.) back and the cut is patched before any visible rusting appears. Flame cutting will not be permitted."

ENGINEER'S FIELD OFFICE TYPE A (SPECIAL) AND LABORATORY (SPECIAL)

670.02 Engineer's Field Office Type A. Revise the first paragraph of this Article to read:

Engineer's Field Office Type A (Special). Type A (Special) field offices shall have a ceiling height of not less than 2 m (7 ft) and a floor space of not less than 280 sq m (3000 sq ft) with a minimum of two separate offices. The office shall also have a separate storage room capable of being locked for the storage of the nuclear measuring devices. The office shall be provided with sufficient heat, natural and artificial light, and air conditioning. Doors and windows shall be equipped with locks approved by the Engineer.

Revise the second sentence of the fourth paragraph of this Article to read:

Solid waste disposal consisting of fifteen (15) waste baskets and an outside trash container of sufficient size to accommodate a weekly provided pick-up service.

Added 07/14/2006

Add the following to the fourth paragraph of this Article:

A bi-weekly cleaning service for the office shall be provided.

Revise the fifth paragraph of this Article to read:

An electronic security system that will respond to any breach of exterior doors and windows with an on site alarm shall be provided.

Revise subparagraph (a) of this Article to read:

(a) Twelve desks with minimum working surface 1.1 m x 750 mm (42 in x 30 in) each and twelve non-folding chairs with upholstered seats and backs.

Revise the first sentence of subparagraph (c) of this Article to read:

(b) Two four-post drafting tables with minimum top size of 950 mm x 1.2 m (37-½ in x 48 in).

Revise subparagraph (d) of this Article to read:

(c) Six free standing four-drawer legal size file cabinets with lock and one (1) insulated file cabinet (underwriters' laboratories insulated file device 350 degrees one hour rating).

Revise subparagraph (e) of this Article to read:

(e) Twenty folding chairs and three conference tables with minimum top size of 1.1m x2.4 m (44 in x 96 in).

Revise subparagraph (g) of this Article to read:

(g) One office style refrigerators with a minimum size of 0.2 cu m (8 cu ft) with a freezer unit.

Revise subparagraph (h) of this Article to read:

(h) Three electric desk type tape printing calculator and two pocket scientific notation calculators with a 1000 hour battery life or with a portable recharger.

Revise subparagraph (i) of this Article to read:

(i) Six telephones, with touch tone, where available, one telephone answering machines, and six telephone lines including one line for the fax machine, one line for DSL line, and two lines (one modem line and one land line) for the exclusive use of the Engineer.

Added 07/14/2006

Revise subparagraph (j) of this Article to read:

(j) One dry process copy machines capable of reproducing prints up to 280 mm x 0 mm (11 in x 17 in) from nontransparent master sheets, as black or blue lines on white paper, with sorting and reduction/enlargement capabilities including maintenance, reproduction paper, activating agent and power source.

Revise subparagraph (k) of this Article to read:

(k) One plain paper fax machine including maintenance and supplies.

Revise subparagraph (l) of this Article to read:

(l) One electric water cooler dispenser including water service.

Add the following subparagraphs to this Article:

(n) One 1.2m x 1.8m (4 ft x 6 ft) chalkboard or dry erase board.

670.05 Engineer's Field Laboratory. Revise the first paragraph of this Article to read:

Engineer's Field Laboratory (Special). The field laboratory shall have a ceiling height of not less than 2 m (7 ft) and a floor space of not less than 93 sq m (1000 sq ft). The laboratory shall be provided with sufficient heat, natural and artificial light and air conditioning. Sanitary facilities and an electronic security system as specified for Engineer's Field Office Type A (Special) shall also be included. Doors and windows shall be equipped with locks approved by the Engineer.

Revise subparagraph (a) of this Article to read:

(a) Two desks with minimum working surface 1.1 m x 750 mm (42 in. x 30 in.) each and two non-folding chairs with upholstered seats and backs.

Add the following subparagraphs to this Article:

(b) One equipment cabinet of minimum inside dimension of 1100 mm (44") high x 600 mm (24 in) wide x 750 mm (30 in) deep with lock. The walls shall be of steel with a 2 mm (3/32 in) minimum thickness with concealed hinges and enclosed lock constructed in such a manner as to prevent entry by force. The cabinet assembly shall be permanently attached to a structural element of the field office in a manner to prevent theft of the entire cabinet.

670.07 Basis of Payment. Revise the fourth sentence of the first paragraph of this Article to read:

The building or buildings at 2929 S. Wabash Ave. Suite 101 Chicago, Illinois 60616, fully equipped, will be paid for at the contract unit price per calendar month or fraction thereof for ENGINEER'S FIELD OFFICE TYPE A (SPECIAL), or ENGINEER’S FIELD LABORATORY (SPECIAL).

Added 07/14/2006

CHAIN LINK FENCE, 4' (BRIDGE)

Description. This work consists of removing and disposing damaged portions of existing chain link fence and posts and fabricating and erecting new chain link fence attached to the top of bridge parapet at the locations shown on the Plans, as specified herein and as directed by the Engineer. Work shall be in accordance with the applicable portions of Section 664 of the Standard Specifications.

General Requirements. The fence fabric shall meet the requirements of Section 1006.27(a)(1)a. of the Standard Specifications.

All other fence components shall be galvanized. Anchor rods shall meet the requirements of Section 1006.09 of the Standard Specifications and shall be hot dipped galvanized.

The Contractor and Engineer shall collectively determine the extent of fence replacement and the type of components to be replaced. The Contactor shall not order materials until such a determination has been made. The Contractor may re-use parts from the removed chain link fence if the parts are determined to be adequate to allow the fence to function properly, as determined by the Engineer.

Posts shall be spaced as close as practical to the exiting spacing and located to avoid parapet joints and existing post anchorages. The posts shall be anchored to the parapet as shown on the Plans. Posts shall be set vertical and true.

The Contractor shall use the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchorages in pre-drilled holes according to the manufacturer's recommendations and procedures. The capsule or the adhesive cartridge shall be sealed with pre-measured amounts of chemical adhesive.

Top and bottom tension wires will be installed tightly, but will not be tension so much that placed posts lose plumbness.

Method of Measurement. CHAIN LINK FENCE, 4' (BRIDGE) will be measured, in place, in feet along the top of parapet over the length for which new fence fabric is installed. Individual posts installed to replace damaged posts where existing fence fabric is re-used will not be included in the length measurement.

Basis of Payment. This work will be paid for at the contract unit price per foot for CHAIN LINK FENCE, 4' (BRIDGE), which price is payment in full for removing and disposing existing fence components, materials, fabricating and installing the new fence components including posts, tension wire, fittings, chain link fabric, drilling and installing anchorage, hardware, and for furnishing all labor, tools, materials and equipment for a complete and acceptable installation.

Added 07/14/2006

CATCH BASINS TO BE CLEANED

Description. This item shall consist of the cleaning of existing drainage structures under the viaduct that receive drainage from the southbound roadway or as directed by the Engineer.

All existing drainage structures which are identified to be cleaned on the Plans or directed to be cleaned by the Engineer shall be cleaned in accordance with Article 602.14 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price each for CATCH BASINS TO BE CLEANED.

Added 07/14/2006