



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

June 9, 2005

SUBJECT: FAI Route 74 (I-74)
Project ACIM-074-4 (234) 094
Section (90-11) R-2; 90 (13, 14, 14-1) R-1
Tazewell County
Contract No. 68201
Item No. 2P, June 17, 2005 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 the entire Schedule of Prices.
2. Revised the entire Table of Contents to the Special Provisions.
3. Revised pages 1, 2, 4 – 13, 21, 22, 27, 51, 52, 79, 80, 85 – 89 & 212 – 219 of the Special Provisions.
4. Added pages 316 - 418 to the Special Provisions.
5. Revised sheets 11 – 24, 44, 45, 50, 61, 81 – 85, 87 – 90, 92 – 94, 97, 100, 102, 110, 111, 113 – 115, 119, 122, 123, 129, 130, 134, 151, 154, 159, 167, 171, 176A, 179 – 181A, 201, 227, 228, 251, 262, 265, 273, 275, 287, 303, 311, 312, 315, 340 – 346, 354, 369, 387, 451, 504, 516A, 516B, 602, 623, 727, 742, 744, 797, 903, 904, 929, 939, 1198, 1200, 1212, 1215, 1224, 1225, 1228 – 1230, 1237, 1245, 1272 & 1331 of 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

A handwritten signature in black ink, reading "Ted B. Walschleger P.E." with a stylized flourish at the end.

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

cc: J. E. Crowe, Region 3, District 4; N. R. Stoner; Roger Driskell; Jim White;
Design & Environment File

TBW:MS:jc

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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 74 (I-74), Section (90-11)R-2,90(13,14,14-1)R-1 in Tazewell County and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF PROJECT

The project is located along the existing I-74 beginning just west of the bridge over TP&W Railroad and extends easterly 2.5 kilometers (1.6 miles) to east of the Washington Street interchange in East Peoria.

DESCRIPTION OF PROJECT

The project consists of the reconstruction of the westbound lanes of I-74 and associated arterial streets from North Main Street to Washington Street. This work includes bridge removal and replacement, earth excavation, pavement/ramp removal and replacement, storm sewer, permanent and temporary erosion control, retaining walls, traffic signals, signing and lighting. The work also includes the pavement overlay of both eastbound and westbound lanes of I-74 from the intersection of the Washington Street interchange easterly through the Pinecrest Drive interchange.

DATES OF COMPLETION PLUS WORKING DAYS

Effective January 27, 2005

Revised May 25, 2005

The Contractor shall schedule his/her operations so as to complete implementation of Stage 3 traffic control, closing the existing I-74 westbound lanes and directing westbound I-74 traffic to the eastbound lanes and shoulder no later than 11:59 PM on April 1, 2006 simultaneously with other Stage 3 contractors.

The Contractor shall schedule her/his operations so as to complete all work, except work in Plan Set 4 and as specified below, and open all roadways to traffic no later than 11:59 p.m. on November 17, 2006. The Contractor will be allowed 30 working days, after the November 17, 2006 completion date to complete the work within Plan Set 4, punch list items, and any miscellaneous clean-up within Plan Sets 1, 2, and 3.

Added 06-09-2005

Only punch list and clean up work within the limits of plan set 1, 2 and 3 which can be performed without lane closure will be allowed after the November 17, 2006 completion date.

The Contractor should note that these completion dates are based on an expedited work schedule.

FAILURE TO COMPLETE WORK ON TIME

Effective January 27, 2005

Should the Contractor fail to complete all work on the April 1, 2006 completion date as specified in the Special Provision for "Dates of Completion Plus Working Days", or within such extended time allowed by the Department, the Contractor shall be liable to the Department in the amount of \$10,000, not as a penalty but as liquidated and ascertained damages for each calendar day beyond the date of completion or extended time as may be allowed. Such damages may be deducted by the Department from any monies due the Contractor.

Should the Contractor fail to complete all work within plan set 1, 2 and 3 on or before the November 17, 2006 completion date as specified in the Special Provision for "Dates of Completion Plus Working Days", or within such extended time allowed by the Department, the Contractor shall be liable to the Department in the amount of \$10,000, not as a penalty but as liquidated and ascertained damages for each calendar day beyond the date of completion or extended time as may be allowed.

In fixing the damages as set out herein, the desire is to establish a certain mode of calculation for the work because the Department's actual loss, in the event of delay, cannot be predetermined, would be difficult of ascertainment, and a matter of argument and unprofitable litigation. This 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 to recover these liquidated damages provided herein, as these 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 on the calendar and starts at 12:00 midnight and ends at the following 12:00 midnight, twenty-four hours later. Liquidated damages will not be assessed for any day less than twenty-four hours.

Should the Contractor fail to complete all work within Plan Set 4 punch list items, and any associated clean up with plan sets 1, 2 ND 3 within 30 working days after the November 17, 2006, Section 108.09 of the Standard Specifications shall apply.

INCENTIVE PAYMENT PLAN

Effective January 27, 2005

The Contractor shall be entitled to an incentive payment for completing necessary contract items and safely opening all roadways to traffic on November 17, 2006 in accordance with the requirements of the Special Provision "Date of Completion Plus Working Days."

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Failure by the Contractor to complete all work as specified above before November 17, 2006 shall release and discharge the State, the Department and all of its officers, agents and employees from any and all claims and demands for payment of any incentive amount or damages arising from the refusal to pay an incentive amount.

COOPERATION WITH UTILITY

The Contractor shall coordinate his/her operations with AmerenCILCO for the installation of electrical ducts in the excavation of the Pier 3 extension for S.N. 090-0009. The ducts will be placed after the construction of the extension foundation and before/during the placement of the backfill for the Pier.

I-74 MAINLINE PEAK TRAFFIC PERIODS

Effective January 27, 2005

Revised May 25, 2005

Due to the high traffic volumes on the I-74 mainline, two lanes shall be open to westbound traffic Monday through Friday except legal holidays between the hours of 6:15 AM to 8:30 AM and two lanes shall be open to eastbound traffic Monday through Friday except legal holidays between the hours of 2:45 PM to 5:30 PM. Legal holidays shall be as defined in Article 107.09 of the Standard Specifications.

The I-74 Main Line Peak Traffic period restrictions to require two lanes (as opposed to one lane) in the direction of travel during the defined applicable peak traffic period shall not apply to the following locations for the indicated construction period:

- I-74 eastbound between the Ramp L-1 exit ramp and the Ramp L-2 entrance ramp during Stage 3A and Stage 3B.
- I-74 westbound between Station 153+900 and the westbound cross over at Sta. 154+800 in Stage 3A.
- I-74 westbound between Station 153+900 and approximately Station 155+500 in Stage 3B.
- I-74 eastbound and westbound from the east end of the project to Station 154+780 while the pavement is being patched.

Any lane less than 3.3 m wide shall be considered obstructed.

At the time Contract 68201 is awarded, Contracts 68195 and 68199 will already be in progress.

Failure to Open Traffic Lanes to Traffic: Should the Contractor fail to completely open traffic lanes to traffic in accordance with the limitations specified above, the Contractor shall be liable to the Department in the amount of \$10,000 for any portion of the first hour lanes are closed or obstructed and \$2,500 every 15 minutes thereafter not as a penalty but as liquidated and ascertained damages. Such damages will be deducted by the Department from the monies due the Contractor. These damages shall apply during the contract time including any extensions of the contract time.

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In fixing the damages as set out herein, the desire is to establish a certain mode of calculation for the work because the Department's actual loss, in the event of delay, cannot be predetermined, would be difficult of ascertainment, and a matter of argument and unprofitable litigation. This 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 to recover these liquidated damages provided herein, as these 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.

WORKING RESTRICTIONS

Effective January 27, 2005

Revised May 25, 2005

GENERAL

The stage construction and traffic control for this contract and other concurrent corridor construction contracts are designed to function as a single unit. The implementation and removal of traffic control must occur simultaneously at times. Any proposed changes to the proposed staging must be considered carefully as they may affect the overall project traffic control. Any proposed traffic control changes must be submitted to the Engineer in writing along with documentation of coordination with all other contractors as listed in the Special Provision entitled "Cooperation with Other Contractors". Any request for changes that have not been coordinated with all other project contractors will be rejected. All changes must be approved by the Engineer prior to implementation.

If the Contractor(s) elects to change the proposed staging and/or traffic control plan, the Contractor(s) shall incur all additional costs to facilitate the change. These may include, but are not limited to supplemental excavation, temporary pavement, temporary concrete barrier, temporary sheeting, and temporary signing or striping. No additional payment will be made for any staging or traffic control alterations, modifications or additions initiated by the Contractor(s).

For any change, the number of traffic lanes must not be less than those shown in the Maintenance of Traffic (MOT) plans of Contract 68201 and concurrent stage 2 corridor contracts for each sub-stage represented within their respective MOT plans.

A minimum of one lane in each direction must be maintained at all times on the I-74 mainline. A minimum lane width of 3.3 m shall be maintained on all I-74 lanes open to traffic. A minimum lane width of 3.6 m shall be maintained on all ramps open to traffic. Lanes shall be clear, unobstructed and free of channelizing devices or other obstacles. See special provision entitled "I-74 Mainline Peak Traffic Periods" for additional working restriction.

The I-74 westbound lanes from west of the TP&W RR (station 152+446) to East of the Washington Street Interchange approximately at station 154+970 shall be constructed in the calendar year 2006 as shown in the plans.

Removal, delivery and erection of bridge beams specifically for the following bridges:

- I-74 WB Bridge over North Main Street
- I-74 WB Bridge over E. Washington Street and Taylor Street
- I-74 WB Bridge over Camp Street, TP&W RR and Farm Creek Runoff Canal
- Ramp K-2 Bridge over North Main Street

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shall be limited to either weekends or 6:00 p.m. to 6:00 p.m. on weekdays. The Contractor may temporarily stop traffic on North Main Street, Camp Street, and E. Washington Street, and Taylor Street for 20 minutes at a time on weekends or 6:00 p.m. to 6:00 a.m. on weekdays to remove or set beams.

Access to WB mainline exist ramps and all EB Mainline ramps shall be maintained during the 20-minute closure.

The expense of weekend or nighttime erection or removal shall not be paid for separately but shall be included in the cost of the pay items associated with the work.

Temporarily stopping traffic or closures for the removal or erection of beams will not be permitted at any time during the holiday period for legal holidays as specified in Article 107.09 of the Standard Specifications or other periods specified in the special provision entitled "Special Events."

A minimum of one lane (3.3 m minimum width) in each direction must be maintained on North Main Street during off-peak hours with the exception of temporary short-term closures to remove and set bridge beams and to perform milling and temporary bituminous placement. Temporary lane closures on North Main Street shall not be allowed during peak hours. The peak hour definition on North Main Street is Monday through Friday between 7:00 a.m. to 8:15 a.m. and between 3:30 p.m. to 5:30 p.m.

A minimum of one westbound lane (3.3 m minimum width) must be maintained on the US 150 McCluggage Bridge and its approach during off-peak hours. Temporary lane closures on US 150 McCluggage Bridge and its approach shall not be allowed during peak hours. The peak hour definition on westbound US 150 McCluggage Bridge and its approach is Monday through Friday between 7:00 a.m. to 8:15 a.m. On eastbound US 150 McCluggage Bridge and its approach the peak hour is Monday to Friday between 3:30 p.m. and 5:30 p.m.

Failure to Open Traffic Lanes to Traffic: Should the Contractor fail to open either westbound US Route 150 McCluggage Bridge and its approach to two (2) lanes of traffic or to open North Main Street to two (2) lanes of traffic in each direction following the temporary short term lane closure within the peak traffic hour period in accordance with the limitations specified above, the Contractor shall be liable to amount of \$10,000 for any portion of the first hour lanes are closed or obstructed and \$2,500 every 15 minutes thereafter not as a penalty but as liquidated and ascertained damages. Such damages will be deducted by the Department from the monies due the Contractor. These damages shall apply during the contract time including any extensions of the contract time.

East Washington Street and Taylor Street under the I-74 WB Bridge shall be open to at least one through lane of traffic (3.1 Minimum) in each direction at all times. The Contractor will not be allowed to work on the center median and pier construction simultaneously.

A minimum of one (1) lane of traffic shall be maintained on westbound Camp Street under the I-74 mainline Bridge and two(2) lanes of traffic shall be maintained on eastbound Camp Street under the I-74 mainline bridge at all times.

Special attention is called to Article 105.08 of the Standard Specifications regarding "Cooperation Between Contractors."

"Winter shutdown" as shown in the plans shall be implemented no later than 11:59 PM on November 18, 2005. See special provision entitled "Dates of Completion Plus Working Days".

Temporarily stopping traffic or closures for the removal or erection of beams will not be permitted at any time during the holiday period for legal holidays as specified in Article 107.09 of the Standard Specifications or other periods specified in the special provision entitled "Special Events."

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All lanes shall be open to traffic on legal holidays as defined in Article 107.09 of the Standard Specifications. Any lane less than 3.1 m wide shall be considered obstructed.

Guardrail located in Plan Set 4 from eastbound Sta. 155+041.9 to 155+387.25 and westbound Sta. 154+989.8 to 155+455.65 shall be removed and replaced within the same work day. At these two locations the edge of shoulder drop off presents a severe hazard. For this reason any guardrail removed shall be replaced within the same work day. In the event the Contractor is not able to complete each location in a work day a temporary connection between the existing and proposed guardrail may be installed at no cost to the Department.

PRE-STAGE 3 (Award Date through March 31, 2006)

In the period between the award date and March 31, 2006, the Contractor will be allowed to perform work as outlined in the plans for pre-stage 3 work within the following constraints and as specified elsewhere in the special provisions:

- The Contractor may implement traffic control directing eastbound I-74 traffic onto the outside eastbound shoulder so as to permit the placement of temporary concrete barrier along the I-74 eastbound lanes between March 1, 2006 and March 31, 2006. A minimum of two lanes in the I-74 eastbound direction must be maintained at all times with the exception of a minimum of one lane in the I-74 eastbound direction between the Ramp L-1 exit ramp and the Ramp L-2 entrance ramp must be maintained at all times.
- From award date to November 18, 2005, the contractor shall coordinate with ongoing contracts 68195, 68199 and 68308 any traffic closure that will impact any placement of traffic control.
- The Contractor may implement traffic control to close off existing Ramp 20 (north bound Main Street to westbound I-74) to facilitate construction of the Crash Investigation Site (CIS-I-74-09A) 5 calendar days prior to the implementation of Stage 3A construction schedule for March 31, 2006.
- The Contractor shall not implement traffic control closing the existing I-74 westbound lanes and directing westbound I-74 traffic to the eastbound lanes until April 1, 2006.
- See special provision entitled "I-74 Mainline Peak Traffic Periods" for additional restrictions.
- No lane closures will be permitted on I-74 ramps that are open to traffic except as noted herein.
- The Contractor shall maintain construction lane widths that will allow for safe and efficient removal of snow. On non-interstate roadways with 2 or more lanes in each direction, a minimum lane width of 3.3 m shall be maintained at all times through the winter period. On all other non-interstate roadways, a minimum lane width of 3.3 m must be maintained at all times.
- All cold milled surfaces shall be overlaid prior to winter shutdown. All manholes shall be adjusted to the elevation of the pavement to ease in plowing snow, and re-adjusted to finish grade in the spring. The initial manhole adjustment will be paid for at the contract unit price and any re-adjustment, as directed by the Engineer, will be paid for in accordance with Article 109.04.

STAGE 3 (April 1, 2006 to November 17, 2006)

In the period between April 1, 2006 and November 17, 2006, the contractor will be allowed to perform work as outlined in the plans within the following constraints and as specified elsewhere in the special provisions:

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- Existing Ramp 21 (westbound I-74 to northbound Main Street) shall remain open at all times throughout stage 3A and their sub-stages. Temporary Ramp 19 shall be open prior to closing Ramp 21.
- In Stage 3B. Temporary Ramp 19 shall remain open to traffic until proposed Ramp J-3 is opened. Temporary signals at the Intersection of Ramp 19 and Main Street shall be operable prior to opening Temporary Ramp 19 to traffic.
- Proposed Ramp J-3 shall remain open to traffic throughout the remainder of the project. Permanent signals at the intersection of Ramp J-3 and Main Street shall be operable prior to opening Ramp J-3 to traffic.
- Intersection of Main Street/Altorfer Lane to remain open at all times with one lane in each direction on Altorfer Lane. A minimum of one southbound lane shall be maintained at all time on the Frontage Road as shown in the Maintenance of Traffic.
- Removal and construction of the proposed pavement at the Main Street/Altorfer Lane intersection shall be limited to 30 Calendar Days. Removal and replacement of pavement in Area "E" as shown in the Maintenance of Traffic shall be limited to a weekend period beginning on Friday at 6:00 PM and ending the following Monday at 5:00 AM.
- National Street Intersection with Main Street shall remain open to traffic at all times. One lane in each direction shall be maintained during non working hours. Flaggers shall be present during working hours to control traffic to and from National Street whenever National Street is restricted to less than one lane in each direction.
- Ramp L-3 shall remain open to westbound I-74 traffic exiting to Washington Street traffic during Stage 3A of Plan Set 2.
- For any change, the number of traffic lanes provided must not be less than those shown in the Maintenance of Traffic (MOT) Plans.
- Any change must provide on and off ramp access equal to or greater than that shown in the plans at each stage or sub-stage at each interchange.
- If the Contractor(s) elects to change the proposed staging and/or traffic control plan, the Contractor(s) shall incur all additional costs to facilitate the change. These may include, but are not limited to supplemental excavation, temporary pavement, temporary concrete barrier, temporary sheeting, and temporary signing or striping. No additional payment will be made for any staging or traffic control alterations, modifications or additions initiated by the Contractor(s).
- For any change, the number of traffic lanes must not be less than those shown in the Maintenance of Traffic (MOT) plans of Contract 68201 and Stage 3 concurrent corridor contracts for each sub-stage represented within their respective MOT plans.
- A minimum of one lane (3.3m minimum width) in each direction must be maintained at all times on the I-74 mainline.
- See special provision entitled "I-74 Mainline Peak Traffic Periods" for additional restrictions.

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SPECIAL EVENTS

Effective January 17, 2005

East Peoria Festival of Lights Parade

The East Peoria Festival of Lights Parade events are tentatively scheduled for the following dates:
November 26, 2005 November 25, 2006

The Contractor shall be responsible for verifying the actual dates.

In addition to the requirements of Article 107.09, the contractor shall submit to the Engineer a schedule of the work happening during the week leading to the Parade event, who in turn will provide it to the City of East Peoria 14 days before the aforementioned event.

IHSA BASKETBALL TOURNAMENTS

The IHSA Boy's Basketball Tournaments are tentatively scheduled for the following dates:
March 9-11, 2006 March 16-18, 2006 March 8-10, 2007 March 15-17, 2007

The Contractor shall be responsible for verifying the actual dates.

In addition to the requirements of Article 107.09, construction operations shall not impede or interfere with any traffic as noted herein during the 2006 IHSA Boy's Basketball Tournaments.

The minimum number of I-74 lanes shall be as indicated in the maintenance of traffic plans during the tournament dates.

IHSA STATE SOFTBALL TOURNAMENTS

The IHSA State Softball Tournaments are tentatively scheduled for the following dates:
June 2-4, 2006 June 9-11, 2006

The Contractor shall be responsible for verifying the actual dates.

In addition to the requirements of Article 107.09, construction operations shall not impede or interfere with any traffic as noted herein during the 2006 IHSA Softball Tournaments. Two I-74 lanes in each direction shall be open to traffic with the exception listed on special provision entitled "I-74 Mainline Peak Traffic Periods".

COOPERATION WITH OTHER CONTRACTORS

Effective July 15, 2003

Revised July 7, 2004

Contract 68195 for the reconstruction of the Riverfront Drive interchange in East Peoria was let on April 25, 2003 and has a completion date of November 18, 2005.

Contract 68199 for the reconstruction of the eastbound lanes of I-74 in East Peoria was let on June 11, 2004 and has a completion date of November 18, 2005.

Contract 68308 for the construction of the temporary informational signing throughout the project was let on March 7, 2003 and has a completion date of November 30, 2006.

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Contract 68308 for the construction of the temporary informational signing throughout the project was let on March 7, 2003 and has a completion date of November 30, 2006.

Contract 68226 for the implementation of the Intelligent Transportation System throughout the project was let on January 17, 2003.

Contract 68228 for supplying precast bridge bollards and luminaires for decorative lighting along I-74 from West of Sterling to East of Washington was let on January 18, 2002 and has a completion date of October 31, 2005.

Contract 68231 for supplying the high mast poles for lighting along I-74 from West of Sterling to East of Washington was let on July 30, 2004 and has a completion date of October 31, 2006.

Contract 68408 for supplying the luminaires for lighting along I-74 from West of Sterling to East of Washington was let on July 30, 2004 and has a completion date of October 31, 2006.

TRAFFIC CONTROL PLAN

Effective January 31, 2002 Revised May 25, 2005

Traffic control shall be in accordance with the applicable sections of the Standard Specifications for Road and Bridge Construction, the applicable guidelines contained in the Illinois Manual on Uniform Traffic Control Devices for Streets and Highways, these Special Provisions, and any special details and highway standards contained herein and in the plans.

Special attention is called to Section 701 and Articles 107.09 and 107.14 of the Standard Specifications for Road and Bridge Construction and the following Highway Standards relating to traffic control.

701006	701101	701106	701201	701301	701306
701400	701401	701402	701406	701411	701416
701421	701422	701426	701446	701501	701502
701601	701602	701701	701801	702001	

The governing factor in the execution and staging of work for this project is to provide the motoring public with the safest possible travel conditions through the construction zone. The Contractor shall arrange his/her operations to keep the closing of lanes and/or ramps to a minimum.

The Contractor shall be responsible for the proper location, installation, and arrangement of all traffic control devices. Special attention shall be given to existing warning signs and guide signs during all construction operations. Warning signs and existing guide signs with down arrows shall be kept consistent with the barricade placement at all times. The Contractor shall immediately remove, completely cover or turn from the motorist's view all signs which are inconsistent with lane assignment patterns.

The Contractor shall coordinate all traffic control work on this project with adjoining contracts, including barricade placement necessary to provide a uniform traffic detour pattern. When

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directed by the Engineer, the Contractor shall remove all traffic control devices, which were furnished, installed, or maintained by him/her under this contract. All traffic control devices shall remain in place until specific authorization for relocation or removal is received from the Engineer

Temporary lighting as shown on the plans shall be in place and operational before the existing permanent lighting is taken out of service so that lighting is provided on all I-74 roadways and ramps throughout the duration of this contract.

Existing temporary lighting and/or permanent lighting along the I-74 mainline and ramps that are under traffic shall remain operational until the proposed permanent lighting is operational. Proposed permanent lighting along a roadway shall be operational when any lanes of the proposed roadway are opened to traffic.

The Contractor will notify the Engineer in writing at least ten calendar days prior to any activities that will disrupt normal traffic flow. This will include road closures, lane closures, short-term I-74 closures and lane shifts.

The contractor will notify the Engineer in writing ten calendar days prior to activities that reduce any vertical and horizontal clearances. The Contractor shall maintain the following minimum clearances:

I-74 Bridge Over Main Street = 4.343 m
I-74 Bridge over Camp Street = 4.826 m
I-74 Bridge over Washington Street = 5.994 m

Traffic Control Surveillance shall be in accordance with the special provision entitled Traffic Control Surveillance (Special).

On I-74 and ramps, where edge of pavement drop offs are in excess of 75 mm (3"), the Contractor will be required to keep the adjacent lane or shoulder closed at their expense or install temporary concrete barrier along the drop off. When a segment of I-74 is closed to traffic, contractor trucks and other vehicles shall not enter and exit from lanes open to mainline I-74 traffic when access is available from the adjacent interchanges.

When access to an area is not available except from the mainline I-74 traffic, contractor trucks and other vehicles will be permitted to enter and/or leave the I-74 mainline traffic at locations permitted by the Engineer provided such locations do not pose a safety hazard or disruption to mainline I-74 traffic.

All vehicles, materials and equipment parked or stored during non-working hours within 5.5 m (18 ft) from I-74 or ramp pavement that is open to traffic shall be protected by guardrail or temporary concrete barrier or other man-made barriers. No vehicles, materials or equipment shall be parked or stored within 1.2 m (4 ft) of the backside of guardrail.

A flagger will be required at locations where trucks and other vehicles are entering and/or leaving the I-74 mainline or ramp traffic. A pair of 1.2 m (48 in.) signs shall be located 450 m (1500 ft) in advance stating "TRUCKS ENTERING (LEAVING) ON RIGHT (LEFT)." In addition,

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if two or more I-74 lanes are open to traffic, a pair of 1.2 m (48 in.) signs shall be located 300 m (1000 ft) in advance stating "MERGE RIGHT (LEFT)" signs. All required warning signs and flaggers shall be at the Contractor's expense.

A flagger shall also be present at the Contractor's expense whenever construction traffic passes through an operating Temporary Crash Investigation Site in a direction to the adjacent temporary ramp traffic flow.

At road closure locations where Type III barricades are installed in a manner that will not allow Contractor access to the project without relocation of one or more of the barricades, the arrangement of the barricades at the beginning of each work day may be relocated, when approved by the Engineer, in the manner shown on Highway Standard 702001 for Road Closed to Through Traffic. "Road Closed" signs (R11-2), supplemented by "Except Authorized Vehicles" signs (R3-I101), shall be mounted on both the near-right and far-left barricade(s). At the end of each workday the barricades shall be returned to their in-line positions. This work will be considered included in the contract, and no extra compensation will be allowed.

If the Contractor elects to gap the permanent and/or temporary guardrail or concrete barrier at locations not shown on the plans, any additional guardrail, concrete barrier, sand module impact attenuator(s) or other approved end treatment(s) shall be at the Contractor's expense. The Engineer shall approve the location of gaps in guardrail or concrete barrier not shown on the plans prior to implementation.

Temporary concrete barrier shall be in place prior to beginning the removal of existing bridge piers, abutments, or removing guardrail attached to same. Temporary concrete barrier shall be in place to separate opposing I-74 mainline traffic at locations prior to permitting opposing traffic on the roadway.

A portable changeable message sign will be required for westbound direction of travel on I-74. The sign(s) shall be placed and operating in advance of the project limit one week prior to the start of construction. As work ensues, the sign(s) shall be relocated and operating in advance of the first operation requiring a lane closure, detours or as directed herein, and/or as directed by the Engineer. The construction traffic control devices shall be installed in locations where they do not block or impede other traffic control devices, or sidewalks.

The number of open traffic lanes shown on the plans for each stage of construction shall be maintained at all times.

When a segment of I-74 is closed to traffic, contractor trucks and other vehicles shall not be permitted to enter and exit from lanes open to mainline I-74 traffic when access is available from the adjacent interchange(s).

The Contractor shall install construction traffic control devices in locations where they do not block or impede other traffic control devices, or sidewalks. Changeable message signs shall be placed to notify affected motorists seven calendar days in advance of closures and detours required for construction.

Business and Private Access: The Contractor shall maintain access to all approaches,
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driveways, roadways and frontage roads along North Main Street, Camp Street, Washington Street and Taylor Street at all times unless otherwise noted in the Maintenance of Traffic plans or otherwise directed by the Engineer. It may be possible to close some entrances for construction during off-peak or non-business hours. Prior to any entrance closure, the Contractor shall secure the property owners or tenants approval in writing and provide a copy to the Engineer. Temporary construction access shall not exceed 10 consecutive calendar days unless approved in writing by the property owners or tenants and the Engineer.

SHALE AND COAL MATERIAL

Effective: July 9, 2004

Shale and/or coal material encountered during earth excavation or pile drilling shall be treated as unsuitable materials. This material shall not be used for embankment and shall be removed off of the right of way. No additional compensation will be allowed.

FILL EXISTING STORM SEWERS

Effective: February 2, 2004

Revised: January 5, 2005

Description. This work shall consist of filling existing storm sewers with Controlled Low Strength Material.

When CLSM is used or specified, this work shall be completed in accordance with the following:

Materials. Materials shall be according to the following Articles of Section 1000 – Materials:

Item	Article/Section
(a) Portland Cement, Type 1.....	1001
(b) Water	1002
(c) Fine Aggregate–FA 1 or 2 Sand (Note 1)	1003.01(a), 1003.01(c), 1003.04(b)
(d) Fly Ash	1010.02, 1010.03
(e) Admixtures (Note 2)	1021.01

Note 1: Blending fine aggregate materials will not be permitted.

Note 2: The air-entraining admixture may be in powder form. Prior to approval, a CLSM air-entraining admixture shall be evaluated in a field or laboratory experimental pour. The Engineer will verify the experiment. The department will maintain an Approved Air-Entraining Admixtures for CLSM list.

Equipment. Equipment shall be according to the following Articles of Section 1100 – Equipment:

Item	Article/Section
(a) Concrete Mixers	1103.01
(b) Batching and Weighing Equipment	1103.02, 1103.03
(c) Mobile Portland Cement Concrete Plants	1103.04
(d) Water Supply Equipment.....	1103.11

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Method of Measurement. Portland Cement Concrete Shoulder Removal will be measured for payment per square meter.

Basis of Payment. This work will be paid for at the contract unit price per square meter for PORTLAND CEMENT CONCRETE SHOULDER REMOVAL, which price shall include all work and materials necessary for the partial depth removal of existing Portland Cement Concrete Shoulder surfaces. The 38 mm deep saw cut is included in the unit price for PORTLAND CEMENT CONCRETE SHOULDER REMOVAL and shall not be paid for separately.

CLASS B PATCHES (SPECIAL)

Effective: December 13, 2004

This work shall include all labor, equipment, and materials required to remove and replace the existing PCC expansion joints at locations shown in the plans per the applicable portions of Section 442 of the Standard Specifications and the detail shown in the plans.

This work will be measured and paid for at the contract unit price per square meter (square yard) for CLASS B PATCHES (SPECIAL).

The 75 mm expansion joint will be measured and paid for at the contract unit price per meter (foot) for EXPANSION JOINT 75 MM.

REMOVAL OF EXISTING STRUCTURES

Effective: March 4, 2004

Revised: May 20, 2005

Description. This work shall consist of the removal and satisfactory disposal of the following three existing structures. This work shall be completed in accordance with applicable Articles of Section 501 of the Standard Specifications for Road and Bridge Construction.

General. All existing aluminum railing on the bridges shall remain the property of the IDOT. The Contractor shall deliver all aluminum railing and mounting bases free of charge to the IDOT Operations yard in East Peoria on Camp Street. Please contact Dan Edwards for arrangements at (309) 699-3822. Any aluminum railing and bases that are damaged by the Contractor shall be replaced in-kind by the Contractor. Existing steel rails will become the property of the Contractor.

Construction Requirements. Existing Structure No. 1 is the existing structure that carries I-74 over the TP&W Railroad. Structure No. 1 shall be removed as shown in the plans. The entire crashwall and footing of both existing piers shall be removed in their entirety. The piling for the existing pier footings shall be cut off a minimum six inches below the proposed bottom elevation of the new pier crashwalls.

Existing Structure No. 2 is the existing structure that carries I-74 over Main Street. Structure No. 2 shall be removed as shown in the plans. Slope wall removal for this structure shall be removed as part of this item and no additional compensation will be allowed.

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Existing Structure No. 3 is the existing structure that carries I-74 over Washington Avenue. Structure No. 3 shall be removed as shown in the plans. Slope wall removal for this structure shall be removed as part of this item and no additional compensation will be allowed.

This work will be paid for at the contract unit price each for REMOVAL OF EXISTING STRUCTURES, which price shall include all labor, materials and equipment necessary for the satisfactory removal and disposal of the structures described herein. Excavation, backfilling and compaction required in the performance of the work will not be measured and paid for separately but shall be included in the unit price bid for the REMOVAL OF EXISTING STRUCTURE.

REMOVAL OF THE EXISTING BEARINGS

Effective: December 20, 2004

Description. This work shall consist of removal of the existing steel bearings at Pier 4. It shall also include the disposal of the steel bearings in accordance with the applicable requirements of Section 501 of the Standard Specifications.

Construction Requirements. Jacking and shoring of the existing girders at Pier 4 is included in pay item Jacking and Shoring. The existing steel framing shall be protected from any damage during the removal of the existing bearings at Pier 4. Any damage caused to the existing steel framing system by the Contractor during removal of the existing bearings shall be repaired to the satisfaction of the Engineer at no additional cost. The removal of the existing bearings shall not interfere with the operation of the adjacent railroad

Method of Measurement. Removal of the Existing Bearings will be measured for payment for each existing bearing removed.

Basis of Payment. This work will be paid for at the contract unit price each for Removal of Existing Bearing.

REMOVAL OF THE EXISTING CONCRETE DECK

Effective: December 20, 2004

Description. This work shall consist of removal of the existing westbound bridge concrete deck as shown on the plans including existing bituminous overlay, railings and light poles in accordance with the applicable requirements of Section 501.03. It shall also include the disposal of the removed items in accordance with the applicable requirements of Section 501 of the Standard Specifications.

Construction Requirements. The Contractor must take utmost care not to damage the existing steel framing, bearings and the substructure units those are to be reincorporated into the new structure. Any damage caused to the existing steel framing, bearings and the substructure units by the Contractor during removal of the existing concrete deck shall be repaired to the satisfaction of the Engineer at no additional cost. All loose rust, loose mill scale and all other loose potentially detrimental foreign material shall be removed from the surfaces of the portions of flanges of beams or girders in contact with concrete. This removal shall be accomplished with

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Basis of Payment. This work shall be paid for at the contract unit price each for CONCRETE COLLAR, CULVERT NO. 1, which price shall include furnishing all labor, equipment and material for the construction of Concrete Collar, Culvert No. 1 as detailed in the plans with the exception of reinforcement bars which shall be paid for separately at the contract unit price for REINFORCEMENT BARS, EPOXY COATED.

METAL END SECTIONS

Effective: November 3, 2003

Description. This work and removal shall consist of furnishing all labor, equipment and material for the installation of the metal end sections, of the size specified in the plans in accordance with Article 542.07 (c) of the Standard Specifications except as stated herein. The material type for the end section shall be compatible with that of the adjoining corrugated metal pipe.

Basis of Payment. This work shall be paid for at the contract unit price each for METAL END SECTIONS, of the diameter specified, which price shall include all labor, equipment, and material to complete the work and no additional compensation will be allowed.

PIPE ELBOWS

Effective: January 5, 2005

Description. This work shall consist of furnishing all labor, equipment and material for the construction of the pipe elbows, in accordance with Section 542.08 of the Standard Specifications except as stated herein. The material type for the elbow shall be compatible with that of the adjoining pipe.

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The Contractor may, at his option, add a drying agent to lower the moisture content as specified above. The drying agent must be approved by the Engineer prior to use. Extra compensation will not be allowed for the use of a drying agent but will be considered included in the cost of the various items of excavation.

STONE DUMPED RIPRAP CLASS A4

Effective April 15, 1991

Revised July 1, 1994

This work shall be performed in accordance with Section 281. The aggregate shall meet an RR CLASS A4 gradation and "B" Quality except that the sodium sulfate loss shall not exceed 35%. A bedding layer will not be required. A filter fabric meeting the requirements for an RR 4 material in accordance with Section 282 will be required.

This work will be paid for at the contract unit price per square meter for STONE DUMPED RIPRAP CLASS A4. The filter fabric will be measured and paid for separately.

PROOF ROLLING

Effective April 23, 2004

This work shall consist of proof rolling the embankment with a fully loaded tandem axle dump truck and driver at the direction of the Engineer. The truck shall travel the subgrade in all of the proposed lanes of traffic in the presence of the Engineer.

This work will not be paid for separately, but considered included in the various earthwork pay items.

TEMPORARY PAVEMENT

Effective October 1, 1995

Revised May 20, 2005

This item shall include all materials, labor and equipment necessary to construct temporary pavement in accordance with applicable sections of the Standard Specifications except as herein specified.

The Contractor shall have the option of constructing temporary pavement made of (X) 325mm bituminous base course or (Y) 250mm PCC base course.

Bituminous base course shall be placed in accordance with applicable portions of Article 355 and the Bituminous Base Course/Widening special provisions herein. Material for bituminous base course shall be Superpave Binder Course in 19.0 in accordance with Article 406 and the special provision "Superpave Bituminous Concrete Mixtures." PCC base course shall be in accordance with Article 353.

This work will be paid for at the contract unit price per square meter (square yard) for TEMPORARY PAVEMENT which price shall be payment in full for all materials, labor and equipment necessary to perform the work as herein specified

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Removal of Temporary Pavement will be paid for separately in accordance with Article 440 of the Standards Specifications.

BITUMINOUS BASE COURSE 250 MM (10")

Effective April 1, 1996

Revised April 23, 2004

The bituminous mixtures used in these items shall be in accordance with the mixture design requirements as set forth in the contract. The mixtures shall be proportioned and tested in accordance with the appropriate sections of the Recurring Special Provision, "Quality Control/Quality Assurance for Bituminous Concrete Mixtures" as determined by the Engineer.

BITUMINOUS BASE COURSE WIDENING

Effective April 1, 1996

Revised April 23, 2004

The bituminous mixtures used in these items shall be in accordance with the mixture design requirements as set forth in the contract. The mixtures shall be proportioned and tested in accordance with the appropriate sections of the Recurring Special Provision, "Quality Control/Quality Assurance for Bituminous Concrete Mixtures" as determined by the Engineer.

PLACEMENT OF BITUMINOUS SURFACE COURSES

Effective: March 22, 2001

Revised: April 29, 2005

Placement of bituminous concrete surface courses shall not be allowed after October 15th of any calendar year. The contractor is responsible for scheduling construction activities to complete placement of surface courses prior to October 15th. If surface courses are not in place by October 15th, the contractor is responsible for implementing any measures needed to make the roadway suitable for winter traffic and snow plowing activities. Any additional costs associated with this provision shall be considered included in the cost of the unit prices bid for bituminous surface course items.

BITUMINOUS SURFACE COURSE SURFACE TESTS

Effective: November 1, 2003

The Contractor shall provide a person to operate the straight edge in accordance with Article 406.21 of the Standard Specifications and communicate with IDOT personnel to minimize the surface course bumps. If surface course bumps cannot be removed at this time, IDOT personnel will record the locations and provide deductions as stated in Article 406.21.

BITUMINOUS SURFACE REMOVAL, 25 MM (1")

BITUMINOUS SURFACE REMOVAL, 40 MM (1½")

BITUMINOUS SURFACE REMOVAL, 75 MM (3")

Effective March 1, 1993

Revised January 3, 2000

Description: This work shall consist of removing a portion of the existing bituminous concrete
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Submission Requirements. The initial schedule shall be submitted prior to starting work but no later than five calendar days after execution of the contract. Updated schedules shall be submitted according to Article 108.02 except that as a minimum, updated schedules will be required at the 25, 50, and 75 percent completion points of the contract.

The schedule shall be submitted in the Sorted by Activity Layout (SORT4). The activities on the schedule shall be plotted using early start, late start, early finish, late finish and total float.

For every schedule submission, the Contractor shall submit to the Engineer, four IBM compatible compact disks of all schedule data. Included on the disks shall be all of the tabular and graphic reports, network diagrams and bar chart data. Two copies shall be submitted on CD/R disks and two copies shall be submitted on CD/RW disks. In addition, four plots of the schedule shall be submitted with the disks. When reviewed and approved by the Engineer, the CD/R disks will be the approved initial or revised progress schedule for the contract. The approval will be documented by the Engineer on a corresponding plot of the schedule and returned to the Contractor.

Four copies of each schedule submission shall be printed in color on 8.5 in. x 14 in. (minimum) size sheets showing all columns, bars, column headings at the top, time scale at the top and showing relationships.

The schedule shall indicate the critical path to contract completion. Only one controlling item shall be designated at any point in time on the schedule.

Basis of Payment. This work will not be paid for separately, but shall be considered as included in the cost of the various items of work in the contract.

PROSECUTION OF WORK

Effective April 19, 2002

In order to assure the timely completion of the work involved in this project, it may be necessary for the Contractor to work extended work hours. Any expenses incurred by the Contractor in order to comply with this special provision will not be paid for separately, but shall be included in the contract price.

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REPLACEMENT OF UNSUITABLE MATERIAL

Effective June 21, 2002

Revised August 22, 2002

Delete the third sentence of the last paragraph of Article 202.03 of the Standard Specifications and insert:

If unsuitable material is present at or below the finished grade on I-74 mainline and ramp PCC pavements, it shall be removed and replaced with Aggregate Subbase, according to the special provision entitled "Extended Life Pavement (30 Year)".

If unsuitable material is present at or below the finished grade on the roadways other than the I-74 mainline and ramp PCC pavements, it shall be removed and replaced with subbase granular material Type A or Type B, according to Section 311 of the Standard Specifications.

TRENCH BACKFILL, SPECIAL

Effective January 1, 2002

Revised July 24, 2003

Description. This work shall consist of furnishing fine aggregate or controlled low-strength material (CLSM) at the contractor's option, except when CLSM is specified in the plans, for backfilling material for all trenches made in the subgrade of the proposed improvement and all trenches outside of the subgrade where the inner edge of the trench is closer than 600 mm (2 ft) to the edge of the proposed pavement, stabilized sub-base, shoulder, curb, or sidewalk.

This work also includes the disposal of the surplus excavated material which is replaced by the trench backfill. Such disposal shall be made according to Article 202.03.

When trench backfill is used, this work will be completed in accordance with Article 208 of the Standard Specifications, except it shall be measured and paid as specified herein.

When CLSM is used or specified, this work shall be completed in accordance with the following:

Revised 06-09-2005

Revise Article 356.11 of the Standard Specifications to read:

Basis of Payment. This work will be paid for at the contract unit price per metric ton (ton) for BITUMINOUS BASE COURSE WIDENING.

EXISTING BITUMINOUS MIXES CONTAINING STEEL SLAG

Effective April 21, 2004

The Contractor is reminded to verify the existence of bituminous surface course mixes that may contain steel slag prior to removal and recycling. Much of the bituminous to be milled or otherwise removed within the project limits contains steel slag. The use of RAP containing steel slag shall be in accordance with the Standard Specifications and Special Provisions.

EXTENDED LIFE PAVEMENT (30 YEAR)

Effective June 21, 2001

Revised February 4, 2003

The requirements of this special provision are only applicable to I-74 mainline and ramp Portland Cement Concrete pavements.

Description. This work shall consist of constructing an extended life Portland cement concrete pavement, shoulders, and gutter, curb, and median, according to Section 420 for Portland Cement Concrete Pavement (PCCP), Section 421 for Continuously Reinforced Portland Cement Concrete Pavement (CRCP), Section 483 for Portland Cement Concrete Shoulders, and Section 606 for Concrete Gutter, Curb, Median, and Paved Ditch, of the Standard Specifications for Road and Bridge Construction, except as follows:

Definitions.

Aggregate Subbase – The aggregate above the subgrade and below the aggregate subbase cap.

Aggregate Subbase Cap – The 75 mm (3 in.) of aggregate above the aggregate subbase and below the base.

Base – The Superpave IL-19.0L placed over the aggregate subbase cap and immediately below the pavement.

Materials. Materials shall be according to Article 420.02 for PCCP, 421.02 for CRCP, and 483.02 for PCC Shoulders, of the Standard Specifications except:

The freeze-thaw rating expansion limit for coarse aggregate shall be a maximum 0.040 percent according to Illinois Modified AASHTO T 161, Procedure B.

Equipment. Equipment shall be according to Article 420.03 for PCCP, 421.03 for CRCP, and 483.03 for PCC Shoulders, of the Standard Specifications, except:

Revised 06-09-2005

The Contractor shall submit to the Engineer, for approval before paving, the proposed internal type vibrator spacing for the paver. The Contractor shall also provide the proposed operating frequencies for a paving speed greater than or equal to 0.9 m (3 ft.) per minute, and for a paving speed less than 0.9 m (3 ft.) per minute.

Base. The base shall be constructed according to Section 312 of the Standard Specification, except that the material used shall be Superpave IL-19.0L.

When the surface temperature, as measured on the surface with a device as approved by the Engineer, of the Stabilized Sub-Base is 115 °F or greater the Contractor shall spray the Stabilized Sub-base with a water mist with equipment that meets the approval of the Engineer. The Stabilized Sub-base shall be cooled below 115 °F prior to paving on top. The water spray shall not produce excessive water runoff or leave puddles on the Stabilized Sub-base at the time of paving. All cooling shall be complete a minimum of 10 minutes prior to paving. The surface temperature shall be monitored during the paving operation to determine the stabilized Sub-base required re-spaying. The water used shall meet the requirements of Section 1002.

Embankment. The embankment shall be constructed according to Section 205 of the Standard Specifications, except that the embankment shall be compacted to not less than 95 percent of the maximum dry density determined according to AASHTO T 99. The embankment shall not be compacted at moisture content in excess of 110 percent of the optimum moisture content determined according to AASHTO T 99.

All material that is proposed for use in embankment construction must be approved by the Engineer. The proposed material shall have a Standard Dry Density of not less than 1450 kg/m³ (90 lb./ft³) when tested according to AASHTO T 99 and shall not have an organic content greater than 10 percent when tested according to AASHTO T 194. Soils that demonstrate the following properties shall be restricted to the interior of the embankment:

- a. A grain size distribution with less than 35% passing the 75 µm (#200) sieve.
- b. A plasticity index (PI) of less than 12.
- c. A liquid limit (LL) in excess of 50.

Such soils shall be covered on the sides and top of the embankment by a minimum of 900 mm (3 ft.) of soil not characterized by any of the items a, b or c above. Other materials which may be considered by the Engineer as having the potential for erosion or excess volume change shall not be used in the 3 ft. (900 mm) cover on the sides or the top of the embankment.

Subgrade. The subgrade shall be constructed according to Section 301 of the Standard Specifications.

Delete the third paragraph (including subparagraphs a, b, and c) of Article 301.03 of the Standard Specifications and replace it with the following:

In cut sections the contractor responsible for the rough grading shall obtain not less than 95% of the standard laboratory density and not more than 110% of the optimum moisture for the top 300mm (1 ft.) of the subgrade.

Revised 06-09-2005

The Contractor may, at his/her option, add a drying agent to lower the moisture content as specified. The drying agent must be approved by the Engineer prior to use. Additional compensation will not be allowed for the use of a drying agent, but will be considered as included in the cost of the various earthwork items.

In the first sentence of the fourth paragraph delete "listed in the steps".

Aggregate Subbase. This work shall consist of furnishing, transporting, and placing Aggregate Subbase, Type C, as specified in Section 311 of the Standard Specifications, except:

The quality requirement in Article 1004.04(b) shall not apply.

The material shall be classified as Category III in the Aggregate Gradation Control System (AGCS), and shall meet the following gradation requirements:

1. Crushed Stone, Crushed Slag, and Crushed Concrete

<u>Sieve Size</u>	<u>Percent Passing</u>
200 mm (8 in.)	100
150 mm (6 in.)	97±3
100 mm (4 in.)	90±10
50 mm (2 in.)	45±25
75 µm (#200)	5±5

2. Crushed Gravel

<u>Sieve Size</u>	<u>Percent Passing</u>
150 mm (6 in.)	100
100 mm (4 in.)	90±10
50 mm (2 in.)	55±25
4.75 mm (#4)	30±20
75 µm (#200)	5±5

The aggregate subbase shall be well-graded from coarse to fine. Aggregate subbase that is gap-graded or single-sized will not be accepted.

The aggregate shall be placed to the thickness specified in one lift. When aggregate meeting the Aggregate Subbase requirements is used to replace unstable material, the Aggregate Subbase may be placed simultaneously with the material for subgrade replacement, when the total thickness to be placed is 600 mm (24 in.) or less. The Aggregate Subbase (and subgrade replacement material, if any) shall be rolled with a vibratory roller meeting the requirements of Article 1101.01 of the Standard Specifications to obtain the desired keying or interlock and compaction. The Engineer shall verify that adequate keying has been obtained.

Aggregate Subbase Cap. This work shall consist of furnishing, transporting, and placing an Aggregate Subbase, Type C, as a cap as specified in Section 311 of the Standard Specifications, except the material gradation shall be CA 6. The lift thickness shall be 75 mm

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(3 in.), nominal. Reclaimed Asphalt Pavement (RAP) meeting Article 1004.07 of the Standard Specifications and having 100% passing the 37.5mm (1-1/2inches) sieve and well graded down through the fines may also be used as capping aggregate. RAP shall not contain steel slag or other expansive material. The results of the Department's tests on the RAP material will be the determining factor for consideration as expansive.

Placing Concrete Pavement. Placement shall be according to Article 421.05 of the Standard Specifications except that, if the shoulder and mainline pavements are of different reinforcement designs, they shall not be placed in a single operation.

Concrete Mixture Temperature. Article 1020.14 of the Standard Specifications shall apply except that, prior to paving, the Contractor shall indicate to the Engineer how the concrete mixture temperature will be controlled. If the mixture temperature exceeds the value stated in Article 1020.14, production of additional mix shall stop until action to reduce mixture temperature is taken or conditions causing elevated temperatures change. The Engineer will allow the Contractor to deliver concrete mixture en route to the paving site.

Curing. Curing of the pavement shall be according to Article 1020.13 of the Standard Specifications, except:

Method 4 shall be completed within 10 minutes after tining.

The curing period shall be 7 days minimum.

Opening to Traffic. The pavement shall not be opened to public traffic or construction vehicles before the minimum curing period is completed.

Method of Measurement. The method of measurement for aggregate subbase shall be as follows:

(a) Contract Quantities. Contract quantities shall be in accordance with Article 202.07(a).

(b) Measured Quantities. Aggregate subbase will be measured for payment in metric tons (tons) according to Article 311.08 (b).

Basis of Payment. This work will be paid for at the contract unit price per metric ton (ton) for AGGREGATE SUBBASE, including the Aggregate Subbase Cap.

All other items will be measured and paid for according to the appropriate section of the Standard Specifications.

PAVEMENT REINFORCEMENT

Effective June 7, 2002

Revised November 7, 2002

All tie bars, reinforcement, and chair supports in I-74 mainline and ramp pavements, shoulders, gutters and curb and gutter and bridge approach pavement shall be epoxy coated in accordance with Article 420.02 of the Standard Specifications.

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For work outside the limits of bridge approach pavement on all roadways other than the I-74 mainline and ramps, all references to epoxy coating in the Highway Standards and Standard Specifications for reinforcement, tie bars and chair supports will not apply for pavement, shoulders, curb, gutter, combination curb and gutter and median.

WARRANTY FOR CONCRETE PAVEMENTS (BDE)

Effective January 1, 2000

Revised September 4, 2003

Description

This work shall consist of providing a warranty for concrete pavement constructed on the I-74 mainline and the I-74 ramps with the following pay items Portland Cement Concrete Pavement 250mm (Jointed); Continuously Reinforced Portland Cement Concrete Pavement 290mm; Pavement Reinforcement 290mm. The warranty will include the concrete pavement and joints

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FABRIC REINFORCED ELASTOMERIC MAT

Effective: July 14,2000

Revised: September 12, 2003

Description. This work shall consist of furnishing and installing the fabric reinforced elastomeric mat as shown on the plans and as directed by the Engineer.

Materials. The elastomeric material requirements for the reinforced mat shall be according to the following:

The Elastomer Compound for the mat shall be according to AASHTO M 251 for Polychloroprene "50 duro", except the tensile strength shall be 10.3 MPa (1500 psi) minimum or it shall be (EPDM) ethylene propylene diene monomer according to Article 1052.02 of the Standard Specifications.

The composite of the fabric and elastomer shall have a minimum tensile strength of 122.6 x 122.6 N/mm (700 x 700 lb/in) according to ASTM D 378.

The minimum elongation at ultimate tensile strength shall be 30 percent according to ASTM D 412.

The minimum thickness of the reinforced mat shall be 3 mm (1/8 in.).

Threaded studs, washers and nuts shall be according to ASHTO M 164. Flattening plates shall be according to AASHTO M 270M, Grade 250 (M 270,Grade 36).

Method of Measurement. The fabric reinforced elastomeric mat and all hardware necessary to install the mat will not be measured for payment but shall be included in the concrete pay item involved.

DRILLED SOLDIER PILE RETAINING WALL

Effective: September 20, 2001

Revised: March 30, 2005

Description. This work shall consist of providing all labor, materials, and equipment necessary to fabricate and furnish the soldier piles, create and maintain the shaft excavations, set and brace the soldier piles into position and encase the soldier piles in concrete to the specified elevation. Also included in this work is the backfilling of the remainder of the shaft excavation with Controlled Low-Strength Material (CLSM), the furnishing and installation of the timber lagging, and the furnishing and installation of CLSM secant lagging. All work shall be according to the details shown on the plans and as directed by the Engineer.

The remainder of the retaining wall components as shown on the plans, such as concrete facing, shear studs, reinforcement bars, tie backs, hand rails, and various drainage items etc., are not included in this Special Provision but are paid for as specified elsewhere in this Contract.

Materials. The materials used for the soldier piles and lagging shall satisfy the following requirements:

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- (a) The structural steel components for the soldier piles shall conform to the requirements of AASHTO M270, Grade 250 (36), unless otherwise designated on the plans.
- (b) The soldier pile encasement concrete shall be portland cement concrete according to Section 1020, except the mix design shall be as follows:
- (1) A Type I or II cement shall be used at 395 kg/cu m (665 lb/cu yd). When the plans specify that soil and ground water sulfate contaminates exceed 500 parts per million, a Type V cement shall be required. The cement shall be increased 35 kg/cu m (60 lb/cu yd) if the concrete is to be placed under water.
 - (2) Class C or F fly ash may replace Type I or II cement. The cement replacement shall not exceed 15 percent by mass (weight) at a minimum replacement ratio of 1.5:1. The fly ash shall not be used in combination with ground granulated blast-furnace slag.
 - (3) Grade 100 or 120 ground granulated blast-furnace slag may replace Type I or II cement. The cement replacement shall not exceed 25 percent by mass (weight) at a minimum replacement ratio of 1:1. The ground granulated blast-furnace slag shall not be used in combination with fly ash.
 - (4) The maximum water/cement ratio shall be 0.44.
 - (5) The mortar factor shall be a value which produces a coarse aggregate content comprising between 55 and 65 percent of total aggregate by mass (weight).
 - (6) The slump at point of placement shall be 175 mm \pm 25 mm (7 \pm 1 in.). If concrete is placed to displace drilling fluid or against temporary casing, the slump shall be 200 mm \pm 25 mm (8 \pm 1 in.) at point of placement. The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus 1 hour.
 - (7) An air entraining admixture shall be required and the air content range shall be 4.0 to 7.0 percent.
 - (8) The minimum compressive strength shall be 27,500 kPa (4000 psi) at 14 days. The minimum flexural strength shall be 4,650 kPa (675 psi) at 14 days.
 - (9) A retarding admixture shall be required.
 - (10) A water-reducing or high range water-reducing admixture shall be required.
 - (11) An accelerating admixture may be used with the permission of the Engineer in extraordinary situations.
 - (13) The coarse aggregate shall be CA 13, CA 14, CA 16 or a blend of these gradations. The fine aggregate shall consist of sand only according to Article 1003.01(a).

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- (c) The Controlled Low-Strength Material (CLSM), used for backfilling shaft excavations above the soldier pile encasement concrete and for backfilling secant lagging excavations, to the existing ground surface, shall be according to the Recurring Special Provisions for CLSM.
- (d) Temporary casing shall be produced by electric seam, butt, or spiral welding to produce a smooth wall surface, fabricated from steel satisfying ASTM A252 Grade 2. The minimum wall thickness shall be as required to resist the anticipated installation and dewatering stresses, as determined by the Contractor, but in no case less than 6 mm (1/4 in.).
- (e) Drilling slurry shall consist of a polymer or mineral base material. Mineral slurry shall have both a mineral grain size that will remain in suspension with sufficient viscosity and gel characteristics to transport excavated material to a suitable screening system. The percentage and specific gravity of the material used to make the suspension shall be sufficient to maintain the stability of the excavation and to allow proper concrete placement. For polymer slurry, the calcium hardness of the mixing water shall not exceed 100 mg/L.
- (f) Timber Lagging. The minimum tabulated unit stress in bending (F_b), used for the design of the timber lagging, shall be 6.9 MPa (1000 psi) unless otherwise specified on the plans. When treated timber lagging is specified on the plans, the method of treatment shall be according to Article 1007.12.

Equipment. The drilling equipment shall have adequate capacity, including power, torque and down thrust, to create a shaft excavation of the maximum diameter specified to a depth of 20 percent beyond the depths shown on the plans. Concrete equipment shall be according to Article 1020.03.

Construction Requirements. The shaft excavation for each soldier pile shall extend to the tip elevation indicated on the plans for soldier piles terminating in soil or to the required embedment in rock when rock is indicated on the contract plans. The Contractor shall satisfy the following requirements:

- (a) Drilling Methods. The soldier pile installation may involve the use of one or more of the following drilling methods to maintain excavation side wall stability during the various phases of shaft excavation and concrete placement, dependent on the site conditions encountered:
 - (1) Dry Method. The dry method consists of drilling the shaft excavation, removing accumulated water and loose material from the excavation, placing the soldier pile and concrete in a predominately dry excavation. This method shall be used only at sites where the groundwater and soil conditions are suitable to permit the drilling and dewatering of the excavation without causing excessive water infiltration, boiling, squeezing, or caving of the excavation side walls. This method allows the concrete placement by tremie or concrete pumps, or if the excavation can be dewatered, the concrete can be placed by free fall.
 - (2) Wet Method. The wet construction method may be used at sites where dewatering the excavation would cause collapse of the excavation sidewalls or when the volume and head of water flowing into the shaft excavation is likely to contaminate the concrete during placement. This method uses water or slurry to maintain stability of the shaft

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perimeter while advancing the excavation. After the excavation is completed, the water level in the shaft is allowed to seek equilibrium, the base is cleaned, the soldier pile is set and the concrete is discharged at the base using a tremie pipe or concrete pump, displacing the drilling fluid upward.

- (3) Temporary Casing Method. Temporary casing shall be used when either the wet or dry methods provide inadequate support to prevent sidewall caving or to ensure there is not excessive deformation of the hole. Temporary casing may also be used to reduce the flow of water into the excavation to allow dewatering, adequate cleaning, or to ensure proper concrete placement.

Temporary casing will not be allowed to remain permanently in place without the approval of the Engineer. Before the temporary casing is broken loose, the level of soldier pile encasement concrete in the casing shall be a minimum of 1.5 m (5 ft) above the bottom of the casing. After being broken loose, and as the casing is withdrawn, additional concrete shall be added to maintain sufficient head so that water and soil trapped behind the casing can be displaced upward and discharged at the ground surface.

No shaft excavation shall be made adjacent to a soldier pile with encasement concrete that has a compressive strength less than 10.35 MPa (1500 psi), nor adjacent to secant lagging until the CLSM has reach sufficient strength to maintain it's position and shape unless otherwise approved by the Engineer. Materials removed or generated from the shaft excavations shall be disposed of by the Contractor according to Article 202.03. Excavation by blasting will not be permitted.

- (b) Drilling Slurry. During construction, the level of the slurry shall be maintained at a height sufficient to prevent caving of the hole. In the event of a sudden or significant loss of slurry to the hole, the construction of that shaft shall be stopped and the shaft excavation backfilled or supported by temporary casing until a method to stop slurry loss, or an alternate construction procedure, has been developed and approved by the Engineer.
- (c) Obstructions. Obstructions shall be defined as any object (such as but not limited to, boulders, logs, old foundations, etc.) that cannot be removed with normal earth drilling procedures, but requires special augers, tooling, core barrels or rock augers to remove the obstruction. When obstructions are encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to core, break up, push aside, or remove the obstruction. Lost tools or equipment in the excavation, as a result of the Contractor's operation, shall not be defined as obstructions and shall be removed at the Contractor's expense.
- (d) Top of Rock. The actual top of rock will be defined as the point where material is encountered which can not be drilled with a conventional earth auger and/or under-reaming tool, and requires the use of special rock augers, core barrels, air tools or other methods of hand excavation.
- (e) Design Modifications. If the top of rock elevation encountered is below that estimated on the plans, such that the soldier pile length above rock is increased by more than 10 percent, the

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Engineer shall be contacted to determine if any soldier pile design changes are required. In addition, if the type of soil or rock encountered is not similar to that shown in the subsurface exploration data, the Engineer shall be contacted to determine if revisions are necessary.

- (f) Soldier Pile Fabrication and Placement. The soldier pile is defined as the structural steel section(s) shown on the plans as well as any connecting plates used to join multiple sections. Cleaning and painting of all steel components, when specified, shall be as shown on the plans and accomplished according to the special provision for "Cleaning and Painting New Metal Structures". This work will not be paid for separately, but shall be considered included in the cost of Furnishing Soldier Piles of the type specified.

The soldier pile shall be shop fabricated such that no field welding is required. The Contractor shall attach suitable bracing or support to maintain the position of the soldier pile within the shaft excavation such that the final location will satisfy the Construction Tolerances portion of this Special Provision. The bracing or supports shall remain in place until the concrete for encasement has reached a minimum compressive strength of 10.35 MPa (1500 psi).

When embedment in rock is indicated on the plans, modification to the length of a soldier pile may be required to satisfy the required embedment. The modification shall be made to the top of the soldier pile unless otherwise approved by the Engineer. When the top of rock encountered is above the estimated elevation indicated on the plans, the soldier piles shall be cut to the required length. If the top of rock encountered is below that estimated on the plans, the Contractor shall either furnish longer soldier piles or splice on additional length of soldier pile per Article 512.05(b) to satisfy the required embedment in rock. In order to avoid delays, the Contractor may have additional soldier pile sections fabricated as necessary to make the required adjustments. Additional soldier pile quantities, above those shown on the plans, shall not be furnished without prior written approval by the Engineer.

- (g) Concrete Placement. Concrete work shall be performed according to the applicable portions of Section 503 and as specified herein.

The soldier pile encasement concrete pour shall be made in a continuous manner from the bottom of the shaft excavation to the elevation indicated on the plans. Concrete shall be placed as soon as possible after the excavation is completed and the soldier pile is secured in the proper position. Uneven levels of concrete placed in front, behind, and on the sides of the soldier pile shall be minimized to avoid soldier pile movement, and to ensure complete encasement. Concrete shall be placed either by free fall, or through a tremie or concrete pump subject to the following conditions:

- (1) The free fall placement shall only be permitted in shaft excavations that can be dewatered without causing side wall instability and where no more than 75 mm (3 in.) of standing water exists at the time of concrete placement. The maximum height of free fall placement shall not exceed 18.3 m (60 ft.) and the concrete shall be directed to the base to minimize contact with either the soldier pile or the shaft excavation side wall. Drop chutes may be used to direct concrete to the base during free fall placement.
- (2) Tremies shall be according to Article 503.08 and contain no aluminum parts that may have contact with the concrete. The inside and outside surfaces of the tremie shall be

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clean and smooth to permit both flow of the concrete and unimpeded withdrawal during concrete placement.

- (3) Concrete pumps. Pumps and lines may be used for concrete placement and shall have a minimum 100 mm (4 in.) diameter.

The tremie or pump lines used for wet method concrete placement shall be watertight and shall not begin discharge until placed within 250 mm (10 in.) of the base of the excavation. Valves, bottom plates or plugs may be used only when they can be removed from the excavation unless approved by the Engineer. The discharge end shall be immersed at least 1.5 m (5 ft.) in concrete at all times after starting the pour.

Following the soldier pile encasement concrete pour, the remaining portion of the shaft excavation shall be backfilled with CLSM.

CLSM Secant lagging placement shall be placed as soon as practical after the shaft excavation is cleared.

- (h) Construction Tolerances. The soldier piles shall be drilled and located within the excavation to satisfy the following tolerances:

(1) The center of the soldier pile shall be within 38 mm (1 1/2 in.) of plan station and 13 mm (1/2 in.) offset at the top of the shaft.

(2) The out of vertical plumbness of the soldier pile shall not exceed 0.83 percent.

(3) The top of the soldier pile shall be within ± 25 mm (± 1 in.) of the plan elevation.

- (i) Timber Lagging. Timber lagging, when required by the plans, installed below the original ground surface, shall be placed from the top down as the excavation proceeds. Lagging shown above grade shall be installed and backfilled against prior to installing any permanent facing to minimize post construction deflections. Over-excavation required to place the timber lagging behind the flanges of the soldier piles shall be the minimum necessary to install the lagging. When the plans require the Contractor to design the timber lagging, the design shall be based on established practices published in FHWA or AASHTO documents considering lateral earth pressure, construction loading, traffic surcharges and the lagging span length(s). The nominal thickness of the lagging selected shall not be less than 75 mm (3 in.) and shall satisfy the minimum tabulated unit stress in bending (F_b) stated elsewhere in this Special Provision. The Contractor shall be responsible for the successful performance of the lagging system until the concrete facing is installed. When the nominal timber lagging thickness(s) and allowable stress are specified on the plans, the timber shall be rough cut or surfaced and in accordance with Article 1007.03.

- (j) Structure Excavation. When structure excavation is necessary to place a concrete facing, it shall be made and paid for according to Section 502 except that the horizontal limits for structure excavation shall be from the face of the soldier pile to a vertical plane 600 mm (2 ft) from the finished face of the wall. The depth shall be from the top of the original ground surface to the bottom of the concrete facing. The additional excavation necessary to place the lagging whether through soil or CLSM shall be included in this work.

- (k) Geocomposite Wall Drain. When required by the plans, the geocomposite wall drain shall be installed and paid for according to Section 591 except that, in the case where a concrete

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facing is specified on the plans, the wall drain shall be installed on the concrete facing side of the timber lagging with the pervious (fabric) side of the drain installed to face the timber. When a concrete facing is not specified on the plans, the pervious (fabric) side of the drain shall be installed to face the soil. In this case, the drain shall be installed in stages as the timber lagging is installed. The wall drain shall be placed in sections and spliced, or kept on a continuous roll, so that as each timber is placed, the drain can be properly located as the excavation proceeds.

Method of Measurement. The furnishing of soldier piles will be measured for payment in meters (feet) along the centerline of the soldier pile for each of the types specified. The length shall be determined as the difference between the plan top of soldier pile and the final as built shaft excavation bottom.

The drilling and setting of soldier piles in soil and rock, will be measured for payment and the volumes computed in cubic meters (cubic feet) for the shaft excavation required to set the soldier piles according to the plans and specifications, and accepted by the Engineer. These volumes shall be the theoretical volumes computed using the diameter(s) of the shaft(s) shown in the plans and the depth of the excavation in soil and/or rock as appropriate. The depth in soil will be defined as the difference in elevation between the ground surface at the time of concrete placement and the bottom of the shaft excavation or the top of rock (when present), whichever is encountered first. The depth in rock will be defined as the difference in elevation between the measured top of rock and the bottom of the shaft excavation.

Drilling and placing CLSM secant lagging shall be measured for payment in cubic meters (cubic feet) of the shaft excavation required to install the secant lagging as shown in the plans. This volume shall be the theoretical volume computed using the diameter(s) shown on the plans and the difference in elevation between the as built shaft excavation bottom and the ground surface at the time of the CLSM placement.

Timber lagging shall be measured for payment in square meters (square feet) of timber lagging installed to the limits as shown on the plans. The quantity shall be calculated using the minimum lagging length required on the plans multiplied by the as installed height of timbers, for each bay of timber lagging spanning between the soldier piles.

Basis of Payment. The furnishing of soldier piles will be paid for at the contract unit price per meter (foot) for FURNISHING SOLDIER PILES, of the type specified, for the total number of meters (feet) furnished to the job site. The cost of any field splices required due to changes in top of rock elevation shall be paid for according to Article 109.04.

The drilling and setting of soldier piles will be paid for at the contract unit price per cubic meter (cubic foot) for DRILLING AND SETTING SOLDIER PILES (IN SOIL) and DRILLING AND SETTING SOLDIER PILES (IN ROCK). The required shaft excavation, soldier pile encasement concrete and any CLSM backfill required around each soldier pile will not be paid for separately but shall be included in this item.

The timber lagging will be paid for at the contract unit price per square meter (square foot) for UNTREATED TIMBER LAGGING, or TREATED TIMBER LAGGING as detailed on the plans.

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The secant lagging will be paid for at the contract unit price per cubic meter (cubic foot) for SECANT LAGGING. The required shaft excavation and CLSM backfill required to fill that excavation shall be included in this item.

Obstruction mitigation shall be paid for according to Article 109.04.

No additional compensation, other than noted above, will be allowed for removing and disposing of excavated materials, for furnishing and placing concrete, bracing, lining, temporary casings placed and removed or left in place, or for any excavation made or concrete placed outside of the plan diameter(s) of the shaft(s) specified.

REMOVAL OF EXISTING NON COMPOSITE BRIDGE DECKS

Effective: June 21, 2004

Revised: February 7, 2005

Revise the fifth sentence of the third paragraph of Article 501.03 of the Standard Specifications to read:

“Saw cutting directly over the top of beam or girder flanges may be permitted only if shown on the plans. The maximum saw cut depth allowed directly over a flange shall be to the bottom of the top mat of reinforcing steel but shall not exceed half the deck thickness. The Contractor shall provide positive control for controlling the depth of cut into the slab. The Contractor shall provide sawing equipment adequate in size and horsepower to complete the sawing operation.”

BITUMINOUS CONCRETE SURFACE COURSE (BDE)

Effective: April 1, 2001

Revised: April 1, 2003

Replace the fourth paragraph of Article 406.23(b) of the Standard Specifications with the following:

“Mixture for cracks, joints, flangeways, leveling binder (machine method), leveling binder (hand method) and binder course in excess of 103 percent of the quantity specified by the Engineer will not be measured for payment.

Surface course mixture in excess of 103 percent of adjusted plan quantity will not be measured for payment. The adjusted plan quantity for surface course mixtures will be calculated as follows:

Adjusted Plan Quantity = C x quantity shown on the plans or as specified by the Engineer.

where C = metric: $C = \frac{G_{mb} \times 24.99}{U}$ English: $C = \frac{G_{mb} \times 46.8}{U}$

and where:

G_{mb} = average bulk specific gravity from approved mix design.

U = Unit weight of surface course shown on the plans in kg/sq m/25 mm (lb/sq yd/in.), used to estimate plan quantity.

24.99 = metric constant.

46.8 = English constant.

Revised 06-09-2005

RAILROAD PROTECTIVE LIABILITY INSURANCE (BDE)

Effective: December 1, 1986

Revised: May 15, 1988

The contractor will be required to carry Railroad Protective Liability and Property Damage Liability Insurance in accordance with Article 107.11 of the Standard Specifications. The limits of liability shall be in accordance with Article 107.11 of the Standard Specifications unless otherwise noted. A separate policy is required for each railroad indicated below unless otherwise noted.

<u>NAMED INSURED & ADDRESS</u>	<u>NUMBER & SPEED OF PASSENGER TRAINS</u>	<u>NUMBER & SPEED OF FREIGHT TRAINS</u>
Toledo, Peoria & Western Railway Corp. 1990 E. Washington Street East Peoria, IL 61611	0	8/day 20 MPH

FOR FREIGHT/PASSENGER INFORMATION CONTACT:

Mike Hains PHONE: (309) 698-2601

FOR INSURANCE INFORMATION CONTACT:

James Meece PHONE: (800) 377-9214 (Interstate Management Group)

Basis of Payment: The costs for providing insurance, as noted above, will be paid for at the contract unit price per Lump Sum for RAILROAD PROTECTIVE LIABILITY INSURANCE.

APPROVAL OF INSURANCE: The ORIGINAL and one CERTIFIED copy of each required policy shall be submitted to ENGINEER OF DESIGN, ILLINOIS DEPARTMENT OF TRANSPORTATION, 2300 SOUTH DIRKSEN PARKWAY, SPRINGFIELD, ILLINOIS 62764 for approval. The contractor will be advised when the Department has received approval of the insurance from the railroad(s). Before any work begins on railroad right-of-way, the Contractor shall submit to the Resident Engineer evidence that the required railroad protective liability insurance has been approved by the railroad(s). The Contractor shall also provide the Resident Engineer with expiration date of each required policy.

UNDERPASS LUMINAIRE EMBEDDED CONCRETE INSERTS

In addition to the Embedded Concrete Inserts shown in the Miscellaneous Underpass Lighting Details a second Embedded Concrete Insert will be installed in the bridge deck at each proposed underpass luminaire location. The additional embedded concrete insert material will

Added 06-09-2005

be provided by Springfield Electric as part of the Luminaire Supply Contract 68408. Prior to forming the bridge deck the Contractor shall coordinate with the Resident Engineer and Jack Felts of Springfield Electric to obtain the inserts and exact offset from the proposed inserts shown on the Miscellaneous Underpass Lighting Detail sheet of the contract plans. This work will not be paid for separately, but shall be included in the cost of the related items.

LIGHT TOWER FOUNDATIONS

Effective May 17, 2005

The anchor bolt lengths shown on the sheet titled "Light Tower Foundation Notes and Anchor Bolt Details" are revised as followed:

Light Tower Anchor Bolt Requirements (Type 1 and Type 2 Foundations): Anchor Bolt Diameter: 2.25" (60mm), Anchor Bolt Length: 114.0" (2.90m)

The Contractor, at his option, may choose to utilize a steel ring (as shown on the detailed labeled "Bolt Cage Top") in place of the welded steel bar cross bracing shown in the detail labeled "Bolt Cage Bottom" to secure the anchor bolts in the cage assembly. If the Contractor chooses to exercise this option, there will be additional compensation

ELECTRICAL SERVICE INSTALLATION

Effective May 17, 2005

This work shall be in accordance with Section 804 and 1086 of the Standard Specifications except as modified herein.

The service disconnect switch shall be enclosed in a NEMA 4X Stainless Steel Enclosure.

Basis of Payment:

This work will be paid for at the contract unit price each for ELECTRIC SERVICE INSTALLATION which shall be payment in full for all labor, equipment, and materials required to provide the electrical service installation described above, complete.

RAMP J-4 EMBANKMENT

Effective April 26, 2005

All earth embankment under proposed Ramp J-4 shall be allowed to settle for 40 days before commencing construction of any pavement structure. About 3" of settlement is anticipated.

Contractor shall take this requirement into account when scheduling or planning work activity. If approved by the Engineer, aggregate base material may be placed for the Contractor's convenience; however, only aggregate base above the plan elevation will be measured for payment.

Added 06-09-2005

All cost associated with this requirement will be included in the unit bid price for furnished excavation and no added compensation will be allowed.

SLOPEWALL SPECIAL

Effective April 26, 2005

Description: This work shall consist of furnishing and installing 200 millimeter thick slopewall to replace portions of the Farm Creek Drainage channel concrete lining that require removal to facilitate pier extension work.

Construction Requirements: The work shall be performed in accordance with the requirements of Section 511 of the Standard Specifications and the details in the plans. The thickness of the slopewall shall be 200 millimeters or that of which the existing concrete lining is constructed, whichever is greater.

Method of Measurement: Slopewall Special will be measured for payment in square meters of new slope wall provided.

Reinforcement, grouted tie bars, weep hole aggregate and fabric and the removal of the existing concrete lining, will not be measured separately for payment but will be considered as included in the price of this work.

Basis of Payment: This work will be paid for at the contract unit price per square meter for SLOPEWALL SPECIAL which price shall be payment in full for all equipment, materials, and labor required to perform the work as shown on the plans and specified herein.

ENGINEER'S FIELD LABORATORY (SPECIAL)

Effective December 2, 2002

Revised July 17, 2003

This item shall consist of furnishing and maintaining an Engineer's Field Laboratory as specified in Article 670.01 of the Standard Specifications and herein.

The field laboratory shall have a ceiling height of not less than 2 m (7 ft) and a floor space of not less than 35 sq m (380 sq ft). The laboratory shall be provided with sufficient heat, natural and artificial light and air conditioning. Sanitary facilities shall include hot and cold potable running water, lavatory and toilet as an integral part of the office. Doors and windows shall be equipped with locks approved by the Engineer.

The Engineer's Field Laboratory shall be equipped with an electronic security system that will respond to any breach of exterior doors and windows with an on-site alarm will be provided. The Contractor shall be responsible for the security of the field office building and is liable for damages incurred as a result of vandalism, theft, and other criminal activities. Broken windows shall be replaced at no additional cost.

The Contractor will be responsible for systems maintenance and repairs, which shall include the heating, cooling, sanitary, and water distribution systems and light bulb replacements.

Added 06-09-2005

Windows shall be equipped with exterior screens to allow adequate ventilation. Window shades or blinds shall be provided for all windows, as directed by the Engineer.

Fire extinguishers meeting the local municipalities' requirements shall be provided.

The Contractor shall be responsible for snow removal from parking areas and sidewalks surrounding the building.

The Contractor shall pay the cost of any building or equipment inspections by the local municipality. The Contractor shall also pay all costs to comply with the maintenance type inspection findings.

The lab space shall be maintained and kept in a clean condition, and free of insects and rodents, at all times. The Contractor shall provide janitorial and/or cleaning service a minimum of once a week. Windows should be cleaned as directed by the Engineer. Maintenance shall include, but not be limited to, paper towels, soap, toilet paper, and other necessary supplies. No additional compensation will be allowed for providing this service, but it shall be included in the item ENGINEER'S FIELD LABORATORY (SPECIAL).

In addition, the following equipment and furniture meeting the approval of the Engineer shall be furnished:

- (a) Four desks with minimum working surface 1.8 m x 1.2 m (72 in. x 48 in.) each and five non-folding chairs with upholstered seats, arm rests and backs
- (b) One microwave oven
- (c) One microwaveable tray
- (d) One free standing four drawer legal size file cabinet with lock and an underwriters' laboratories insulated file device 350 degrees one hour rating
- (e) Two pocket scientific notation calculators with a 1000 hour battery life
- (f) One cordless telephone with an answering machine or voice mail, caller ID, and 3-way calling (for exclusive use by the Engineer)
- (g) One first-aid cabinet fully equipped
- (h) One service sink and water supply for testing purposes
- (i) One work bench 900 mm x 3 m x 900 mm (3 ft x 10 ft x 36 in.) high with drawers and cabinets below and three 110 volt, 20 amp outlets above the bench
- (j) A digital scale of at least 11.5 kg (25 lb) capacity sensitive to 0.1 g (0.003 oz)
- (k) Cleaning supplies as necessary

Added 06-09-2005

- (l) A uniform, rigid foundation, such as provided by a cube of concrete weighing not less than 90 kg (200 lb), for use when performing soil proctor tests
- (m) One photocopy machine with automatic feed capable of reproducing prints up to legal size [215 mm x 355 mm (8 1/2 in. x 14 in.)], including maintenance and reproduction paper
- (n) One plain paper telecommunication fax machine, including maintenance and operating supplies
- (o) One electric water cooler dispenser
- (p) Bookshelves a minimum of 300mm (12 in.) deep and a minimum total available length of 10 m (30 ft)
- (q) One equipment cabinet of minimum inside dimension of 1500 mm (60 in.) high x 900 mm (36 in.) wide x 750 mm (30 in.) deep
- (r) Four folding chairs
- (s) One office-style refrigerator with a minimum size of 0.4 cubic meters (16 cu ft) with a freezer unit
- (t) One dry-erase marker board minimum size 700 mm x 1.0 m (28 in. x 40 in.) with markers and erasers
- (u) One bulletin board minimum size 700 mm x 1.0 m (28 in. x 40 in.)
- (v) A cabinet or vault shall be provided for the nuclear density equipment which shall have a suitable barrier system of concrete, steel, lead, or other radiation barrier material and shall remain at the job site. It shall have a dimension capable of holding two nuclear gauges being stored at the job site and shall have a lock for security to prevent intruders from gaining access to the equipment. All walls and doors of the unit shall be sufficient thickness to prevent any radiation leakage from the equipment should a malfunction occur which would allow this leakage

Basis of Payment. The building, fully equipped as specified herein and accepted by the Engineer, will be paid for on a monthly basis until the building is released by the Engineer. The Contractor will be paid the contract bid price each month, provided the building is maintained, equipped, and utilities furnished. The building, fully equipped and maintained as specified herein, will be paid for at the contract unit price per calendar month or fraction thereof for ENGINEER'S FIELD LABORATORY (SPECIAL). This price shall include all utility costs and shall reflect the salvage value of the building, equipment and furniture which becomes the property of the Contractor after release by the Engineer, except that the Department will pay that portion of each monthly long distance telephone bill in excess of \$50.

The Contractor shall be responsible for the repair and maintenance of the field lab. No extra payment will be made for systems maintenance, repairs or for damages incurred as a result of vandalism, theft or other criminal activities.

Added 06-09-2005

TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS)

Effective April 19, 2002 Revised April 21, 2004

This work shall consist of furnishing, installing, maintaining, relocating and removal of all traffic control required for the purpose of regulating, warning or directing traffic for construction activities on the I-74 mainline and ramps. This work shall be done in accordance with Article 107.14 and Section 701 of the Standard Specifications, the staging details and notes in the plans, applicable Highway Standards, the Special Provisions and as specified herein.

The plan details present a suggested means for implementing the necessary traffic control for this project. The plans do not attempt to detail or define all construction conditions which may require installation of traffic controls. The Contractor may revise or modify the traffic control as shown in the plans with the written permission of the Engineer. The cost of any traffic control devices that must remain upon completion of the contract shall be included in this work.

Existing regulatory traffic signing shall be relocated as needed for each stage of construction. In addition, the contractor shall furnish and install temporary regulatory signing at the locations shown in the plans. The Contractor shall maintain all temporarily relocated signs until the new permanent signing have been installed. The temporary relocation and maintenance of any regulatory or warning traffic signs will not be paid for separately but shall be governed by Article 107.25 of the Standard Specifications. The Contractor shall not be responsible for maintaining temporary signs after completion of this contract.

Method of Measurement:

All traffic control and protection required by this provision will be measured for payment on a lump sum basis. All traffic control necessary to construct the mainline and ramp work shown in the plans shall be considered included in the cost bid for this item. No additional payment will be made for any alterations, modifications, or additions necessary to construct the various work items shown in the plans.

Basis of Payment:

Work required by this provision will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS). There will be no adjustment of payment allowed for any change in value of work items associated with this item.

The furnishing and installation of temporary regulatory signing at the locations indicated in the plans will not be paid for separately, but shall be considered included in the cost of TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS).

Temporary pavement markings will be measured and paid for according to Section 703 and Section 780.

Pavement marking removal will be measured and paid for according to Section 703 and Section 783.

Prismatic reflectors will be measured and paid for according to Section 782.

Added 06-09-2005

TRAFFIC CONTROL AND PROTECTION (SPECIAL)

Effective April 19, 2002

Revised November 26, 2002

This work shall consist of furnishing, installing, maintaining, relocating and removal of all traffic control required for the purpose of regulating, warning or directing traffic for construction activities on all streets other than the I-74 mainline or ramps. This work shall be done in accordance with Article 107.14 and Section 701 of the Standard Specifications, the staging details and notes in the plans, applicable Highway Standards, the Special Provisions and as specified herein.

The plan details present a suggested means for implementing the necessary traffic control for this project. The plans do not attempt to detail or define all construction conditions which may require installation of traffic controls. The Contractor may revise or modify the traffic control as shown in the plans with the written permission of the Engineer. The cost of any traffic control devices that must remain upon completion of the contract shall be included in this work.

Existing regulatory traffic signing shall be relocated as needed for each stage of construction. In addition, the contractor shall furnish and install temporary regulatory signing at the locations shown in the plans. The Contractor shall maintain all temporarily relocated/furnished signs until the new permanent signing has been installed. The temporary relocation and maintenance of any regulatory or warning traffic signs will not be paid for separately but shall be governed by Article 107.25 of the Standard Specifications. The Contractor shall not be responsible for maintaining temporary signs after completion of this contract.

Method of Measurement:

All traffic control and protection required by this provision will be measured for payment on a lump sum basis. All traffic control necessary to construct the work shown in the plans shall be considered included in the cost bid for this item. No additional payment will be made for any alterations, modifications, or additions necessary to construct the various work items shown in the plans.

Basis of Payment:

Work required by this provision will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (SPECIAL). There will be no adjustment of payment allowed for any change in value of work items associated with this item.

The furnishing and installation of temporary regulatory signing at the locations indicated in the plans will not be paid for separately, but shall be considered included in the cost of TRAFFIC CONTROL AND PROTECTION (SPECIAL).

Temporary pavement markings will be measured and paid for according to Section 703 and Section 780.

Pavement marking removal will be measured and paid for according to Section 703 and Section 783.

Added 06-09-2005

Prismatic reflectors will be measured and paid for according to Section 782.

TRAFFIC CONTROL SURVEILLANCE (SPECIAL)

Effective May 6, 2002

Revised February 10, 2003

The contractor shall provide a traffic control supervisor for each day lane closures are used on the project, in accordance with contract provisions and as directed by the Engineer.

The traffic control supervisor shall be certified as a TC work site supervisor by the American Traffic Safety Services Association (ATYSSA), the National Safety Council (SSC), or the Association of General Contractors (AGC). A copy of the traffic control supervisor's certification shall be provided to the engineer at the project pre-construction conference.

The contractor shall, at the pre-construction conference, designate a traffic control supervisor who shall be responsible for and perform the traffic control management. The traffic control supervisor shall either be an employee of the contractor other than the superintendent, or an employee of a firm which has a subcontract for overall traffic control management of the project. The traffic control supervisor shall be responsible for the management of the traffic control operations of the project, including those of the contractor, subcontractor and suppliers. The primary responsibility of the traffic control supervisor shall be the traffic control management of this project.

The traffic control supervisor shall have the authority needed to effectively require modifications and maintenance of traffic controls. This includes having the authority necessary to obtain and use all labor, equipment, and materials needed to provide and maintain traffic control in routine and emergency situations.

Traffic control management by the traffic control supervisor includes, but is not limited to:

1. Ensuring that traffic control devices are functioning as required. This includes the repair or replacement of all signs, barricades and other traffic devices that become damaged, moved, or destroyed, or lights that cease to function properly, and barricade weights that are damaged or otherwise fail to stabilize barricades.
2. Providing sufficient surveillance of signs, barricades and other traffic control devices on a 24-hour a day basis. Making sure traffic control devices are inspected every calendar day that traffic control devices are in use. Routine surveillance inspections are required on a four hour interval and recorded on the form furnished by the Engineer on a daily basis. The complete form shall be submitted to the Engineer on the first working day after the inspection.
3. The traffic control supervisor will be on the project full time every working day, "on call" at all times, and available within 45 minutes of notification, at other than normal working hours. The contractor shall give to the engineer the names, addresses and telephone numbers of at least three individuals (one of which is the traffic control supervisor) responsible to provide and ensure immediate attention to the traffic control management.

Added 06-09-2005

4. Preparing, revising, and submitting the changes to the traffic control plan as required.
5. Directing and supervising all project flaggers.
6. Coordinating all traffic control operations, including those of subcontractors and suppliers.
7. Coordinating project activities, which require lane closures, with adjacent projects.
8. Coordinating project activities with appropriate police and fire control agencies.
9. Maintaining a project traffic control diary, which shall become a part of the department's project records.
10. Overseeing all requirements covered by the plans and specifications which contribute to the convenience, safety, and orderly movement of traffic.
11. Establishing contact with local and state law enforcement agencies affected by construction before work begins. Establishing communication so that any accidents will be reviewed daily by the traffic control supervisor to determine if changes in traffic control are necessary. These accidents will also be reported daily to the Engineer.
12. Providing sufficient surveillance of all portable changeable message (PCM) signs to ensure the following:
 - a) Correct and current information is always provided
 - b) Proper placement of PCM signs
 - c) PCM signs are turned off when messages are no longer necessary.
13. Ensuring that work zone speed limits are properly installed.
14. Maintaining constant communication with project personnel, law enforcement agencies, and the District Communications Center. As part of this requirement, the traffic control supervisor will be required to have a cellular telephone.

Payment for Traffic Control Supervisor will be paid for at the contract unit price per calendar day for TRAFFIC CONTROL SURVEILLANCE (SPECIAL).

WORK ZONE PUBLIC INFORMATION SIGNS

Effective: September 1, 2002 Revised: November 15, 2004

Description. This work shall consist of furnishing, erecting, maintaining, and removing work zone public information signs.

Camera-ready artwork for the signs will be provided to sign manufacturing companies upon request by contacting the Central Bureau of Operations at 217-782-2076. The sign number is W21-I116-6048.

Added 06-09-2005

Freeways/Expressways. These signs are required on freeways and expressways. The signs shall be erected as shown on Highway Standard 701400 and according to Article 702.05(a) of the Standard Specifications.

All Other Routes. These signs shall be used on other routes when specified on the plans. They shall be erected in pairs midway between the first and second warning signs.

Basis of Payment. This work will not be paid for separately but shall be considered as included in the cost of the Traffic Control And Protection (Expressway).

TRAFFIC CHANNELIZING POSTS

Effective October 1, 2001

Revised: January 16, 2002

Traffic channelizing posts shall be placed at the locations shown on the plans or as directed by the Engineer, and shall be done in accordance with the details in the plans and applicable portions of Section 702 of the Standard Specifications and Standards and Highway Standards 702001.

Traffic channelizing post (600 mm (24")) shall be yellow with amber reflectors and shall include a black base. It shall be of a hinged, self-recovering design, as manufactured by Safe-Hit, or an approved equal.

Reflective sheeting shall be Hi Intensity and shall be material from the list of qualified reflective sheeting products maintained by the Bureau of Material & Physical Research.

The base shall be placed on the adhesive material with sufficient pressure to firmly seat it in place, minimum load of 100 pounds (or as directed by manufacture). The adhesive shall be Butyl as manufactured by Safe-Hit, or an approved equal.

This work shall be paid for at the contract unit price each for TRAFFIC CHANNELIZING POST, which price shall be payment in full for all material, labor, and equipment necessary to perform the work.

CHANGEABLE MESSAGE SIGN

Effective May 21, 2002 Revised April 21, 2004

Description.

This work consists of furnishing, placing, and maintaining a temporary changeable message sign at the locations shown on the plans or as directed by the Engineer. Signs will be used per the physical display and operational requirements described for Portable Changeable Message Signs in the Manual of Uniform Traffic Control Devices (MUTCD).

Materials.

The portable changeable message sign shall have materials in accordance with the following.

Added 06-09-2005

Trailer.

The sign shall be mounted on a trailer that shall be painted orange. The trailer shall have a single axle and a fixed height tow ring and adjustable height ball or tow ring hitches. The trailer shall come equipped with leveling jacks of adequate strength to conveniently adjust the trailer orientation. These leveling jacks shall be affixed in such a manner that they may be readily placed and locked in a horizontal position for traveling without necessitating the use of tools. The trailer and sign assembly, when stationary and supported properly with the leveling jacks, shall withstand AASHTO rated 160 KPH wind gusts. The trailer shall be equipped with a rain tight locked housing for the keyboard, terminal and control panel.

Display Panel and Housing.

The display panel and housing assembly shall be weather-tight to protect from panel elements. All nuts, bolts, washers, and other fasteners shall be of a corrosive resistant material. The display panel shall be 100% solid state with no moving parts or switches. All panels shall be identical and mutually interchangeable with all other panels. No field hardware or programming modifications shall be required to exchange or replace individual display panels.

The message matrix panel background and frame shall be painted black. Each message matrix panel shall provide a glare screen for each message line to aid against sun glare for non-reflective type signs. Servicing of all message matrix panel components shall be accomplished from the front of the message matrix panel. When raised in the upright position, the display panel and housing shall have a minimum height of 2.1 m (7 ft) from the bottom of the panel to the ground. The unit shall have an accessible mechanism to easily raise and lower the display panel and housing assembly with a locking device in order to ensure that the assembly will remain in place in the lowered or raised position.

Message Matrix.

The message matrix display shall have minimum overall dimensions of 1.5 m by 2.4 m (5 ft by 8 ft) and maximum overall dimensions of 2.1 m by 3.1 m (7 ft by 12 ft). The message matrix display panel shall contain three separate lines and be capable of displaying a minimum of eight characters in each of the three lines at a time. Each message line shall provide for a nominal character height of 457 mm (18 in) and the ability to provide variable graphic and symbol sizes. Whenever the sign is displaying messages, it shall be considered a traffic control device and for all other times, when there is no message displayed, it shall be considered equipment.

The message matrix display shall be constructed using amber, 590 nm (nominal wavelength), wide-angle LED's, with a viewing angle of 22 degrees. The LED's shall be capable of 3.5 candelas of light per LED at 30 ma of current, shall be rated for 100,000 hours service life, and shall have an operating temperature of - 9 degrees C. to + 74 degrees C. Each pixel shall contain a minimum of 4 LED's. The message matrix display shall be visible from 400 m (1/4 mile) under both daylight and nighttime conditions and shall include an automatic dimming feature specifically for nighttime operation. The display letters shall be legible from 250 m (750 ft).

Added 06-09-2005

Power Source.

The electrical power for operation of the sign shall be supplied by a 12 VDC power source or a 110 VAC or a 120 VAC power source. Operating power shall be obtained from a power source mounted on the trailer on which the unit is mounted unless an adaptable 110 VAC or 120 VAC power source is available. Regardless of the power source, the supply of electrical energy shall be capable of operating the sign panel as required below.

(1) Solar Power Array/Battery Charging System. The solar power array shall contain a photovoltaic unit mounted at the top of the sign case that is designed to provide a minimum of 12 and preferably 20 days of continuous operation with minimum sunlight and minimum on-site maintenance. The power supply battery shall be capable of automatic recharge and equipped with a battery controller in order to prevent overcharging and over-discharging. An external battery level indicator shall also be provided.

A 110 VAC battery charging system shall be available as a backup and may be utilized when 110 VAC service is available at the site. A current meter for monitoring the charging process and an electrical receptacle mounted on the control pedestal shall be included. In addition, the onboard sign controller shall monitor the battery voltage and the presence of the 110 VAC line voltage shall be indicated on the sign panel. The system shall be capable of completely charging the battery pack within 24 hours.

The system shall control the regulation and distribution of the power to the sign. In addition, it shall regulate the solar charging the 12 VDC batteries. The system shall automatically disconnect the battery pack from the solar array when the batteries attain a fully charged state. When the sign is consuming power and the batteries are discharging, the system shall enable the solar arrays to provide a full charge from the solar array. This operation shall be designed to insure a maximum charge on the batteries when the sign is in full operation without overcharging the battery supply. The circuitry of the system shall be fully functional over the range of 0 to 95 %, non-condensing humidity and over the temperature range of - 20 degrees C. to + 75 degrees C.

(2) Diesel Powered System. The unit shall be powered by an air-cooled variable speed diesel engine. The engine shall be capable of operating not less than 24 hours without refueling and shall have a minimum 25 gallon capacity fuel tank with a fuel cut-off valve at the tank, a muffled exhaust system, and a steel fabricated security cage that encloses both the engine and a 24 volt alternator.

(3) A/C Powered System. A 110 or 120 volt A/C power service shall power the unit. The unit shall be equipped with ground fault interrupt ring circuit breakers. All A/C power adaptations shall be accomplished with UL approved equipment and methods.

Sign Controller.

An onboard sign controller that contains the message memory as well as the sign operating software for the sign shall control the message matrix display panel. The sign controller shall operate over the range of 0 to 95% non-condensing humidity conditions, over the temperature range of -20 degrees C. to +75 degrees C. The sign controller shall be capable of storing a

Added 06-09-2005

minimum of 100 programmed messages for instant recall that can be entered from the sign keyboard panel or remotely via an RS232 port. Remote control shall be possible over the RS232C control port via a modem interface cable. The data rate of this channel shall support operation in the 1.2 KB to 9.6 KB rate. The integral communication software on the sign controller shall be able to recognize its own address in received messages and shall reject all other addresses. The RS232 hardware and software shall be capable of operation with all of the types of communication modems (i.e., Spread-spectrum, Cellular, Fiber-Optic, Microwave, ISDN, and Twisted Pair) designated for use in this contract. Payment for the modem and interface cable shall be included in this bid item.

The RS232 channel shall permit the programming, uploading and downloading of all necessary data to permit 100 % remote functionality of the sign. Message memory shall be retained during power interruptions or failures of indefinite length and the sign controller shall be capable of operating the sign system in the event that the keyboard controller is disconnected. The protocol at the RS232 port shall be fully documented and provided to the Engineer. The protocol shall include operations, which allow the selection of pre-programmed messages stored at the sign, upload/download the sign message library from the central site to the sign, and control of all auxiliary functions, such as timing and sequencing messages. In addition, the protocol shall include functions to retrieve sign status such as current messages, failure states, etc. The manufacturer shall provide a minimum of sixteen hours of telephone consultation to the Equipment Integrator or any party designated by the Engineer on all aspects of the protocol use and application.

The sign controller and control panel shall be housed in a weather, dust, and vandal-proof, lockable cabinet. The computer keyboard shall be equipped with a security lockout feature to prevent unauthorized use of the sign controller. The sign controller shall be capable of displaying a representation of the message that will be displayed on the sign panel. The sign controller shall also be capable of being programmed to accept messages created by an operator via an alphanumeric keyboard and able to flash any six messages in sequence with an adjustable flash rate from one to ten seconds. The sign controller shall be capable of displaying up to six messages in a cyclical sequence and shall be capable of creating a minimum of 25 program sequences.

Sign Operating Software.

The sign operating software shall be supplied with the unit via an install disk and shall include an operations manual. The sign operating software shall be Windows-based and allow the operator to interact with the sign system through software residing in the sign controller. This software shall be accessible locally through the sign control panel/keyboard and remotely using a RS-232 control port. The local software shall be user friendly and shall require operator confirmation prior to allowing a change to any sign operating parameter or message. The sign operating software shall contain a password entry system and limit access to the sign to unauthorized persons. The sign operating software shall provide the following additional capabilities:

- Remote and local control of LED brightness (minimum 7 levels)
- Automatic (based on local photocell measurements) control of LED brightness

Added 06-09-2005

- Enable/Disable cellular communications
- Sign status including battery post voltage, 110 VAC service indicator, low voltage indicator, and photocell ambient light level
- Accurate internal clock with automatic daylight savings time

The following sign editing features shall also be programmable:

- Create, edit, review, and delete messages
- Create, edit, review, and delete message schedules
- Create, edit, review, and delete message sequences
- Programmable flash rate for messages.

Construction Requirements.

Installation and Testing.

The Contractor shall prepare a shop drawing submittal, which will include copies of descriptive literature for every component to be included in with the portable changeable message sign. Upon request, as part of the shop drawing process, the Contractor may be required to perform a field demonstration of the unit at a particular site which would be selected to approximate the conditions under which the sign will need to operate for the project. During this demonstration, the unit must prove that it can meet all of the functional requirements defined in this specification. The Engineer has the right to reject the material if the demonstration fails to prove that the device is compliant, in the opinion of the Engineer. The shop drawing submittal must be approved by the Engineer prior to any testing or installation of the portable changeable message sign in the field.

For portable changeable message signs associated with the Intelligent Transportation System (ITS) Element, a cellular modem shall be installed, activated, and tested in the portable changeable message sign. Since the modem requires the activation of service from a utility company, such as the cellular service provider, the Contractor shall make all necessary arrangements with the provider to activate the service both at the portable changeable message sign and at the operations center. For those portable changeable message signs using cellular modems and designated for use with the ITS Element, the Contractor shall activate cellular service for the unit when it is delivered to the project job site. The cellular service shall be maintained and remain in effect for the duration of the contract by the Contractor, regardless if the unit is deployed in the field at any given time.

Portable changeable message sign shall be furnished, installed, and placed at those locations shown on the plans or at locations designated by the Engineer. The trailer wheels shall be removed and the unit shall be positioned to maximize the viewing angle and visibility to the roadway. Once initially installed in the field, each portable changeable message sign will be subject to an Operational Stand-alone Test. This test shall verify that the unit is fully operational and properly programmed with an initial message library to be provided by the Engineer.

The portable changeable message sign shall be housed at the project job site and shall be installed and functional prior to performing any work requiring the use of the sign. The signs shall remain at the project job site, fully functional, until all items of work are complete. In

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addition, the Engineer shall have access to the portable changeable message signs at the project job site for the purpose of altering messages.

Operations and Maintenance.

The Contractor shall be responsible for maintenance, repair, and continuous operation of the portable changeable message sign until progress of work no longer requires their use, as determined by the Engineer. The Contractor is required to provide all preventive maintenance efforts deemed necessary to achieve uninterrupted service. If service is interrupted for any cause and not restored within 24 hours, the Engineer shall cause such work to be performed as may be necessary to provide this service. The cost of such work shall be borne by the Contractor or deducted from current or future compensation due to the Contractor. In addition, full compensation for multiple daily setup and takedown operations throughout the project limits and approaches, as directed by the Engineer, shall be considered and included in the contract unit price paid for portable changeable message sign, and no additional compensation will be allowed for these associated operations.

As a minimum, the Contractor shall field check each portable changeable message sign at least once per week, while it is deployed in the field. The Contractor shall make all necessary adjustments or repairs to the portable changeable message sign that are found necessary during the field inspection. This field check shall include inspection of battery electrolyte levels, cleaning and tightening battery cable harnesses and testing the portable changeable message sign to ensure that all pixels are operational and that the unit is fully operational. The Contractor shall also inspect the placement of traffic control devices around the sign (such as cones, drums, signs etc.) for conformance with the traffic control and construction plans and details. If such traffic control devices are missing or not in place the Contractor shall replace the devices in accordance with the contract documents. This inspection and replacement, if required, shall be considered included in this bid item and shall not be considered for additional compensation.

Method of Measurement.

This work will be measured per calendar month for each sign, furnished, placed, and maintained in accordance with the plans, specifications and as approved by the Engineer. Transportation of the sign to the location and removal of the sign are considered included in this work and will not be paid for separately.

Basis of Payment.

When portable changeable message signs are shown on the Standard, this work will not be paid for separately but shall be considered as included in the cost of the Traffic Control and Protection (Expressways).

For all other portable changeable message signs, this work will be paid for at the contract unit price per calendar month for each sign as CHANGEABLE MESSAGE SIGN.

Added 06-09-2005

TYPE III TEMPORARY TAPE FOR WET CONDITIONS

Effective October 26, 2001

Revised January 02, 2002

Type III Temporary Tape shall meet the requirements of Article 1095.06 of the Standard Specifications. Initial minimum reflectance values under dry and wet conditions shall be as specified in Article 1095.06. The marking tape shall maintain its reflective properties when submerged in water. The wet reflective properties shall be verified by a visual inspection method performed by the Department. The surface of the material shall provide an average skid resistance of 50 BPN when tested according to ASTM E 303.

Prior to application a surface preparation adhesive shall be applied to a clean , dry road surface. The pavement marking tape shall have a pre-coated pressure sensitive adhesive and shall require no activation procedures.

When Wet Temporary Pavement Marking Tape, Type III is specified in the contract other than on a Standard, the work will be paid for at the contract unit price per meter (foot) for WET TEMPORARY PAVEMENT MARKING TAPE, TYPE III of the line width specified.

TEMPORARY PAVEMENT MARKINGS

Effective March 12, 2003

Replace the second paragraph of Article 703.05 of the Standard Specifications with:

“Type I, Type II or Type III pavement marking tape or paint shall be used at the option of the contractor, except as otherwise specified herein.

Paint temporary pavement markings shall only be used on existing surfaces that will be removed or resurfaced in this contract or a subsequent contract. No paint temporary pavement markings shall be placed on permanent surfaces.

Type III pavement marking tape or paint shall only be used when the temporary pavement markings will be in place from November 1st to April 1st and at locations where temporary markings will be in place for more than 14 calendar days unless otherwise directed by the Engineer.

When Type III pavement marking tape is placed on permanent surfaces, it will be measured for payment as Pavement Marking Tape, Type III. When the Type III pavement marking tape is used at the Contractor’s option, it will be paid for as Temporary Pavement Markings.”

TEMPORARY CONCRETE BARRIER

Effective August 29, 2003

Revised September 11, 2003

Revise Section 704 of the Standard Specifications to read:

Added 06-09-2005

Description. This work shall consist of furnishing, placing, maintaining, relocating, removing and disposing of precast concrete barrier at temporary locations as shown on the plans or as directed by the Engineer.

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

- | | Item | Article/Section |
|-----|------------------------------------|-----------------|
| (a) | Portland Cement Concrete | 1020 |
| (b) | Reinforcement Bars (Note 1) | 1006.10(a)(b) |
| (c) | Connecting Pins and Anchoring Pins | 1006.09 |
| (d) | Connecting Loop Bars (Note 2) | |
| (e) | Rapid Set Mortar (Note 3) | |

Note 1. Reinforcement bars shall be Grade 400 (Grade 60).

Note 2. Connecting loop bars shall be smooth bars conforming to the requirements of ASTM A 36.

Note 3. Rapid set materials shall be obtained from the Department's approved list of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs. 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. Mixing of the rapid set mortar shall be according to the manufacturer's instructions.

Construction Requirements

General. Precast concrete barrier produced after October 1, 2002 shall meet National Cooperative Highway Research Program (NCHRP) Report 350, Category 3, Test Level 3 requirements and have the F shape. Precast concrete barrier shall be constructed according to the Bureau of Materials and Physical Research's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products", applicable portions of Sections 504 and 1020, and to the details shown on the plans.

Precast units shall not be removed from the casting beds until a flexural strength of 2,000 kPa (300 psi) or a compressive strength of 10,000 kPa (1400 psi) is attained. When the concrete has attained a compressive strength according to Article 1020.04, and not prior to four days after casting, the units may be loaded, shipped and used.

Installation. F shape barrier units shall be seated on bare, clean pavement or paved shoulder and pinned together in a smooth, continuous line at the exact locations provided by the Engineer. The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six anchoring pins and protected with an accepted NCHRP 350 crashworthy device as shown on the plans. The NCHRP 350 crashworthy device shall be Test Level 3 unless shown otherwise shown on the plans.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

Added 06-09-2005

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

New Jersey Shape Barrier. New Jersey shape barrier produced prior to October 1, 2002 according to earlier Department standards, may be used until January 1, 2008.

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six dowel bars and protected with an accepted NCHRP 350 crashworthy device as shown on the plans. The NCHRP 350 crashworthy device shall be Test Level 3 unless shown otherwise shown on the plans.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

Barrier Reflectors. Barrier reflectors shall be mounted on all temporary concrete barriers when:

1. Less than a 3 m wide shoulder is provided adjacent to traffic on the mainline
2. Less than a 1.8 m wide shoulder is provided adjacent to traffic on ramps
3. Less than 1.8 m wide area is provided adjacent to traffic on arterial roadways.

When traffic is located on one side of the temporary concrete barrier, monodirectional reflectors shall be mounted at on top of the barrier and monodirectional reflectors shall be mounted on the traffic side of the barrier about 300 mm below the reflectors mounted on top of the barrier.

When traffic is located on both sides of the temporary concrete barrier, bidirectional reflectors should be mounted on the top of the barrier and a monodirectional reflectors shall be mounted on each side of the barrier about 300 mm below the reflectors mounted on top of the barrier. At locations with glare screen mounted on the barrier, monodirectional reflector shall be mounted on each face of the barrier at the top in lieu of the bidirectional reflector on the top of the barrier.

Added 06-09-2005

When the posted speed is 45 MPH or more, the reflectors shall be placed at 30 m centers. When the posted speed is less than 45 MPH, the reflectors shall be placed at 15 m centers.

Temporary Pavement Markings. When the edge of the traffic lane is within 300 mm (1') of the concrete barrier, a 200 mm (8") wide painted pavement marking line shall be placed on the lower sloped surface of the barrier in lieu of the edge line. Any pavement marking lines on barriers that conflict with the traffic control shall be obliterated.

Temporary Concrete Barrier. This work shall consist of furnishing, placing and maintaining of precast concrete barrier at temporary locations as shown on the plans or as directed by the Engineer. The barrier shall remain the property of the Contractor. Removal of barrier shall be paid for separately as Remove Temporary Concrete Barrier.

Temporary Concrete Barrier (State Owned). The Temporary Concrete Barrier shall be obtained by the Contractor from the Peoria West Maintenance Storage Yard at 6500 W Rte 150 (Contact IDOT at 309-691-7812). This work shall consist of picking up, delivering barrier to the work site, placing and maintaining of precast concrete barrier at temporary locations as shown on the plans or as directed by the Engineer. When required, the Contractor shall provide styrofoam pads as shown in the plans. Removal of barrier shall be paid for separately as Remove Temporary Concrete Barrier, State Owned or as Removal and Disposal of Temporary Concrete Barrier (State Owned).

Temporary Concrete Barrier (Special). This work shall consist of furnishing, placing and maintaining precast concrete barrier at temporary locations as shown on the plans or as directed by the Engineer. The barrier shall become the property of the State. All temporary concrete barrier shall be new F-shape barrier constructed in accordance with the Material and Construction Requirements listed above. Removal of barrier shall be paid for separately as Remove Temporary Concrete Barrier, State Owned.

Temporary Concrete Barrier (To Remain Permanently). This work shall consist of furnishing, placing and maintaining (throughout the duration of the contract) of precast concrete barrier at permanent locations as shown on the plans and as directed by the Engineer. The barrier shall become the property of the State. All temporary concrete barrier shall be new F-shape barrier constructed in accordance with the Material and Construction Requirements listed above.

Relocate Temporary Concrete Barrier. This work shall consist of relocating contractor owned precast concrete barrier as shown on the plans or as directed by the Engineer.

Relocate Temporary Concrete Barrier (State Owned). This work shall consist of relocating state owned precast concrete barrier as shown on the plans or as directed by the Engineer.

Remove Temporary Concrete Barrier. When no longer required by the contract, temporary concrete barrier at locations shown on the plans or as directed by the Engineer shall be removed. When styrofoam pads have been placed under the barrier, styrofoam pads shall be disposed of as provided in Article 202.03 of the Standard Specifications.

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Remove Temporary Concrete Barrier, State Owned. When no longer required by the contract, temporary concrete barrier, including connecting pins, at locations shown on the plans or as directed by the Engineer shall be removed and returned by the Contractor to the Peoria West Maintenance Storage Yard at 6500 W Rte 150 (Contact IDOT at 309-691-7812). When styrofoam pads have been placed under the barrier, styrofoam pads shall be disposed of as provided in Article 202.03 of the Standard Specifications.

Removal and Disposal of Temporary Concrete Barrier (State Owned). When no longer required by the contract, temporary concrete barrier including connecting pins and styrofoam pads, at locations shown on the plans or as directed by the Engineer shall be removed and disposed of as provided in Article 202.03 of the Standard Specifications.

Method of Measurement. All temporary concrete barrier items will be measured for payment in meters (feet) in place along the centerline of the barrier.

Basis of Payment. This work will be paid for at the contract unit price per meter (foot) for TEMPORARY CONCRETE BARRIER; TEMPORARY CONCRETE BARRIER (STATE OWNED), TEMPORARY CONCRETE BARRIER (SPECIAL); TEMPORARY CONCRETE BARRIER (TO REMAIN PERMANENTLY); RELOCATE TEMPORARY CONCRETE BARRIER; RELOCATE TEMPORARY CONCRETE BARRIER (STATE OWNED); REMOVE TEMPORARY CONCRETE BARRIER, REMOVE TEMPORARY CONCRETE BARRIER, STATE OWNED; REMOVAL AND DISPOSAL OF TEMPORARY CONCRETE BARRIER (STATE OWNED)

Reflectors mounted on temporary concrete barrier will not be measured for payment and shall be included in the cost of pay items associated with temporary concrete barrier. Impact attenuators and temporary paint pavement markings will be paid for separately.”

TEMPORARY SIGN PANEL ASSEMBLY

Effective June 19, 2002 Revised June 16, 2003

This work shall consist furnishing, fabricating, and installing temporary sign panels, complete with sign faces, legend, and associated supplemental panels, with supports and attachment hardware as may be required.

This work shall include maintaining the sign installation through the duration of the contract.

This work shall also include removal when removal of the temporary sign panel assembly is indicated in the plans.

All signs used for temporary traffic control shall meet the approval of the Engineer.

Temporary Sign Panels. The reflective sheeting shall be mounted on rigid materials such as sheet aluminum meeting Article 1090.02 of the Standard Specifications or exterior grade plywood which meets Article 1090.04 of the Standard Specifications.

Reflective Sheeting. Reflective sheeting for red, silver/white, yellow, and orange sign faces shall be in accordance with Article 1084.02 (b) of the Standard Specifications. Other sign face

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reflective sheeting shall conform to Article 1091 of the Standard Specifications. Reflective sheeting for legends, borders, shields, and supplemental panels shall be Type A or Type AP and conform to Article 1092 of the Standard Specifications.

Legend size of temporary sign panels which are to be attached to existing sign panels shall conform to the sizes of comparable legends on the existing sign panel which is being supplemented. The legend size of independently mounted signs shall conform to letter and number sizes as prescribed in the Manual of Uniform Traffic Control Devices.

Sign Panel Installation. Temporary Sign Panel Assemblies shall be attached as extensions to existing sign panels, attached to existing overhead sign supports or installed on temporary wood sign supports as represented in the plans. Temporary Sign Panel Assemblies shall be installed in conformance with Article 720.04 of the Standard Specifications or as directed by the Engineer.

Temporary Wood Sign Supports. Sign supports shall be in accordance with Article 702.05 (a) of the Standard Specifications except as modified herein:

The size of wood posts shall be 100 x 150 mm (4 x 6 in.). All 100 mm (4 in.) by 150 mm (6 in.) wood posts shall be modified to satisfy the breakaway requirements by drilling 38 mm (1 1/2 in.) diameter holes in the 150 mm (6 in.) face centered at 100 mm (4 in.) and 450 mm (18 in.) above the ground line and perpendicular to the centerline of the roadway.

Method of Measurement. Temporary Sign Panel Assembly will be measured for payment in square meters of total supplemental sign surface to be installed as computed pursuant to Article 720.03 of the Standard Specifications.

Removal of the Temporary Sign Panel Assembly, or a portion thereof, if required during the course of the contract shall be in accordance with Article 724 of the Standard Specifications except that the cost for removal shall be included in the cost of Temporary Sign Panel Assembly.

Basis of Payment. This work will be paid for at the contract unit price per square meter for TEMPORARY SIGN PANEL ASSEMBLY which price shall be payment in full for all labor, materials, and equipment required to furnish and install sign panels, posts and supports, maintain the sign assembly through the duration of the contract, and remove the sign panel assembly when applicable. Short-term opaque coverings of temporary sign panels or partial legends placed for the convenience of the Contractor which are not shown on the staged MOT Signing Plans shall not be paid separately. If a subsequent relocation of the Temporary Sign Panel Assembly is required, it shall be paid for as Reinstall Temporary Sign Panel Assembly.

TEMPORARY SIGN PANEL OVERLAY

Effective June 19, 2002

Revised November 5, 2002

This work shall consist of furnishing, fabricating, and installing temporary sign panel overlays by attaching them onto an existing sign face which will not be used as a permanent sign at the conclusion of the construction project.

Added 06-09-2005

This work shall include maintaining the sign installation through the duration of the contract.

This work shall also include removal when removal of the temporary sign panel overlay is indicated in the plans.

The sign sizes shown on the plans shall be verified in the field by the Contractor. The Department assumes no responsibility for the accuracy of the dimensions shown on the plans.

All signs used for temporary traffic control shall meet the approval of the Engineer.

Sign Panels. The reflective sheeting shall be mounted on sheet aluminum, 2 mm. (0.08 in.) thick, meeting Article 1090.02 of Standard Specifications.

Reflective Sheeting. Reflective sheeting for red, silver/white, yellow, and orange sign faces shall be in accordance with Article 1084.02 (b) of the Standard Specifications. Reflective sheeting for legends, borders, and shields shall be Type A or AP and conform to Article 1092 of the Standard Specifications.

Installation. The installation of the Temporary Sign Panel Overlay shall be in accordance with Article 721.03 of the Standard Specifications except the existing sign shall not be stripped of its existing legend prior to attachment of the Temporary Sign Panel Overlay. Durable clamps which meet the approval of the Engineer may also be used to secure the Temporary Sign Panel Overlay to the existing sign panel in lieu of rivets if at least three common edges are present and the clamps do not obscure the new message.

Method of Measurement. Temporary Sign Panel Overlay will be measured for payment in square meters. The area used for measurement shall be the actual area of the Temporary Sign Panel Overlay.

Removal of the Temporary Sign Panel Overlay, when necessary, shall be included in the cost of the Temporary Sign Panel Overlay.

Basis of Payment. This work will be paid for at the contract unit price per square meter for TEMPORARY SIGN PANEL OVERLAY.

SIGN PANEL OVERLAY, SPECIAL

Effective: July 3, 2002

Revised: May 10, 2004

Description of Work. This work consists of furnishing, installing and maintaining temporary Sign Panel Overlay, Special to cover new or existing sign panels or portions thereof. This work also includes the removal and disposal of temporary Sign Panel Overlays, Special as shown on the plans, including those installed by others.

Materials. Sign Panel Overlay, Special shall consist of a sheet aluminum sign base conforming to Article 1090.02 of the Standard Specifications. Multiple Type 2 sign panels shall be used for installations requiring overlay areas of more than 2.22 square meters. The surface of the sign base facing traffic shall be painted to the satisfaction of the engineer with a flat black paint.

Added 06-09-2005

The sizes of the Sign Panel Overlay, Special that are shown on the plans shall be verified in the field by the Contractor. The Department assumes no responsibility for the accuracy of the dimensions shown on the plans.

Installation, Maintenance, and Removal. The Sign Panel Overlay, Special shall be installed flush to existing sign panels that are scheduled for ultimate removal using either 6.35 mm diameter rivets or bolts spaced at 600 mm centers.

When Sign Panel Overlay, Special is to be attached to new permanent signs or to existing signs that will remain, 6.35 mm diameter stainless steel bolts shall be used, spaced no greater than 600 mm on center. A 9.52 mm long stainless steel spacer shall be provided around each bolt to separate the face of the underlying sign from the back of the temporary covering. The drilled bolt holes in any underlying permanent sign shall be located to avoid the Type AA Prismatic Retroreflective Sheeting whenever feasible. When found necessary, drilled holes shall be centered within prismatic cells.

The installation may be done either in a sign shop or in the field. The extent of coverage over the underlying sign panel or its legend shall be approved by the Engineer. The Sign Panel Overlay, Special shall be maintained by the Contractor throughout the duration of the contract. The Sign Panel Overlay, Special shall be removed without further damaging the underlying sign.

The Contractor may choose to temporarily remove, store, and reinstall a sign panel that is shown on the plans as fully covered by the Sign Panel Overlay, Special pay item in lieu of furnishing, installing, maintaining, removing, and disposing of the temporary sign cover.

Method of Measurement. The Sign Panel Overlay, Special shall be measured for payment in square meters. The area used for measurement shall be the actual area of sign panel overlay installed or the area of a designated fully covered sign panel that the contractor chooses to remove instead of cover.

Basis of Payment. This work will be paid for at the contract unit price per square meter for SIGN PANEL OVERLAY, SPECIAL. Removal of the temporary Sign Panel Overlay, Special shall not be paid for separately, but shall be included in the cost of this item (even when the overlay was initially installed by others). Replacement of any sign panel hardware broken during the work described herein shall be included in the cost of this item.

COMPOSITE TEMPORARY SIGN OVERLAY

Effective: July 3, 2002

Revised: May 04, 2004

Description of Work. This work consists of furnishing, installing and maintaining Composite Temporary Sign Overlays, complete as a combination of a sheet aluminum sign base and reflectorized sheeting elements, attached to new or existing sign panels. This work also includes the removal and disposal of Composite Temporary Sign Overlays as shown on the plans, including those installed by others.

Added 06-09-2005

Materials. The sheet aluminum sign base shall comply with Article 1090.02 of the Standard Specifications. Multiple Type 2 sign panels shall be used for installations requiring overlay areas of more than 2.22 square meters.

The sign face component of the reflectorized sheeting shall be Type A Retroreflective Sheeting for Highway Signs meeting the requirements of IDOT material specification T-14-01, except where black legends are to be used. In those cases where black legends are used, the sign face component shall be Type AA Prismatic Retroreflective Sheeting for Highway Signs meeting the requirements of IDOT material specification T-36-01.

Non-black legends, borders, shields and supplemental panels used for Composite Temporary Sign Overlays placed onto overhead signs shall be Type AA Prismatic Retroreflective Sheeting for Highway Signs meeting the requirements of IDOT material specification T-36-01. Non-black legends, borders, shields, and supplemental panels used on the Composite Temporary Sign Overlays placed onto all other signs shall be Type A Retroreflective Sheeting for Highway Signs meeting the requirements of IDOT material specification T-14-01.

Black legends and borders, and black legends and borders on shields and supplemental panels used on Composite Temporary Sign Overlays shall be Opaque Silk Screen Ink - Black (Single Component, Low odor) conforming to IDOT material specification T-14-01.

The sign sizes shown on the plans shall be verified in the field by the Contractor. The Department assumes no responsibility for the accuracy of the dimensions shown on the plans. The replacement legend shall be the same size and shall be spaced the same as the existing sign. The Contractor shall be responsible for the correct sizing and spacing of any revised legend according to the general freeway signing practices. All Composite Temporary Sign Overlays shall meet the approval of the Engineer.

The Composite Temporary Sign Overlay shall be fabricated in a sign shop and may be applied to the new or existing sign either in the sign shop or in the field.

Installation, Maintenance and Removal. Composite Temporary Sign Overlays with retroreflectorized sign face, borders, shields and legends shall be attached flush to existing sign panels that are scheduled for ultimate removal using either 6.35 mm diameter rivets or bolts spaced at 600 mm centers.

When the Composite Temporary Sign Overlays are to be attached to new permanent signs or to existing signs that will remain, 6.35 mm diameter stainless steel bolts shall be used. A 9.52 mm long stainless steel spacer shall be provided around each bolt to separate the face of the underlying sign from the back of the temporary sign. The drilled bolt holes in any underlying permanent sign shall be located to avoid the Type AA Prismatic Retroreflective Sheeting whenever feasible. When found necessary, drilled holes shall be centered within prismatic cells. Bolt spacing shall not exceed 600 mm on center. The Composite Temporary Sign Overlays shall be maintained throughout the duration of the contract by the Contractor.

Guarantee. The Composite Temporary Sign Overlay shall meet the guarantee requirements for retroreflective and prismatic retroreflective sheeting for highway signs prescribed in T-14-01 and T-36-01, respectively. The Composite Temporary Sign Overlay shall be removed without

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further damaging the underlying sign. When the Composite Temporary Sign Overlay does not perform in accordance with its guarantee, the manufacturer shall provide all labor and materials to restore the Composite Temporary Sign Overlay or to restore the underlying sign to its level of effectiveness which existed prior to the installation of the Composite Temporary Sign Overlay.

Method of Measurement. The Composite Temporary Sign Overlay shall be measured for payment in square meters. The area used for measurement shall be the actual area of Composite Temporary Sign Overlay installed.

Basis of Payment. This work will be paid for at the contract unit price per square meter for COMPOSITE TEMPORARY SIGN OVERLAY. Removal of Composite Temporary Sign Overlays shall not be paid for separately, but shall be included in the cost of this item (even when the overlay was initially installed by others). Short-term opaque coverings of Composite Temporary Sign Overlays placed for the convenience of the Contractor which are not shown on the staged MOT Signing Plans shall not be paid separately. Replacement of any sign panel hardware broken during the work described herein shall be included in the cost of this item.

REINSTALL TEMPORARY SIGN PANEL ASSEMBLY

Effective June 19, 2002

Description. This work shall consist of temporarily reinstalling a previously removed existing sign panel or sign panel assembly with its supports at the location shown on the plans. This work shall include the furnishing, mounting, and installation of the signs on supports as specified herein.

This work shall also include storage of the signs as required and maintaining the sign panel assembly through the duration of its installation.

This work shall also include removal when removal of the temporary sign panel assembly is indicated in the plans.

This item does not include the temporary relocation of existing regulatory signing which is included as part of Article 107.25 of the Standard Specifications.

Sign Supports. Sign supports shall be in accordance with Article 702.05 (a) of the Standard Specifications except as modified herein:

The size of wood posts, when used, shall be 100 x 150 mm (4 x 6 in.). All 100 mm (4 in.) by 150 mm (6 in.) wood posts shall be modified to satisfy the breakaway requirements by drilling 38 mm (1 ½ in.) diameter holes through the 150 mm (6 in.) face centered at 100 mm (4 in.) and 450 mm (18 in.) above the groundline and perpendicular to the centerline of the roadway.

Removal. Removal shall be performed in accordance with the provisions of Articles 724.02 and 724.03 of the Standard Specifications.

Method of Measurement. Reinstall Temporary Sign Panel Assembly will be measured for payment each. All sign panels which are mounted as a group shall be considered as a single

Added 06-09-2005

assembly (as defined in Article 720.03 of the Standard Specifications.) The Contractor shall be entitled to payment each time the sign panel assembly is relocated as shown on the plans or as directed by the Engineer.

Basis of Payment. This work will be paid for at the contract unit price each for REINSTALL TEMPORARY SIGN PANEL ASSEMBLY, which price shall be payment in full for all labor, materials, and equipment required to transport the existing sign panel(s) to the temporary plan location, furnish and install sign supports, mount the existing panel(s) on the supports, maintain the sign assembly through the duration of the contract, and remove the sign panel assembly when applicable. Any alteration of the sign face to present a different message shall be paid for separately.

**REMOVE SIGN PANEL ASSEMBLY
REMOVE OVERHEAD SIGN STRUCTURE**
Effective January 15, 2004

Upon permanent removal, existing IDOT owned Overhead, Ground Mounted, and Regulatory and Warning sign panels shall be transported to the Illinois Department of Transportation, District 4, Bureau of Operations, Traffic Operations Building located at 5826 North Knoxville Avenue, Peoria, Illinois. The Contractor should contact the Traffic Operations Building (309-693-5175) for delivery instructions.

Existing City of East Peoria owned Regulatory and Warning sign panels that are permanently removed shall be transported to the City of East Peoria Public Works located at 2232 E Washington, East Peoria, Illinois. The Contractor should contact the City of East Peoria, Department of Public Works (309-698-4716) for delivery instructions.

Transport and delivery of permanently removed sign panels shall not be paid for separately, but shall be included in the associated sign removal pay item, Remove Sign Panel Assembly - Type A, Remove Sign Panel Assembly - Type B, or Remove Overhead Sign Structure.

Overhead sign structural components, and all other mounting hardware, channels, posts, and foundations shall be become the property of the Contractor and shall be removed and disposed of according to the requirements of Article 202.03 of the Standard Specifications. Transport and disposal of overhead sign structural components, and all other mounting hardware, channels, posts, and foundations shall not be paid for separately, but shall be included in the associated sign removal pay item, Remove Sign Panel Assembly - Type A, Remove Sign Panel Assembly - Type B, or Remove Overhead Sign Structure.

SIGN SUPPORT, PARAPET MOUNTED, TYPE 1
Effective February 11, 2003

Description of Work. This work shall consist of furnishing, fabricating and installing sign supports mounted on concrete bridge parapets, retaining wall parapets and anchor slab barriers as shown on the plans.

Added 06-09-2005

Materials. Materials shall be according to the Article 727.02 of the Standard Specifications, except as modified herein or as shown on the plans.

Shims shall be according to AASHTO M270M Grade 250 and shall be hot dipped galvanized.

Fabric bearing pad shall be according to Article 1082.01 of the Standard Specifications.

General. The Contractor shall field measure the parapet, subject to approval by the Engineer, before fabricating sign support. The Department assumes no responsibility for the accuracy of the dimensions shown on the plans.

The steel sign supports shall be fabricated and inspected according to Articles 505.03 through 505.05 of the Standard Specifications.

All fabrication shall be completed and ready for assembly before galvanizing. No punching or drilling shall be permitted after galvanizing.

Basis of Payment. This work will be paid for at the contract unit price each for SIGN SUPPORT, PARAPET MOUNTED, TYPE 1, which price shall be payment in full for all labor, materials (including the anchor bolts), transportation, and equipment required as specified in this provision.

ROADWAY LIGHTING - GENERAL ELECTRICAL REQUIREMENTS

Effective June 28, 2002

Revised July 30, 2003

Responsibility for Operating Lighting Systems - The scope of work shall include the assumption of responsibility for the continuing operation of existing, temporary or other lighting systems affected by the work as may be specified elsewhere herein. Existing lighting systems, when depicted on the plans, are intended only to indicate the general nature of the systems involved and shall not be construed as an exact representation of the field conditions. It remains the Contractor's responsibility to visit the site to confirm and ascertain the exact nature of systems to be maintained.

The Contractor shall conduct an inventory of all existing lighting equipment which may be affected by the work, making note of any parts which are found broken or missing, defective or malfunctioning. This inventory shall be reviewed with and approved by the Engineer. A record of the inventory shall be submitted to the Engineer. Without such a record, all systems transferred to the Contractor for maintenance during construction shall be returned at the end of construction in complete, fully operating condition.

Pre-Installation Inspection of Electrical Equipment - No uninspected equipment or material shall be delivered to the job site or incorporated in the work. After submitted equipment and/or materials receive approval, the Contractor shall prepare the equipment and/or materials for inspection by the Engineer prior to incorporation in the work. The Contractor shall request the inspection no less than seven (7) days prior to the desired inspection date. The Engineer will tag material and equipment that has been inspected and allow its delivery to the job site. Certain

Added 06-09-2005

items such as conduit, wire, duct, anchor bolts, screw foundations, manhole and handhole covers and junction boxes will be inspected and may be tested by the District. Certain items such as control cabinets may be inspected by the Engineer at the Contractors or manufacturer's shop, and these items shall not be delivered to the job site without inspection approval. Other items such as poles, luminaires and other above-ground items, unless otherwise indicated, may be inspected by the Engineer at the site. It shall be the Contractor's responsibility to arrange inspection activities with the Engineer prior to installation.

Except where otherwise noted, these requirements will not be paid for separately but will be considered included in the various work items of the contract and no additional compensation will be allowed.

ROADWAY LIGHTING - MATERIALS FOR ELECTRICAL WORK

Effective: June 28, 2002

Revised: February 05, 2003

Submittals - The table below indicates materials for which submittals must be made. The table is by no means an all-inclusive table and the Engineer reserves the right to request documentation on any material provided for the contract. The Contractor shall supplement this table as required to assure that review and Engineer approval are obtained for all specified materials and equipment.

Added 06-09-2005

Pay Item		Catalog Cuts	Certifications	Warranty
Electric Cable		Yes	Yes	
Aerial Cable	Cable	Yes	Yes	
	Mounting Hardware	Yes		
Ground Rod	Ground rod	Yes		
	Copper wire	Yes		
Trench and Backfill (Warning tape)		Yes		
Conduit, P.V.C.		Yes	Yes	
Rigid Steel Conduit	Conduit	Yes		
	Fittings	Yes		
Junction Box		Yes	Yes	
Lighting Controller	Cabinet	Yes	Yes	
	Circuit Breakers	Yes	Yes	
	Photo cell	Yes	Yes	
	Contactor	Yes	Yes	
	Paint	Yes	Yes	
	Controls	Yes	Yes	
Light Pole Foundation	Anchor Bolts	Yes	Yes	
	PVC Raceways	Yes		
	Reinforcement Bars	Yes	Yes	
Accident Reference Marker		Yes		
Light Pole		Yes	Yes	Yes
Wood Pole		Yes	Yes	
Splicing Materials		Yes		
Electrical Tape		Yes		
Fuses and Fuse Holder		Yes		
Lighting Unit Identification Decals		Yes		
Wiring Identification Markers		Yes		
Pole Wire		Yes		
Lamps		Yes		
Breakaway Device		Yes		

Added 06-09-2005

ROADWAY LIGHTING - FASTENERS AND HARDWARE FOR ELECTRICAL WORK

Effective: June 28, 2002

Fasteners used to mount conduit supports, boxes and other items attached to the structure shall be suitable for the weight supported and shall be compatible with the structure material, i.e. wood screws shall be used for wood, toggle bolts shall be used for hollow masonry, expansion bolts or power-set studs shall be used for solid masonry or concrete and clamps shall be used for structural steel.

Expansion anchors shall not be less than 9.65mm (3/8-inch) trade size and shall extend at least 50.8mm (2 inches) into the masonry or concrete.

Power-set anchors shall not be less than 9.65mm (3/8-inch) trade size and shall extend at least 50.8mm (2 inches) into the masonry or concrete.

Unless otherwise indicated, all steel hardware (nuts, bolts and the like) shall be stainless steel.

Unless otherwise indicated, screws for pole handhole covers, covers on cast metal boxes, doors on transformer bases and other such applications shall be stainless steel and treated with anti-seize paste

Unless otherwise indicated, hardware for stainless steel boxes and other stainless steel items shall be stainless steel. All screws shall be treated with anti-seize paste.

Except where otherwise noted these requirements will not be paid for separately but will be considered included in the various work items of the contract and no additional compensation will be allowed.

CONDUIT, PUSHED OR TRENCHED

Effective October 1, 1991

Revised December 17, 2003

The Contractor may substitute coilable polyethylene conduit of equal size for schedule 40 conduit to be laid in trench or pushed in place. Coilable polyethylene conduit may not be substituted for schedule 80 conduit.

In urban areas where the existing pavement is to be overlaid, if utility conflicts or other circumstances make a push impossible, then the Engineer may direct the Contractor to saw cut the pavement to install the conduit. This work shall consist of using a wheel saw to cut a 100 mm (4") wide cut through the pavement and installing the conduit just below the pavement structure. The Contractor shall then backfill the cut with an approved bituminous concrete mixture. This work shall be performed before any rotomilling or overlaying of the pavement. The work of saw cutting the pavement and backfilling the cut will be paid for according to Article 109.04 of the Standard Specifications.

Added 06-09-2005

LUMINAIRE, 400 WATT, SODIUM VAPOR, FULL-CUTOFF

Effective: June 28, 2002

Revised: December 17, 2003

Description. This work shall consist of furnishing and installing a luminaire including branch circuit/extension, pole wire as applicable, lamp, fuseholders, mounting hardware, fusing, and surge protection.

Materials. Materials shall be according to the following Articles of Section 1000 of the Standard Specifications - Materials:

<u>Item</u>	<u>Article/Section</u>
(a) Luminaire	1067.01
(b) Wire in the Pole.....	1066.09
(c) Fuseholder & Fuses.....	1065.01
(d) Lamps	1067.02
(e) Fasteners and Hardware.....	1088.03
(f) Lightning Protection – Lighting.....	1065.02

Construction Requirements

Each luminaire shall be installed according to the luminaire manufacturer's recommendations and according to Specifications 821.03 and 821.04.

Ballast

The ballast shall be High Pressure Sodium Regulator (Magnetic Regulator) and shall comply with the requirements of Article 1067.01(5) of the Standard Specifications for Road and Bridge Construction except replace "Ballast shall not be noisy. Noticeable noisy ballasts, as determined by the Engineer, shall be replaced at the Contractor's expense." with "The noise level of the luminaire shall be 35db, or less 'A' weight. Noticeable noisy luminaires, as determined by the Engineer, shall be tested for compliance, and if over 35db, 'A' weight will be rejected. Rejected luminaires shall be replaced at the Contractor's expense.

Photometric Performance

1. Unless otherwise indicated, the light distribution shall be medium, Full cut-off, Type III (M-C-III), as defined in the "American National Standard Practice for Roadway Lighting" by the "American National Standard Institute" (ANSI).
2. Unless otherwise indicated, the beam of maximum candlepower for luminaires specified or shown to have "medium" distribution shall be at 70 degrees from horizontal \pm 2 degrees for 250 watts, and 67 degrees from horizontal \pm 2 degrees for 400 watts. Submittal information shall identify this angle.
3. The luminaire photometric performance shall produce results equal to or better than those listed in the applicable Photometry Performance Table included in these Special Provisions. Submittal information shall include computer calculations based on the controlling given conditions that demonstrate achievement of all listed performance requirements. The computer calculations shall be done in accordance with I.E.S.

Added 06-09-2005

recommendations and the submitted calculations shall include point-by-point illuminance, luminance and veiling luminance as well as listings of all indicated averages and ratios. The program used to perform the calculations shall be identified on the submittal.

4. In addition to computer printouts of photometric performance, submittal information shall include:
 - a) Descriptive literature.
 - b) Isofoot-candle chart of horizontal foot-candles.
 - c) Utilization curve.
 - d) Isocandela diagram.
 - e) Luminaire classification per ANSI designation.
 - f) Candlepower values per IESNA.
 - g) Candlepower tables are to be provided on 88.9mm (3.5") diskette in the I.E.S. format.

Luminaire Submittal Data

1. Ignitor performance for ballasts.
2. Total ballast losses in watts and percent input.
3. A lamp watt-voltage trace.
4. Regulation data.
5. Lamp current crest factor.
6. Power factor.
7. A table of ballast characteristics showing input amperes, watts and power factor, output volts, amperes, watts at high line, low line and line and a table of crest factors and regulation over the range of values required to produce the lamp volt trace.

Independent Testing. Luminaires shall be tested in accordance with Article 1067.01 (7) of the Standard Specifications for Road and Bridge Construction.

Added 06-09-2005

STATE OF ILLINOIS
 IDOT DISTRICT 4
 LUMINANCE PERFORMANCE TABLE
 (400 WATT LUMINAIRE)

GIVEN CONDITIONS		
ROADWAY DATA	Pavement Width	<u>28 Meters</u>
	Number of Lanes	<u>6</u>
	I.E.S. Surface Classification	<u>R3</u>
	Q-Zero Value	<u>.07</u>
LIGHT POLE DATA	Mounting Height	<u>13.72M</u>
	Mast Arm Length	<u>2.44</u>
	Pole Set-Back From Edge of Pavement	<u>1.22</u>
LUMINAIRE DATA	Lamp Type	<u>HPS</u>
	Lamp Lumens	<u>51000</u>
	I.E.S. Vertical Distribution	<u>Medium</u>
	I.E.S. Control of Distribution	<u>Full cutoff</u>
	I.E.S. Lateral Distribution	<u>III</u>
	Total Light Loss Factor	<u>0.60</u>
LAYOUT DATA	Spacing (same side of the roadway)	<u>43 Meters</u>
	Configuration	<u>Stagger</u>
	Luminaire Overhang over edge of pavement	<u>1.22 Meters</u>

NOTE: Variations from the above specified I.E.S. distribution pattern may be requested and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

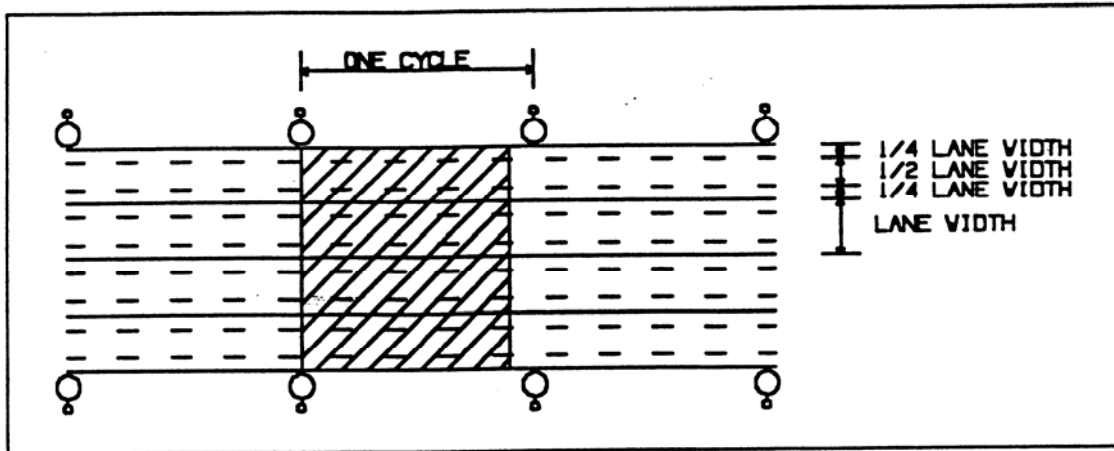
PERFORMANCE REQUIREMENTS		
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NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

ILLUMINATION	Average Horizontal Illumination, E_{AVE}	<u>2.04 F.C.</u>
	Uniformity Ratio, E_{AVE}/E_{MIN}	<u>3:1</u>
LUMINANCE	Average Luminance, L_{AVE}	<u>1.44 Cd/m²</u>
	Uniformity Ratio, L_{AVE}/L_{MIN}	<u>3:1</u>
	Uniformity Ratio, L_{MAX}/L_{MIN}	<u>5:1</u>
	Max. Veiling Luminance Ratio, L_V/L_{AVE}	<u>0.3:1</u>

Added 06-09-2005

CALCULATION AREA



MEASUREMENT PARAMETERS

- | | | |
|----|--|--|
| 1. | Observer eye height: | 1.45 meters above grade. |
| 2. | Line of sight of observer: | Downward one degree below horizontal; parallel to the edges of each lane (2 lines per lane). |
| 3. | Lighting system to be measured: | Smooth and level, at least 10 mounting heights long. |
| 4. | Number of points per line: | At least 10, not more than 5 meters (16.4 Ft.) apart. |
| 5. | Area covered by calculation: | All points between two luminaires on one side of roadway (see above figure). |
| 6. | Calculation point location to contributing luminaires: | At least one luminaire behind, and at least three ahead of calculation point (P). |

GENERAL NOTES

1. Unless otherwise indicated, luminaire tilt shall be zero degrees.
2. Calculations shall be performed in conformance with I.E.S. recommended procedures.

Basis of Payment. This work will be paid for at the contract unit price each for LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 400 WATT.

Added 06-09-2005

HIGH MAST LUMINAIRE, (INSTALL ONLY)

Effective: October 23, 2002

Revised: April 26, 2004

Description

This work shall consist of receiving, assembling, and installing a High Mast Luminaire and Lamp as shown on the plans. The work includes but is not limited to required submittals, unloading, storing, and all other miscellaneous work required for complete installation. Included in this item is coordination with the Luminaire Supply Contractor for delivery and installation requirements. All work shall conform to the Standard Specifications and as specified herein.

General

RELATED DOCUMENTS

Drawings and general provisions of the Contract.

DEFINITIONS

Supply Contractor: Supplier of the High Mast Luminaire.

Contractor: The general contractor(s) awarded a highway construction contract, includes responsibility for High Mast Luminaire installation.

Engineer: IDOT's designated representative.

High Mast Luminaire: High pressure sodium luminaire to be installed on a high mast tower ring. Includes all electrical components required for complete, fully functional luminaire.

WORK UNDER SEPARATE CONTRACT

High Mast luminaires will be furnished and delivered by others.

Delivery, Storage, and Handling

The Contractor shall supply the Engineer with a delivery schedule for the high mast luminaires within 6 weeks of contract award. The Contractor shall supply the delivery schedule to the Supply Contractor upon approval. It shall be the responsibility of the Contractor to coordinate delivery with the Supply Contractor.

- a) Delivery should be coordinated as to minimize handling and on-site storage requirements. If required, storage at the project site shall be provided by the Contractor at no additional cost to the contract.
- b) A minimum of 24 Luminaires per delivery is required.
- c) The Luminaires shall be stored in such a manner as to prevent damage.

Added 06-09-2005

- d) Obtain and follow the Manufacturer's recommendations for the handling and installation of the Luminaires.

Inspection and Acceptance

The Contractor shall examine and document the condition of the Luminaires, in the presence of the Engineer, before accepting delivery. The Contractor shall be held responsible for fully functional luminaires as well as any repairs or replacements required due to any change in condition caused by site handling, storage, and installation.

Installation

- a) Install all components and accessories furnished with each luminaire including all electrical components, wiring and lamps.
- b) Each luminaire shall be mounted as indicated and as required for permanent lighting installation.
- c) Unless otherwise indicated, each luminaire shall be set in a plane parallel to the roadway.
- d) The installation shall be complete with shields (where specified), fusing and connection to the applicable lighting feeder circuits.

Repair and Cleaning

All repairs are subject to approval by the Engineer. The Contractor shall:

- a) Remove and replace damaged Luminaires if repairs do not comply with requirements.
- b) Clean exposed surfaces of the Luminaires after installation to remove dirt, stains, and other markings.
- c) Do not use cleaning materials or processes that could change the appearance of exposed finishes.

Basis of Payment

This work will be paid for at the contract unit price per each for HIGH MAST LUMINAIRE, (INSTALL ONLY), which price shall include all material, hardware, storage, and labor required for complete installation of the High Mast Luminaires, as shown on the contract plans and as specified herein.

UNDERPASS LUMINAIRE, (INSTALL ONLY)

Effective: October 23, 2002

Revised: April 26, 2004

Description

This work shall consist of receiving, assembling, and installing an Underpass Luminaire and lamp as shown on the plans. The work includes but is not limited to luminaire hanger assembly, required submittals, unloading, storing, and all other miscellaneous work required for complete installation. Included in this item is coordination with the Luminaire Supply Contractor for delivery and installation requirements. All work shall conform to the Standard Specifications and as specified herein.

Added 06-09-2005

General

RELATED DOCUMENTS

Drawings and general provisions of the Contract.

DEFINITIONS

Supply Contractor: Supplier of the Underpass Luminaires.

Contractor: The general contractor(s) awarded a highway construction contract, includes responsibility for Underpass Luminaire installation.

Engineer: IDOT's designated representative.

Underpass Luminaire: High pressure sodium underpass luminaire to be installed as shown on the contract plans. Includes all electrical components required for complete, fully functional luminaire.

WORK UNDER SEPARATE CONTRACT

Underpass Luminaires will be furnished and delivered by others.

Delivery, Storage, and Handling

The Contractor shall supply the Engineer with a delivery schedule for the Underpass Luminaires within 6 weeks of contract award. The Contractor shall supply the delivery schedule to the Supply Contractor upon approval. It shall be the responsibility of the Contractor to coordinate delivery with the Supply Contractor.

- a) Delivery should be coordinated as to minimize handling and on-site storage requirements. If required, storage at the project site shall be provided by the Contractor at no additional cost to the contract.
- b) A minimum of 10 Luminaires per delivery is required.
- c) The Luminaires shall be stored in such a manner as to prevent damage.
- d) Obtain and follow the Manufacturer's recommendations for the handling installation of the Luminaires.

Inspection and Acceptance

The Contractor shall examine and document the condition of the Luminaires, in the presence of the Engineer, before accepting delivery. The Contractor shall be held responsible for fully functional luminaire as well as any repairs or replacements required due to any change in condition caused by site handling, storage and installation.

Added 06-09-2005

Installation

Install all components and accessories furnished with each luminaire including all electrical components, wiring and lamps.

- a) Each luminaire shall be mounted as indicated and as required for permanent lighting installation.
- b) Each luminaire shall be set in a plane parallel to the roadway.
- c) The installation shall be complete with fusing and connection to the applicable lighting feeder circuits.

Repair and Cleaning

All repairs are subject to approval by the Engineer. The Contractor shall:

- d) Remove and replace damaged Luminaires if repairs do not comply with requirements.
- e) Clean exposed surfaces of the Luminaires after installation to remove dirt, stains, and other markings.
- f) Do not use cleaning materials or processes that could change the appearance of exposed finishes.

Basis of Payment

This work will be paid for at the contract unit price per each for UNDERPASS LUMINAIRE, (INSTALL ONLY), which price shall include all material, hardware, storage, and labor required for complete installation of the Underpass Luminaire, as shown on the contract plans and as specified herein.

LIGHT TOWER, INSTALL ONLY

Effective: June 28, 2002

Revised: April 26, 2004

Description

This work shall consist of receiving, assembling, and installing a light tower complete with internal, integral motorized lowering mechanism, luminaire ring, pole top hood, internal electric power cables, lightning rod, luminaire counter-weight (when applicable), and all appurtenances required for a complete operating unit and installing it on a concrete foundation. The work includes but is not limited to required submittals, unloading, storing, and all other miscellaneous work required for complete installation. Included in this item is coordination with the light tower Supply Contractor for delivery and installation requirements. All work shall conform to the Standard Specifications and as specified herein.

General

RELATED DOCUMENTS

Drawings and general provisions of the Contract.

Added 06-09-2005

DEFINITIONS

- Supply Contractor: Supplier of the Light Towers.
- Contractor: The general contractor(s) awarded a highway construction contract, includes responsibility for Light Tower installation.
- Engineer: IDOT's designated representative.
- Light Tower: High Mast complete with internal, integral motorized lowering mechanism, luminaire ring, pole top hood, internal electric power cables, lightning rod, luminaire counter-weight (when applicable), electrical disconnecting and protection equipment, grounding system, concrete work pad (where applicable), and all appurtenances required for a complete operating unit.

WORK UNDER SEPARATE CONTRACT

Light Towers will be furnished and delivered by others.

Delivery, Storage, and Handling

The Contractor shall supply the Engineer with a delivery schedule for the light towers within 6 weeks of contract award. The contractor shall supply the delivery schedule to the Supply Contractor upon approval. It shall be the responsibility of the contractor to coordinate delivery with the Supply Contractor.

- a) Delivery should be coordinated as to minimize handling and on-site storage requirements. If required, storage at the project site shall be provided by the Contractor.
- b) A minimum of 4 Light Towers per delivery is required.
- c) The light Towers shall be stored in such a manner as to prevent staining, discoloration, or other damage.
- d) Obtain and follow the Manufacturer's recommendations for the handling and installation of the Light Towers.
- e) Inspection and Acceptance: The Contractor shall examine and document the condition of the Light Towers, in the presence of the Engineer, before accepting delivery. The Contractor shall be held responsible for fully functional towers as well as for any repairs or replacements required due to any change in condition caused by site handling, storage and installation.

Installation

Each lighting tower shall be assembled and installed upon its foundation in accordance with the manufacturer's recommendations and under the supervision of a representative of the manufacturer. The manufacturer shall provide certification, signed by the supervising representative, that each tower has been properly installed.

Added 06-09-2005

Prior to installation, the tower and all its components shall be inspected by the contractor, with the help of the manufacturer's representative in the presence of the Engineer. Any parts found to be defective shall be repaired or replaced.

The pole shall be set plumb on the foundation and fastened to the anchor bolts with double nuts and washers. Flat washers shall be installed below and above the base plate of the pole. Lock-washers shall be installed on top of the top flat washer. The nuts shall be tightened in compliance with torque specifications recommended by the manufacturer of the lighting unit.

The space between the finished top of the foundation and the bottom of the base plate of the pole shall be enclosed with an expanded metal screen made of stainless steel. The mesh of the screen shall be 6.00 mm (0.250 inch) or less as approved by the Engineer. The screen shall be held in place with bands made of stainless steel. At least two bands shall be installed around the tower base plate. The bands shall be held tight by a ratchet-type device. Grouting shall not be used to enclose the above described space.

Light Tower Identification

Each light tower shall be labeled by the Contractor as indicated in the plans and in accordance with the provisions of Article 1069.02 of the Standard Specifications to correspond to actual circuiting, and as designated by the Engineer. The materials for tower identification shall be furnished by the Supply Contractor in accordance with the provisions of Article 1069.02 of the Standard Specifications except as modified below:

- a) The letters and numerals for all light towers shall be white, screened on black
- b) The letters and numerals for the median-mounted light towers shall correspond to the "18 m and less mounting height"

Method of Measurement

The Light Tower will be measured by the unit "Each", complete. All related apparatus, wiring and testing shall be included.

Basis of Payment

This work shall be paid for at the contract unit price each for LIGHT TOWER, INSTALL ONLY, of the mounting height and luminaire mounting positions indicated, which shall be payment in full for installing the light tower complete as described in these specifications.

POLE FOUNDATION, REMOVED

Effective January 15, 2004

Description.

This work shall consist of the removal and disposal of existing light pole foundation. This work shall also include the backfilling of the excavated areas.

Construction Requirements.

The removal of the pole foundation shall be in accordance with Article 842.05 of the Standard Specifications.

Added 06-09-2005

Basis of Payment.

This work will be paid for at the contract unit price each for POLE FOUNDATION, REMOVED.

GROUNDING OF TRAFFIC SIGNAL STRUCTURES

Effective August 27, 2003

Revised September 4, 2004

This work shall be in accordance with the applicable Articles of Sections 807, 817 and 1066 of the Standard Specifications except for the following modifications:

This work shall consist of furnishing and installing a grounding wire to connect all traffic signal posts, poles, handhole frames, handhole lids, cabinets and exposed metallic conduits. The proposed ground wire shall be an insulated #6 XLP green copper conductor. This wire shall be bonded to all items and their associated ground rods utilizing listed grounding connector mechanical lugs and bolts. This wire may be made continuous by splicing in the adjacent handholes with compression lugs. Split bolts shall not be allowed.

The grounding wire shall be bonded to the grounded conductor at the service disconnect per the NEC.

When the lighting system is supplied by the same source as the signals, the lighting ground conductor may be utilized to provide the required signal equipment ground. All signal poles that are part of a lighting system shall be considered grounded as required by this provision.

All clamps, hardware, and other materials required shall be included in the bid price.

Basis of Payment:

This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 6 which price shall be payment in full for all labor, materials, and equipment required to provide the grounding system described above.

TRAFFIC SIGNAL POST, GALVANIZED STEEL

Effective December 9, 2003

This work shall be in accordance with Sections 875, 878 and 1077 of the Standard Specifications except as modified herein.

The traffic signal post base shall be attached to the foundation with four 20mm (3/4") x 450mm (18") galvanized anchor bolts. The post base shall be a square assembly constructed from cast iron with a galvanized finish. The base shall be designed for use with a steel post. The base shall be secured to the foundation using galvanized nuts and galvanized steel flat washers that have a minimum thickness of 6 mm (1/4") and are trapezoidal in shape. The washers shall be sized so as to completely capture the mounting flanges of the traffic signal base. Round washers are not acceptable.

Added 06-09-2005

ELECTRICAL MATERIAL SUBMITTAL REQUIREMENTS

Effective January 20, 2004

This work shall be in accordance with Section 801 of the Standard Specifications except as modified herein.

A detailed listing of submittal requirements should be included in the plan sheets or special provisions. In the event that the listing is not provided in the plans, the Engineer will provide a detailed listing to the Contractor immediately upon contract award that defines the requirements for a complete submittal.

The Contractor shall submit to the Engineer, for approval, all shop, working, or layout drawings pertaining to the construction of the work, as may be required, and prior to the approval of such plans or drawings, any work done or materials ordered shall be at the Contractor's risk.

The Contractor shall submit a complete set of drawings within ten (10) business days after contract execution. The submittal shall conform to all requirements contained in the Engineer's listing. The Contractor shall submit complete manufacturer's product data (for standard products and components) and detailed shop drawings (for fabricated equipment). Submittals for equipment and materials shall be complete in every aspect. Pay items that have multiple items shall have all submittal material for each item or group of items covered by a particular specification, grouped together and the applicable pay item identified. A partial submittal will be returned without review unless prior written permission is obtained from the Department.

The Contractor and/or Subcontractor shall thoroughly review all submittal material and affix his/her stamp of approval and signature prior to giving the submittal package to the Engineer. The Contractor shall provide a total of ten (10) copies of the submittal to the Engineer.

Receipt of the submittal information will be construed as the Contractor's assurance that the submittal has been reviewed and attests to the submittal's accuracy and conformance to the requirements of the contract. Any deviations to the contract shall be called out in the submittal. Illegible print, incompleteness, inaccuracy, or lack of coordination will be grounds for rejection. Equipment or material installed prior to approval by the Engineer, will be subject to removal and replacement at the Contractor's expense.

On catalog cut sheets that depict different model numbers or equipment options, the options and model number shall be clearly indicated on the drawings. All equipment that is to be supplied shall be clearly marked on the submittals.

Traffic signal structure drawings shall conform to the loading requirements shown in the highway standard or the plan sheets - whichever is greater. All traffic signal heads and signs that are to be installed on the mast arm assembly shall be accounted for and shown on the mast arm drawing loading detail. The luminaire arm length and luminaire mounting height shall match the requirement shown on the plan sheets and special provisions and shall be clearly indicated on the submittal. Pre-approved drawings should be used where-ever possible to reduce the amount of time needed to process the submittal.

Added 06-09-2005

All light pole drawings shall conform to the loading requirements shown in the highway standard or the plan sheets - whichever is greater. The light pole drawings must take into account all traffic signal heads, video cameras, signs, or other appurtenances that will be mounted to the light pole. Compliance with the following items shall be noted on the light pole drawings: light poles shall be designed in accordance with AASHTO 2001 requirements; light poles shall be designed for a 50 year design life; and light poles shall be designed in accordance with the applicable loading requirements contained within the standard specifications.

All davit arm light poles shall conform to the standard loading specifications in Article 1069.01 (b) (1) which states "The pole shall be designed and manufactured to withstand loadings of up to and including a 34 kg (75lb) luminaire having an effective projected area of 0.15 sq. m (1.6 sq. ft) on a single 4.5 m (15 ft) arm, and withstand loadings of up to and including the same luminaire on each of two 3.6 m (12 ft) arms (twin) oriented at any angle from 45 to 180 degrees apart."

In general, exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

The Engineer will require a minimum of 30 calendar days for review after receipt of the submittal by the Department. The review may involve rejection, revision, or resubmittal, in which case, the time may increase if the drawings do not meet contract requirements or do not contain sufficient detail. The written approval of the Engineer is required before proceeding with the work represented by the drawings. Approval by the Engineer shall not confer upon the Department any responsibility for the accuracy of the drawings. The Contractor shall bear all risk and costs for work delay caused by nonapproval of the drawings.

After the Engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status as "Approved", "Approved As Noted (or Revised)", "Rejected", or "Information Only". Since the Engineer's review is for conformance with the design concept only, it is the Contractor's responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, or layout drawings by the Department's approval thereof. The Contractor must still be in full compliance with contract and specification requirements.

All submitted items reviewed and marked "Approved As Noted (or Revised)", or "Rejected" are to be resubmitted in their entirety to verify contract compliance at no additional cost to the state unless otherwise indicated within the submittal comments.

The Contractor shall submit new catalog cut sheets and drawings for all items that were reviewed and marked "Approved As Noted (or Revised)", or "Rejected" within ten (10) business days upon receipt of the rejected items. The revised catalog cuts shall show all required revisions and address all issues that caused the original submittal to be rejected or revised.

Added 06-09-2005

GROUNDING OF ITS SUBSYSTEMS

Effective July 30, 2002

Revised November 21, 2003

The grounding of ITS subsystems shall meet the requirements of Section 807 of the Standard Specifications. In addition, amend Article 807.01 of the Standard Specifications to include:

General. All ITS subsystems (closed-circuit television camera surveillance system, changeable message sign system, system detector stations, etc.), associated equipment, and appurtenances shall be properly grounded in strict conformance with the National Electric Code (NEC), the National Electrical Safety Code (NESC), and as shown on the Plans.

The grounding electrode system shall include a ground rod installed with each concrete foundation for all grounding applications.

The grounded conductor (neutral conductor) shall be white color-coded. This conductor shall be bonded to the equipment-grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.

The equipment-grounding conductor shall be green color-coded. The following is in addition to Section 801.14 of the Standard Specifications:

- (1) Equipment grounding conductors shall be XLP insulated No. 6, unless otherwise noted on the Plans, and bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The Earth shall not be used as the equipment-grounding conductor.
- (2) Equipment connectors shall be bonded and grounded, using a Listed grounding conductor, to all CCTV, CMS, and detector pole cabinets, handholes, and other metallic enclosures throughout the ITS subsystems, except where noted herein. A Listed electrical joint compound shall be applied to all conductor terminations, connector threads, and contact points.
- (3) All metallic and non-metallic raceways containing ITS circuit runs shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 volts and/or fiber optic cable will not be required to include an equipment grounding conductor.
- (4) The grounding electrode conductor shall be similar to the equipment-grounding conductor in color-coding (green) and size. The grounding electrode conductor is used to connect the ground rod to the equipment grounding conductor and is bonded to ground rods via exothermic welding, Listed pressure connectors, Listed clamps or other approved Listed means.

Testing shall be according to Section 801.11 of the Standard Specifications. An additional ground rod will be required at locations where measured resistance exceeds 25 ohms.

Basis of Payment. Except whereas noted, the GROUNDING OF ITS SUBSYSTEMS will not be paid for directly but shall be considered as included in the various items of work associated with ITS and shall be included in the unit prices for these items. Ground rods are included in the applicable foundation pay item. If the equipment-grounding conductor is installed in conduit, it is paid for separately as ELECTRICAL CABLE IN CONDUIT, GROUNDING, NO. 6 1C.

Added 06-09-2005

SUBGRADE TREATMENT

Effective July 1, 1990

Revised May 16, 2005

Delete the third paragraph (including subparagraphs a, b, and c) of Article 301.03 of the Standard Specifications and replace it with the following:

In cut sections the contractor responsible for the rough grading shall obtain not less than 95% of the standard laboratory density and not more than 110% of the optimum moisture for the top 300mm (1 ft.) of the subgrade.

The Contractor may, at his/her option, add a drying agent to lower the moisture content as specified. The drying agent must be approved by the Engineer prior to use. Additional compensation will not be allowed for the use of a drying agent, but will be considered as included in the cost of the various earthwork items.

In the first sentence of the fourth paragraph delete "listed in the steps".

JOINTS BETWEEN EXISTING AND PROPOSED PAVEMENT AND APPURTENANCES

Effective April 23, 2004

All materials, equipment and labor required to construct construction, expansion and fiberboard joints between existing pavements, shoulders, concrete median barriers, structures and related appurtenances; and proposed pavements, shoulders, concrete median barriers, structures and related appurtenances will not be paid for separately, but shall be considered as included in the contract unit price bid for the pavement, shoulder, concrete median barrier, structures and related appurtenance items.

CONNECTION OF PIPE DRAINS AND UNDERDRAINS TO DRAINAGE STRUCTURES

Effective February 6, 2003

When required, pipe drains and underdrains shall be connected to existing and proposed drainage structures. The Contractor shall exercise proper care so as not damage drainage structures when cutting holes for pipe drains or underdrains. Pipe drains and underdrains shall be grouted in place. The method and materials used to cut holes in drainage structures and grout pipes shall be approved by the Engineer.

Pipe underdrains shall be placed a minimum of 200 mm (8 in.) above the top of the highest pipe in a drainage structure.

This work will not be paid for separately, but shall be considered as included in the contract unit price bid for the associated pipe drain or pipe underdrain items.

Added 06-09-2005

SPECIAL EXCAVATION

Effective October 15, 2001

Revised November 7, 2002

Description

Special excavation shall consist of the removal of all existing structures as defined herein.

This work shall include the removal of temporary pavements constructed on this contract when shown on the plans or as directed by the Engineer.

Special excavation shall not be interpreted to include rock excavation, the adjustment, reconstruction or filling of existing catch basins, manholes, inlets, or valve vaults.

Estimated quantities of pavement removal, sidewalk removal, driveway pavement removal, curb removal, curb removal special, and curb and gutter removals are provided in the plans for information only. Some thicknesses are shown for some items; however, most are not known. Estimates of other items included in this pay item have not been made.

Contract unit pay items specifying "removal and replacement" are not covered by this special provision.

Definition of Structures

For the purpose of this Specification, structures shall be interpreted to mean all types of pavement surfaces (including base and surface courses), curbs, gutters, combination curb and gutters, medians, median surfaces, bridge approach pavements, sidewalks, driveways, concrete steps, concrete or masonry walls or foundations, underground drainage, street car rails, ties and ballast, sign foundations and all other existing structures of a similar nature, the removal of which is called for on the plans or required in the execution of work included in the contract.

Construction Requirements for Special Excavation

Classification

Special excavation shall include all materials that are encountered, except rock excavation. Rock excavation, when encountered, will be classified in accordance with Article 202.04.

All existing structures, in which the tops are less than 75 mm below the sub-grade of the proposed improvement, shall be removed to a depth of not less than 75 mm below sub-grade, with the exception of pavement (including base course and surface course), curbs, gutters, combination curb and gutters, medians, sidewalks and driveways thus occurring shall be removed to their full depth. Payment will not be made for earth excavation used for replacement beyond the depth of 75 mm below the sub-grade of the proposed improvement or beyond the full depth of the structures just enumerated. However, should the Engineer deem it necessary, in order to construct a stable sub-grade or embankment, the existing structures will be removed to a greater depth. Payment for such replacement will be made to the depth ordered by the Engineer.

Added 06-09-2005

In removing driveway pavement, sidewalk, pavement, curb, gutter and combination curb and gutter, provisions shall be made for satisfactory transition between replacements and the portion remaining in place. The contractor shall saw cut a joint between the portion of the driveway pavement, sidewalk, pavement and curb and gutter to be removed and that to be left in place in order to prevent the surface from spalling when the concrete is broken out. This work shall be done in such a manner that a straight joint will be secured.

When the plans provide for the removal of existing concrete, brick, or flagstone sidewalks or driveways, located so that they do not interfere with the construction work, they shall not be removed until contractor is prepared and ready to proceed with their reconstruction.

Replacement and Embankment

If the removal of existing structures necessitates excavation below the elevation of the subgrade of the proposed improvement, such excavation shall be replaced with suitable material. The material for all replacement and embankments shall conform to, and shall be placed and compacted in accordance with Articles 205.05 and 205.06.

Disposal of Material

The removal and disposal of all material of whatever nature, and such objectionable material as tin cans, old iron, automobile bodies, etc., that have been piled, scattered or dumped along the roadway, which it is necessary to remove for the construction of the improvement and which reasonably cannot be measured to determine the actual volume, shall be considered as included in the unit price per cubic meter for Special Excavation. All excavated material shall be disposed of as provided in Article 202.03.

Method of Measurement

(a). Contract Quantities: When the project is constructed essentially to the lines, grades or dimensions shown on the plans and the Contractor and the Engineer have agreed in writing that the plans' quantities are accurate, no further measurement will be required and payment will be made for the quantities shown in the contract for the various items involved, except that if errors are discovered after work has been started, appropriate adjustments will be made.

When the plans have been altered or when disagreement exists between the Contractor and the Engineer as to the accuracy of the plan quantities either party shall, before any work is started which would affect the measurement, have the right to request in writing and thereby cause the quantities involved to be measured as hereinafter specified.

(b). Measured Quantities. Special Excavation will be measured for payment in cubic meter , the total volume being the sum of the volume of material between the elevation of the surface of the ground, or the tops of structures as they existed prior to starting the work and the elevation of the subgrade or the finished earth grade..

These volumes will be determined by the Engineer by the method of average end areas, by taking cross sections at such intervals as may be necessary, supplemented by actual measurements in the field to determine the excavated volume of structures.

Added 06-09-2005

Basis of Payment

Special excavation will be paid for at the contract unit price per cubic meter for SPECIAL EXCAVATION, measured as specified herein, which price shall include payment in full for performing all excavation, except rock excavation, the removal, transportation and disposal of all materials and existing structures as required herein; and all other work required under the general heading of Earthwork for which no payment item is included in the contract. No additional compensation will be allowed for overhaul.

When the contract does not contain a unit price for Rock Excavation, and such excavation is encountered, it will be paid for in accordance with Article 109.04.

TRAFFIC CONTROL SURVEILLANCE (SPECIAL)

Effective May 6, 2002

Revised February 10, 2003

The contractor shall provide a traffic control supervisor for each day lane closures are used on the project, in accordance with contract provisions and as directed by the Engineer.

The traffic control supervisor shall be certified as a TC work site supervisor by the American Traffic Safety Services Association (ATYSSA), the National Safety Council (SSC), or the Association of General Contractors (AGC). A copy of the traffic control supervisor's certification shall be provided to the engineer at the project pre-construction conference.

The contractor shall, at the pre-construction conference, designate a traffic control supervisor who shall be responsible for and perform the traffic control management. The traffic control supervisor shall either be an employee of the contractor other than the superintendent, or an employee of a firm which has a subcontract for overall traffic control management of the project. The traffic control supervisor shall be responsible for the management of the traffic control operations of the project, including those of the contractor, subcontractor and suppliers. The primary responsibility of the traffic control supervisor shall be the traffic control management of this project.

The traffic control supervisor shall have the authority needed to effectively require modifications and maintenance of traffic controls. This includes having the authority necessary to obtain and use all labor, equipment, and materials needed to provide and maintain traffic control in routine and emergency situations.

Traffic control management by the traffic control supervisor includes, but is not limited to:

13. Ensuring that traffic control devices are functioning as required. This includes the repair or replacement of all signs, barricades and other traffic devices that become damaged, moved, or destroyed, or lights that cease to function properly, and barricade weights that are damaged or otherwise fail to stabilize barricades.

Added 06-09-2005

14. Providing sufficient surveillance of signs, barricades and other traffic control devices on a 24-hour a day basis. Making sure traffic control devices are inspected every calendar day that traffic control devices are in use. Routine surveillance inspections are required on a four hour interval and recorded on the form furnished by the Engineer on a daily basis. The complete form shall be submitted to the Engineer on the first working day after the inspection.
15. The traffic control supervisor will be on the project full time every working day, "on call" at all times, and available within 45 minutes of notification, at other than normal working hours. The contractor shall give to the engineer the names, addresses and telephone numbers of at least three individuals (one of which is the traffic control supervisor) responsible to provide and ensure immediate attention to the traffic control management.
16. Preparing, revising, and submitting the changes to the traffic control plan as required.
17. Directing and supervising all project flaggers.
18. Coordinating all traffic control operations, including those of subcontractors and suppliers.
19. Coordinating project activities, which require lane closures, with adjacent projects.
20. Coordinating project activities with appropriate police and fire control agencies.
21. Maintaining a project traffic control diary, which shall become a part of the department's project records.
22. Overseeing all requirements covered by the plans and specifications which contribute to the convenience, safety, and orderly movement of traffic.
23. Establishing contact with local and state law enforcement agencies affected by construction before work begins. Establishing communication so that any accidents will be reviewed daily by the traffic control supervisor to determine if changes in traffic control are necessary. These accidents will also be reported daily to the Engineer.
24. Providing sufficient surveillance of all portable changeable message (PCM) signs to ensure the following:
 - a) Correct and current information is always provided
 - b) Proper placement of PCM signs
 - c) PCM signs are turned off when messages are no longer necessary.
13. Ensuring that work zone speed limits are properly installed.
14. Maintaining constant communication with project personnel, law enforcement agencies, and the District Communications Center. As part of this requirement, the traffic control supervisor will be required to have a cellular telephone.

Added 06-09-2005

Payment for Traffic Control Supervisor will be paid for at the contract unit price per calendar day for TRAFFIC CONTROL SURVEILLANCE (SPECIAL).

LIGHTING CONTROLLER, PHOTOCELL RELAY

Effective January 1, 2002

Revised January 29, 2003

This item consists of furnishing and installing a photocell relay as shown in the plans or as directed by the Engineer. All photocell relays shall be mounted to the side of the traffic signal controller cabinet. This pay item includes the photocell controller, all cable, conduit, ground rod, and all hardware required to complete the installation.

The relay cabinet shall be of unpainted sheet or cast aluminum, approximately 450 mm (18") high x 300 mm (12") wide x 200 mm (8") deep outside dimensions. It shall have a continuous hinged sheet aluminum door with standard police lock and key. The cabinet shall include hangers, plates, and other hardware necessary for mounting. All conduit connections shall be in the bottom and consist of slip joints with insulated bushings. The assembly shall be weatherproof.

The two pole contactor shall be capable of carrying and controlling at least 30 amperes at 240 volts, 60 cycles of lighting load. The 120 volt operating coil shall close the contacts when energized at 96 volts or more and hold them close until the voltage drops below 72 volts.

The photocell relay shall include one 30 Amp two-pole main breaker to facilitate power turn off at the cabinet, two 20 Amp branch two-pole breakers for the lighting circuits, and one 15 Amp one-pole control circuit breaker. The photocell relay shall be equipped with additional surge suppression for the control circuit (photocell, selector switch, and contactor). The additional surge suppressor shall meet or exceed the following minimum specifications:

Peak Current (8x20us):	20,000 Amp
Occurrences:	20 times minimum @ peak current
Clamp Voltage:	340 volts @ 20kA (Tested with MAIN NEUTRAL strapped to ground)
Response Time:	voltage never exceeds 340 volts during surge
Series Inductance:	200uh
Continuous Service Current:	10 Amps Max (120 VAC, 60 Hz)
Temperature Range:	-40C to +85C

A three-position manual control switch shall be included with positions marked HAND, OFF, AUTO on an engraved plastic cover plate. It shall include a lightning surge protector or expulsion gaps designed to bypass lightning surges.

The equipment mounting panel shall be 6 mm (1/4") Arboron Material and all power wiring shall be RHH/RHW 600V. The control circuit wiring shall be #12 MTW and all connector screws shall be painted white for neutral bus, green for ground bus. All control wiring shall be stranded and marked with brady markers.

Added 06-09-2005

The photocell shall be mounted on top of the lighting controller. The photocell shall have a hermetically sealed cadmium sulfide element arranged so that it can be adjusted to "turn on" at $1.5 \pm .5$ foot-candles. "Turn-off" shall occur only after the light level has exceeded "turn-on" value by two or more foot-candles for not less than .10 seconds. The circuitry shall include surge protection, turn the lights on in case of failure, operate on any input voltage from 105 to 260 volts, and control 10 amperes at 120 volts. The case shall be weatherproof, made of glass or plastic and designed to plug into a locking type socket, NEMA 3-pin. The photocell shall be equipped with a time delay feature to prevent turn off.

The conduit shall enter the relay only at the bottom. Cable size shall be number 6.

Basis Of Payment:

This work will be paid for at the contract unit price each for LIGHTING CONTROLLER PHOTOCELL RELAY which price shall be payment in full for all labor, materials, and equipment required to furnish and install the photo control relay, mounting hardware, conduit, wiring, and photoelectric cell.

FULL ACTUATED CONTROLLER AND TYPES IV & V CABINETS (EAGLE)

Effective January 1, 2002

Revised April 28, 2004

This work shall be in accordance with Sections 857, 1073, and 1074 of the Standard Specifications except as modified herein.

The traffic signal cabinet shall have a NEMA TS-2 back panel. The cabinet shall include a malfunction management unit to allow enhanced fault monitoring capabilities. The malfunction management unit shall be an EDI model MMU-16E and shall include the EECOM diagnostic software.

The controller shall be a NEMA TS-2 Type 2 controller.

The cabinet and controller shall be compatible with the existing Eagle closed loop system and Marc NX / MONARC / ACTRA remote monitoring software.

The malfunction management unit shall be equipped with the latest software and firmware revisions. The cabinet shall be equipped with a plexi-glass shield that covers the power panel which houses the mercury bus relay, line filter, circuit breakers, and other electrical components.

All traffic signal cabinets shall be equipped with a sixteen load switch back panel to accommodate future expansion.

The cabinet shall be equipped with a plexi-glass shield that covers the thermostat and a fluorescent lighting assembly that turns on when the door is opened. The fluorescent lighting assembly shall be equipped with a cold weather ballast and mounted in a location that will not interfere with cabinet maintenance.

Added 06-09-2005

The cabinet shall be furnished with a compact heater strip to be used for moisture reduction during cold weather. The heater shall be thermostatically controlled, operate at 120 volts, have a minimum wattage of 150 watts, a maximum wattage of 250 watts, have a shield to protect service personnel and equipment from damaging heat, be separately fused, and be mounted where it does not interfere with a person working in the cabinet.

For cabinets that are equipped with vehicle detector rack and amplifiers: All vehicle detector loops shall be wired to separate detector amplifiers. All vehicle detectors shall be rack mounted. The detector amplifiers shall be wired to provide a constant call in the event of a detector amplifier failure. The detector rack shall be wired to provide a constant call when the detector amplifier is removed. The detector rack shall be powered by the use of a bus interface unit.

The cabinet or controller shall be equipped with a fiber optic interface panel, any fiber optic modems that are needed, and a twenty-four fiber wall-mountable interconnect center. The cabinet shall also be equipped with any and all other components necessary to provide for a complete and functional fiber optic telemetry.

The cabinet shall be equipped with toggle switch guards for all switches located on the door to prevent accidental switching.

The cabinet shall be equipped with additional surge protection for the controller, malfunction management unit, and detector amplifiers, and/or video detection system. The surge protector shall be a Transtector model ACP100BWN3 and shall be included in addition to an EDCO SHA-1210 IRS protector. The EDCO SHA-1210 IRS surge protector is to be provided in accordance with Article 1074.03 (a)(4)a and shall be wired to provide surge protection for the controller, malfunction management unit, and detector amplifiers. The Transtector surge suppressor may be wired to the equipment protected power terminals of the EDCO SHA-1210 IRS unit provided that the controller, MMU, and detection system are protected.

The Contractor shall set up each cabinet in his or her shop for inspection by the Engineer. All phases that are utilized shall be hooked up to a light board to provide observation for each signal indication. The Engineer shall be notified when the set up is complete so that all pertinent timings may be entered into the each traffic signal controller. The facility shall be subject to a seven day burn-in period before installation will be allowed.

Basis of Payment:

This work will be paid for at the contract unit price each for FULL ACTUATED CONTROLLER AND TYPE IV CABINET or FULL ACTUATED CONTROLLER AND TYPE V CABINET and shall be payment in full for all labor, equipment, and materials required to provide, test, and install the equipment described above, complete.

Added 06-09-2005

FULL ACTUATED CONTROLLER AND TYPES IV & V CABINETS (ECONOLITE)

Effective January 1, 2002

Revised April 28, 2004

This work shall be in accordance with Sections 857, 1073, and 1074 of the Standard Specifications except as modified herein.

The traffic signal cabinet shall have a NEMA TS-2 back panel. The cabinet shall include a malfunction management unit to allow enhanced fault monitoring capabilities. The malfunction management unit shall be an EDI model MMU-16E and shall include the EECOM diagnostic software.

The controller shall be a NEMA TS-2 Type 2 controller.

The cabinet and controller shall be compatible with the existing Econolite closed loop system and Aries remote monitoring software.

The malfunction management unit shall be equipped with the latest software and firmware revisions. The cabinet shall be equipped with a plexi-glass shield that covers the power panel which houses the mercury bus relay, line filter, circuit breakers, and other electrical components.

All traffic signal cabinets shall be equipped with a sixteen load switch back panel to accommodate future expansion.

The cabinet shall be equipped with a plexi-glass shield that covers the thermostat and a fluorescent lighting assembly that turns on when the door is opened. The fluorescent lighting assembly shall be equipped with a cold weather ballast and mounted in a location that will not interfere with cabinet maintenance.

The cabinet shall be furnished with a compact heater strip to be used for moisture reduction during cold weather. The heater shall be thermostatically controlled, operate at 120 volts, have a minimum wattage of 150 watts, a maximum wattage of 250 watts, have a shield to protect service personnel and equipment from damaging heat, be separately fused, and be mounted where it does not interfere with a person working in the cabinet.

For cabinets that are equipped with vehicle detector rack and amplifiers: All vehicle detector loops shall be wired to separate detector amplifiers. All vehicle detectors shall be rack mounted. The detector amplifiers shall be wired to provide a constant call in the event of a detector amplifier failure. The detector rack shall be wired to provide a constant call when the detector amplifier is removed. The detector rack shall be powered by the use of a bus interface unit.

The cabinet or controller shall be equipped with a fiber optic interface panel, any fiber optic modems that are needed, and a twenty-four fiber wall-mountable interconnect center. The cabinet shall also be equipped with any and all other components necessary to provide for a complete and functional fiber optic telemetry.

The cabinet shall be equipped with toggle switch guards for all switches located on the door to prevent accidental switching.

Added 06-09-2005

The cabinet shall be equipped with additional surge protection for the controller, malfunction management unit, and detector amplifiers, and/or video detection system. The surge protector shall be a Transtector model ACP100BWN3 and shall be included in addition to an EDCO SHA-1210 IRS protector. The EDCO SHA-1210 IRS surge protector is to be provided in accordance with Article 1074.03 (a)(4)a and shall be wired to provide surge protection for the controller, malfunction management unit, and detector amplifiers. The Transtector surge suppressor may be wired to the equipment protected power terminals of the EDCO SHA-1210 IRS unit provided that the controller, MMU, and detection system are protected.

The Contractor shall set up each cabinet in his or her shop for inspection by the Engineer. All phases that are utilized shall be hooked up to a light board to provide observation for each signal indication. The Engineer shall be notified when the set up is complete so that all pertinent timings may be entered into the each traffic signal controller. The facility shall be subject to a seven day burn-in period before installation will be allowed.

Basis of Payment:

This work will be paid for at the contract unit price each for FULL ACTUATED CONTROLLER AND TYPE IV CABINET or FULL ACTUATED CONTROLLER AND TYPE V CABINET and shall be payment in full for all labor, materials, and equipment required to provide, test, and install the equipment described above, complete.

PEDESTRIAN PUSHBUTTON

Effective January 1, 2002

Revised February 11, 2002

This work shall be in accordance with Section 1074 of the Standard Specifications except as modified herein.

All pedestrian pushbuttons shall have a round case and be equipped with a 50mm (2") diameter mushroom head for easy access.

The pedestrian pushbuttons shall be of polycarbonate construction and shall have a black housing and a yellow button. The pushbutton shall utilize a solid state switch or reed relay.

The following models are approved for use within District 4: Polara, Model MPBP/BY or a Bumblebee Round Pushbutton.

The pedestrian pushbutton installation shall include all crossing signs and hardware required to mount the pedestrian pushbutton. All hardware shall be of stainless steel construction. All bolts shall be 1/4" Hex Head and no self tapping/drilling screws will be allowed.

The following pedestrian pushbutton signs currently meet Department Specifications: Pelco, Models SF-1013-08, SF-1014-08 or approved equivalent

Added 06-09-2005

Basis of Payment:

This work will be paid for at the contract unit price each for PEDESTRIAN PUSHBUTTON and shall be payment in full for all labor, equipment, and materials required to supply and install the pedestrian pushbuttons described above, complete.

PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED
PEDESTRIAN SIGNAL HEAD, LED, 2-FACE, BRACKET MOUNTED
Effective January 1, 2002 Revised January 5, 2004

This work shall be in accordance with Section 881 and 1078 of the Standard Specifications except as modified herein.

The pedestrian signal heads shall consist of a single 300mm (12") polycarbonate section and shall be equipped with an overlaid LED indication (Walking Person/Upraised Hand).

The traffic signal head shall have a yellow finish with black doors and tunnel visors.

The LED signal faces shall be equipped with spade connectors and connected to the traffic signal head terminal block.

The LED signal face shall have international symbols (Upraised Hand - Color: Portland Orange, Walking Person - Color: Lunar White). Only filled indications will be allowed.

The LED assembly shall meet or exceed the following minimum specifications:

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications list below:

GELcore	Model PS6-CFL1-01A (Filled Walking Person/Upraised Hand Overlay)
Dialight	Model 430-6772-001 (Filled Walking Person/Upraised Hand Overlay)

The LED assembly must conform to the following minimum specifications:

Lens : 300mm (12") x 300mm (12"), Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDS: Interconnected to minimize the effect of single LED failures, Nominal Wattage White: 8W or less, Nominal Wattage Orange: 9W or less, Nominal Wavelength Orange: 605nm

Product Warranty: 5 Year Replacement

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C.

Added 06-09-2005

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STD Part 2.

Basis of Payment:

This work will be paid for at the contract unit prices each for PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED or PEDESTRIAN SIGNAL HEAD, LED, 2-FACE, BRACKET MOUNTED and will be payment in full for all labor, equipment, and materials required to provide and install the new pedestrian traffic signal heads equipped with LED indications described above, complete.

SIGNAL HEAD, LED

Effective January 1, 2002

Revised January 5, 2004

This work shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

The traffic signal heads shall consist of 300mm (12") polycarbonate sections and shall be equipped with LED assemblies for all red bulb, yellow bulb, green bulb, red arrow, yellow arrow, and green arrow indications.

The traffic signal heads shall have a yellow finish with black doors and tunnel visors.

The LED signal faces shall be equipped with spade connectors and connected to the traffic signal head terminal block.

The LED assemblies for the red, yellow, and green solid and arrow indications shall meet or exceed the following minimum specifications:

RED LED ASSEMBLY

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore Model DR6-RTFB-20A

Dialight Model DURALED 433-1210-003

The LED assembly must conform to the following minimum specifications:

Lens : 300mm (12") Diameter, Red, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDs: Interconnected to minimize the effect of single LED failures, Nominal Wattage : 12 W or less,

Added 06-09-2005

Nominal Wavelength : 622-626nm

Minimum Luminous Intensity (cd): 339

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 and ITE VTCSH - STD PART 2.

YELLOW LED ASSEMBLY

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore Model DR6-YTFB-20A

Dialight Model DURALED 433-3230-001

The LED assembly must conform to the following minimum specifications:

Lens : 300mm (12") Diameter, Clear or Yellow, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDs: Interconnected to minimize the effect of single LED failures, Nominal Wattage : 32 W or less,
Nominal Wavelength : 590-592nm

Minimum Luminous Intensity (cd): 678

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C, except for when its terms are in conflict with the terms contained in this special provision. In such cases, this special provision shall supercede the contrary ITE specification.

Added 06-09-2005

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 and ITE VTCSH - STD PART 2.

GREEN LED ASSEMBLY

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore Model DR6-GTFB-20A (Tinted Lens) or DR6-GCFB-20A (Clear)

Dialight Model 433-2220-001 (Tinted Lens)

The LED assembly must conform to the following minimum specifications:

Lens : 300mm (12") Diameter, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDs: Interconnected to minimize the effect of single LED failures, Nominal Wattage : 12 W or less, Nominal Wavelength : 505 - 508nm

Minimum Luminous Intensity (cd): 678

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 and ITE VTCSH - STD Part 2

GREEN ARROW LED ASSEMBLY

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore Model DR6-GCAAN-21A
Dialight Model 432-2374-001 (3 Row)

The LED assembly must conform to the following minimum specifications:

Added 06-09-2005

Lens : 300mm (12") Diameter, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDS: Interconnected to minimize the effect of single LED failures, Nominal Wattage: 11 W or less,

Nominal Wavelength: 505 -508nm, Shall Have a Full Profile Arrow Indication (No Outlined or 2 Row Indications)

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STD Part 2.

YELLOW ARROW LED ASSEMBLY

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore	<u>Model DR6-YTAAN-21A</u>
Dialight	<u>Model 431-3334-001 (3 Row)</u>

The LED assembly must conform to the following minimum specifications:

Lens : 300mm (12") Diameter, Clear or Yellow, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDS: Interconnected to minimize the effect of single LED failures, Nominal Wattage: 12 W or less,

Nominal Wavelength: 590-592nm, Shall Have a Full Profile Arrow Indication (No Outlined or 2 Row Indications)

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of -40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C, except

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for when its terms are in conflict with the terms contained in this special provision. In such cases, this special provision shall supercede the contrary ITE specification.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STS Part 2.

Yellow/Green Bi-Modal Arrow

Currently, only the following models are approved by the Department for use provided that they meet the minimum specifications listed below:

GELcore	<u>Model DR6-ECA6-01A (Outline Profile)</u>
Dialight	<u>Model 430-6370-001</u>

The LED assembly must conform to the following minimum specifications:

Lens : 12" Diameter, Hard Coated for Abrasion Resistance, UV Stabilized Dome

LEDs: Interconnected to minimize the effect of single LED failures, Nominal Wattage: 10 W Green, 10 W Yellow or less, Nominal Wavelength: 505 -508 nm Green, 590-592 nm Yellow

Product Warranty: 5 Year Replacement (Materials, Workmanship, and Intensity)

The assembly shall be capable of operating from 80 to 135 VAC with less than 10% variation in intensity, shall have an operating temperature range of 40° to 74°C, and shall be sealed and highly resistant to water intrusion.

The assembly shall conform to the latest applicable (Part II) ITE color requirements and meet ITE specifications for LED traffic signals, including intensity requirements at -40° to 74°C.

The assembly shall be compatible with signal control equipment per NEMA TS-2, NEMA TS-1 standards, and include transient voltage protection and fusing to withstand high-repetition noise transients and low repetition high energy transients per NEMA standard 1992 per ITE VTCSH - STD Part 2.

Basis of Payment:

This work will be paid for at the contract unit prices each for SIGNAL HEAD, LED of the type specified and shall be payment in full for all labor, materials, and equipment required to provide and install the traffic signal heads described above, complete.

Added 06-09-2005

VIDEO VEHICLE DETECTION SYSTEM, 4 CAMERA (EAGLE)

Effective January 1, 2002

Revised January 5, 2004

The following video vehicle detection system meets the specifications outlined in this section and is currently approved for use in District 4:

Iteris Vantage Edge 2 (4 Camera System)

The quantity and type of cable that will be required to complete the installation will vary depending on the equipment manufacturer.

The Contractor shall be responsible for determining the cable type and quantities of cable required for the video detection installations. All cable used shall meet current Department specifications and shall be subject to approval by the Engineer.

The video vehicle detection system shall include all necessary cable (electric, coaxial, communication, etc.), electrical junction boxes, electrical and coaxial surge suppression, hardware, software, programming, and camera brackets that are required for installation. These items should be taken into consideration and shall be included in the bid price for VIDEO VEHICLE DETECTION.

A 300mm (12") black and white video monitor and trackball shall be included for each installation to allow for the setup and monitoring of the video detection systems (one monitor per cabinet is to be provided). Any special hardware that may be required for focusing or zooming the cameras shall be included as well.

All vehicle video detection systems shall be equipped with the latest software or firmware revisions.

The video vehicle system shall be configured and installed to NEMA TS2 Standards (use of the SDLC port and BIU). Installation conforming to NEMA TS1 standards will not be allowed.

The Contractor shall be responsible for furnishing and installing all necessary camera brackets that are required for the camera installation. These brackets should be mounted near the top of the mast arm strain pole and shall be of aluminum construction with a natural finish. The camera mounting brackets for the mast arms equipped with luminaire extensions shall also be of aluminum construction with a natural finish. All brackets shall be submitted to the Department for approval prior to installation. The material and installation shall be completed to the satisfaction of the engineer.

The minimum requirements for a video vehicle detection system are listed below:

1.0 General

This Specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images and provides detector outputs to a traffic controller or similar device. All video detection systems must be approved by the Department.

Added 06-09-2005

1.1 System Hardware

The system shall consist of four (4) video cameras and an automatic control unit (ACU). The ACU shall consist of two (2) Edge 2 dual channel processors, two(2) Edge 2 four-channel extension modules, one (1) Edge 2 two-channel extension modules, and all components (detector card rack, power supply, bus interface unit, cables, etc.) required for a complete and fully functional video detection system. The ACU shall process all detected calls and shall be equipped with the latest firmware revisions.

1.2 System Software

The system shall be able to detect either approaching or receding vehicles in multiple traffic lanes. A minimum of 24 detection zones shall be user-definable per camera. The user shall be able to modify and delete previously defined detection zones. The software shall provide remote access operation and shall be the latest revision.

2.0 Functional Capabilities

2.1 Real-Time Detection

2.2 The ACU shall be capable of simultaneously processing information from up to four (4) video sources. The video shall be digitized and analyzed at a rate of 30 times per second.

2.3 The system shall be able to detect the presence of vehicles in a minimum of 96 detection zones within the combined field of view of the image sensors.

3.0 Vehicle Detection

3.1 Detection Zone Placement

The video detection system shall provide flexible detection zone placement anywhere and at any orientation within the combined field of view of the image sensors. In addition, detection zones shall have the capability of implementing logical functions including AND and OR.

3.2 Optimal Detection

The video detection system shall reliably detect vehicle presence when the image sensor is mounted 10m (30 ft.) or higher above the roadway, when the image sensor is adjacent to the desired coverage area, and when the length of the detection area or field of view (FOV) is not greater than ten (10) times the

Added 06-09-2005

mounting height of the image sensor. The image sensor shall not be required to be mounted directly over the roadway. A single image sensor, placed at the proper mounting height with the proper lens, shall be able to monitor six (6) to eight (8) traffic lanes simultaneously.

3.3 Detection Performance

Overall performance of the video detection system shall be comparable to inductive loops. Using standard image sensor optics and in the absence of occlusion, the system shall be able to detect vehicle presence with 98% accuracy under normal conditions, (days & night) and 96% accuracy under adverse conditions (fog, rain, snow). The ACU shall output a constant call for each enabled detector output channel if a loss of video signal occurs in any camera.

The ACU shall be capable of processing a minimum of twenty detector zones placed anywhere in the field of view of the camera.

4.0 ACU Hardware

4.1 ACU Mounting

The ACU shall be shelf or rack mountable. Nominal outside dimensions excluding connectors shall not exceed 180mm (7.25") x 475mm (19") x 260mm (10.5") (H x W x D). The ACU shall plug directly into a NEMA TS-2 detector rack without any adapter.

4.2 ACU Environmental

The ACU shall be designed to operate reliably in the adverse environment found in the typical roadside traffic cabinet. It shall meet the environmental requirements set forth by the NEMA (National Electrical Manufacturers Association) TS1 and TS2 standards as well as the environmental requirements for Type 170 and Type 179 controllers. The minimum operating temperature range shall be from -35 to +74 degrees C at 0% to 95% relative humidity, non-condensing.

5.0 ACU Electrical

5.1 The ACU shall be modular in design and provide processing capability equivalent to the Intel Pentium microprocessor. The bus connections used to interconnect the modules of the ACU shall be gold-plated DIN connectors.

5.2 The ACU shall be capable of operating from 10 to 28 VDC. The power supply shall automatically adapt to the input power level. Surge ratings shall be as set forth in the NEMA TS1 and TS2 specifications.

5.3 Serial communications to a remote computer equipped with remote monitoring software shall be through an RS-232 serial port. A 9-pin "D" subminiature connector on the front of the ACU shall be used for serial communications.

Added 06-09-2005

- 5.4 The ACU may be equipped with a NEMA TS1 detector interface for 32 detector outputs. Output level shall be compatible with the NEMA TS1, NEMA TS2 Type 2, Type 170 and Type 179 standards.
- 5.5 The ACU shall be equipped with a NEMA TS2 RS-485 SDLC interface for communicating input and output information. Front panel LEDs shall provide status information when communications are open.
- 5.6 The ACU shall be equipped with four RS-170 (B&W)/NTSC composite video inputs for coaxial camera connections so that signals from four image sensors can be processed in real-time.
- 5.7 The ACU shall be equipped with a port to provide communications to a computer running the remote access software.
- 5.8 The ACU shall be equipped with a video output port.
- 5.9 The ACU shall be equipped with viewable front panel detection LED indications.

6.0 Camera

- 6.1 The video detection system shall use medium resolution, monochrome or color, image sensors as the video source for real-time vehicle detection. As a minimum, each image sensor shall provide the following capabilities:
 - a. Images shall be produced with a CCD sensing element with horizontal resolution of at least 500 lines and vertical resolution of at least 350 lines.
 - b. Useable video and resolvable features in the video image shall be produced when those features have luminance levels as low as 0.1 lux at night.
 - c. Useable video and resolvable features in the video image shall be produced when those features have luminance levels as high as 10,000 lux during the day.
 - d. Automatic gain, automatic iris, and absolute black reference controls shall be furnished.
 - e. An optical filter and appropriate electronic circuitry shall be included in the image sensor to suppress "blooming" effects at night.
- 6.2 The image sensor shall be equipped with an integrated zoom lens with zoom and focus capabilities that can be changed using either configuration computer software or hand-held controller.
- 6.3 The image sensor and lens assembly shall be housed in an environmental enclosure that provides the following capabilities:

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- a. The enclosure shall be waterproof and dust-tight to NEMA-4 specifications.
 - b. The enclosure shall allow the image sensor to operate satisfactorily over an ambient temperature range from -34C to +74C while exposed to precipitation as well as direct sunlight.
 - c. The enclosure shall allow the image sensor horizon to be rotated in the field during installation.
 - d. The enclosure shall include a provision at the rear of the enclosure for connection of power and video signal cables fabricated at the factory. Input power to the environmental enclosure shall be either 115 VAC 60 Hertz or 24 VAC/DC 60 Hertz.
 - e. A heater shall be at the front of the enclosure to prevent the formation of ice and condensation in cold weather, as well as to assure proper operation of the lens' iris mechanism. The heater shall not interfere with the operation of the image sensor electronics, and it shall not cause interference with the video signal.
 - f. The enclosure shall be light-colored and shall include a sun shield to minimize solar heating. The front edge of the sunshield shall protrude beyond the front edge of the environmental enclosure and shall include provision to divert water flow to the sides of the sunshield. The amount of overhang of the sun shield shall be adjustable to prevent direct sunlight from entering the lens or hitting the faceplate.
 - g. The total weight of the image sensor in the environmental enclosure with sunshield shall be less than 2.7kg (6 pounds).
 - h. When operating in the environmental enclosure with power and video signal cables connected, the image sensor shall meet FCC class B requirements for electromagnetic interference emissions.
- 6.4 The video output of the image sensor shall be isolated from earth ground. All video connections from the image sensor to the video interface panel shall also be isolated from earth ground.
- 6.5 The video output, communication, and power to the image sensor shall include transient protection to prevent damage to the sensor due to transient voltages occurring on the cable leading from the image sensor to other field locations.
- 6.6 A stainless steel junction box shall be available as an option with each image sensor for installation on the structure used for image sensor mounting. The junction box shall contain a terminal block for terminating power to the image sensor and connection points for coaxial cables from the image sensor and from the ACU.

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- 6.7 A video interface panel shall be available for installation inside of the traffic cabinet. The panel shall provide coaxial cable connection points and an Edco CNX06-BNCY or approved equal transient suppressor for each image sensor. The shield side of the coaxial cable connection at the transient suppressor shall be connected to earth ground via the transient suppressor.

If the coaxial cable used to connect the video signal from the image sensor to the ACU is to be routed through a conduit containing unbundled AC power cables, a video isolation amplifier shall be installed in addition to the video interface panel. The isolation amplifier shall buffer the video signal and provide transient suppression. The isolation amplifier shall have a minimum common mode rejection ratio at 60 Hz of 100 dB.

- 6.8 The image sensor shall be connected to the ACU such that the video signal originating from the image sensor is not attenuated more than 3 dB when measured at the ACU. When the connection between the image sensor and the ACU is coaxial cable, the coaxial cable used shall be a low loss 75 ohm precision video cable suited for outdoor installation, such as Belden 8281, West Penn P806, or approved equal.

7.0 Software

- 7.1 The system shall include the remote access software that is used to setup and configure the video detection system. The software shall be of the latest revision.
- 7.2 All necessary cable, adapters, and other equipment shall be included with the system.
- 7.3 The ACU shall be equipped with a serial cable that enables both of the 2-channel processor databases to be modified remotely through the use of a telephone modem.
- 7.4 One industrial 56K modem shall be included with the video detection system. The following modems meet the minimum specifications and are approved for use:

Econolite 56K Industrial Modem

Telenetics MIU56 Industrial Modem

Approved Equal

Although the models listed above meet the requirements in this specification, it is the Contractor's responsibility to ensure that the video detection system is compatible with the modem.

The modem shall meet or exceed the following minimum specifications listed below:

Added 06-09-2005

Environmental

Operating Temperature -34°C to 70°C (-30°F to 158°F)
Relative Humidity 0-90% (Non-Condensing)

Mechanical

Dimensions (HxWxD) 1.5" x 4" x 6" Nominal
Weight 1.0 lbs
Construction Metal Case

Electrical

Voltage 20 to 28 VAC/DC, 115VAC adapter included

General

Interface Serial interface for EIA RS-232C/ITU-T V.24/V.28
Connector Female 9-pin subminiature connector with female jack screws or DB25F
Data Rates (bps) 300, 1200, 2400, 9600, 14400, 33600, 56000
Data Format Serial, binary, asynchronous
Error Correction ITU-T V.42 (LAP-M or MNP3-4)
Data Compression ITU-T V.42bis (4:1 throughput), MNP 5 (2:1 throughput)
Flow Control XON/XOFF (software), RTS/CTS (hardware)
Command Buffer 40 Characters
Features Fully AT command compatible, autodial, redial, repeat dial, pulse or tone dialing, dial pauses, auto-answer, adaptive line probing, automatic symbol and carrier frequency during startup, retrain, and rate negotiation, DTMF detection, call status display, auto-parity and data rate selections, keyboard controlled modem options, non-volatile memory, on-screen displays for modem option parameters, help menus, remote configuration, DTR dialing
Transmit Level -11 dBm (dial-up)
Diagnostics Local analog loop, local digital loop, remote digital loop

Connectors

Video BNC video input and video output
Audio RCA

Regulatory

Approvals FCC: Part 68

Added 06-09-2005

8.0 Installation and Training

- 8.1 The supplier of the video detection system shall supervise the installation and testing of the video and video vehicle detection equipment. A factory certified representative from the supplier shall be on-site during installation.
- 8.2 A maximum of two days of training shall be provided to personnel of the contracting agency in the operation, setup and maintenance of the video detection system. Instruction and materials shall be provided for a maximum of six persons and shall be conducted at a location selected by the contracting agency. The contracting agency shall be responsible for any travel, room and board expenses for its own personnel.

9.0 Warranty, Maintenance, and Support

- 9.1 The video detection system shall be warranted by its supplier for a minimum of two (2) years from date of turn-on. This warranty shall cover all material defects and shall also provide all parts and labor as well as unlimited technical support.
- 9.2 A warranty certificate shall be furnished for each video detection system that contains the unit serial number(s), terms of warranty, and effective dates.
- 9.3 Ongoing software support by the supplier shall include updates of the ACU and supervisor software. These updates shall be provided free of charge during the warranty period.
- 9.4 The supplier shall maintain a program for technical support and software updates following expiration of the warranty period. This program shall be made available to the contracting agency in the form of a separate agreement for continuing support.

Basis of Payment:

This work shall be paid for at the contract unit price each for VIDEO VEHICLE DETECTION, 4 CAMERA, which price shall be payment in full for all labor, equipment, and materials required to provide, test, and install the video vehicle detection system described above, complete.

VIDEO VEHICLE DETECTION SYSTEM, 4 CAMERA (ECONOLITE)

Effective January 1, 2002

Revised January 6, 2004

The video detection system shall be an Econolite Autoscope Solo Pro II (4 Camera System) to allow integration into the proposed Econolite controller and cabinet.

The video vehicle detection system shall include all necessary electric cable, electrical junction boxes, electrical and coaxial surge suppression, hardware, software, programming, and any camera brackets that are required for installation. These items should be taken into

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consideration and shall be included in the bid price for VIDEO VEHICLE DETECTION, 4 CAMERA.

A 250 mm (10") color video monitor shall be included for each installation (one monitor to be placed in each cabinet) to allow for the setup and monitoring of the video detection system. Any hardware and/or software that may be required for focusing or zooming the cameras shall be included as well.

All vehicle video detection systems shall be equipped with the latest software or firmware revisions.

The video vehicle system shall be configured and installed to NEMA TS2 Standards (use of the SDLC port and BIU). Installation conforming to NEMA TS1 standards will not be allowed.

The minimum requirements for a video vehicle detection system are listed below:

1.0 General

This Specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images and provides detector outputs to a traffic controller or similar device.

1.1 System Hardware

The system shall consist of four video cameras and an automatic control unit (ACU). The ACU shall consist of one (1) mini-hub TS-2, one (1) four camera communications panel, and all other components required for a complete and fully functional system. The ACU shall process all detected calls and shall be equipped with the latest firmware revisions.

1.2 System Software

The system shall be able to detect either approaching or receding vehicles in multiple traffic lanes. A minimum of 24 detection zones shall be user-definable per camera. The user shall be able to modify and delete previously defined detection zones. The software shall provide remote access operation and shall be the latest revision.

2.0 Functional Capabilities

2.1 Real-Time Detection

2.2 The ACU shall be capable of simultaneously processing information from up to four (4) video sources. The video shall be digitized and analyzed at a rate of 30 times per second.

2.3 The system shall be able to detect the presence of vehicles in a minimum of 96 detection zones within the combined field of view of the image sensors.

Added 06-09-2005

3.0 Vehicle Detection

3.1 Detection Zone Placement

The video detection system shall provide flexible detection zone placement anywhere and at any orientation within the combined field of view of the image sensors. In addition, detection zones shall have the capability of implementing logical functions including AND and OR.

3.2 Optimal Detection

The video detection system shall reliably detect vehicle presence when the image sensor is mounted 10m (30 ft.) or higher above the roadway, when the image sensor is adjacent to the desired coverage area, and when the length of the detection area or field of view (FOV) is not greater than ten (10) times the mounting height of the image sensor. The image sensor shall not be required to be mounted directly over the roadway. A single image sensor, placed at the proper mounting height with the proper lens, shall be able to monitor six (6) to eight (8) traffic lanes simultaneously.

3.3 Detection Performance

Overall performance of the video detection system shall be comparable to inductive loops. Using standard image sensor optics and in the absence of occlusion, the system shall be able to detect vehicle presence with 98% accuracy under normal conditions, (days & night) and 96% accuracy under adverse conditions (fog, rain, snow). The ACU shall output a constant call for each enabled detector output channel if a loss of video signal occurs in any camera.

The ACU shall be capable of processing a minimum of twenty detector zones placed anywhere in the field of view of the camera.

4.0 ACU Hardware

4.1 ACU Mounting

The ACU shall be shelf or rack mountable. Nominal outside dimensions excluding connectors shall not exceed 180mm (7.25") x 475mm (19") x 260mm (10.5") (H x W x D).

4.2 ACU Environmental

The ACU shall be designed to operate reliably in the adverse environment found in the typical roadside traffic cabinet. It shall meet the environmental requirements set forth by the NEMA (National Electrical Manufacturers Association) TS1 and TS2 standards as well as the environmental requirements for Type 170 and Type 179 controllers. The minimum operating temperature range shall be from -35 to +74 degrees C at 0% to 95% relative humidity, non-condensing.

Added 06-09-2005

5.0 ACU Electrical

- 5.1 The ACU shall be modular in design and provide processing capability equivalent to the Intel Pentium microprocessor. The bus connections used to interconnect the modules of the ACU shall be gold-plated DIN connectors.
- 5.2 The ACU shall be powered by 89 - 135 VAC, 60 Hz, single phase, and draw 0.25 amps, or by 190 - 270 VAC, 50 Hz, single phase and draw 0.12 amps. If a rack mountable ACU is supplied, it shall be capable of operating from 10 to 28 VDC. The power supply shall automatically adapt to the input power level. Surge ratings shall be as set forth in the NEMA TS1 and TS2 specifications.
- 5.3 Serial communications to a remote computer equipped with remote monitoring software shall be through an RS-232 serial port. A 9-pin "D" subminiature connector on the front of the ACU shall be used for serial communications.
- 5.4 The ACU shall be equipped with a NEMA TS2 RS-485 SDLC interface for communicating input and output information. Front panel LEDs shall provide status information when communications are open.
- 5.5 The ACU and/or camera hookup panel shall be equipped with four RS-170 (B&W)/NTSC (color) composite video inputs for coaxial camera connections or , so that signals from four image sensors can be processed in real-time.
- 5.6 The ACU shall be equipped with a port to provide communications to a computer running the remote access software.
- 5.7 The ACU and/or camera hookup panels used for a rack mountable ACU shall be equipped with a video output port.
- 5.8 The ACU shall be equipped with viewable front panel detection LED indications.

6.0 Camera

- 6.1 The video detection system shall use medium resolution, monochrome or color, image sensors as the video source for real-time vehicle detection. As a minimum, each image sensor shall provide the following capabilities:
- a. Images shall be produced with a CCD sensing element with horizontal resolution of at least 450 lines and vertical resolution of at least 350 lines.
 - b. Useable video and resolvable features in the video image shall be produced when those features have luminance levels as low as 0.1 lux at night.
 - c. Useable video and resolvable features in the video image shall be produced when those features have luminance levels as high as 10,000 lux during the day.

Added 06-09-2005

- d. Automatic gain, automatic iris, and absolute black reference controls shall be furnished.
 - f. An optical filter and appropriate electronic circuitry shall be included in the image sensor to suppress "blooming" effects at night.
- 6.2 The image sensor shall be equipped with an integrated zoom lens with zoom and focus capabilities that can be changed using either configuration computer software or hand-held controller.
- 6.3 The image sensor and lens assembly shall be housed in an environmental enclosure that provides the following capabilities:
- a. The enclosure shall be waterproof and dust-tight to NEMA-4 specifications.
 - b. The enclosure shall allow the image sensor to operate satisfactorily over an ambient temperature range from -34C to +74C while exposed to precipitation as well as direct sunlight.
 - c. The enclosure shall allow the image sensor horizon to be rotated in the field during installation.
 - d. The enclosure shall include a provision at the rear of the enclosure for connection of power and video signal cables fabricated at the factory. Input power to the environmental enclosure shall be either 115 VAC 60 Hertz or 24 VAC/DC 60 Hertz.
 - e. A heater shall be at the front of the enclosure to prevent the formation of ice and condensation in cold weather, as well as to assure proper operation of the lens' iris mechanism. The heater shall not interfere with the operation of the image sensor electronics, and it shall not cause interference with the video signal.
 - f. The enclosure shall be light-colored and shall include a sun shield to minimize solar heating. The front edge of the sunshield shall protrude beyond the front edge of the environmental enclosure and shall include provision to divert water flow to the sides of the sunshield. The amount of overhang of the sun shield shall be adjustable to prevent direct sunlight from entering the lens or hitting the faceplate.
 - g. The total weight of the image sensor in the environmental enclosure with sunshield shall be less than 2.7 kg (6 pounds).
 - h. When operating in the environmental enclosure with power and video signal cables connected, the image sensor shall meet FCC class B requirements for electromagnetic interference emissions.

Added 06-09-2005

- 6.4 The video output of the image sensor shall be isolated from earth ground. All video connections from the image sensor to the video interface panel shall also be isolated from earth ground.
- 6.5 The video output, communication, and power to the image sensor shall include transient protection to prevent damage to the sensor due to transient voltages occurring on the cable leading from the image sensor to other field locations.
- 6.6 A galvanized steel junction box shall be available as an option with each image sensor for installation on the structure used for image sensor mounting. The junction box shall contain a terminal block for terminating power to the image sensor and connection points for cables from the image sensor and from the ACU.
- 6.7 A video interface panel shall be included for installation inside of the traffic cabinet. The panel shall provide twisted pair connection points a transient suppressor for each image sensor. The shield side of the cable connection at the transient suppressor shall be connected to earth ground via the transient suppressor.

If the twisted pair used to connect the video signal from the image sensor to the ACU is to be routed through a conduit containing unbundled AC power cables, a video isolation amplifier shall be installed in addition to the video interface panel if interference is present. There will be no additional compensation for providing the video isolation amplifier if necessitated by the presence of video interference. The isolation amplifier shall buffer the video signal and provide transient suppression. The isolation amplifier shall have a minimum common mode rejection ratio at 60 Hz of 100 dB.

- 6.8 The image sensor shall be connected to the ACU such that the video signal originating from the image sensor is not attenuated more than 3 dB when measured at the ACU. When the connection between the image sensor and the ACU is twisted pair cable, the cable used shall be a low loss cable suited for outdoor installation.
- 6.9 Each Autoscope Solo Pro Camera II shall be equipped with an integral video compression card to facilitate video transmission, reduce the load on the detection processor, and improve video streaming throughput at all baud rates. The Hardware Video Compression option installs a coprocessor card with a wavelet CODEC for faster streaming video back to a remote location or TOC.
- 7.0 Software
- 7.1 The system shall include the remote access software that is used to setup and configure the video detection system. The software shall be of the latest revision.
- 7.2 All necessary cable, adapters, and other equipment shall be included with the system.
- 7.3 One (1) Econolite Industrial 56K modem and serial cable shall be included with each video detection system to facilitate remote communications with the equipment.

Added 06-09-2005

8.0 Installation and Training

8.1 The supplier of the video detection system shall supervise the installation and testing of the video and video vehicle detection equipment. A factory certified representative from the supplier shall be on-site during installation.

8.2 A maximum of one day of training shall be provided to personnel of the contracting agency in the operation, setup and maintenance of the video detection system. Instruction and materials shall be provided for a maximum of six persons and shall be conducted at a location selected by the contracting agency. The contracting agency shall be responsible for any travel, room and board expenses for its own personnel.

9.0 Warranty, Maintenance, and Support

9.1 The video detection system shall be warranted by its supplier for a minimum of two (2) years from date of turn-on. This warranty shall cover all material defects and shall also provide all parts and labor as well as unlimited technical support.

9.2 Ongoing software support by the supplier shall include updates of the ACU and supervisor software. These updates shall be provided free of charge during the warranty period.

9.3 The supplier shall maintain a program for technical support and software updates following expiration of the warranty period. This program shall be made available to the contracting agency in the form of a separate agreement for continuing support.

Basis of Payment:

This work shall be paid for at the contract unit price each for VIDEO VEHICLE DETECTION, 4 CAMERA. which price shall be payment in full for all labor, equipment, and materials required to provide, test, and install the video vehicle detection system described above, complete.

BATTERY BACKUP SYSTEM WITH CABINET

Effective August 27, 2003

Revised May 23, 2005

The following models of Battery Backup Systems are approved for use within District Four:

Alpha Novus 1000 TP

Techpower Development M-E 700

Techpower Development M-E 1000

The Contractor shall be responsible for providing Battery Backup Systems that are sized appropriately for the intersection load. The total system load shall not exceed the manufacturer's specifications.

Added 06-09-2005

GENERAL REQUIREMENTS: The Battery Back-up System (BBS) shall include, but not be limited to the following: inverter/charger, power transfer relay, batteries, battery cabinet, a separate manually operated non-electronic bypass switch and all necessary hardware and interconnect wiring. The BBS shall provide reliable emergency power to a traffic signal in the event of a power failure or interruption. The transfer from utility power to battery power and vice versa shall not interfere with the normal operation of traffic controller, conflict monitor/malfunction management unit or any other peripheral devices within the traffic controller assembly.

The BBS shall provide power for full run-time operation for an "LED-only" intersection (all colors red, yellow, and green) or flashing mode operation for an intersection using Red LED's. As the battery reserve capacity reaches 50%, the intersection shall automatically be placed in all-red flash. The BBS shall allow the controller to automatically resume normal operation after the power has been restored. The BBS shall log an alarm in the controller for each time it is activated.

All Battery Backup Systems shall include four batteries.

The BBS shall be designed for outdoor applications, and shall meet the environmental requirements of, "NEMA Standards Publication No. TS 2 – Traffic Controller Assemblies," or applicable successor NEMA specifications, except as modified herein.

The BBS shall conform to the following specifications:

1.1 OPERATION

- 1.1 The BBS shall be on line and provide voltage regulation and power conditioning when utilizing utility power.
 - 1.1.1 The BBS shall provide a minimum two (2) hours of full run-time operation and four (4) hours all-red flash operation for an "LED-only" intersection (minimum 700W/1000VA active output capacity, with 80% minimum inverter efficiency).
 - 1.19 The BBS shall be equipped with an integrated safety switch that will interrupt inverter output power in the event of a cabinet knockdown. The safety switch may be either internal to the inverter/charger or externally mounted inside of the BBS cabinet. The safety switch shall be designed to interrupt output power in the event that the charger/inverter is tilted more than twenty degrees on any axis. The switch shall be mechanically latching to ensure that power is not automatically restored to the BBS until the charger/inverter has been "reset". The switch shall also be resettable and reusable unless it has been physically damaged.
- 1.2 The maximum transfer time from loss of utility power to switchover to battery backed inverter power shall be 150 milliseconds.

Added 06-09-2005

- 1.3 The BBS shall provide the user with 4-sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel-mounted terminal block, rated at a minimum 120V/1A, and labeled so as to identify each contact. For typical configuration, see the plan detail sheet.
 - 1.3.1 A first set of NO and NC contact closures shall be energized whenever the unit switches to battery power. Contact shall be labeled or marked "On Batt."
 - 1.3.2 The second set of NO and NC contact closures shall be energized whenever the battery approaches approximately 40% of remaining useful capacity. Contact shall be labeled or marked "Low Batt."
 - 1.3.3 The third set of NO and NC contact closures shall be energized two hours after the unit switches to battery power. Contact shall be labeled or marked "Timer."
 - 1.3.4 The fourth set of NO and NC contact closures shall be energized in the event of inverter/charger failure, battery failure or complete battery discharge. Contact shall be labeled or marked "BBS Fail or Status."
 - 1.3.5 A surge suppression unit shall be provided for the output power if available as an option by the BBS manufacturer.
- 1.4 Operating temperature for both the inverter/power transfer relay and manual bypass switch shall be -37 °C to +74 °C.
- 1.5 The Power Transfer Relay shall be rated at 240VAC/30AMPS minimum and Manual Bypass Switch shall be rated at 240VAC/20 amps, minimum.
- 1.55 The manual bypass switch shall be wired to provide power to the BBS when the switch is set to manual bypass.
- 1.6 The BBS shall use a temperature-compensated battery charging system. The charging system shall compensate over a range of 2.5 – 4.0 mV/°C per cell.
 - 1.6.1 The temperature sensor shall be external to the inverter/charger unit. The temperature sensor shall come with 2 meters (6'6") of wire.
- 1.7 Batteries shall not be recharged when battery temperature exceeds 50°C ± 3°C.
- 1.8 BBS shall bypass the utility line power whenever the utility line voltage is outside of the following voltage range: 100VAC to 130VAC (± 2VAC).
- 1.9 When utilizing battery power, the BBS output voltage shall be between 110 VAC and 125 VAC, pure sine wave output, ± 3% THD, 60Hz ± 3Hz.
- 1.10 BBS shall be compatible with Illinois DOT's traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation.

Added 06-09-2005

- 1.11 When the utility line power has been restored at above 105 VAC \pm 2 VAC for more than 30 seconds, the BBS shall dropout of battery backup mode and return to utility line mode.
- 1.12 When the utility line power has been restored at below 125VAC \pm 2 VAC for more than 30 seconds, the BBS shall dropout of battery backup mode and return to utility line mode.
- 1.13 BBS shall be equipped to prevent a malfunction feedback to the cabinet or from feeding back to the utility service.
- 1.14 In the event of inverter/charger failure, battery failure or complete battery discharge, the power transfer relay shall revert to the NC state, where utility line power is reconnected to the cabinet. The BBS shall always revert back to utility line power and shall be designed to revert back to utility line power in the event of a BBS fault condition.
- 1.15 Recharge time for the battery, from "protective low-cutoff" to 80% or more of full battery charge capacity, shall not exceed twenty (20) hours.
- 1.16 When the intersection is in battery operation, the BBS shall bypass all internal cabinet lights, ventilation fans, and service receptacles.
- 19.0 A blue LED indicator light shall be mounted on the front of the traffic signal cabinet or on the side of the BBS cabinet facing traffic and shall turn on to indicate when the cabinet power has been disrupted and the BBS is in operation. The light shall be a minimum 1" diameter, be viewable from the driving lanes, and shall be large enough and visible enough to be seen from 200 ft. away.
- 19.1 All 36 volt and 48 volt systems shall include an external component that monitors battery charging to ensure that every battery in the string is fully charged. The device shall compensate for the effects of adding a new battery to an existing battery system by ensuring that the charge voltage is spread equally across all batteries. All cables, harnesses, cards, and other components that are required to provide the functionality described above shall be included in the unit bid price for the battery backup system. The following products are currently approved for use within District 4: Alpha Technologies: AlphaGuard with Charge Management Technology Module and Approved Equivalent

2.0 MOUNTING AND CONFIGURATION

2.1 GENERAL

2.1.1 Inverter/Charger Unit shall be rack or shelf-mounted.

2.1.2 (Reserved).

Added 06-09-2005

- 2.1.3 All interconnect wiring provided between Power Transfer Relay, Bypass Switch and Cabinet Terminal Service Block shall be no greater than two (2) meters (6'6") of #10 AWG wire.
- 2.1.4 Relay contact wiring provided for each set of NO/NC relay contact closure terminals shall be #18 AWG wire.
- 2.1.5 All necessary hardware for mounting (shelf angles, rack, etc) shall be included in the bid price of the BBS. The swing-trays shall be screwed to the Type IV or Type V NEMA cabinets using continuous stainless steel or aluminum piano hinge. All bolts/fasteners and washers shall meet the following requirements:

2.3 EXTERNAL BATTERY CABINET

- 2.3.1 The external cabinet shall be a rated NEMA Type 3R Cabinet. The cabinet shall be equipped with a three point latching mechanism, a minimum of two shelves, and shall have minimum outside dimensions of 41" (H) x 25" (W) x 16" D.
- 2.3.2 Inverter/Charger and Power Transfer Relay shall be installed inside the external battery cabinet and the manually operated Bypass Switch shall be installed inside the existing Traffic Signal Cabinet.
- 2.3.3 Batteries shall be housed in the external cabinet which shall be NEMA Standard rated cabinet mounted to the side of the Type IV or Type V Cabinet (see plan sheets for details). This external battery cabinet shall conform to the IDOT Standard Specifications for traffic signal cabinets for the construction and finish of the cabinet.
- 2.3.4 The external battery cabinet shall mount to the Type IV or Type V NEMA Cabinet with a minimum of four (4) bolts to the satisfaction of the Engineer.
- 2.3.5 The dimensions of the external battery cabinet shall be large enough to house the BBS components and four batteries, however, the maximum dimensions shall not exceed those shown on each individual plan sheet for each location.

The cabinet shall include heater mats for each battery shelf and/or battery. If the BBS charger/inverter does not have facilities to accommodate heater mat connections, thermostatically controlled heater mats shall be provided with the system. The heater mat thermostat shall be a separate thermostat (from the ventilation fan thermostat) and be adjustable from 0°F to 32°F for heater mat turn-on.

- 2.3.6 A warning sticker shall be placed on the outside of the cabinet indicating that there is an Uninterruptible Power Supply inside the cabinet.
- 2.3.7 The external battery cabinet shall be ventilated through the use of louvered vents (2), filters, and one thermostatically controlled fan as per NEMA TS 2 Specifications. The cabinet shall include a cleanable or replaceable cabinet filter.

Added 06-09-2005

- 2.3.8 External battery cabinet fan shall be AC operated from the same line output of the Manual Bypass Switch that supplies power to the Type IV or Type V Cabinet.
- 2.3.9 The BBS with external battery cabinet shall come with all bolts, conduits and bushings, gaskets, shelves, and hardware needed for mounting. The external battery cabinet shall have a hinged door opening to the entire cabinet. The cabinet shall include a bottom constructed from the same material as the cabinet.
- 2.3.10 The external cabinet shall be equipped with a power receptacle to accommodate the inverter/charger. The receptacle shall be wired to the line output of the manual bypass switch.

3.1 MAINTENANCE, DISPLAYS, CONTROLS AND DIAGNOSTICS

- 3.2 The BBS shall include a display and /or meter to indicate current battery charge status and conditions.
- 3.3 The BBS shall have lightning surge protection compliant with IEEE/ANSI C.62.41.
- 3.4 The BBS shall be equipped with an integral system to prevent battery from destructive discharge and overcharge.
- 3.5 The BBS and batteries shall be easily replaced with all needed hardware and shall not require any special tools for installation.
- 3.6 The BBS shall be equipped with an RS-232 port.
- 3.7 The BBS shall include a resettable front-panel event counter display to indicate the number of times the BBS was activated and a front-panel hour meter to display the total number of hours the unit has operated on battery power.
- 3.8 Manufacturer shall include two (2) sets of equipment lists, operation and maintenance manuals, and board-level schematic and wiring diagrams of the BBS, and the battery data sheets. Manufacturer shall include any software needed to monitor, diagnose, and operate the BBS. The manufacturer shall include any required cables to connect to a laptop computer.
- 3.8 The BBS shall include a data cable for the serial connection to the RS232 port and diagnostic software if it is available as an option with the unit.
- 3.9 Two copies of the owner/maintenance manuals shall be provided with the BBS.

4.1 BATTERY SYSTEM

- 4.2 Individual batteries shall be 12V type and shall be easily replaced and commercially available off the shelf.

Added 06-09-2005

- 4.3 The batteries shall be premium gel type with a 5 year full replacement warranty.
- 4.4 Batteries used for BBS shall consist of a minimum of four (4) to eight (8) batteries with a cumulative minimum rated capacity of 240 amp-hours.
- 4.5 Batteries shall be deep cycle, completely sealed, silver alloy VRLA (Valve Regulated Lead Acid) requiring no maintenance with maximum run time.
- 4.6 Batteries shall be certified by the manufacturer to operate over a temperature range of – 40°C to +71°C.
- 4.7 The batteries shall be provided with appropriate interconnect wiring and corrosion-resistant mounting trays and/or brackets appropriate for the cabinet into which they will be installed.
- 4.8 Batteries shall indicate maximum recharge data and recharging cycles.
- 4.9 Battery interconnect wiring shall be via modular harness. Batteries shall be shipped with positive and negative terminals pre-wired with red and black cabling that terminates into a typical power-pole style connector. Harness shall be equipped with mating power-pole style connectors for batteries and a single, insulated plug-in style connection to inverter/charger unit. Harness shall allow batteries to be quickly and easily connected in any order and shall be keyed and wired to ensure proper polarity and circuit configuration.
- 4.9 Battery terminals shall be covered and insulated so as to prevent accidental shorting.

5.0 QUALITY ASSURANCE

- 5.1 BBS shall be manufactured in accordance with a manufacturer quality assurance (QA) program. The QA program shall include two types of quality assurance: (1) Design quality assurance and (2) Production quality assurance. The production quality assurance shall include statistically controlled routine tests to ensure minimum performance levels of BBS units built to meet this specification and a documented process of how problems are to be resolved.
- 5.2 QA process and test results documentation shall be kept on file for a minimum period of seven years.
- 5.3.1 Battery Backup System designs not satisfying design qualification testing and the production quality assurance testing performance requirements described below shall not be labeled, advertised, or sold as conforming to this specification.

5.4 DESIGN QUALIFICATION TESTING

The manufacturer, or an independent testing lab hired by the manufacturer, shall perform design Qualification Testing on new BBS designs, and when a major design

Added 06-09-2005

change has been implemented on an existing design. A major design change is defined as a design change (electrical or physical) which changes any of the performance characteristics of the system, or results in a different circuit configuration.

- 5.4.1 Burn In. The sample systems shall be energized for a minimum of 5 hours, with full load of 700 watts, at temperatures of +74°C and -37°C., excluding batteries, before performing any design qualification testing.
- 5.4.2 Any failure of the BBS, which renders the unit non-compliant with the specification after burn-in, shall be cause for rejection.
- 5.4.3 For Operational Testing, all specifications may be measured including, but not limited to:
 - 5.4.3.1 Run time while in battery backup mode, at full load.
 - 5.4.3.2 Proper operation of all relay contact closures (“On-Batt”, “Low-Batt”, “Timer” and “BBS-Fail”).
 - 5.4.3.3 Inverter output voltage, frequency, harmonic distortion, and efficiency, when in battery backup mode.
 - 5.4.3.4 All utility mode – battery backup mode transfer voltage levels. See BBS Spec 1.8, 1.11 and 1.12.
 - 5.4.3.5 Power transfer time from loss of utility power to switchover to battery backed inverter power.
 - 5.4.3.6 Backfeed voltage to utility when in battery backup mode.
 - 5.4.3.7 IEEE/ANSI C.62.41 compliance.
 - 5.4.3.8 Battery charging time.
 - 5.4.5.9 Event counter and runtime meter accuracy.

5.5 PRODUCTION QUALITY CONTROL TESTING

- 5.5.1 Production Quality Control tests shall consist of all of the above listed tests and shall be performed on each new system prior to shipment. Failure to meet requirements of any of these tests shall be cause for rejection. The manufacturer shall retain test results for seven years.
- 5.5.2 Each BBS shall be given a minimum 100-hour burn-in period to catch any premature failures.
- 5.5.3 Each system shall be visually inspected for any exterior physical damage or assembly anomalies. Any defects shall be cause for rejection.

Added 06-09-2005

6.0 WARRANTY

Manufacturers shall provide a minimum two (2) year factory-repair warranty for parts and labor on the BBS from date of acceptance by the State. Batteries shall be warranted for full replacement for five (5) years from date of purchase. The warranty shall be included in the total bid price of the BBS.

The Contractor shall furnish a warranty certificate for each Battery Backup System that includes the equipment description and details, serial numbers, effective dates, and the details of the warranty regarding materials and labor. The warranty period shall begin on the date of installation and the warranty certificate shall reflect this date.

Basis of Payment: The above work will be paid for at the contract unit price each for BATTERY BACKUP SYSTEM WITH CABINET shall be payment in full for all labor, materials, and equipment required to provide, install, and test the battery backup system described above, complete.

FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F

Effective January 1, 2002

Revised June 24, 2002

This work shall be in accordance with Section 871 and 1076 of the Standard Specifications except as modified herein.

The fiber optic cable shall be a 24-fiber cable that includes 12 multi-mode fibers and 12 single mode fibers.

Six multi-mode fibers and six single mode fibers shall be terminated in each traffic signal cabinet. All terminated fibers shall be clearly labeled. Any necessary fiber optic cables, connectors, and hardware shall be included in this work to provide the terminated fibers at each intersection as specified.

The single mode fibers shall be left uncut (if possible) and intact for future use.

Article 815.03(d) calls for cable marking tape to be installed as part of "trench and backfill for electrical work". This requirement is waived and the following section shall apply:

12 Ga., stranded THHN, insulated orange tracer cable is to be pulled into all conduits that contain fiber optic cable. This work shall be done at the same time the fiber optic cable is pulled. There will be no additional compensation for this work.

The contractor shall notify Eric Howald, I.D.O.T. Traffic Signal Systems Engineer, at (309) 671-4481 before proceeding with the fiber optic installation.

The amount of slack cable listed in Article 873.03 shall be revised as follows:

Added 06-09-2005

<u>Location</u>	<u>Length of Slack Cable</u>	
	Meters	Feet
Gulfbox	2.0	6.0
Junction Box	2.0	6.0
Handhole	5.0	16.0
Double Handhole	11.0	36.0
Controller Cabinet	4.0	13.0

The fiber optic cable shall be clearly marked in each handhole and cabinet with a brightly colored (orange or yellow) weather resistant marker securely attached to the cable.

Basis Of Payment:

This work will be paid for at the contract unit price per meter FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F, and shall be payment in full for all labor, equipment, and materials required to provide, test, and install the fiber optic cable described above, complete.

SIGN FACE

Effective July 3, 2002

Revised April 28, 2005

Materials

Use of sign face materials shall conform with Section 1091 of the Standard Specifications except as follows:

On fully access-controlled sections of highway (freeways or expressways) all reflectorized signs and supplemental panels, except green and yellow guide signs and blue general service signs shall be fabricated using faces of Type A or AP retroreflective sheeting. Green guide sign faces and blue general service sign faces shall be Type AA full cube prismatic retroreflective sheeting.

All borders, legends, shields and such features on supplemental panels which may be attached to the green and yellow guide signs and blue general service signs shall be fabricated with Type AA full cube prismatic retroreflective sheeting produced by the same manufacturer of the sign facing. This shall apply to the mainline, ramp, crossroad interchange approach directional signing, route markers, and all signs within the interchange.

Type A retroreflective sheeting shall be used on the face, border, and legend of new bridge-mounted street name signs.

All Type A retroreflective sheeting shall be in accordance with IDOT material specifications T-14-01.

Type AA full cube prismatic retroreflective sheeting shall be in accordance with the Standard Specifications and as included herein.

Added 06-09-2005

This provisional specification covers flexible white or colored, Super-High Efficiency Full Cube Retroreflective Sheeting (hereinafter called sheeting), tape and related processing materials designed to enhance nighttime visibility of traffic control signs and objects. The sheeting shall consist of full cube prismatic lens elements with a distinctive interlocking diamond seal pattern visible from the face of a smooth surface. The sheeting shall have a precoated adhesive protected by an easily removable liner.

The sheeting shall conform to ASTM D 4956-04 as modified by this special provision and proposed amendments to include Type XI.

For all Type AA prismatic retroreflective sheeting replace table 1091.02 of the Standards Specifications with the following:

The observation angles shall be 0.2°, 0.5°, 1.0°.

The entrance angles shall be -4° and 30°.

For screen printed transparent colored areas or transparent colored overlay films on white sheeting, the coefficients of retroreflection shall not be less than 70% of the values for corresponding color in Table I.

Added 06-09-2005

Table I – Extracted from ASTM D 4956 Proposed Type XI
 Minimum Coefficient of Retroreflection
 (cd/lux/m²)

White	-4	30
0.2	570	215
0.5	400	150
1.0	120	45

Blue	-4	30
0.2	45	28
0.5	32	16
1.0	9	6

Yellow	-4	30
0.2	425	160
0.5	300	112
1.0	90	34

FYG	-4	30
0.2	455	170
0.5	320	120
1.0	96	36

Red	-4	30
0.2	114	43
0.5	80	30
1.0	24	9

FY	-4	30
0.2	340	130
0.5	240	90
1.0	72	27

Green	-4	30
0.2	57	21
0.5	40	15
1.0	12	4.5

FO	-4	30
0.2	200	75
0.5	140	52
1.0	42	16

Added 06-09-2005

Three samples of retroreflective sheeting applied to test panels and conditioned in accordance with ASTM D 4956-04 sec. 7.1 and 7.2 shall each first have their photometric properties characterized by measuring the coefficients of retroreflection in accordance with ASTM E 810 at all test geometries shown in Table I. These panels shall then be exposed in an air circulating oven at $160 \pm 5^\circ\text{F}$ ($71 \pm 3^\circ\text{C}$) for a period of 24 hours. After exposure the panels shall be allowed to condition in accordance with ASTM D 4956-04 sec. 7.1 and 7.2. These panels will again be characterized for photometric properties by measuring the coefficients of retroreflection at all test geometries measured before exposure.

The coefficients of retroreflection measured after exposure shall be between 85% and 115% of the values measured before exposure for each of the three samples.

BONDED PREFORMED JOINT SEAL

Effective: July 12, 1994

Revised: January 1, 2002

Description. This work shall consist of preparing the joint opening faces and furnishing and installing a bonded preformed joint seal with the necessary bonding epoxy into bridge joints.

Materials. The material quality of bonded preformed joint seal shall be according to the physical requirements of Table 1 of AASHTO M 220 with the following exceptions: compression set shall not be over 40 percent when tested according to Method B (Modified) of ASTM D 395 after 70 hours at 100°C (212°F). The Compression-Deflection requirement will not apply to the bonded preformed joint seal.

The adhesive used to bond the joint sealer shall be supplied by the manufacturer of the bonded preformed joint seal and shall meet the following requirements:

The adhesive shall be epoxy base, dual component, which resists salt, diluted acids, alkalis, solvents, greases, oils, moisture, sunlight and weathering. Temperatures up to 93°C (200°F) shall not reduce bond strength. At 20°C (68°F), the bond strength shall be a minimum of 6.9 MPa (1000 psi) within 24 hours.

Pot Life; min.	40 minutes @ 20°C (68°F)
Tensile Strength; min.	28 MPa (4000 psi)
Solids Hardness; max.	5 mohs
Flash Point; min.	93°C (200°F)
Axial Compression; min.	60 MPa (8760 psi)
Complete Cure; max.	7 days @ 20°C (68°F)
Concrete Bond Strength; min.	28 MPa (4000 psi)
Steel Bond Strength; min.	28 MPa (4000 psi)

Any primers or cleaning solutions used on the faces of the joint or on the profile of the sides of the bonded preformed joint seal shall be supplied by the manufacturer of the bonded preformed joint seal. Any additional installation materials and adhesive for splicing joint sections, shall be as supplied by the manufacturer of the bonded preformed joint seal.

Added 06-09-2005

Construction Requirements

Installation. The inside surfaces of the joint opening shall be roughened by sand blasting to bare white metal on a metal walled joint or to clean elastomeric polymer concrete on a elastomeric polymer concrete walled joint. The depth of roughening of the joint shall equal the depth of the bonded portion of the preformed joint material. After roughening, the joint shall be cleaned with compressed air. The compressed air shall be according to the cleanliness requirements of ASTM D 4285. The bonded preformed joint seal shall be wiped with a primer that promotes adhesion when recommended by the joint manufacturer. The epoxy adhesive shall then be applied, both to the inner walls of the joint, and to the exterior surfaces of the joint seal. Immediately after blow down, the primer and adhesive shall be applied in the amounts recommended by the joint manufacturer. Maximum application lengths of joints for a kilogram (pound) of epoxy shall be supplied by the joint seal manufacturer.

The joint seal with epoxy shall be inserted into the joint and held tightly against both sides of the joint until sufficient bond strength has been developed to resist the expected expansion forces. The seal shall be placed so the top of the seal is approximately 3 mm (1/8 in.) recessed.

Bonded preformed joint seals shall not be installed when temperatures below 10 °C (50 °F) are predicted within a 48 hour period.

Method of Measurement. The bonded preformed joint seal will be measured in place, in meters (feet) along the centerline of the joint.

Basis of Payment. This work will be paid for at the contract unit price per meter (foot) for BONDED PREFORMED JOINT SEAL, of the size specified.

TEMPORARY SHEET PILING

Effective: September 2, 1994

Revised: December 13, 2002

Description. This work shall consist of furnishing, driving, adjusting for stage construction when required and subsequent removal of the sheet piling according to the dimensions and details shown on the plans and according to the applicable portions of Section 512 of the Standard Specifications.

This work shall also include furnishing, installing and subsequent removal of all miscellaneous steel shapes, plates and connecting hardware when required to attach the sheeting to an existing substructure unit and/or to facilitate stage construction.

General. The Contractor may propose other means of supporting the sides of the excavation provided they are done so at no extra cost to the department. If the Contractor elects to vary from the design requirements shown on the plans, the revised design calculations and details shall be submitted to the Engineer for approval. The calculations shall be prepared and sealed by an Illinois Licensed Structural Engineer. This approval will not relieve the Contractor of responsibility for the safety of the excavation. Approval shall be contingent upon acceptance by all involved utilities and/or railroads.

Added 06-09-2005

Material. The sheet piling shall be made of steel and may be new or used material, at the option of the Contractor. The sheet piling shall have a minimum section modulus as shown on the plans or in the approved Contractor's alternate design. The sheeting shall have a minimum yield strength of 265 MPa (38.5 ksi) unless otherwise specified. The sheeting, used by the Contractor, shall be identifiable and in good condition free of bends and other structural defects. The Contractor shall furnish a copy of the published sheet pile section properties to the Engineer for verification purposes. The Engineer's approval will be required prior to driving any sheeting. All driven sheeting not approved by the Engineer shall be removed at the Contractor's expense.

Construction. The Contractor shall verify locations of all underground utilities before driving any sheet piling. Any disturbance or damage to existing structures, utilities or other property, caused by the Contractor's operation, shall be repaired by the Contractor in a manner satisfactory to the Engineer at no additional cost to the Department. The Contractor shall be responsible for determining the appropriate equipment necessary to drive the sheeting to the tip elevation(s) specified on the plans or according to the Contractor's approved design. The sheet piling shall be driven, as a minimum, to the tip elevation(s) specified, prior to commencing any related excavation. If unable to reach the minimum tip elevation, the adequacy of the sheet piling design will require re-evaluation by the Department prior to allowing excavation adjacent to the sheet piling in question. The Contractor shall not excavate below the maximum excavation line shown on the plans without the prior permission of the Engineer. The sheet piling shall remain in place until the Engineer determines it is no longer required.

The sheet piling shall be removed and disposed of by the Contractor when directed by the Engineer. When allowed, the Contractor may elect to cut off a portion of the sheet piling leaving the remainder in place. The remaining sheet piling shall be a minimum of 300 mm (12 in.) below the finished grade or as directed by the Engineer. Removed sheet piling shall become the property of the Contractor.

When an obstruction is encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to break up, push aside, or remove the obstruction. An obstruction shall be defined as any object (such as but not limited to, boulders, logs, old foundations etc.) where it's presence was not obvious or specifically noted on the plans prior to bidding, that cannot be driven through or around with normal driving procedures, but requires additional excavation or other procedures to remove or miss the obstruction.

Method of Measurement. The temporary sheet piling will be measured for payment in place in square meters (square feet). Any temporary sheet piling cut off, left in place, or driven to dimensions other than those shown on the contract plans without the written permission of the Engineer, shall not be measured for payment but shall be done at the contractor's expense.

If the Contractor is unable to drive the sheeting to the specified tip elevation(s) and can demonstrate that any further effort to drive it would only result in damaging the sheeting, then the Contractor shall be paid based on the plan quantity of temporary sheeting involved. However, no additional payment will be made for any walers, bracing, or other supplement to the temporary sheet piling, which may be required as a result of the re-evaluation in order to insure the original design intent was met.

Added 06-09-2005

Basis of Payment. This work will be paid for at the contract unit price per square meter (square foot) for TEMPORARY SHEET PILING.

Payment for any excavation performed in conjunction with this work will not be included in this item but shall be paid for as specified elsewhere in this contract.

Obstruction mitigation shall be paid for according to Article 109.04 of the Standard Specifications.

SILICONE BRIDGE JOINT SEALER

Effective: August 1, 1995

Revised: February 7, 2005

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 Concrete".

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.

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)	40-80
"00" (0° and 25°C ± 1°C (32°F and 77±3°F.))	

Added 06-09-2005

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

¹Modified; 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.

(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.

Added 06-09-2005

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 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.

Added 06-09-2005

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 manufacturer'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) for SILICONE JOINT SEALER, of the size specified. The size is defined as the joint opening at 10°C (50°F), rounded to the nearest 13 mm (½ inch). When a polymer concrete nosing is specified it shall not be included in this item but will be paid for according to the Special Provision for "Polymer Concrete".

BRIDGE JOINT SEALING SYSTEM

Effective: May 1, 2001

Revised: January 1, 2002

Description. This work shall consist of furnishing and installing an expansion or fixed joint system as shown on the plans and as specified herein. The joint system shall be comprised of either steel locking edge rails or plates, with studs and a preformed elastomeric seal. Unless noted otherwise, the Contractor shall have the option of choosing from the preformed elastomeric compression or strip seal joint systems shown on the plans.

Materials:

- (a) Steel Locking Edge Rails for the Preformed Elastomeric Strip Seal System. The steel locking edge rails shall be either a one-piece extrusion (rolled section) or a combination of extruded and stock plate, shop welded according to Section 505. All steel shall be AASHTO M270, Grade 250 (Grade 36) minimum. The locking portion of the steel edge rail shall 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 shall not contain any horizontal projections.

Added 06-09-2005

- (b) Steel Plates for the Preformed Elastomeric Compression Seal System. The plates and bars or other structural shapes provided as edge reinforcement at joints, between adjacent spans, shall be accurately fabricated in the shop to conform to the section of the concrete floor or sidewalk. The fabrication shall conform to Section 505. The plates shall be held securely in the correct position during the placing of the concrete.
- (c) Anchor Studs. The steel locking edge rails or plates shall 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 shall be according to Article 1006.32 and shall be installed in the shop prior to painting or galvanizing.
- (d) Preformed Elastomeric Compression Seals. The Preformed Elastomeric compression seal shall be according to AASHTO M220. The compression seal shall be of the size and shape shown on the plans.
- (e) Preformed Elastomeric Strip Seal. The elastomeric gland shall meet the physical requirements of ASTM D5973. The gland material shall have a shallow “v” profile and shall contain “locking ears” that, when inserted in the steel locking edge rails, forms a mechanical interlock. The elastomeric gland shall be of an appropriate size to accommodate the rated movement specified on the plans.
- (f) Adhesive/Lubricant. The adhesive/lubricant shall comply with the requirements of ASTM D4070.

Construction:

- (a) Steel Plates or locking edge rails. After fabrication the steel plates or locking edge rails shall 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 shall be properly aligned and set prior to pouring the anchorage material. For expansion joints, the joint opening shall be adjusted according to the temperature at the time of placing so that the specified opening will be secured at a temperature of 10 °C (50 °F).

The joint opening for each 10 m (100 ft.) of bridge between the nearest fixed bearings each way from the joint shall be reduced 1 mm (1/8 in.) from the amount specified, for each 8 °C (15 °F) the temperature at the time of placing exceeds 10 °C (50 °F) and increased 1 mm (1/8 in.) from the amount specified, for each 8 °C (15 °F) the temperature at the time of placing is below 10 °C (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.

Added 06-09-2005

- (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 shall be removed and any bare steel touched up according to Article 506.05. The cavity 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. Any oil left on the surface of the steel extrusion at this stage shall 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 shall be coated with the approved adhesive/lubricant. Only about 1.5 m (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 shall any uncoated "locking ears" be permitted in the joint.
- (c) Preformed Elastomeric Compression Seal. Once the anchoring material has fully cured according to specifications, preparation for the placement of the gland can begin.
- (1) Surface Preparation. The steel plates must be cleaned of all foreign material prior to placement of the compression seal. Surface rusting shall be removed and any bare steel touched up according to Article 506.05. Once the surface preparation has been completed, the steel plates must be kept clean and dry until the compression seal is placed.
 - (2) Placement of Elastomeric Compression Seal. The seals shall be installed by suitable hand or machine tools and thoroughly secured in place with the approved adhesive which shall cover both sides of the seals over the full area in contact with the sides of the joint. The adhesive may be applied to the sides of the joint or the seals or both. The seals shall be installed in a compressed condition and shall at all times be below the level of the deck surface as shown on the plans. The seals shall be in one continuous piece for the full length of the joint. The continuous piece for installation shall not have more than one manufacturer's butt splice within its length. If the splice is torn or damaged it shall be repaired, prior to installation, using the manufacturer's recommended adhesive. Temperature limitations of the adhesive, as specified by the manufacturer, shall be observed.
- (d) End Treatment. The end treatment for curbs, parapets and sidewalks shall be as detailed on the plans and as recommended by the manufacturer of the joint system.
- (e) Technical Support. The manufacturer shall supply technical support during surface preparation and the installation of the entire joint system.

Added 06-09-2005

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

Basis of Payment. The expansion joint system(s), measured as specified, will be paid for at the contract unit price per meter (foot) for BRIDGE JOINT SYSTEM (EXPANSION), of the design movement specified. The fixed joint system, measured as specified, will be paid for at the contract unit price per meter (foot) for BRIDGE JOINT SYSTEM (FIXED). These prices shall be payment in full for all labor, materials, equipment, and manufacturer's technical support required for surface preparation and joint installation.

Added 06-09-2005



Illinois Department
of Transportation

STORM WATER POLLUTION PREVENTION PLAN

Route FAI 74 Marked I-74
Section Section (90-11)R-2;90(13,14,14-1)R-1 Project No. _____
County Tazewell

This plan has been prepared to comply with the provisions of the NPDES Permit Number ILR10, issued by the Illinois Environmental Protection Agency for storm water discharges from Construction Site Activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

John E. Brown
Signature
REGION ENGINEER
Title

2-10-05
Date

1. Site Description

- a. The following is a description of the construction activity which is the subject of this plan (use additional pages, as necessary):

The project consists of the reconstruction of the westbound lanes of I-74 and the widening and resurfacing of Main Street, overlay of Washington Street and the overlay of the eastbound and westbound lanes from the end of I-74 reconstruction to East of the Pinecrest Interchange in East Peoria, IL. Improvements include bridge removal and replacement, earth excavation, pavement/ramp removal and replacement, bituminous overlay of existing pavement, storm sewer, retaining walls, traffic signals, signing and lighting.

Stage 3 construction consists of improvements to WB I-74 and Ramps L-3 & L-4 as well as improvements to the existing drainage system. While traffic accommodations are an issue to construction, traffic shall be shifted to the EB lanes via the cross over. Roadway improvements shall consist of removal of existing pavement including shoulders, curb and gutter, and gore areas and shall be replaced with PCC pavement as described in the plans.

- b. The following is a description of the intended sequence of major activities which will disturb soils for major portions of the construction site, such as grubbing, excavation and grading (use additional pages, as necessary):

- 1) Tree and brush removal.
- 2) Clearing and grubbing.
- 3) Excavation of ditches and waterways to maintain drainage.
- 4) Pavement removal.
- 5) Excavation and embankment to bring road bed to grade.
- 6) Excavation for culverts and storm sewers.
- 7) Final grading and topsoil placement and seeding.

- c. The total area of the construction site is estimated to be 96.14 (38.9) acres (hectares).
The total area of the site that it is estimated will be disturbed by excavation, grading or other activities is 56.28 (22.79) acres (hectares).
- d. The estimated runoff coefficients of the various areas of the site after construction activities are completed are contained in the project drainage study which is hereby incorporated by reference in this plan. Information describing the soils at the site is contained either in the Soils Report for the project, which is hereby incorporated by reference, or in an attachment to this plan.
- e. The design/project report, hydraulic report, or plan documents, hereby incorporated by reference, contain site map(s) indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of major soil disturbance, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands), and locations where storm water is discharged to a surface water.
- f. The names of receiving water(s) and areal extent of wetland acreage at the site are in the design/project report or plan documents which are incorporated by reference as a part of this plan.

2. Controls

This section of the plan addresses the various controls that will be implemented for each of the major construction activities described in 1.b. above. For each measure discussed, the contractor that will be responsible for its implementation is indicated. Each such contractor has signed the required certification on forms which are attached to, and a part of, this plan:

a. Erosion and Sediment Controls

- (j) ~~Stabilization Practices. Provided below is a description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided in 2.a.(i).(A) and 2.b., stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased on all disturbed portions of the site where construction activity will not occur for a period of 21 or more calendar days.~~

- (A) where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable thereafter.

Description of Stabilization Practices at the Beginning of Construction

Tazewell County
Contract 04-211

1. The area encompassed by existing right of way, proposed right of way, easements and project limits will be managed for the purpose of controlling erosion within the area, reducing water flow by temporary diversion and minimizing siltation into the construction zone, and establishing vegetative cover which will become permanent vegetation and act as an erosion barrier. Work at the beginning of construction will consist of the following:
 - (a) Areas of existing vegetation (woods and grasslands) outside the proposed construction slope limits shall be identified for preserving and shall be protected from mowing, brush cutting, tree removal and other activities which would be detrimental to their maintenance and development.
 - (b) Dead, diseased, or unsuitable vegetation within the site shall be removed as directed by the Engineer, along with required tree removal.
 - (c) As soon as reasonable access is available (such as trees cleared) to all locations where water drains away from the project, sediment basins, riprap ditch checks, temporary ditch checks, and/or perimeter erosion barrier shall be installed as called out in this plan and directed by the Engineer.
 - (d) Bare and sparsely vegetated ground in highly erodible areas as determined by the engineer shall be temporarily seeded at the beginning of construction where no construction activities are immediately expected as stated in the applicable portions of Section 280 of the Standard Specifications.
 - (e) Immediately after tree removal is completed in certain areas which are highly erodible areas as determined by the Engineer, the areas shall be temporarily seeded where no construction activities are immediately expected as stated in the applicable portions of Section 280 of the Standard Specifications.
 - (f) At locations where significant amounts of water drain into the construction zone from outside areas (adjacent land owners), erosion control fence, temporary ditch checks, or riprap ditch checks will be utilized to locally divert water, reduce flow rates, and collect outside siltation inside the right of way line. Erosion control items will not be allowed to be installed to cause flooding to upstream private property which could cause crop damages or other undesirable conditions.
2. Establishment of these temporary erosion control measures will have additional benefits to the project. Desirable grass seed will become established in these areas and will spread seeds onto the construction site until permanent seeding/mowing and overseeding can be complete
3. A third benefit of these filter areas is that they will begin to provide a screen and buffer. They will help protect the construction site from winds and excess sun and mitigate construction noise and dust.
4. Temporary Erosion Control Seeding shall be placed on all grades or disturbed areas as soon as reasonable access is available. Mulch using Method 3, shall also be placed on these areas to help promote the growth of the temporary seeding as well as reduce rainfall velocity impacts on graded earth, which causes soil to displace and erosion to occur. Regular maintenance of the Temporary Erosion Control Seeding shall follow the schedule indicated in Article 280.04(f) of the IDOT Standard Specifications for Road and Bridge Construction.

- (ii) **Structural Practices.** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

Description of Stabilization Practices During Construction

1. During construction, areas outside the construction slope limits as outlined previously herein shall be protected from damaging effects of construction. The Contractor shall not use this area for staging (except as designated on the plans or approved by the Engineer), parking of vehicles or construction equipment, storage of materials, or other construction related activities.
 - (a) Within the construction zone, critical areas which have high flows of water as determined by the Engineer shall remain undisturbed until full scale construction is underway to prevent unnecessary soil erosion.
 - (b) Top soil and earth stockpiles shall be temporarily seeded if they are to remain unused for more than fourteen days.
 - (c) As the contractor constructs a portion of the grading in a fill section he shall follow the following steps as directed by the Engineer.
 - i. Place temporary erosion control systems at locations where water leaves and enters the construction zone.
 - ii. Temporary seed highly erodible areas outside the construction slope
 - iii. Construct roadside ditches and provide temporary erosion control systems.
 - iv. Continue building up the embankment to the proposed grade while at the same time place permanent erosion control such as riprap ditch and conduct final shaping to the slopes
 - (d) The Contractor shall immediately follow major earth moving operations with final grading equipment. After the major earth spread operation has moved to a new location, final grading shall be completed within fourteen days. If grading is not completed within fourteen days, all major earth moving operations will stopped as directed by the Engineer, until disturbed areas are final graded and seeded.
 - (e) Excavated areas and embankments shall be permanently seeded when final graded, if not, they shall be temporarily seeded as stated in the special provision "Temporary Erosion Control Seeding."
 - (f) Construction equipment shall be stored and fueled only at designated locations. All necessary measures shall be taken to control any fuel or pollution runoff in compliance with EPA water quality regulations. Leaking equipment or supplies shall be immediately repaired or removed from the site.
 - (g) The Resident Engineer shall inspect the project daily during activities and weekly or after large rains during the winter shutdown period. The project shall additionally be inspected by the Construction Field Engineer on a bi-weekly basis to determine that erosion control efforts are in place and effective and if other control work is necessary.
 - (h) Sediment collected during construction by the various temporary erosion control systems shall be disposed of on the site on a regular basis as directed by the Engineer. The cost of this maintenance will be paid for in accordance with Article 109.04 of the Standard Specifications.
 - (i) The temporary erosion control systems shall be removed as directed by the Engineer after use is no longer needed or no longer functioning. The costs of this removal shall be included in the unit bid price for the temporary erosion control system. No additional compensation will be allowed.

Description of Structural Practices

1. Temporary erosion control systems shall be left in place with proper maintenance until permanent erosion control is in place and working properly and proposed turf areas seeded and established with a proper stand.
2. Once permanent erosion control systems as proposed in the plans are functional and established, temporary items shall be removed, cleaned up, and disturbed turf re-seeded.
3. Temporary Erosion Control Seeding shall be placed on all grades or disturbed areas as soon as reasonable access is available. Mulch using Method 3, shall also be placed on these areas to help promote the growth of the temporary seeding as well as reduce rainfall velocity impacts on graded earth, which causes soil to displace and erosion to occur. Regular maintenance of the Temporary Erosion Control Seeding shall follow the schedule indicated in Article 280.04(f) of the IDOT Standard Specifications for Road and Bridge Construction.

b. Storm Water Management

Provided below is a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.

- (i) Such practices may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff on site; and sequential systems (which combine several practices). The practices selected for implementation were determined on the basis of the technical guidance in Section 10-300 (Design Considerations) in Chapter 10 (Erosion and Sedimentation Control) of the Illinois Department of Transportation Drainage Manual. If practices other than those discussed in Section 10-300 are selected for implementation or if practices are applied to situations different from those covered in Section 10-300, the technical basis for such decisions will be explained below.
- (ii)

Velocity dissipation devices will be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., maintenance of hydrologic conditions, such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

Description of Storm Water Management Controls (use additional pages, as necessary):

- 1) Riprap will be placed at culvert outlets as necessary to control velocity.
- 2) Excelsior blanket will be used to control erosion at underdrain outfalls.
- 3) The entire site will be seeded upon completion.

c. Other Controls

- (i) Waste Disposal. No solid materials, including building materials, shall be discharged into Waters of the State, except as authorized by a Section 404 permit.
- (ii) The provisions of this plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

d. Approved State or Local Plans

The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual, 1995. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans or site permits or storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI to be authorized to discharge under permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.

Description of procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials:

1. This project is located within the City of East Peoria. The Contractor is advised to coordinate with the City of East Peoria to determine the requirements for the placement of material storage, staging areas, and work areas outside the right-of-way as required by section 1107.04 of the I-74 Project Special Provisions.
2. The storage or staging of any materials or equipment on the public right of way outside of the I-74 access control limits shall be coordinated with the City of East Peoria. The Contractor shall contact Mr. Rick Jeremiah, Director of Public Works at 309-698-4716, prior to the start of any work involving staging/storage of equipment and/or materials in these areas.
3. Perimeter erosion barrier shall be installed at or beyond the construction limits to intercept sheet flow of waterborne silt and sediments and prevent it from leaving the area of construction.
4. Inlet and pipe protection shall be utilized so that it surrounds inlets, pipe inlets or outfalls, and similar locations to intercept waterborne silt and sediment and prevent it from entering the drainage system or leaving the area of construction.
5. Temporary erosion control seeding shall be placed as described previously herein to protect erodable/bare areas within the contract limits.
6. Temporary ditch checks shall be placed to control storm water velocity and prevent siltation, erosion and/or scour of ditches and drainage ways.

3. Maintenance

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, vegetation, erosion and sediment control measures and other protective measures identified in this plan (use additional pages, as necessary):

1. Areas will be inspected on a regular basis by IDOT District 4 Bureau of Operations.
2. Maintenance crews will perform regular mowing to aid in keeping weeds down and establishing a good roadside seed stand.
3. Maintenance crews will also aid in any ditch lining maintenance or in any drainage problems.
4. All maintenance will be conducted at times when weather conditions will not cause site damage.
5. Deficient erosion control systems shall be re-constructed or replaced according to details shown on or referenced to in the plans. Additional erosion control systems may be required as determined by field inspectors. Additional erosion control procedures shall be constructed or implemented according to any applicable details or methods included by reference in this plan. All erosion control items shall conform to Section 280 of the IDOT Standard Specifications for Road and Bridge Construction.

4. Inspections

Qualified personnel shall inspect disturbed areas of the construction site which have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site. Such inspections shall be conducted at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall.

- a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off site sediment tracking.
- b. Based on the results of the inspection, the description of potential pollutant sources identified in section 1 above and pollution prevention measures identified in section 2 above shall be revised as appropriate as soon as practicable after such inspection. Any changes to this plan resulting from the required inspections shall be implemented within 7 calendar days following the inspection.
- c. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of this storm water pollution prevention plan, and actions taken in accordance with section 4.b. shall be made and retained as part of the plan for at least three (3) years after the date of the inspection. The report shall be signed in accordance with Part VI. G of the general permit.
- d. If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the Resident Engineer or Resident Technician shall complete and file an "Incidence of Noncompliance" (ION) report for the identified violation. The Resident Engineer or Resident Technician shall use forms provided by the Illinois Environmental Protection Agency and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of noncompliance shall be signed by a responsible authority in accordance with Part VI. G of the general permit.

The report of noncompliance shall be mailed to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
~~Attn: Compliance-Assurance-Section~~
1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

5. Non-Storm Water Discharges

Except for flows from fire fighting activities, sources of non-storm water that is combined with storm water discharges associated with the industrial activity addressed in this plan must be described below. Appropriate pollution prevention measures, as described below, will be implemented for the non-storm water component(s) of the discharge. (Use additional pages as necessary to describe non-storm water discharges and applicable pollution control measures).

1. Sources of non-storm water for activities of this project are not expected to be sufficient enough that infiltration into existing ground will not handle them. Non-storm water from supplemental watering or pavement rolling operations ... Washing out equipment shall not be allowed.
2. Work on this contract shall be conducted in a manner that will not result in excessive particulate matter emissions, nuisance dust conditions or PM 10 (particulate matter with an aerodynamic diameter less than or equal to 10 microns).



**Illinois Department
of Transportation**

Contractor Certification Statement

This certification statement is a part of the Storm Water Pollution Prevention Plan for the project described below, in accordance with NPDES Permit No. ILR10, issued by the Illinois Environmental Protection Agency on May 14, 1998.

Project Information:

Route FAI 74 (I-74)
Section Section (90-11)R-2;90(13,14,14-1)R-1
County Tazewell

Marked I-74
Project No. _____

I certify under penalty of law that I understand the terms of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

Signature

Title

Name of Firm

Street Address

City State

Zip Code

Telephone Number

Date

BDE 2342a

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER - 68201

State Job # - C-94-010-02
 PPS NBR - 4-01814-0400
 County Name - TAZEWELL - -
 Code - 179 - -
 District - 4 - -
 Section Number - (90-11)R-2;90(13,14,14-1)R-1

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
MX030199	TEMP PAVEMENT	SQ M	12,382.000				
MX030216	P CUL REM 300	METER	42.000				
MX030217	P CUL REM 375	METER	31.000				
MX030218	P CUL REM 450	METER	44.000				
MX030345	LT WT CELL CONC FILL	CU M	51.700				
MX030396	FILL EX STORM SEWERS	CU M	99.500				
MX030472	FORM LINER G & F SURF	SQ M	1,492.300				
MX032083	GDRL AGG EROS CONT	M TON	350.000				
MX032134	BRACED EXCAVATION	CU M	506.000				
MX032138	PIPE ELBOW 600	EACH	6.000				
MX032186	PIPE ELBOW 300	EACH	28.000				
MX032188	CLASS SI CONC SPL	CU M	154.000				
MX032693	REM TEMP CONC BAR SO	METER	3,019.000				
MX033104	PIPE ELBOW 450	EACH	12.000				
MX033109	DRILL/SET SOLDIER PIL	CU M	749.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
MX033182	APPLY DUST SUP AGENTS	UNIT	1,676.000				
MX033183	SOIL STABILIZERS	KG	46,268.000				
MX033192	AGGREGATE SUBBASE	M TON	39,026.000				
MX033447	PIPE CULV REMOV 600	METER	45.000				
MX033450	CONC BAR DBL FACE SPL	CU M	45.000				
MX033456	N-INTRU DET POLE 9.1	EACH	1.000				
MX033460	WET TEM PM TAP T3 100	METER	342.000				
MX033462	REM/DISP TMP C BAR SO	METER	708.000				
MX033531	CL B PATCH SPL	SQ M	107.000				
MX033532	AGGREGATE SPECIAL	M TON	5.000				
MX203010	SPECIAL EXCAVATION	CU M	11,470.000				
MX406M20	LEV BIND MM SUPER N70	M TON	44.000				
MX406022	BC SC SUPER "D" N50	M TON	544.000				
MX406024	BC SC SUPER "D" N70	M TON	3,600.000				
MX406066	P BCSC SUPER "E" N90	M TON	3,905.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
MX406214	BCBC SUP IL-19.0 N50	M TON	544.000				
MX406216	BCBC SUP IL-19.0 N70	M TON	6,827.000				
MX406248	P BCBC SUP IL19.0 N90	M TON	5,845.000				
MX406295	BCBC SUPER IL19.0L LE	M TON	14,288.000				
MX440215	PAVED DITCH REMOV SPL	SQ M	380.000				
MX500133	FLO BRG FIXED 1850KN	EACH	4.000				
MX500325	FL BRG GD EXP 1500KN	EACH	20.000				
MX500335	FL BRG GD EXP 2000KN	EACH	4.000				
MX504002	F&E PPC B T-BM 1829	METER	380.000				
MX509025	ALUM RAILING TY H SPL	METER	117.000				
MX550070	STORM SEW A 1 750 EQ	METER	32.000				
MX602350	MAN A 1.2D FLAT SL TP	EACH	1.000				
MX602751	INL-MN G-1 1.2D SPL	EACH	5.000				
MX602756	INL-MN G-1 1.5D SPL	EACH	22.000				
MX637112	CONC BAR TRANS MOD	METER	10.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
MX704005	TEMP CON BAR (PERM)	METER	106.800				
MX704200	REM TEMP CONC BARRIER	METER	1,470.000				
MX720100	TEMP SIGN PANEL ASBLY	SQ M	58.000				
MX721010	COMP TEMP SIGN OVLAY	SQ M	34.000				
MX733010	OSS CAN 2CS 0.90X1.68	METER	9.000				
MX871055	FOCC62.5/125 MM12SM12	METER	1,516.000				
MX873027	ELCBL C GROUND 6 1C	METER	177.000				
MX877017	STL COMB MAA&P 15.85	EACH	1.000				
MX877020	STL COMB MAA&P 16.76	EACH	3.000				
MX878030	CONC FDN TY E 900D	METER	25.000				
MZ008830	DRIL SHAFT/SOIL 915	METER	25.500				
MZ008880	DRIL SHAFT/SOIL 1830	METER	1.000				
MZ008930	DRIL SHAFT/ROCK 760	METER	21.000				
MZ008980	DRIL SHAFT/ROCK 1830	METER	17.000				
MZ008990	DRIL SHAFT/SOIL 1980	METER	5.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
MZ017205	DOWEL BARS 38	EACH	4,313.000				
MZ021500	EXPANSION JOINT 75	METER	118.800				
MZ022400	FAB REINF ELAS TROUGH	METER	36.900				
MZ022800	FENCE REMOVAL	METER	137.000				
MZ047300	PROTECTIVE SHIELD	SQ M	2,959.000				
M2010110	TREE REMOV 6-15	UNIT	267.000				
M2010210	TREE REMOV OVER 15	UNIT	176.000				
M2010500	TREE REMOV HECTARES	HA	1.000				
M2011000	TEMPORARY FENCE	METER	1,703.000				
M2020010	EARTH EXCAVATION	CU M	64,865.000				
M2021200	REM & DISP UNS MATL	CU M	3,460.000				
M2021400	SUB GRAN MAT A	M TON	11,751.000				
M2021500	SUB GRAN MAT B	M TON	6,493.000				
M2040800	FURNISHED EXCAV	CU M	12,165.000				
M2070220	POROUS GRAN EMBANK	CU M	2,831.000				

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M2080250	TRENCH BACKFILL SPL	CU M	2,104.000				
M2101000	GEOTECH FAB F/GR STAB	SQ M	39,015.000				
M2113100	TOPSOIL F & P 100	SQ M	48,636.000				
M2500110	SEEDING CL 1A	HA	4.000				
M2500210	SEEDING CL 2A	HA	2.600				
M2500312	SEEDING CL 4A	HA	1.300				
M2500320	SEEDING CL 5	HA	0.400				
M2500400	NITROGEN FERT NUTR	KG	596.000				
M2500500	PHOSPHORUS FERT NUTR	KG	596.000				
M2500600	POTASSIUM FERT NUTR	KG	596.000				
M2500700	AGR GROUND LIMESTONE	M TON	33.000				
M2510120	MULCH METHOD 2	M TON	4.000				
M2510130	MULCH METHOD 3	M TON	11.700				
M2510630	EROSION CONTR BLANKET	SQ M	39,120.000				
M2520110	SODDING SALT TOLERANT	SQ M	7,811.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M2520200	SUPPLE WATERING	UNIT	1,172.000				
M2800250	TEMP EROS CONTR SEED	KG	12,713.000				
M2800400	PERIMETER EROS BAR	METER	6,195.000				
M2810707	STONE DUMP RIP CL A4	SQ M	548.000				
M2820200	FILTER FABRIC	SQ M	2,198.000				
M2850400	ARTICUL BLOCK REV MAT	SQ M	2,012.000				
M3113100	SUB GRAN MAT SPL	CU M	557.000				
M3511100	AGG BASE CSE B 100	SQ M	520.000				
M3530250	PCC BSE CSE 250	SQ M	9,984.000				
M3530300	PCC BSE CSE 300	SQ M	92.000				
M3540250	PCC BASE CSE W 250	SQ M	525.000				
M3540300	PCC BASE CSE W 300	SQ M	181.000				
M4060085	PCC SURF REM BUTT JT	SQ M	151.000				
M4060200	BIT MATLS PR CT	M TON	94.000				
M4060300	AGG PR CT	M TON	247.900				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M4060980	BIT SURF REM BUTT JT	SQ M	418.000				
M4060985	BIT SUR RM BUTT JT SP	SQ M	1,571.000				
M4060990	TEMPORARY RAMP	SQ M	284.000				
M4080400	INCIDENTAL BIT SURF	M TON	11.000				
M4202255	PCC PVT 250 JOINTED	SQ M	22,582.000				
M4205000	BR APPR PAVT	SQ M	727.000				
M4205050	BR APPROACH PAVT SPL	SQ M	586.000				
M4205200	PROTECTIVE COAT	SQ M	91,358.000				
M4210290	CON REINF PCC PVT 290	SQ M	18,305.000				
M4214290	PVT REINFORCEMENT 290	SQ M	18,305.000				
M4217072	LUG SYSTEM COMP 7.2	EACH	2.000				
M4230200	PCC DRIVEWAY PAVT 200	SQ M	286.000				
M4240100	PC CONC SIDEWALK 100	SQ M	137.000				
M4400025	BIT SURF REM 25	SQ M	24,929.000				
M4400040	BIT SURF REM 40	SQ M	39,807.000				

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M4400050	BIT SURF REM 50	SQ M	75.000				
M4400075	BIT SURF REM 75	SQ M	1,754.000				
M4401000	BIT SURF REM VAR DP	SQ M	9,383.000				
M4402000	PAVEMENT REM	SQ M	25,777.000				
M4402020	CURB REM	METER	300.000				
M4402040	COMB CURB GUTTER REM	METER	1,502.000				
M4402050	SIDEWALK REM	SQ M	46.000				
M4402200	BIT MEDIAN SURF REMOV	SQ M	362.000				
M4402280	CONC BARRIER REMOV	METER	67.000				
M4402530	PAVED SHLD REMOVAL	SQ M	14,809.000				
M4402600	PCC SHOULDER REMOVAL	SQ M	342.000				
M4405000	PAVED DITCH REMOVAL	METER	1,237.000				
M4426225	CL B PATCH T2 250	SQ M	709.000				
M4426250	CL B PATCH T2 375	SQ M	1,491.000				
M4426450	CL B PATCH T4 375	SQ M	113.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M4429400	SAW CUTS	METER	3,215.000				
M4430020	STRIP REF CR CON TR	METER	5,768.000				
M4812000	AGGREGATE SHLDS B	M TON	3,231.000				
M4820000	BIT SHOULDERS	M TON	3,289.000				
M4820200	BIT SHOULDERS 200	SQ M	514.000				
M4820250	BIT SHOULDERS 250	SQ M	570.000				
M4830250	PCC SHOULDERS 250	SQ M	7,617.000				
M4830290	PCC SHOULDERS 290	SQ M	8,312.000				
M5010240	CONC REM	CU M	122.200				
M5010465	SLOPE WALL REMOV	SQ M	306.000				
M5010522	PIPE CULVERT REMOV	METER	260.000				
M5020100	STRUCTURE EXCAVATION	CU M	2,552.000				
M5020400	ROCK EXC STRUCT	CU M	22.300				
M5030030	PREF JOINT SEAL 64	METER	58.500				
M5030105	NEOPRENE EXPAN JT 50	METER	80.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M5030300	CLASS MS CONC	CU M	41.000				
M5030350	CONC STRUCT	CU M	2,548.000				
M5030360	CONC SUP-STR	CU M	2,335.800				
M5030390	BR DECK GROOVING	SQ M	8,544.000				
M5030450	PROTECTIVE COAT	SQ M	10,666.000				
M5030710	FORM CONC REP =< 125	SQ M	4.000				
M5041219	F&E P P CON I-BM 1219	METER	695.500				
M5041372	F&E P P CON I-BM 1372	METER	352.000				
M5050105	F & E STRUCT STEEL	L SUM	1.000				
M5050405	F & E STRUCT STEEL	KG	3,290.000				
M5050410	STRUCT STEEL REMOV	KG	1,540.000				
M5070207	TREATED TIMBER LAG	SQ M	23.000				
M5070209	UNTREATED TIMBER LAG	SQ M	1,371.000				
M5070213	FUR SOLDIER PILES BU	METER	1,160.400				
M5070215	FUR SOLDIER PILES WS	METER	233.300				

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M5080105	REINFORCEMENT BARS	KG	2,140.000				
M5080205	REINF BARS, EPOXY CTD	KG	538,720.000				
M5110100	SLOPE WALL 100	SQ M	2,965.000				
M5110400	SLOPE WALL SPL	SQ M	107.000				
M5120160	F STL PILE HP310X79	METER	132.000				
M5120166	F STL PILE HP310X94	METER	292.000				
M5120170	F STL PILE HP310X110	METER	504.000				
M5120175	F STL PILE HP310X125	METER	603.500				
M5120180	F STL PILE HP360X108	METER	524.500				
M5120190	F STL PILE HP360X132	METER	186.000				
M5120210	F STL PILE HP360X174	METER	627.000				
M5120315	DRIVE STL PILE	METER	2,868.500				
M5120460	TEST PIL ST HP310X79	EACH	2.000				
M5120475	TEST PIL ST HP310X125	EACH	1.000				
M5120480	TEST PIL ST HP360X108	EACH	1.000				

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M5120490	TEST PIL ST HP360X132	EACH	2.000				
M5120510	TEST PIL ST HP360X174	EACH	1.000				
M542E112	PRC FL-END SEC 300	EACH	25.000				
M542E120	PRC FL-END SEC 450	EACH	3.000				
M542E128	PRC FL-END SEC 600	EACH	7.000				
M542E136	PRC FL-END SEC 750	EACH	4.000				
M542E536	PRC FL ES EQ RS 750	EACH	1.000				
M542E628	PRCF ES EL EQRS 600	EACH	1.000				
M542F012	MET END SEC 300	EACH	12.000				
M542I055	P CUL CL A 2 900	METER	29.000				
M542U425	P CUL CL D 2 450 TEM	METER	4.000				
M5422120	P CUL 1 RC-A ERS 600	METER	39.000				
M5429910	CONCRETE COLLAR	CU M	3.500				
M5500030	STORM SEW CL A 1 300	METER	396.000				
M5500050	STORM SEW CL A 1 450	METER	107.000				

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M5500065	STORM SEW CL A 1 600	METER	23.500				
M5500070	STORM SEW CL A 1 675	METER	6.000				
M5500075	STORM SEW CL A 1 750	METER	77.000				
M5500430	STORM SEW CL A 2 300	METER	364.000				
M5500450	STORM SEW CL A 2 450	METER	189.500				
M5500465	STORM SEW CL A 2 600	METER	1,056.000				
M5500475	STORM SEW CL A 2 750	METER	128.000				
M5500485	STORM SEW CL A 2 900	METER	38.500				
M5500495	STORM SEW CL A 2 1050	METER	15.000				
M5500515	STORM SEW CL A 2 1650	METER	45.500				
M5500830	STORM SEW CL A 3 300	METER	64.500				
M5500875	STORM SEW CL A 3 750	METER	161.000				
M5501230	STORM SEW CL A 4 300	METER	17.500				
M5501275	STORM SEW CL A 4 750	METER	16.500				
M5510025	STORM SEWER REM 300	METER	20.500				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M5510035	STORM SEWER REM 375	METER	31.000				
M5510040	STORM SEWER REM 400	METER	46.000				
M5510060	STORM SEWER REM 600	METER	45.500				
M5510070	STORM SEWER REM 750	METER	42.000				
M5510080	STORM SEWER REM 900	METER	6.500				
M5510105	STORM SEWER REM 1500	METER	1.000				
M5510110	STORM SEWER REM 1650	METER	2.000				
M5870020	BRIDGE SEAT SEALER	SQ M	115.000				
M5900100	EPOXY CRACK SEALING	METER	34.000				
M5910100	GEOCOMPOSITE WALL DR	SQ M	781.000				
M6010080	FRENCH DRAINS	CU M	29.000				
M6010125	PIPE DRAINS 300	METER	256.000				
M6010130	PIPE DRAINS 375	METER	10.500				
M6010135	PIPE DRAINS 450	METER	122.000				
M6010605	PIPE UNDERDRAINS 100	METER	3,433.000				

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M6010610	PIPE UNDERDRAINS 150	METER	153.000				
M6010705	PIPE UNDERDRN 100 SP	METER	1,502.000				
M6010710	PIPE UNDERDRN 150 SP	METER	2.000				
M6021405	MAN A 1.2D T1F OL	EACH	3.000				
M6021410	MAN A 1.2D T1F CL	EACH	21.000				
M6021445	MAN A 1.2D T9F&G	EACH	2.000				
M6021485	MAN A 1.2D T37G	EACH	6.000				
M6021610	MAN A 1.5D T1F CL	EACH	12.000				
M6021805	MAN A 1.8D T1F OL	EACH	2.000				
M6021810	MAN A 1.8D T1F CL	EACH	1.000				
M6021845	MAN A 1.8D T9F&G	EACH	1.000				
M6023005	MAN SP 1.2D	EACH	1.000				
M6060010	CLASS SI CONC OUTLET	CU M	28.000				
M6060260	CONC GUTTER TA	METER	181.000				
M6060270	CONC GUTTER TA MOD	METER	843.000				

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M6060500	COMB CC&G TB15.30	METER	871.000				
M6060600	COMB CC&G TB15.45	METER	33.000				
M6060700	COMB CC&G TB15.60	METER	4,381.000				
M6062100	COMB CC&G TM15.15	METER	22.700				
M6062400	COMB CC&G TM15.60	METER	18.200				
M6063600	CONC MEDIAN SURF 100	SQ M	2,133.300				
M6064100	CONC MED TSB15.30	SQ M	374.000				
M6064800	CONC MED TSM	SQ M	12.000				
M6066000	CORRUGATED MED	SQ M	57.100				
M6300100	SPBGR TY A	METER	259.080				
M6320030	GUARDRAIL REMOV	METER	1,283.000				
M6330610	REM & RE-ERECT SPBGR	METER	1,291.000				
M6370120	CONC BAR DBL FACE MOD	METER	566.000				
M6370140	CONC BAR SIN FACE MOD	METER	1,372.000				
M6371055	CONC BARRIER BASE	SQ M	61.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M6420015	SHOULDER RUMBLE STRIP	METER	19,079.500				
M6640100	CH LK FENCE 1.2	METER	192.000				
M6640120	CH LK FENCE 1.8	METER	29.000				
M6640650	CH LK GATE 1.8X2.4 SL	EACH	1.000				
M6641920	CH LK FENCE REMOV	METER	165.000				
M6641930	CH LK FENCE REM & RE	METER	187.000				
M7030100	SHORT-TERM PAVT MKING	METER	24,195.000				
M7030220	TEMP PVT MK LINE 100	METER	12,568.000				
M7030240	TEMP PVT MK LINE 150	METER	1,400.000				
M7030250	TEMP PVT MK LINE 200	METER	527.000				
M7030510	PAVT MARK TAPE T3 L&S	SQ M	17.000				
M7030520	PAVT MARK TAPE T3 100	METER	29,947.000				
M7030540	PAVT MARK TAPE T3 150	METER	749.000				
M7030550	PAVT MARK TAPE T3 200	METER	172.000				
M7030560	PAVT MARK TAPE T3 300	METER	218.000				

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M7030580	PAVT MARK TAPE T3 600	METER	163.000				
M7030610	TEMP PT PAVT MK L&S	SQ M	9.000				
M7030620	TEMP PT PM LINE 100	METER	98.000				
M7030650	TEMP PT PM LINE 600	METER	21.000				
M7031000	WORK ZONE PAVT MK REM	SQ M	6,166.000				
M7040100	TEMP CONC BARRIER	METER	1,470.000				
M7040200	REL TEMP CONC BARRIER	METER	156.000				
M7040300	REL TEMP CONC BAR SO	METER	564.000				
M7040400	TEMP CON BAR (ST OWN)	METER	1,302.000				
M7200100	SIGN PANEL T1	SQ M	15.000				
M7200200	SIGN PANEL T2	SQ M	19.000				
M7200300	SIGN PANEL T3	SQ M	298.000				
M7210100	SIGN PANEL OVERLAY	SQ M	4.000				
M7210105	SIGN PANEL OVERLAY SP	SQ M	61.000				
M7240330	REMOV SIGN PANEL T3	SQ M	40.000				

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M7240730	RELOC SIGN PANEL T3	SQ M	49.000				
M7270100	STR STL SIN SUP BA	KG	8,840.000				
M7280100	TELES STL SIN SUPPORT	METER	5.000				
M7290100	METAL POST TY A	METER	9.000				
M7290200	METAL POST TY B	METER	8.000				
M7300100	WOOD SIN SUPPORT	METER	134.000				
M7330050	OVHD SIN STR-SPAN T1S	METER	23.000				
M7340100	CONC FOUNDATION	CU M	33.400				
M7340200	DRILL SHAFT CONC FDN	CU M	31.600				
M7800100	THPL PVT MK LTR & SYM	SQ M	59.200				
M7800105	THPL PVT MK LINE 100	METER	5,550.000				
M7800115	THPL PVT MK LINE 150	METER	1,442.800				
M7800120	THPL PVT MK LINE 200	METER	945.000				
M7800125	THPL PVT MK LINE 300	METER	579.000				
M7800140	THPL PVT MK LINE 600	METER	106.000				

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M7800600	EPOXY PVT MK LTR-SYM	SQ M	41.000				
M7800605	EPOXY PVT MK LN 100	METER	1,030.000				
M7800615	EPOXY PVT MK LN 150	METER	444.000				
M7800620	EPOXY PVT MK LN 200	METER	472.000				
M7800625	EPOXY PVT MK LN 300	METER	81.000				
M7800640	EPOXY PVT MK LN 600	METER	93.000				
M7802010	POLYUREA PM T1 LN 100	METER	29,917.000				
M7802015	POLYUREA PM T1 LN 150	METER	4,361.000				
M7802020	POLYUREA PM T1 LN 200	METER	4,668.000				
M7802030	POLYUREA PM T1 LN 300	METER	510.000				
M7802060	POLYUREA PM T1 LN 600	METER	23.000				
M7830100	PAVT MARKING REMOVAL	SQ M	391.000				
M8100240	CON T 30 PVC	METER	33.000				
M8100260	CON T 50 PVC	METER	3,431.000				
M8100280	CON T 75 PVC	METER	880.000				

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M8100290	CON T 90 PVC	METER	64.000				
M8101450	CON P 50 PVC	METER	344.000				
M8101470	CON P 75 PVC	METER	32.000				
M8101480	CON P 90 PVC	METER	107.000				
M8110130	CON AT ST 25 GALVS	METER	344.000				
M8110190	CON AT ST 90 GALVS	METER	6.000				
M8120210	CON EMB STR 25 PVC	METER	17.000				
M8120230	CON EMB STR 50 PVC	METER	67.000				
M8120250	CON EMB STR 75 PVC	METER	386.000				
M8130120	JBX SS AS 150X150X100	EACH	41.000				
M8130415	JBX SS ES 300X300X200	EACH	8.000				
M8131500	JBX NM ES 675X400X300	EACH	3.000				
M8150200	TR & BKFIL F ELECT WK	METER	3,158.200				
M8150205	TR & BKFIL ELEC W SPL	METER	8.400				
M8170030	EC C XLP USE 1C 8	METER	1,609.000				

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M8170040	EC C XLP USE 1C 6	METER	2,981.000				
M8170050	EC C XLP USE 1C 4	METER	1,807.000				
M8170060	EC C XLP USE 1C 2	METER	5,400.000				
M8170090	EC C XLP USE 1C 3/0	METER	45.000				
M8300415	LT P A 13.5MH 2.4DA	EACH	4.000				
M8301815	LP A TB 13.5MH 2.4DA	EACH	8.000				
M8360100	LIGHT POLE FDN 600	METER	30.000				
M8370100	LT TOWER FDN	METER	62.600				
M8731220	ELCBL C SIGNAL 14 3C	METER	63.000				
M8731240	ELCBL C SIGNAL 14 5C	METER	853.000				
M8731250	ELCBL C SIGNAL 14 7C	METER	244.000				
M8731510	ELCBL C LEAD 18 3PR	METER	33.600				
M8731800	ELCBL C SERV 6 2C	METER	177.000				
M8750510	TS POST GALVS 4.85	EACH	3.000				
M8770760	STL COMB MAA&P 11.58	EACH	2.000				

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M8780100	CONC FDN TY A	METER	2.700				
M8780200	CONC FDN TY D	METER	2.200				
M8780300	CONC FDN TY E 600D	METER	3.000				
M8780400	CONC FDN TY E 750D	METER	3.000				
M8860100	DET LOOP T1	METER	49.000				
M8860400	DET LOOP SPL	METER	45.700				
X0301840	DRILL-GROUT #35 T-BAR	EACH	1,308.000				
X0321809	PERMANENT GRND ANCHOR	EACH	204.000				
X0322050	RAISD REF PM REFL REM	EACH	299.000				
X0323073	CLEAN EX PAVT EDGE JT	UNIT	6.300				
X0323481	VIDEO VEH DET 4 CAM	EACH	2.000				
X0323639	INSTAL BOLARD/LUMINAR	EACH	4.000				
X0323677	STREET SWEEPING	HOUR	1,167.000				
X0323678	DUST CONTROL PADS	EACH	62.000				
X0323778	DRAINAGE SCUPPERS T1	EACH	16.000				

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X0323779	DRAINAGE SCUPPERS T2	EACH	2.000				
X0323830	DRAINAGE SCUPPR DS-11	EACH	14.000				
X0323920	POLE MT EQUIP CAB TB	EACH	1.000				
X0323921	POLE MT EQUIP CAB TC	EACH	1.000				
X0323959	FORM LINER MOCKUP	EACH	1.000				
X0323968	HIGHWAY-RAIL INFO SGN	EACH	1.000				
X0323970	UNPASS LUMINAIRE IO	EACH	24.000				
X0323971	HI-MAST LUMINAIRE IO	EACH	49.000				
X0323989	REIN TEMP SN PANEL AS	EACH	39.000				
X0323997	SIGN SUP PARAPT MT TI	EACH	2.000				
X0324134	BATT BACKUP SYS/CABNT	EACH	3.000				
X0324946	CONC COLLAR C1	EACH	1.000				
X0349800	CONC HDWL - P UNDR RM	EACH	2.000				
X0504200	CONCRETE HEADWALL	EACH	3.000				
X0976500	END SECTIONS REMOVED	EACH	19.000				

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X4207500	CONCRETE PVT WARRANTY	L SUM	1.000				
X6020065	INLETS TG-1 DBL (SPL)	EACH	6.000				
X6040490	FR & GRATES T20 IO	EACH	13.000				
X6330100	REM-RE TR B TM T1 SPL	EACH	4.000				
X6700410	ENGR FLD OFF A SPL	CAL MO	24.000				
X6700600	ENGR FIELD LAB SPL	CAL MO	24.000				
X7011015	TR C-PROT EXPRESSWAYS	L SUM	1.000				
X7015000	CHANGEABLE MESSAGE SN	CAL MO	24.000				
X8300645	LT P G 13.5MH 4.5DA	EACH	1.000				
X8350100	LIGHT TOWER (IO)	EACH	9.000				
X8800020	SH LED 1F 3S MAM	EACH	18.000				
X8800035	SH LED 1F 3S BM	EACH	7.000				
X8800038	SH LED 1F 4S MAM	EACH	1.000				
X8800040	SH LED 1F 5S BM	EACH	4.000				
X8810610	PED SH LED 1F BM	EACH	2.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
Z0000100	ABANDON EX CULVERT	EACH	1.000				
Z0002600	BAR SPLICERS	EACH	514.000				
Z0003600	BEAM STRAIGHTENING	L SUM	1.000				
Z0007900	BUTT JOINTS	EACH	1.000				
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000				
Z0018800	DRAINAGE SYSTEM	L SUM	1.000				
Z0024478	FLEX DELINEATORS	EACH	309.000				
Z0030020	IMP ATTEN FRD NAR TL2	EACH	3.000				
Z0030030	IMP ATTEN FRD NAR TL3	EACH	3.000				
Z0030255	IMP ATTN TEMP FRN TL2	EACH	3.000				
Z0030350	IMP ATTN REL NRD TL3	EACH	1.000				
Z0031405	JACK & SHOR EX GIRDER	L SUM	1.000				
Z0048665	RR PROT LIABILITY INS	L SUM	1.000				
Z0050000	REM REIN IMPACT ATTEN	EACH	1.000				
Z0064540	SEEPAGE COLLAR	EACH	22.000				

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Z0076600	TRAINEES	HOUR	4,000.000		0.800		3,200.000
28000300	TEMP DITCH CHECKS	EACH	95.000				
28000500	INLET & PIPE PROTECT	EACH	290.000				
50100300	REM EXIST STRUCT N1	EACH	1.000				
50100400	REM EXIST STRUCT N2	EACH	1.000				
50100500	REM EXIST STRUCT N3	EACH	1.000				
50104400	CONC HDWL REM	EACH	33.000				
50104710	REM EXIST BEARINGS	EACH	10.000				
50104800	REM EXIST CONC DECK	L SUM	1.000				
50300100	FLOOR DRAINS	EACH	7.000				
50300310	ELAST BEARING ASSY T1	EACH	12.000				
50300320	ELAST BEARING ASSY T2	EACH	28.000				
50300330	ELAST BEARING ASSY T3	EACH	4.000				
50500505	STUD SHEAR CONNECTORS	EACH	24,458.000				
50500715	JACK & REM EX BEARING	EACH	30.000				

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50501130	STRUCT STEEL REPAIR	POUND	470.000				
50600300	CLEAN PAINT STEEL BR	L SUM	1.000				
50606400	C&D LEAD PT CL RES	L SUM	1.000				
51500100	NAME PLATES	EACH	7.000				
54244805	INLET BOX 542501	EACH	1.000				
54246205	INLET BOX 542526	EACH	1.000				
60100060	CONC HDWL FOR P DRAIN	EACH	29.000				
60240303	INLETS TB T9F&G	EACH	3.000				
60240324	INLETS TB T20F&G	EACH	2.000				
60241900	INLETS TG-1 SPL	EACH	61.000				
60242400	INLETS SPL	EACH	7.000				
60247132	DR STR T1A W/1 T20F&G	EACH	15.000				
60255500	MAN ADJUST	EACH	7.000				
60260100	INLETS ADJUST	EACH	1.000				
60260500	INLETS ADJ NEW T3F&G	EACH	7.000				

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60403400	GRATES TA	EACH	5.000				
60500040	REMOV MANHOLES	EACH	2.000				
60500060	REMOV INLETS	EACH	40.000				
60500105	FILL MANHOLES	EACH	2.000				
60500305	FILL INLETS	EACH	2.000				
60603300	GUTTER OUTLET	EACH	3.000				
60900215	TY C INLET BOX 609001	EACH	5.000				
60900315	TY D INLET BOX 609006	EACH	1.000				
60900515	CONC THRUST BLOCKS	EACH	33.000				
61000115	TY E INLET BOX 610001	EACH	5.000				
61000225	TY F INLET BOX 610001	EACH	1.000				
63100045	TRAF BAR TERM T2	EACH	5.000				
63100085	TRAF BAR TERM T6	EACH	1.000				
63100167	TR BAR TRM T1 SPL TAN	EACH	8.000				
63500105	DELINEATORS	EACH	42.000				

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66600105	FUR ERECT ROW MARKERS	EACH	10.000				
66700205	PERM SURV MKRS T1	EACH	12.000				
67100100	MOBILIZATION	L SUM	1.000				
70101800	TRAF CONT & PROT SPL	L SUM	1.000				
70103817	TR CONT SURVEILL SPL	CAL DA	440.000				
72400100	REMOV SIN PAN ASSY TA	EACH	18.000				
72400200	REMOV SIN PAN ASSY TB	EACH	67.000				
72400500	RELOC SIN PAN ASSY TA	EACH	7.000				
72400600	RELOC SIN PAN ASSY TB	EACH	4.000				
73600100	REMOV OH SIN STR-SPAN	EACH	2.000				
73600200	REMOV OH SIN STR-CANT	EACH	1.000				
73602000	REM OVHD SN STR-BR MT	EACH	1.000				
73700100	REM GR-MT SIN SUPPORT	EACH	23.000				
73700200	REM CONC FDN-GR MT	EACH	23.000				
73700300	REM CONC FDN-OVHD	EACH	5.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT
 NUMBER - 68201

State Job # - C-94-010-02
 PPS NBR - 4-01814-0400
 County Name - TAZEWELL - -
 Code - 179 - -
 District - 4 - -
 Section Number - (90-11)R-2;90(13,14,14-1)R-1

Project Number
 ACIM-0744/234/094

Route
 FAI 74

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
78100100	RAISED REFL PAVT MKR	EACH	977.000				
78100300	REPLACEMENT REFLECTOR	EACH	79.000				
78200500	BARRIER WALL MARKERS	EACH	117.000				
78201000	TERMINAL MARKER - DA	EACH	10.000				
78300200	RAISED REF PVT MK REM	EACH	640.000				
80400100	ELECT SERV INSTALL	EACH	2.000				
80500200	SERV INSTALL TY B	EACH	1.000				
80500205	SERV INSTALL TY B MOD	EACH	2.000				
81400100	HANDHOLE	EACH	1.000				
81400200	HD HANDHOLE	EACH	1.000				
81400400	CONC HANDHOLE	EACH	21.000				
81400600	CONC DBL HANDHOLE	EACH	2.000				
82102400	LUM SV HOR MT 400W	EACH	19.000				
82500530	LT CONT CBRCS 100-240	EACH	1.000				
82500560	LT CONT CBRCS 200-480	EACH	1.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
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Route
 FAI 74

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
82500605	LT CONTROL PC RELAY	EACH	1.000				
84100110	REM TEMP LIGHT UNITS	EACH	4.000				
84200500	REM EX LT UNIT SALV	EACH	16.000				
84200600	REM EX LT U NO SALV	EACH	44.000				
84200800	POLE FOUNDATION RM	EACH	59.000				
85700200	FAC T4 CAB	EACH	2.000				
86301000	TERMINAL FACILITY	EACH	1.000				
86400100	TRANSCEIVER - FIB OPT	EACH	2.000				
88200110	TS BACKPLATE LOUVERED	EACH	19.000				
88800100	PED PUSH-BUTTON	EACH	2.000				
89000200	TEMP TR SIG INSTALL	L SUM	1.000				
89502375	REMOV EX TS EQUIP	EACH	1.000				
89502380	REMOV EX HANDHOLE	EACH	8.000				
89502385	REMOV EX CONC FDN	EACH	8.000				
	* COMPLETE NEW SCHEDULE : JUNE 7, 2005						

CONTRACT NUMBER

68201

THIS IS THE TOTAL BID

\$ _____

NOTES:

1. Each PAY ITEM should have a UNIT PRICE and a TOTAL PRICE.
2. The UNIT PRICE shall govern if no TOTAL PRICE is shown or if there is a discrepancy between the product of the UNIT PRICE multiplied by the QUANTITY.
3. If a UNIT PRICE is omitted, the TOTAL PRICE will be divided by the QUANTITY in order to establish a UNIT PRICE.
4. A bid may be declared UNACCEPTABLE if neither a unit price nor a total price is shown.