



PROPOSAL SUBMITTED BY		
Contractor's Name		
Street	P.O. Box	
City	State	Zip Code

STATE OF ILLINOIS

COUNTY OF CHAMPAIGN

VILLAGE OF RANTOUL
(Name of City, Village, Town or Road District)

- ESTIMATE OF COST
- SPECIFICATIONS
- PLANS
- MATERIAL PROPOSAL
- DELIVER AND INSTALL PROPOSAL
- CONTRACT PROPOSAL
- CONTRACT
- CONTRACT BOND

FOR THE IMPROVEMENT OF

STREET NAME OR ROUTE NO. INNOVATION ROAD

SECTION NO. 13-00108-00-PV

TYPES OF FUNDS EDP

For Municipal Projects

Submitted/Approved/Passed _____
Date _____

Mayor President of Board of Trustees Municipal Official

For County and Road District Projects

Submitted/Approved _____
Date _____

Highway Commissioner

Submitted/Approved _____
Date _____

County Engineer/Superintendent of Highways

Department of Transportation

Released for bid based on limited review

Date _____

Regional Engineer

Concurrence in approval of award

Date _____

Regional Engineer



Notice to Bidders

RETURN WITH BID

Route	<u>INNOVATION ROAD</u>
County	<u>Champaign</u>
Local Agency	<u>Village of Rantoul</u>
Section	<u>13-00108-00-PV</u>

Time and Place of Opening of Bids

Sealed proposals for the improvement described below will be received at the office of The Village of Rantoul

333 South Tanner, Rantoul, IL 61866

until 2:00 o'clock P M., ^(address) February 22, 2013 Proposals will be opened and read publicly
 at 2:00 o'clock P M., ^(date) February 22, 2013 at the office of The Village of Rantoul
333 South Tanner, Rantoul, IL 61866 ^(date)
 (address)

Description of Work

Name INNOVATION ROAD-LOCAL ROAD IMPROVEMENTS Length 3192.30 feet (0.60 miles)

Location Village of rantoul

Proposed Improvement CONSTRUCTION OF A NEW PAVEMENT, CURB AND GUTTER AND STORM SEWER

Bidders Instructions

1. Plans and proposal forms will be available in the office of Village of Rantoul
or on their web-site at <http://www.village.rantoul.il.us/Bids.aspx>
2. If prequalification is required , the 2 low bidders must file within 24 hours after the letting an "Affidavit of Availability" (Form BC 57), in triplicate, showing all uncompleted contracts awarded to them and all low bids pending award for Federal, State, County, Municipal and private work. One copy shall be filed with the Awarding Authority and 2 copies with the IDOT District Office.
3. All proposals must be accompanied by a proposal guaranty as provided in BLRS Special Provision for Bidding Requirements and Conditions for Contract Proposals.
4. The Awarding Authority reserves the right to waive technicalities and to reject any or all proposals as provided in BLRS Special Provision for Bidding Requirements and Conditions for Contract Proposals.
5. Bidders need not return the entire contract proposal when bids are submitted unless otherwise required. Portions of the proposal that must be returned include the following:

a. BLR 12210 - Contract Cover	f. BLR 12230 - Proposal Bid Bond (if applicable)
b. BLR 12220 - Notice to Bidders	g. BLR 12325 – Apprenticeship or Training Program Certification (do not use for federally funded projects)
c. BLR 12221 - Contract Proposal	
d. BLR 12222 - Contract Schedule of Prices	
e. BLR 12223 - Signatures	
6. The quantities appearing in the bid schedule are approximate and are prepared for the comparison of bids. Payment to the Contractor will be made only for the actual quantities of work performed and accepted or materials furnished according to the contract. The scheduled quantities of work to be done and materials to be furnished may be increased, decreased or omitted as hereinafter provided.

7. Submission of a bid shall be conclusive assurance and warranty the bidder has examined the plans and understands all requirements for the performance of work. The bidder will be responsible for all errors in the proposal resulting from failure or neglect to conduct an in depth examination. The Awarding Authority will, in no case be responsible for any costs, expenses, losses or changes in anticipated profits resulting from such failure or neglect of the bidder.
8. The bidder shall take no advantage of any error or omission in the proposal and advertised contract.
9. If a special envelope is supplied by the Awarding Authority, each proposal should be submitted in that envelope furnished by the Awarding Agency and the blank spaces on the envelope shall be filled in correctly to clearly indicate its contents. When an envelope other than the special one furnished by the Awarding Authority is used, it shall be marked to clearly indicate its contents. When sent by mail, the sealed proposal shall be addressed to the Awarding Authority at the address and in care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and at the place specified in the Notice to Bidders. Proposals received after the time specified will be returned to the bidder unopened.
10. Permission will be given to a bidder to withdraw a proposal if the bidder makes the request in writing or in person before the time for opening proposals.

By Order of

Village of Rantoul

(Awarding Authority)

County Engineer/County Superintendent of Highways/Municipal Clerk

Note: All proposal documents, including Proposal Guaranty Checks or Proposal Bid Bonds, should be stapled together to prevent loss when bids are processed.



Apprenticeship or Training Program Certification

Return with Bid

Route INNOVATION ROAD
County CHAMPAIGN
Local Agency VILLAGE OF RANTOUL
Section 13-00108-00-PV

All contractors are required to complete the following certification:

- For this contract proposal or for all groups in this deliver and install proposal.
For the following deliver and install groups in this material proposal:

Blank lines for listing deliver and install groups.

Illinois Department of Transportation policy, adopted in accordance with the provisions of the Illinois Highway Code, requires this contract to be awarded to the lowest responsive and responsible bidder. The award decision is subject to approval by the Department. In addition to all other responsibility factors, this contract or deliver and install proposal requires all bidders and all bidders' subcontractors to disclose participation in apprenticeship or training programs that are (1) approved by and registered with the United States Department of Labor's Bureau of Apprenticeship and Training, and (2) applicable to the work of the above indicated proposals or groups. Therefore, all bidders are required to complete the following certification:

- I. Except as provided in paragraph IV below, the undersigned bidder certifies that it is a participant, either as an individual or as part of a group program, in an approved apprenticeship or training program applicable to each type of work or craft that the bidder will perform with its own employees.
II. The undersigned bidder further certifies for work to be performed by subcontract that each of its subcontractors submitted for approval either (A) is, at the time of such bid, participating in an approved, applicable apprenticeship or training program; or (B) will, prior to commencement of performance of work pursuant to this contract, establish participation in an approved apprenticeship or training program applicable to the work of the subcontract.
III. The undersigned bidder, by inclusion in the list in the space below, certifies the official name of each program sponsor holding the Certificate of Registration for all of the types of work or crafts in which the bidder is a participant and that will be performed with the bidder's employees. Types of work or craft that will be subcontracted shall be included and listed as subcontract work. The list shall also indicate any type of work or craft job category for which there is no applicable apprenticeship or training program available.

Blank lines for listing program sponsors and subcontracted work categories.

IV. Except for any work identified above, any bidder or subcontractor that shall perform all or part of the work of the contract or deliver and install proposal solely by individual owners, partners or members and not by employees to whom the payment of prevailing rates of wages would be required, check the following box, and identify the owner/operator workforce and positions of ownership.

The requirements of this certification and disclosure are a material part of the contract, and the contractor shall require this certification provision to be included in all approved subcontracts. The bidder is responsible for making a complete report and shall make certain that each type of work or craft job category that will be utilized on the project is accounted for and listed. The Department at any time before or after award may require the production of a copy of each applicable Certificate of Registration issued by the United States Department of Labor evidencing such participation by the contractor and any or all of its subcontractors. In order to fulfill the participation requirement, it shall not be necessary that any applicable program sponsor be currently taking or that it will take applications for apprenticeship, training or employment during the performance of the work of this contract or deliver and install proposal.

Bidder: _____

By: _____

(Signature)

Address: _____

Title: _____



Route INNOVATION ROAD
County CHAMPAIGN
Local Agency VILLAGE OF RANTOUL
Section 13-00108-00PV

RETURN WITH BID

PAPER BID BOND

WE _____ as PRINCIPAL,
and _____ as SURETY,
are held jointly, severally and firmly bound unto the above Local Agency (hereafter referred to as "LA") in the penal sum of 5% of the total bid price, or for the amount specified in the proposal documents in effect on the date of invitation for bids whichever is the lesser sum. We bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly pay to the LA this sum under the conditions of this instrument.

WHEREAS THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH that, the said PRINCIPAL is submitting a written proposal to the LA acting through its awarding authority for the construction of the work designated as the above section.

THEREFORE if the proposal is accepted and a contract awarded to the PRINCIPAL by the LA for the above designated section and the PRINCIPAL shall within fifteen (15) days after award enter into a formal contract, furnish surety guaranteeing the faithful performance of the work, and furnish evidence of the required insurance coverage, all as provided in the "Standard Specifications for Road and Bridge Construction" and applicable Supplemental Specifications, then this obligation shall become void; otherwise it shall remain in full force and effect.

IN THE EVENT the LA determines the PRINCIPAL has failed to enter into a formal contract in compliance with any requirements set forth in the preceding paragraph, then the LA acting through its awarding authority shall immediately be entitled to recover the full penal sum set out above, together with all court costs, all attorney fees, and any other expense of recovery.

IN TESTIMONY WHEREOF, the said PRINCIPAL and the said SURETY have caused this instrument to be signed by their respective officers this _____ day of _____

Principal

(Company Name) _____
(Company Name)
By: _____ By: _____
(Signature and Title) (Signature and Title)

(If PRINCIPLE is a joint venture of two or more contractors, the company names, and authorized signatures of each contractor must be affixed.)

Surety

(Name of Surety) By: _____
(Signature of Attorney-in-Fact)

STATE OF ILLINOIS,
COUNTY OF _____
I, _____, a Notary Public in and for said county,
do hereby certify that _____

(Insert names of individuals signing on behalf of PRINCIPAL & SURETY)

who are each personally known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of PRINCIPAL and SURETY, appeared before me this day in person and acknowledged respectively, that they signed and delivered said instruments as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this _____ day of _____

My commission expires _____
(Notary Public)

ELECTRONIC BID BOND

[] Electronic bid bond is allowed (box must be checked by LA if electronic bid bond is allowed)

The Principal may submit an electronic bid bond, in lieu of completing the above section of the Proposal Bid Bond Form. By providing an electronic bid bond ID code and signing below, the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the LA under the conditions of the bid bond as shown above. (If PRINCIPAL is a joint venture of two or more contractors, an electronic bid bond ID code, company/Bidder name title and date must be affixed for each contractor in the venture.)

Electronic Bid Bond ID Code

Electronic Bid Bond ID Code

(Company/Bidder Name)

(Signature and Title)

Date

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SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2013 (hereinafter referred to as the "Standard Specifications"); the latest edition of the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways" in effect on the date of invitation for bids; and the "Supplemental Specifications and Recurring Special Provisions", adopted January 1, 2013, indicated on the Check Sheet included herein; all of which apply to and govern the construction of: IL Route 136 Widening And Local Road improvements, Section 13-00108-00-PV in the Village of Rantoul, Illinois. The Village of Rantoul will award contract based upon available funding at the time of letting.

These special provisions included herein apply to and govern the proposed improvement designated as Section 13-00108-00-PV and in case of conflict with any part or parts of said specifications; said special provisions shall take precedent and shall govern.

LOCATION OF IMPROVEMENT

Evans Road from STA 726+50 to STA 732+50
Innovation Road from STA 9+72.3 to STA 35 +64.6
Gross and Net Length of project – 3192.3 foot

DESCRIPTION OF IMPROVEMENT

- Evans Rd. at Innovation Rd – roadway widening
- Innovation Rd. – construction of new pavement, curb and gutter, storm sewer and elliptical culverts.

COMPLETION DATE PLUS WORKING DAYS

For this contract all work shall be begin on March 20th, 2013 and be substantially complete on June 15th, 2013. After the completion date, an additional 15 working days will be allowed to complete all off-road or miscellaneous items of work. Contractor may begin work prior to March 20th, 2013 with written consent from the owner.

PROJECT & BID SCHEDULE

- Upload Innovation Road Bid Documents to Village Web-site – February 8, 2013
- Contractor RFI Questions Due on February 15th, 2013
- Issue Project Addendum (If necessary) – February 18th, 2013
- Bid Opening – February 22nd, 2013
- Village Board to Approve & Sign Contract – February 26th
- Signed Contract & Bond Due By Contractor - March 12th
- Pre-Construction Meeting – March 15th
- Contractor Required Mobilization for Innovation Road Improvements – March 20th
- Innovation Road Storm Sewer & Culverts Complete – May 1
- Substantial Completion Date – June 15
- Additional Working Days for Miscellaneous Items - 15 (June 30)

FAILURE TO COMPLETE THE WORK ON TIME

Should the Contractor fail to complete the work on or before the completion date stipulated in the contract or within such extended time as may have been allowed, the Contractor shall be liable and shall pay to the Village of Rantoul the amount of **\$1,725** for each day of overrun in the contract time or such extended time as may have been allowed, according to Article 108.09 of the Standard Specifications for Road and Bridge Construction.

CHANGE IN SCOPE OF WORK

The Village reserves the right to decrease the contract quantities in order to meet budgetary constraints. No compensation will be allowed to the Contractor for decrease in quantities and anticipated profits.

REJECTION OF BIDS

The Village reserves the right to defer the award of the contract for a period not to exceed thirty (30) calendar days after the date bids are received, to accept or reject any or all proposals, to waive technicalities, and to advertise for new bids, or to proceed to do the work otherwise, if in the judgment of the Village the best interests of the Village will be served.

DEFINITION OF TERMS

In addition to the definitions included in Section 101 of the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2013 the following should be added:

Engineer - shall be the firm of SPACECO, Inc. as Engineer employed by the Owner.

Owner - shall be the Village of Rantoul.

Municipality - shall be the Village of Rantoul.

Department - shall be the Village of Rantoul.

Village - shall be the Village of Rantoul.

INSURANCE REQUIREMENTS

The Contractor shall follow Section 107 of the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction. The insurance shall also name the Village of Rantoul and SPACECO, Inc. as additional insured. A certificate of insurance will be required to be posted prior to the preconstruction meeting.

CONTRACTOR COMPLIANCE

The awarded contractor attest to the following: The contractor hereby affirms that they are in compliance with the Illinois Human Rights Act, 775 ILCS 5/1-101 et seq., including, but not limited to, Section 2—105 thereof, 775 ILCS 5/2-105.

The contractor hereby affirms that they are in compliance with the Americans With Disabilities Act, (42 USC 121-1 et seq.) and its accompanying regulations (28 CFR 35.130) prohibit discrimination against qualified individuals with disabilities by a local government, whether directly or through contractual agreements, in the provision of any benefit, service, program or activity of the public entity. As a condition of receiving this contract, the contractor certifies by signing the bid proposal form that services, programs, and activities provided under this contract are now and will continue to be in compliance with The Americans with Disabilities Act.

The Village of Rantoul requires all contractors to possess a current Rantoul business license before proceeding with any work.

VANDALISM

Special attention is called to the Special Provision for "Inspection" as well as Article 107.30 of the Standard Specifications. **Any defaced work shall be corrected or replaced by the Contractor at his sole expense prior to final payment.** The Village of Rantoul shall cooperate with the Contractor to minimize vandalism, but the Contractor shall be ultimately responsible to correct any damage. The Village will not be responsible for the security of the work site in this regard, other than normal patrolling and response to emergencies. The cost of additional security required to meet this provision shall be solely the Contractor's responsibility.

CERTIFIED PAYROLL REQUIREMENTS

Contractors and subcontractors must submit certified payroll records on a monthly basis to the Village of Rantoul, along with a statement affirming that such records are true and accurate, that the wages paid to each worker are not less than the required prevailing rate and that the contractor is aware that filing records he or she knows to be false in a Class B misdemeanor. That certified payroll records must include for every worker employed on the public works project the name, address, telephone number, social security number, job classification, hourly wages paid in each pay period, number of hours worked each day, and starting and ending time of work each day. These certified payroll records are considered public records and public bodies must make these records available to the public under the Freedom of Information Act, with the exception of the employee's address, telephone number and social security number. Any contractor who fails to submit a certified payroll or knowingly files a false certified payroll is guilty of a Class B misdemeanor.

SUPERINTENDENT

The CONTRACTOR shall have on the site at all times, as the CONTRACTOR's agent, a competent English speaking superintendent capable of reading and thoroughly understanding the plans and specifications and thoroughly experienced in the type of work being performed, who shall receive instructions from the Engineer or authorized representatives. The superintendent shall have full authority to execute orders or directions of the Engineer without delay, and to promptly supply such materials, equipment, tools, labor, and incidentals as may be required. Such superintendent shall be furnished irrespective of the amount of work sublet. The CONTRACTOR shall be charged \$500 each working day that the superintendent is not present when work is being performed by the CONTRACTOR, a SUB-CONTRACTOR, or a SUB-SUB-CONTRACTOR.

SPECIFICATIONS LIMITING SPACECO INC.'s LIABILITY

Subsurface Exploration Data

Limited investigation of subsurface conditions at the proposed site of Work has been made for the purpose of design. The Village of Rantoul, the Illinois Department of Transportation, and SPACECO Inc. assume no responsibility whatsoever with respect to the sufficiency or accuracy of these preliminary investigations, nor their interpretation, and there is no guarantee, either expressed or implied that conditions indicated are representative of those existing throughout the Work or any part of it, or that unforeseen developments may occur.

Site Investigation and Conditions Affecting the Work

The BIDDER acknowledges that, prior to submission of its bid, it has taken steps necessary to ascertain the nature and location of the Work, and that it has investigated, confirmed, verified as correct and satisfied itself as to the general and local conditions which can affect the Work or its costs, including but not limited to (1) location and load capacity of existing roadways, utilities, corresponding pavement, shoulders, curb and gutter, sanitary sewer, storm sewers, and water main, bearing upon transportation, disposal, handling and storage of materials; (2) the availability of labor, water, electric power and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground and existing detention ponds; (5) the character of equipment and facilities needed prior to and during work performance; (6) subsurface conditions at the site of Work; (7) the quantities and qualities of all materials, equipment, and labor set forth in Bid Proposal, plans and drawings and specifications that are necessary to complete all of the Work as required under the Contract Documents; and (8) the location, condition, compatibility, configuration of all existing utilities and infrastructure. The BIDDER also acknowledges that it has verified as correct, confirmed and satisfied itself as to the character, quality and quantity of surface and subsurface materials, obstacles or conditions to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done, if any, as well as from the drawings, plans and specifications made a part of the bidding documents. The BIDDER further acknowledges that it has reviewed, investigated, confirmed, verified as correct and satisfied itself as to the geotechnical report. Any failure of the BIDDER to take the actions described and acknowledged in this paragraph will not relieve the BIDDER from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or for proceeding to successfully perform the Work without additional expense to the OWNER. SPACECO Inc. and OWNER assume no responsibility for any conclusions or interpretations made by the BIDDER based on information made available by SPACECO Inc.. or the OWNER of the project. Nor do the OWNER or SPACECO Inc. assume responsibility for any understanding reached or representation made concerning conditions which can affect the Work by any of its officers or agents before the acceptance of the bid offer and execution of the contract, unless that understanding or representation is expressly stated in this contract.

MAINTENANCE OF ROADWAYS

Beginning on the date that work begins on this project, the Contractor shall assume responsibility for normal maintenance of all existing roadways within the limits of the improvement. This normal maintenance shall include all repair work deemed necessary by the Engineer, but shall not include snow removal operations. Traffic control and protection for maintenance of roadways will be provided by the Contractor as required by the Engineer.

If items of work have not been provided in the contract, or otherwise specified for payment, such items, including the accompanying traffic control and protection required by the Engineer, will be paid for in accordance with Article 109.04 of the Standard Specifications.

STATUS OF UTILITIES TO BE ADJUSTED

Effective: January 30, 1987
Revised: July 1, 1994

Utility companies involved in this project have provided the following estimated dates:

<u>Name of Utility</u>	<u>Contact</u>	<u>Telephone</u>	<u>Estimated Dates for Start and Completion of Relocation or Adjustments</u>
Village of Rantoul (sewer, water, electric)	Greg Hazel	(217) 892-2178	No adjustment anticipated or as shown on Plans
NICOR	Bernie Anderson	(630) 536-3139	No adjustment anticipated or as shown on Plans
Frontier	Joe Birch	(217) 892-3338	No adjustment anticipated or as shown on Plans

The above represents the best information available to the Department and is included for the convenience of the bidder. The applicable portions of Articles 105.07 and 107.31 of the Standard Specifications shall apply.

X7010216 TRAFFIC CONTROL AND PROTECTION, SPECIAL

DESCRIPTION

The CONTRACTOR shall be responsible for all signing, traffic control, and protection of this project in accordance with the Plans and applicable parts of Section 701 of the Standard Specifications of Road and Bridge Construction, latest edition, and the latest edition of the State of Illinois Manual on Uniform Traffic Control Devices, any special details and Highway Standards contained in the plans, the Traffic Specifications and the Special Provisions contained herein.

Special attention is called to Articles 107.09, 107.14 and Section 701 of the Standard Specifications and the following Highway Standards, Details, Quality Standard for Work Zone Traffic Control Devices, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control.

The contractor shall contact the Village Engineer at least 72 hours in advance of beginning work.

STANDARDS: 701501-06, 701606-08, 701701-08, 701801-05, 701901-02.

This item of work shall include furnishing, installing, maintaining, replacing, relocating and removing all traffic control devices used for the purpose of regulating, warning or directing traffic during the construction or maintenance of this improvement.

All traffic control devices used on this project shall conform to the Plans, Special Provisions, Traffic Control Standards, Traffic Specifications and the Illinois Manual on Traffic Control Devices for Streets and Highways. No modification of these requirements will be allowed without prior approval of the Engineer.

The Contractor shall provide and install all temporary striping necessary to complete the various items of work. Temporary striping will not be paid for separately, but will be included in the cost of the overall project. All existing pavement markings in conflict with the temporary traffic control shall be ground out ('blacking out' of existing striping is NOT acceptable) and the recessed pavement marking lenses removed.

All existing recessed reflective pavement markers in conflict with the temporary traffic control shall be removed during construction in the bituminous section of the project, this item will be paid for separately.

Traffic control devices include signs and their supports, signals, pavement markings, barricades with sand bags, barrels, channelizing devices, warning lights, arrow boards, flaggers, or any other device used for the purpose of regulating, detouring, warning or guiding traffic through or around the construction zone.

The initial erection of traffic control installation shall not include devices that are bent, scratched, faded worn, dirty or otherwise present a shabby appearance. The Contractor is

required to conduct routine inspections of the work site at a frequency that will allow for the prompt replacement of any traffic control device that has become displaced, defaced, worn or damaged to the extent that it no longer conforms to the shape, dimensions, color and operational requirements of the MUTCD, and the Traffic Control Standards or will no longer present a neat appearance to motorists. A sufficient quantity of replacement devices, based on vulnerability to damage, shall be readily available to meet this requirement.

The Contractor shall be responsible for the proper location, installation and arrangement of all traffic control devices. Special attention shall be given to advance warning signs during construction operations in order to keep lane assignment consistent with barricade placement at all times. The Contractor shall immediately remove, cover or turn from the view of the motorist all traffic control devices which are inconsistent with detour or lane assignment patterns and conflicting conditions during the transition from one construction stage to another. When the Contractor elects to cover conflicting or inappropriate signing, the materials used shall completely block out reflectivity for the sign and shall cover the entire sign. The method for covering the signing shall meet the approval of the Engineer.

The Contractor shall coordinate all traffic control work on this project with adjoining or overlapping projects, including barricade placement necessary to provide uniform traffic detour pattern. When directed by the Engineer, the Contractor shall remove all traffic control devices which were furnished, installed and maintained by him/her under this Contract, and such devices shall remain the property of the Contractor. All traffic control devices shall remain in place until authorization for relocation or removal is received from the Engineer.

The Contractor shall ensure that all traffic control devices installed by him/her are operational, functional and effective 24 hours a day, including Sundays and holidays.

Where access is specified across the work zone, adequate temporary stone (or at the Contractor's option, millings) ramps must be provided and maintained until pavement is once again restored. The ramps may need to be cut out and back at various stages of excavation and as road building progresses. The cost of all temporary stone (or millings) ramps and access provisions shall be included in the cost to the Traffic Control and Protection pay item.

Access shall be considered full width and length of the pavement sections. During pavement operations at least one half of the entrance shall remain open to traffic. Before the Contractor begins work on the opposite half of the entrance, all millings or stone shall be removed and the base prepared for leveling binder. All pavement areas must be cleaned and swept prior to further paving operations.

This item includes all temporary stone access drives, signs, signals, electric arrow boards, temporary striping, reflectorized paint lines and markings, traffic cones, barricades, warning lights, drums, flagmen, and other traffic control devices required for the type of operation being performed. The Contractor shall at all times conduct the work in such a manner as to ensure the least obstruction to vehicular and pedestrian traffic. The convenience and safety of the general public and of residents along the site shall be provided for in an adequate and satisfactory manner.

All of the Contractor's workers must wear reflective vests at all times during work operations.

During construction, the Contractor shall provide lighted barricades, flagmen and other temporary protection where necessary for public safety at all times. Should traffic protection be determined to be inadequate by the Illinois Department of Transportation (IDOT) or the Village or Agencies representatives, the Agencies take the necessary actions to protect the public, and the cost of this work will be charged to the Contractor. The contractor shall make any necessary changes to traffic control as directed by these agencies and their representatives. Any additional traffic control work shall not be paid for separately but shall be considered incidental to the cost of traffic control and protection.

The Contractor shall maintain a clean, organized and concise construction schedule and work area. The Contractor shall submit a schedule, which shall show how the construction sequencing will take place. Storage of materials will not be allowed within the project limits. Only material that will be used for the following days work shall be stored within the work zone. No materials will be delivered to the project site until the day before the actual start of work.

The Contractor shall provide a list of three persons who can be contacted on a 24 hour basis to handle barricading, or other problems relating to the construction activity. These emergency response persons shall be capable of responding within one hour after notification by the Village. If there has been no response within one hour after notification, the Village will respond at a cost of \$50 per hour (one man plus truck) with a minimum of two hours charged plus materials. This charge will be deducted from payments to the Contractor.

Failure to comply with directions from the Engineer for correction of or changes to traffic control devices will result in a charge of \$500.00 per day.

METHOD OF MEASUREMENT

This item of work will be measured on a lump-sum basis.

BASIS OF PAYMENT

This work will be paid for at the contract LUMP SUM price for "TRAFFIC CONTROL AND PROTECTION , SPECIAL." The price shall include all labor, materials and equipment necessary to provide, erect and maintain all traffic control and protection as outlined in these specifications, IDOT Standard Details and as directed by the Engineer. No additional compensation shall be made.

TAB 2

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2013

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

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-12) (Revised 1-1-13)

SUPPLEMENTAL SPECIFICATIONS

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CHECK SHEET
FOR
RECURRING SPECIAL PROVISIONS

Adopted January 1, 2013

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

<u>CHECK SHEET #</u>	<u>RECURRING SPECIAL PROVISIONS</u>	<u>PAGE NO.</u>
1	<input type="checkbox"/> Additional State Requirements For Federal-Aid Construction Contracts (Eff. 2-1-69) (Rev. 1-1-10)	35
2	<input type="checkbox"/> Subletting of Contracts (Federal-Aid Contracts) (Eff. 1-1-88) (Rev. 5-1-93)	38
3	<input type="checkbox"/> EEO (Eff. 7-21-78) (Rev. 11-18-80)	39
4	<input type="checkbox"/> Specific Equal Employment Opportunity Responsibilities Non Federal-Aid Contracts (Eff. 3-20-69) (Rev. 1-1-94)	49
5	<input type="checkbox"/> Required Provisions - State Contracts (Eff. 4-1-65) (Rev. 1-1-13)	54
6	<input type="checkbox"/> Asbestos Bearing Pad Removal (Eff. 11-1-03)	59
7	<input type="checkbox"/> Asbestos Waterproofing Membrane and Hot-Mix Asphalt Surface Removal (Eff. 6-1-89) (Rev. 1-1-09)	60
8	<input type="checkbox"/> Haul Road Stream Crossings, Other Temporary Stream Crossings, and In-Stream Work Pads (Eff. 1-2-92) (Rev. 1-1-98)	61
9	<input type="checkbox"/> Construction Layout Stakes Except for Bridges (Eff. 1-1-99) (Rev. 1-1-07)	62
10	<input checked="" type="checkbox"/> Construction Layout Stakes (Eff. 5-1-93) (Rev. 1-1-07)	65
11	<input type="checkbox"/> Use of Geotextile Fabric for Railroad Crossing (Eff. 1-1-95) (Rev. 1-1-07)	68
12	<input type="checkbox"/> Subsealing of Concrete Pavements (Eff. 11-1-84) (Rev. 1-1-07)	70
13	<input type="checkbox"/> Hot-Mix Asphalt Surface Correction (Eff. 11-1-87) (Rev. 1-1-09)	74
14	<input type="checkbox"/> Pavement and Shoulder Resurfacing (Eff. 2-1-00) (Rev. 1-1-07)	76
15	<input type="checkbox"/> PCC Partial Depth Hot-Mix Asphalt Patching (Eff. 1-1-98) (Rev. 1-1-07)	77
16	<input type="checkbox"/> Patching with Hot-Mix Asphalt Overlay Removal (Eff. 10-1-95) (Rev. 1-1-07)	79
17	<input type="checkbox"/> Polymer Concrete (Eff. 8-1-95) (Rev. 1-1-08)	80
18	<input type="checkbox"/> PVC Pipeliner (Eff. 4-1-04) (Rev. 1-1-07)	82
19	<input type="checkbox"/> Pipe Underdrains (Eff. 9-9-87) (Rev. 1-1-07)	83
20	<input type="checkbox"/> Guardrail and Barrier Wall Delineation (Eff. 12-15-93) (Rev. 1-1-12)	84
21	<input type="checkbox"/> Bicycle Racks (Eff. 4-1-94) (Rev. 1-1-12)	88
22	<input type="checkbox"/> Temporary Modular Glare Screen System (Eff. 1-1-00) (Rev. 1-1-07)	90
23	<input type="checkbox"/> Temporary Portable Bridge Traffic Signals (Eff. 8-1-03) (Rev. 1-1-07)	92
24	<input type="checkbox"/> Work Zone Public Information Signs (Eff. 9-1-02) (Rev. 1-1-07)	94
25	<input type="checkbox"/> Night Time Inspection of Roadway Lighting (Eff. 5-1-96)	95
26	<input type="checkbox"/> English Substitution of Metric Bolts (Eff. 7-1-96)	96
27	<input type="checkbox"/> English Substitution of Metric Reinforcement Bars (Eff. 4-1-96) (Rev. 1-1-03)	97
28	<input type="checkbox"/> Calcium Chloride Accelerator for Portland Cement Concrete (Eff. 1-1-13)	98
29	<input type="checkbox"/> Portland Cement Concrete Inlay or Overlay for Pavements (Eff. 11-1-08) (Rev. 1-1-13)	99
30	<input type="checkbox"/> Quality Control of Concrete Mixtures at the Plant (Eff. 8-1-00) (Rev. 1-1-11)	102
31	<input type="checkbox"/> Quality Control/Quality Assurance of Concrete Mixtures (Eff. 4-1-92) (Rev. 1-1-11)	110
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CHECK SHEET
FOR
LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

Adopted January 1, 2013

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

LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

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LRS 3	<input checked="" type="checkbox"/> Work Zone Traffic Control (Eff. 1-1-99) (Rev. 1-1-10).....	127
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State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION
FOR
COOPERATION WITH UTILITIES

Effective: January 1, 1999
Revised: January 1, 2007

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

Replace Article 105.07 of the Standard Specifications with the following:

“105.07 Cooperation with Utilities. The adjustment of utilities consists of the relocation, removal, replacement, rearrangements, reconstruction, improvement, disconnection, connection, shifting, new installation or altering of an existing utility facility in any manner.

When the plans or special provisions include information pertaining to the location of underground utility facilities, such information represents only the opinion of the Department as to the location of such utilities and is only included for the convenience of the bidder. The Department assumes no responsibility in respect to the sufficiency or the accuracy of the information shown on the plans relative to the location of the underground utility facilities.

Utilities which are to be adjusted shall be adjusted by the utility owner or the owner's representative or by the Contractor as a contract item. Generally, arrangements for adjusting existing utilities will be made by the Department prior to project construction; however, utilities will not necessarily be adjusted in advance of project construction and, in some cases, utilities will not be removed from the proposed construction limits. When utility adjustments must be performed in conjunction with construction, the utility adjustment work will be shown on the plans and/or covered by Special Provisions.

When the Contractor discovers a utility has not been adjusted by the owner or the owner's representative as indicated in the contract documents, or the utility is not shown on the plans or described in the Special Provisions as to be adjusted in conjunction with construction, the Contractor shall not interfere with said utility, and shall take proper precautions to prevent damage or interruption of the utility and shall promptly notify the Engineer of the nature and location of said utility.

All necessary adjustments, as determined by the Engineer, of utilities not shown on the plans or not identified by markers, will be made at no cost to the Contractor except traffic structures, light poles, etc., that are normally located within the proposed construction limits as hereinafter defined will not be adjusted unless required by the proposed improvement.

(a) Limits of Proposed Construction for Utilities Paralleling the Roadway. For the purpose of this Article, limits of proposed construction for utilities extending in the same longitudinal direction as the roadway, shall be defined as follows:

(1) The horizontal limits shall be a vertical plane, outside of, parallel to, and 600 mm (2 ft) distant at right angles from the plan or revised slope limits.

In cases where the limits of excavation for structures are not shown on the plans, the horizontal limits shall be a vertical plane 1.2 m (4 ft) outside the edges of structure footings or the structure where no footings are required.

(2) The upper vertical limits shall be the regulations governing the roadbed clearance for the specific utility involved.

(3) The lower vertical limits shall be the top of the utility at the depth below the proposed grade as prescribed by the governing agency or the limits of excavation, whichever is less.

(b) Limits of Proposed Construction for Utilities Crossing the Roadway. For the purpose of this Article, limits of proposed construction for utilities crossing the roadway in a generally transverse direction shall be defined as follows:

(1) Utilities crossing excavations for structures that are normally made by trenching such as sewers, underdrains, etc. and all minor structures such as manholes, inlets, foundations for signs, foundations for traffic signals, etc., the limits shall be the space to be occupied by the proposed permanent construction unless otherwise required by the regulations governing the specific utility involved.

(2) For utilities crossing the proposed site of major structures such as bridges, sign trusses, etc., the limits shall be as defined above for utilities extending in the same general direction as the roadway.

The Contractor may make arrangements for adjustment of utilities outside of the limits of proposed construction provided the Contractor furnishes the Department with a signed agreement with the utility owner covering the adjustments to be made. The cost of any adjustments made outside the limits of proposed construction shall be the responsibility of the Contractor unless otherwise provided.

The Contractor shall request all utility owners to field locate their facilities according to Article 107.31. The Engineer may make the request for location from the utility after receipt of notice from the Contractor. On request, the Engineer will make an inspection to verify that the utility company has field located its facilities, but will not assume responsibility for the accuracy of such work. The Contractor shall be responsible for maintaining the excavations or markers provided by the utility owners. This field location procedure may be waived if the utility owner has stated in writing to the Department it is satisfied the construction plans are sufficiently accurate. If the utility owner does not submit such statement to the Department, and they do not field locate their facilities in both horizontal and vertical alignment, the Engineer will authorize the Contractor in writing to proceed to locate the facilities in the most economical and reasonable manner, subject to the approval of the Engineer, and be paid according to Article 109.04.

The Contractor shall coordinate with any planned utility adjustment or new installation and the Contractor shall take all precautions to prevent disturbance or damage to utility facilities. Any failure on the part of the utility owner, or their representative, to proceed with any planned utility adjustment or new installation shall be reported promptly by the Contractor to the Engineer orally and in writing.

The Contractor shall take all necessary precautions for the protection of the utility facilities. The Contractor shall be responsible for any damage or destruction of utility facilities resulting from neglect, misconduct, or omission in the Contractor's manner or method of execution or nonexecution of the work, or caused by defective work or the use of unsatisfactory materials. Whenever any damage or destruction of a utility facility occurs as a result of work performed by the Contractor, the utility company will be immediately notified. The utility company will make arrangements to restore such facility to a condition equal to that existing before any such damage or destruction was done.

It is understood and agreed that the Contractor has considered in the bid all of the permanent and temporary utilities in their present and/or adjusted positions.

No additional compensation will be allowed for any delays, inconvenience, or damage sustained by the Contractor due to any interference from the said utility facilities or the operation of relocating the said utility facilities.

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

SPECIAL PROVISION
FOR
INSURANCE

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

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

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

VILLAGE OF RANTOUL

SPACECO INC.

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

State of Illinois
DEPARTMENT OF TRANSPORTATION
Bureau of Local Roads and Streets
SPECIAL PROVISION
FOR
PIPE CULVERTS, TYPE _____, (FURNISHED)

Effective: September 1, 1964
Revised: January 1, 2007

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

Materials. Pipe Culverts, Type _____ (Furnished) of diameters or equivalent round size specified shall conform to the applicable portions of Section 542 and the following Articles:

<u>Item</u>	<u>Article</u>
(a) Corrugated Steel Culvert Pipe	1006.01(a)
(b) Corrugated Steel Pipe Arch	1006.01(a)
(c) Precoated Galvanized Corrugated Steel Pipe	1006.01(b)
(d) Precoated Galvanized Corrugated Steel Pipe Arch	1006.01(b)
(e) Aluminized Steel Type 2 Corrugated Pipe	1006.01(a)
(f) Aluminized Steel Type 2 Corrugated Pipe Arch	1006.01(a)
(g) Bituminous Coated Corrugated Steel Pipe	1006.01(a)
(h) Bituminous Coated Corrugated Steel Pipe Arch	1006.01(a)
(i) Zinc and Aramid Fiber Composite Coated Corrugated Steel Pipe	1006.01(a)
(j) Corrugated Aluminum Alloy Pipe	1006.03
(k) Corrugated Aluminum Alloy Culvert Pipe Arch	1006.03
(l) Reinforced Concrete Arch Culvert, Storm Drain and Sewer Pipe	1042.06(c)
(m) Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe	1042.06(a)
(n) Concrete Sewer, Storm Drain, and Culvert Pipe	1042.06(d)
(o) Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe	1042.06(b)
(p) Polyvinyl Chloride (PVC) Pipe	1040.03
(q) Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior	1040.03(d)
(r) Polyvinyl Chloride (PVC) Profile Wall Pipe - 794	1040.03(e)
(s) Polyethylene (PE) Pipe with a Smooth Interior	1040.04(d)
(t) Polyethylene (PE) Profile Wall Pipe	1040.04(c)
(u) Polyvinyl Chloride (PVC) Profile Wall Pipe - 304	1040.03(f)
(v) Corrugated Polyethylene (PE) Pipe with a Smooth Interior	1040.04(a)
(w) Extra Strength Clay Pipe	1040.02
(x) Clay Sewer Pipe	1040.02

Bids may be submitted for any kind of pipe culvert listed in the Specifications for the "Type" herein specified, except for those **struck** above.

The thickness or class of pipe shall conform to the table in Article 542.03. The respective AASHTO specifications for these materials require the pipe to be stamped with metal thickness.

When applicable, connecting bands shall be fabricated from the same type of base metal as is used for the pipe.

Method of Measurement. Pipe culverts of the diameter specified will be measured for payment in meters (feet).

Basis of Payment. The material will be paid for at the contract unit price bid per meter (foot) of PIPE CULVERTS, TYPE _____, (FURNISHED) of the diameter or equivalent round size specified, at the delivery point specified. The bid price shall include all connecting bands when steel or aluminum pipe is furnished.

Champaign County Prevailing Wage for February 2013

(See explanation of column headings at bottom of wages)

Trade Name	RG	TYP	C	Base	FRMAN	M-F>8	OSA	OSH	H/W	Pensn	Vac	Trng
ASBESTOS ABT-GEN		BLD		30.630	31.880	1.5	1.5	2.0	5.750	9.790	0.000	0.900
ASBESTOS ABT-MEC		BLD		20.450	21.450	1.5	1.5	2.0	6.250	5.000	0.000	0.000
BOILERMAKER		BLD		35.010	38.010	2.0	2.0	2.0	7.070	13.83	0.000	0.300
BRICK MASON		BLD		30.670	32.170	1.5	1.5	2.0	6.600	10.03	0.000	0.630
CARPENTER		BLD		33.000	35.250	1.5	1.5	2.0	7.450	9.250	0.000	0.520
CARPENTER		HWY		33.350	35.100	1.5	1.5	2.0	7.450	9.250	0.000	0.520
CEMENT MASON		BLD		29.800	31.300	1.5	1.5	2.0	6.600	8.360	0.000	0.500
CEMENT MASON		HWY		30.390	31.890	1.5	1.5	2.0	6.600	8.560	0.000	0.500
CERAMIC TILE FNSHER		BLD		28.400	0.000	1.5	1.5	2.0	6.600	7.930	0.000	0.000
ELECTRIC PWR EQMT OP		ALL		35.440	0.000	1.5	1.5	2.0	5.000	10.98	0.000	0.270
ELECTRIC PWR GRNDMAN		ALL		24.320	0.000	1.5	1.5	2.0	5.000	7.540	0.000	0.180
ELECTRIC PWR LINEMAN		ALL		39.370	41.910	1.5	1.5	2.0	5.000	12.20	0.000	0.300
ELECTRIC PWR TRK DRV		ALL		25.510	0.000	1.5	1.5	2.0	5.000	7.920	0.000	0.190
ELECTRICIAN		BLD		36.410	38.410	1.5	1.5	2.0	5.350	7.740	0.000	0.550
ELECTRONIC SYS TECH		BLD		30.830	32.580	1.5	1.5	2.0	5.350	6.720	0.000	0.400
ELEVATOR CONSTRUCTOR		BLD		40.520	45.585	2.0	2.0	2.0	11.88	12.71	3.240	0.600
FENCE ERECTOR		ALL		30.610	32.510	1.5	1.5	2.0	8.840	8.420	0.000	0.900
GLAZIER		BLD		30.780	32.780	1.5	2.0	2.0	6.630	8.150	0.000	0.380
HT/FROST INSULATOR		BLD		31.230	32.230	1.5	1.5	2.0	5.790	8.960	2.000	0.250
IRON WORKER		ALL		30.610	32.510	1.5	1.5	2.0	8.840	8.420	0.000	0.900
LABORER		BLD		28.630	29.880	1.5	1.5	2.0	5.750	9.790	0.000	0.800
LABORER		HWY		29.650	30.650	1.5	1.5	2.0	5.750	9.790	0.000	0.800
LATHER		BLD		33.000	35.250	1.5	1.5	2.0	7.450	9.250	0.000	0.520
MACHINIST		BLD		43.550	46.050	1.5	1.5	2.0	6.130	8.950	1.850	0.000
MARBLE FINISHERS		BLD		28.400	0.000	1.5	1.5	2.0	6.600	7.930	0.000	0.000
MARBLE MASON		BLD		29.900	0.000	1.5	1.5	2.0	6.600	7.930	0.000	0.000
MILLWRIGHT		BLD		29.620	31.870	1.5	1.5	2.0	7.450	13.09	0.000	0.520
MILLWRIGHT		HWY		31.400	33.150	1.5	1.5	2.0	7.450	13.54	0.000	0.520
OPERATING ENGINEER		ALL	1	36.150	0.000	1.5	1.5	2.0	6.800	8.400	0.000	0.800
OPERATING ENGINEER		ALL	2	23.450	0.000	1.5	1.5	2.0	6.800	8.400	0.000	0.800
PAINTER		ALL		33.560	35.060	1.5	1.5	2.0	6.600	4.420	0.000	0.570
PAINTER SIGNS		ALL		33.560	35.060	1.5	1.5	2.0	6.600	4.420	0.000	0.570
PILEDRIVER		BLD		33.500	35.750	1.5	1.5	2.0	7.450	9.250	0.000	0.520
PILEDRIVER		HWY		34.350	36.100	1.5	1.5	2.0	7.450	9.250	0.000	0.520
PIPEFITTER		BLD		37.680	40.180	1.5	1.5	2.0	7.000	10.61	0.000	0.980
PLASTERER		BLD		30.000	32.000	1.5	1.5	2.0	6.600	10.17	0.000	0.500
PLUMBER		BLD		37.680	40.180	1.5	1.5	2.0	7.000	10.61	0.000	0.980
ROOFER		BLD		28.750	30.250	1.5	1.5	2.0	9.150	8.400	0.000	0.200
SHEETMETAL WORKER		BLD		33.640	35.640	1.5	1.5	2.0	8.300	12.00	0.000	0.520
SPRINKLER FITTER		BLD		36.390	39.140	1.5	1.5	2.0	8.420	8.350	0.000	0.450
STONE MASON		BLD		30.670	32.170	1.5	1.5	2.0	6.600	10.03	0.000	0.630
TERRAZZO FINISHER		BLD		28.400	0.000	1.5	1.5	2.0	6.600	7.930	0.000	0.000
TERRAZZO MASON		BLD		29.900	0.000	1.5	1.5	2.0	6.600	7.930	0.000	0.000
TILE MASON		BLD		29.900	0.000	1.5	1.5	2.0	6.600	7.930	0.000	0.000
TRUCK DRIVER		ALL	1	31.230	0.000	1.5	1.5	2.0	10.30	4.840	0.000	0.250
TRUCK DRIVER		ALL	2	31.680	0.000	1.5	1.5	2.0	10.30	4.840	0.000	0.250
TRUCK DRIVER		ALL	3	31.890	0.000	1.5	1.5	2.0	10.30	4.840	0.000	0.250
TRUCK DRIVER		ALL	4	32.180	0.000	1.5	1.5	2.0	10.30	4.840	0.000	0.250

Champaign County Prevailing Wage for February 2013

TRUCK DRIVER	ALL	5	33.020	0.000	1.5	1.5	2.0	10.30	4.840	0.000	0.250
TRUCK DRIVER	O&C	1	24.980	0.000	1.5	1.5	2.0	10.30	4.840	0.000	0.250
TRUCK DRIVER	O&C	2	25.340	0.000	1.5	1.5	2.0	10.30	4.840	0.000	0.250
TRUCK DRIVER	O&C	3	25.510	0.000	1.5	1.5	2.0	10.30	4.840	0.000	0.250
TRUCK DRIVER	O&C	4	25.740	0.000	1.5	1.5	2.0	10.30	4.840	0.000	0.250
TRUCK DRIVER	O&C	5	26.420	0.000	1.5	1.5	2.0	10.30	4.840	0.000	0.250
TUCKPOINTER	BLD		30.670	32.170	1.5	1.5	2.0	6.600	10.03	0.000	0.630

- Legend: RG (Region)
 TYP (Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers)
 C (Class)
 Base (Base Wage Rate)
 FRMAN (Foreman Rate)
 M-F>8 (OT required for any hour greater than 8 worked each day, Mon through Fri.)
 OSA (Overtime (OT) is required for every hour worked on Saturday)
 OSH (Overtime is required for every hour worked on Sunday and Holidays)
 H/W (Health & Welfare Insurance)
 Pensn (Pension)
 Vac (Vacation)
 Trng (Training)

Explanations

CHAMPAIGN COUNTY

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

Oil and chip resealing (O&C) means the application of road oils and liquid asphalt to coat an existing road surface, followed by application of aggregate chips or gravel to coated surface, and subsequent rolling of material to seal the surface.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER, MARBLE FINISHER, TERRAZZO FINISHER

Assisting, helping or supporting the tile, marble and terrazzo mechanic by performing their historic and traditional work assignments required to complete the proper installation of the work covered by

said crafts. The term "Ceramic" is used for naming the classification only and is in no way a limitation of the product handled. Ceramic takes into consideration most hard tiles.

ELECTRONIC SYSTEMS TECHNICIAN

Installation, service and maintenance of low-voltage systems which utilizes the transmission and/or transference of voice, sound, vision, or digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background/foreground music, intercom and telephone interconnect, field programming, inventory control systems, microwave transmission, multi-media, multiplex, radio page, school, intercom and sound burglar alarms and low voltage master clock systems.

Excluded from this classification are energy management systems, life safety systems, supervisory controls and data acquisition systems not intrinsic with the above listed systems, fire alarm systems, nurse call systems and raceways exceeding fifteen feet in length.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION

Class 1. Drivers on 2 axle trucks hauling less than 9 ton. Air compressor and welding machines and brooms, including those pulled by separate units, truck driver helpers, warehouse employees, mechanic helpers, greasers and tiremen, pickup trucks when hauling materials, tools, or workers to and from and on-the-job site, and fork lifts up to 6,000 lb. capacity.

Class 2. Two or three axle trucks hauling more than 9 ton but hauling less than 16 ton. A-frame winch trucks, hydrolift trucks, vactor trucks or similar equipment when used for transportation purposes. Fork lifts over 6,000 lb. capacity, winch trucks, four axle combination units, and ticket writers.

Class 3. Two, three or four axle trucks hauling 16 ton or more. Drivers on water pulls, articulated dump trucks, mechanics and working forepersons, and dispatchers. Five axle or more combination units.

Class 4. Low Boy and Oil Distributors.

Class 5. Drivers who require special protective clothing while employed on hazardous waste work.

TRUCK DRIVER - OIL AND CHIP RESEALING ONLY.

This shall encompass laborers, workers and mechanics who drive contractor or subcontractor owned, leased, or hired pickup, dump, service, or oil distributor trucks. The work includes transporting materials and equipment (including but not limited to, oils, aggregate supplies, parts, machinery and tools) to or from the job site; distributing oil or liquid asphalt and aggregate; stock piling material when in connection with the actual oil and chip contract. The Truck Driver (Oil & Chip Resealing) wage classification does not include supplier delivered materials.

OPERATING ENGINEERS - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION

Class 1. Power Cranes, Draglines, Derricks, Shovels, Gradalls, Mechanics, Tractor Highlift, Tournadozer, Concrete Mixers with Skip, Tournamixer, Two Drum Machine, One Drum Hoist with Tower or Boom, Cableways, Tower Machines, Motor Patrol, Boom Tractor, Boom or Winch Truck, Winch or Hydraulic Boom Truck, Truck Crane, Tournapull, Tractor Operating Scoops, Bulldozer, Push Tractor, Asphalt Planer, Finishing Machine on Asphalt, Large Rollers on Earth, Rollers on Asphalt Mix, Ross Carrier or similar Machine, Gravel Processing Machine, Asphalt Plant Engineer, Paver Operator, Dredging Equipment, or Dredge Engineer, or Dredge Operator, Central Mix Plant Engineer, CMI or similar type machine, Concrete Pump, Truck or Skid Mounted, Tower Crane, Engineer or Rock Crusher Plant, Concrete Plant Engineer, Ditching Machine with dual attachment, Tractor Mounted Loaders, Cherry Picker, Hydro Crane, Standard or Dinkey Locomotives, Scoopmobiles, Euclid Loader, Soil Cement Machine, Back Filler, Elevating Machine, Power Blade, Drilling Machine, including Well Testing, Caissons, Shaft or any similar type drilling machines, Motor Driven Paint Machine, Pipe Cleaning Machine, Pipe Wrapping Machine, Pipe Bending Machine, Apsco Paver, Boring Machine, (Head Equipment Greaser), Barber-Greene Loaders, Formless Paver, (Well Point System), Concrete Spreader, Hydra Ax, Span Saw, Marine Scoops, Brush Mulcher, Brush Burner, Mesh Placer, Tree Mover, Helicopter Crew (3), Piledriver-Skid or Crawler, Stump Remover, Root Rake, Tug Boat Operator, Refrigerating Machine, Freezing Operator, Chair Cart-Self-Propelled, Hydra Seeder, Straw Blower, Power Sub Grader, Bull Float, Finishing Machine, Self-Propelled Pavement Breaker, Lull (or similar type Machine), Two Air Compressors, Compressors hooked in Manifold, Overhead Crane, Chip Spreader, Mud Cat, Sull-Air, Fork Lifts (except when used for landscaping work), Soil Stabilizer (Seaman Tiller, Bo Mag, Rago Gator, and similar types of equipment), Tube Float, Spray Machine, Curing Machine, Concrete or Asphalt Milling Machine, Snooper Truck-Operator, Backhoe, Farm Tractors (with attachments), 4 Point Lift System (Power Lift or similar type), Skid-Steer (Bob Cat or similar type), Wrecking Shears, Water Blaster.

Class 2. Concrete Mixers without Skips, Rock Crusher, Ditching Machine under 6', Curbing Machine, One Drum Machines without Tower or Boom, Air Tugger, Self-Propelled Concrete Saw, Machine Mounted Post Hole Digger, two to four Generators, Water Pumps or Welding Machines, within 400 feet, Air Compressor 600 cu. ft. and under, Rollers on Aggregate and Seal Coat Surfaces, Fork Lift (when used for landscaping work), Concrete and Blacktop Curb Machine, One Water Pump, Oilers, Air Valves or Steam Valves, One Welding Machine, Truck Jack, Mud Jack, Gunnite Machine, House Elevators when used for hoisting material, Engine Tenders, Fireman, Wagon Drill, Flex Plane, Conveyor, Siphons and Pulsometer, Switchman, Fireman on Paint Pots, Fireman on Asphalt Plants, Distributor Operator on Trucks, Tampers, Self-Propelled Power Broom, Striping Machine (motor driven), Form Tamper, Bulk Cement Plant, Equipment Greaser, Deck Hands, Truck Crane Oiler-Driver, Cement Blimps, Form Grader, Temporary Heat, Throttle Valve, Super Sucker (and similar type of equipment).

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available.

If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

BDE SPECIAL PROVISIONS
For the January 18 and March 8, 2013 Lettings

The following special provisions indicated by an "x" are applicable to this contract and will be included by the Project Development and Implementation Section of the BD&E. An * indicates a new or revised special provision for the letting.

<u>File Name</u>	<u>#</u>	<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80240	1	Above Grade Inlet Protection	July 1, 2009	Jan. 1, 2012
80099	2	Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2007
80274	3	Aggregate Subgrade Improvement	April 1, 2012	Jan. 1, 2013
80309	4	Anchor Bolts	Jan. 1, 2013	
80192	5	Automated Flagger Assistance Device	Jan. 1, 2008	
80173	6	Bituminous Materials Cost Adjustments	Nov. 2, 2006	Jan. 1, 2012
80241	7	Bridge Demolition Debris	July 1, 2009	
80276	8	Bridge Relief Joint Sealer	Jan. 1, 2012	Aug. 1, 2012
50261	9	Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50481	10	Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50491	11	Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50531	12	Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	April 1, 2010
80292	13	Coarse Aggregate in Bridge Approach Slabs/Footings	April 1, 2012	
80310	14	Coated Galvanized Steel Conduit	Jan. 1, 2013	
80198	15	Completion Date (via calendar days)	April 1, 2008	
80199	16	Completion Date (via calendar days) Plus Working Days	April 1, 2008	
80293	17	Concrete Box Culverts with Skews > 30 Degrees and Design Fills ≤ 5 Feet	April 1, 2012	
80294	18	Concrete Box Culverts with Skews ≤ 30 Degrees Regardless of Design Fill and Skews > 30 Degrees with Design Fills > 5 Feet	April 1, 2012	
80311	19	Concrete End Sections for Pipe Culverts	Jan. 1, 2013	
80277	20	Concrete Mix Design – Department Provided	Jan. 1, 2012	
80261	21	Construction Air Quality – Diesel Retrofit	June 1, 2010	
80029	22	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	Aug. 2, 2011
80312	23	Drain Pipe, Tile, Drainage Mat, and Wall Drain	Jan. 1, 2013	
80313	24	Fabric Bearing Pads	Jan. 1, 2013	
80265	25	Friction Aggregate	Jan. 1, 2011	
80229	26	Fuel Cost Adjustment	April 1, 2009	July 1, 2009
80303	27	Granular Materials	Nov. 1, 2012	
80304	28	Grooving for Recessed Pavement Markings	Nov. 1, 2012	Jan. 1, 2013
80169	29	High Tension Cable Median Barrier	Jan. 1, 2007	Jan. 1, 2013
80246	30	Hot-Mix Asphalt – Density Testing of Longitudinal Joints	Jan. 1, 2010	April 1, 2012
80315	31	Insertion Lining of Culverts	Jan. 1, 2013	
80045	32	Material Transfer Device	June 15, 1999	Jan. 1, 2009
80297	33	Modified Urethane Pavement Marking	April 1, 2012	
80165	34	Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2010
80253	35	Movable Traffic Barrier	Jan. 1, 2010	Jan. 1, 2013
80231	36	Pavement Marking Removal	April 1, 2009	
80298	37	Pavement Marking Tape Type IV	April 1, 2012	
80254	38	Pavement Patching	Jan. 1, 2010	
80022	39	Payments to Subcontractors	June 1, 2000	Jan. 1, 2006
80316	40	Placing and Consolidating Concrete	Jan. 1, 2013	
80278	41	Planting Woody Plants	Jan. 1, 2012	Aug. 1, 2012
80305	42	Polyurea Pavement Markings	Nov. 1, 2012	Jan. 1, 2013
80279	43	Portland Cement Concrete	Jan. 1, 2012	Jan. 1, 2013
80300	44	Preformed Plastic Pavement Marking Type D - Inlaid	April 1, 2012	
80218	45	Preventive Maintenance – Bituminous Surface Treatment	Jan. 1, 2009	April 1, 2012
80219	46	Preventive Maintenance – Cape Seal	Jan. 1, 2009	April 1, 2012

<u>File Name</u>	<u>#</u>	<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80220	47	Preventive Maintenance – Micro-Surfacing	Jan. 1, 2009	April 1, 2012
80221	48	Preventive Maintenance – Slurry Seal	Jan. 1, 2009	April 1, 2012
80228	49	Quality Control/Quality Assurance of Concrete Mixtures	Jan. 1, 2012	Jan. 1, 2013
34261	50	Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157	51	Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
80306	52	Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)	Nov. 1, 2012	Jan. 1, 2013
80224	53	Restoring Bridge Approach Pavements Using High-Density Foam	Jan. 1, 2009	Jan. 1, 2012
80271	54	Safety Edge	April 1, 2011	
80307	55	Seeding	Nov. 1, 2012	
80127	56	Steel Cost Adjustment	April 2, 2004	April 1, 2009
80255	57	Stone Matrix Asphalt	Jan. 1, 2010	Jan. 1, 2012
80143	58	Subcontractor Mobilization Payments	April 2, 2005	April 1, 2011
80317	59	Surface Testing of Hot Mix Asphalt Overlays (NOTE: This special provision was previously named "Surface Testing of Pavements")	Jan. 1, 2013	
80308	60	Synthetic Fibers in Concrete Gutter, Curb, Median and Paved Ditch	Nov. 1, 2012	
80286	61	✓ Temporary Erosion and Sediment Control	Jan. 1, 2012	
80225	62	Temporary Raised Pavement Marker	Jan. 1, 2009	
80256	63	Temporary Water Filled Barrier	Jan. 1, 2010	Jan. 1, 2013
80301	64	Tracking the Use of Pesticides	Aug. 1, 2012	
80273	65	✓ Traffic Control Deficiency Deduction	Aug. 1, 2011	
20338	66	Training Special Provisions	Oct. 15, 1975	
80313	67	Traversable Pipe Grate	Jan. 1, 2013	
80270	68	Utility Coordination and Conflicts	April 1, 2011	Jan. 1, 2012
80288	69	Warm Mix Asphalt	Jan. 1, 2012	Nov. 1, 2012
80302	70	Weekly DBE Trucking Reports	June 2, 2012	
80289	71	Wet Reflective Thermoplastic Pavement Marking	Jan. 1, 2012	
80071	72	Working Days	Jan. 1, 2002	

The following special provisions are either in the 2013 Standard Specifications, the 2013 Recurring Special Provisions, or the special provisions Portland Cement Concrete, QC/QA of Concrete Mixtures, or Placing and Consolidating Concrete:

<u>File Name</u>	<u>Special Provision Title</u>	<u>New Location</u>	<u>Effective</u>	<u>Revised</u>
80275	Agreement to Plan Quantity	Article 202.07	Jan. 1, 2012	
80291	Calcium Chloride Accelerator for Class PP-2 Concrete	Recurring CS #28	April 1, 2012	
80237	Construction Air Quality – Diesel Vehicle Emissions Control	Articles 105.03 and 107.41	April 1, 2009	Jan. 2, 2012
80239	Construction Air Quality – Idling Restrictions	Articles 105.03 and 107.41	April 1, 2009	
80177	Digital Terrain Modeling for Earthwork Calculations	Recurring CS #32	April 1, 2007	
80272	Drainage and Inlet Protection Under Traffic	Articles 603.02 and 603.07	April 1, 2011	Jan. 1, 2012
80228	Flagger at Side Roads and Entrances	Articles 701.13 and 701.20	April 1, 2009	
80109	Impact Attenuators	Section 643	Nov. 1, 2003	Jan. 1, 2012
80110	Impact Attenuators, Temporary	Section 706	Nov. 1, 2003	Jan. 1, 2012
80203	Metal Hardware Cast into Concrete	Articles 503.02, 504.02, and 1006.13	April 1, 2008	Jan. 1, 2012
80290	Payrolls and Payroll Records	Recurring CS #5	Jan. 2, 2012	
80299	Portland Cement Concrete Inlay or Overlay	Recurring CS #29	April 1, 2012	
80280	Portland Cement Concrete Sidewalk	Article 424.07	Jan. 1, 2012	

<u>File Name</u>	<u>Special Provision Title</u>	<u>New Location</u>	<u>Effective</u>	<u>Revised</u>
80152	Self-Consolidating Concrete for Cast-In-Place Construction	The following special provisions: Portland Cement Concrete, QC/QA of Concrete Mixtures and Placing and Consolidating Concrete	Nov. 1, 2005	April 1, 2012
80132	Self-Consolidating Concrete for Precast and Precast Prestressed Products	The following special provisions: Portland Cement Concrete, QC/QA of Concrete Mixtures and Placing and Consolidating Concrete	July 1, 2004	April 1, 2012
80284	Shoulder Rumble Strips	Article 642.05	Jan. 1, 2012	
80285	Sidewalk, Corner or Crosswalk Closure	Articles 701.03, 701.15, and 1106.02	Jan. 1, 2012	
80075	Surface Testing of Pavements (Section 406 overlay portion will remain a special provision and will now be called "Surface Testing of HMA Overlays".)	Articles 407.09, 407.12, 420.10, 420.20, and 1101.10	April 1, 2002	Jan. 1, 2007
80287	Type G Inlet Box	Article 610.09	Jan. 1, 2012	

The following special provisions require additional information from the designer. The additional information needs to be included in a separate document attached to this check sheet. The Project Development and Implementation section will then include the information in the applicable special provision. The Special Provisions are:

- Bridge Demolition Debris
- Building Removal-Case I
- Building Removal-Case II
- Building Removal-Case III
- Building Removal-Case IV
- Completion Date
- Completion Date Plus Working Days
- DBE Participation
- Material Transfer Device
- Railroad Protective Liability Insurance
- Training Special Provisions
- Working Days

AGGREGATE SUBGRADE IMPROVEMENT (BDE)

Effective: April 1, 2012

Revised: January 1, 2013

Add the following Section to the Standard Specifications:

"SECTION 303. AGGREGATE SUBGRADE IMPROVEMENT

303.01 Description. This work shall consist of constructing an aggregate subgrade improvement.

303.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Coarse Aggregate	1004.06
(b) Reclaimed Asphalt Pavement (RAP) (Notes 1, 2, and 3)	1031

Note 1. Crushed RAP, from either full depth or single lift removal, may be mechanically blended with aggregate gradations CS 01, CS 02, and RR 01 but shall not exceed 40 percent of the total product. The top size of the RAP shall be less than 4 in. (100 mm) and well graded.

Note 2. RAP having 100 percent passing the 1 1/2 in. (37.5 mm) sieve and being well graded, may be used as capping aggregate in the top 3 in. (75 mm) when aggregate gradations CS 01, CS 02, or RR 01 are used in lower lifts.

Note 3. The RAP used for aggregate subgrade improvement shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications".

303.03 Equipment. The vibratory machine shall be according to Article 1101.01, or as approved by the Engineer.

303.04 Soil Preparation. The stability of the soil shall be according to the Department's Subgrade Stability Manual for the aggregate thickness specified.

303.05 Placing Aggregate. The maximum nominal lift thickness of aggregate gradations CA 02, CA 06, or CA 10 shall be 12 in. (300 mm). The maximum nominal lift thickness of aggregate gradations CS 01, CS 02, and RR 01 shall be 24 in. (600 mm).

303.06 Capping Aggregate. The top surface of the aggregate subgrade shall consist of a minimum 3 in. (75 mm) of aggregate gradations CA 06 or CA 10. When the contract specifies that a granular subbase is to be placed on the aggregate subgrade improvement, the 3 in. (75 mm) of capping aggregate shall be the same gradation and may be placed with the underlying aggregate subgrade improvement material.

303.07 Compaction. All aggregate lifts shall be compacted to the satisfaction of the Engineer. If the moisture content of the material is such that compaction cannot be obtained, sufficient water shall be added so that satisfactory compaction can be obtained.

303.08 Finishing and Maintenance of Aggregate Subgrade Improvement. The aggregate subgrade improvement shall be finished to the lines, grades, and cross sections shown on the plans, or as directed by the Engineer. The aggregate subgrade improvement shall be maintained in a smooth and compacted condition.

303.09 Method of Measurement. This work will be measured for payment according to Article 311.08.

303.10 Basis of Payment. This work will be paid for at the contract unit price per cubic yard (cubic meter) or ton (metric ton) for AGGREGATE SUBGRADE IMPROVEMENT or at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE IMPROVEMENT, of the thickness specified."

Add the following to Section 1004 of the Standard Specifications:

"1004.06 Coarse Aggregate for Aggregate Subgrade Improvement. The aggregate shall be according to Article 1004.01 and the following.

- (a) Description. The coarse aggregate shall be crushed gravel, crushed stone, or crushed concrete.
- (b) Quality. The coarse aggregate shall consist of sound durable particles reasonably free of deleterious materials.
- (c) Gradation.
 - (1) The coarse aggregate gradation for total subgrade thickness less than or equal to 12 in. (300 mm) shall be CA 2, CA 6, CA 10, or CS 01.

The coarse aggregate gradation for total subgrade thickness more than 12 in. (300 mm) shall be CS 01, CS 02 or RR 01(see Article 1005.01(c)).

COARSE AGGREGATE SUBGRADE GRADATIONS					
Grad No.	Sieve Size and Percent Passing				
	8"	6"	4"	2"	#4
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 02		100	80 ± 10	25 ± 15	

COARSE AGGREGATE SUBGRADE GRADATIONS (Metric)					
Grad No.	Sieve Size and Percent Passing				
	200 mm	150 mm	100 mm	50 mm	4.75 mm

CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 02		100	80 ± 10	25 ± 15	

(2) The 3 in. (75 mm) capping aggregate shall be gradation CA 6 or CA 10."

80274

FRICTION AGGREGATE (BDE)

Effective: January 1, 2011

Revise Article 1004.01(a)(4) of the Standard Specifications to read:

“(4) Crushed Stone. Crushed stone shall be the angular fragments resulting from crushing undisturbed, consolidated deposits of rock by mechanical means. Crushed stone shall be divided into the following, when specified.

- a. Carbonate Crushed Stone. Carbonate crushed stone shall be either dolomite or limestone. Dolomite shall contain 11.0 percent or more magnesium oxide (MgO). Limestone shall contain less than 11.0 percent magnesium oxide (MgO).
- b. Crystalline Crushed Stone. Crystalline crushed stone shall be either metamorphic or igneous stone, including but is not limited to, quartzite, granite, rhyolite and diabase.”

Revise Article 1004.03(a) of the Standard Specifications to read:

“1004.03 Coarse Aggregate for Hot-Mix Asphalt (HMA). The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate for HMA shall be according to the following table.

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	<u>Allowed Alone or in Combination:</u> Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete
HMA All Other	Stabilized Subbase or Shoulders	<u>Allowed Alone or in Combination:</u> Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{1/} Crushed Concrete

Use	Mixture	Aggregates Allowed	
HMA High ESAL Low ESAL	Binder IL-25.0, IL-19.0, or IL-19.0L SMA Binder	<u>Allowed Alone or in Combination:</u> Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Concrete ^{3/}	
HMA High ESAL Low ESAL	C Surface and Leveling Binder IL-12.5, IL-9.5, or IL-9.5L SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination:</u> Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{4/} Crushed Concrete ^{3/}	
HMA High ESAL	D Surface and Leveling Binder IL-12.5 or IL-9.5 SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination:</u> Crushed Gravel Carbonate Crushed Stone (other than Limestone) ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{5/} Crushed Steel Slag ^{4/ 5/} Crushed Concrete ^{3/}	
		<u>Other Combinations Allowed:</u>	
		<i>Up to...</i>	<i>With...</i>
		25% Limestone	Dolomite
		50% Limestone	Any Mixture D aggregate other than Dolomite
75% Limestone	Crushed Slag (ACBF) ^{5/} or Crushed Sandstone		

Use	Mixture	Aggregates Allowed	
HMA High ESAL	E Surface IL-12.5 or IL-9.5 SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination:</u> Crushed Gravel Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{5/} Crushed Steel Slag ^{5/} Crushed Concrete ^{3/} No Limestone.	
		<u>Other Combinations Allowed:</u> <i>Up to...</i>	
		50% Dolomite ^{2/}	<i>With...</i> Any Mixture E aggregate
		75% Dolomite ^{2/}	Crushed Sandstone, Crushed Slag (ACBF) ^{5/} , Crushed Steel Slag ^{5/} , or Crystalline Crushed Stone
		75% Crushed Gravel or Crushed Concrete ^{3/}	Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF) ^{5/} , or Crushed Steel Slag ^{5/}
HMA High ESAL	F Surface IL-12.5 or IL-9.5 SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination:</u> Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{5/} Crushed Steel Slag ^{5/} No Limestone.	
		<u>Other Combinations Allowed:</u> <i>Up to...</i>	

Use	Mixture	Aggregates Allowed	
		50% Crushed Gravel, Crushed Concrete ^{3/} , or Dolomite ^{2/}	Crushed Sandstone, Crushed Slag (ACBF) ^{5/} , Crushed Steel Slag ^{5/} , or Crystalline Crushed Stone

- 1/ Crushed steel slag allowed in shoulder surface only.
- 2/ Carbonate crushed stone shall not be used in SMA Ndesign 80. In SMA Ndesign 50, carbonate crushed stone shall not be blended with any of the other aggregates allowed alone in Ndesign 50 SMA binder or Ndesign 50 SMA surface.
- 3/ Crushed concrete will not be permitted in SMA mixes.
- 4/ Crushed steel slag shall not be used as leveling binder.
- 5/ When either slag is used, the blend percentages listed shall be by volume."

80265

GRANULAR MATERIALS (BDE)

Effective: November 1, 2012

Revise the title of Article 1003.04 of the Standard Specifications to read:

“1003.04 Fine Aggregate for Bedding, Trench Backfill, Embankment, Porous Granular Backfill, Sand Backfill for Underdrains, and French Drains.”

Revise Article 1003.04(c) of the Standard Specifications to read:

“(c) Gradation. The fine aggregate gradations for granular embankment, granular backfill, bedding, and trench backfill for pipe culverts and storm sewers shall be FA 1, FA 2, or FA 6 through FA 21.

The fine aggregate gradation for porous granular embankment, porous granular backfill, french drains, and sand backfill for underdrains shall be FA 1, FA 2, or FA 20, except the percent passing the No. 200 (75 µm) sieve shall be 2±2.”

Revise Article 1004.05(c) of the Standard Specifications to read:

“(c) Gradation. The coarse aggregate gradations shall be as follows.

Application	Gradation
Blotter	CA 15
Granular Embankment, Granular Backfill, Bedding, and Trench Backfill for Pipe Culverts and Storm Sewers	CA 6, CA 9, CA 10, CA 12, CA17, CA18, and CA 19
Porous Granular Embankment, Porous Granular Backfill, and French Drains	CA 7, CA 8, CA 11, CA 15, CA 16 and CA 18”

PAVEMENT PATCHING (BDE)

Effective: January 1, 2010

Revise the first sentence of the second paragraph of Article 701.17(e)(1) of the Standard Specifications to read:

“In addition to the traffic control and protection shown elsewhere in the contract for pavement, two devices shall be placed immediately in front of each open patch, open hole, and broken pavement where temporary concrete barriers are not used to separate traffic from the work area.”

80254

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: June 1, 2000

Revised: January 1, 2006

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts and to set the time for such payments.

State law also addresses the timing of payments to be made to subcontractors and material suppliers. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, requires that when a Contractor receives any payment from the Department, the Contractor shall make corresponding, proportional payments to each subcontractor and material supplier performing work or supplying material within 15 calendar days after receipt of the Department payment. Section 7 of the Act further provides that interest in the amount of two percent per month, in addition to the payment due, shall be paid to any subcontractor or material supplier by the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors and material suppliers throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the State Prompt Payment Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

When progress payments are made to the Contractor according to Article 109.07 of the Standard Specifications, the Contractor shall make a corresponding payment to each subcontractor and material supplier in proportion to the work satisfactorily completed by each subcontractor and for the material supplied to perform any work of the contract. The proportionate amount of partial payment due to each subcontractor and material supplier throughout the contracting chain shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors and material suppliers shall be paid by the Contractor within 15 calendar days after the receipt of payment from the Department. The Contractor shall not hold retainage from the subcontractors. These obligations shall also apply to any payments made by subcontractors and material suppliers to their subcontractors and material suppliers; and to all payments made to lower tier subcontractors and material suppliers throughout the contracting chain. Any payment or portion of a payment subject to this provision may only be withheld from the subcontractor or material supplier to whom it is due for reasonable cause.

This Special Provision does not create any rights in favor of any subcontractor or material supplier against the State or authorize any cause of action against the State on account of any payment, nonpayment, delayed payment, or interest claimed by application of the State Prompt Payment Act. The Department will not approve any delay or postponement of the 15 day requirement except for reasonable cause shown after notice and hearing pursuant to Section

| 7(b) of the State Prompt Payment Act. State law creates other and additional remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond according to the Public Construction Bond Act, 30 ILCS 550.

80022

PORTLAND CEMENT CONCRETE (BDE)

Effective: January 1, 2012

Revised: January 1, 2013

Revise Notes 1 and 2 of Article 312.24 of the Standard Specifications to read:

"Note 1. Coarse aggregate shall be gradation CA 6, CA 7, CA 9, CA 10, or CA 11, Class D quality or better. Article 1020.05(d) shall apply.

Note 2. Fine aggregate shall be FA 1 or FA 2. Article 1020.05(d) shall apply."

Revise the first paragraph of Article 312.26 of the Standard Specifications to read:

312.26 Proportioning and Mix Design. At least 60 days prior to start of placing CAM II, the Contractor shall submit samples of materials for proportioning and testing. The mixture shall contain a minimum of 200 lb (90 kg) of cement per cubic yard (cubic meter). Portland cement may be replaced with fly ash according to Article 1020.05(c)(1), however the minimum portland cement content in the mixture shall be 170 lbs/cu yd (101 kg/cu m). Blends of coarse and fine aggregates will be permitted, provided the volume of fine aggregate does not exceed the volume of coarse aggregate. The Engineer will determine the proportions of materials for the mixture. However, the Contractor may substitute their own mix design. Article 1020.05(a) shall apply and a Level III PCC Technician shall develop the mix design."

Revise the second paragraph of Article 503.22 of the Standard Specifications to read:

Other cast-in-place concrete for structures will be paid for at the contract unit price per cubic yard (cubic meter) for CONCRETE HANDRAIL, CONCRETE ENCASEMENT, and SEAL COAT CONCRETE."

Add the following to Article 1003.02 of the Standard Specifications:

(e) Alkali Reaction.

- (1) ASTM C 1260. Each fine aggregate will be tested by the Department for alkali reaction according to ASTM C 1260. The test will be performed with Type I or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department's Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors. An expansion value of 0.03 percent will be assigned to limestone or dolomite fine

aggregates (manufactured stone sand). However, the Department reserves the right to perform the ASTM C 1260 test.

- (2) ASTM C 1293 by Department. In some instances, such as chert natural sand or other fine aggregates, testing according to ASTM C 1260 may not provide accurate test results. In this case, the Department may only test according to ASTM C 1293.
- (3) ASTM C 1293 by Contractor. If an individual aggregate has an ASTM C 1260 expansion value that is unacceptable to the Contractor, an ASTM C 1293 test may be performed by the Contractor to evaluate the Department's ASTM C 1260 test result. The laboratory performing the ASTM C 1293 test shall be approved by the Department according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Laboratory Requirements for Alkali-Silica Reactivity (ASR) Testing".

The ASTM C 1293 test shall be performed with Type I or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.80 percent or greater. The interior vertical wall of the ASTM C 1293 recommended container (pail) shall be half covered with a wick of absorbent material consisting of blotting paper. If the testing laboratory desires to use an alternate container, wick of absorbent material, or amount of coverage inside the container with blotting paper, ASTM C 1293 test results with an alkali-reactive aggregate of known expansion characteristics shall be provided to the Engineer for review and approval. If the expansion is less than 0.040 percent after one year, the aggregate will be assigned an ASTM C 1260 expansion value of 0.08 percent that will be valid for two years, unless the Engineer determines the aggregate has changed significantly. If the aggregate is manufactured into multiple gradation numbers, and the other gradation numbers have the same or lower ASTM C 1260 value, the ASTM C 1293 test result may apply to multiple gradation numbers.

The Engineer reserves the right to verify a Contractor's ASTM C 1293 test result. When the Contractor performs the test, a split sample shall be provided to the Engineer. The Engineer may also independently obtain a sample at any time. The aggregate will be considered reactive if the Contractor or Engineer obtains an expansion value of 0.040 percent or greater.

Revise the first paragraph of Article 1004.01(e)(5) of the Standard Specifications to read:

"Crushed concrete, crushed slag, or lightweight aggregate for portland cement concrete shall be stockpiled in a moist condition (saturated surface dry or greater) and the moisture content shall be maintained uniformly throughout the stockpile by periodic sprinkling."

Revise Article 1004.02(d) of the Standard Specifications to read:

“(d)Combining Sizes. Each size shall be stored separately and care shall be taken to prevent them from being mixed until they are ready to be proportioned. Separate compartments shall be provided to proportion each size.

- (1) When Class BS concrete is to be pumped, the coarse aggregate gradation shall have a minimum of 45 percent passing the 1/2 in. (12.5 mm) sieve. The Contractor may combine two or more coarse aggregate sizes, consisting of CA 7, CA 11, CA 13, CA 14, and CA 16, provided a CA 7 or CA 11 is included in the blend.
- (2) If the coarse aggregate is furnished in separate sizes, they shall be combined in proportions to provide a uniformly graded coarse aggregate grading within the following limits.

Class of Concrete ^{1/}	Combined Sizes	Sieve Size and Percent Passing						
		2 1/2 in.	2 in.	1 3/4 in.	1 1/2 in.	1 in.	1/2 in.	No. 4
PV ^{2/}	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3
SI and SC ^{2/}	CA 3 & CA 7	100	95±5	---	---	55±25	20±10	3±3
	CA 3 & CA 11	100	95±5	---	---	55±25	20±10	3±3
	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3

Class of Concrete ^{1/}	Combined Sizes	Sieve Size (metric) and Percent Passing						
		63 mm	50 mm	45 mm	37.5 mm	25 mm	12.5 mm	4.75 mm
PV ^{2/}	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3
SI and SC ^{2/}	CA 3 & CA 7	100	95±5	---	---	55±25	20±10	3±3
	CA 3 & CA 11	100	95±5	---	---	55±25	20±10	3±3
	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3

1/ See Table 1 of Article 1020.04.

2/ Any of the listed combination of sizes may be used.”

Add the following to Article 1004.02 of the Standard Specifications:

(g) Alkali Reaction.

- (1) ASTM C 1260. Each coarse aggregate will be tested by the Department for alkali reaction according to ASTM C 1260. The test will be performed with Type I or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department's Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors. An expansion value of 0.05 percent will be assigned to limestone or dolomite coarse aggregates. However, the Department reserves the right to perform the ASTM C 1260 test.
- (2) ASTM C 1293 by Department. In some instances testing a coarse aggregate according to ASTM C 1260 may not provide accurate test results. In this case, the Department may only test according to ASTM C 1293.
- (3) ASTM C 1293 by Contractor. If an individual aggregate has an ASTM C 1260 expansion value that is unacceptable to the Contractor, an ASTM C 1293 test may be performed by the Contractor according to Article 1003.02(e)(3).

Revise the first paragraph of Article 1019.06 of the Standard Specifications to read:

"1019.06 Contractor Mix Design. A Contractor may submit their own mix design and may propose alternate fine aggregate materials, fine aggregate gradations, or material proportions. Article 1020.05(a) shall apply and a Level III PCC Technician shall develop the mix design."

Revise Section 1020 of the Standard Specifications to read:

"SECTION 1020. PORTLAND CEMENT CONCRETE

1020.01 Description. This item shall consist of the materials, mix design, production, testing, curing, low air temperature protection, and temperature control of concrete.

1020.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fine Aggregate	1003
(d) Coarse Aggregate	1004

(e) Concrete Admixtures	1021
(f) Finely Divided Minerals	1010
(g) Concrete Curing Materials	1022
(h) Straw	1081.06(a)(1)
(i) Calcium Chloride	1013.01

1020.03 Equipment. Equipment shall be according to the following.

Item	Article/Section
(a) Concrete Mixers and Trucks	1103.01
(b) Batching and Weighing Equipment	1103.02
(c) Automatic and Semi-Automatic Batching Equipment	1103.03
(d) Water Supply Equipment	1103.11
(e) Membrane Curing Equipment	1101.09
(f) Mobile Portland Cement Concrete Plants	1103.04

1020.04 Concrete Classes and General Mix Design Criteria. The classes of concrete shown in Table 1 identify the various mixtures by the general uses and mix design criteria. If the class of concrete for a specific item of construction is not specified, Class SI concrete shall be used.

For the minimum cement factor in Table 1, it shall apply to portland cement, portland-pozzolan cement, and portland blast-furnace slag except when a particular cement is specified in the Table.

The Contractor shall not assume that the minimum cement factor indicated in Table 1 will produce a mixture that will meet the specified strength. In addition, the Contractor shall not assume that the maximum finely divided mineral allowed in a mix design according to Article 1020.05(c) will produce a mixture that will meet the specified strength. The Contractor shall select a cement factor within the allowable range that will obtain the specified strength. The Contractor shall take into consideration materials selected, seasonal temperatures, and other factors which may require the Contractor to submit multiple mix designs.

For a portland-pozzolan cement, portland blast-furnace slag cement, or when replacing portland cement with finely divided minerals per Articles 1020.05(c) and 1020.05(d), the portland cement content in the mixture shall be a minimum of 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). When calculating the portland cement portion in the portland-pozzolan or portland blast-furnace slag cement, the AASHTO M 240 tolerance may be ignored.

Special classifications may be made for the purpose of including the concrete for a particular use or location as a separate pay item in the contract. The concrete used in such cases shall conform to this section.

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA

Class of Conc.	Use	Specification Section Reference	Cement Factor cw/cu yd (3)		Water / Cement Ratio lb/lb	Sump in. (4)	Mix Design Compressive Strength (Flexural Strength) psi, minimum			Air Content %	Coarse Aggregate Gradations (14)																																						
			Min.	Max			Days	3	14			28																																					
													psi, minimum																																				
PV	Pavement Base Course Base Course Widening Driveway Pavement Shoulders Shoulder Curb	420 or 421 353 354 423 483 662	5.65 (1) 6.05 (2)	7.05	0.32 - 0.42	2 - 4 (5)	Ty III 3500 (650)	3500 (650)	5.0 - 8.0 (5)	CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, or CA 14																																							
											PP	Pavement Patching Bridge Deck Patching (10)	442	6.50 (Ty III) 6.20 (Ty III) 7.35 7.35 (Ty III) (8) 6.00 (9) 6.75 (9)	7.50 (Ty III) 8.20 7.35 (Ty III) (8) 6.25 (9) 6.75 (9)	0.32 - 0.44 0.32 - 0.38 0.32 - 0.35 0.32 - 0.50 0.32 - 0.40	2 - 4 2 - 6 2 - 4 2 - 6 2 - 8	3200 (600) Article 701.17(e)(3)b. at 48 hours at 24 hours at 16 hours at 8 hours at 4 hours	4.0 - 7.0 4.0 - 6.0 4.0 - 6.0 4.0 - 6.0 4.0 - 6.0	CA 7, CA 11, CA 13, CA 14, or CA 16																													
																					RR	Railroad Crossing	422	6.50 (Ty III) 6.20 (Ty III)	7.50 (Ty III) 7.20 (Ty III)	0.32 - 0.44 0.32 - 0.44	2 - 4 2 - 4	3500 (650) at 48 hours	4.0 - 7.0 5.0 - 8.0 (5)	CA 7, CA 11, or CA 14																			
																															BS	Bridge Superstructure Bridge Approach Slab	503	6.05	7.05	0.32 - 0.44	2 - 4 (5)	4000 (675)	CA 7, CA 11, or CA 14 (7)										
																																								PC	Various Precast Concrete Items Wet Cast Dry Cast	1042	5.65 (TY III) 5.65 (TY III)	7.05 (TY III) 7.05 (TY III)	0.32 - 0.44 0.25 - 0.40	1 - 4 0 - 1	See Section 1042	5.0 - 8.0 N/A	CA 7, CA 11, CA 13, CA 14, CA 16, or CA 7 & CA 16

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA

Class of Conc.	Use	Specification Section Reference	Cement Factor cwt/cu yd (3)		Water / Cement Ratio lb/lb	Slump in. (4)	Mix Design Compressive Strength (Flexural Strength) psi, minimum			Air Content %	Coarse Aggregate Gradations (14)
			Min.	Max.			Days				
							3	14	28		
DS	Drilled Shaft (12) Metal Shell Piles (12) Sign Structures Drilled Shaft (12) Light Tower Foundation (12)	516 512 734	6.65	7.05	0.32 - 0.44	6 - 8 (6)	4000 (675)		5.0 - 8.0	CA 13, CA 14, CA 16, or a blend of these gradations.	
											837
SC	Seal Coat	503	5.65 (1) 6.05 (2)	7.05	0.32 - 0.44	3 - 5	3500 (650)		Optional 6.0 max.	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, or CA 11	
SI	Structures (except Superstructure) Sidewalk Slope Wall Encasement Box Culverts End Section and Collar Curb, Gutter, Curb & Gutter, Median, and Paved Ditch Concrete Barrier Sign Structures Spread Footing Concrete Foundation Pole Foundation (12) Traffic Signal Foundation Drilled Shaft (12) Square or Rectangular	503 424 511 512 540 542 606 637 734	5.65 (1) 6.05 (2)	7.05	0.32 - 0.44	2 - 4 (5)	3500 (650)		5.0 - 8.0 (5)	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, CA 13, CA 14, or CA 16 (13)	
											836 878

- Notes:
- (1) Central-mixed.
 - (2) Truck-mixed or shrink-mixed.
 - (3) For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the cement factor shall be increased by ten percent.
 - (4) The maximum slump may be increased to 7 in. when a high range water-reducing admixture is used for all classes of concrete, except Class PV, SC, and PP. For Class SC, the maximum slump may be increased to 8 in. For Class PP-1, the maximum slump may be increased to 6 in. For Class PS, the 7 in. maximum slump may be increased to 8 1/2 in. if the high range water-reducing admixture is the polycarboxylate type.
 - (5) The slump range for slipform construction shall be 1/2 to 2 1/2 in. and the air content range shall be 5.5 to 8.0 percent.
 - (6) If concrete is placed to displace drilling fluid, or against temporary casing, the slump shall be 8 - 10 in. at the point of placement. If a water-reducing admixture is used in lieu of a high range water-reducing admixture according to Article 1020.05(b)(7), the slump shall be 2 - 4 in.
 - (7) For Class BS concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching.
 - (8) In addition to the Type III portland cement, 100 lb/cu yd of ground granulated blast-furnace slag and 50 lb/cu yd of microsilica (silica fume) shall be used. For an air temperature greater than 85 °F, the Type III portland cement may be replaced with Type I or II portland cement.
 - (9) The cement shall be a rapid hardening cement from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs" for PP-4 and calcium aluminate cement for PP-5.
 - (10) For Class PP concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching. In addition, the mix design shall have 72 hours to obtain a 4,000 psi compressive or 675 psi flexural strength for all PP mix designs.
 - (11) The nominal maximum size permitted is 3/4 in. Nominal maximum size is defined as the largest sieve which retains any of the aggregate sample particles.
 - (12) The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus one hour. At the Engineer's discretion, the Contractor may be required to conduct a minimum 2 cu yd trial batch to verify the mix design.
 - (13) CA 3 or CA 5 may be used when the nominal maximum size does not exceed two-thirds the clear distance between parallel reinforcement bars, or between the reinforcement bar and the form. Nominal maximum size is defined in Note 11.
 - (14) Alternate combinations of gradation sizes may be used with the approval of the Engineer. Refer also to Article 1004.02(d) for additional information on combining sizes.

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA (metric)

Class of Conc.	Use	Specification Section Reference	Cement Factor kg/cu m (3)		Water / Cement Ratio kg/kg	Sump mm (4)	Mix Design Compressive Strength (Flexural Strength) kPa, minimum			Air Content %	Coarse Aggregate Gradations (14)
			Min.	Max			3	14	28		
PV	Pavement Base Course Base Course Widening Driveway Pavement Shoulders Shoulder Curb	420 or 421									
		353	335 (1)	418	0.32 - 0.42	50 - 100 (5)	Ty III 24,000 (4500)	24,000 (4500)	5.0 - 8.0 (5)	CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, or CA 14	
		354	360 (2)								
		423									
		483									
PP	Pavement Patching Bridge Deck Patching (10)	442									
			385 (Ty III)	445	0.32 - 0.44	50 - 100	at 48 hours	22,100 (4150)	4.0 - 7.0	CA 7, CA 11, CA 13, CA 14, or CA 16	
			435	485	0.32 - 0.38	50 - 150	at 24 hours		4.0 - 6.0		
			435 (Ty III) (6)	435 (Ty III) (6)	0.32 - 0.35	50 - 100	at 16 hours		4.0 - 6.0		
			355 (9)	370 (9)	0.32 - 0.50	50 - 150	at 8 hours		4.0 - 6.0		
RR	Railroad Crossing		400 (9)	400 (9)	0.32 - 0.40	50 - 200	at 4 hours		4.0 - 6.0		
		422	385 (Ty III)	445 (Ty III)	0.32 - 0.44	50 - 100	24,000 (4500) at 48 hours	24,000 (4500) at 48 hours	4.0 - 7.0 or CA 14	CA 7, CA 11, or CA 14	
BS	Bridge Superstructure Bridge Approach Slab		360	418	0.32 - 0.44	50 - 100 (5)	27,500 (4650)	27,500 (4650)	5.0 - 8.0 (5)	CA 7, CA 11, or CA 14 (7)	
		503									
PC	Various Precast Concrete Items Wet Cast Dry Cast	1042	335 (Ty III)	418 (Ty III)	0.32 - 0.44 0.25 - 0.40	25 - 100 0 - 25	See Section 1042		5.0 - 8.0 N/A	CA 7, CA 11, CA 13, CA 14, CA 16, or CA 7 & CA 16	
PS	Precast Prestressed Members Precast Prestressed Piles and Extensions	504	335 (Ty III)	418 (Ty III)	0.32 - 0.44	25 - 100		Plans 34,500	5.0 - 8.0	CA 11 (11), CA 13, CA 14 (11), or CA 16	
		512	395 (Ty III)	418 (Ty III)							
	Precast Prestressed Sight Screen	639						24,000			

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA (metric)

Class of Conc.	Use	Specification Section Reference	Cement Factor kg/cu m (3)		Water / Cement Ratio kg/kg	Sump mm (4)	Mix Design Compressive Strength (Flexural Strength) kPa, minimum			Air Content %	Coarse Aggregate Gradations (14)																	
			Min.	Max.			Days																					
							3	14	28																			
DS	Drilled Shaft (12) Metal Shell Piles (12) Sign Structures Drilled Shaft (12) Light Tower Foundation (12)	516 512 734 837	395	418	0.32 - 0.44	150 - 200 (6)	27,500 (4650)		5.0 - 8.0	CA 13, CA 14, CA 16, or a blend of these gradations.																		
											SC	503	335 (1) 360 (2)	418	0.32 - 0.44	75 - 125	24,000 (4500)	Optional 6.0 max.	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, or CA 11									
																				SI	503 424 511 512 540 542 606 637 734	335 (1) 360 (2)	418	0.32 - 0.44	50 - 100 (5)	24,000 (4500)	5.0 - 8.0 (5)	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, CA 13, CA 14, or CA 16 (13)

- Notes:
- (1) Central-mixed.
 - (2) Truck-mixed or shrink-mixed.
 - (3) For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the cement factor shall be increased by ten percent.
 - (4) The maximum slump may be increased to 175 mm when a high range water-reducing admixture is used for all classes of concrete except Class PV, SC, and PP. For Class SC, the maximum slump may be increased to 200 mm. For Class PP-1, the maximum slump may be increased to 150 mm. For Class PS, the 175 mm maximum slump may be increased to 215 mm if the high range water-reducing admixture is the polycarboxylate type.
 - (5) The slump range for slipform construction shall be 13 to 64 mm and the air content range shall be 5.5 to 8.0 percent.
 - (6) If concrete is placed to displace drilling fluid, or against temporary casing, the slump shall be 200 - 250 mm at the point of placement. If a water-reducing admixture is used in lieu of a high range water-reducing admixture according to Article 1020.05(b)(7), the slump shall be 50 - 100 mm.
 - (7) For Class BS concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching.
 - (8) In addition to the Type III portland cement, 60 kg/cu m of ground granulated blast-furnace slag and 30 kg/cu m of microsilica (silica fume) shall be used. For an air temperature greater than 30 °C, the Type III portland cement may be replaced with Type I or II portland cement.
 - (9) The cement shall be a rapid hardening cement from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs" for PP-4 and calcium aluminate cement for PP-5.
 - (10) For Class PP concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching. In addition, the mix design shall have 72 hours to obtain a 27,500 kPa compressive or 4,650 kPa flexural.
 - (11) The nominal maximum size permitted is 19 mm. Nominal maximum size is defined as the largest sieve which retains any of the aggregate sample particles.
 - (12) The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus one hour. At the Engineer's discretion, the Contractor may be required to conduct a minimum 1.5 cu m trial batch to verify the mix design.
 - (13) CA 3 or CA 5 may be used when the nominal maximum size does not exceed two-thirds the clear distance between parallel reinforcement bars, or between the reinforcement bar and the form. Nominal maximum size is defined in Note 11.
 - (14) Alternate combinations of gradation sizes may be used with the approval of the Engineer. Refer also to Article 1004.02(d) for additional information on combining sizes.

Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation. Self-consolidating concrete mix designs may be developed for Class BS, PC, PS, DS, and SI concrete. Self-consolidating concrete mix designs may also be developed for precast concrete products that are not subjected to Class PC concrete requirements according to Section 1042. The mix design criteria for the concrete mixture shall be according to Article 1020.04 with the following exceptions.

- (a) The slump requirements shall not apply.
- (b) The concrete mixture should be uniformly graded, and information in the "Portland Cement Concrete Level III Technician Course – Manual of Instructions for Design of Concrete Mixtures" may be used to develop the uniformly graded mix design. The coarse aggregate gradations shall be CA 11, CA 13, CA 14, CA 16, or a blend of these gradations. However, the final gradation when using a single coarse aggregate or combination of coarse aggregates shall have 100 percent pass the 1 in. (25 mm) sieve, and minimum 95 percent pass the 3/4 in. (19 mm) sieve. The fine aggregate proportion shall be a maximum 50 percent by weight (mass) of the total aggregate used.
- (c) The slump flow range shall be 22 in. (560 mm) minimum to 28 in. (710 mm) maximum and tested according to Illinois Test Procedure SCC-2.
- (d) The visual stability index shall be a maximum of 1 and tested according to Illinois Test Procedure SCC-2.
- (e) The J-Ring value shall be a maximum of 2 in. (50 mm) and tested according to Illinois Test Procedure SCC-3. The L-Box blocking ratio shall be a minimum of 80 percent and tested according to Illinois Test Procedure SCC-3. The Contractor has the option to select either test.
- (f) The hardened visual stability index shall be a maximum of 1 and tested according to Illinois Test Procedure SCC-6.
- (g) If Class PC concrete requirements do not apply to the precast concrete product according to Section 1042, the maximum cement factor shall be 7.05 cwt/cu yd (418 kg/cu m) and the maximum allowable water/cement ratio shall be 0.44.
- (h) If the measured slump flow, visual stability index, J-Ring value, or L-Box blocking ratio fall outside the limits specified, a check test will be made. In the event of a second failure, the Engineer may refuse to permit the use of the batch of concrete represented.

The Contractor may use water or self-consolidating admixtures at the jobsite to obtain the specified slump flow, visual stability index, J-ring value, or L-box blocking ratio. The maximum design water/cement ratio shall not be exceeded.

1020.05 Other Concrete Criteria. The concrete shall be according to the following.

- (a) Proportioning and Mix Design. For all Classes of concrete, it shall be the Contractor's responsibility to determine mix design material proportions and to proportion each batch of concrete. A Level III PCC Technician shall develop the mix design for all Classes of concrete, except Classes PC and PS. The mix design, submittal information, trial batch, and Engineer verification shall be according to the "Portland Cement Concrete Level III Technician" course material.

The Contractor shall provide the mix designs a minimum of 45 calendar days prior to production. More than one mix design may be submitted for each class of concrete.

The Engineer will verify the mix design submitted by the Contractor. Verification of a mix design shall in no manner be construed as acceptance of any mixture produced. Once a mix design has been verified, the Engineer shall be notified of any proposed changes.

Tests performed at the jobsite will determine if a mix design can meet specifications. If the tests indicate it cannot, the Contractor shall make adjustments to a mix design, or submit a new mix design if necessary, to comply with the specifications.

- (b) Admixtures. The Contractor shall be responsible for using admixtures and determining dosages for all Classes of concrete, cement aggregate mixture II, and controlled low-strength material that will produce a mixture with suitable workability, consistency, and plasticity. In addition, admixture dosages shall result in the mixture meeting the specified plastic and hardened properties. The Contractor shall obtain approval from the Engineer to use an accelerator when the concrete temperature is greater than 60 °F (16 °C). However, this accelerator approval by the Engineer will not be required for Class PP, RR, PC, and PS concrete. The accelerator shall be the non-chloride type unless otherwise specified in the contract plans.

The Department will maintain an Approved List of Corrosion Inhibitors. Corrosion inhibitor dosage rates shall be according to Article 1020.05(b)(10). For information on approved controlled low-strength material air-entraining admixtures, refer to Article 1019.02. The Department will also maintain an Approved List of Concrete Admixtures, and an admixture technical representative shall be consulted by the Contractor prior to the pour when determining an admixture dosage from this list or when making minor admixture dosage adjustments at the jobsite. The dosage shall be within the range indicated on the approved list unless the influence by other admixtures, jobsite conditions (such as a very short haul time), or other circumstances warrant a dosage outside the range. The Engineer shall be notified when a dosage is proposed outside the range. To determine an admixture dosage, air temperature, concrete temperature, cement source and quantity, finely divided mineral sources and quantity, influence of other admixtures, haul time, placement conditions, and other factors as appropriate shall be considered. The Engineer may request the Contractor to have a batch of concrete mixed in the lab or field to verify the admixture dosage is correct. An admixture dosage or combination of admixture dosages shall not delay the initial set of concrete by more than one hour. When a retarding admixture is required or appropriate for a bridge deck or bridge deck overlay pour, the initial set time shall be delayed until the deflections due

to the concrete dead load are no longer a concern for inducing cracks in the completed work. However, a retarding admixture shall not be used to further extend the pour time and justify the alteration of a bridge deck pour sequence.

When determining water in admixtures for water/cement ratio, the Contractor shall calculate 70 percent of the admixture dosage as water, except a value of 50 percent shall be used for a latex admixture used in bridge deck latex concrete overlays.

The sequence, method, and equipment for adding the admixtures shall be approved by the Engineer. Admixtures shall be added to the concrete separately. An accelerator shall always be added prior to a high range water-reducing admixture, if both are used.

Admixture use shall be according to the following.

- (1) When the atmosphere or concrete temperature is 65 °F (18 °C) or higher, a retarding admixture shall be used in the Class BS concrete and concrete bridge deck overlays. The proportions of the ingredients of the concrete shall be the same as without the retarding admixture, except that the amount of mixing water shall be reduced, as may be necessary, in order to maintain the consistency of the concrete as required. In addition, a high range water-reducing admixture shall be used in bridge deck concrete. At the option of the Contractor, a water-reducing admixture may be used with the high range water-reducing admixture in Class BS concrete.
- (2) At the Contractor's option, admixtures in addition to an air-entraining admixture may be used for Class PP-1 or RR concrete. When the air temperature is less than 55 °F (13 °C) and an accelerator is used, the non-chloride accelerator shall be calcium nitrite.
- (3) When Class C fly ash or ground granulated blast-furnace slag is used in Class PP-1 or RR concrete, a water-reducing or high range water-reducing admixture shall be used.
- (4) For Class PP-2 or PP-3 concrete, a non-chloride accelerator followed by a high range water-reducing admixture shall be used, in addition to the air-entraining admixture. The Contractor has the option to use a water-reducing admixture with the high range water-reducing admixture. For Class PP-3 concrete, the non-chloride accelerator shall be calcium nitrite. For Class PP-2 concrete, the non-chloride accelerator shall be calcium nitrite when the air temperature is less than 55 °F (13 °C).
- (5) For Class PP-4 concrete, a high range water-reducing admixture shall be used in addition to the air-entraining admixture. The Contractor has the option to use a water-reducing admixture with the high range water-reducing admixture. An accelerator shall not be used. For stationary or truck-mixed concrete, a retarding admixture shall be used to allow for haul time. The Contractor has the option to use

a mobile portland cement concrete plant, but a retarding admixture shall not be used unless approved by the Engineer.

For PP-5 concrete, a non-chloride accelerator, high range water-reducing admixture, and air-entraining admixture shall be used. The accelerator, high range water-reducing admixture, and air-entraining admixture shall be per the Contractor's recommendation and dosage. The approved list of concrete admixtures shall not apply. A mobile portland cement concrete plant shall be used to produce the patching mixture.

- (6) When a calcium chloride accelerator is specified in the contract, the maximum chloride dosage shall be 1.0 quart (1.0 L) of solution per 100 lb (45 kg) of cement. The dosage may be increased to a maximum 2.0 quarts (2.0 L) per 100 lb (45 kg) of cement if approved by the Engineer. When a calcium chloride accelerator for Class PP-2 concrete is specified in the contract, the maximum chloride dosage shall be 1.3 quarts (1.3 L) of solution per 100 lb (45 kg) of cement. The dosage may be increased to a maximum 2.6 quarts (2.6 L) per 100 lb (45 kg) of cement if approved by the Engineer.
- (7) For Class DS concrete a retarding admixture and a high range water-reducing admixture shall be used. For dry excavations that are 10 ft (3 m) or less, the high range water-reducing admixture may be replaced with a water-reducing admixture if the concrete is vibrated. The use of admixtures shall take into consideration the slump loss limits specified in Article 516.12 and the fluidity requirement in Article 1020.04 (Note 12).
- (8) At the Contractor's option, when a water-reducing admixture or a high range water-reducing admixture is used for Class PV, PP-1, RR, SC, and SI concrete, the cement factor may be reduced a maximum 0.30 hundredweight/cu yd (18 kg/cu m). However, a cement factor reduction will not be allowed for concrete placed underwater.
- (9) When Type F or Type G high range water-reducing admixtures are used, the initial slump shall be a minimum of 1 1/2 in. (40 mm) prior to addition of the Type F or Type G admixture, except as approved by the Engineer.
- (10) When specified, a corrosion inhibitor shall be added to the concrete mixture utilized in the manufacture of precast, prestressed concrete members and/or other applications. It shall be added, at the same rate, to all grout around post-tensioning steel when specified.

When calcium nitrite is used, it shall be added at the rate of 4 gal/cu yd (20 L/cu m), and shall be added to the mix immediately after all compatible admixtures have been introduced to the batch.

When Rheocrete 222+ is used, it shall be added at the rate of 1.0 gal/cu yd (5.0 L/cu m), and the batching sequence shall be according to the manufacturer's instructions.

(c) Finely Divided Minerals. Use of finely divided minerals shall be according to the following.

(1) Fly Ash. At the Contractor's option, fly ash from approved sources may partially replace portland cement in cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete.

The use of fly ash shall be according to the following.

- a. Measurements of fly ash and portland cement shall be rounded up to the nearest 5 lb (2.5 kg).
- b. When Class F fly ash is used in cement aggregate mixture II, Class PV, BS, PC, PS, DS, SC, and SI concrete, the amount of portland cement replaced shall not exceed 25 percent by weight (mass).
- c. When Class C fly ash is used in cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, the amount of portland cement replaced shall not exceed 30 percent by weight (mass).
- d. Fly ash may be used in concrete mixtures when the air temperature is below 40 °F (4 °C), but the Engineer may request a trial batch of the concrete mixture to show the mix design strength requirement will be met.

(2) Ground Granulated Blast-Furnace (GGBF) Slag. At the Contractor's option, GGBF slag may partially replace portland cement in Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete. For Class PP-3 concrete, GGBF slag shall be used according to Article 1020.04.

The use of GGBF slag shall be according to the following.

- a. Measurements of GGBF slag and portland cement shall be rounded up to the nearest 5 lb (2.5 kg).
- b. When GGBF slag is used in Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC and SI concrete, the amount of portland cement replaced shall not exceed 35 percent by weight (mass).
- c. GGBF slag may be used in concrete mixtures when the air temperature is below 40 °F (4 °C), but the Engineer may request a trial batch of the concrete mixture to show the mix design strength requirement will be met.

- (3) Microsilica. At the Contractor's option, microsilica may be added at a maximum of 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.

Microsilica shall be used in Class PP-3 concrete according to Article 1020.04.

- (4) High Reactivity Metakaolin (HRM). At the Contractor's option, HRM may be added at a maximum of 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.

- (5) Mixtures with Multiple Finely Divided Minerals. Except as specified for Class PP-3 concrete, the Contractor has the option to use more than one finely divided mineral in Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete as follows.

- a. The mixture shall contain a maximum of two finely divided minerals. The finely divided mineral in portland-pozzolan cement or portland blast-furnace slag cement shall count toward the total number of finely divided minerals allowed. The finely divided minerals shall constitute a maximum of 35.0 percent of the total cement plus finely divided minerals. The fly ash portion shall not exceed 30.0 percent for Class C fly ash or 25.0 percent for Class F fly ash. The Class C and F fly ash combination shall not exceed 30.0 percent. The ground granulated blast-furnace slag portion shall not exceed 35.0 percent. The microsilica or high-reactivity metakaolin portion used together or separately shall not exceed ten percent. The finely divided mineral in the portland-pozzolan cement or portland blast-furnace slag blended cement shall apply to the maximum 35.0 percent.
- b. Central Mixed. For Class PV, SC, and SI concrete, the mixture shall contain a minimum of 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used, the Contractor has the option to use a minimum of 535 lbs/cu yd (320 kg/cu m).
- c. Truck-Mixed or Shrink-Mixed. For Class PV, SC, and SI concrete, the mixture shall contain a minimum of 605 lbs/cu yd (360 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used, the Contractor has the option to use a minimum of 575 lbs/cu yd (345 kg/cu m).
- d. Central-Mixed, Truck-Mixed or Shrink-Mixed. For Class PP-1 and RR concrete, the mixture shall contain a minimum of 650 lbs/cu yd (385 kg/cu m) of cement and finely divided minerals summed together. For Class PP-1 and RR concrete using Type III portland cement, the mixture shall contain a minimum of 620 lbs/cu yd (365 kg/cu m).

For Class PP-2 concrete, the mixture shall contain a minimum of 735 lbs/cu yd (435 kg/cu m) of cement and finely divided minerals summed together. For Class BS concrete, the mixture shall contain a minimum of 605 lbs/cu yd (360 kg/cu m). For Class DS concrete, the mixture shall contain a minimum of 665 lbs/cu yd (395 kg/cu m).

If a water-reducing or high range water-reducing admixture is used in Class PP-1 and RR concrete, the Contractor has the option to use a minimum of 620 lbs/cu yd (365 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used with Type III portland cement in Class PP-1 and RR concrete, the Contractor has the option to use a minimum of 590 lbs/cu yd (350 kg/cu m).

- e. Central-Mixed or Truck-Mixed. For Class PC and PS concrete, the mixture shall contain a minimum of 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together.
 - f. The mixture shall contain a maximum of 705 lbs/cu yd (418 kg/cu m) of cement and finely divided mineral(s) summed together for Class PV, BS, PC, PS, DS, SC, and SI concrete. For Class PP-1 and RR concrete, the mixture shall contain a maximum of 750 lbs/cu yd (445 kg/cu m). For Class PP-1 and RR concrete using Type III portland cement, the mixture shall contain a maximum of 720 lbs/cu yd (425 kg/cu m). For Class PP-2 concrete, the mixture shall contain a maximum of 820 lbs/cu yd (485 kg/cu m).
 - g. For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the allowable cement and finely divided minerals summed together shall be increased by ten percent.
 - h. The combination of cement and finely divided minerals shall comply with Article 1020.05(d).
- (d) Alkali-Silica Reaction. For cast-in-place (includes cement aggregate mixture II and latex mixtures), precast, and precast prestressed concrete, one of the mixture options provided in Article 1020.05(d)(2) shall be used to reduce the risk of a deleterious alkali-silica reaction in concrete exposed to humid or wet conditions. The mixture options are not intended or adequate for concrete exposed to potassium acetate, potassium formate, sodium acetate, or sodium formate. The mixture options will not be required for the dry environment (humidity less than 60 percent) found inside buildings for residential or commercial occupancy.

The mixture options shall not apply to concrete revetment mats, insertion lining of pipe culverts, portland cement mortar fairing course, controlled low-strength material, miscellaneous grouts that are not prepackaged, Class PP-3 concrete, Class PP-4 concrete, and Class PP-5 concrete.

- (1) Aggregate Groups. Each combination of aggregates used in a mixture will be assigned to an aggregate group. The point at which the coarse aggregate and fine aggregate expansion values intersect in the following table will determine the group.

Aggregate Groups			
Coarse Aggregate or Coarse Aggregate Blend ASTM C 1260 Expansion	Fine Aggregate Or Fine Aggregate Blend ASTM C 1260 Expansion		
	≤0.16%	>0.16% - 0.27%	>0.27%
≤0.16%	Group I	Group II	Group III
>0.16% - 0.27%	Group II	Group II	Group III
>0.27%	Group III	Group III	Group IV

- (2) Mixture Options. Based upon the aggregate group, the following mixture options shall be used. However, the Department may prohibit a mixture option if field performance shows a deleterious alkali-silica reaction or Department testing indicates the mixture may experience a deleterious alkali-silica reaction.

Reduction of Risk for Deleterious Alkali-Silica Reaction					
Aggregate Groups	Mixture Options				
	Option 1	Option 2	Option 3	Option 4	Option 5
Group I	Mixture options are not applicable. Use any cement or finely divided mineral.				
Group II	X	X	X	X	X
Group III	X	Combine Option 2 with Option 3	Combine Option 2 with Option 3	X	X
Group IV	X	Combine Option 2 with Option 4	Invalid Option	Combine Option 2 with Option 4	X

"X" denotes valid mixture option for aggregate group.

- a. Mixture Option 1. The coarse or fine aggregates shall be blended to place the material in a group that will allow the selected cement or finely divided mineral to be used. Coarse aggregate may only be blended with another coarse aggregate. Fine aggregate may only be blended with another fine aggregate. Blending of

coarse with fine aggregate to place the material in another group will not be permitted.

When a coarse or fine aggregate is blended, the weighted expansion value shall be calculated separately for the coarse and fine aggregate as follows:

$$\text{Weighted Expansion Value} = (a/100 \times A) + (b/100 \times B) + (c/100 \times C) + \dots$$

Where: a, b, c... = percentage of aggregate in the blend;
A, B, C... = expansion value for that aggregate.

b. Mixture Option 2. A finely divided mineral shall be used as described in 1), 2), 3), or 4) that follow. In addition, a blended cement with a finely divided mineral may be added to a separate finely divided mineral to meet the following requirements, provided the finely divided minerals are the same material. However, adding together two different finely divided minerals to obtain the specified minimum percentage of one material will not be permitted for 1), 2), 3), and 4). Refer to Mixture Option 5 to address this situation.

1. Class F Fly Ash. For cement aggregate mixture II, Class PV, BS, PC, PS, MS, DS, SC and SI concrete, the Class F fly ash shall be a minimum 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent for the Class F fly ash, it may be used only if it complies with Mixture Option 5.

2. Class C Fly Ash. For cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, Class C fly ash shall be a minimum of 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent or the calcium oxide exceeds 26.50 percent for the Class C fly ash, it may be used only per Mixture Option 5.

3. Ground Granulated Blast-Furnace Slag. For Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, ground granulated blast-furnace slag shall be a minimum of 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 1.00 percent for the ground granulated blast-furnace slag, it may be used only per Mixture Option 5.

4. Microsilica or High Reactivity Metakaolin, Microsilica solids or high reactivity metakaolin shall be a minimum 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 1.00 percent for the Microsilica or High Reactivity Metakaolin, it may be used only if it complies with Mixture Option 5.

- c. Mixture Option 3. The cement used shall have a maximum total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.60 percent. When aggregate in Group II is involved and the Contractor desires to use a finely divided mineral, any finely divided mineral may be used with the cement unless the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent for the fly ash; or 1.00 percent for the ground granulated blast-furnace slag, microsilica or high reactivity metakaolin. If the alkali content is exceeded, the finely divided mineral may be used only per Mixture Option 5.
- d. Mixture Option 4. The cement used shall have a maximum total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.45 percent. When aggregate in Group II or III is involved and the Contractor desires to use a finely divided mineral, any finely divided mineral may be used with the cement unless the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent for the fly ash; or 1.00 percent for the ground granulated blast-furnace slag, microsilica, or high reactivity metakaolin. If the alkali content is exceeded, the finely divided mineral may be used only per Mixture Option 5.
- e. Mixture Option 5. The proposed cement or finely divided mineral may be used if the ASTM C 1567 expansion value is ≤ 0.16 percent when performed on the aggregate in the concrete mixture with the highest ASTM C 1260 test result. The laboratory performing the ASTM C 1567 test shall be approved by the Department according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Laboratory Requirements for Alkali-Silica Reactivity (ASR) Testing". The ASTM C 1567 test will be valid for two years, unless the Engineer determines the materials have changed significantly.

For latex concrete, the ASTM C 1567 test shall be performed without the latex.

The 0.20 percent autoclave expansion limit in ASTM C 1567 shall not apply.

If during the two year time period the Contractor needs to replace the cement, and the replacement cement has an equal or lower total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$), a new ASTM C 1567 test will not be required.

The Engineer reserved the right to verify a Contractor's ASTM C 1567 test result. When the Contractor performs the test, a split sample may be requested by the Engineer. The Engineer may also independently obtain a sample at any time.

The proposed cement or finely divided mineral will not be allowed for use if the Contractor or Engineer obtains an expansion value greater than 0.16 percent.

1020.06 Water/Cement Ratio. The water/cement ratio shall be determined on a weight (mass) basis. When a maximum water/cement ratio is specified, the water shall include mixing water, water in admixtures, free moisture on the aggregates, and water added at the jobsite. The quantity of water may be adjusted within the limit specified to meet slump requirements.

When fly ash, ground granulated blast-furnace slag, high-reactivity metakaolin, or microsilica (silica fume) are used in a concrete mix, the water/cement ratio will be based on the total cement and finely divided minerals contained in the mixture.

1020.07 Slump. The slump shall be determined according to Illinois Modified AASHTO T 119.

If the measured slump falls outside the limits specified, a check test will be made. In the event of a second failure, the Engineer may refuse to permit the use of the batch of concrete represented.

If the Contractor is unable to add water to prepare concrete of the specified slump without exceeding the maximum design water/cement ratio, a water-reducing admixture shall be added.

1020.08 Air Content. The air content shall be determined according to Illinois Modified AASHTO T 152 or Illinois Modified AASHTO T 196. The air-entrainment shall be obtained by the use of cement with an approved air-entraining admixture added during the mixing of the concrete or the use of air-entraining cement.

If the air-entraining cement furnished is found to produce concrete having air content outside the limits specified, its use shall be discontinued immediately and the Contractor shall provide other air-entraining cement which will produce air contents within the specified limits.

If the air content obtained is above the specified maximum limit at the jobsite, the Contractor may have the concrete further mixed, within the limits of time and revolutions specified, to reduce the air content. If the air content obtained is below the specified minimum limit, the Contractor may add to the concrete a sufficient quantity of an approved air-entraining admixture at the jobsite to bring the air content within the specified limits.

1020.09 Strength Tests. The specimens shall be molded and cured according to Illinois Modified AASHTO T 23. Specimens shall be field cured with the construction item as specified in Illinois Modified AASHTO T 23. The compressive strength shall be determined according to Illinois Modified AASHTO T 22. The flexural strength shall be determined according to Illinois Modified AASHTO T 177.

Except for Class PC and PS concrete, the Contractor shall transport the strength specimens from the site of the work to the field laboratory or other location as instructed by the Engineer. During transportation in a suitable light truck, the specimens shall be embedded in straw,

burlap, or other acceptable material in a manner meeting with the approval of the Engineer to protect them from damage; care shall be taken to avoid impacts during hauling and handling. For strength specimens, the Contractor shall provide a field curing box for initial curing and a water storage tank for final curing. The field curing box will be required when an air temperature below 60 °F (16 °C) is expected during the initial curing period. The device shall maintain the initial curing temperature range specified in Illinois Modified AASHTO T 23, and may be insulated or power operated as appropriate.

1020.10 Handling, Measuring, and Batching Materials. Aggregates shall be handled in a manner to prevent mixing with soil and other foreign material.

Aggregates shall be handled in a manner which produces a uniform gradation, before placement in the plant bins. Aggregates delivered to the plant in a nonuniform gradation condition shall be stockpiled. The stockpiled aggregate shall be mixed uniformly before placement in the plant bins.

Aggregates shall have a uniform moisture content before placement in the plant bins. This may require aggregates to be stockpiled for 12 hours or more to allow drainage, or water added to the stockpile, or other methods approved by the Engineer. Moisture content requirements for crushed concrete, crushed slag or lightweight aggregate shall be according to Article 1004.01(e)(5).

Aggregates, cement, and finely divided minerals shall be measured by weight (mass). Water and admixtures shall be measured by volume or weight (mass).

The Engineer may permit aggregates, cement, and finely divided minerals to be measured by volume for small isolated structures and for miscellaneous items. Aggregates, cement, and finely divided minerals shall be measured individually. The volume shall be based upon dry, loose materials.

1020.11 Mixing Portland Cement Concrete. The mixing of concrete shall be according to the following.

(a) Ready-Mixed Concrete. Ready-mixed concrete is central-mixed, truck-mixed, or shrink-mixed concrete transported and delivered in a plastic state ready for placement in the work and shall be according to the following.

(1) Central-Mixed Concrete. Central-mixed concrete is concrete which has been completely mixed in a stationary mixer and delivered in a truck agitator, a truck mixer operating at agitating speed, or a nonagitator truck.

The stationary mixer shall operate at the drum speed for which it was designed. The batch shall be charged into the drum so that some of the water shall enter in advance of the cement, finely divided minerals, and aggregates. The flow of the water shall be uniform and all water shall be in the drum by the end of the first 15 seconds of the mixing period. Water shall begin to enter the drum from zero to

two seconds in advance of solid material and shall stop flowing within two seconds of the beginning of mixing time.

Some coarse aggregate shall enter in advance of other solid materials. For the balance of the charging time for solid materials, the aggregates, finely divided minerals, and cement (to assure thorough blending) shall each flow at acceptably uniform rates, as determined by visual observation. Coarse aggregate shall enter two seconds in advance of other solid materials and a uniform rate of flow shall continue to within two seconds of the completion of charging time.

The entire contents of the drum, or of each single compartment of a multiple-drum mixer, shall be discharged before the succeeding batch is introduced.

The volume of concrete mixed per batch shall not exceed the mixer's rated capacity as shown on the standard rating plate on the mixer by more than ten percent.

The minimum mixing time shall be 75 seconds for a stationary mixer having a capacity greater than 2 cu yd (1.5 cu m). For a mixer with a capacity equal to or less than 2 cu yd (1.5 cu m) the mixing time shall be 60 seconds. Transfer time in multiple drum mixers is included in the mixing time. Mixing time shall begin when all materials are in the mixing compartment and shall end when the discharge of any part of the batch is started. The required mixing times will be established by the Engineer for all types of stationary mixers.

When central-mixed concrete is to be transported in a truck agitator or a truck mixer, the stationary-mixed batch shall be transferred to the agitating unit without delay and without loss of any portion of the batch. Agitating shall start immediately thereafter and shall continue without interruption until the batch is discharged from the agitator. The ingredients of the batch shall be completely discharged from the agitator before the succeeding batch is introduced. Drums and auxiliary parts of the equipment shall be kept free from accumulations of materials.

The vehicles used for transporting the mixed concrete shall be of such capacity, or the batches shall be so proportioned, that the entire contents of the mixer drum can be discharged into each vehicle load.

- (2) Truck-Mixed Concrete. Truck-mixed concrete is completely mixed and delivered in a truck mixer. When the mixer is charged with fine and coarse aggregates simultaneously, not less than 60 nor more than 100 revolutions of the drum or blades at mixing speed shall be required, after all of the ingredients including water are in the drum. When fine and coarse aggregates are charged separately, not less than 70 revolutions will be required. For self-consolidating concrete, a minimum of 100 revolutions is required in all cases. Additional mixing beyond 100 revolutions shall be at agitating speed unless additions of water, admixtures, or other materials are made at the jobsite. The mixing operation shall begin immediately after the cement and water, or the cement and wet aggregates, come in contact. The

ingredients of the batch shall be completely discharged from the drum before the succeeding batch is introduced. The drum and auxiliary parts of the equipment shall be kept free from accumulations of materials. If additional water or an admixture is added at the jobsite, the concrete batch shall be mixed a minimum of 40 additional revolutions after each addition.

- (3) Shrink-Mixed Concrete. Shrink-mixed concrete is mixed partially in a stationary mixer and completed in a truck mixer for delivery. The mixing time of the stationary mixer may be reduced to a minimum of 30 seconds to intermingle the ingredients, before transferring to the truck mixer. All ingredients for the batch shall be in the stationary mixer and partially mixed before any of the mixture is discharged into the truck mixer. The partially mixed batch shall be transferred to the truck mixer without delay and without loss of any portion of the batch, and mixing in the truck mixer shall start immediately. The mixing time in the truck mixer shall be not less than 50 nor more than 100 revolutions of the drum or blades at mixing speed. For self-consolidating concrete, a minimum of 100 revolutions is required in the truck mixer. Additional mixing beyond 100 revolutions shall be at agitating speed, unless additions of water, admixtures, or other materials are made at the jobsite. Units designed as agitators shall not be used for shrink mixing. The ingredients of the batch shall be completely discharged from the drum before the succeeding batch is introduced. The drum and auxiliary parts of the equipment shall be kept free from accumulations of materials. If additional water or an admixture is added at the jobsite, the concrete batch shall be mixed a minimum of 40 additional revolutions after each addition.
- (4) Mixing Water. Wash water shall be completely discharged from the drum or container before a batch is introduced. All mixing water shall be added at the plant and any adjustment of water at the jobsite by the Contractor shall not exceed the specified maximum water/cement ratio or slump. If strength specimens have been made for a batch of concrete, and subsequently during discharge there is more water added, additional strength specimens shall be made for the batch of concrete. No additional water may be added at the jobsite to central-mixed concrete if the mix design has less than 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together.
- (5) Mixing and Agitating Speeds. The mixing or agitating speeds used for truck mixers or truck agitators shall be per the manufacturer's rating plate.
- (6) Capacities. The volume of plastic concrete in a given batch will be determined according to AASHTO T 121, based on the total weight (mass) of the batch, determined either from the weight (masses) of all materials, including water, entering the batch or directly from the net weight (mass) of the concrete in the batch as delivered.

The volume of mixed concrete in truck mixers or truck agitators shall in no case be greater than the rated capacity determined according to the Truck Mixer, Agitator,

and Front Discharge Concrete Carrier Standards of the Truck Mixer Manufacturer's Bureau, as shown by the rating plate attached to the truck. If the truck mixer does not have a rating plate, the volume of mixed concrete shall not exceed 63 percent of the gross volume of the drum or container, disregarding the blades. For truck agitators, the value is 80 percent.

- (7) Time of Haul. Haul time shall begin when the delivery ticket is stamped. The delivery ticket shall be stamped no later than five minutes after the addition of the mixing water to the cement, or after the addition of the cement to the aggregate when the combined aggregates contain free moisture in excess of two percent by weight (mass). If more than one batch is required for charging a truck using a stationary mixer, the time of haul shall start with mixing of the first batch. Haul time shall end when the truck is emptied for incorporation of the concrete into the work.

The time elapsing from when water is added to the mix until it is deposited in place at the site of the work shall not exceed 30 minutes when the concrete is transported in nonagitating trucks.

The maximum haul time for concrete transported in truck mixers or truck agitators shall be according to the following.

Concrete Temperature at Point of Discharge °F (°C)	Haul Time	
	Hours	Minutes
50-64 (10-17.5)	1	30
>64 (>17.5) - without retarder	1	0
>64 (>17.5) - with retarder	1	30

To encourage start-up testing for mix adjustments at the plant, the first two trucks will be allowed an additional 15 minutes haul time whenever such testing is performed.

For a mixture which is not mixed on the jobsite, a delivery ticket shall be required for each load. The following information shall be recorded on each delivery ticket: (1) ticket number; (2) name of producer and plant location; (3) contract number; (4) name of Contractor; (5) stamped date and time batched; (6) truck number; (7) quantity batched; (8) amount of admixture(s) in the batch; (9) amount of water in the batch; and (10) Department mix design number.

For concrete mixed in jobsite stationary mixers, the above delivery ticket may be waived, but a method of verifying the haul time shall be established to the satisfaction of the Engineer.

- (8) Production and Delivery. The production of ready-mixed concrete shall be such that the operations of placing and finishing will be continuous insofar as the job operations require. The Contractor shall be responsible for producing concrete that will have the required workability, consistency, and plasticity when delivered to the work. Concrete which is unsuitable for placement as delivered will be rejected. The

Contractor shall minimize the need to adjust the mixture at the jobsite, such as adding water and admixtures prior to discharging.

- (9) Use of Multiple Plants in the Same Construction Item. The Contractor may simultaneously use central-mixed, truck-mixed, and shrink-mixed concrete from more than one plant, for the same construction item, on the same day, and in the same pour. However, the following criteria shall be met.
- a. Each plant shall use the same cement, finely divided minerals, aggregates, admixtures, and fibers.
 - b. Each plant shall use the same mix design. However, material proportions may be altered slightly in the field to meet slump and air content criteria. Field water adjustments shall not result in a difference that exceeds 0.02 between plants for water/cement ratio. The required cement factor for central-mixed concrete shall be increased to match truck-mixed or shrink-mixed concrete, if the latter two types of mixed concrete are used in the same pour.
 - c. The maximum slump difference between deliveries of concrete shall be 3/4 in. (19 mm) when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and shall test subsequent deliveries of concrete until the slump difference is corrected. For each day, the first three truck loads of delivered concrete from each plant shall be tested for slump by the Contractor. Thereafter, when a specified test frequency for slump is to be performed, it shall be conducted for each plant at the same time.
 - d. The maximum air content difference between deliveries of concrete shall be 1.5 percent when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and shall test subsequent deliveries of concrete until the air content difference is corrected. For each day, the first three truck loads of delivered concrete from each plant shall be tested for air content by the Contractor. Thereafter, when a specified test frequency for air content is to be performed, it shall be conducted for each plant at the same time.
 - e. Strength tests shall be performed and taken at the jobsite for each plant. When a specified strength test is to be performed, it shall be conducted for each plant at the same time. The difference between plants for strength shall not exceed 900 psi (6200 kPa) compressive and 90 psi (620 kPa) flexural. If the strength difference requirements are exceeded, the Contractor shall take corrective action.
 - f. The maximum haul time difference between deliveries of concrete shall be 15 minutes. If the difference is exceeded, but haul time is within specification

limits, the concrete may be used. The Contractor shall take immediate corrective action and check subsequent deliveries of concrete.

- (b) Class PC Concrete. The concrete shall be central-mixed or truck-mixed. Variations in plastic concrete properties shall be minimized between batches.
- (c) Class PV Concrete. The concrete shall be central-mixed, truck-mixed, or shrink-mixed.

The required mixing time for stationary mixers with a capacity greater than 2 cu yd (1.5 cu m) may be less than 75 seconds upon satisfactory completion of a mixer performance test. Mixer performance tests may be requested by the Contractor when the quantity of concrete to be placed exceeds 50,000 sq yd (42,000 sq m). The testing shall be conducted according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Field Test Procedures for Mixer Performance and Concrete Uniformity Tests".

The Contractor will be allowed to test two mixing times within a range of 50 to 75 seconds. If satisfactory results are not obtained from the required tests, the mixing time shall continue to be 75 seconds for the remainder of the contract. If satisfactory results are obtained, the mixing time may be reduced. In no event will mixing time be less than 50 seconds.

The Contractor shall furnish the labor, equipment, and material required to perform the testing according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Field Test Procedures for Mixer Performance and Concrete Uniformity Tests".

A contract which has 12 ft (3.6 m) wide pavement or base course, and a continuous length of 1/2 mile (0.8 km) or more, shall have the following additional requirements.

- (1) The plant and truck delivery operation shall be able to provide a minimum of 50 cu yd (38 cu m) of concrete per hour.
- (2) The plant shall have automatic or semi-automatic batching equipment.

- (d) All Other Classes of Concrete. The concrete shall be central-mixed, truck-mixed, or shrink-mixed concrete.

1020.12 Mobile Portland Cement Concrete Plants. The use of a mobile portland cement concrete plant may be approved under the provisions of Article 1020.10 for volumetric proportioning in small isolated structures, thin overlays, and for miscellaneous and incidental concrete items.

The first 1 cu ft (0.03 cu m) of concrete produced may not contain sufficient mortar and shall not be incorporated in the work. The side plate on the cement feeder shall be removed

periodically (normally the first time the mixer is used each day) to see if cement is building up on the feed drum.

Sufficient mixing capacity of mixers shall be provided to enable continuous placing and finishing insofar as the job operations and the specifications require.

Slump and air tests made immediately after discharge of the mix may be misleading, since the aggregates may absorb a significant amount of water for four or five minutes after mixing.

1020.13 Curing and Protection. The method of curing, curing period, and method of protection for each type of concrete construction is included in the following Index Table.

INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION			
TYPE OF CONSTRUCTION	CURING METHODS	CURING PERIOD DAYS	LOW AIR TEMPERATURE PROTECTION METHODS
Cast-in-Place Concrete ^{11/}			
Pavement			
Shoulder	1020.13(a)(1)(2)(3)(4)(5) ^{3/5/}	3	1020.13(c)
Base Course			
Base Course Widening	1020.13(a)(1)(2)(3)(4)(5) ^{2/}	3	1020.13(c)
Driveway			
Median			
Barrier			
Curb			
Gutter	1020.13(a)(1)(2)(3)(4)(5) ^{4/5/}	3	1020.13(c) ^{16/}
Curb & Gutter			
Sidewalk			
Slope Wall			
Paved Ditch			
Catch Basin			
Manhole	1020.13(a)(1)(2)(3)(4)(5) ^{4/}	3	1020.13(c)
Inlet			
Valve Vault			
Pavement Patching	1020.13(a)(1)(2)(3)(4)(5) ^{2/}	3 ^{12/}	1020.13(c)
Bridge Deck Patching	1020.13(a)(3)(5)	3 or 7 ^{12/}	1020.13(c)
Railroad Crossing	1020.13(a)(3)(5)	1	1020.13(c)
Piles and Drilled Shafts	1020.13(a)(3)(5)	7	1020.13(d)(1)(2)(3)
Foundations & Footings			
Seal Coat	1020.13(a)(1)(2)(3)(4)(5) ^{4/6/}	7	1020.13(d)(1)(2)(3)
Substructure	1020.13(a)(1)(2)(3)(4)(5) ^{1/7/}	7	1020.13(d)(1)(2)(3)
Superstructure (except deck)	1020.13(a)(1)(2)(3)(5) ^{8/}	7	1020.13(d)(1)(2)
Deck			
Bridge Approach Slab	1020.13(a)(5)	7	1020.13(d)(1)(2) ^{17/}
Retaining Walls	1020.13(a)(1)(2)(3)(4)(5) ^{1/7/}	7	1020.13(d)(1)(2)
Pump Houses	1020.13(a)(1)(2)(3)(4)(5) ^{1/}	7	1020.13(d)(1)(2)
Culverts	1020.13(a)(1)(2)(3)(4)(5) ^{4/6/}	7	1020.13(d)(1)(2) ^{18/}
Other Incidental Concrete	1020.13(a)(1)(2)(3)(5)	3	1020.13(c)
Precast Concrete ^{11/}			
Bridge Slabs			
Piles and Pile Caps	1020.13(a)(3)(5) ^{9/10/}	As ^{13/}	9/
Other Structural Members		Required	
All Other Precast Items	1020.13(a)(3)(4)(5) ^{2/9/10/}	As ^{14/}	9/
		Required	
Precast, Prestressed Concrete ^{11/}			
All Items	1020(a)(3)(5) ^{9/10/}	Until Strand Tensioning is Released ^{15/}	9/

Notes-General:

- 1/ Type I, membrane curing only
- 2/ Type II, membrane curing only
- 3/ Type III, membrane curing only

- 4/ Type I, II and III membrane curing
- 5/ Membrane Curing will not be permitted between November 1 and April 15.
- 6/ The use of water to inundate foundations and footings, seal coats or the bottom slab of culverts is permissible when approved by the Engineer, provided the water temperature can be maintained at 45 °F (7 °C) or higher.
- 7/ Asphalt emulsion for waterproofing may be used in lieu of other curing methods when specified and permitted according to Article 503.18.
- 8/ On non-traffic surfaces which receive protective coat according to Article 503.19, a linseed oil emulsion curing compound may be used as a substitute for protective coat and other curing methods. The linseed oil emulsion curing compound will be permitted between April 16 and October 31 of the same year, provided it is applied with a mechanical sprayer according to Article 1101.09(b).
- 9/ Steam, supplemental heat, or insulated blankets (with or without steam/supplemental heat) are acceptable and shall be according to the Bureau of Materials and Physical Research's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products" and the "Manual for Fabrication of Precast, Prestressed Concrete Products".
- 10/ A moist room according to AASHTO M 201 is acceptable for curing.
- 11/ If curing is required and interrupted because of form removal for cast-in-place concrete items, precast concrete products, or precast prestressed concrete products, the curing shall be resumed within two hours from the start of the form removal.
- 12/ Curing maintained only until opening strength is attained for pavement patching, with a maximum curing period of three days. For bridge deck patching the curing period shall be three days if Class PP concrete is used and 7 days if Class BS concrete is used.
- 13/ The curing period shall end when the concrete has attained the mix design strength. The producer has the option to discontinue curing when the concrete has attained 80 percent of the mix design strength or after seven days. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.
- 14/ The producer shall determine the curing period or may elect to not cure the product. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.

- 15/ The producer has the option to continue curing after strand release.
- 16/ When structural steel or structural concrete is in place above slope wall, Article 1020.13(c) shall not apply. The protection method shall be according to Article 1020.13(d)(1).
- 17/ When Article 1020.13(d)(2) is used to protect the deck, the housing may enclose only the bottom and sides. The top surface shall be protected according to Article 1020.13(d)(1).
- 18/ For culverts having a waterway opening of 10 sq ft (1 sq m) or less, the culverts may be protected according to Article 1020.13(d)(3).
- (a) **Methods of Curing.** Except as provided for in the Index Table of Curing and Protection of Concrete Construction, curing shall be accomplished by one of the following described methods. When water is required to wet the surface, it shall be applied as a fine spray so that it will not mar or pond on the surface. Except where otherwise specified, the curing period shall be at least 72 hours.
- (1) **Waterproof Paper Method.** The surface of the concrete shall be covered with waterproof paper as soon as the concrete has hardened sufficiently to prevent marring the surface. The surface of the concrete shall be wetted immediately before the paper is placed. The blankets shall be lapped at least 12 in. (300 mm) end to end, and these laps shall be securely weighted with a windrow of earth, or other approved method, to form a closed joint. The same requirements shall apply to the longitudinal laps where separate strips are used for curing edges, except the lap shall be at least 9 in. (225 mm). The edges of the blanket shall be weighted securely with a continuous windrow of earth or any other means satisfactory to the Engineer to provide an air-tight cover. Any torn places or holes in the paper shall be repaired immediately by patches cemented over the openings, using a bituminous cement having a melting point of not less than 180 °F (82 °C). The blankets may be reused, provided they are air-tight and kept serviceable by proper repairs.
- A longitudinal pleat shall be provided in the blanket to permit shrinkage where the width of the blanket is sufficient to cover the entire surface. The pleat will not be required where separate strips are used for the edges. Joints in the blanket shall be sewn or cemented together in such a manner that they will not separate during use.
- (2) **Polyethylene Sheeting Method.** The surface of the concrete shall be covered with white polyethylene sheeting as soon as the concrete has hardened sufficiently to prevent marring the surface. The surface of the concrete shall be wetted immediately before the sheeting is placed. The edges of the sheeting shall be weighted securely with a continuous windrow of earth or any other means satisfactory to the Engineer to provide an air-tight cover. Adjoining sheets shall overlap not less than 12 in. (300 mm) and the laps shall be securely weighted with earth, or any other means satisfactory to the Engineer, to provide an air tight cover.

For surface and base course concrete, the polyethylene sheets shall be not less than 100 ft (30 m) in length nor longer than can be conveniently handled, and shall be of such width that, when in place, they will cover the full width of the surface, including the edges, except that separate strips may be used to cover the edges. Any tears or holes in the sheeting shall be repaired. When sheets are no longer serviceable as a single unit, the Contractor may select from such sheets and reuse those which will serve for further applications, provided two sheets are used as a single unit; however, the double sheet units will be rejected when the Engineer deems that they no longer provide an air tight cover.

- (3) **Wetted Burlap Method.** The surface of the concrete shall be covered with wetted burlap blankets as soon as the concrete has hardened sufficiently to prevent marring the surface. The blankets shall overlap 6 in. (150 mm). At least two layers of wetted burlap shall be placed on the finished surface. The burlap shall be kept saturated by means of a mechanically operated sprinkling system. In place of the sprinkling system, at the Contractor's option, two layers of burlap covered with impermeable covering shall be used. The burlap shall be kept saturated with water. Plastic coated burlap may be substituted for one layer of burlap and impermeable covering.

The blankets shall be placed so that they are in contact with the edges of the concrete, and that portion of the material in contact with the edges shall be kept saturated with water.

- (4) **Membrane Curing Method.** Membrane curing will not be permitted where a protective coat, concrete sealer, or waterproofing is to be applied, or at areas where rubbing or a normal finish is required, or at construction joints other than those necessary in pavement or base course. Concrete at these locations shall be cured by another method specified in Article 1020.13(a).

After all finishing work to the concrete surface has been completed, it shall be sealed with membrane curing compound of the type specified within ten minutes. The seal shall be maintained for the specified curing period. The edges of the concrete shall, likewise, be sealed within ten minutes after the forms are removed. Two separate applications, applied at least one minute apart, each at the rate of not less than 1 gal/250 sq ft (0.16 L/sq m) will be required upon the surfaces and edges of the concrete. These applications shall be made with the mechanical equipment specified. Type III compound shall be agitated immediately before and during the application.

At locations where the coating is discontinuous or where pin holes show or where the coating is damaged due to any cause and on areas adjacent to sawed joints, immediately after sawing is completed, an additional coating of membrane curing compound shall be applied at the above specified rate. The equipment used may be of the same type as that used for coating variable widths of pavement. Before the additional coating is applied adjacent to sawed joints, the cut faces of the joint shall be protected by inserting a suitable flexible material in the joint, or placing an

adhesive width of impermeable material over the joint, or by placing the permanent sealing compound in the joint. Material, other than the permanent sealing compound, used to protect cut faces of the joint, shall remain in place for the duration of the curing period. In lieu of applying the additional coating, the area of the sawed joint may be cured according to any other method permitted.

When rain occurs before an application of membrane curing compound has dried, and the coating is damaged, the Engineer may require another application be made in the same manner and at the same rate as the original coat. The Engineer may order curing by another method specified, if unsatisfactory results are obtained with membrane curing compound.

- (5) **Wetted Cotton Mat Method.** After the surface of concrete has been textured or finished, it shall be covered immediately with dry or damp cotton mats. The cotton mats shall be placed in a manner which will not mar the concrete surface. A texture resulting from the cotton mat material is acceptable. The cotton mats shall then be wetted immediately and thoroughly soaked with a gentle spray of water. For bridge decks, a foot bridge shall be used to place and wet the cotton mats.

The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to place soaker hoses without marring the concrete surface. The soaker hoses shall be placed on top of the cotton mats at a maximum 4 ft (1.2 m) spacing. The cotton mats shall be kept wet with a continuous supply of water for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

After placement of the soaker hoses, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets.

For construction items other than bridge decks, soaker hoses or a continuous wetting system will not be required if the alternative method keeps the cotton mats wet. Periodic wetting of the cotton mats is acceptable.

For areas inaccessible to the cotton mats on bridge decks, curing shall be according to Article 1020.13(a)(3).

- (b) **Removing and Replacing Curing Covering.** When curing methods specified above in Article 1020.13(a), (1), (2), or (3) are used for concrete pavement, the curing covering for each day's paving shall be removed to permit testing of the pavement surface with a profilograph or straightedge, as directed by the Engineer.

Immediately after testing, the surface of the pavement shall be wetted thoroughly and the curing coverings replaced. The top surface and the edges of the concrete shall not be left unprotected for a period of more than 1/2 hour.

- (c) Protection of Concrete, Other Than Structures, From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low of 32 °F (0 °C), or lower, or if the actual temperature drops to 32 °F (0 °C), or lower, concrete less than 72 hours old shall be provided at least the following protection.

Minimum Temperature	Protection
25 – 32 °F (-4 – 0 °C)	Two layers of polyethylene sheeting, one layer of polyethylene and one layer of burlap, or two layers of waterproof paper.
Below 25 °F (-4 °C)	6 in. (150 mm) of straw covered with one layer of polyethylene sheeting or waterproof paper.

These protective covers shall remain in place until the concrete is at least 96 hours old. When straw is required on pavement cured with membrane curing compound, the compound shall be covered with a layer of burlap, polyethylene sheeting or waterproof paper before the straw is applied.

After September 15, there shall be available to the work within four hours, sufficient clean, dry straw to cover at least two days production. Additional straw shall be provided as needed to afford the protection required. Regardless of the precautions taken, the Contractor shall be responsible for protection of the concrete placed and any concrete damaged by cold temperatures shall be removed and replaced.

- (d) Protection of Concrete Structures From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low below 45 °F (7 °C), or if the actual temperature drops below 45 °F (7 °C), concrete less than 72 hours old shall be provided protection. Concrete shall also be provided protection when placed during the winter period of December 1 through March 15. Concrete shall not be placed until the materials, facilities, and equipment for protection are approved by the Engineer.

When directed by the Engineer, the Contractor may be required to place concrete during the winter period. When winter construction is specified, the Contractor shall proceed with the construction, including excavation, pile driving, concrete, steel erection, and all appurtenant work required for the complete construction of the item, except at times when weather conditions make such operations impracticable.

Regardless of the precautions taken, the Contractor shall be responsible for protection of the concrete placed and any concrete damaged by cold temperatures shall be removed and replaced.

- (1) Protection Method I. The concrete shall be completely covered with insulating material such as fiberglass, rock wool, or other approved commercial insulating material having the minimum thermal resistance R, as defined in ASTM C 168, for

the corresponding minimum dimension of the concrete unit being protected as shown in the following table.

Minimum Pour Dimension		Thermal Resistance R
in.	(mm)	
6 or less	(150 or less)	R=16
> 6 to 12	(> 150 to 300)	R=10
> 12 to 18	(> 300 to 450)	R=6
> 18	(> 450)	R=4

The insulating material manufacturer shall clearly mark the insulating material with the thermal resistance R value.

The insulating material shall be completely enclosed on sides and edges with an approved waterproof liner and shall be maintained in a serviceable condition. Any tears in the liner shall be repaired in a manner approved by the Engineer. The Contractor shall provide means for checking the temperature of the surface of the concrete during the protection period.

On formed surfaces, the insulating material shall be attached to the outside of the forms with wood cleats or other suitable means to prevent any circulation of air under the insulation and shall be in place before the concrete is placed. The blanket insulation shall be applied tightly against the forms. The edges and ends shall be attached so as to exclude air and moisture. If the blankets are provided with nailing flanges, the flanges shall be attached to the studs with cleats. Where tie rods or reinforcement bars protrude, the areas adjacent to the rods or bars shall be adequately protected in a manner satisfactory to the Engineer. Where practicable, the insulation shall overlap any previously placed concrete by at least 1 ft (300 mm). Insulation on the underside of floors on steel members shall cover the top flanges of supporting members. On horizontal surfaces, the insulating material shall be placed as soon as the concrete has set, so that the surface will not be marred and shall be covered with canvas or other waterproof covering. The insulating material shall remain in place for a period of seven days after the concrete is placed.

The Contractor may remove the forms, providing the temperature is 35 °F (2 °C) and rising and the Contractor is able to wrap the particular section within two hours from the time of the start of the form removal. The insulation shall remain in place for the remainder of the seven days curing period.

- (2) Protection Method II. The concrete shall be enclosed in adequate housing and the air surrounding the concrete kept at a temperature of not less than 50 °F (10 °C) nor more than 80 °F (27 °C) for a period of seven days after the concrete is placed. The Contractor shall provide means for checking the temperature of the surface of the concrete or air temperature within the housing during the protection period. All exposed surfaces within the housing shall be cured according to the Index Table.

The Contractor shall provide adequate fire protection where heating is in progress and such protection shall be accessible at all times. The Contractor shall maintain labor to keep the heating equipment in continuous operation.

At the close of the heating period, the temperature shall be decreased to the approximate temperature of the outside air at a rate not to exceed 15 °F (8 °C) per 12 hour period, after which the housing maybe removed. The surface of the concrete shall be permitted to dry during the cooling period.

- (3) Protection Method III. As soon as the surface is sufficiently set to prevent marring, the concrete shall be covered with 12 in. (300 mm) of loose, dry straw followed by a layer of impermeable covering. The edges of the covering shall be sealed to prevent circulation of air and prevent the cover from flapping or blowing. The protection shall remain in place until the concrete is seven days old. If construction operations require removal, the protection removed shall be replaced immediately after completion or suspension of such operations.

1020.14 Temperature Control for Placement. Temperature control for concrete placement shall be according to the following.

- (a) Concrete other than Structures. Concrete may be placed when the air temperature is above 35 °F (2 °C) and rising, and concrete placement shall stop when the falling temperature reaches 40 °F (4 °C) or below, unless otherwise approved by the Engineer.

The temperature of concrete immediately before placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). If concrete is pumped, the temperature of the concrete at point of placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). A maximum concrete temperature shall not apply to Class PP concrete.

- (b) Concrete in Structures. Concrete may be placed when the air temperature is above 40 °F (4 °C) and rising, and concrete placement shall stop when the falling temperature reaches 45 °F (7 °C) or below, unless otherwise approved by the Engineer.

The temperature of the concrete immediately before placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). If concrete is pumped, the temperature of the concrete at point of placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C).

When insulated forms are used according to Article 1020.13(d)(1), the maximum temperature of the concrete mixture immediately before placement shall be 80 °F (25 °C).

When concrete is placed in contact with previously placed concrete, the temperature of the freshly mixed concrete may be increased to 80 °F (25 °C) by the Contractor to offset anticipated heat loss.

- (c) All Classes of Concrete. Aggregates and water shall be heated or cooled uniformly and as necessary to produce concrete within the specified temperature limits. No frozen aggregates shall be used in the concrete.
- (d) Temperature. The concrete temperature shall be determined according to Illinois Modified AASHTO T 309.

1020.15 Heat of Hydration Control for Concrete Structures. The Contractor shall control the heat of hydration for concrete structures when the least dimension for a drilled shaft, foundation, footing, substructure, or superstructure concrete pour exceeds 5.0 ft (1.5 m). The work shall be according to the following.

- (a) Temperature Restrictions. The maximum temperature of the concrete after placement shall not exceed 150 °F (66 °C). The maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface shall not exceed 35 °F (19 °C). The Contractor shall perform temperature monitoring to ensure compliance with the temperature restrictions.
- (b) Thermal Control Plan. The Contractor shall provide a thermal control plan a minimum of 28 calendar days prior to concrete placement for review by the Engineer. Acceptance of the thermal control plan by the Engineer shall not preclude the Contractor from specification compliance, and from preventing cracks in the concrete. At a minimum, the thermal control plan shall provide detailed information on the following requested items and shall comply with the specific specifications indicated for each item.
 - (1) Concrete mix design(s) to be used. Grout mix design if post-cooling with embedded pipe.

The mix design requirements in Articles 1020.04 and 1020.05 shall be revised to include the following additional requirements to control the heat of hydration.

- a. The concrete mixture should be uniformly graded and preference for larger size aggregate should be used in the mix design. Article 1004.02(d)(2) shall apply and information in the "Portland Cement Concrete Level III Technician Course – Manual of Instructions for Design of Concrete Mixtures" may be used to develop the uniformly graded mixture.
- b. The following shall apply to all concrete except Class DS concrete or when self-consolidating concrete is desired. For central-mixed concrete, the Contractor shall have the option to develop a mixture with a minimum of 520 lbs/cu yd (309 kg/cu m) of cement and finely divided minerals summed together. For truck-mixed or shrink-mixed concrete, the Contractor shall have the option to develop a mixture with a minimum of 550 lbs/cu yd (326 kg/cu m) of cement and finely divided minerals summed together. A water-reducing or high range water-reducing admixture shall be used in the central mixed, truck-mixed or shrink-

mixed concrete mixture. For any mixture to be placed underwater, the minimum cement and finely divided minerals shall be 550 lbs/cu yd (326 kg/cu m) for central-mixed concrete, and 580 lbs/cu yd (344 kg/cu m) for truck-mixed or shrink-mixed concrete.

For Class DS concrete, CA 11 may be used. If CA 11 is used, the Contractor shall have the option to develop a mixture with a minimum cement and finely divided minerals of 605 lbs/cu yd (360 kg/cu m) summed together. If CA 11 is used and either Class DS concrete is placed underwater or a self-consolidating concrete mixture is desired, the Contractor shall have the option to develop a mixture with a minimum cement and finely divided minerals of 635 lbs/cu yd (378 kg/cu m) summed together.

- c. The minimum portland cement content in the mixture shall be 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone addition exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). For a drilled shaft, foundation, footing, or substructure, the minimum portland cement may be reduced to as low as 330 lbs/cu yd (196 kg/cu m) if the concrete has adequate freeze/thaw durability. The Contractor shall provide freeze/thaw test results according to AASHTO T 161 Procedure A or B, and the relative dynamic modulus of elasticity of the mix design shall be a minimum of 80 percent. Freeze/thaw testing will not be required for concrete that will not be exposed to freezing and thawing conditions as determined by the Engineer.
- d. The maximum cement replacement with fly ash shall be 40.0 percent. The maximum cement replacement with ground granulated blast-furnace slag shall be 65.0 percent. When cement replacement with ground granulated blast-furnace slag exceeds 35.0 percent, only Grade 100 shall be used.
- e. The mixture may contain a maximum of two finely divided minerals. The finely divided mineral in portland-pozzolan cement or portland blast-furnace slag cement shall count toward the total number of finely divided minerals allowed. The finely divided minerals shall constitute a maximum of 65.0 percent of the total cement plus finely divided minerals. The fly ash portion shall not exceed 40.0 percent. The ground granulated blast-furnace slag portion shall not exceed 65.0 percent. The microsilica or high-reactivity metakaolin portion used together or separately shall not exceed 5.0 percent.
- f. The time to obtain the specified strength may be increased to a maximum 56 days, provided the curing period specified in Article 1020.13 is increased to a minimum of 14 days.

The minimum grout strength for filling embedded pipe shall be as specified for the concrete, and testing shall be according to AASHTO T 106.

- (2) The selected mathematical method for evaluating heat of hydration thermal effects, which shall include the calculated adiabatic temperature rise, calculated maximum concrete temperature, and calculated maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface. The time when the maximum concrete temperature and maximum temperature differential will occur is required.

Acceptable mathematical methods include ACI 207.2R "Report on Thermal and Volume Change Effects on Cracking of Mass Concrete" as well as other proprietary methods. The Contractor shall perform heat of hydration testing on the cement and finely divided minerals to be used in the concrete mixture. The test shall be according to ASTM C 186 or other applicable test methods, and the result for heat shall be used in the equation to calculate adiabatic temperature rise. Other required test parameters for the mathematical model may be assumed if appropriate.

The Contractor has the option to propose a higher maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface, but the proposed value shall not exceed 50 °F (28 °C). In addition, based on strength gain of the concrete, multiple maximum temperature differentials at different times may be proposed. The proposed value shall be justified through a mathematical method.

- (3) Proposed maximum concrete temperature or temperature range prior to placement.

Article 1020.14 shall apply except a minimum 40 °F (4 °C) concrete temperature will be permitted.

- (4) Pre-cooling, post-cooling, and surface insulation methods that will be used to ensure the concrete will comply with the specified maximum temperature and specified or proposed temperature differential. For reinforcement that extends beyond the limits of the pour, the Contractor shall indicate if the reinforcement is required to be covered with insulation.

Refer to ACI 207.4R "Cooling and Insulating Systems for Mass Concrete" for acceptable methods that will be permitted. If embedded pipe is used for post-cooling, the material shall be polyvinyl chloride or polyethylene. The embedded pipe system shall be properly supported, and the Contractor shall subsequently inspect glued joints to ensure they are able to withstand free falling concrete. The embedded pipe system shall be leak tested after inspection of the glued joints, and prior to the concrete placement. The leak test shall be performed at maximum service pressure or higher for a minimum of 15 minutes. All leaks shall be repaired. The embedded pipe cooling water may be from natural sources such as streams and rivers, but shall be filtered to prevent system stoppages. When the embedded pipe is no longer needed, the surface connections to the pipe shall be removed to a depth of 4 in. (100 mm) below the surface of the concrete. The remaining pipe shall be

completely filled with grout. The 4 in. (100 mm) deep concrete hole shall be filled with nonshrink grout. Form and insulation removal shall be done in a manner to prevent cracking and ensure the maximum temperature differential is maintained. Insulation shall be in good condition as determined by the Engineer and properly attached.

- (5) Dimensions of each concrete pour, location of construction joints, placement operations, pour pattern, lift heights, and time delays between lifts.

Refer to ACI 207.1R "Guide to Mass Concrete" for acceptable placement operations that will be permitted.

- (6) Type of temperature monitoring system, the number of temperature sensors, and location of sensors.

A minimum of two independent temperature monitoring systems and corresponding sensors shall be used.

The temperature monitoring system shall have a minimum temperature range of 32 °F (0 °C) to 212 °F (100 °C), an accuracy of ± 2 °F (± 1 °C), and be able to automatically record temperatures without external power. Temperature monitoring shall begin once the sensor is encased in concrete, and with a maximum interval of one hour. Temperature monitoring may be discontinued after the maximum concrete temperature has been reached, post-cooling is no longer required, and the maximum temperature differential between the internal concrete core and the ambient air temperature does not exceed 35 °F (19 °C). The Contractor has the option to select a higher maximum temperature differential, but the proposed value shall not exceed 50 °F (28 °C). The proposed value shall be justified through a mathematical method.

At a minimum, a temperature sensor shall be located at the theoretical hottest portion of the concrete, normally the geometric center, and at the exterior face that will provide the maximum temperature differential. At the exterior face, the sensor shall be located 2 to 3 in. (50 to 75 mm) from the surface of the concrete. Sensors shall also be located a minimum of 1 in. (25 mm) away from reinforcement, and equidistant between cooling pipes if either applies. A sensor will also be required to measure ambient air temperature. The entrant/exit cooling water temperature for embedded pipe shall also be monitored.

Temperature monitoring results shall be provided to the Engineer a minimum of once each day and whenever requested by the Engineer. The report may be electronic or hard copy. The report shall indicate the location of each sensor, the temperature recorded, and the time recorded. The report shall be for all sensors and shall include ambient air temperature and entrant/exit cooling water temperatures. The temperature data in the report may be provided in tabular or graphical format, and the report shall indicate any corrective actions during the monitoring period. At the

completion of the monitoring period, the Contractor shall provide the Engineer a final report that includes all temperature data and corrective actions.

- (7) Indicate contingency operations to be used if the maximum temperature or temperature differential of the concrete is reached after placement.
- (c) Temperature Restriction Violations. If the maximum temperature of the concrete after placement exceeds 150 °F (66 °C), but is equal to or less than 158 °F (70 °C), the concrete will be accepted if no cracking or other unacceptable defects are identified. If cracking or unacceptable defects are identified, Article 105.03 shall apply. If the concrete temperature exceeds 158 °F (70 °C), Article 105.03 shall apply.

If a temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface exceeds the specified or proposed maximum value allowed, the concrete will be accepted if no cracking or other unacceptable defects are identified. If unacceptable defects are identified, Article 105.03 shall apply.

When the maximum 150 °F (66 °C) concrete temperature or the maximum allowed temperature differential is violated, the Contractor shall implement corrective action prior to the next pour. In addition, the Engineer reserves the right to request a new thermal control plan for acceptance before the Contractor is allowed to pour again.

- (d) Inspection and Repair of Cracks. The Engineer will inspect the concrete for cracks after the temperature monitoring is discontinued, and the Contractor shall provide access for the Engineer to do the inspection. A crack may require repair by the Contractor as determined by the Engineer. The Contractor shall be responsible for the repair of all cracks. Protective coat or a concrete sealer shall be applied to a crack less than 0.007 in. (0.18 mm) in width. A crack that is 0.007 in. (0.18 mm) or greater shall be pressure injected with epoxy according to Section 590.

TEMPORARY EROSION AND SEDIMENT CONTROL (BDE)

Effective: January 1, 2012

Revise the first paragraph of Article 280.04(f) of the Standard Specifications to read:

“(f) Temporary Erosion Control Seeding. This system consists of seeding all erodible/bare areas to minimize the amount of exposed surface area. Seed bed preparation will not be required if the surface of the soil is uniformly smooth and in a loose condition. Light disking shall be done if the soil is hard packed or caked. Erosion rills greater than 1 in. (25 mm) in depth shall be filled and area blended with the surrounding soil. Fertilizer nutrients will not be required.”

Delete the last sentence of Article 280.08(e) of the Standard Specifications.

80286

TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)

Effective: August 1, 2011

Revise the third sentence of the third paragraph of Article 105.03(b) of the Standard Specifications to read:

“The daily monetary deduction will be \$2,500.”

80273

TAB 3



RETURN WITH BID

Route	<u>INNOVATION ROAD</u>
County	<u>CHAMPAIGN</u>
Local Agency	<u>VILLAGE OF RANTOUL</u>
Section	<u>13-00108-00-PV</u>

1. Proposal of _____

for the improvement of the above section by the construction of new pavement, curb & gutter, storm sewer, and elliptical culverts for proposed Innovation Road and Evans Road widening at Innovation Road

_____ a total distance of _____ feet, of which a distance of _____ feet ,(_____ miles) are to be improved.

2. The plans for the proposed work are those prepared by Village of Rantoul and approved by the Department of Transportation on _____

3. The specifications referred to herein are those prepared by the Department of Transportation and designated as "Standard Specifications for Road and Bridge Construction" and the "Supplemental Specifications and Recurring Special Provisions" thereto, adopted and in effect on the date of invitation for bids.

4. The undersigned agrees to accept, as part of the contract, the applicable Special Provisions indicated on the "Check Sheet for Recurring Special Provisions" contained in this proposal.

5. The undersigned agrees to complete the work within - _____ working days or by 06/15/2013 unless additional time is granted in accordance with the specifications.

6. A proposal guaranty in the proper amount, as specified in BLRS Special Provision for Bidding Requirements and Conditions for contract Proposals, will be required. Bid Bonds will will not be allowed as proposal guaranties. Accompanying this proposal is either a bid bond if allowed, on Department form BLR 12230 or a proposal guaranty check, complying with the specifications, made payable to: _____ Treasurer of Village of Rantoul

the amount of the check is 5% Bid Bond (_____)

7. In the event that one proposal guaranty check is intended to cover two or more proposals, the amount must be equal to the sum of the proposal guaranties, which would be required for each individual proposal. If the proposal guaranty check is placed in another proposal, it will be found in the proposal for: Section Number 13-00108-00-PV.

8. If this proposal is accepted and the undersigned fails to execute a contract and contract bond as required, it is hereby agreed that the Bid Bond or check shall be forfeited to the Awarding Authority.

9. Each pay item should have a unit price and a total price. If no total price is shown or if there is a discrepancy between the product of the unit price multiplied by the quantity, the unit price shall govern. If a unit price is omitted, the total price will be divided by the quantity in order to establish a unit price.

10. A bid will be declared unacceptable if neither a unit price nor a total price is shown.

11. The undersigned firm certifies that it has not been convicted of bribery or attempting to bribe an officer or employee of the State of Illinois, nor has the firm made an admission of guilt of such conduct which is a matter of record, nor has an official, agent, or employee of the firm committed bribery or attempted bribery on behalf of the firm and pursuant to the direction or authorization of a responsible official of the firm. The undersigned firm further certifies that it is not barred from contracting with any unit of State or local government as a result of a violation of State laws prohibiting bid-rigging or bid-rotating.

12. The undersigned submits herewith the schedule of prices on BLR 12222 covering the work to be performed under this contract.



**Illinois Department
of Transportation**

Schedule of Prices

Route Innovation Rd.
 County Champaign
 Local Agency Village of Rantoul
 Section 13-00108-00-PV

(For complete information covering these items, see plans and specifications)

RETURN WITH BID

PAY ITEM CODE	PAY ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
20200100	EARTH EXCAVATION	CU YD	4000		
20800150	TRENCH BACKFILL	CU YD	615		
21101615	TOPSOIL FURNISH AND PLACE, 6"	SQ YD	15286		
25000100	SEEDING, CLASS 1	ACRE	3.14		
25100630	EROSION CONTROL BLANKET	SQ YD	15286		
2800250	TEMPORARY EROSION CONTROL SEEDING	POUND	280		
28000400	PERIMETER EROSION BARRIER	FOOT	6268		
28000510	INLET FILTERS	EACH	33		
28100125	STONE RIPRAP, CLASS B3	SQ YD	80		
30103000	SHAPING AND GRADING ROADWAY	SQ YD	25600		
30300001	AGGREGATE SUBGRADE IMPROVEMENT	CU YD	2000		
35101600	AGGREGATE BASE COURSE, TYPE B 4"	SQ YD	1331		
35101800	AGGREGATE BASE COURSE, TYPE B 6"	SQ YD	12087		
42000301	PORTLAND CEMENT CONCRETE PAVEMENT 8" (JOINTED)	SQ YD	12087		
42400200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	11979		
42400800	DETECTABLE WARNINGS	SQ FT	42		
48101600	AGGREGATE SHOULDERS, TYPE B 8"	SQ YD	409		
542C5485	PIPE CULVERTS, CLASS C, TYPE 1 EQUIVALENT ROUND-SIZE 30"	FOOT	237		
54214515	PRECAST REINFORCED CONCRETE FLARED END SECTIONS, EQUIVALENT ROUND-SIZE 30"	EACH	6		
54248150	GRATING FOR CONCRETE FLARED END SECTION EQUIVALENT ROUND-SIZE 30"	EACH	6		



**Illinois Department
of Transportation**

Schedule of Prices

Route Innovation Rd.
 County Champaign
 Local Agency Village of Rantoul
 Section 13-00108-00-PV

(For complete information covering these items, see plans and specifications)

RETURN WITH BID

550A0050	STORM SEWERS, CLASS A, TYPE 1 12"	FOOT	583		
550A0090	STORM SEWERS, CLASS A, TYPE 1 18"	FOOT	80		
550A0120	STORM SEWERS, CLASS A, TYPE 1 24"	FOOT	35		
550A0160	STORM SEWERS, CLASS A, TYPE 1 36"	FOOT	2683		
550A2400	STORM SEWERS, RUBBER GASKET, CLASS A, TYPE 1 36"	FOOT	20		
60100905	PIPE DRAINS 4"	FOOT	175		
60100925	PIPE DRAINS 8"	FOOT	15		
60100935	PIPE DRAINS 10"	FOOT	10		
60201105	CATCH BASINS, TYPE A, 4'-DIAMETER, TYPE 11 FRAME AND GRATE	EACH	11		
60204805	CATCH BASINS, TYPE A, 5'-DIAMETER, TYPE 11 FRAME AND GRATE	EACH	1		
60221100	MANHOLES, TYPE A, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	11		
60224443	MANHOLES, TYPE A, 7'-DIAMETER, TYPE 11 FRAME AND GRATE	EACH	1		
60224446	MANHOLES, TYPE A, 7'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	2		
60236200	INLETS, TYPE A, TYPE 8 GRATE	EACH	6		
60236800	INLETS, TYPE A, TYPE 11 FRAME AND GRATE	EACH	14		
60604000	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12 (DOWELLED)	FOOT	5662		
67100100	MOBILIZATION	L.SUM	1		
72000100	SIGN PANEL - TYPE 1	SQ FT	6.25		
72900200	METAL POST - TYPE B	FOOT	11		
78000200	THERMOPLASTIC PAVEMENT MARKING - LINE 4"	FOOT	198		
78000400	THERMOPLASTIC PAVEMENT MARKING - LINE 6"	FOOT	1254		
78000650	THERMOPLASTIC PAVEMENT MARKING - LINE 24"	FOOT	14		



**Illinois Department
of Transportation**

Schedule of Prices

Route Innovation Rd.
 County Champaign
 Local Agency Village of Rantoul
 Section 13-00108-00-PV

(For complete information covering these items, see plans and specifications)

RETURN WITH BID

Z0013798	CONSTRUCTION LAYOUT	L SUM	1		
X7010216	TRAFFIC CONTROL AND PROTECTION, SPECIAL	L SUM	1		
BIDDER'S PROPOSAL FOR MAKING ENTIRE IMPROVEMENTS					

Route	<u>INNOVATION ROAD</u>
County	<u>CHAMPAIGN</u>
Local Agency	<u>VILLAGE OF RANTOUL</u>
Section	<u>13-00108-PV</u>

RETURN WITH BID

(If an individual)

Signature of Bidder _____

Business Address _____

(If a partnership)

Firm Name _____

Signed By _____

Business Address _____

Insert
Names and
Addresses of
All Partners



(If a corporation)

Corporate Name _____

Signed By _____
President

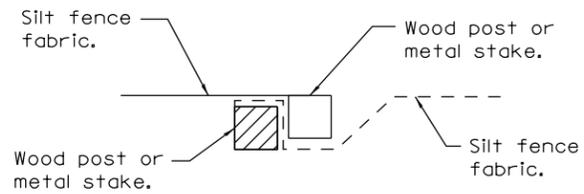
Business Address _____

Insert
Names of
Officers



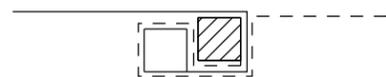
President _____
Secretary _____
Treasurer _____

Attest: _____
Secretary



Place end-post (stake) of first silt fence adjacent to end-post (stake) of second silt fence with fabric positioned as shown.

STEP 1

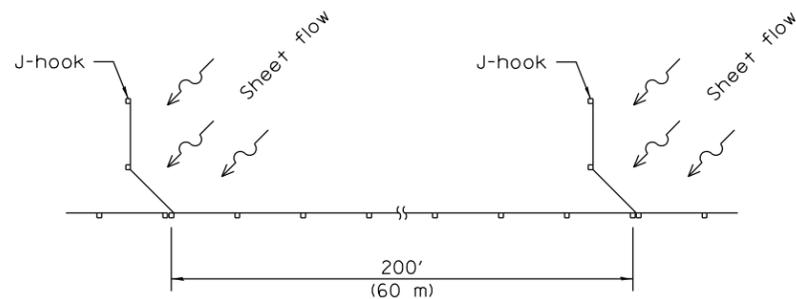


Rotate posts (stakes) together 180° clockwise and drive both posts (stakes) 18 (450) into ground.

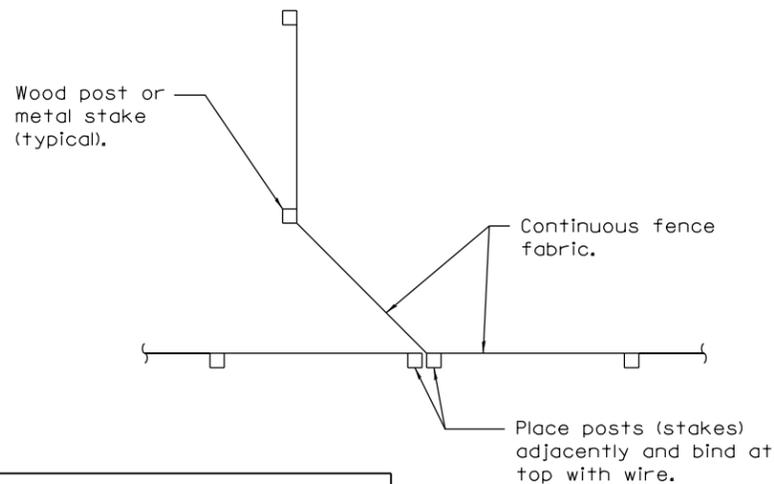
STEP 2

ATTACHING TWO SILT FILTER FENCES

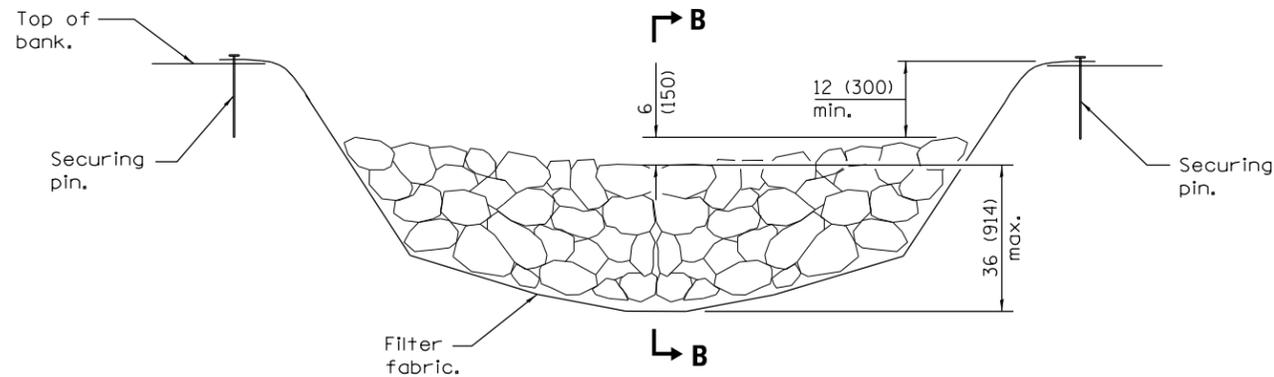
(Not applicable for J-hooks)



SILT FILTER J-HOOK PLACEMENT

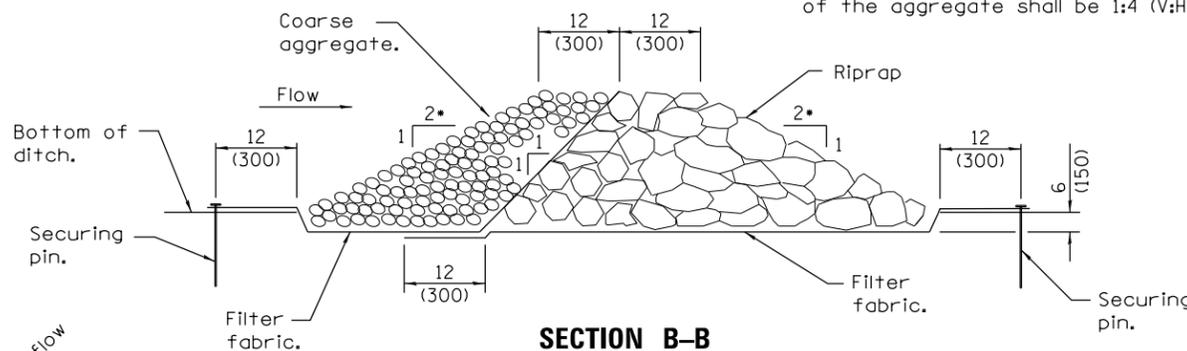


J-HOOK



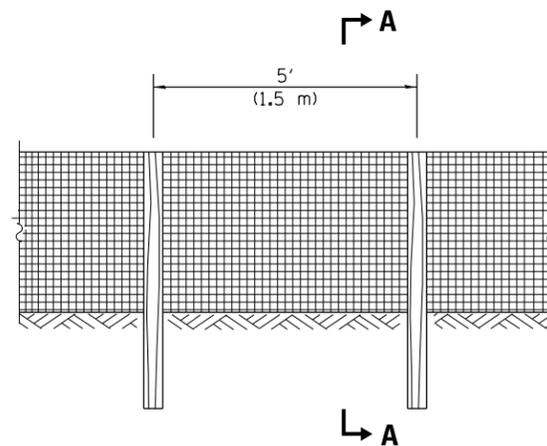
ELEVATION

• When the ditch check is within the clear zone and the road is open to traffic, the traffic approach slope of the aggregate shall be 1:4 (V:H).



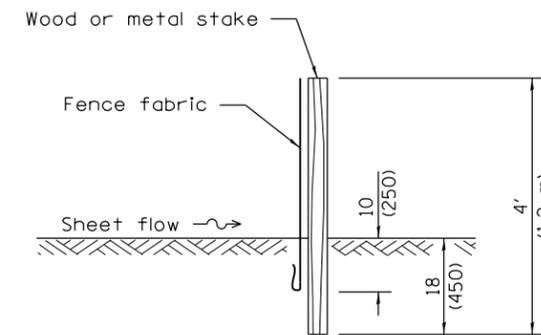
SECTION B-B

AGGREGATE DITCH CHECK

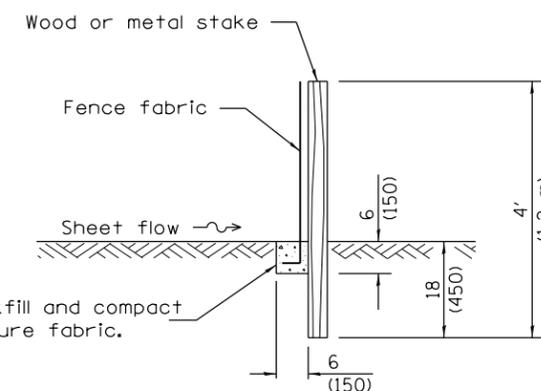


ELEVATION

SILT FILTER FENCE AS A PERIMETER EROSION BARRIER



SLICE METHOD



TRENCH METHOD

SECTION A-A

Excavate, backfill and compact trench to secure fabric.

GENERAL NOTES

The installation details and dimensions shown for perimeter erosion barriers shall also apply for inlet and pipe protection.

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

DATE	REVISIONS
1-1-13	Corrected notation for flowline (E) on SEDIMENT BASIN ELEVATION.
1-1-12	Omitted hay/straw perimeter barrier. Added SLICE METHOD to SECTION A-A.

TEMPORARY EROSION CONTROL SYSTEMS

(Sheet 1 of 2)

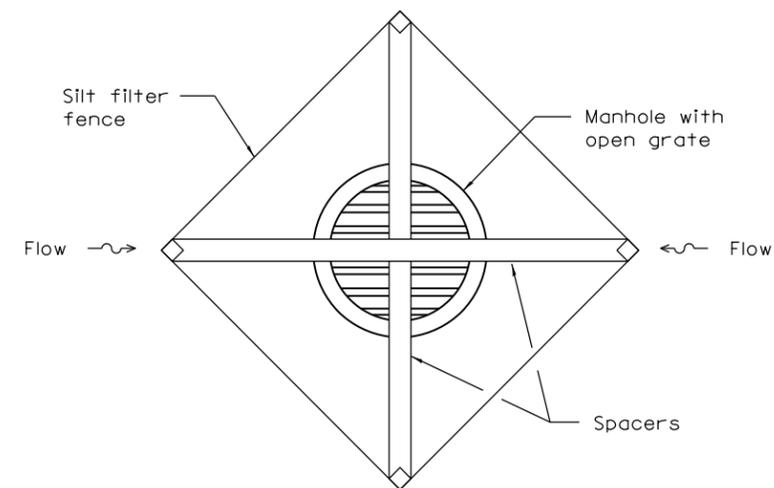
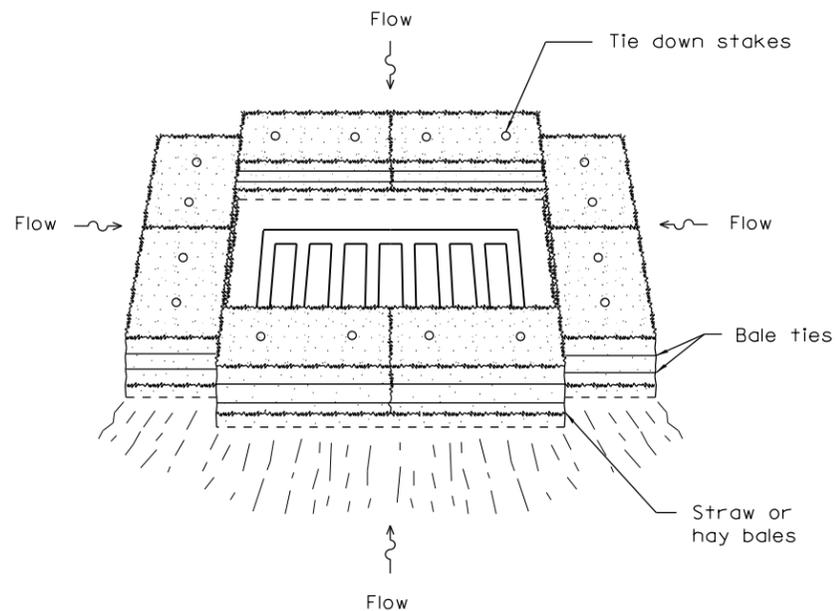
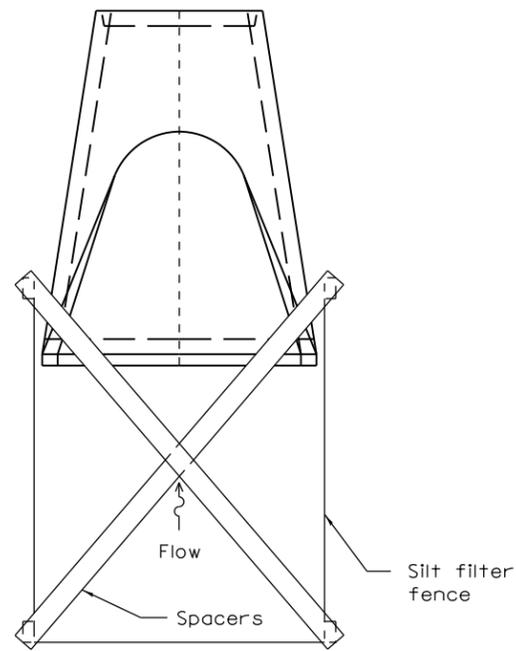
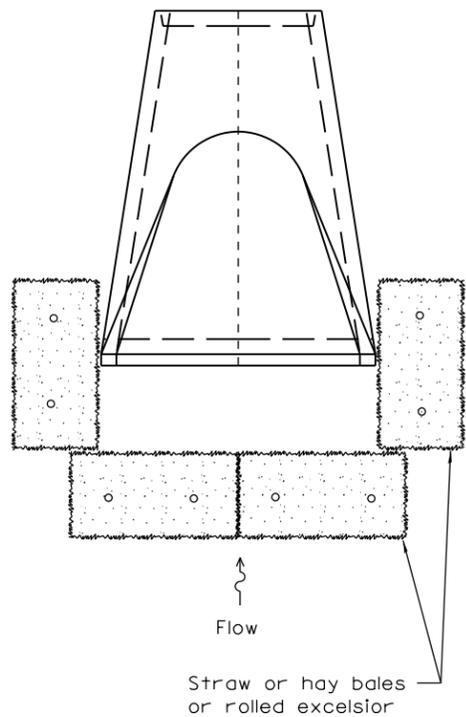
STANDARD 280001-07

Illinois Department of Transportation

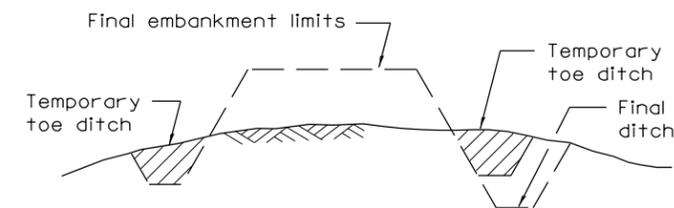
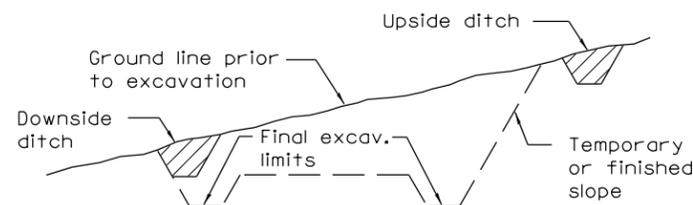
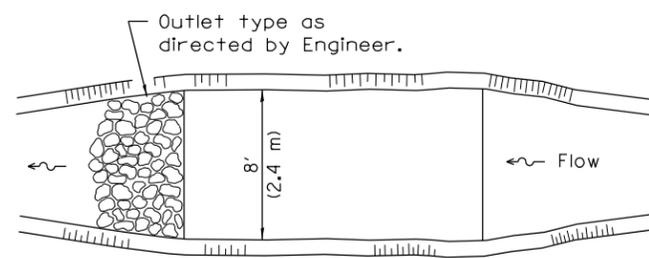
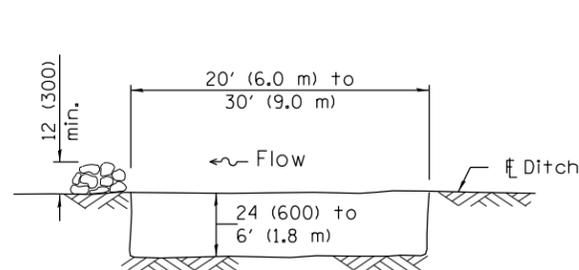
PASSED January 1, 2013
Michael Brand
 ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2013
[Signature]
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



INLET AND PIPE PROTECTION



TYPICAL CUT CROSS-SECTION

TYPICAL FILL CROSS-SECTION

TEMPORARY DITCHES FOR CUT & FILL SECTIONS

The performance of the basin will improve if put into a series.

The long dimension should be parallel with the direction of the flow. Accumulated silt shall be removed anytime the basins become 75% filled.

ELEVATION

PLAN

SEDIMENT BASIN

Illinois Department of Transportation

PASSED January 1, 2013

Michael Brand
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2013

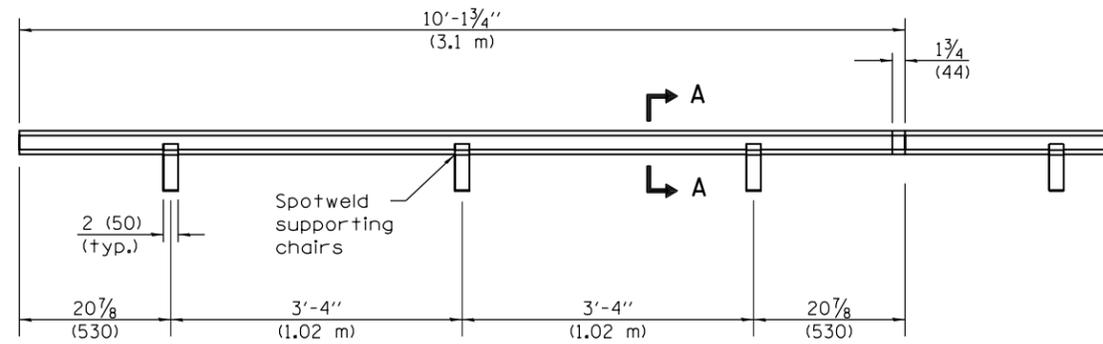
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ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

TEMPORARY EROSION CONTROL SYSTEMS

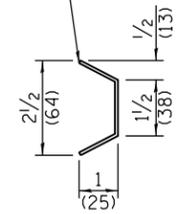
(Sheet 2 of 2)

STANDARD 280001-07

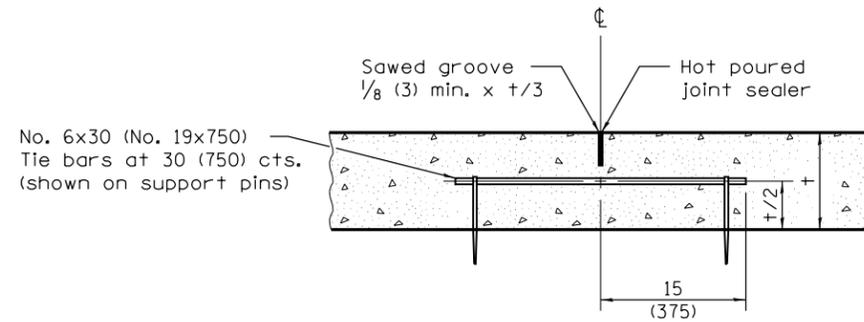


TYPE C METAL JOINT

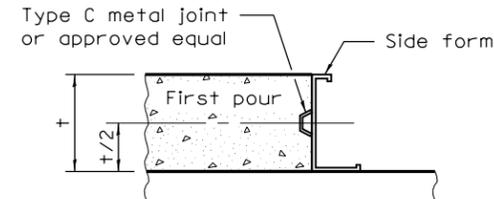
Sheet steel of suitable thickness to form keyway as detailed or approved equal.



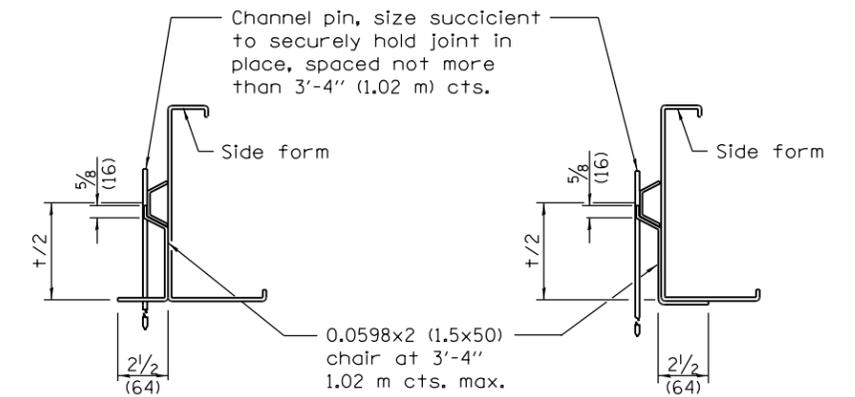
SECTION A-A



LONGITUDINAL SAWED JOINT

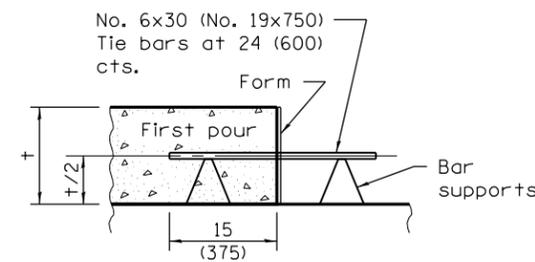


LONGITUDINAL KEYED JOINT

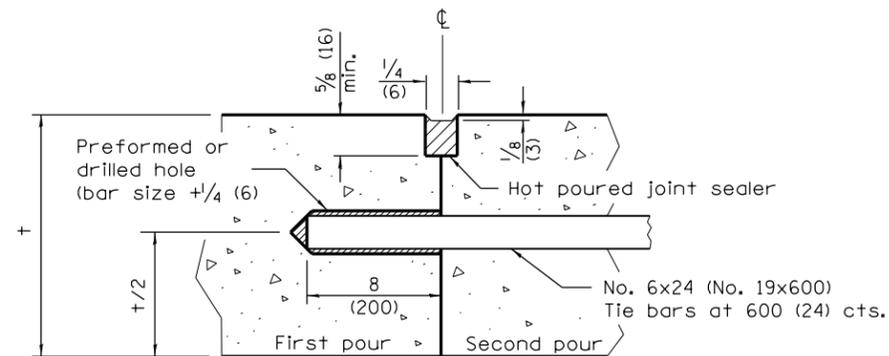


SUPPORTING CHAIR ALTERNATE

SUPPORTING CHAIR ALTERNATE



LONGITUDINAL CONSTRUCTION JOINT (TIE BAR FORMED IN PLACE)



LONGITUDINAL CONSTRUCTION JOINT (TIE BAR GROUDED IN PLACE)

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

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

DATE	REVISIONS
1-1-08	Switched units to English (metric).
8-1-05	Added supports to long. constr. jt. and revised note for trans. exp. jt.

PAVEMENT JOINTS

(Sheet 1 of 2)

STANDARD 420001-07

Illinois Department of Transportation

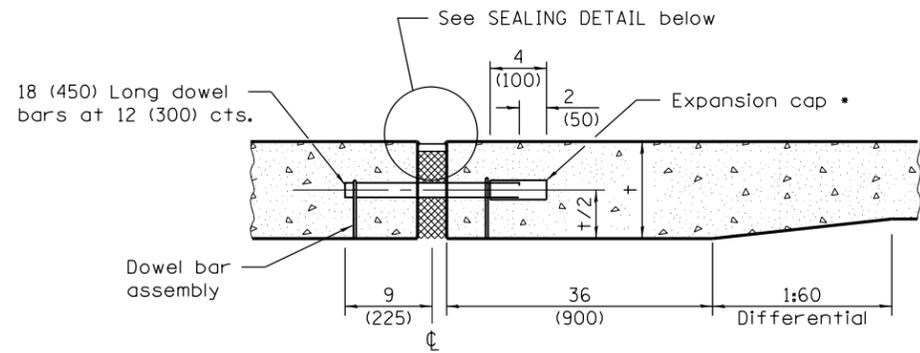
PASSED January 1, 2008

ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2008

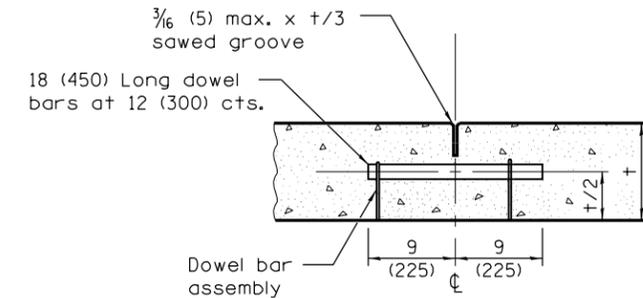
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

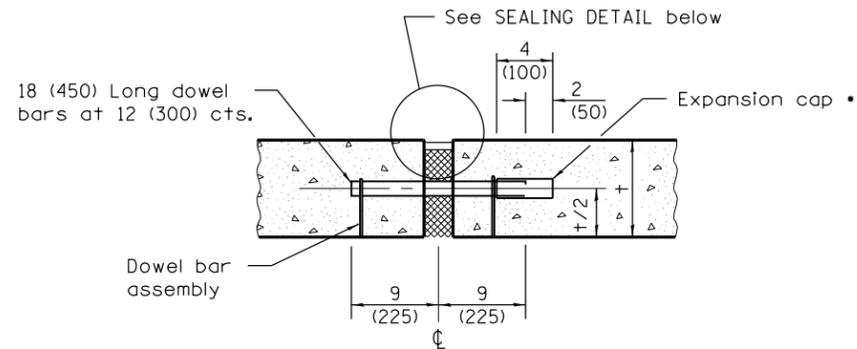


TRANSVERSE EXPANSION JOINT
(FOR PAVEMENTS WITH UNEQUAL THICKNESS)

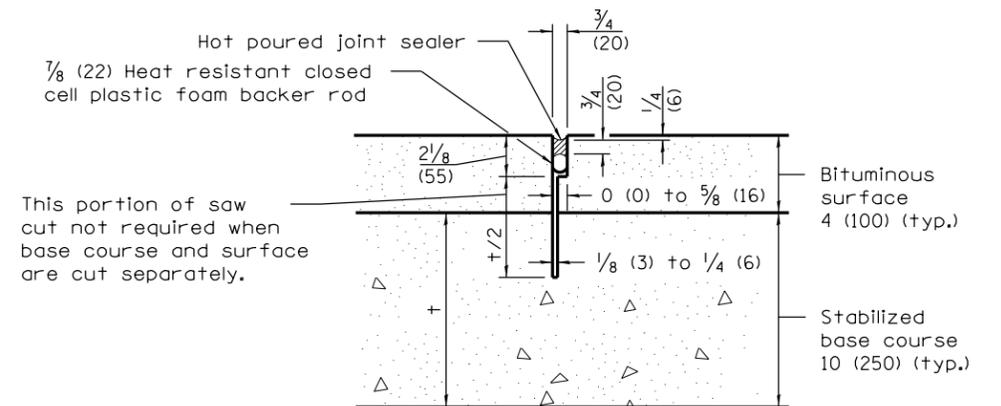
• Expansion caps shall be installed on the exposed end of each dowel bar once the header has been removed and the joint filler material has been installed.



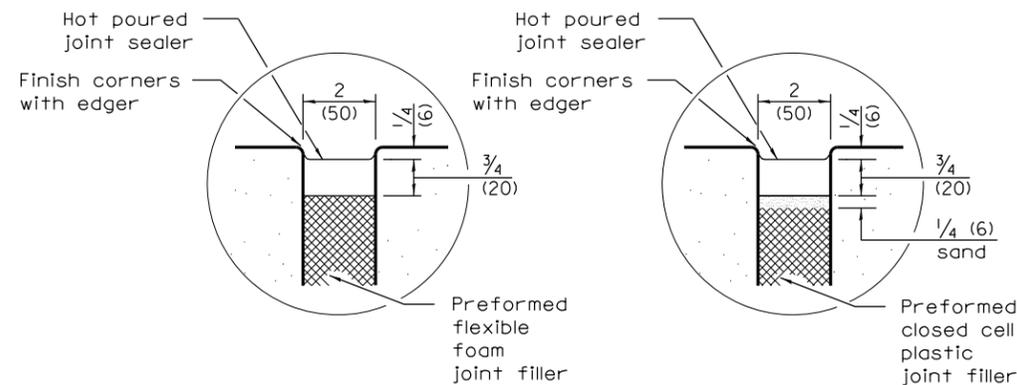
TRANSVERSE CONTRACTION JOINT



TRANSVERSE EXPANSION JOINT
(FOR PAVEMENTS WITH EQUAL THICKNESS)

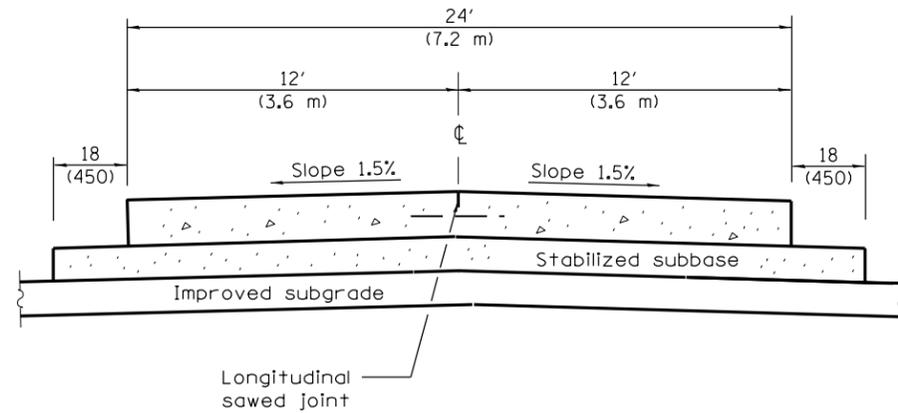


TRANSVERSE CONTRACTION JOINT
(FOR CAM, CFA AND LFA BASE COURSE MIXTURES)



SEALING DETAIL

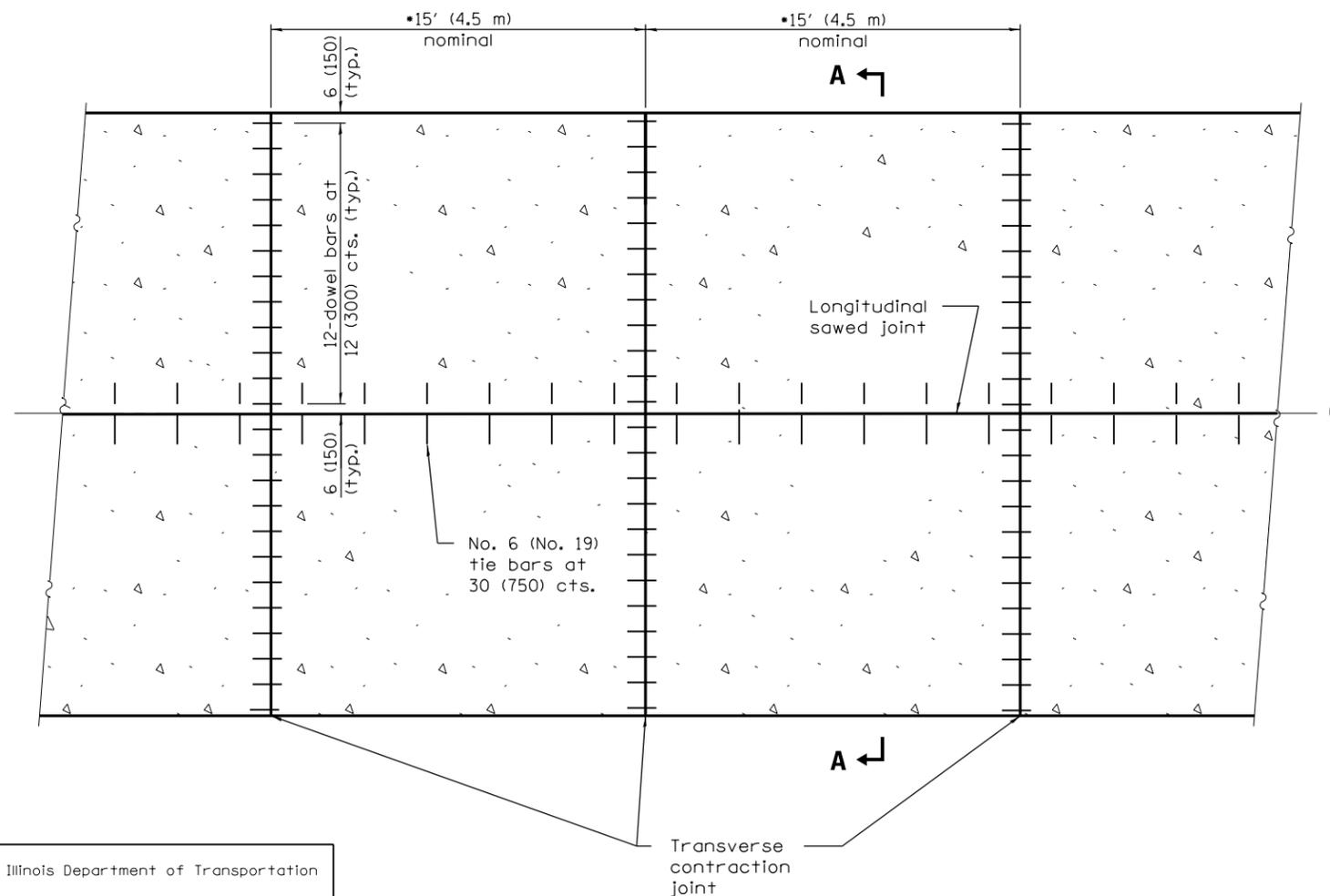
DOWEL BAR TABLE	
PAVEMENT THICKNESS	DOWEL BAR DIAMETER
8 (200) or greater	1 1/2 (38)
7 (175) thru 7.99 (199)	1 1/4 (32)
Less than 7 (175)	1 (25)



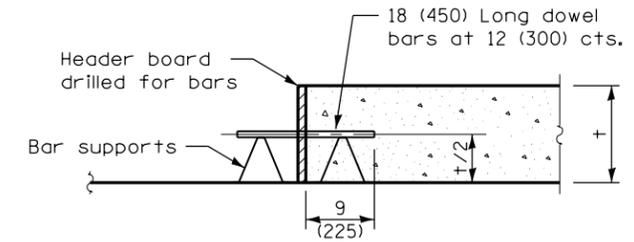
SECTION A-A

(TYPICAL 2-LANE WITH SHOULDERS)

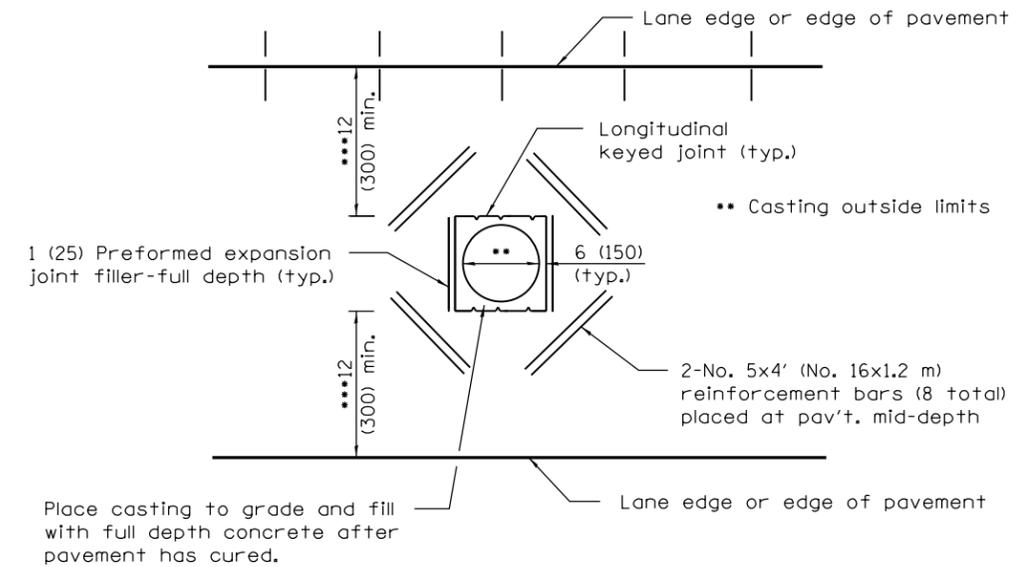
- The 15' (4.5 m) dimension shall be adjusted to 12' (3.6 m) min. to 18' (5.5 m) max. when placed adjacent to existing pcc pavement structure so that the joints are in prolongation.



PLAN



TRANSVERSE CONSTRUCTION JOINT



DETAIL OF ADDED REINFORCEMENT FOR PAVEMENT BLOCKS-OUTS

- Casting outside limits
- When the 12 (300) minimum cannot be achieved, the transverse joints shall be extended to either the longitudinal joint or edge of pavement.

GENERAL NOTES

See Standard 420001 for details of joints not shown.

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

DATE	REVISIONS
1-1-08	Switched units to English (metric).
8-1-05	Added "Stabilized" to subbase and bar supports to constr. jt.

24' (7.2 m) JOINTED PCC PAVEMENT

STANDARD 420101-04

Illinois Department of Transportation

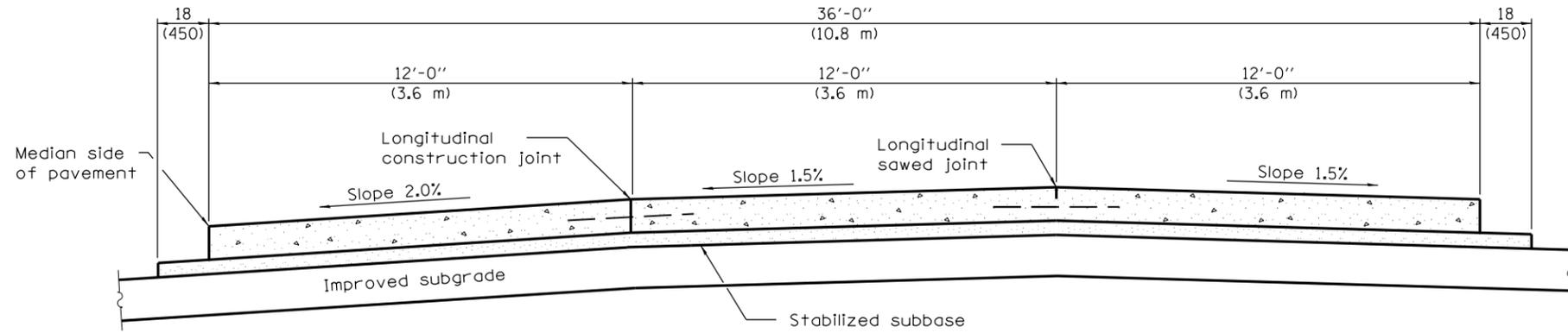
PASSED January 1, 2008

ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2008

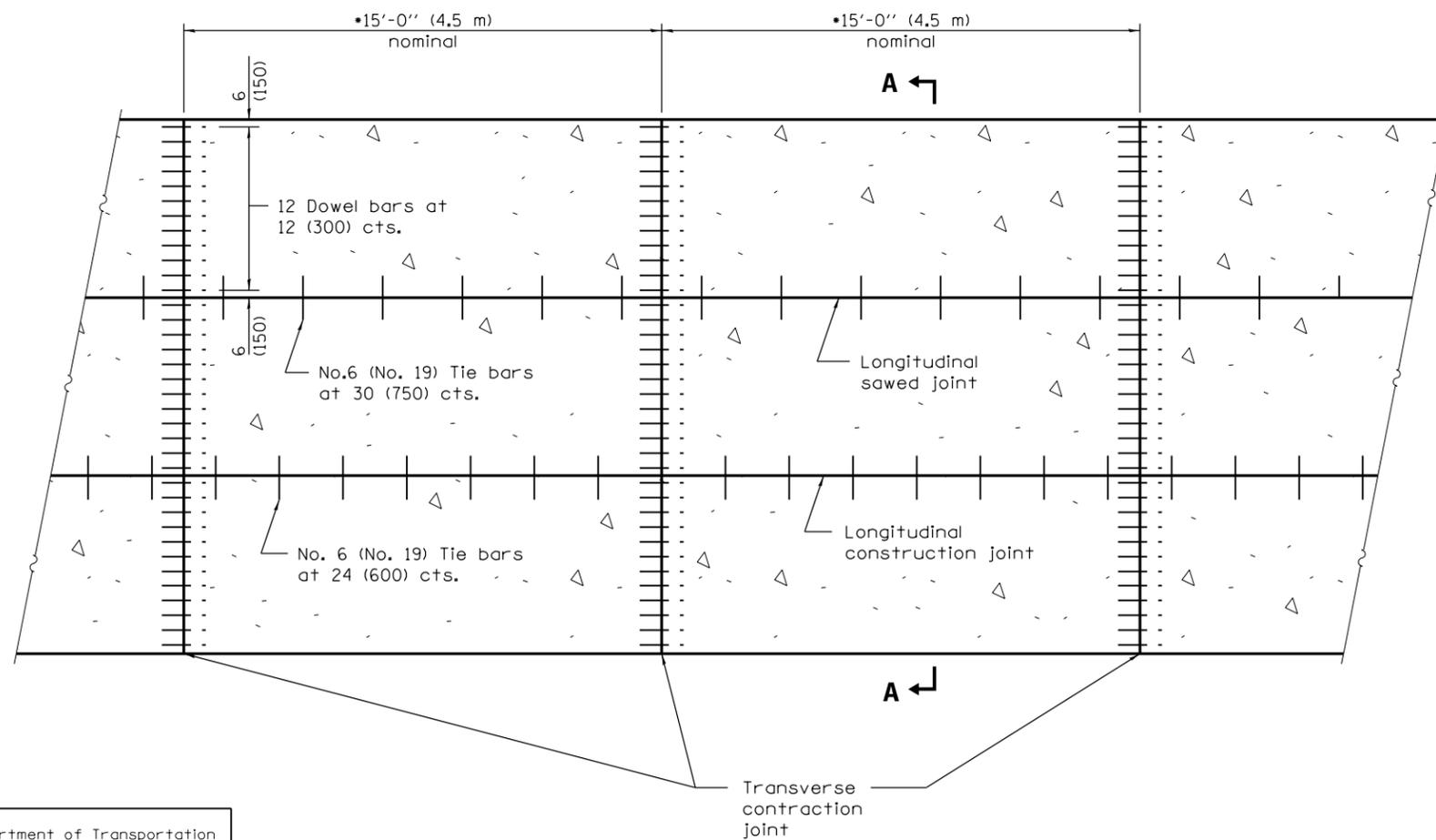
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

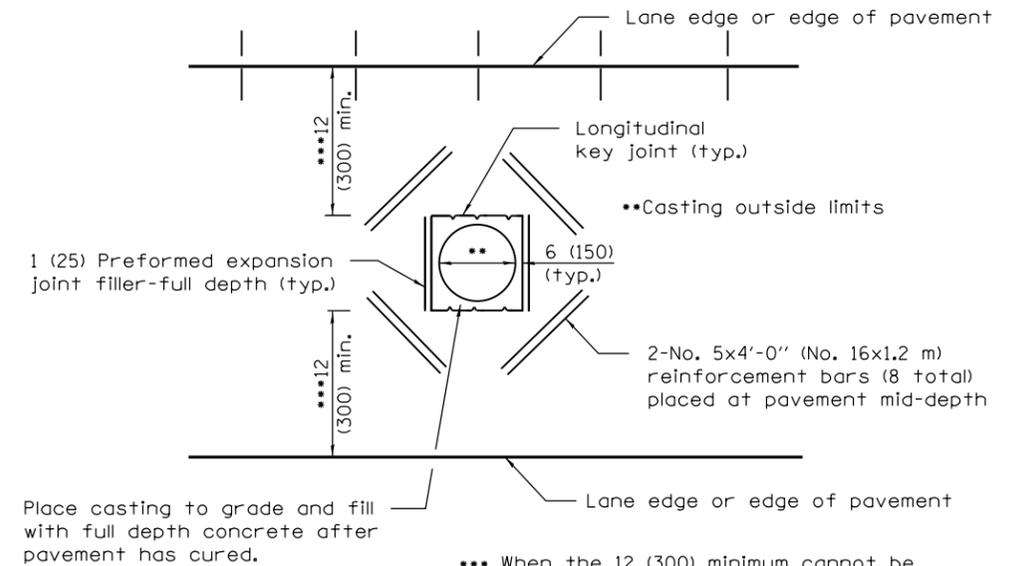


SECTION A-A
(TYPICAL 3-LANE, 1-WAY WITH SHOULDERS)

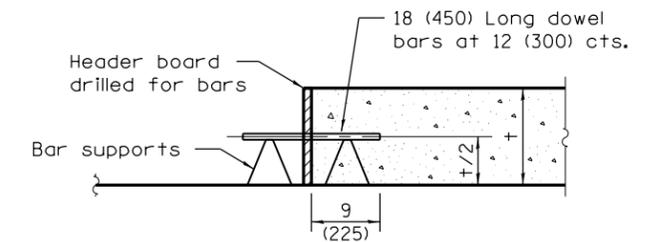
- The 15' (4.5 m) dimension shall be adjusted to 12' (3.6 m) min. to 18' (5.5 m) max. when placed adjacent to existing pcc pavement structure so that the joints are in prolongation.



PLAN



**DETAIL OF ADDED REINFORCEMENT
FOR PAVEMENT BLOCK-OUTS**



TRANSVERSE CONSTRUCTION JOINT

GENERAL NOTES

See Standard 420001 for details of joints not shown.

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

DATE	REVISIONS
1-1-08	Switched units to English (metric).
8-1-05	Added "Stabilized" to subbase and bar supports to constr. jt.

**36' (10.8 m) JOINTED
PCC PAVEMENT**

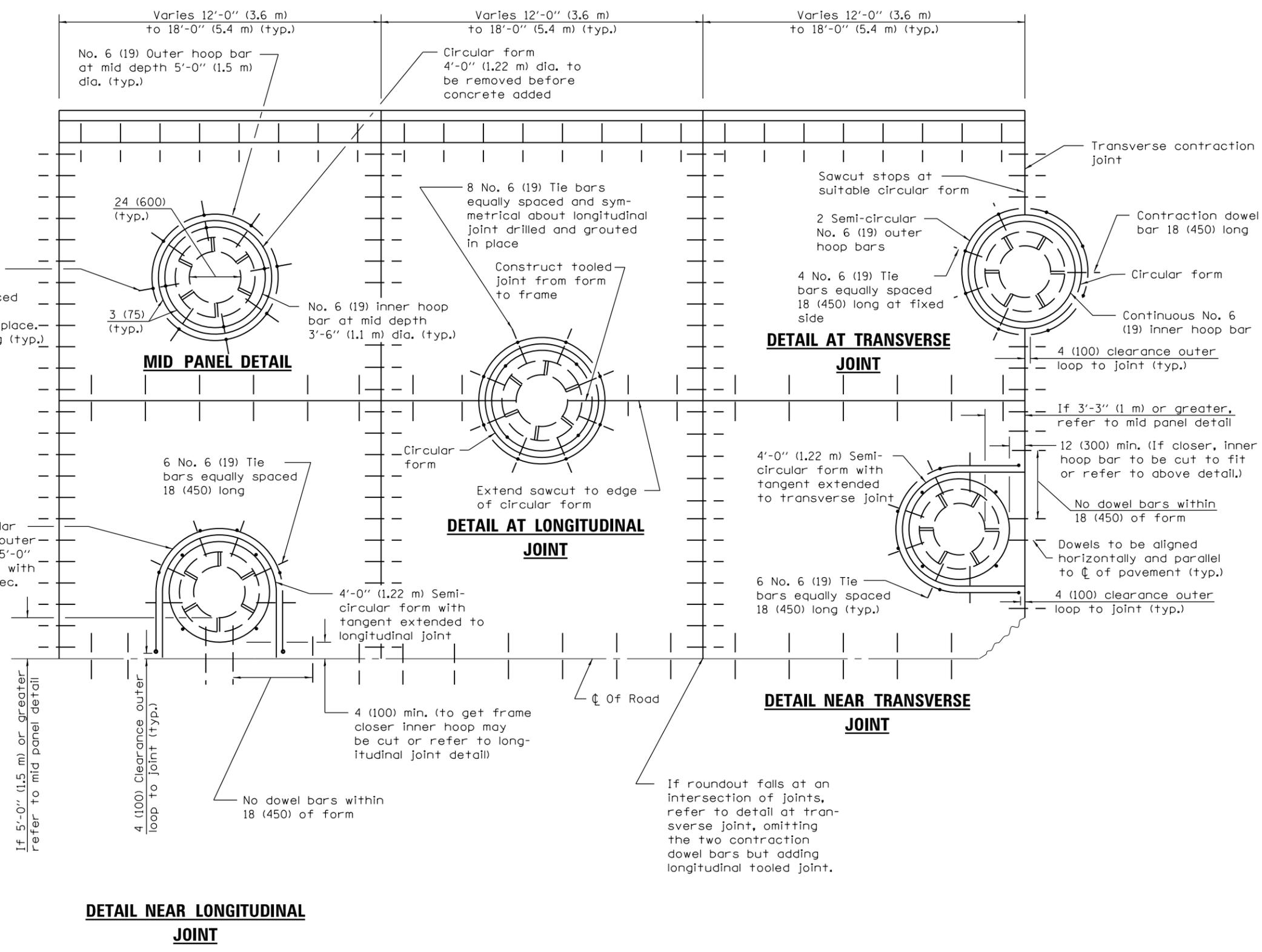
STANDARD 420106-04

Illinois Department of Transportation

PASSED January 1, 2008
[Signature]
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2008
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



GENERAL NOTES

Transverse joints may be moved to accommodate roundout. Edge of circular joint shall be minimum 24 (600) from transverse joint. Relocated transverse joint shall be continuous from edge of pavement to edge of pavement.

The transverse joint spacing should be adjusted to avoid using the DETAIL AT TRANSVERSE JOINT. If the joint cannot be adjusted to use the DETAIL NEAR TRANSVERSE JOINT, the joint must be in the center of the structure as shown.

Circular form shall be removed prior to drill and grout of tie bars.

Drill and grout is preferred, however tie bars can be poured in place if clearance is provided to outer edge of frame. Maximum 2 (50) clearance.

Shims shall be used to adjust all frames. After adjusting mortar has cured, the shims shall be removed and the voids under the frames filled with nonshrink grout.

Hoop reinforcement shall be one piece construction having a minimum lap length of 24 (600).

All situations not shown and may require combination of details.

WHEN USING CAST IN PLACE:
Frame shall be anchored to the structure to prevent movement during the paving operation.

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

If roundout falls at an intersection of joints, refer to detail at transverse joint, omitting the two contraction dowel bars but adding longitudinal tooled joint.

DATE	REVISIONS
1-1-11	Corrected 'T/2' dim. on DETAIL OF REINFORCEMENT FOR PAVEMENT ROUNDOUT.
1-1-08	Switched units to English (metric).

**PCC PAVEMENT
ROUNDOUTS**
(Sheet 1 of 2)

STANDARD 420111-03

Illinois Department of Transportation

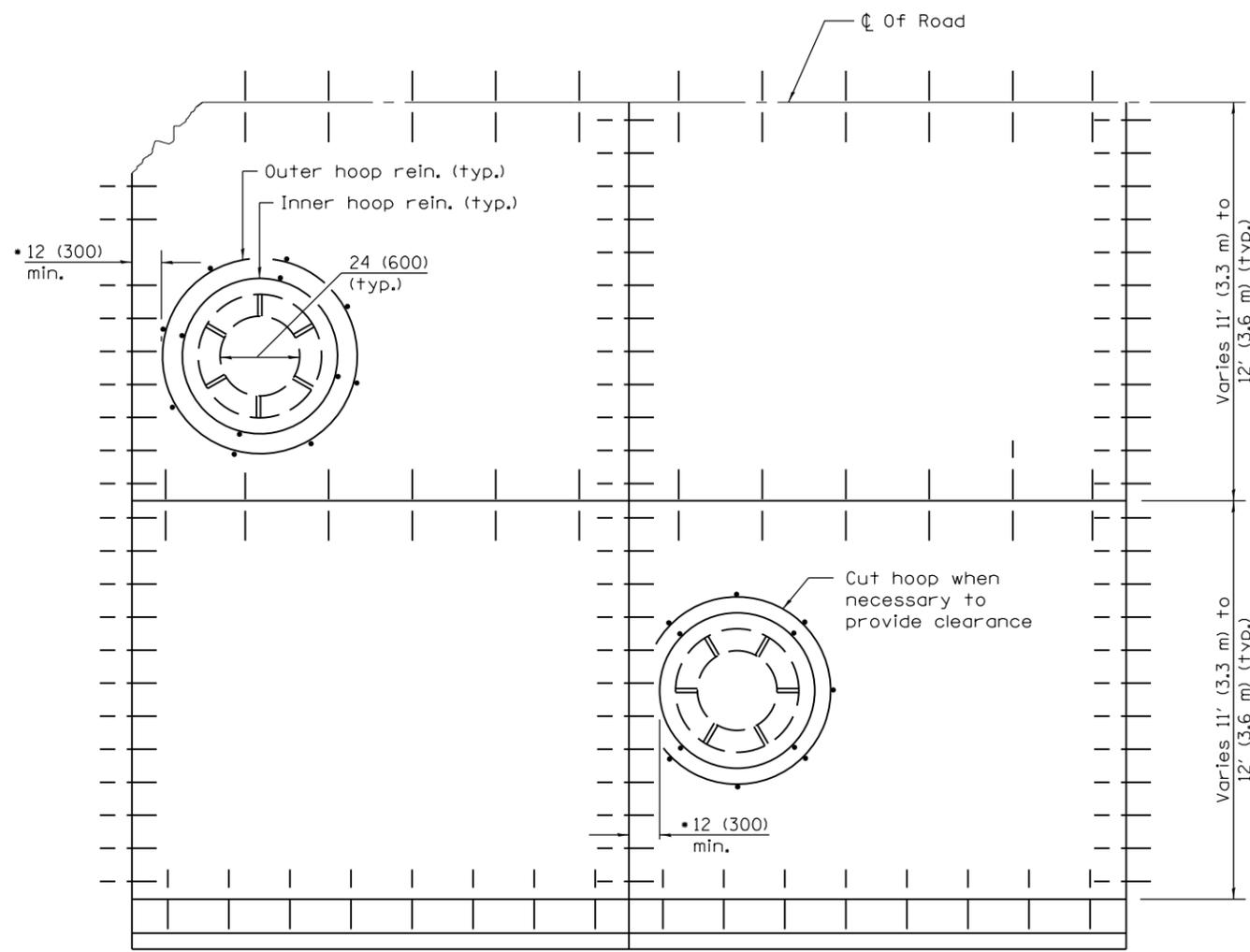
PASSED January 1, 2011

Michael Beard
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2011

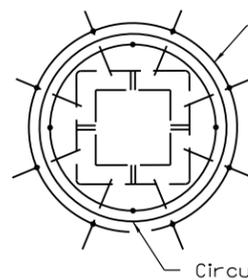
Scott Schick
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



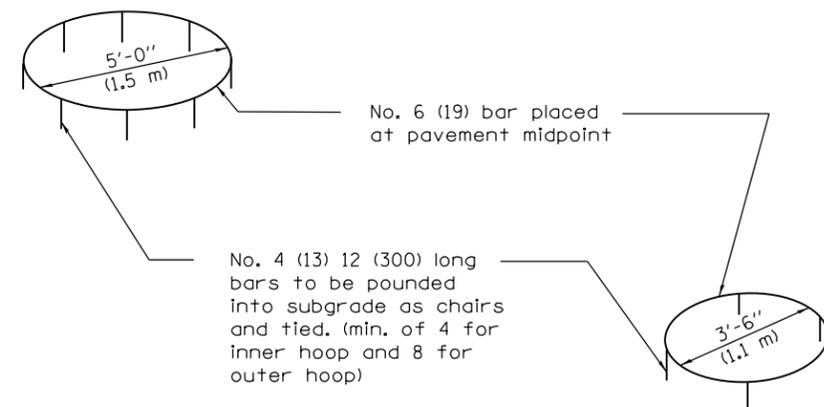
CAST IN PLACE DETAIL

• Less than 12 (300) formed roundout to be used.

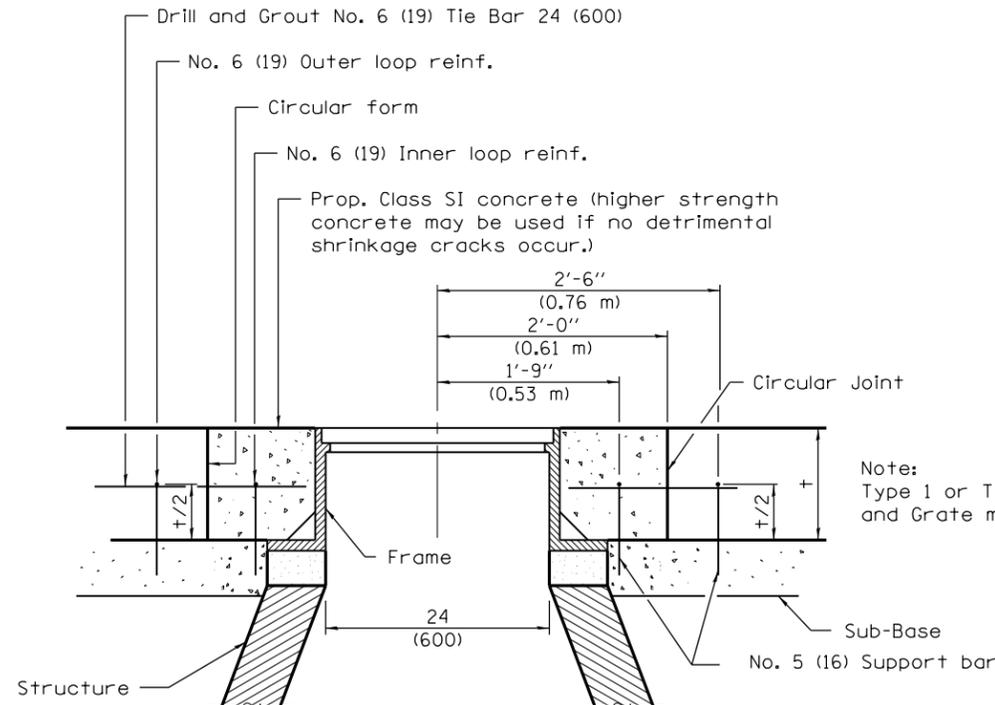


All dimensions same for the majority of circular frame & grates. For larger structures increase hoop bar and circular form diameter by 12 (300) each and add two additional equally spaced tie bars.

ROUNDOUT FOR SQUARE FRAME & GRATE AND MANHOLES



Inner hoop may rest dowel bar (tie bar to longitudinal joint) or tie bars which shall not interfere in the alignment.



DETAIL OF REINFORCEMENT FOR PAVEMENT ROUNDOUT

Illinois Department of Transportation

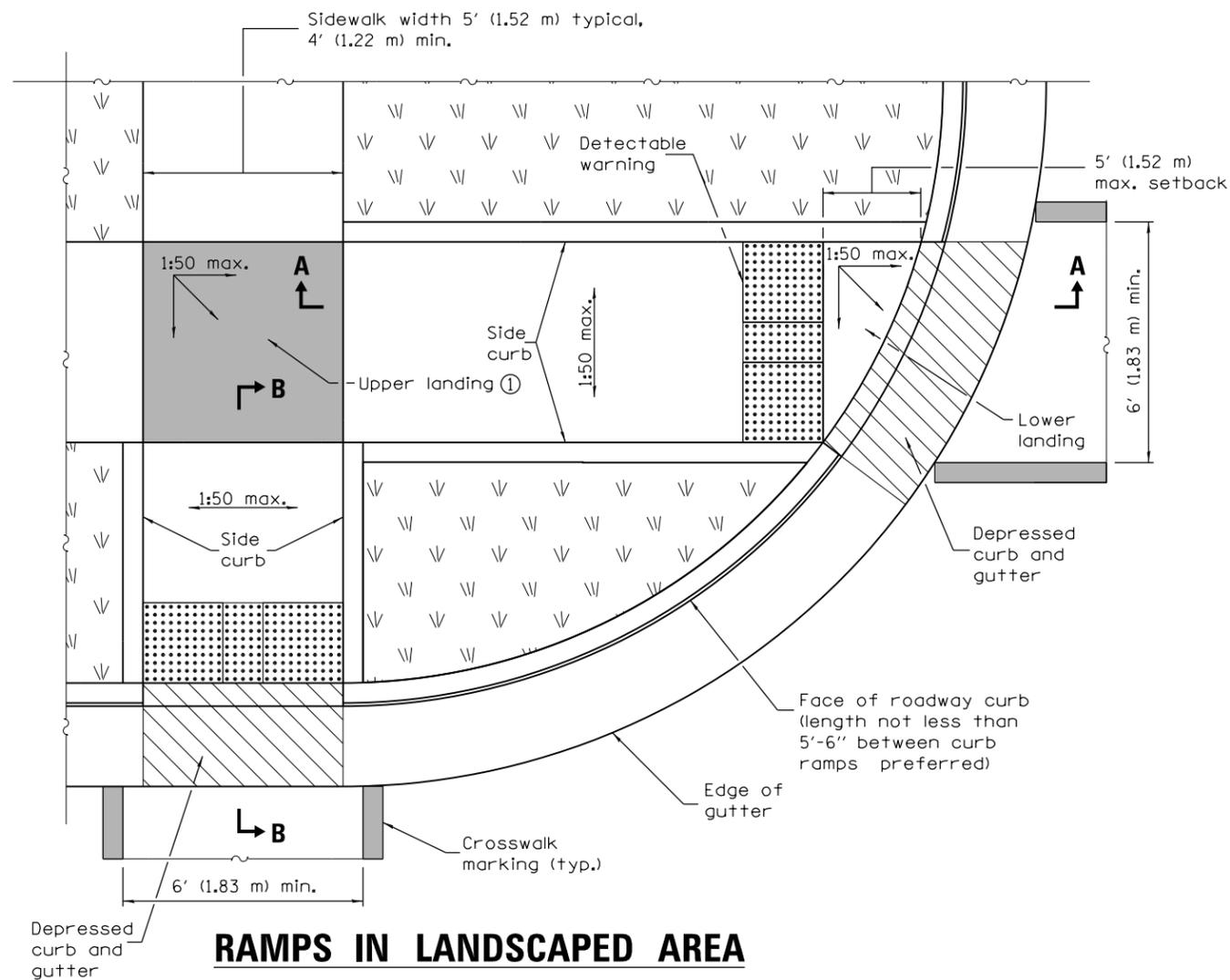
PASSED January 1, 2011
Michael Beard
 ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2011
Scott Schick
 ENGINEER OF DESIGN AND ENVIRONMENT

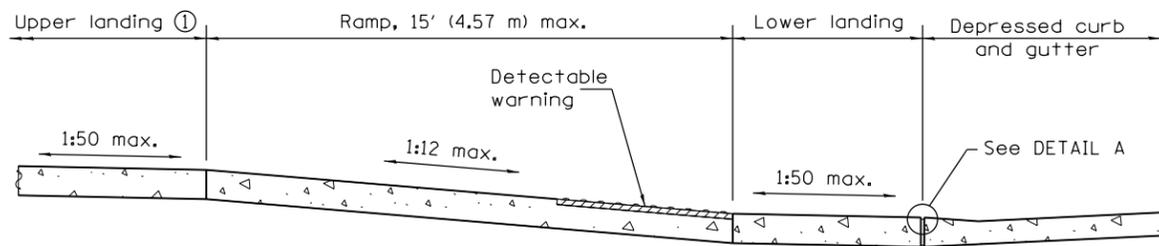
ISSUED 1-1-97

PCC PAVEMENT ROUNDOUTS
 (Sheet 2 of 2)

STANDARD 420111-03

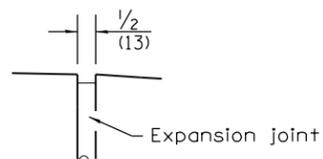


**RAMPS IN LANDSCAPED AREA
SETBACK ≤ 5'**

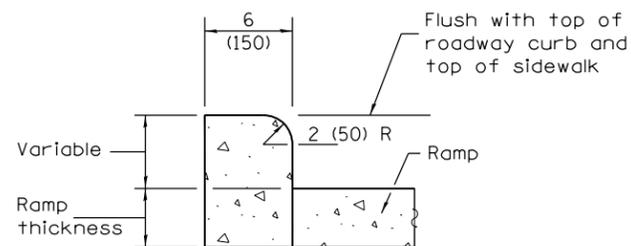


SECTION A-A

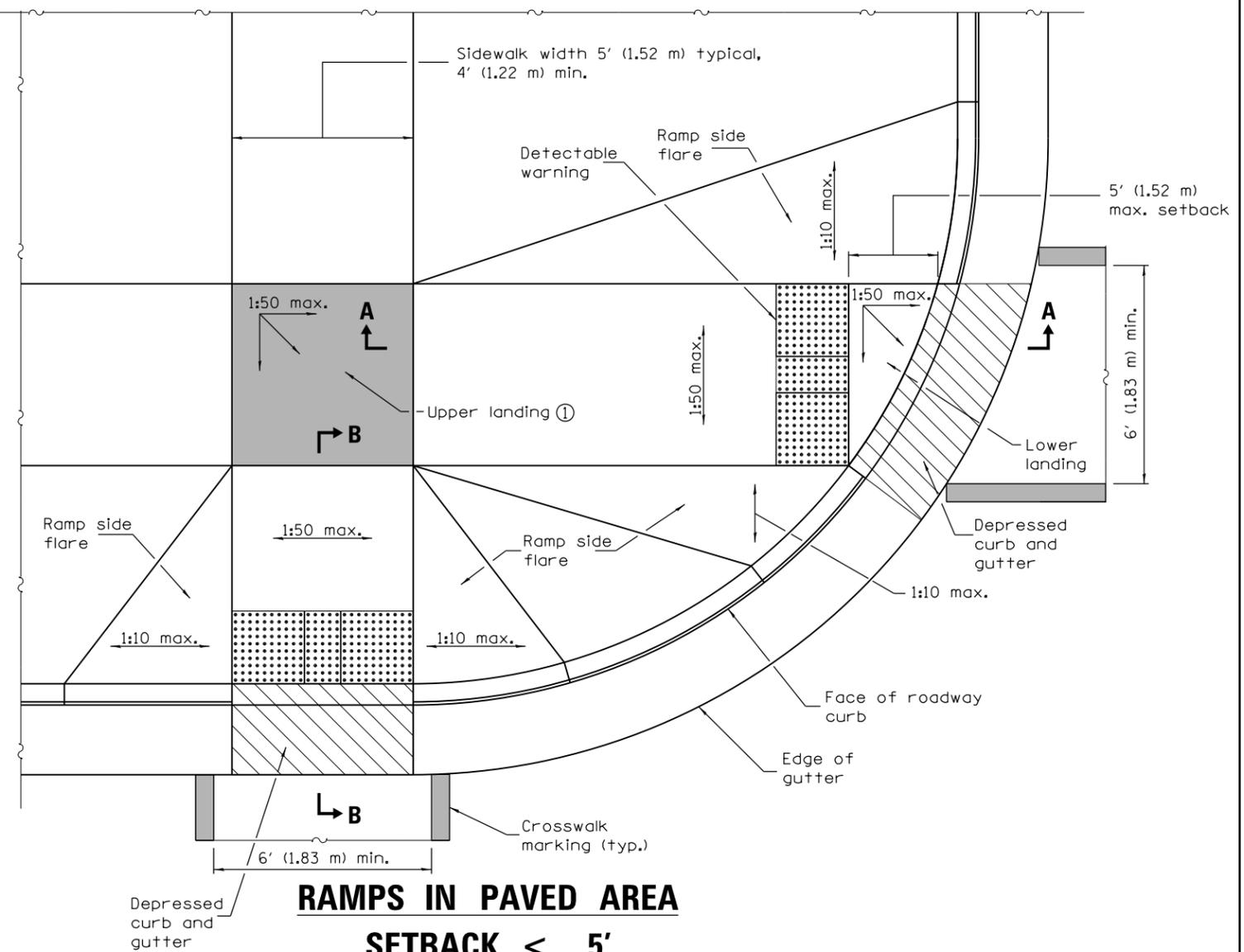
① Upper landing not required for ramp slopes flatter than 1:20.



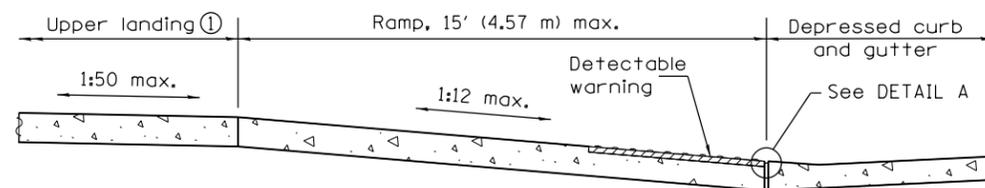
DETAIL A



SIDE CURB DETAIL



**RAMPS IN PAVED AREA
SETBACK ≤ 5'**



SECTION B-B

① Upper landing not required for ramp slopes flatter than 1:20.

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

Where 1:50 maximum slope is shown, 1:64 is preferred.

See Standard 606001 for details of depressed curb adjacent to curb ramp.

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

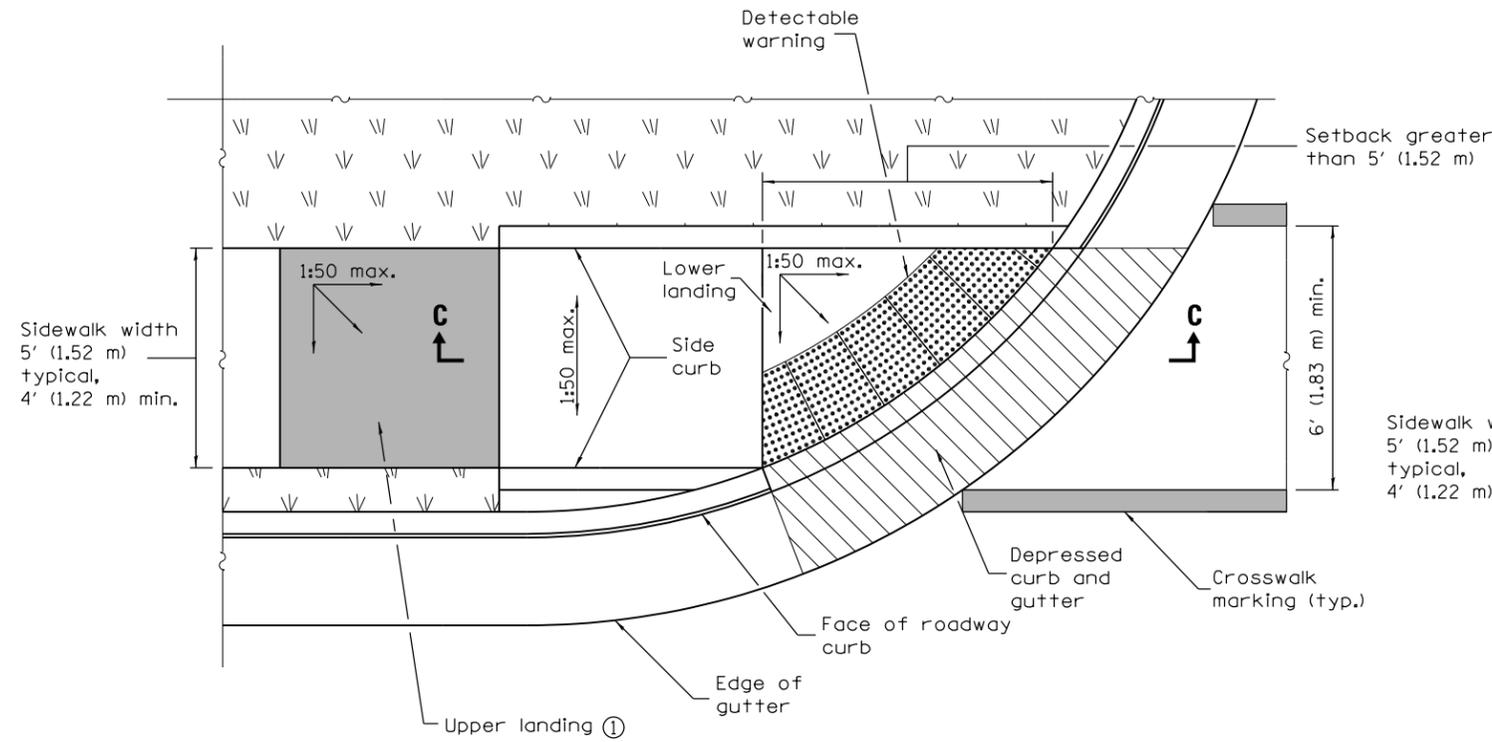
DATE	REVISIONS
1-1-13	Widened crosswalk markings to 6' (1.83 m) min. inside dimension. Rev. Gen. Notes.
1-1-12	Completely revised and renamed standard.

PERPENDICULAR CURB RAMPS FOR SIDEWALKS

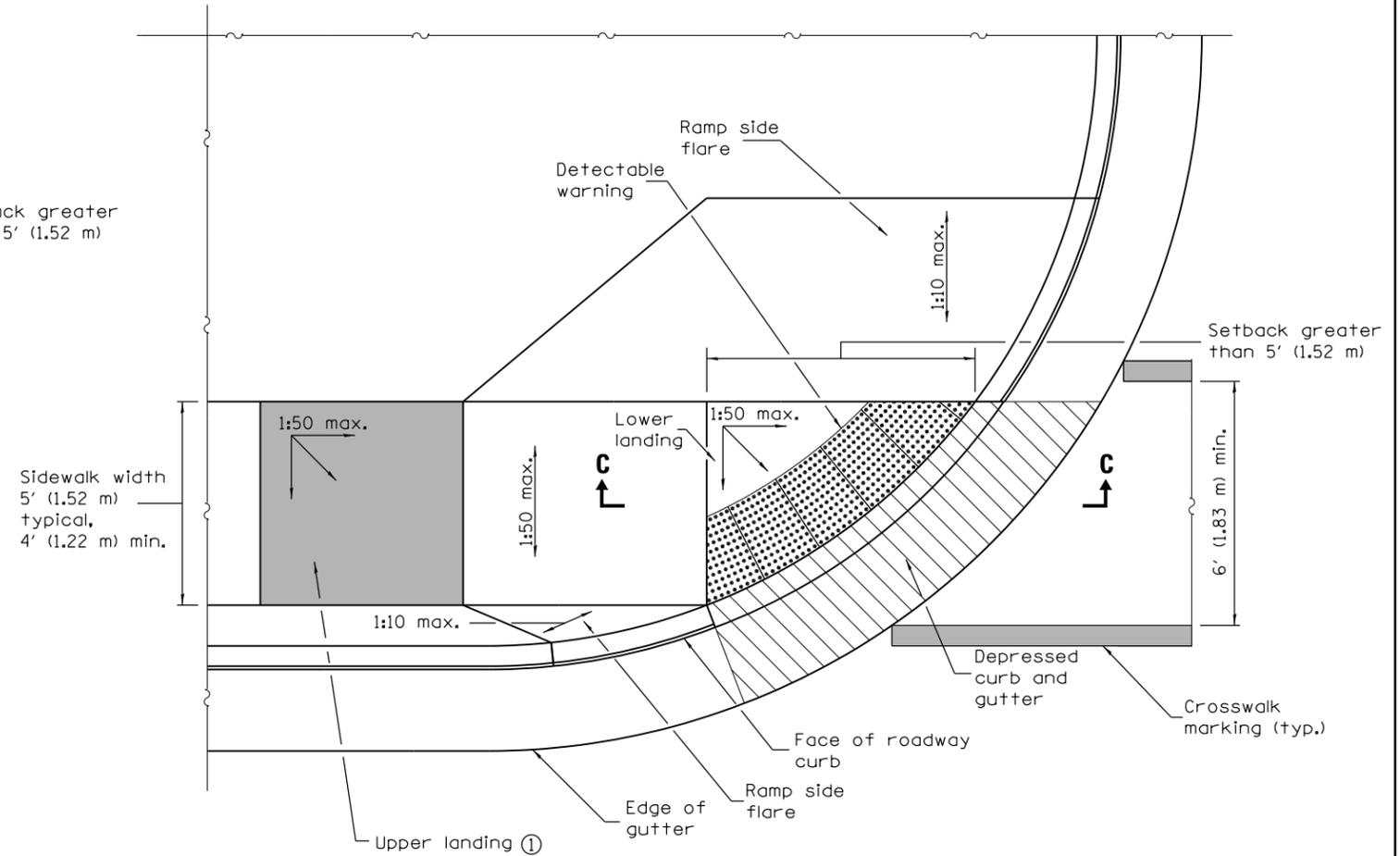
(Sheet 1 of 2)

STANDARD 424001-07

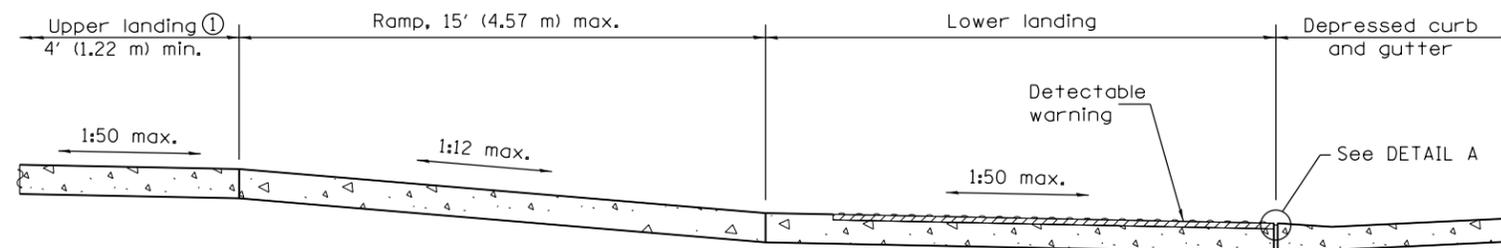
Illinois Department of Transportation
 PASSED January 1, 2013
 Michael Brand
 ENGINEER OF POLICY AND PROCEDURES
 APPROVED January 1, 2013
 ENGINEER OF DESIGN AND ENVIRONMENT
 ISSUED 1-1-97



**RAMP IN LANDSCAPED AREA
SETBACK > 5'**



**RAMP IN PAVED AREA
SETBACK > 5'**



SECTION C-C

① Upper landing not required for ramp slopes flatter than 1:20.

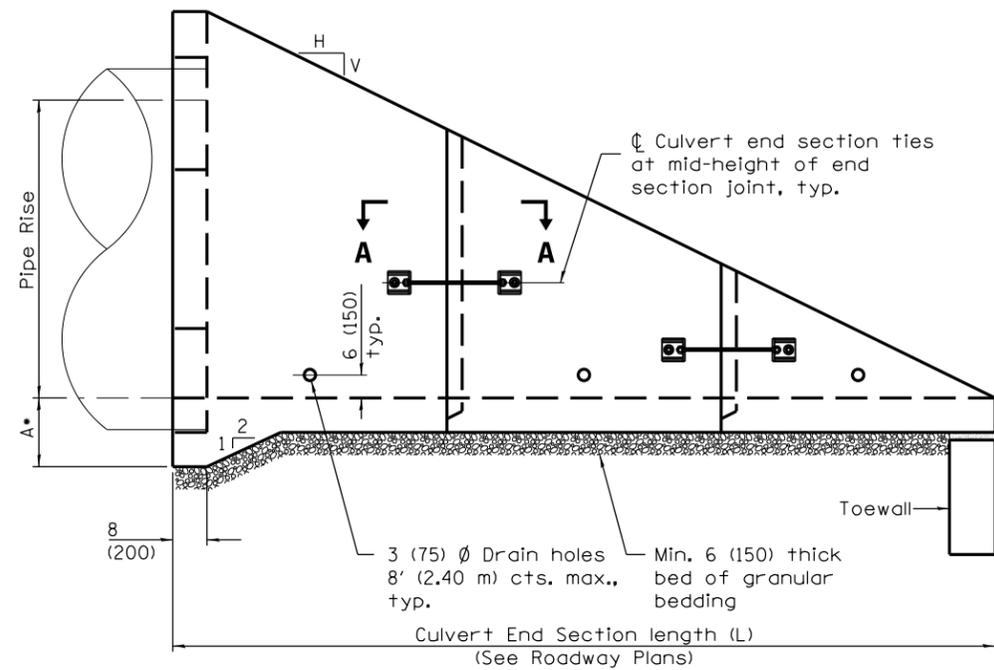
Illinois Department of Transportation
 PASSED January 1, 2013
Michael Brand
 ENGINEER OF POLICY AND PROCEDURES
 APPROVED January 1, 2013
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ISSUED 1-1-97

**PERPENDICULAR CURB RAMPS
FOR SIDEWALKS**

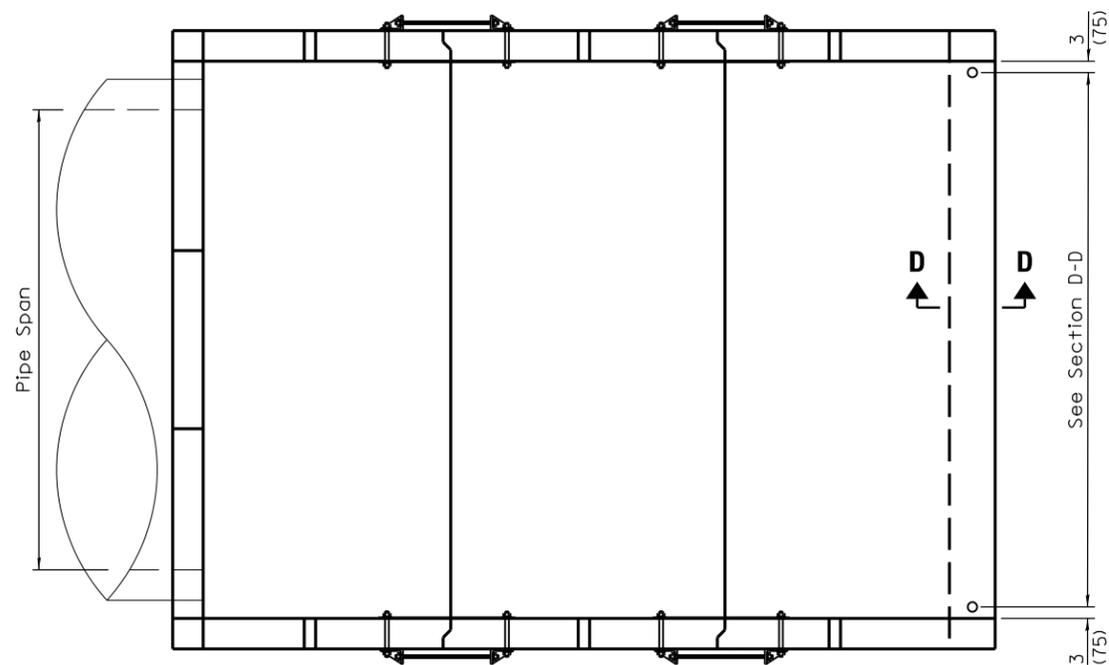
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STANDARD 424001-07



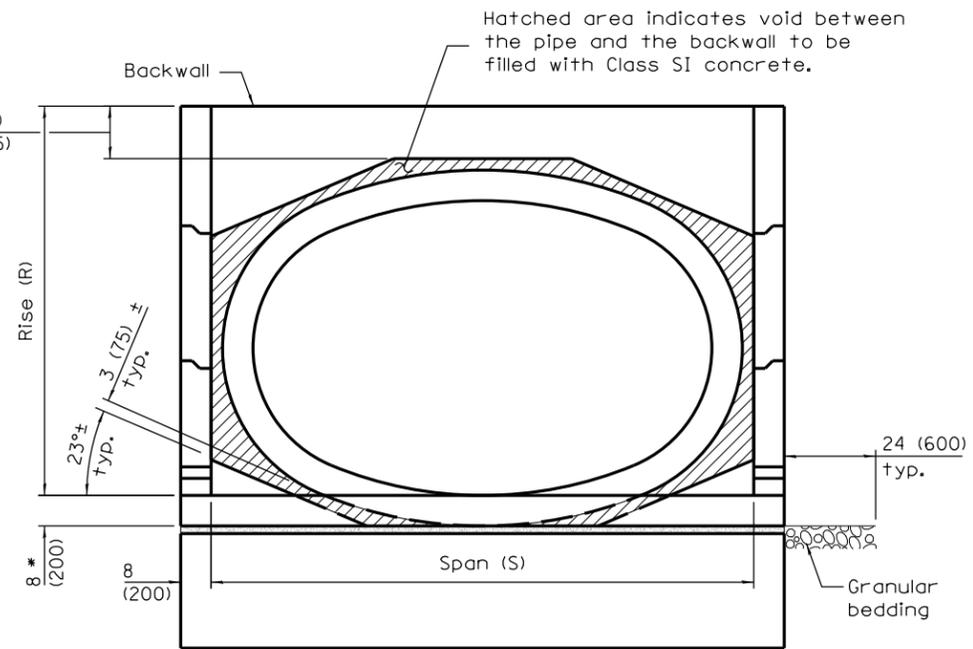
ELEVATION

• This dimension shall be increased by 1/2 (38) for CIP field construction.



PLAN

8 (200) min. for EORS < 21 (525)
12 (300) min. for EORS ≥ 21 (525)



END VIEW

PIPE CULVERT END SECTION DIMENSIONS

Equivalent Round Size Pipe I.D.	Pipe Span	Pipe Rise	A	R	S	L			
						Slope of End Section			
						1:2	1:3	1:4	1:6
15 (375)	23 (575)	14 (350)	15 (375)	28 (711)	36 (914)	5'-4" (1.62 m)	7'-8" (2.34 m)	10'-0" (3.05 m)	14'-8" (4.47 m)
18 (450)	23 (575)	14 (350)	15 (375)	28 (711)	36 (914)	5'-4" (1.62 m)	7'-8" (2.34 m)	10'-0" (3.05 m)	14'-8" (4.47 m)
21 (525)	30 (750)	19 (475)	15 (375)	38 (365)	3'-8" (1.12 m)	7'-0" (2.14 m)	10'-2" (3.10 m)	13'-4" (4.07 m)	19'-8" (6.00 m)
24 (600)	30 (750)	19 (475)	15 (375)	38 (965)	3'-8" (1.12 m)	7'-0" (2.14 m)	10'-2" (3.10 m)	13'-4" (4.07 m)	19'-8" (6.00 m)
27 (675)	34 (850)	22 (550)	15 (375)	3'-5" (1.04 m)	4'-0" (1.22 m)	7'-6" (2.29 m)	10'-11" (3.33 m)	14'-4" (4.38 m)	21'-2" (6.46 m)
30 (750)	38 (950)	24 (600)	15 (375)	3'-7" (1.09 m)	4'-4" (1.32 m)	7'-10" (2.39 m)	11'-5" (3.48 m)	15'-0" (4.57 m)	22'-2" (6.75 m)
36 (900)	45 (1125)	29 (725)	16 (400)	4'-1" (1.24 m)	5'-0" (1.52 m)	8'-10" (2.69 m)	12'-11" (3.94 m)	17'-0" (5.18 m)	25'-2" (7.67 m)
42 (1050)	53 (1325)	34 (850)	16 (400)	4'-6" (1.37 m)	5'-10" (1.78 m)	9'-8" (2.95 m)	14'-2" (4.32 m)	18'-8" (5.69 m)	27'-8" (8.44 m)
48 (1200)	60 (1500)	38 (950)	17 (425)	4'-11" (1.50 m)	6'-6" (1.98 m)	10'-6" (3.20 m)	15'-5" (4.71 m)	20'-4" (6.21 m)	30'-2" (9.21 m)
54 (1350)	68 (1700)	43 (1075)	17 (425)	5'-4" (1.63 m)	7'-2" (2.18 m)	11'-4" (3.45 m)	16'-8" (5.08 m)	22'-0" (6.71 m)	32'-8" (9.96 m)
60 (1500)	76 (1900)	48 (1200)	18 (450)	5'-10" (1.78 m)	8'-0" (2.44 m)	12'-4" (3.76 m)	18'-2" (5.54 m)	24'-0" (7.32 m)	35'-8" (10.87 m)
66 (1650)	83 (2075)	53 (1325)	18 (450)	6'-3" (1.91 m)	8'-8" (2.64 m)	13'-2" (4.02 m)	19'-5" (5.92 m)	25'-8" (7.83 m)	38'-2" (11.64 m)
72 (1800)	91 (2275)	58 (1450)	19 (475)	6'-9" (2.06 m)	9'-4" (2.84 m)	14'-2" (4.32 m)	20'-11" (6.38 m)	27'-8" (8.44 m)	41'-2" (12.56 m)

See Sheet 3 for GENERAL NOTES.

DATE	REVISIONS
1-1-13	New standard.

CONCRETE END SECTIONS FOR ELLIPTICAL PIPE CULVERTS 15" (375 mm) THRU 72" (1800 mm) EQUIVALENT DIAMETER

(Sheet 1 of 3)

STANDARD 542011

Illinois Department of Transportation

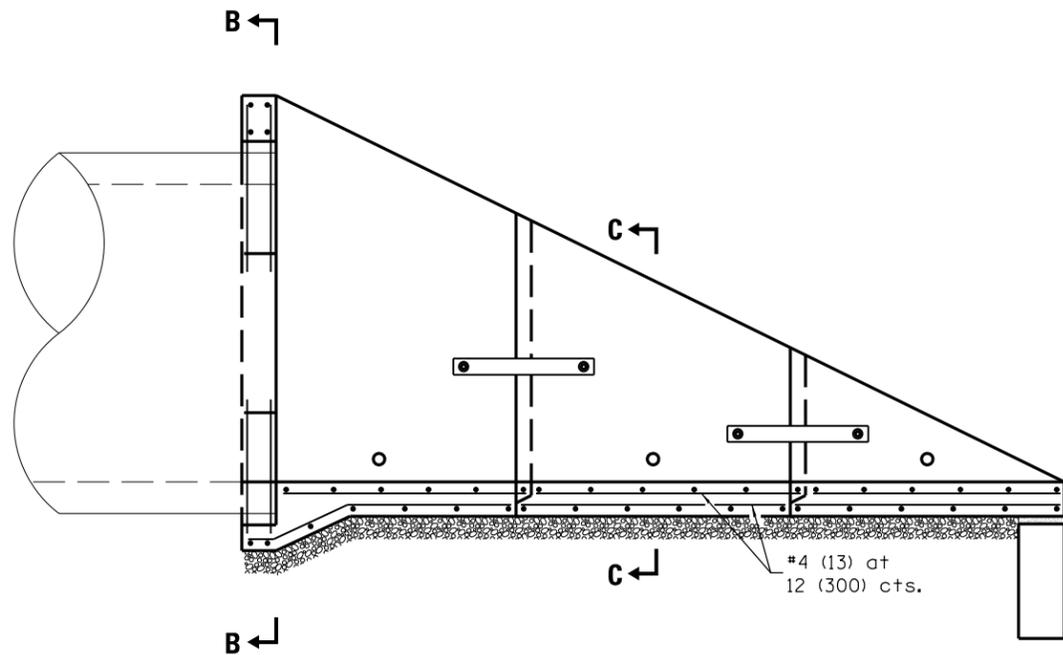
APPROVED January 1, 2013

ENGINEER OF BRIDGES AND STRUCTURES

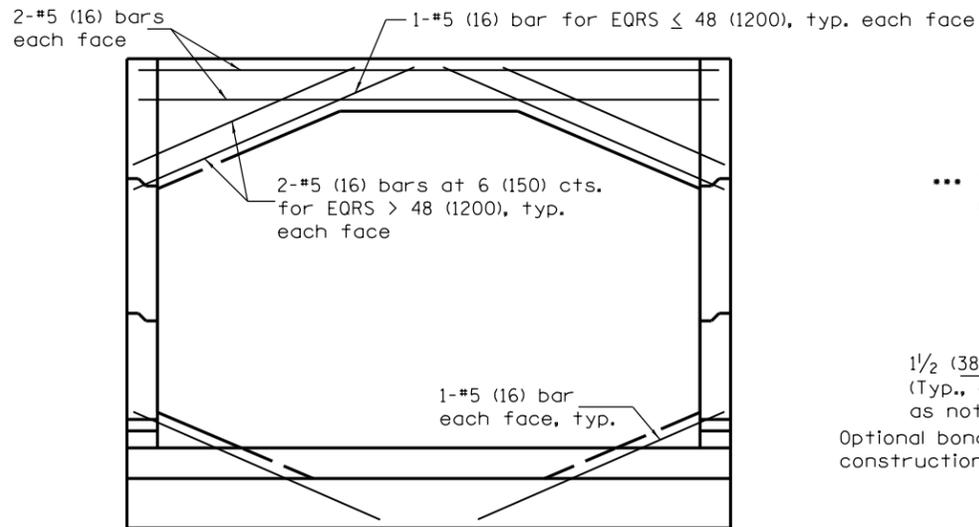
APPROVED January 1, 2013

ENGINEER OF DESIGN AND ENVIRONMENT

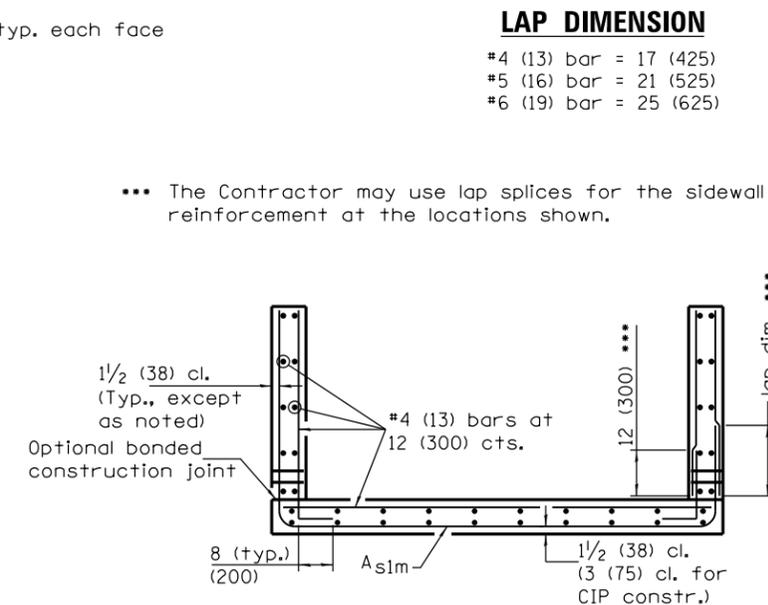
ISSUED 1-1-13



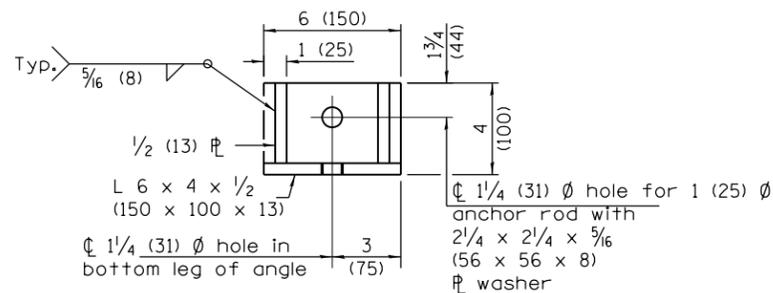
LONGITUDINAL SECTION
(Showing bottom slab and backwall reinforcement.)



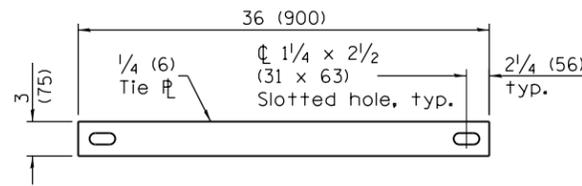
SECTION B-B
(Showing backwall reinforcement only.)
(Pipe omitted for clarity.)



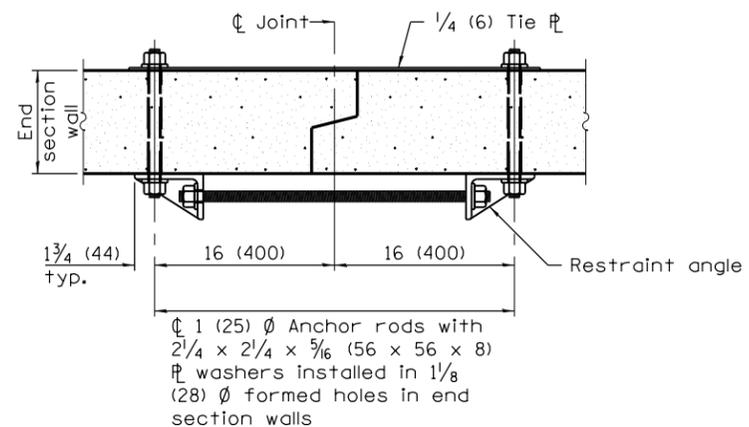
SECTION C-C



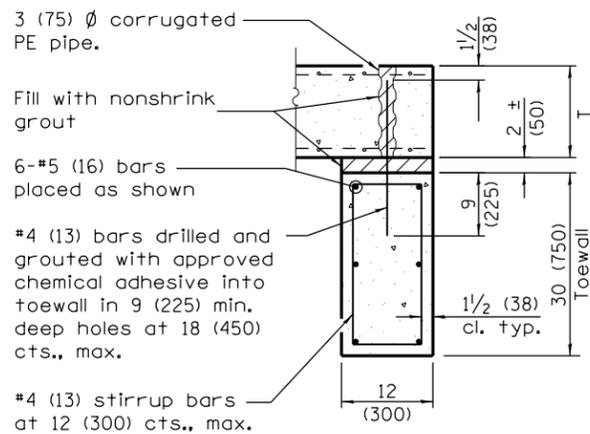
RESTRAINT ANGLE DETAIL



TIE PLATE DETAIL



SECTION A-A
(Showing end section tie details)



SECTION D-D

REINFORCEMENT SCHEDULE

Equivalent Round Size Pipe I.D.	A _{s1m}	
	Bar Size	Bar Spacing
15 (375)	4 (13)	12 (300)
18 (450)	4 (13)	12 (300)
21 (525)	4 (13)	12 (300)
24 (600)	4 (13)	12 (300)
27 (700)	4 (13)	12 (300)
30 (750)	4 (13)	12 (300)
36 (900)	4 (13)	12 (300)
42 (1050)	4 (13)	12 (300)
48 (1200)	4 (13)	8 (200)
54 (1350)	4 (13)	8 (200)
60 (1500)	4 (13)	8 (200)
66 (1650)	5 (16)	8 (200)
72 (1800)	5 (16)	8 (200)

CONCRETE END SECTIONS FOR ELLIPTICAL PIPE CULVERTS 15" (375 mm) THRU 72" (1800 mm) EQUIVALENT DIAMETER

(Sheet 2 of 3)

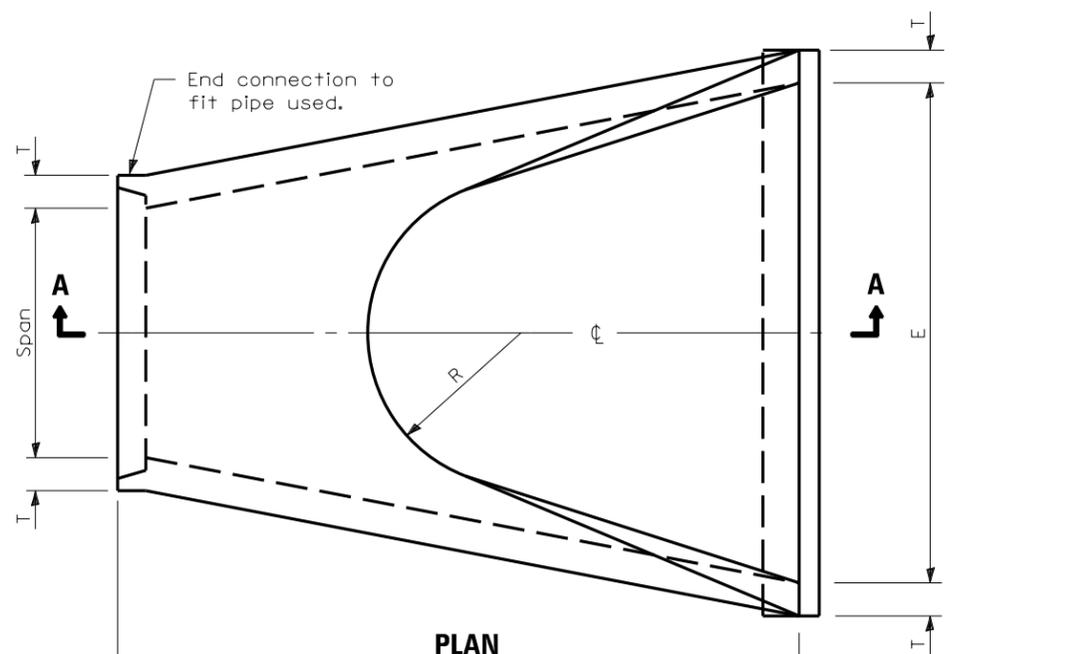
STANDARD 542011

Illinois Department of Transportation

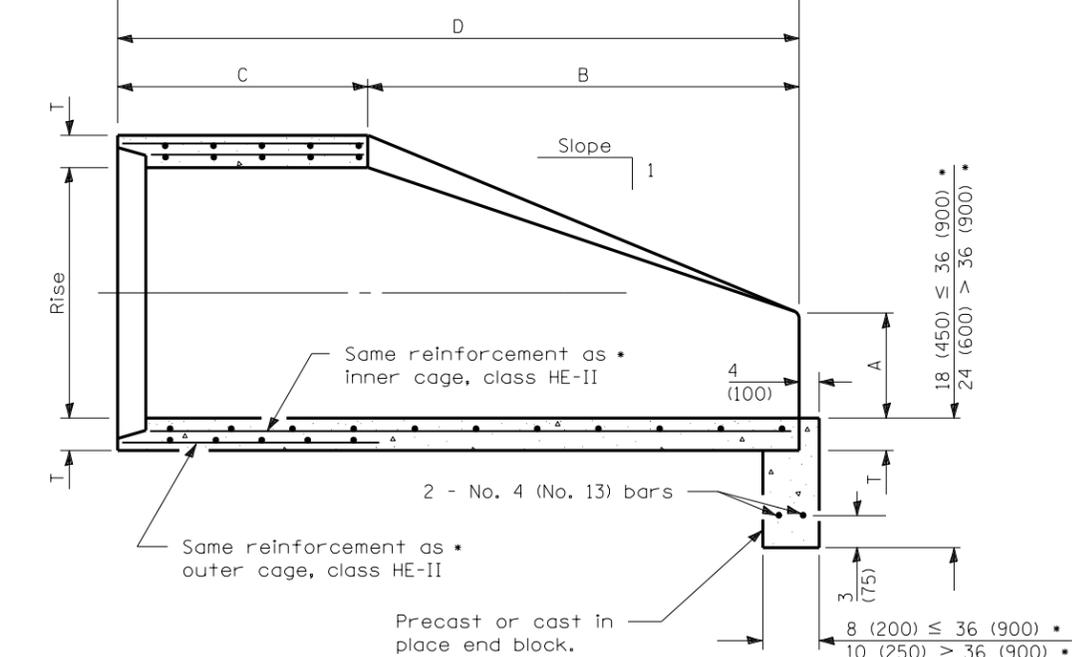
APPROVED January 1, 2013
ENGINEER OF BRIDGES AND STRUCTURES

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ISSUED 1-1-13



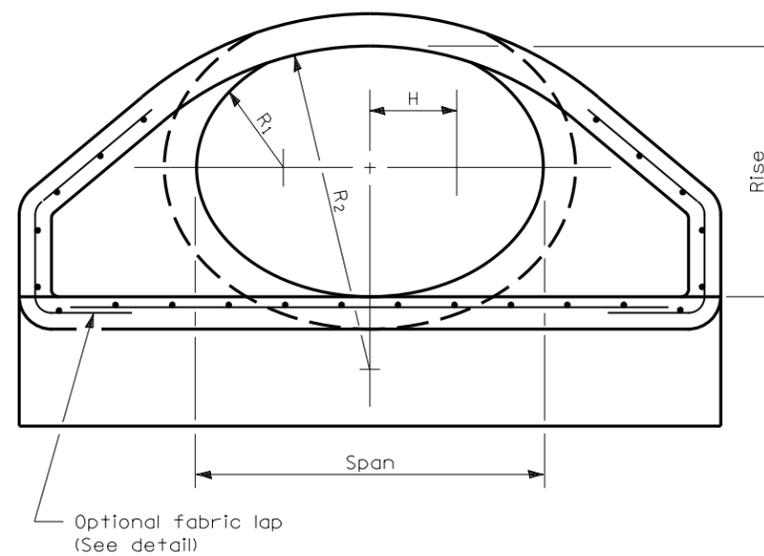
PLAN



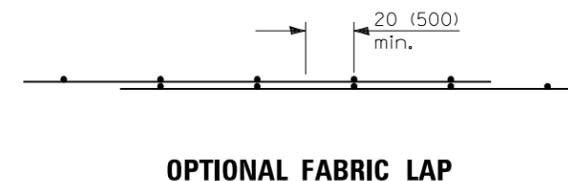
SECTION A-A

* Refers to the equivalent pipe diameter.

SPAN	RISE	EQUIV. DIA.	WALL T	A	B	C	D	E	H	R	R ₁	R ₂	APPROX. SLOPE
23 (584)	14 (356)	18 (450)	2 3/4 (70)	8 (203)	27 (686)	3'-9" (1.143 m)	6'-0" (1.829 m)	36 (914)	5 3/8 (137)	6 (152)	6 (152)	20 (508)	1:3.1
30 (762)	19 (483)	24 (600)	3 1/4 (83)	8 1/2 (216)	39 (991)	33 (838)	6'-0" (1.829 m)	4'-0" (1.219 m)	6 7/8 (175)	7 (178)	8 1/4 (210)	26 1/4 (667)	1:2.8
34 (864)	22 (559)	27 (675)	3 1/2 (89)	9 (229)	4'-0" (1.219 m)	24 (610)	6'-0" (1.829 m)	4'-6" (1.372 m)	7 3/4 (197)	8 (203)	9 1/4 (235)	29 1/4 (743)	1:2.9
38 (965)	24 (610)	30 (750)	3 1/2 (95)	9 1/2 (241)	4'-6" (1.372 m)	18 (475)	6'-0" (1.829 m)	5'-0" (1.524 m)	8 5/8 (219)	9 (229)	10 1/4 (260)	32 3/4 (832)	1:2.9
45 (1143)	29 (737)	36 (900)	4 1/2 (114)	11 1/4 (286)	5'-0" (1.524 m)	36 (914)	8'-0" (2.438 m)	6'-0" (1.829 m)	10 1/2 (267)	12 (305)	12 1/4 (311)	39 1/4 (997)	1:2.7
53 (1346)	34 (864)	42 (1050)	5 (127)	15 3/4 (400)	5'-0" (1.524 m)	36 (914)	8'-0" (2.438 m)	6'-6" (1.981 m)	12 1/8 (308)	13 (330)	14 1/2 (368)	3'-10" (1.168 m)	1:2.6
60 (1524)	38 (965)	48 (1200)	5 1/2 (140)	21 (533)	5'-0" (1.524 m)	36 (914)	8'-0" (2.438 m)	7'-0" (2.134 m)	13 1/2 (343)	14 (356)	16 1/2 (419)	4'-3 1/2" (1.308 m)	1:2.7
68 (1727)	43 (1092)	54 (1350)	6 (152)	26 (660)	5'-0" (1.524 m)	36 (914)	8'-0" (2.438 m)	7'-6" (2.286 m)	15 1/4 (387)	16 (406)	18 3/4 (476)	4'-10 1/2" (1.486 m)	1:2.6
76 (1930)	48 (1219)	60 (1500)	6 1/2 (165)	31 (787)	5'-0" (1.524 m)	36 (914)	8'-0" (2.438 m)	8'-0" (2.439 m)	17 (432)	18 (457)	20 3/4 (527)	5'-5" (1.651 m)	1:2.6



END VIEW



OPTIONAL FABRIC LAP

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

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

DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-07	Soft converted metric reinforcement bars.

PRECAST REINFORCED CONCRETE ELLIPTICAL FLARED END SECTION

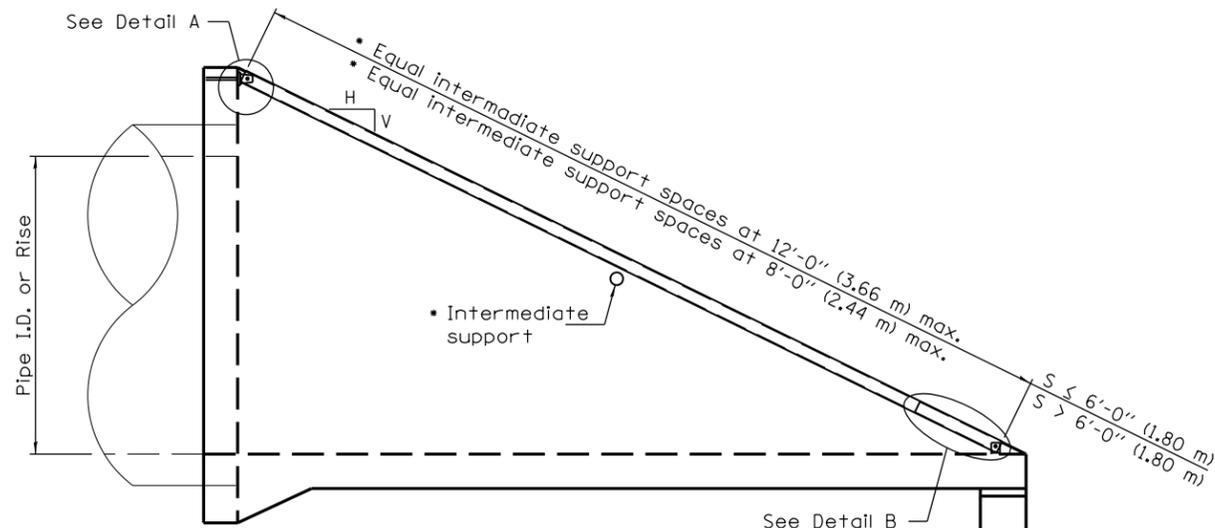
STANDARD 542306-02

Illinois Department of Transportation

APPROVED January 1, 2009
Ralph E. Anderson
 ENGINEER OF BRIDGES AND STRUCTURES

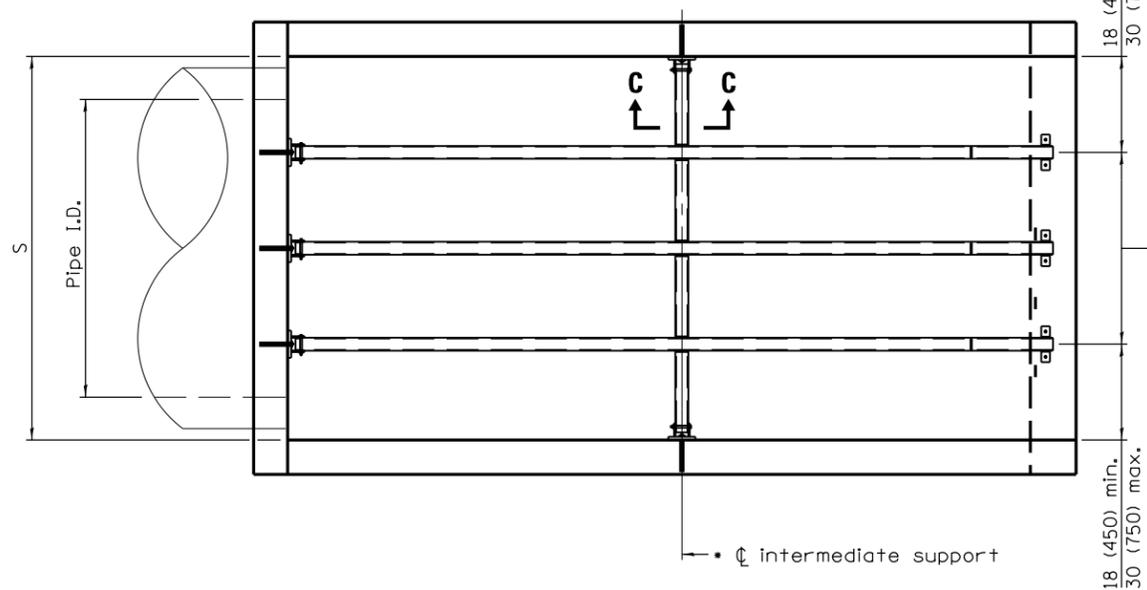
APPROVED January 1, 2009
Lee E. Han
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

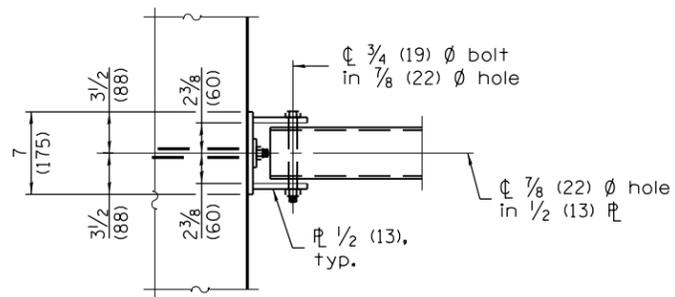


• Provide intermediate support for grate pipe lengths > 20'-0" (6.00 m).

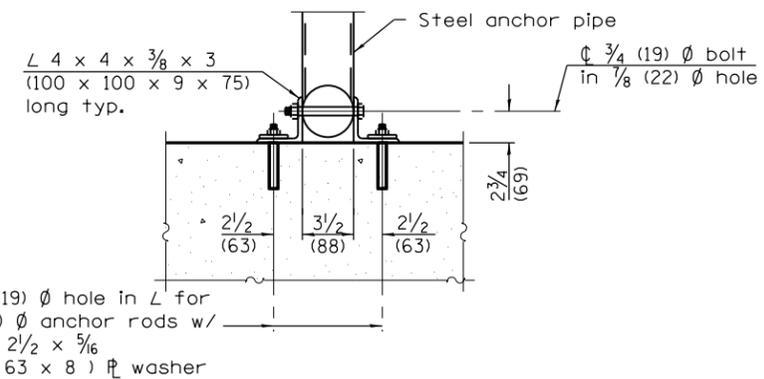
LONGITUDINAL SECTION



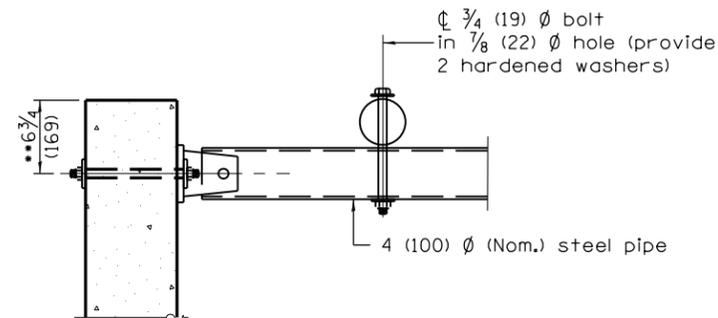
PLAN VIEW



VIEW A-A

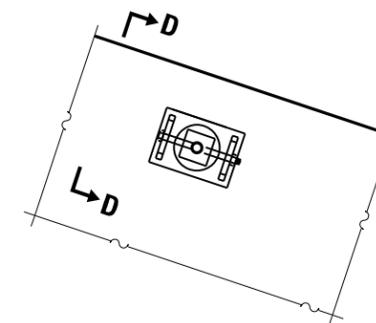


SECTION B-B

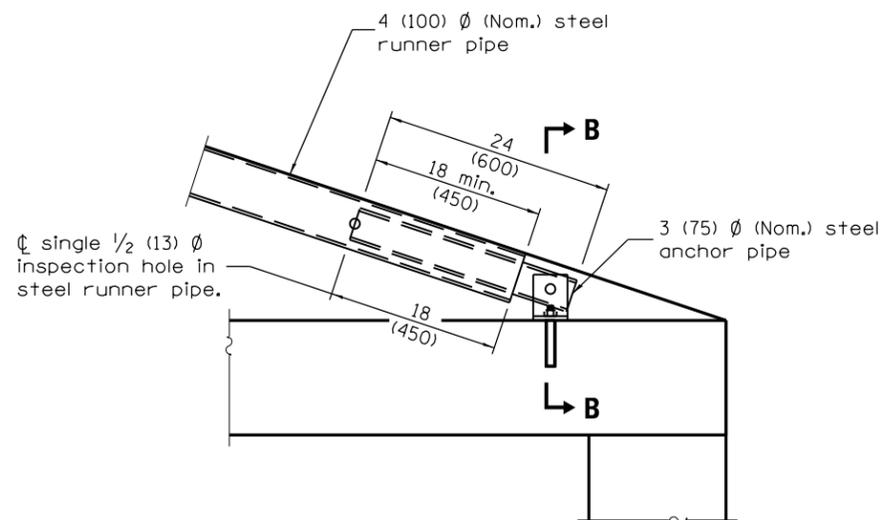


SECTION D-D

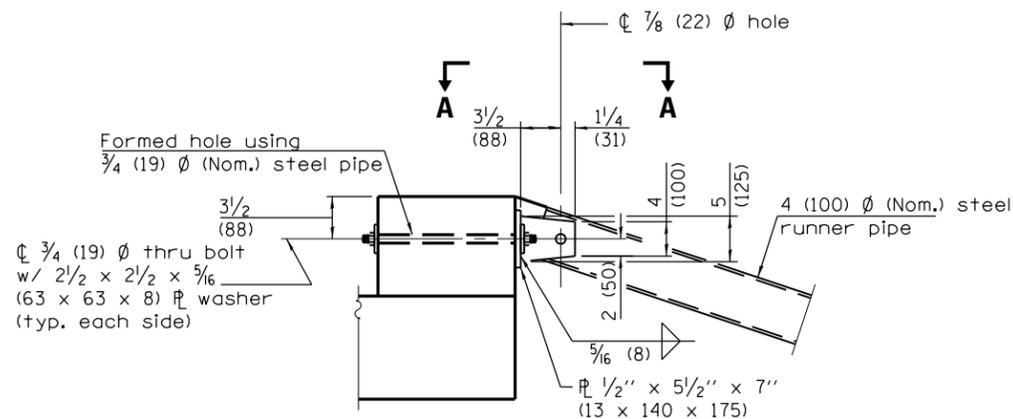
•• Measured perpendicular to top of culvert wall. In addition, formed hole shall be located a minimum of 6 (150) measured horizontally from any vertical joints necessary for construction of the culvert end section.



VIEW C-C
(See Detail A for dimensions and details not shown.)



DETAIL B



DETAIL A

GENERAL NOTES

This standard shall only be used on concrete end sections not skewed more than ± 15 degrees with roadway.

The minimum distance from the center of a hole to the free edge of a structural shape or plate shall be 1/2 (38) unless noted otherwise.

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

DATE	REVISIONS
1-1-13	Completely revised and renamed standard.

TRAVERSABLE PIPE GRATE

(Sheet 1 of 2)

STANDARD 542311-04

Illinois Department of Transportation

PASSED January 1, 2013

ENGINEER OF BRIDGES AND STRUCTURES

APPROVED January 1, 2013

ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

PIPE-GRATE SCHEDULE FOR PIPE CULVERT END SECTIONS

Pipe I.D.	Slope of End Section								
	1:3			1:4			1:6		
	Main Pipe No. / Length	Int. Support No. / Length	Total Length of Pipe	Main Pipe No. / Length	Int. support No. / Length	Total Length of Pipe	Main Pipe No. / Length	Int. Support No. / Length	Total Length of Pipe
30 (750)	1 @ 11'-4"	N/A	11'-4"	1 @ 14'-10"	N/A	14'-10"	1 @ 21'-10"	1 @ 3'-6"	25'-4"
	1 @ (3.43 m)		(3.43 m)	1 @ (4.52 m)		(4.52 m)	1 @ (6.65 m)	1 @ (1.07 m)	(7.72 m)
33 (825)	1 @ 12'-1"	N/A	12'-1"	1 @ 15'-10"	N/A	15'-10"	1 @ 23'-5"	1 @ 3'-7"	27'-0"
	1 @ (3.68 m)		(3.68 m)	1 @ (4.83 m)		(4.83 m)	1 @ (7.14 m)	1 @ (1.09 m)	(8.23 m)
36 (900)	1 @ 12'-10"	N/A	12'-10"	1 @ 16'-10"	N/A	16'-10"	1 @ 24'-11"	2 @ 3'-11"	32'-9"
	1 @ (3.91 m)		(3.91 m)	1 @ (5.13 m)		(5.13 m)	1 @ (7.59 m)	2 @ (1.19 m)	(9.97 m)
42 (1050)	2 @ 14'-9"	N/A	29'-6"	2 @ 19'-3"	N/A	38'-6"	2 @ 28'-6"	2 @ 4'-7"	66'-2"
	2 @ (4.50 m)		(9.00 m)	2 @ (5.87 m)		(11.74 m)	2 @ (8.69 m)	2 @ (1.40 m)	(20.18 m)
48 (1200)	2 @ 16'-4"	N/A	32'-8"	2 @ 21'-4"	1 @ 5'-1"	47'-9"	2 @ 31'-6"	2 @ 5'-1"	73'-2"
	2 @ (4.98 m)		(9.96 m)	2 @ (6.50 m)	1 @ (1.55 m)	(14.55 m)	2 @ (9.60 m)	2 @ (1.55 m)	(22.30 m)
54 (1350)	2 @ 18'-2"	N/A	36'-4"	2 @ 23'-9"	2 @ 5'-9"	59'-0"	2 @ 35'-1"	4 @ 5'-9"	93'-2"
	2 @ (5.54 m)		(11.08 m)	2 @ (7.24 m)	2 @ (1.75 m)	(16.23 m)	2 @ (10.69 m)	4 @ (1.75 m)	(28.38 m)
60 (1500)	2 @ 19'-9"	N/A	39'-6"	2 @ 25'-10"	3 @ 6'-3"	70'-5"	2 @ 38'-1"	4 @ 6'-3"	101'-2"
	2 @ (6.02 m)		(12.04 m)	2 @ (7.87 m)	3 @ (1.91 m)	(21.47 m)	2 @ (11.61 m)	4 @ (1.91 m)	(30.86 m)
66 (1700)	2 @ 21'-7"	2 @ 6'-11"	57'-0"	2 @ 28'-2"	3 @ 6'-11"	77'-1"	2 @ 41'-11"	5 @ 6'-11"	127'-5"
	2 @ (6.58 m)	2 @ (2.11 m)	(17.38 m)	2 @ (8.59 m)	3 @ (2.11 m)	(23.51 m)	2 @ (12.78 m)	5 @ (2.11 m)	(36.11 m)
72 (1850)	3 @ 23'-2"	2 @ 7'-5"	84'-4"	3 @ 30'-3"	3 @ 7'-5"	113'-0"	3 @ 44'-8"	5 @ 7'-5"	171'-1"
	3 @ (7.06 m)	2 @ (2.26 m)	(25.70 m)	3 @ (9.22 m)	3 @ (2.26 m)	(34.44 m)	3 @ (13.61 m)	5 @ (2.26 m)	(52.13 m)
78 (2000)	3 @ 25'-0"	3 @ 8'-1"	99'-3"	3 @ 32'-8"	4 @ 8'-1"	130'-4"	3 @ 48'-3"	6 @ 8'-1"	193'-3"
	3 @ (7.62 m)	3 @ (2.46 m)	(30.24 m)	3 @ (9.96 m)	4 @ (2.46 m)	(39.72 m)	3 @ (14.71 m)	6 @ (2.46 m)	(58.89 m)
84 (2100)	3 @ 26'-7"	3 @ 8'-7"	105'-6"	3 @ 34'-9"	4 @ 8'-7"	138'-7"	3 @ 51'-3"	6 @ 8'-7"	206'-3"
	3 @ (8.10 m)	3 @ (2.62 m)	(32.16 m)	3 @ (10.59 m)	4 @ (2.62 m)	(42.25 m)	3 @ (15.62 m)	6 @ (2.62 m)	(62.58 m)

PIPE-GRATE SCHEDULE FOR ELLIPTICAL PIPE CULVERT END SECTIONS

Pipe I.D. (Equiv. Round)	Slope of End Section								
	1:3			1:4			1:6		
	Main Pipe No. / Length	Int. Support No. / Length	Total Length of Pipe	Main Pipe No. / Length	Int. Support No. / Length	Total Length of Pipe	Main Pipe No. / Length	Int. Support No. / Length	Total Length of Pipe
21 (525)	1 @ 8'-2"	N/A	8'-2"	1 @ 11'-2"	N/A	11'-2"	1 @ 17'-5"	N/A	17'-5"
	1 @ (2.49 m)		(2.49 m)	1 @ (3.40 m)		(3.40 m)	1 @ (5.31 m)		(5.31 m)
24 (600)	1 @ 8'-2"	N/A	8'-2"	1 @ 11'-2"	N/A	11'-2"	1 @ 17'-5"	N/A	17'-5"
	1 @ (2.49 m)		(2.49 m)	1 @ (3.40 m)		(3.40 m)	1 @ (5.31 m)		(5.31 m)
27 (675)	1 @ 8'-11"	N/A	8'-11"	1 @ 12'-2"	N/A	12'-2"	1 @ 18'-11"	N/A	18'-11"
	1 @ (2.72 m)		(2.72 m)	1 @ (3.71 m)		(3.71 m)	1 @ (5.77 m)		(5.77 m)
30 (750)	1 @ 9'-5"	N/A	9'-5"	1 @ 12'-11"	N/A	12'-11"	1 @ 19'-11"	N/A	19'-11"
	1 @ (2.87 m)		(2.87 m)	1 @ (3.94 m)		(3.94 m)	1 @ (6.07 m)		(6.07 m)
36 (900)	2 @ 11'-0"	N/A	22'-0"	2 @ 14'-11"	N/A	29'-10"	2 @ 22'-11"	1 @ 4'-7"	50'-5"
	2 @ (3.35 m)		(6.70 m)	2 @ (4.55 m)		(9.10 m)	2 @ (6.99 m)	1 @ (1.40 m)	(15.38 m)
42 (1050)	2 @ 12'-4"	N/A	24'-8"	2 @ 16'-8"	N/A	33'-4"	2 @ 25'-6"	2 @ 5'-5"	61'-10"
	2 @ (3.76 m)		(7.52 m)	2 @ (5.08 m)		(10.16 m)	2 @ (7.77 m)	2 @ (1.65 m)	(18.84 m)
48 (1200)	2 @ 13'-8"	N/A	27'-4"	2 @ 18'-5"	N/A	36'-10"	2 @ 28'-0"	3 @ 6'-1"	64'-3"
	2 @ (4.17 m)		(8.34 m)	2 @ (5.61 m)		(11.22 m)	2 @ (8.53 m)	3 @ (1.85 m)	(22.61 m)
54 (1350)	2 @ 15'-0"	N/A	30'-0"	2 @ 20'-1"	2 @ 6'-9"	53'-8"	2 @ 30'-7"	3 @ 6'-9"	81'-5"
	2 @ (4.75 m)		(9.50 m)	2 @ (6.12 m)	2 @ (2.06 m)	(16.36 m)	2 @ (9.32 m)	3 @ (2.06 m)	(24.82 m)
60 (1500)	3 @ 16'-7"	N/A	49'-9"	3 @ 22'-2"	2 @ 7'-7"	81'-8"	3 @ 33'-7"	4 @ 7'-7"	131'-1"
	3 @ (5.05 m)		(15.15 m)	3 @ (6.76 m)	2 @ (2.31 m)	(24.90 m)	3 @ (10.24 m)	4 @ (2.31 m)	(39.96 m)
66 (1700)	3 @ 17'-11"	N/A	53'-9"	3 @ 23'-11"	2 @ 8'-3"	88'-3"	3 @ 36'-2"	4 @ 8'-3"	141'-6"
	3 @ (5.46 m)		(16.38 m)	3 @ (7.29 m)	2 @ (2.51 m)	(26.89 m)	3 @ (11.02 m)	4 @ (2.51 m)	(43.10 m)
72 (1850)	3 @ 19'-6"	N/A	58'-6"	3 @ 25'-11"	3 @ 8'-11"	104'-6"	3 @ 39'-2"	4 @ 8'-11"	153'-2"
	3 @ (5.94 m)		(17.82 m)	3 @ (7.90 m)	3 @ (2.72 m)	(31.86 m)	3 @ (11.94 m)	4 @ (2.72 m)	(46.70 m)

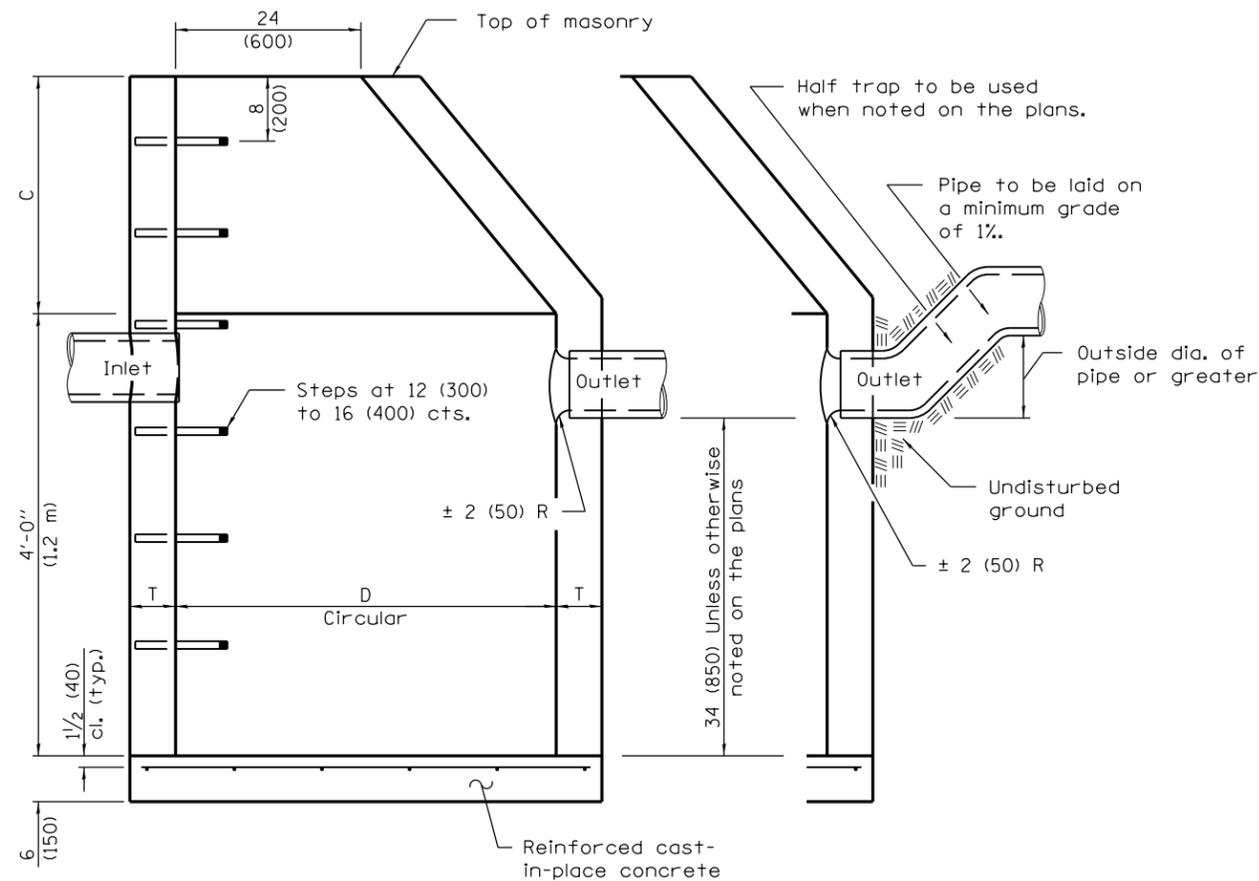
Illinois Department of Transportation
 PASSED January 1, 2013
 ENGINEER OF BRIDGES AND STRUCTURES
 APPROVED January 1, 2013
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

TRAVERSABLE PIPE GRATE

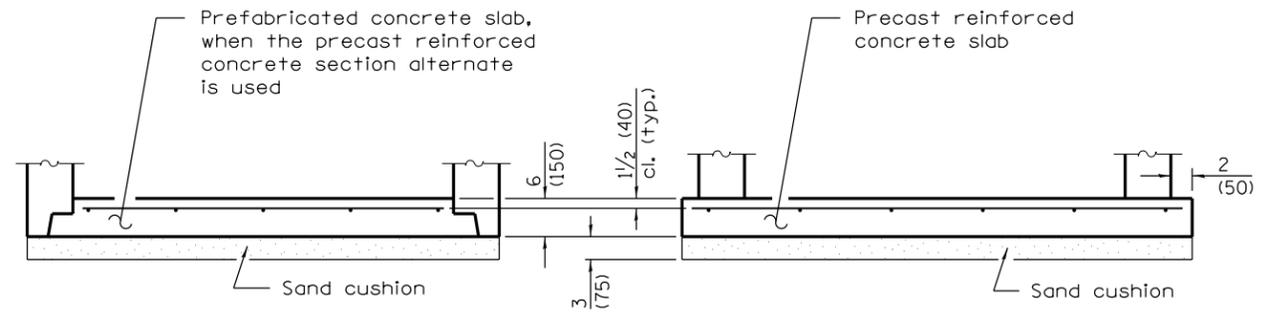
(Sheet 2 of 2)

STANDARD 542311-04



ELEVATION
(Standard Outlet)

ELEVATION
(Half Trap)



ALTERNATE BOTTOM SLAB

ALTERNATE MATERIALS FOR WALLS	D	C*	T (min.)
Concrete Masonry Unit	4'-0" (1.2 m)	30 (750)	5 (125)
	5'-0" (1.5 m)	3'-9" (1.15 m)	5 (125)
Brick Masonry	4'-0" (1.2 m)	30 (750)	8 (200)
	5'-0" (1.5 m)	3'-9" (1.15 m)	8 (200)
Precast Reinforced Concrete Section	4'-0" (1.2 m)	30 (750)	4 (100)
	5'-0" (1.5 m)	3'-9" (1.15 m)	5 (125)
Cast-in-place Concrete	4'-0" (1.2 m)	30 (750)	6 (150)
	5'-0" (1.5 m)	3'-9" (1.15 m)	6 (150)

- * For precast reinforced concrete sections, dimension "C" may vary from the dimension given to plus 6 (150).

GENERAL NOTES

Bottom slabs shall be reinforced with a minimum of 0.20 sq. in./ft (420 sq. mm/m) in both directions with a maximum spacing of 12 (300).

Bottom slabs may be connected to the riser as determined by the fabricator; however, only a single row of reinforcement around the perimeter may be utilized.

See Standard 602601 for optional precast reinforced concrete flat slab top.

See Standard 602701 for details of steps.

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

Illinois Department of Transportation

PASSED January 1, 2011
Michael Beard
 ENGINEER OF POLICY AND PROCEDURES

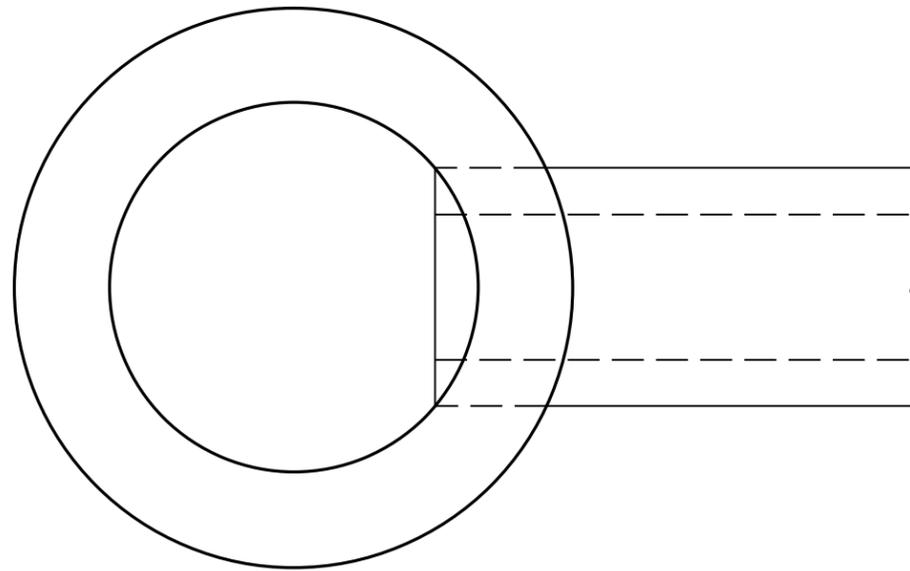
APPROVED January 1, 2011
Scott Schick
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

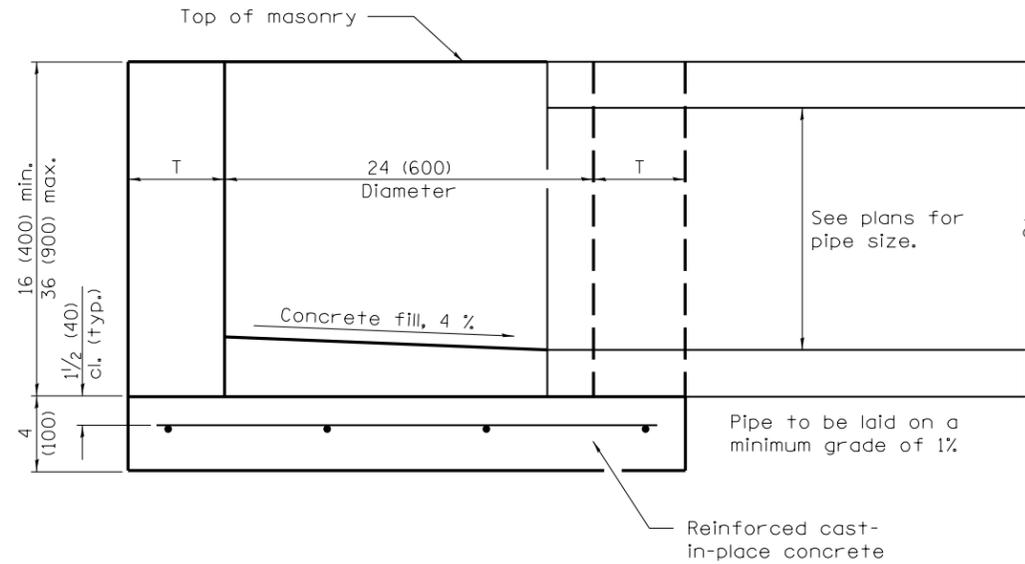
DATE	REVISIONS
1-1-11	Added 'Outside' to half trap note. Detail rein. in slabs.
	Revised general notes.
1-1-09	Switched units to English (metric).

**CATCH BASIN
TYPE A**

STANDARD 602001-02

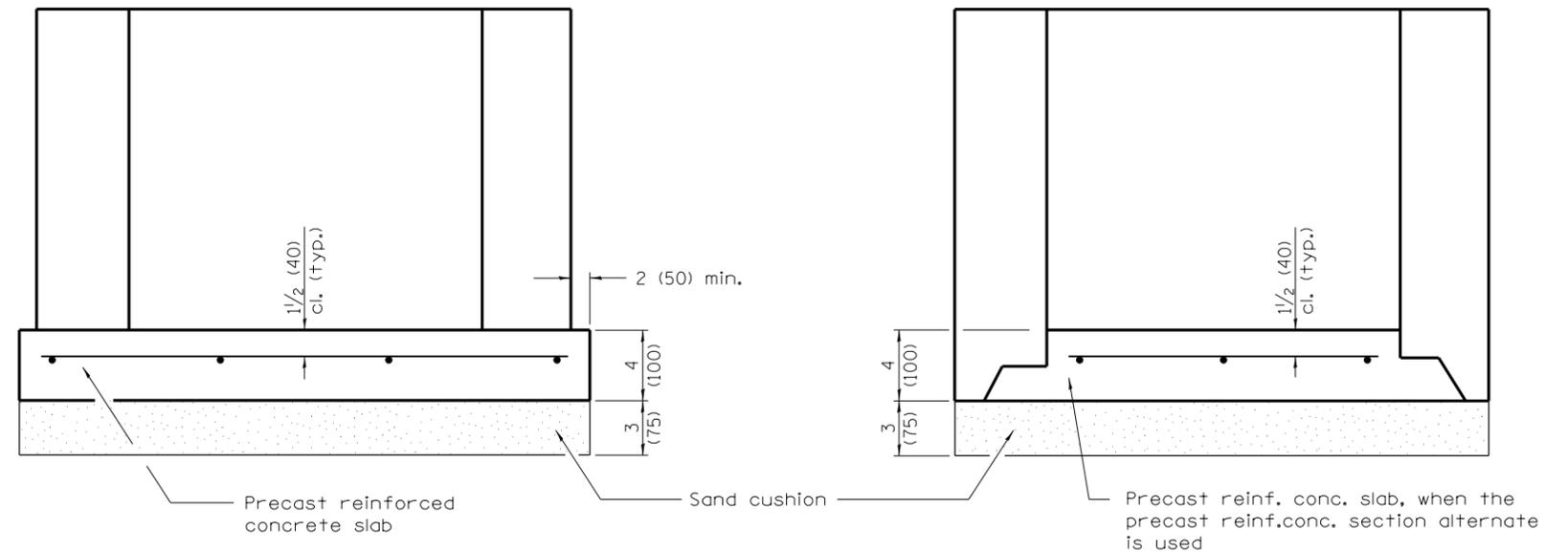


PLAN



ELEVATION

ALTERNATE MATERIALS FOR WALLS	T
BRICK MASONRY	8 (200)
CAST-IN-PLACE CONCRETE	6 (150)
CONCRETE MASONRY UNIT	5 (125)
PRECAST REINFORCED CONCRETE SECTION	3 (75)



ALTERNATE METHODS

GENERAL NOTES

Bottom slabs shall be reinforced with a minimum of 0.24 sq. in./ft. (510 sq. mm/m) in both directions with a maximum spacing of 10 (250).

Bottom slabs may be connected to the riser as determined by the fabricator; however, only a single row of reinforcement around the perimeter may be utilized.

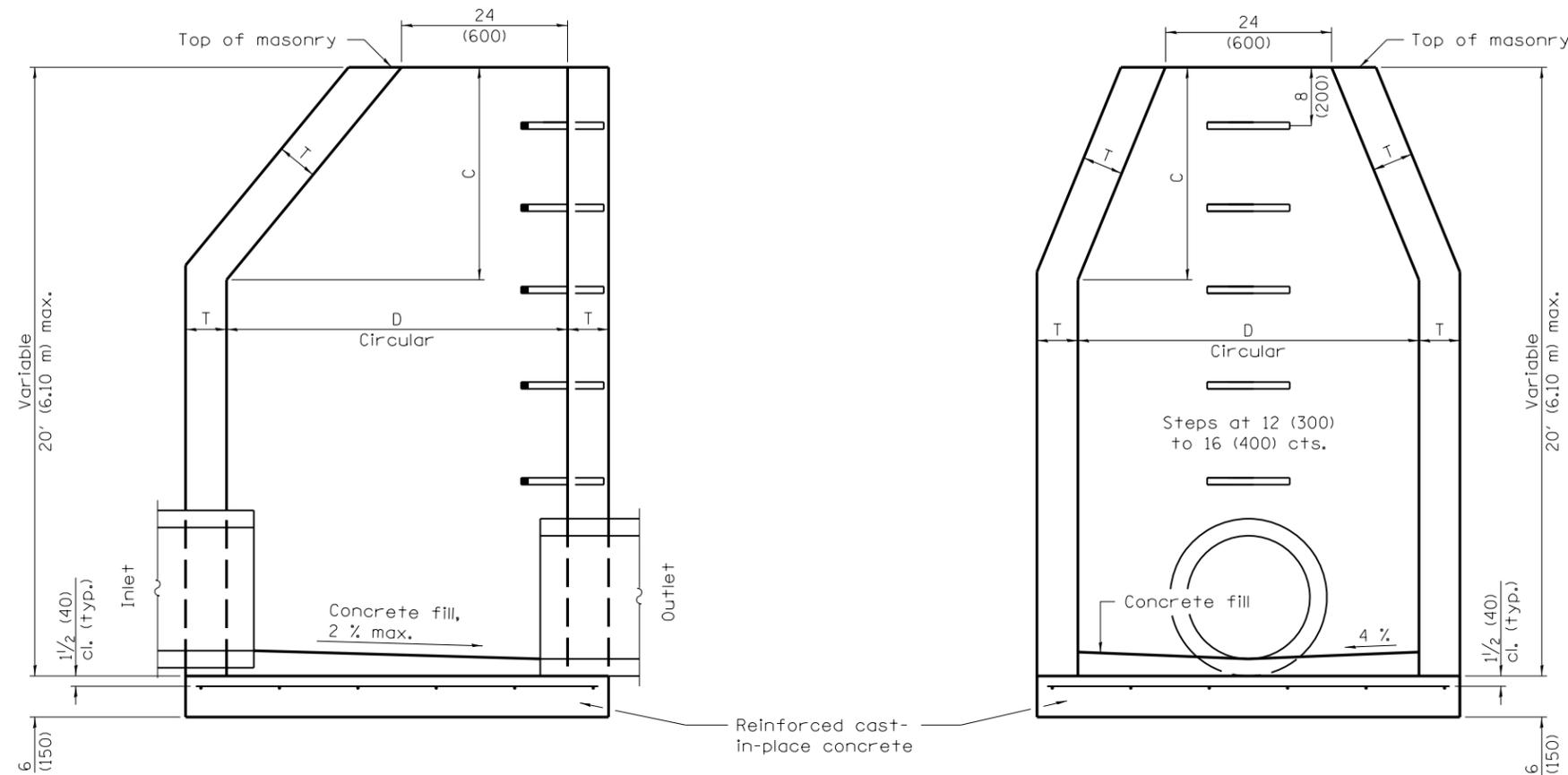
All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-11	Detailed rein. in slabs.
	Added max. limit to height.
	Added general notes.
1-1-09	Switched units to
	English (metric).

INLET – TYPE A

STANDARD 602301-03

Illinois Department of Transportation
 PASSED January 1, 2011
Michael Beard
 ENGINEER OF POLICY AND PROCEDURES
 APPROVED January 1, 2011
Scott Schick
 ENGINEER OF DESIGN AND ENVIRONMENT
 ISSUED 1-1-97

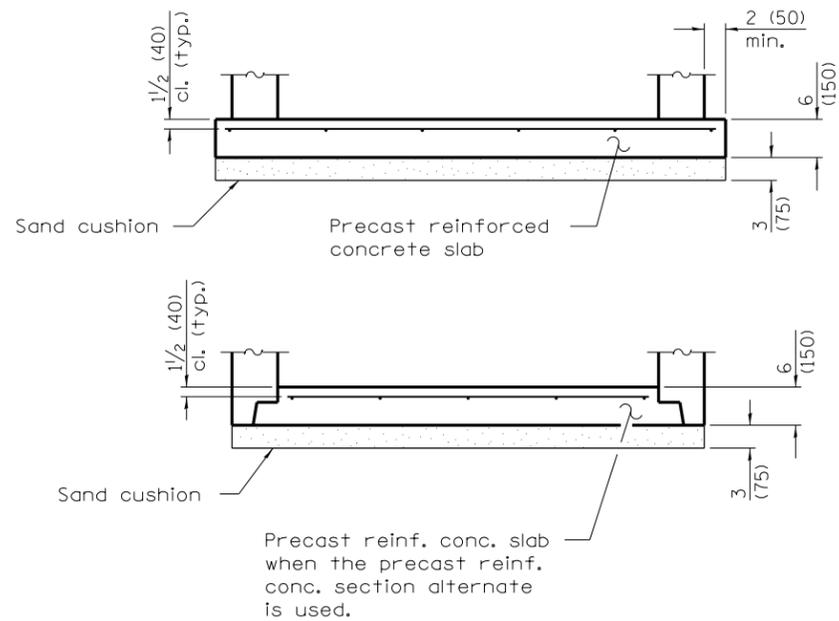


ELEVATION - ECCENTRIC

ELEVATION - CONCENTRIC

ALTERNATE MATERIALS FOR WALLS	D	C*	T (min.)
Concrete Masonry Unit	4'-0" (1.2 m)	30 (750)	5 (125)
	5'-0" (1.5 m)	3'-9" (1.15 m)	5 (125)
Brick Masonry	4'-0" (1.2 m)	30 (750)	8 (200)
	5'-0" (1.5 m)	3'-9" (1.15 m)	8 (200)
Precast Reinforced Concrete Section	4'-0" (1.2 m)	30 (750)	4 (100)
	5'-0" (1.5 m)	3'-9" (1.15 m)	5 (125)
Cast-in-place Concrete	4'-0" (1.2 m)	30 (750)	6 (150)
	5'-0" (1.5 m)	3'-9" (1.15 m)	6 (150)

* For precast reinforced concrete sections, dimension "C" may vary from the dimension given to plus 6 (150).



ALTERNATE BOTTOM SLAB

GENERAL NOTES

Bottom slabs shall be reinforced with a minimum of 0.31 sq. in./ft. (660 sq. mm/m) in both directions with a maximum spacing of 12 (300).

Bottom slabs may be connected to the riser as determined by the fabricator; however, only a single row of reinforcement around the perimeter may be utilized.

See Standard 602701 for details of steps.

See Standard 602601 for optional Precast Reinforced Concrete Flat Slab Top.

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

DATE	REVISIONS
1-1-11	Detailed rein. in slabs.
	Added max. limit to height.
	Revised general notes.
1-1-09	Switched units to
	English (metric).

MANHOLE TYPE A

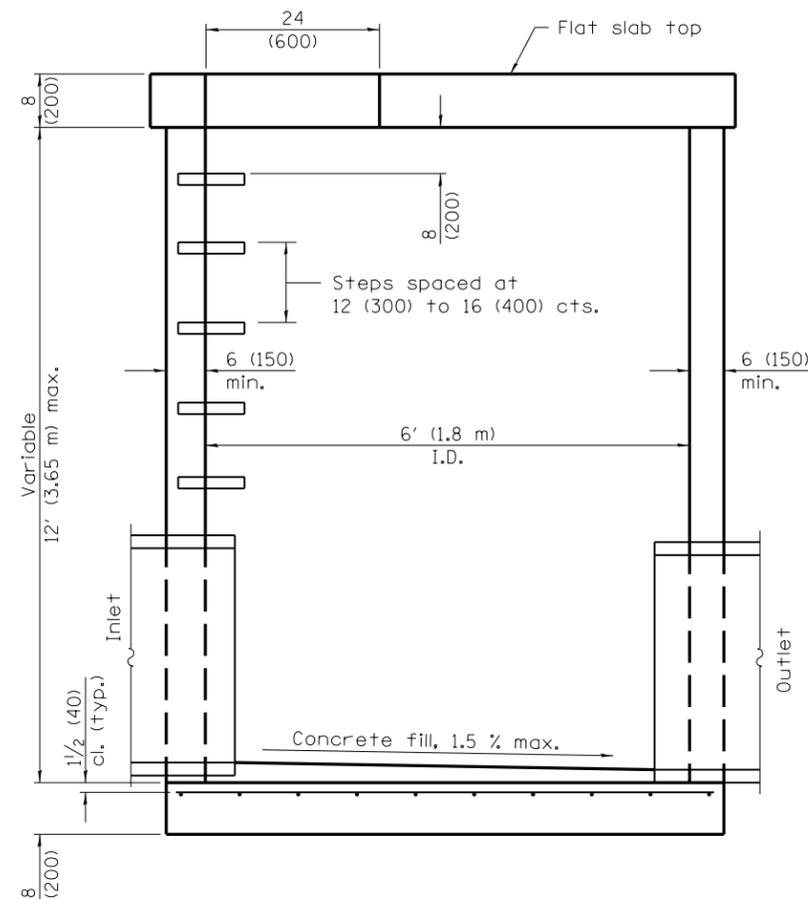
STANDARD 602401-03

Illinois Department of Transportation

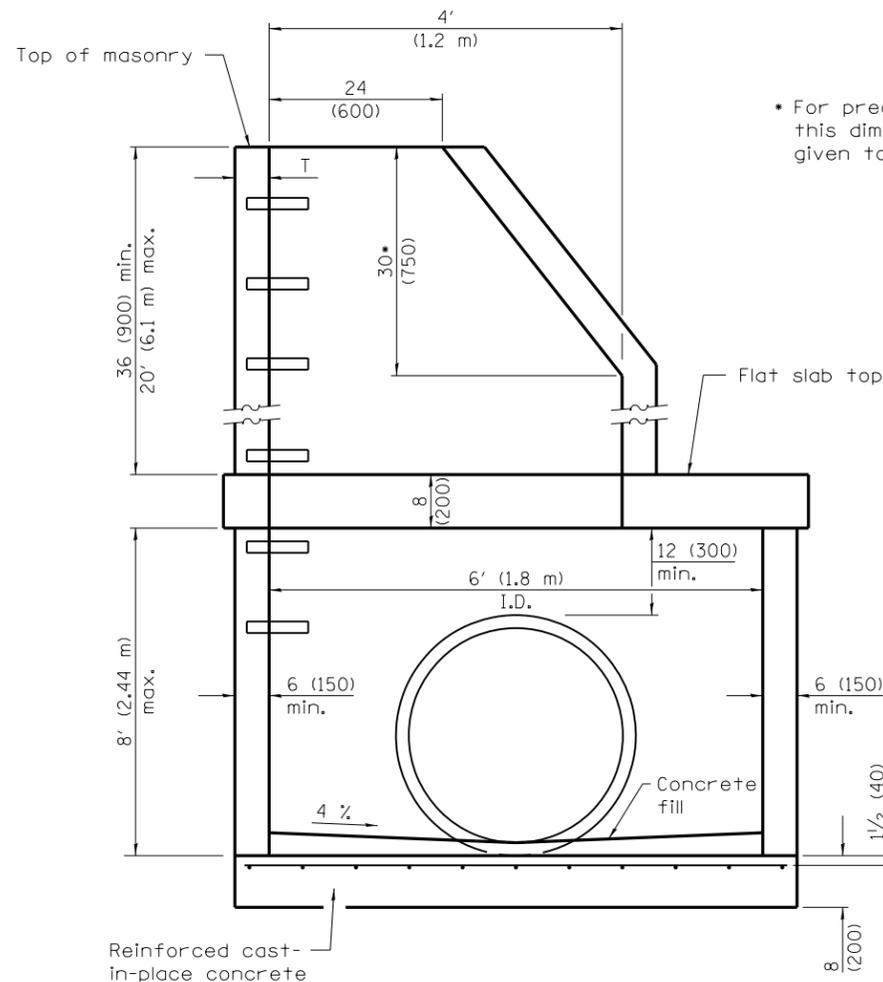
PASSED January 1, 2011
Michael Beard
 ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2011
Scott Schick
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ISSUED 1-1-97

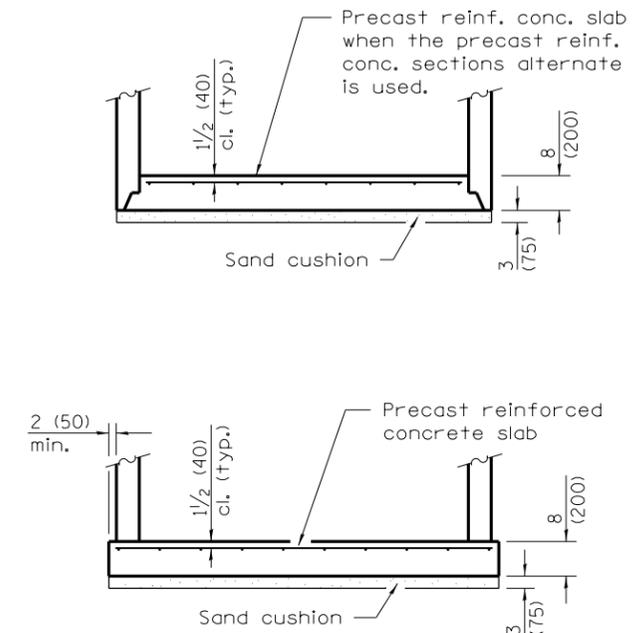


ELEVATION
(with flat slab top only)

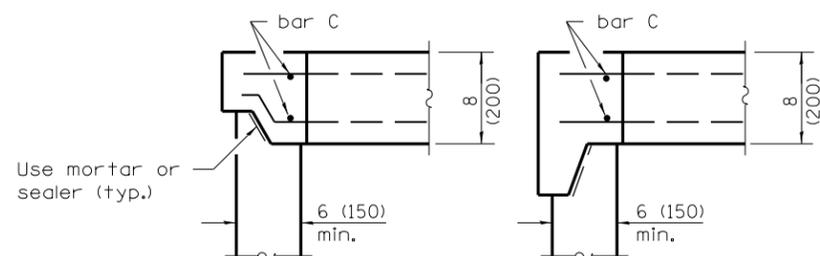


ELEVATION
(with flat slab top and riser)

* For precast reinforced concrete sections, this dimension may vary from the dimension given to plus 6 (150).



ALTERNATE BOTTOM SLABS



ALTERNATE JOINT CONFIGURATIONS

ALTERNATE MATERIALS FOR WALLS	T (min)
Concrete Masonry Units	5 (125)
Precast Reinforced Concrete Sections	4 (100)
Cast-in-Place Concrete	6 (150)

GENERAL NOTES

Joint configuration and dimensions of flat slab top shall match and fit the riser joint detail.

Lifting devices shall be approved by the Engineer.

Bottom slabs shall be reinforced with a minimum of 0.37 sq. in./ft. (780 sq. mm /m) in both directions with a maximum spacing of 10 (250)

Bottom slabs may be connected to the riser as determined by the fabricator; however, only a single row of reinforcement around the perimeter may be utilized.

See Standard 602701 for details of manhole steps.

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

DATE	REVISIONS
1-1-12	Added 12 (300) min. from pipe to interm. slab, changed riser to 36 (900) min height.
1-1-11	Modified rein. detail in slabs. Added dim. to riser.
	Revised general notes.

MANHOLE TYPE A
6' (1.8 m) DIAMETER

(Sheet 1 of 2)

STANDARD 602406-05

Illinois Department of Transportation

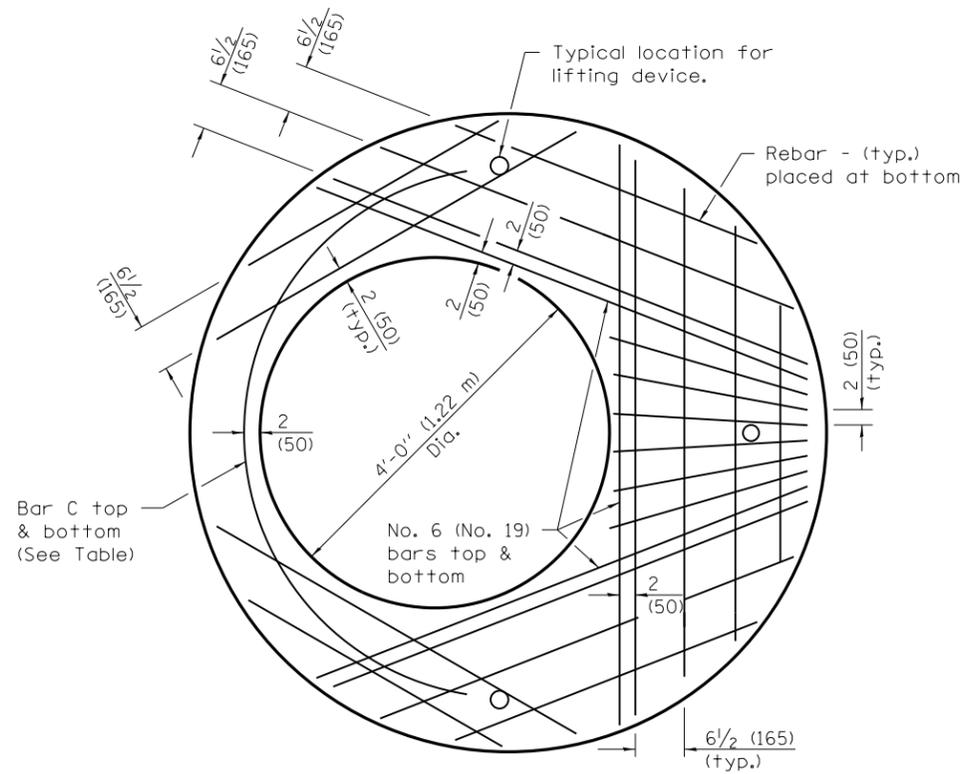
PASSED January 1, 2012

Michael Beard
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2012

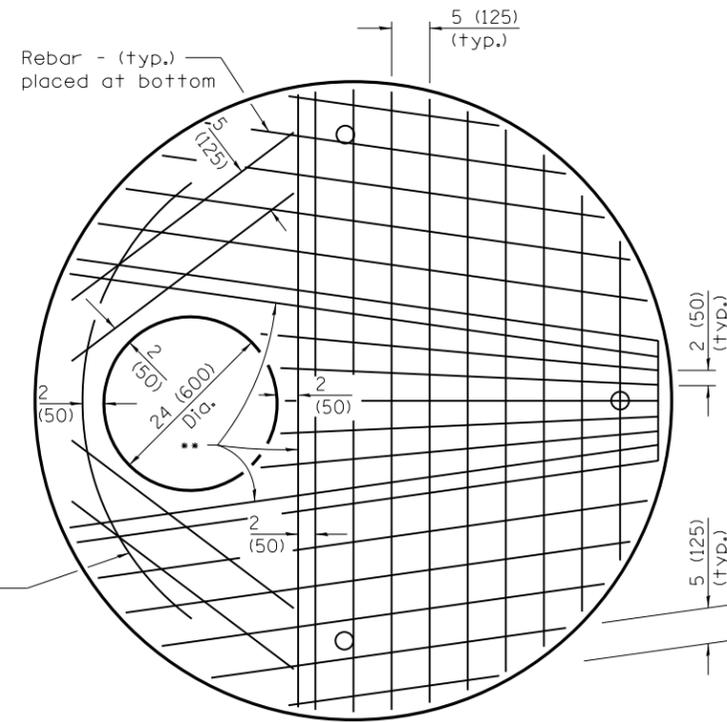
Scott Esdaile
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



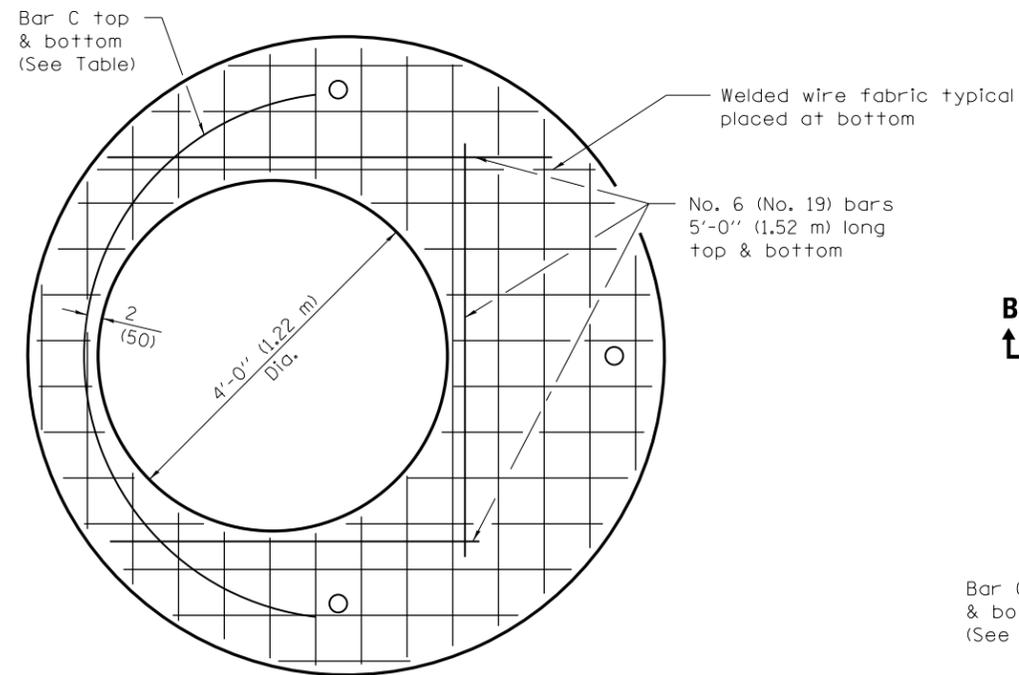
PLAN

Showing Rebar Reinforcement



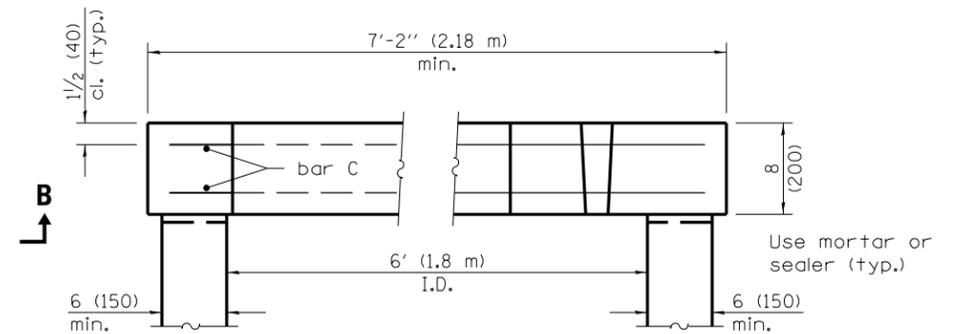
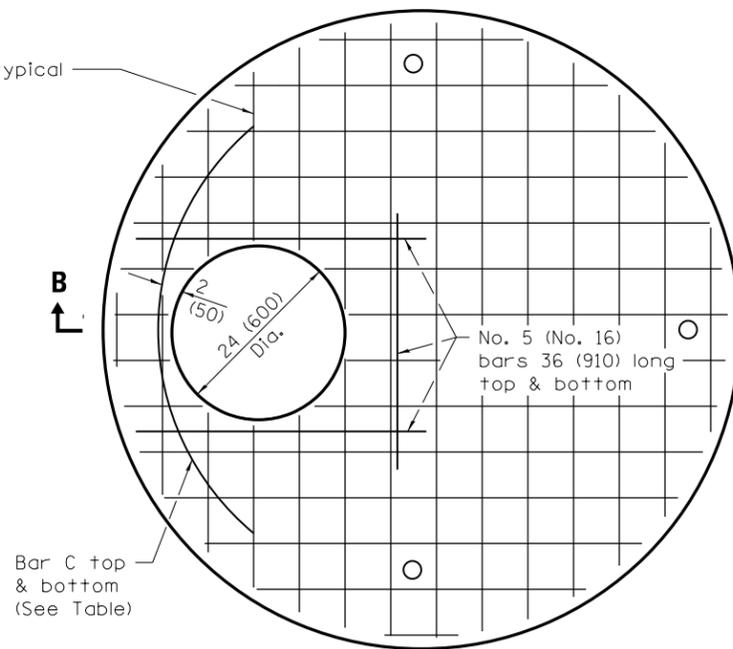
** No. 6 (No. 19) bars top & bottom

Diameter of opening	Thickness	Reinforcement "As" WWF Each direction	Bar Size	No. 4 (No. 13) Bar C	
				Length	Radius
24 (600)	8 (200)	1.06 sq. in./ft. (2244 sq. mm/m)	No. 6 (No. 19)	6'-0" (1.83 m)	38 (965)
4'-0" (1.2 m)	8 (200)	0.82 sq. in./ft. (1736 sq. mm/m)	No. 6 (No. 19)	9'-0" (2.74 m)	38 (965)



PLAN

Showing Welded Wire Fabric Reinforcement



SECTION B-B

Illinois Department of Transportation

PASSED January 1, 2012

Michael Beard
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2012

Scott Esch
ENGINEER OF DESIGN AND ENVIRONMENT

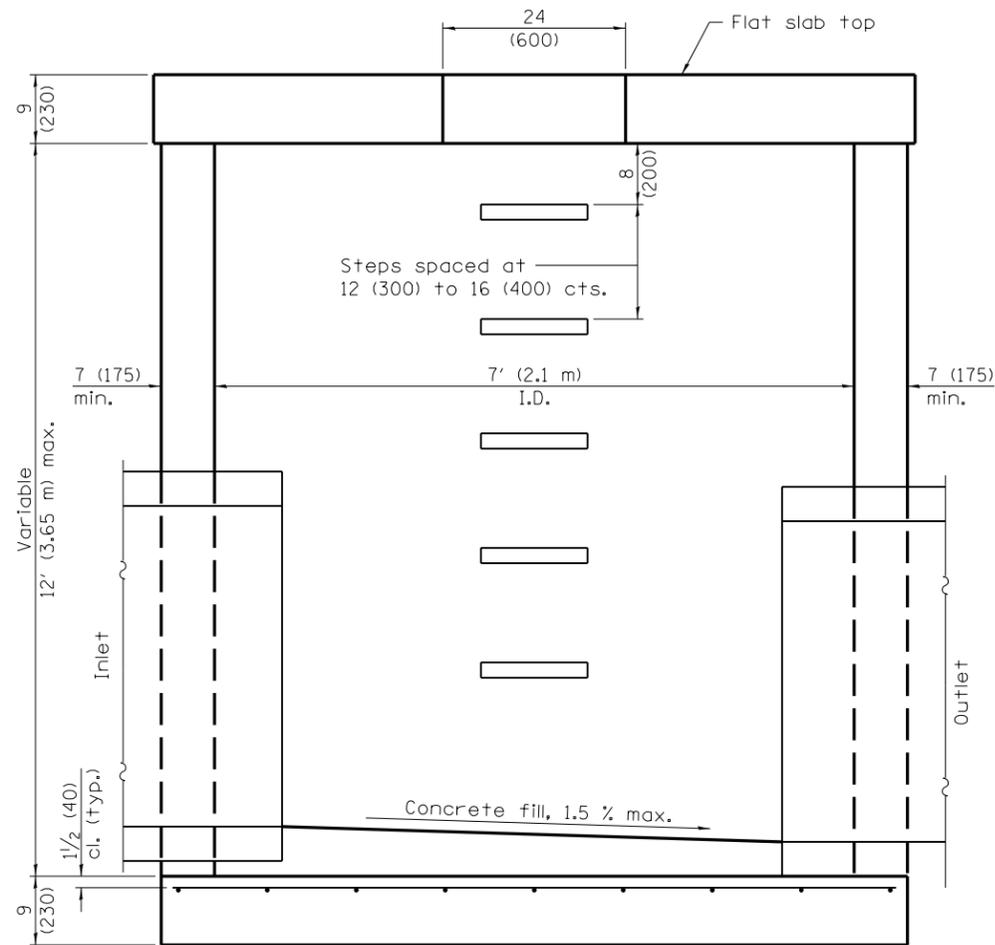
ISSUED 1-1-97

MANHOLE TYPE A

6' (1.8 m) DIAMETER

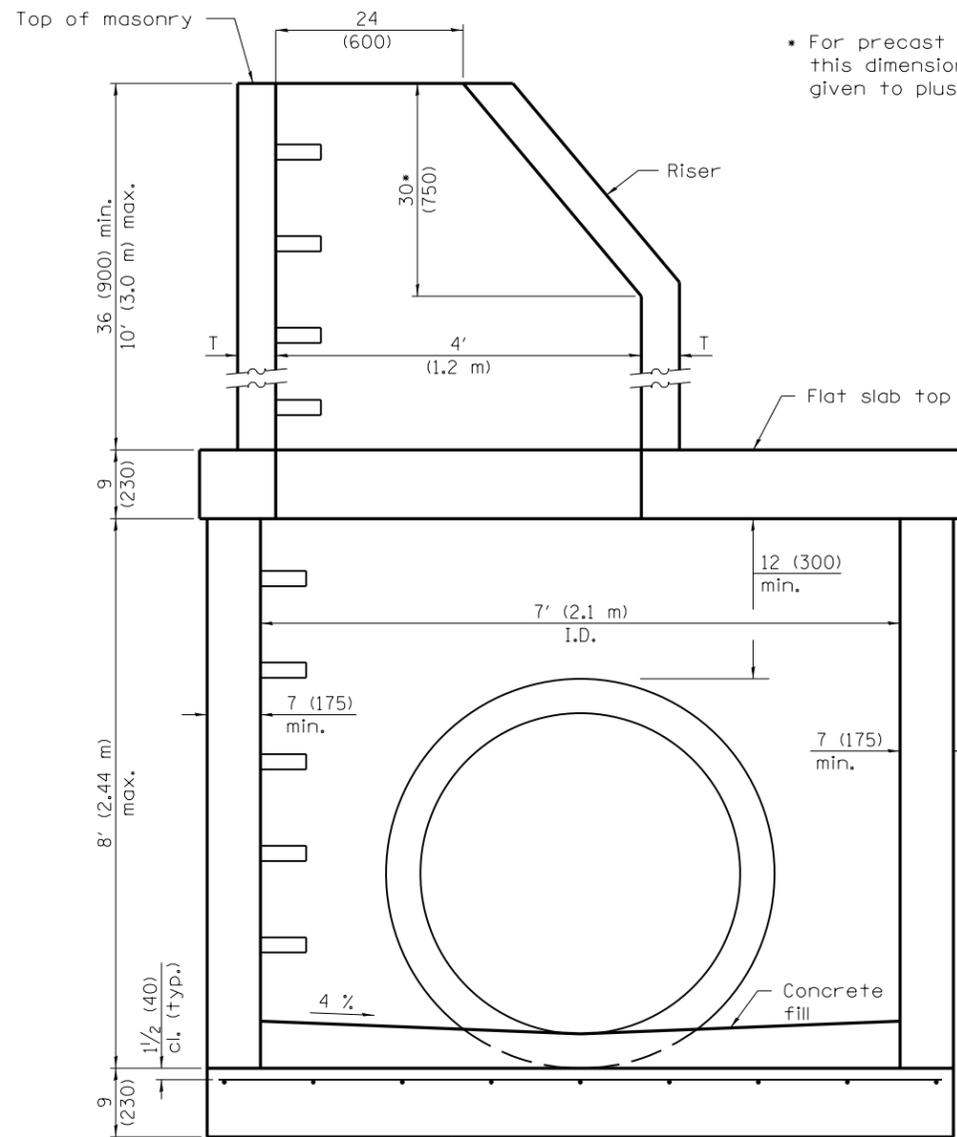
(Sheet 2 of 2)

STANDARD 602406-05



ELEVATION

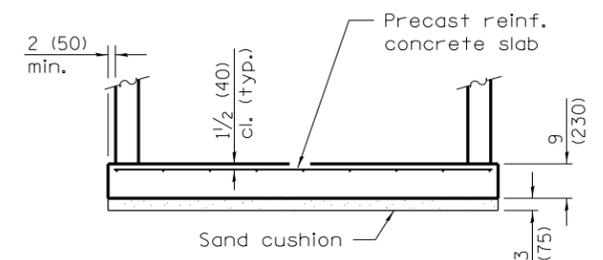
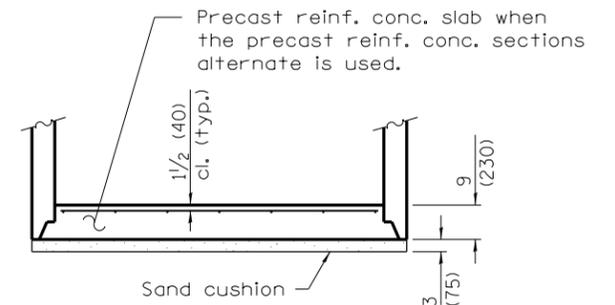
(With Flat Slab Top Only)



ELEVATION

(With Flat Slab Top and Riser)

* For precast reinforced concrete sections, this dimension may vary from the dimension given to plus 6 (150).



ALTERNATE BOTTOM SLABS

GENERAL NOTES

Joint configuration and dimensions of flat slab top shall match and fit the riser joint detail.

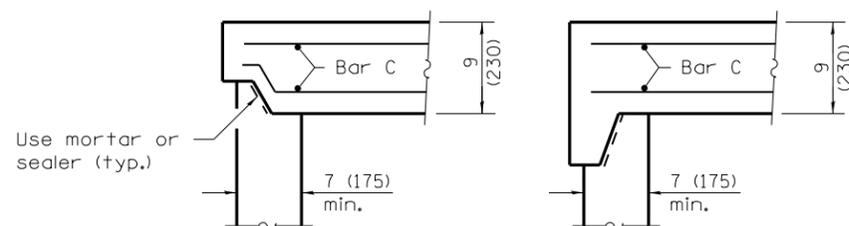
Lifting devices shall be approved by the Engineer.

Bottom slabs shall be reinforced with a minimum of 0.31 sq. in./ft. (660 sq. mm/m) in both directions with a maximum spacing of 12 (300).

Bottom slabs may be connected to the riser as determined by the fabricator; however, only a single row of reinforcement around the perimeter may be utilized.

See Standard 602701 for details of manhole steps.

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



ALTERNATE JOINT CONFIGURATIONS

ALTERNATE MATERIALS FOR RISER WALLS	T (min)
Concrete Masonry Units	5 (125)
Precast Reinforced Concrete Sections	4 (100)
Cast-in-Place Concrete	6 (150)

DATE	REVISIONS
1-1-12	Changed riser to 36 (900) minimum height.
1-1-11	Modified rein. detail in slabs. Added dim. to riser.
	Revised general notes.

MANHOLE TYPE A
7' (2.1 m) DIAMETER

(Sheet 1 of 2)

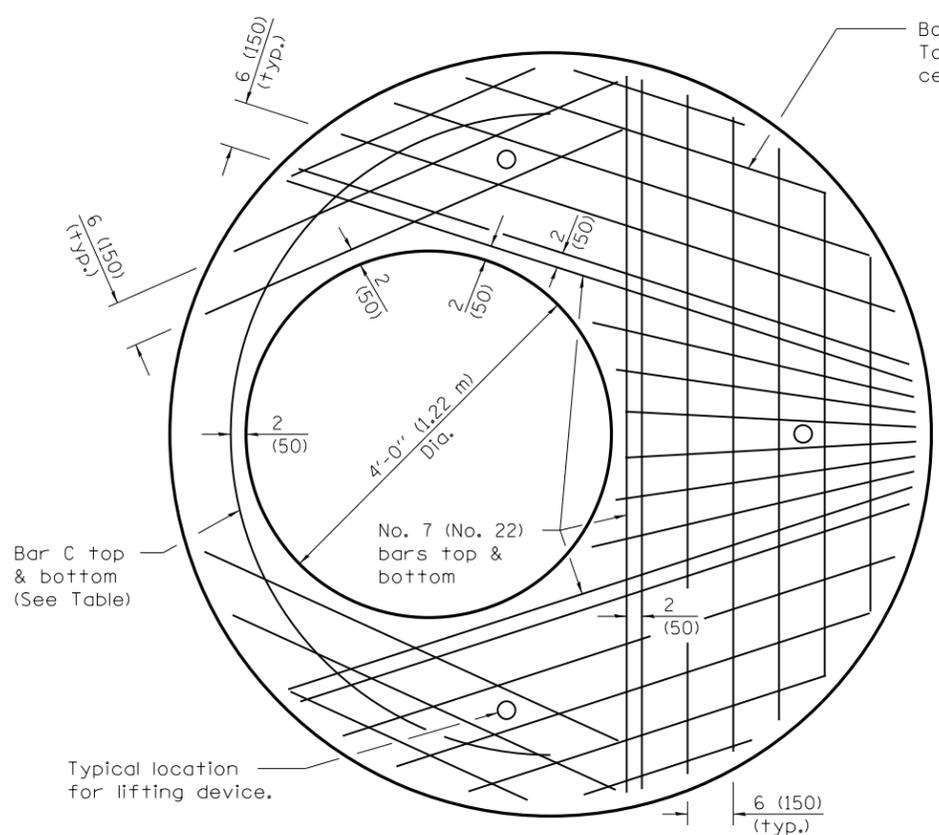
STANDARD 602411-03

Illinois Department of Transportation

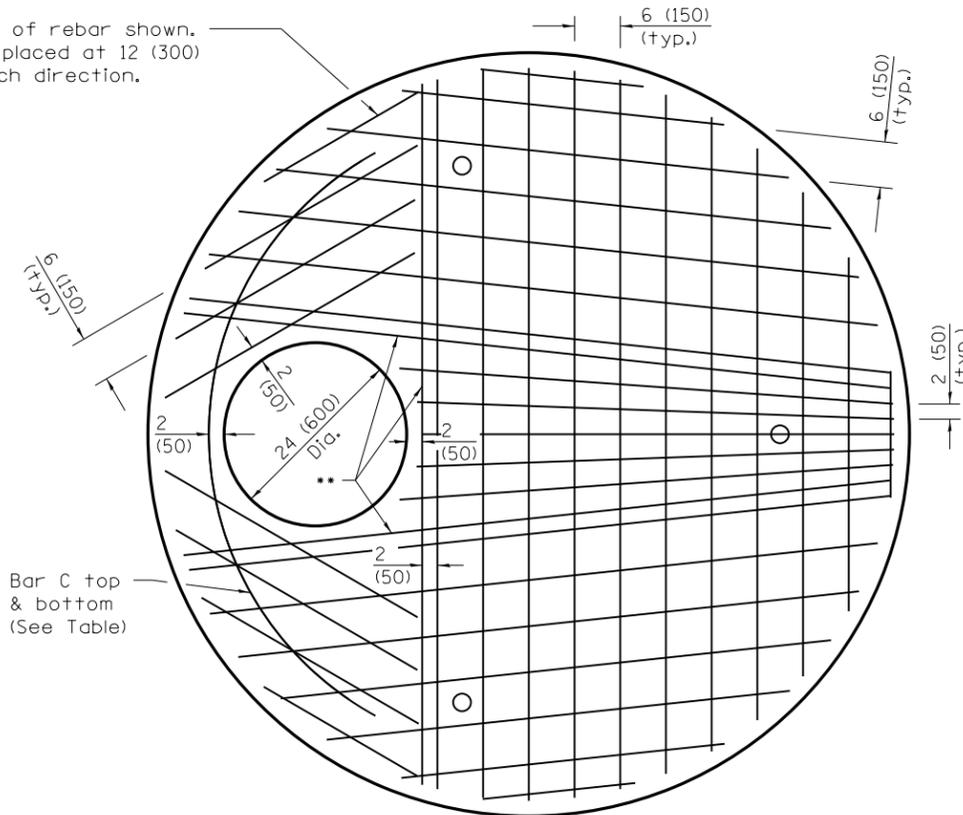
PASSED January 1, 2012
Michael Beard
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2012
Scott Esdaile
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 4-1-06



Bottom mat of rebar shown. Top mat is placed at 12 (300) centers each direction.



Bar C top & bottom (See Table)

Bar C top & bottom (See Table)

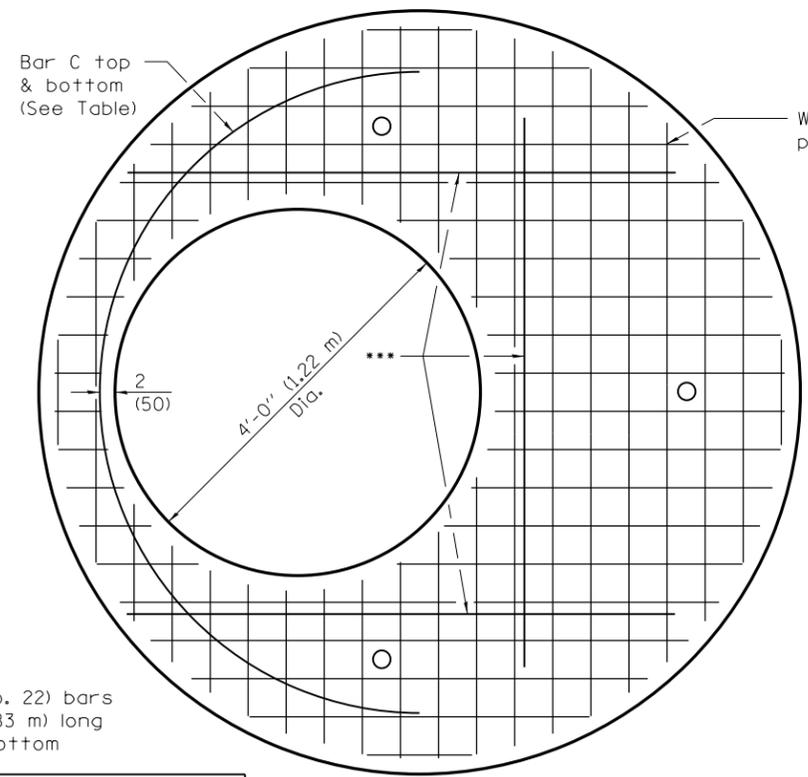
Typical location for lifting device.

PLAN
Showing Rebar Reinforcement

** No. 8 (No. 25) bars top & bottom

Diameter of opening	Reinforcement Bar Size	Reinforcement "As" WWF each direction	No. 4 (No. 13) Bar C	
			Length	Radius
24 (600)	Bottom mat No. 8 (No. 25)	Bottom mat **** 1.57 sq. in./ft. (3325 sq. mm/m)	7'-6" (2.30 m)	3'-6" (1.067 m)
	Top mat No. 4 (No. 13)	Top mat **** 0.20 sq. in./ft. (425 sq. mm/m)		
4'-0" (1.2 m)	Bottom mat No. 7 (No. 22)	Bottom mat **** 1.20 sq. in./ft. (2540 sq. mm/m)	11'-0" (3.35 m)	3'-6" (1.067 m)
	Top mat No. 4 (No. 13)	Top mat **** 0.20 sq. in./ft. (425 sq. mm/m)		

**** A maximum of two layers of welded wire fabric may be used to satisfy the required "As" for each mat.



Bar C top & bottom (See Table)

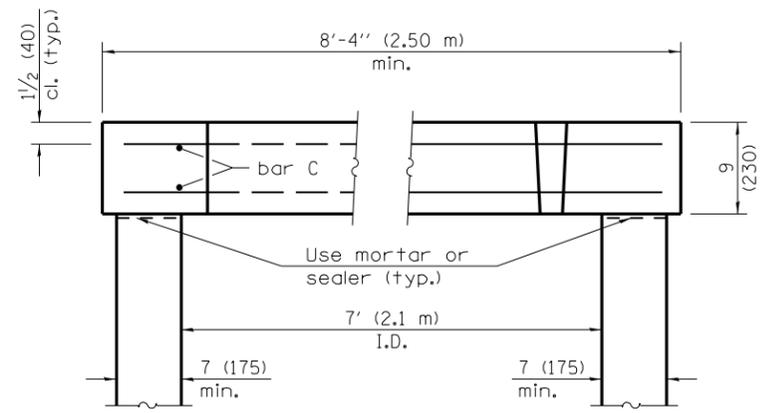
Welded wire fabric typical placed at top and bottom

B

B

*** No. 7 (No. 22) bars 6'-0" (1.83 m) long top & bottom

PLAN
Showing Welded Wire Fabric Reinforcement



SECTION B-B
(Typical of each top)

Illinois Department of Transportation

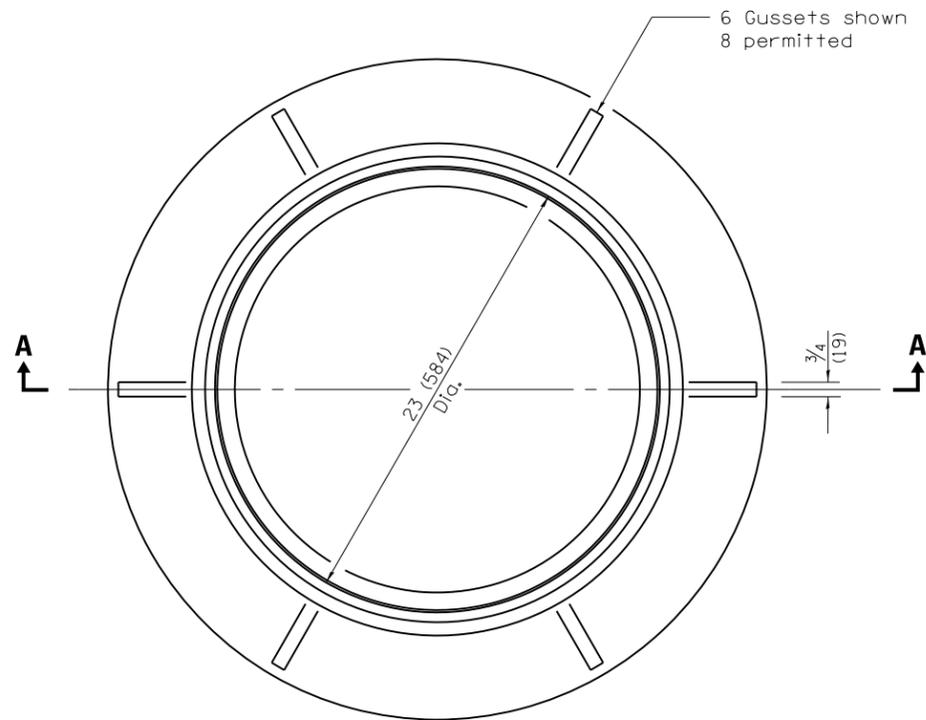
PASSED January 1, 2012
Michael Beard
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APPROVED January 1, 2012
Scott S. ...
 ENGINEER OF DESIGN AND ENVIRONMENT

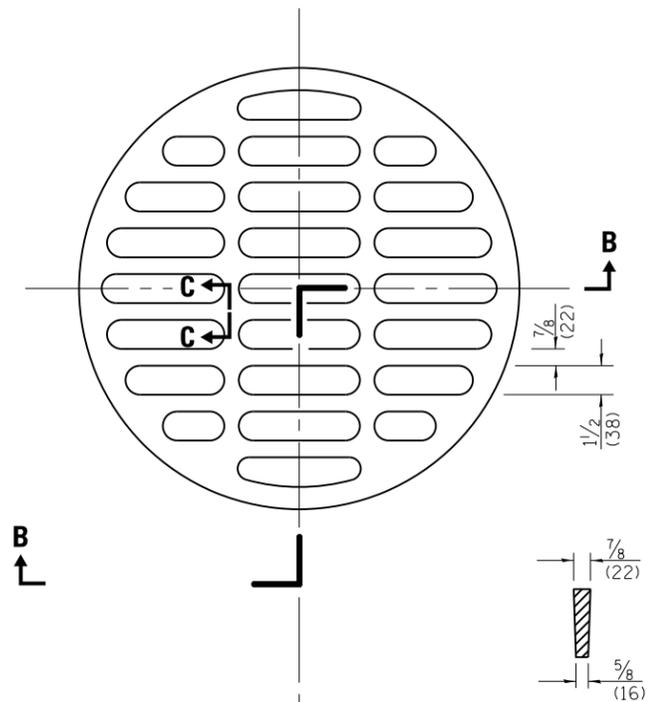
ISSUED 4-1-06

MANHOLE TYPE A
7' (2.1 m) DIAMETER
 (Sheet 2 of 2)

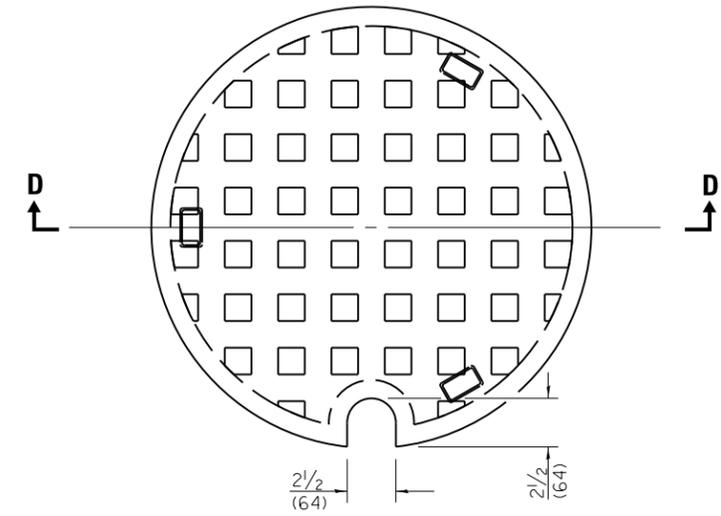
STANDARD 602411-03



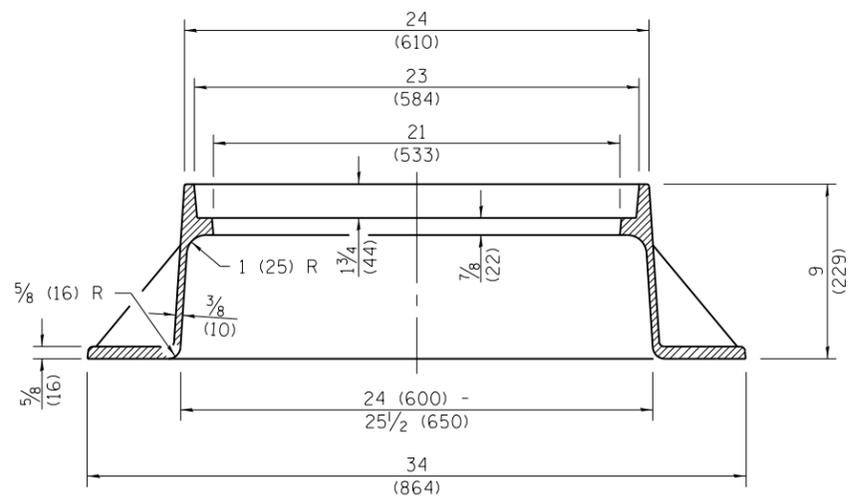
CAST FRAME



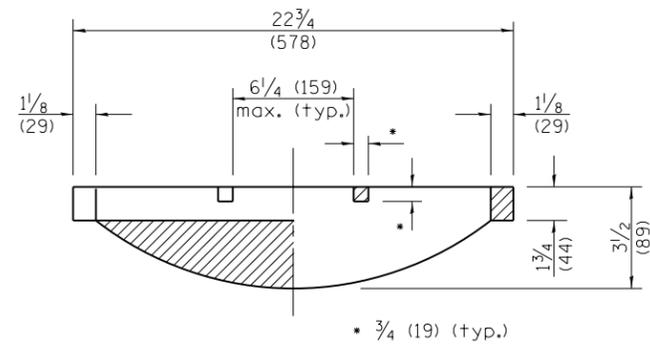
SECTION C-C



SECTION D-D

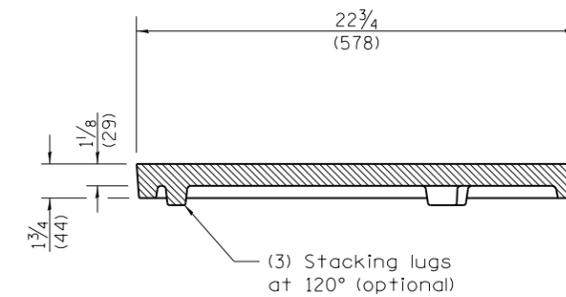


SECTION A-A
Gray Iron



SECTION B-B

CAST OPEN LID



CAST CLOSED LID
Gray Iron Lid

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

Illinois Department of Transportation

PASSED January 1, 2009

ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2009

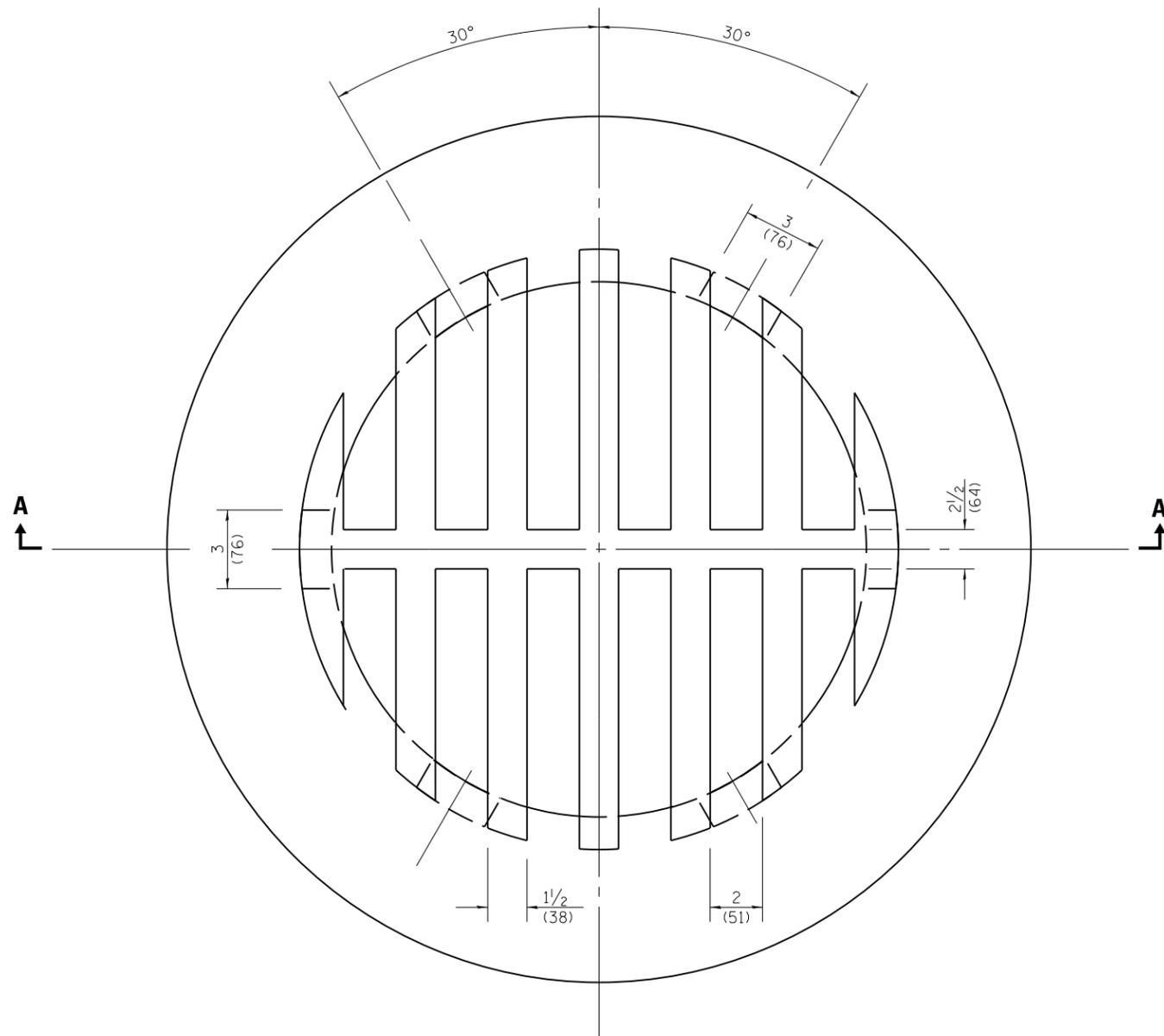
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

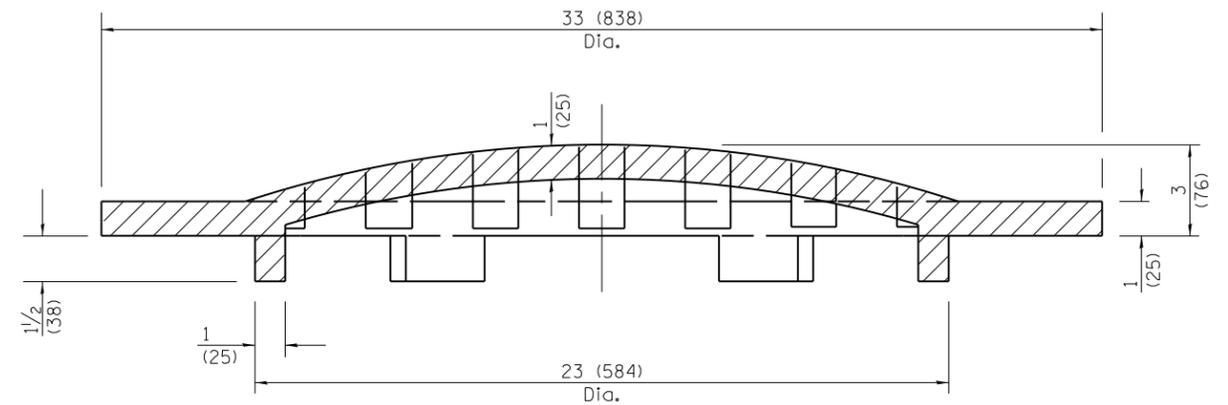
DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-04	Removed weights.

**FRAME AND LIDS
TYPE 1**

STANDARD 604001-03



CAST GRATE



SECTION A-A

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

Illinois Department of Transportation	
PASSED	January 1, 2009
ENGINEER OF POLICY AND PROCEDURES	
APPROVED	January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT	
ISSUED 1-1-97	

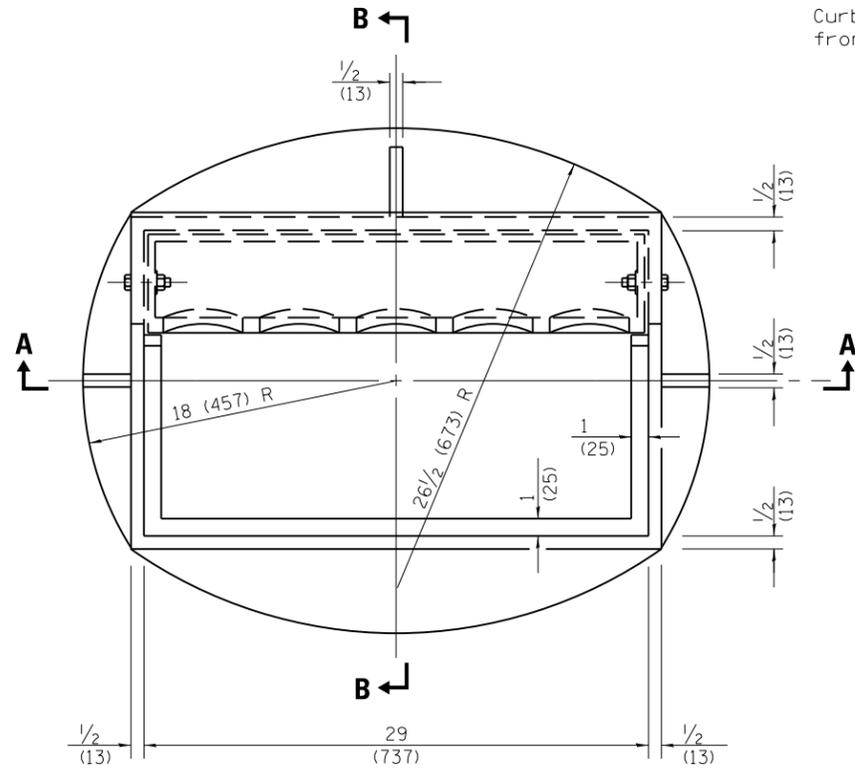
DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-04	Removed weights.

GRATE TYPE 8

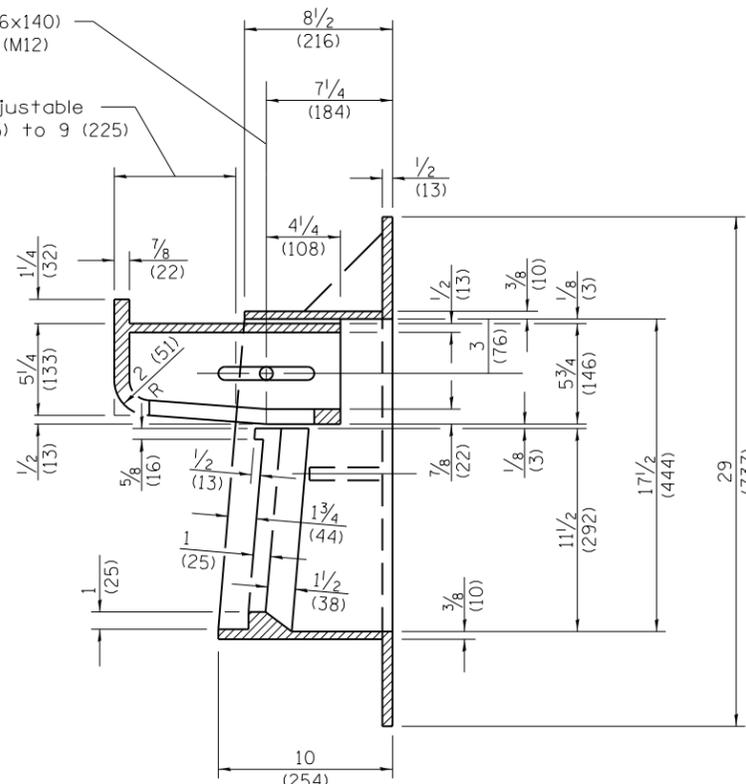
STANDARD 604036-02

Ø 5/8 (10) Dia. hole and 5/8x5/2 (16x140) slotted hole for galvanized 1/2 (M12) bolt, nut, and washer.

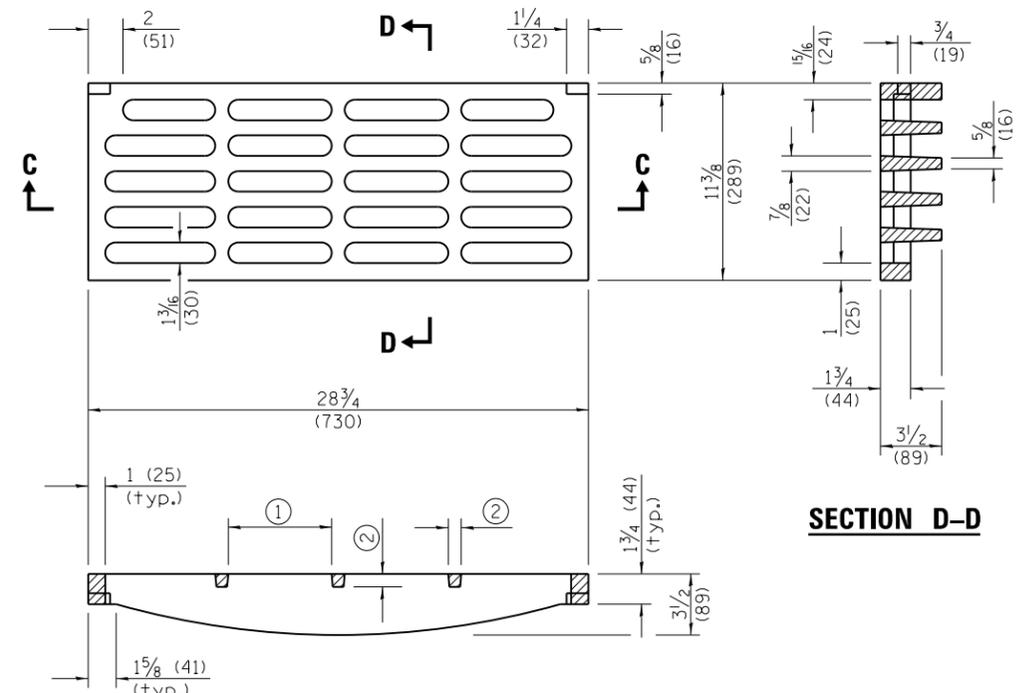
Curb box adjustable from 4 1/2 (115) to 9 (225)



CAST FRAME



SECTION B-B

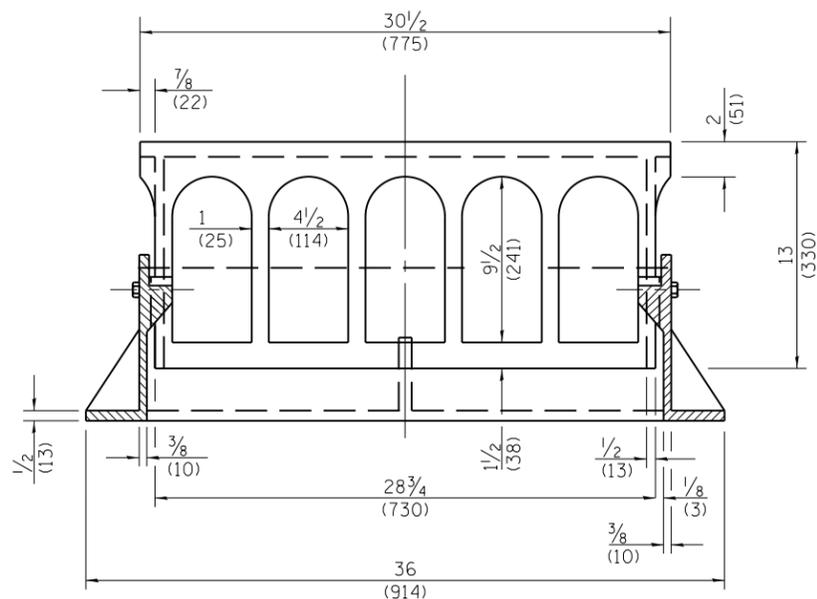


SECTION C-C

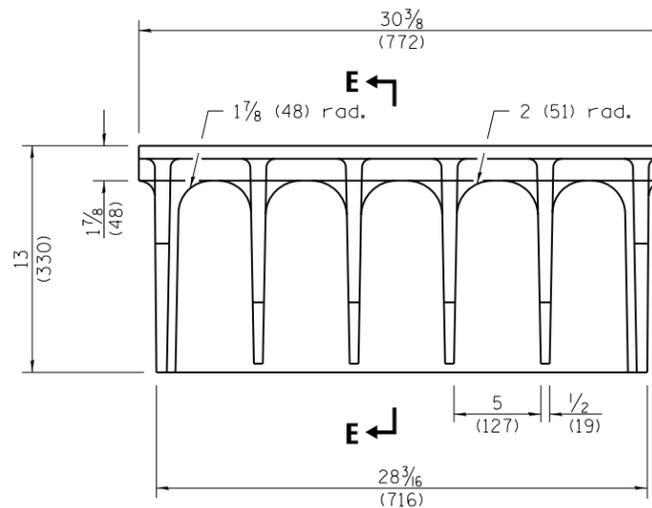
SECTION D-D

- ① = 6 1/4 (159) max. (typ.)
- ② = 3/4 (19) min. (typ.)

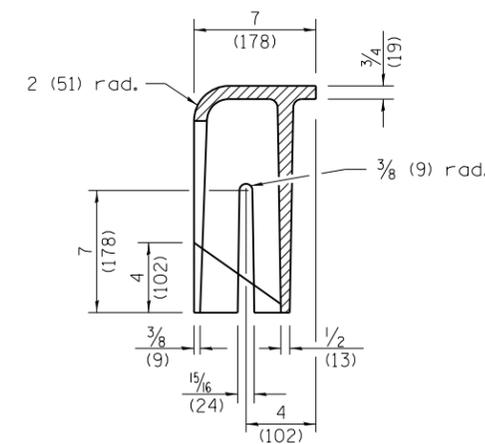
CAST GRATE



SECTION A-A



ALTERNATE CURB BOX



SECTION E-E

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

Illinois Department of Transportation

PASSED January 1, 2009

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APPROVED January 1, 2009

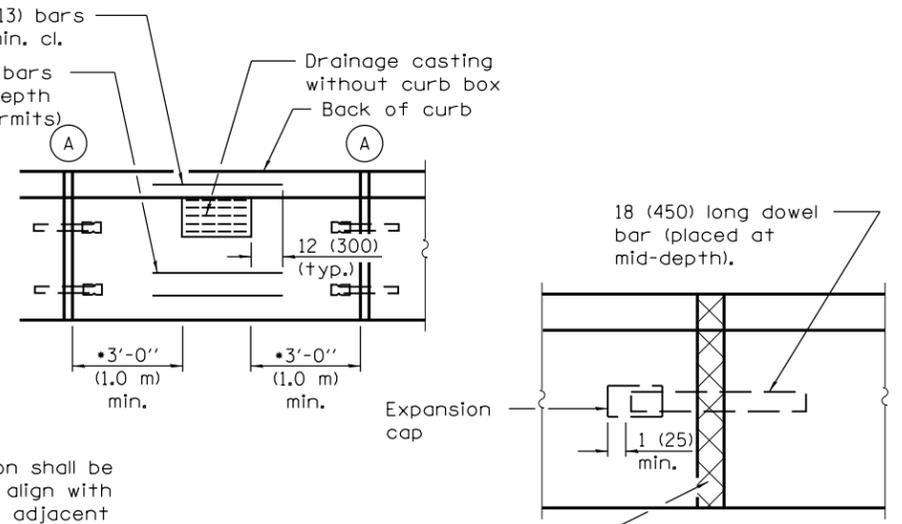
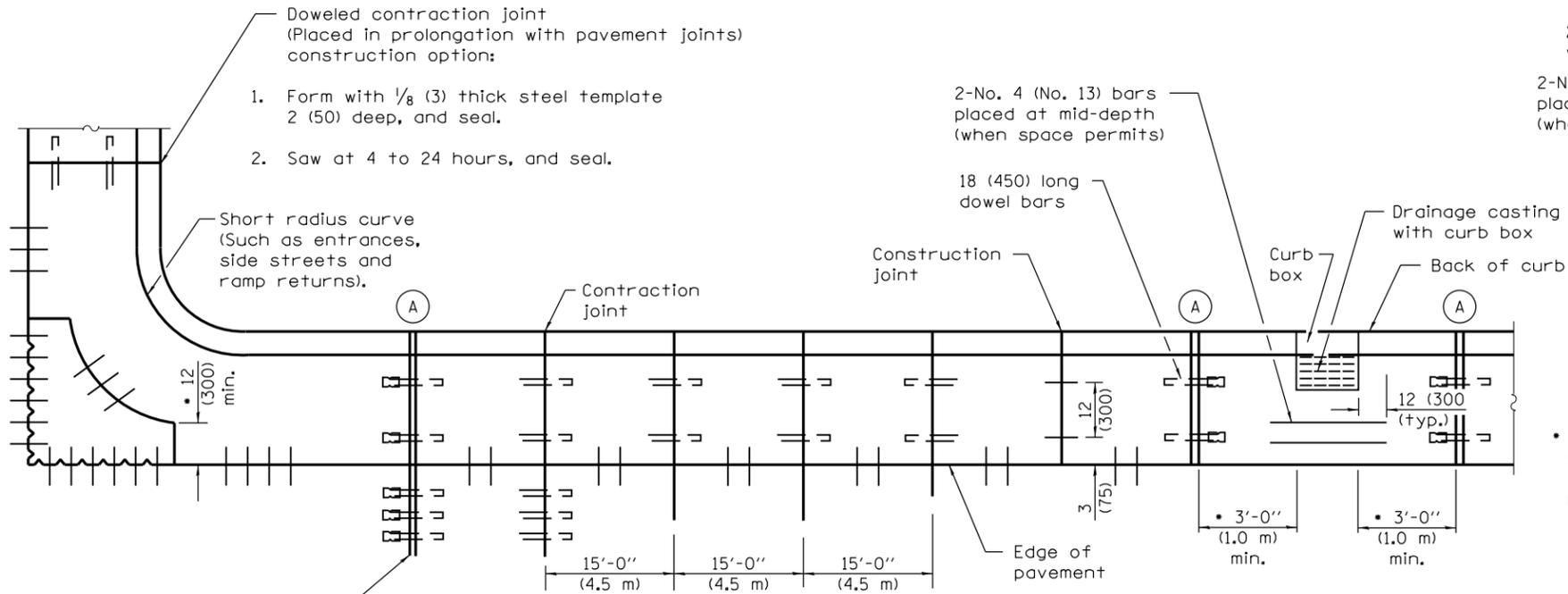
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-09

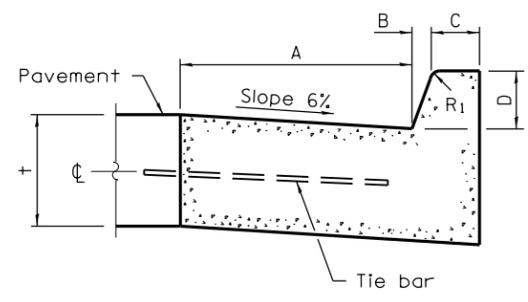
DATE	REVISIONS
4-1-09	Switched units to English (metric).
4-1-06	Added alternate curb box.

**FRAME AND GRATE
TYPE 11**

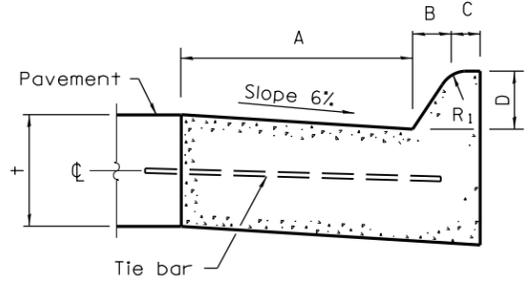
STANDARD 604051-03



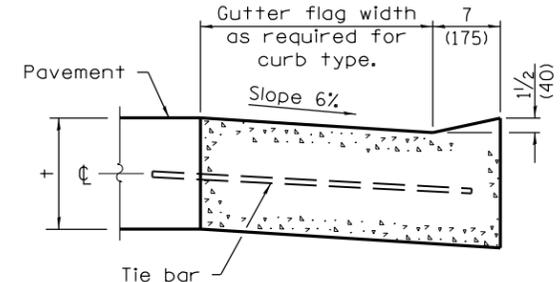
PLAN
ADJACENT TO PCC PAVEMENT OR PCC BASE COURSE



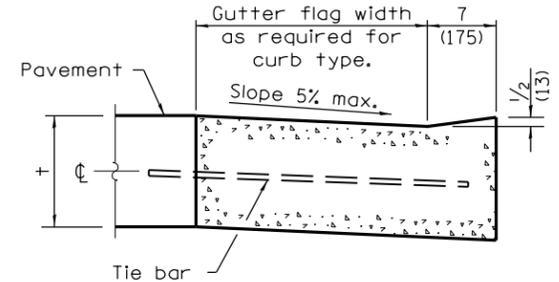
BARRIER CURB



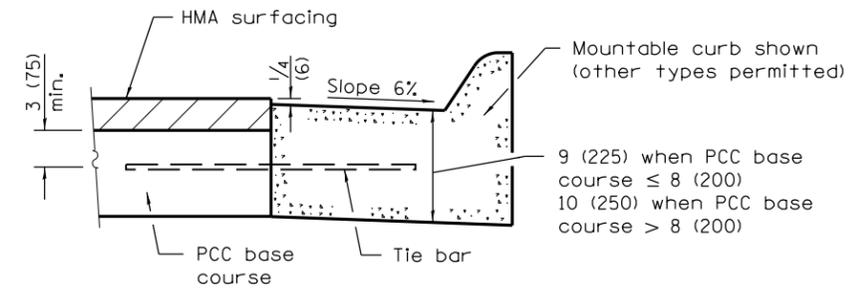
MOUNTABLE CURB



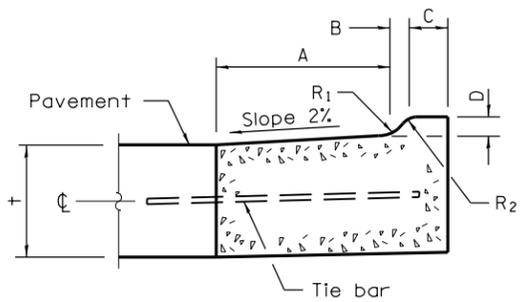
DEPRESSED CURB (TYPICAL)



DEPRESSED CURB ADJACENT TO CURB RAMP ACCESSIBLE TO THE DISABLED



ADJACENT TO PCC BASE COURSE WITH HMA SURFACING



M-2.06 (M-5.15) and M-2.12 (M-5.30)

TABLE OF DIMENSIONS BARRIER CURB					
TYPE	A	B	C	D	R ₁
B-6.12 (B-15.3)	12 (300)	1 (25)	6 (150)	6 (150)	1 (25)
B-6.18 (B-15.45)	18 (450)	1 (25)	6 (150)	6 (150)	1 (25)
B-6.24 (B-15.60)	24 (600)	1 (25)	6 (150)	6 (150)	1 (25)
B-9.12 (B-22.30)	12 (300)	2 (50)	5 (125)	9 (225)	1 (25)
B-9.18 (B-22.45)	18 (450)	2 (50)	5 (125)	9 (225)	1 (25)
B-9.24 (B-22.60)	24 (600)	2 (50)	5 (125)	9 (225)	1 (25)

TABLE OF DIMENSIONS MOUNTABLE CURB						
TYPE	A	B	C	D	R ₁	R ₂
M-2.06 (M-5.15)	6 (150)	2 (50)	4 (100)	2 (50)	3 (75)	2 (50)
M-2.12 (M-5.30)	12 (300)	2 (50)	4 (100)	2 (50)	3 (75)	2 (50)
M-4.06 (M-10.15)	6 (150)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-4.12 (M-10.30)	12 (300)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-4.18 (M-10.45)	18 (450)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-4.24 (M-10.60)	24 (600)	4 (100)	3 (75)	4 (100)	3 (75)	NA
M-6.06 (M-15.15)	6 (150)	6 (150)	2 (50)	6 (150)	2 (50)	NA
M-6.12 (M-15.30)	12 (300)	6 (150)	2 (50)	6 (150)	2 (50)	NA
M-6.18 (M-15.45)	18 (450)	6 (150)	2 (50)	6 (150)	2 (50)	NA
M-6.24 (M-15.60)	24 (600)	6 (150)	2 (50)	6 (150)	2 (50)	NA

GENERAL NOTES

The bottom slope of combination curb and gutter constructed adjacent to pcc pavement shall be the same slope as the subbase or 6% when subbase is omitted.

+ = Thickness of pavement.

Longitudinal joint tie bars shall be No. 6 (No. 19) at 24 (600) centers in accordance with details for longitudinal construction joint shown on Standard 420001.

A minimum clearance of 2 (50) between the end of the tie bar and the back of the curb shall be maintained.

The dowel bars shown in contraction joints will only be required for monolithic construction.

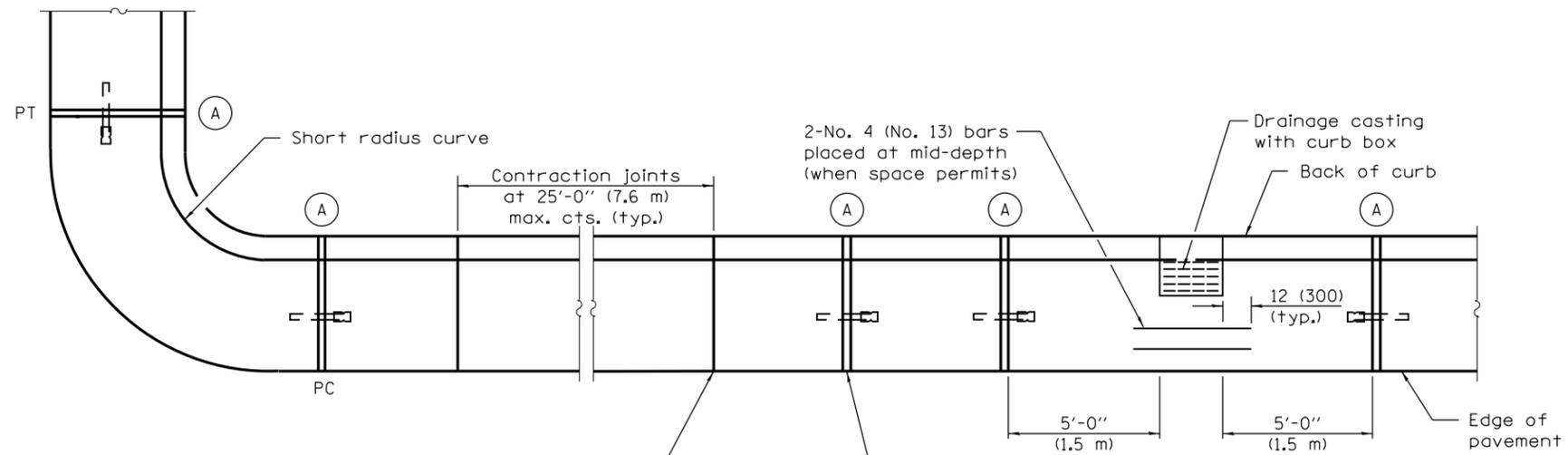
All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-13	Added general note regarding requirement for dowel bars.
1-1-09	Switched units to English (metric).

CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER
(Sheet 1 of 2)

STANDARD 606001-05

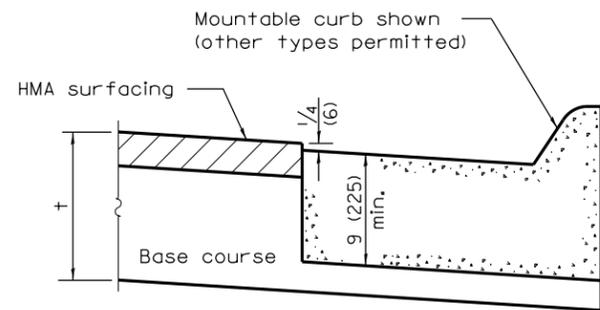
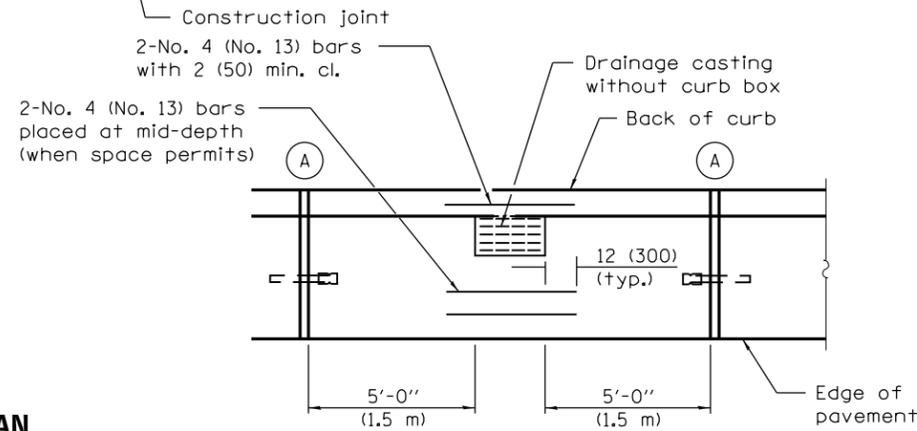
Illinois Department of Transportation
 PASSED January 1, 2013
 Michael Brand
 ENGINEER OF POLICY AND PROCEDURES
 APPROVED January 1, 2013
 ENGINEER OF DESIGN AND ENVIRONMENT
 ISSUED 1-1-97



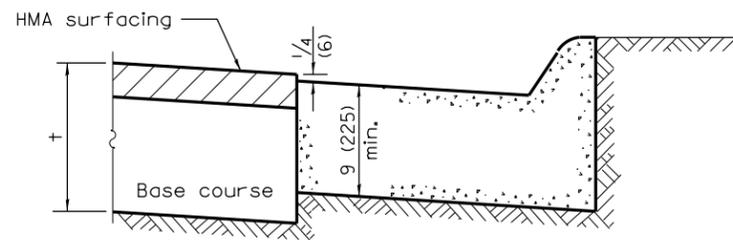
Undoweled contraction joint (typ.) construction options:

1. Form with 1/8 (3) thick steel template 2 (50) deep, and seal.
2. Saw 2 (50) deep at 4 to 24 hours, and seal.
3. Insert 3/4 (20) thick preformed joint filler full depth and width.

PLAN

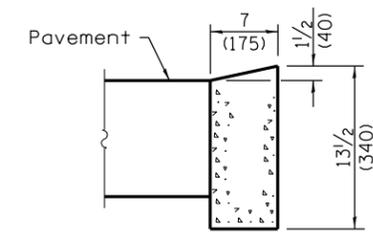


ON DISTURBED SUBGRADE

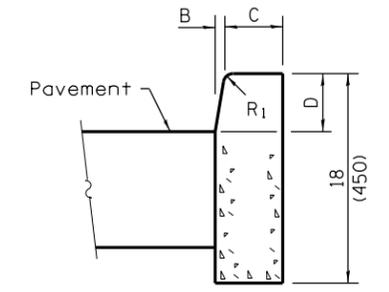


ON UNDISTURBED SUBGRADE

ADJACENT TO FLEXIBLE PAVEMENT

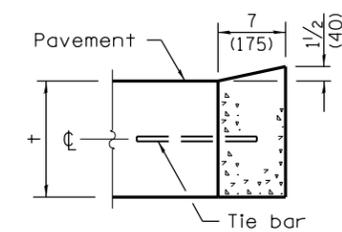


DEPRESSED CURB

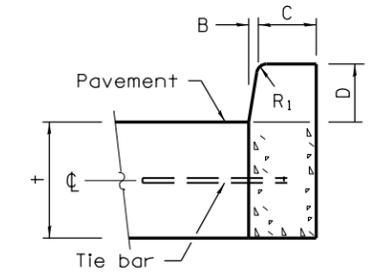


BARRIER CURB

ADJACENT TO FLEXIBLE PAVEMENT



DEPRESSED CURB



BARRIER CURB

ADJACENT TO PCC PAVEMENT OR PCC BASE COURSE

CONCRETE CURB TYPE B

**CONCRETE CURB TYPE B
AND COMBINATION
CONCRETE CURB AND GUTTER**
(Sheet 2 of 2)

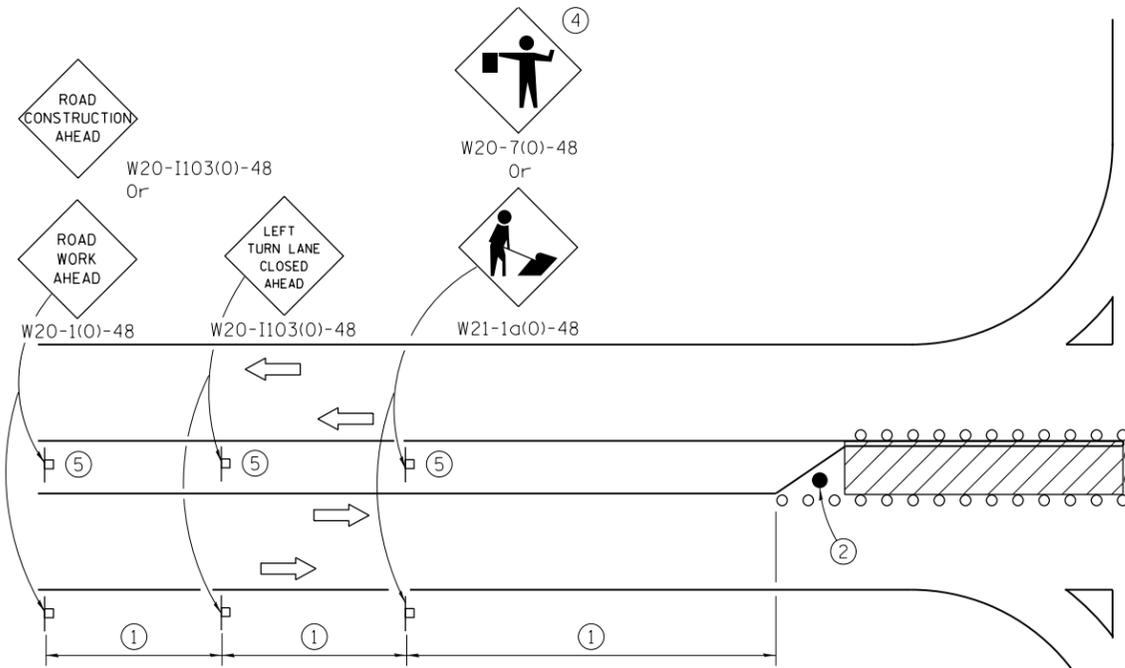
STANDARD 606001-05

Illinois Department of Transportation

PASSED January 1, 2013
Michael Brand
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2013
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

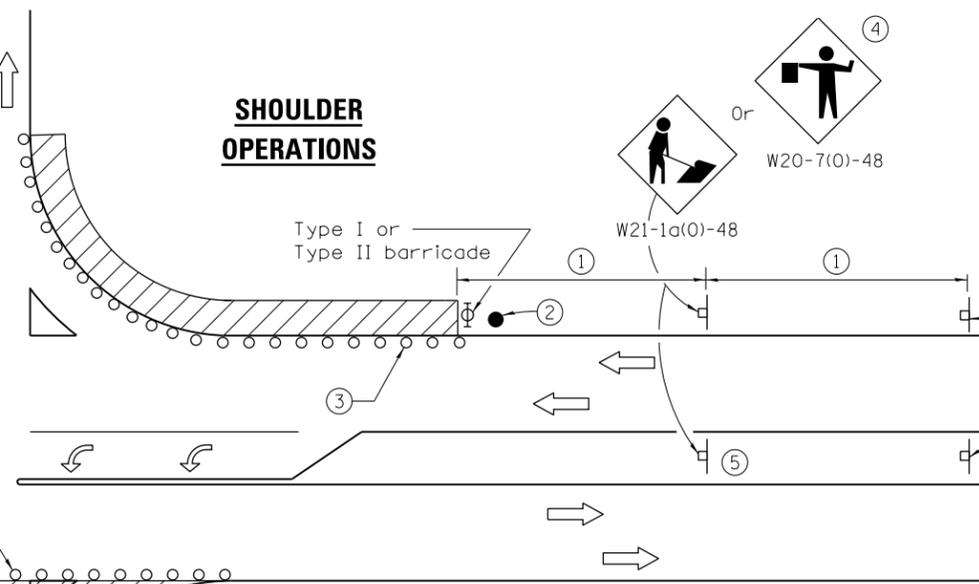


**LEFT TURN LANE OR CENTER
MEDIAN OPERATIONS**

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

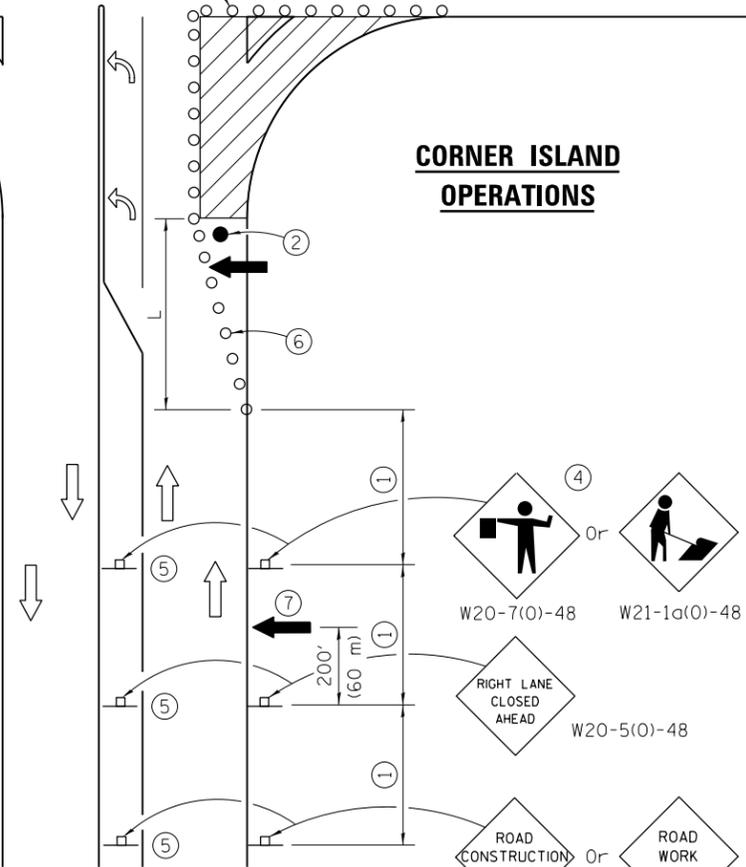
SYMBOLS

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



**SHOULDER
OPERATIONS**

**CORNER ISLAND
OPERATIONS**



W20-1103(0)-48 W20-1(0)-48 for contract maintenance construction and utility projects
 W20-7(0)-48 W21-1a(0)-48
 W20-5(0)-48
 W20-1103(0)-48 W20-1(0)-48 for contract maintenance construction and utility projects

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

GENERAL NOTES

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

Calculate L as follows:

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

W = Width of offset in feet (meters).
 S = Normal posted speed mph (km/h).

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

DATE	REVISIONS
1-1-12	Revised flagger sign. Omitted W21-1110 sign.
1-1-11	Added advanced arrow board and note ⑦.

**URBAN LANE CLOSURE,
MULTILANE INTERSECTION**

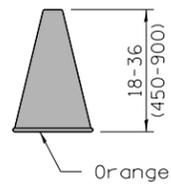
STANDARD 701701-08

Illinois Department of Transportation

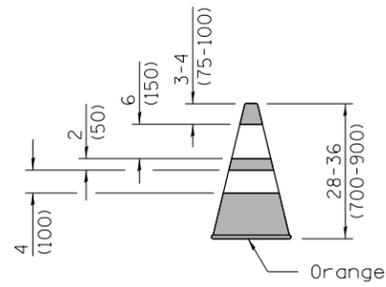
APPROVED January 1, 2012
Annelle Q. Davis
 ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2012
Scott S. S. S.
 ENGINEER OF DESIGN AND ENVIRONMENT

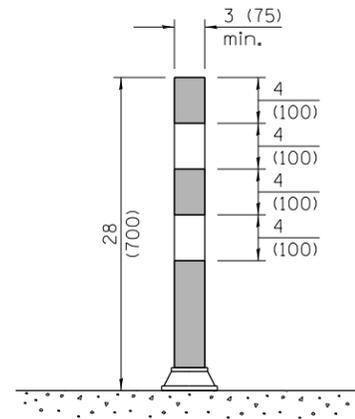
ISSUED 1-1-97



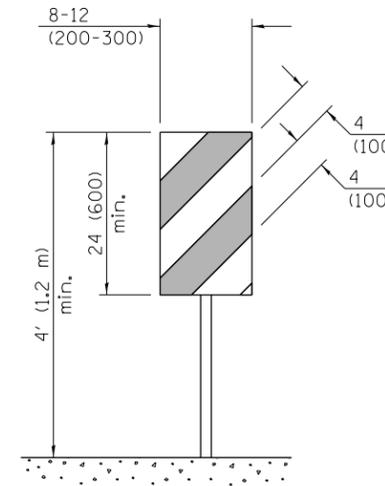
CONE



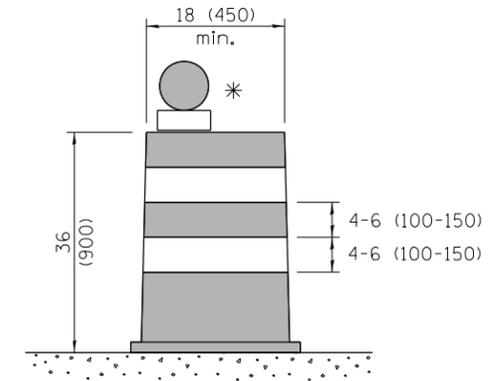
REFLECTORIZED CONE



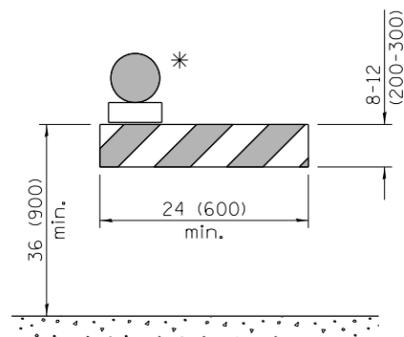
FLEXIBLE DELINEATOR



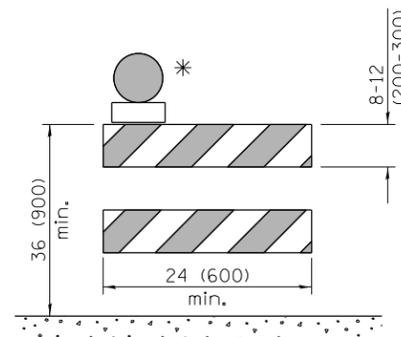
VERTICAL PANEL
POST MOUNTED



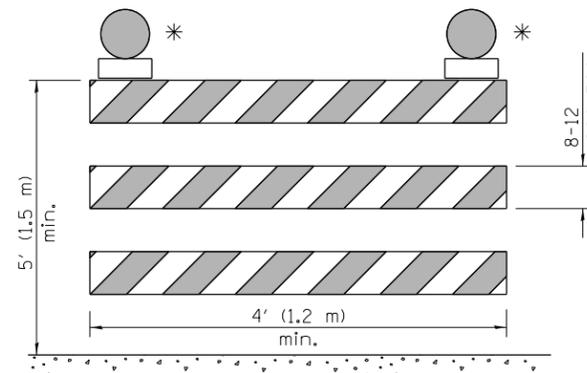
DRUM



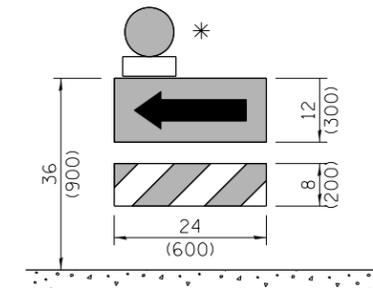
TYPE I BARRICADE



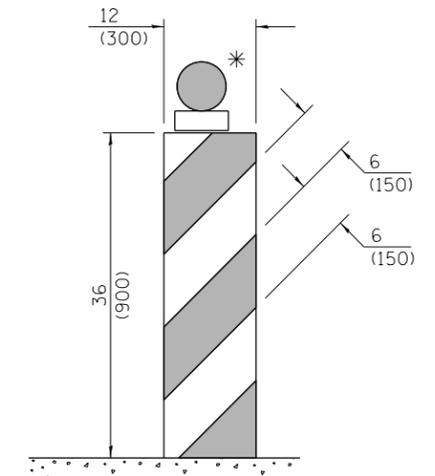
TYPE II BARRICADE



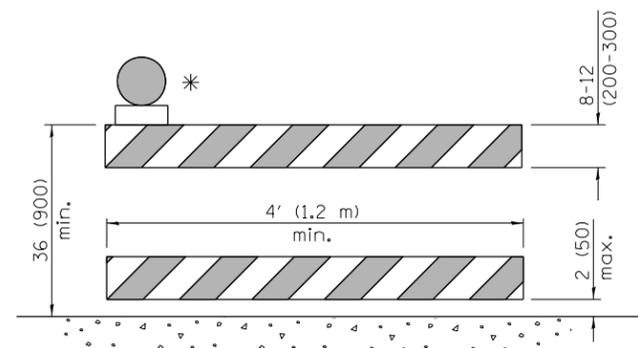
TYPE III BARRICADE



DIRECTION INDICATOR
BARRICADE



VERTICAL BARRICADE



DETECTABLE PEDESTRIAN
CHANNELIZING BARRICADE

* Warning lights (if required)

GENERAL NOTES

All heights shown shall be measured above the pavement surface.

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

DATE	REVISIONS
1-1-12	Added DETECTABLE PEDESTRIAN CHANNELIZING BARRICADE.
1-1-09	Switched units to English (metric). Omitted light on vertical panel.

TRAFFIC CONTROL
DEVICES

(Sheet 1 of 3)

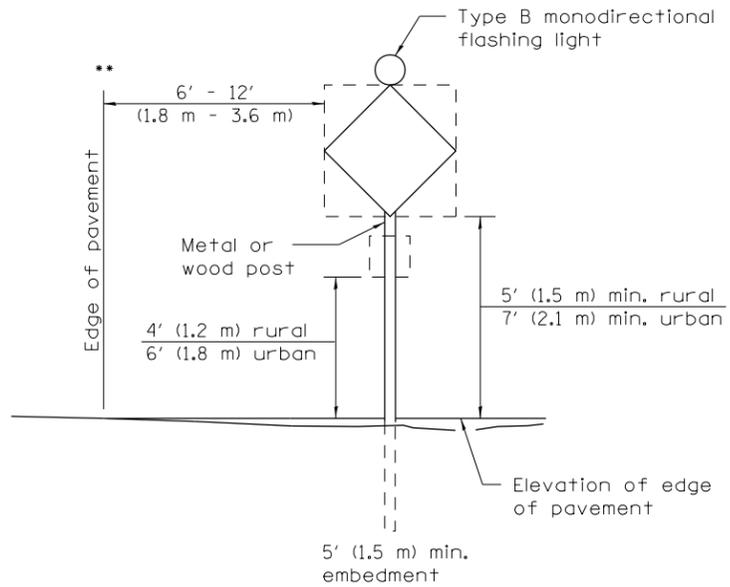
STANDARD 701901-02

Illinois Department of Transportation

APPROVED Justin Mann January 1, 2012
ENGINEER OF OPERATIONS

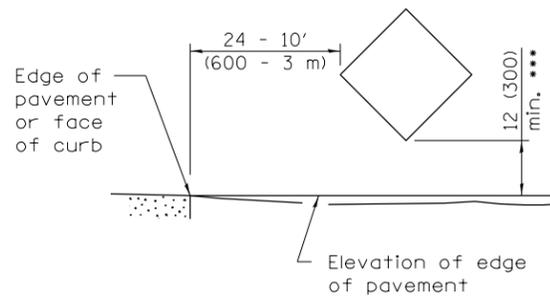
APPROVED Scott Esch January 1, 2012
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 46-1-1 03/05/11



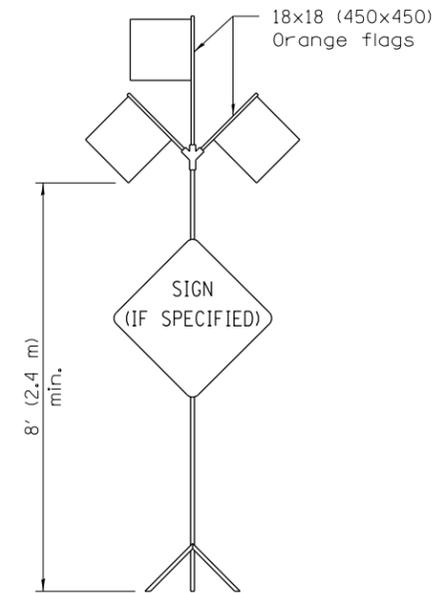
POST MOUNTED SIGNS

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



SIGNS ON TEMPORARY SUPPORTS

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



HIGH LEVEL WARNING DEVICE



G20-1(0)-6036

G20-2a(0)-6024

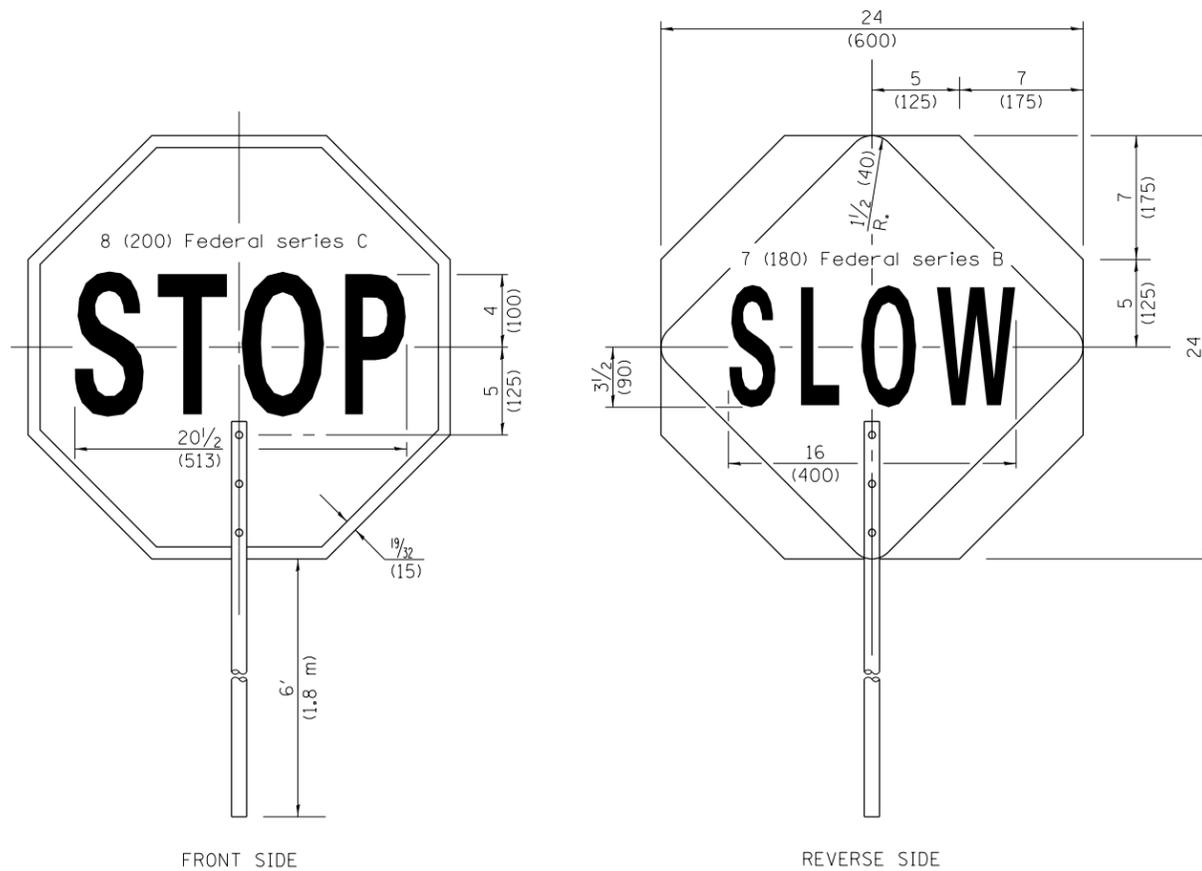
This signing is required for all projects 2 miles (3200 m) or more in length.

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

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

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

WORK LIMIT SIGNING



FLAGGER TRAFFIC CONTROL SIGN

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

TRAFFIC CONTROL DEVICES

(Sheet 2 of 3)

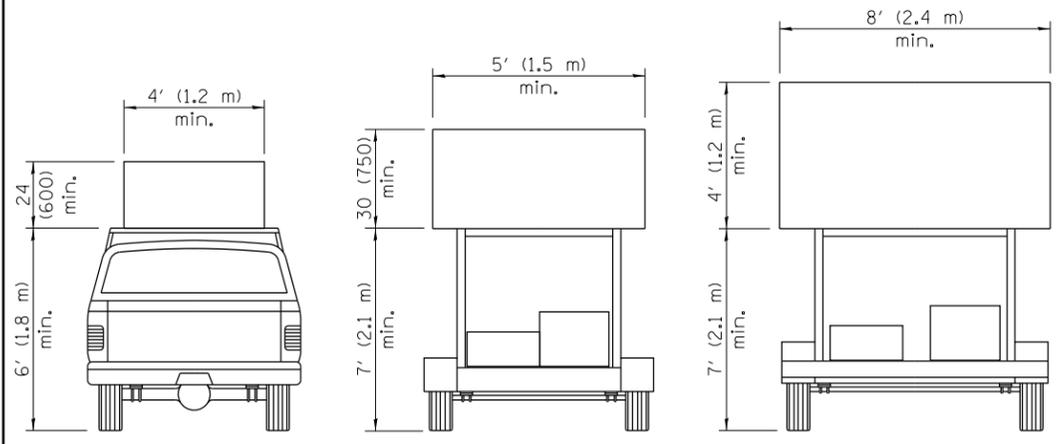
STANDARD 701901-02

Illinois Department of Transportation

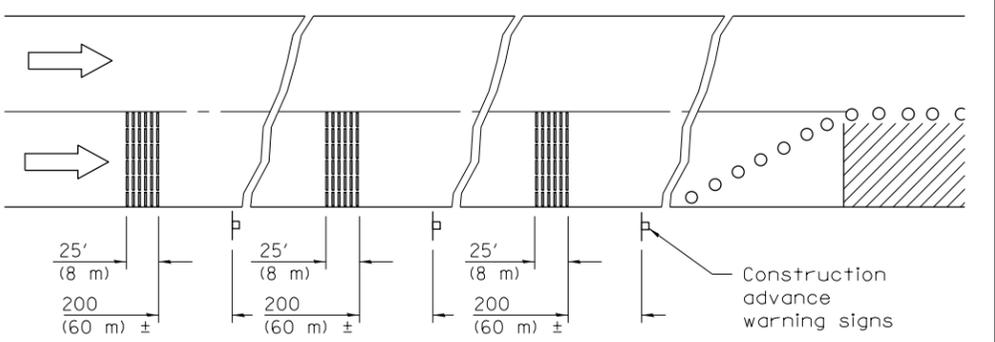
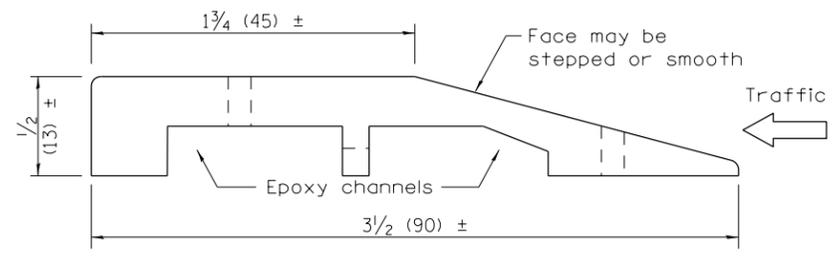
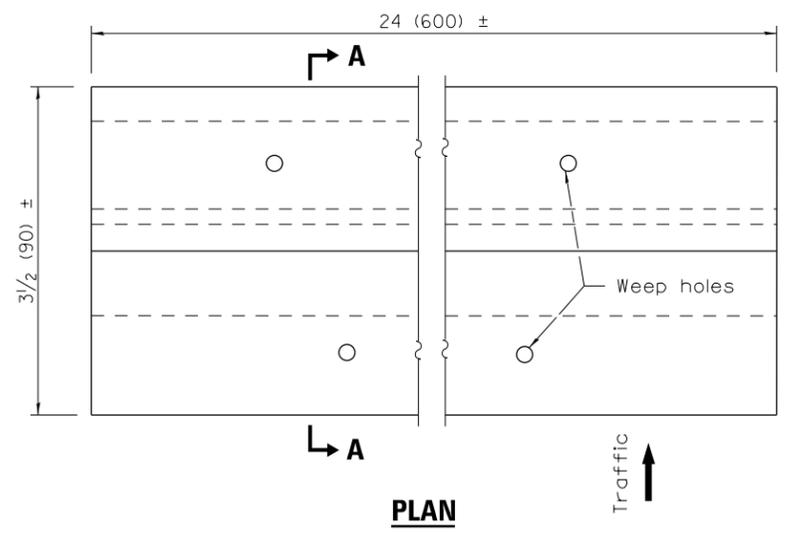
APPROVED January 1, 2012
Dustin Mann
 ENGINEER OF OPERATIONS

APPROVED January 1, 2012
Scott Esch
 ENGINEER OF DESIGN AND ENVIRONMENT

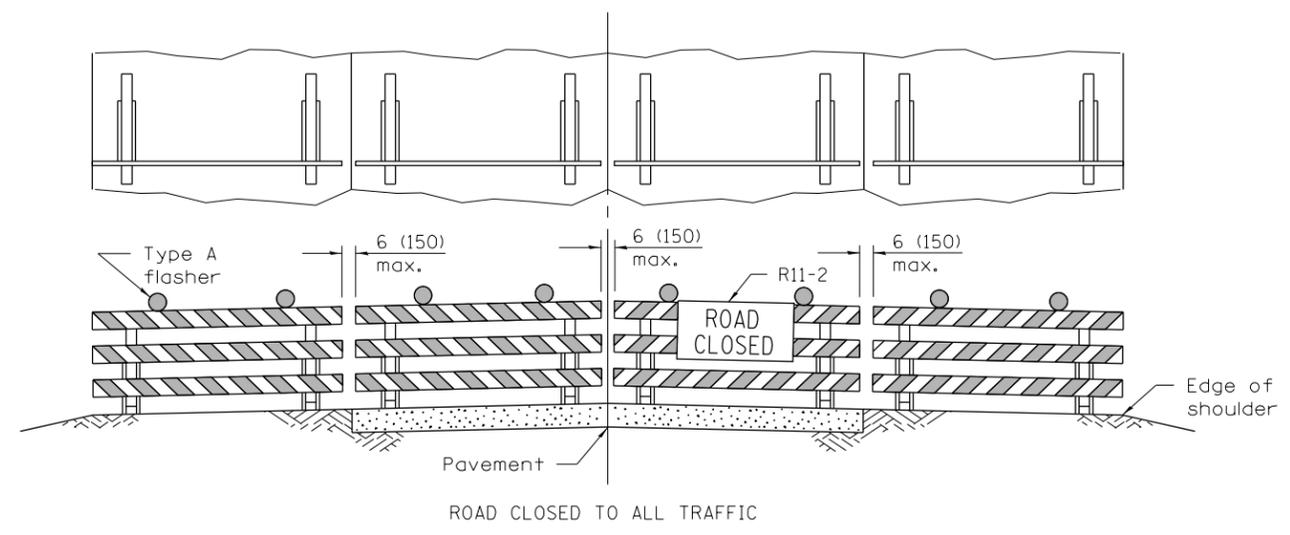
ISSUED 1-1-97



ARROW BOARDS

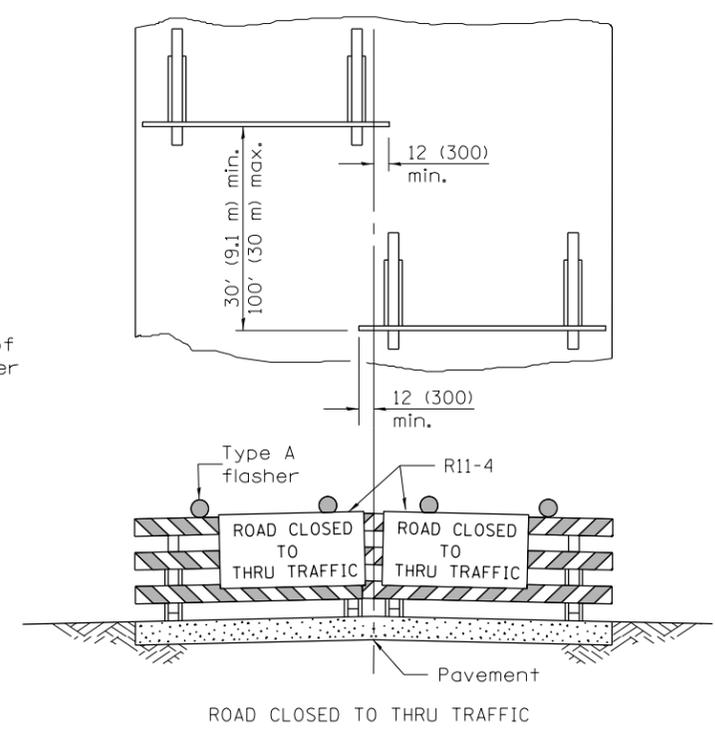


TEMPORARY RUMBLE STRIPS



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

TYPICAL APPLICATIONS OF TYPE III BARRICADES CLOSING A ROAD



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

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

Illinois Department of Transportation

APPROVED January 1, 2012
Dustin Mann
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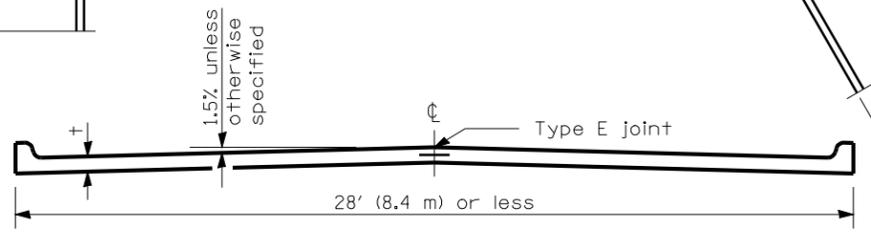
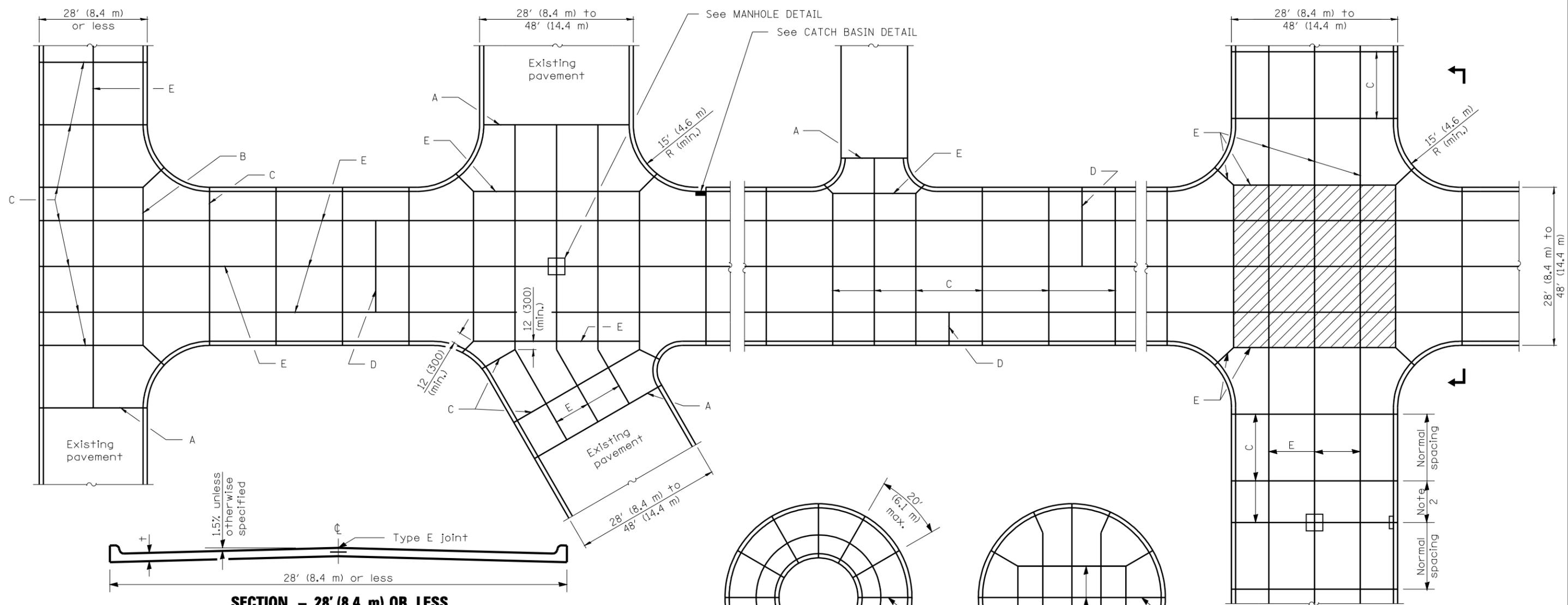
APPROVED January 1, 2012
Scott Esdaile
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ISSUED 1-1-97
 46-1-97

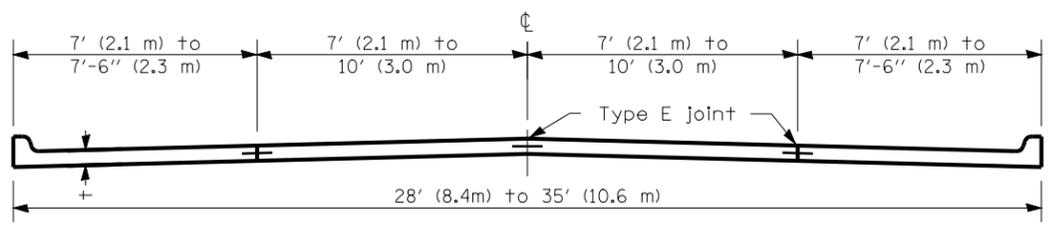
TRAFFIC CONTROL DEVICES

(Sheet 3 of 3)

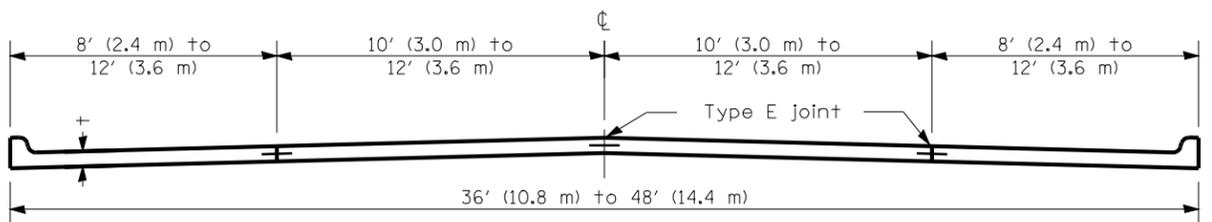
STANDARD 701901-02



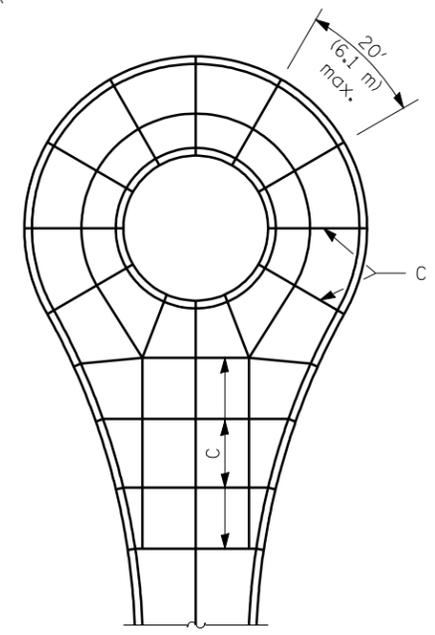
SECTION - 28' (8.4 m) OR LESS



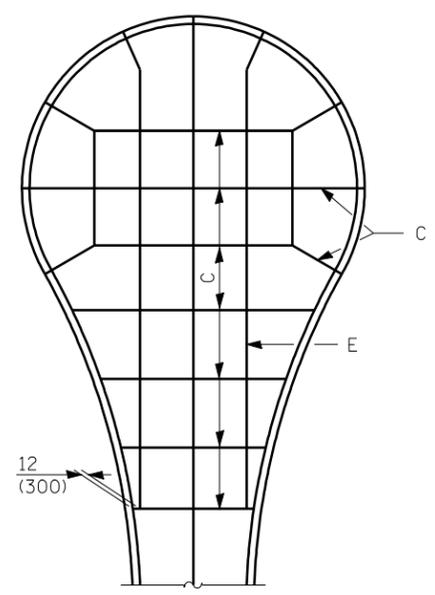
SECTION - 28' (8.4 m) TO 35' (10.6 m) WIDTH



SECTION - 36' (10.8 m) TO 48' (14.4 m) WIDTH



CUL DE SAC OPEN CENTER



CUL DE SAC FULLY PAVED

See G.N.

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

Illinois Department of Transportation

APPROVED January 1, 2009
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APPROVED January 1, 2009
Lee E. Han
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ISSUED 1-1-97

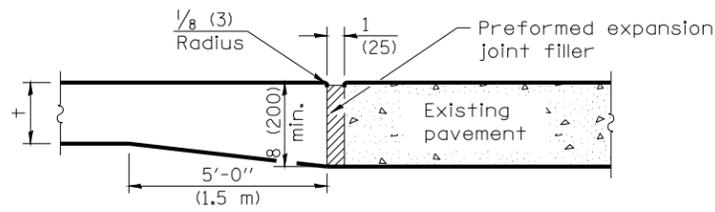
+ = See typical cross section on plans for thickness

DATE	REVISIONS
1-1-09	Switched units to English (metric).
8-1-05	Corrected manhole and catch basin notes on Sheet 1.

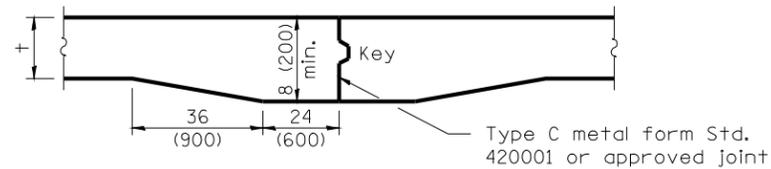
PCC PAVEMENT SPECIAL (NONREINFORCED)

(Sheet 1 of 2)

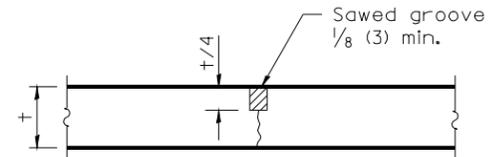
STANDARD B.L.R. 10-6



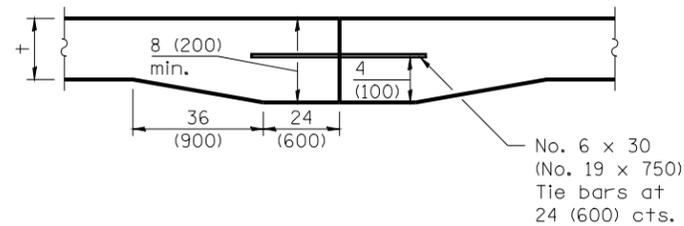
**TYPE A
EXPANSION JOINT**



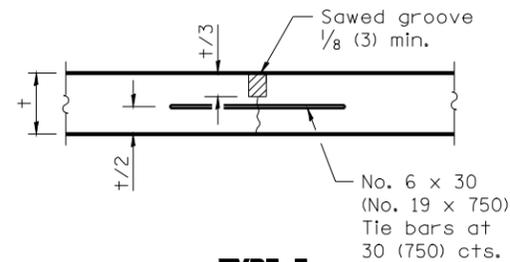
**TYPE B
KEYED JOINT**



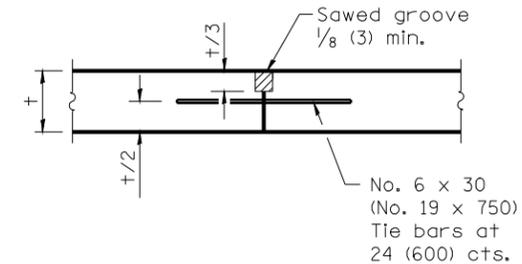
**TYPE C
SAWED TRANSVERSE JOINT**



**TYPE D
TIED TRANSVERSE CONSTRUCTION JOINT**



**TYPE E
SAWED LONGITUDINAL JOINT**



**TYPE E
LONGITUDINAL CONSTRUCTION JOINT**

GENERAL NOTES

All catch basins shall be separated from the pavement and curb by boxing out as shown in the detail. Manhole castings within the pavement limits shall be boxed in a like manner except when telescoping type castings are used.

When a joint falls within 5 ft. (1.5 m) of or contacts basins, manholes, or other structures, shorten one or more panels either side of opening to permit joint to fall at the corners of the box out.

When specified, roundouts as shown on Standard 420111 shall be used in lieu of the manhole detail shown herein.

All transverse joints must extend through curbs and be continuous across pavement, except tied transverse construction joints. Expansion joints will be required as shown on the plans.

When specified, the pavement structure thickness at intersections shall be increased. This requirement generally will occur when the design traffic through the intersection exceeds the typical design of the pavement structure either side of the intersection.

Joints shall be sawed to a depth of t/4 for transverse joints and t/3 for longitudinal joints. Saw joints shall be sealed with material meeting the requirements of Section 1050 of the Standard Specifications.

This alternate construction is at the Contractor's option and shall be constructed in accordance with Section 606 of the Standard Specifications. The combination concrete curb and gutter shall be measured in place and the area computed in sq. yards (sq. meters). This work will be paid for at the contract unit price per sq. yards (sq. meters) for portland cement concrete pavement special with integral curb of the thickness specified and shall include all materials and labor.

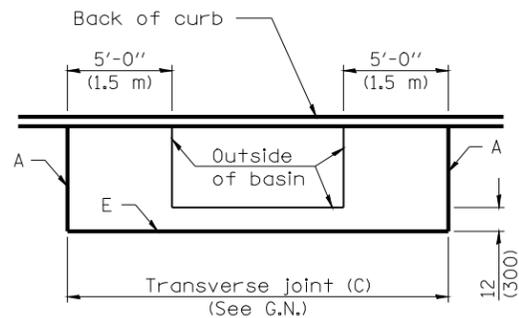
Transverse joint spacing shall not exceed 15 ft. (4.6 m).

Construct TYPE D tied transverse construction joint when construction joint does not fall at a TYPE C sawed transverse joint.

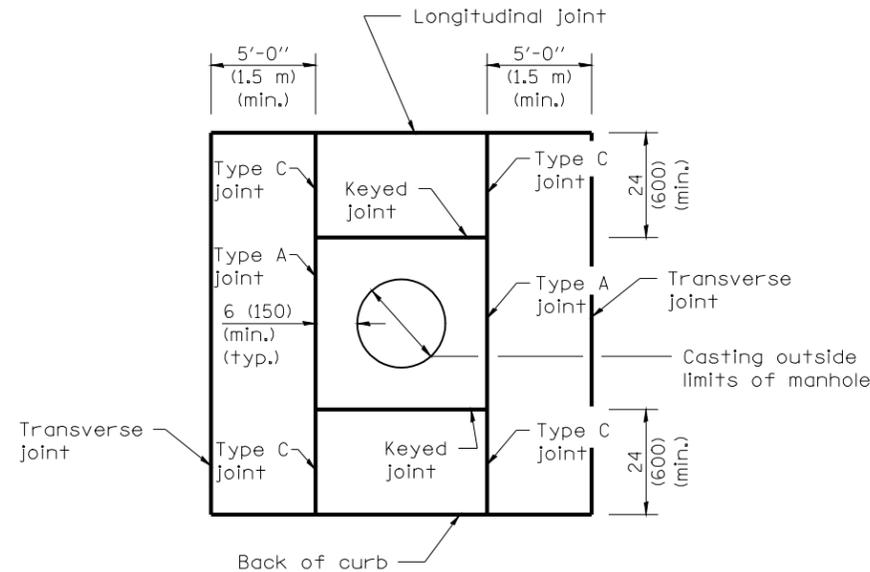
**PCC PAVEMENT SPECIAL
(NONREINFORCED)**

(Sheet 2 of 2)

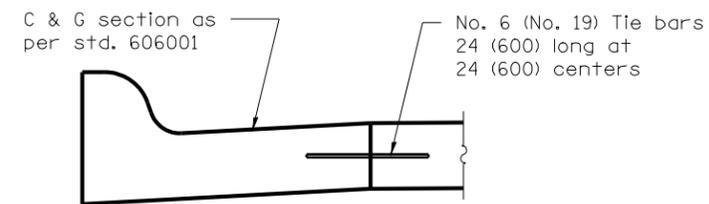
STANDARD B.L.R. 10-6



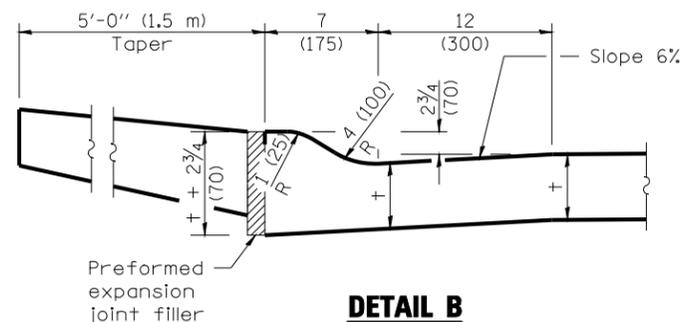
CATCH BASIN DETAIL



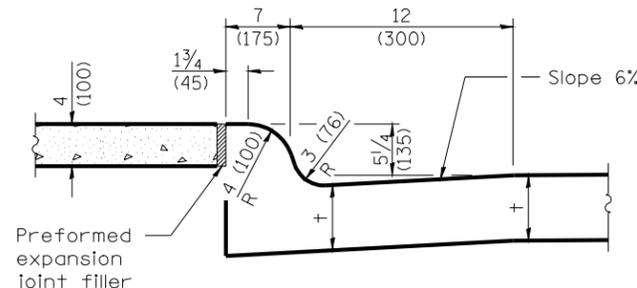
**MANHOLE DETAIL
Showing Joint types**



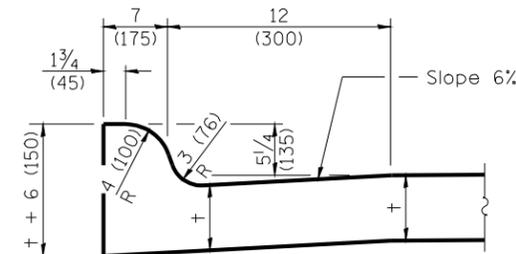
**COMB. CURB & GUTTER DETAIL
Alt. const. see G.N.**



DETAIL B



DETAIL A

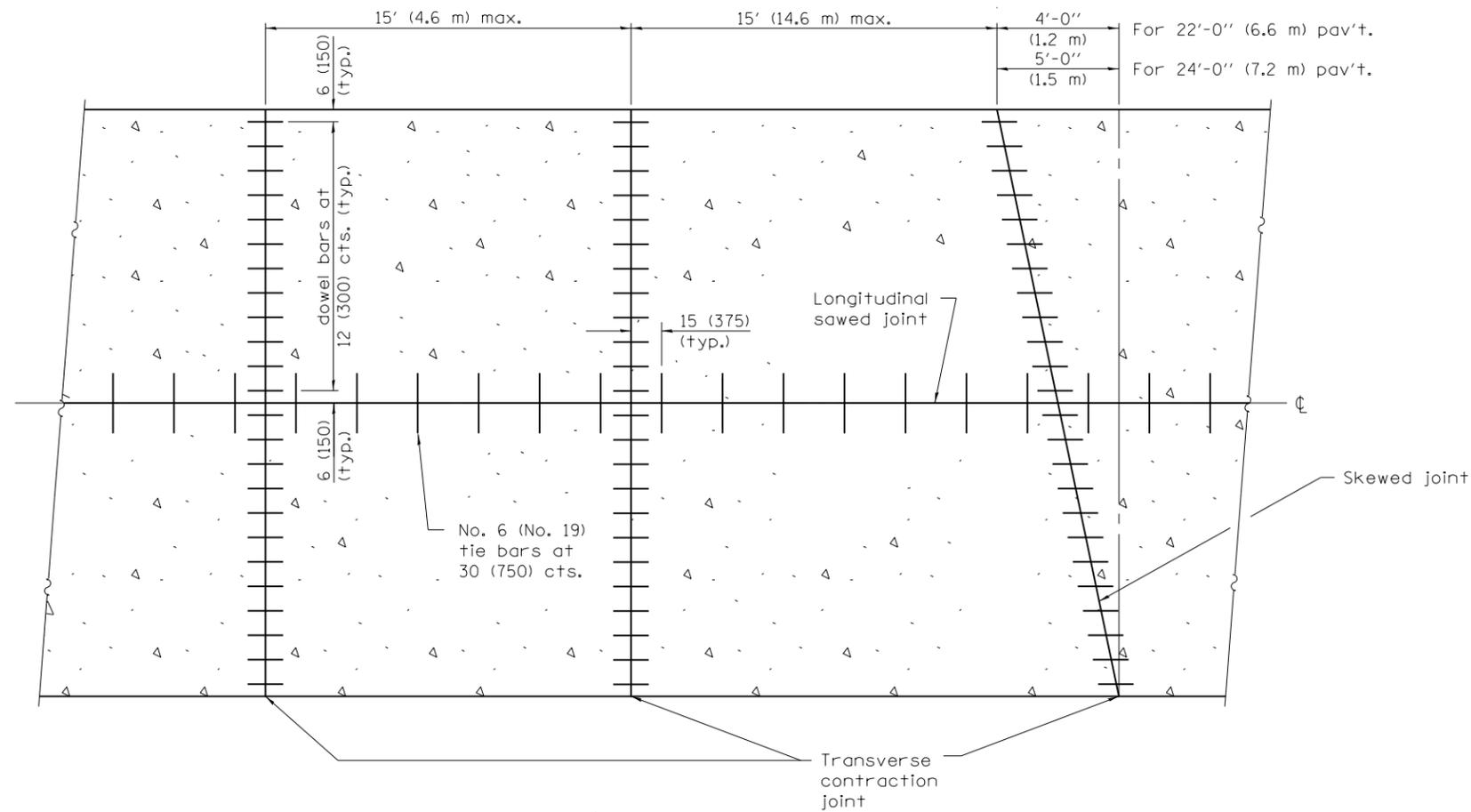


INTEGRAL CURB

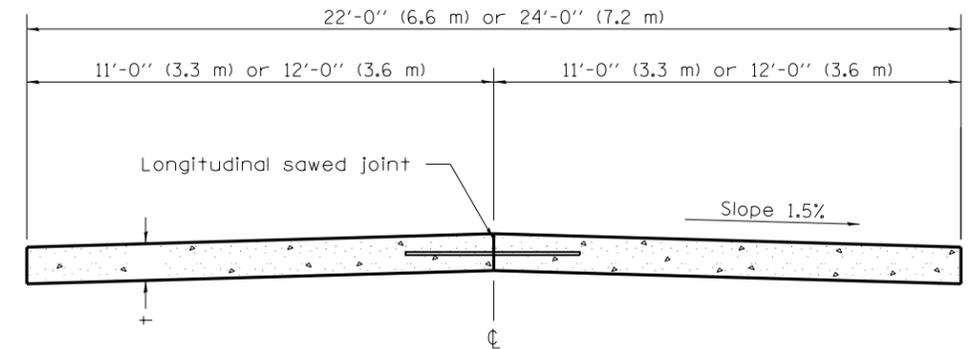
See DETAIL A for crosswalks and DETAIL B for driveways.

Illinois Department of Transportation
 APPROVED January 1, 2009
Charles J. Longwell
 ENGINEER OF LOCAL ROADS AND STREETS
 APPROVED January 1, 2009
Lee E. Han
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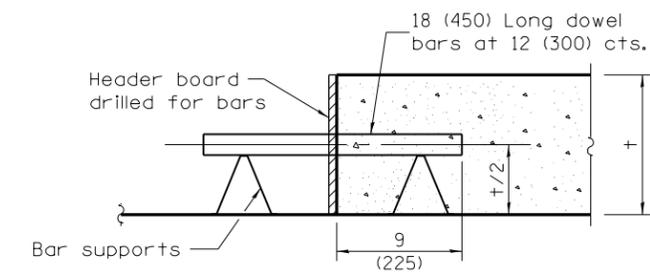
ISSUED 1-1-97



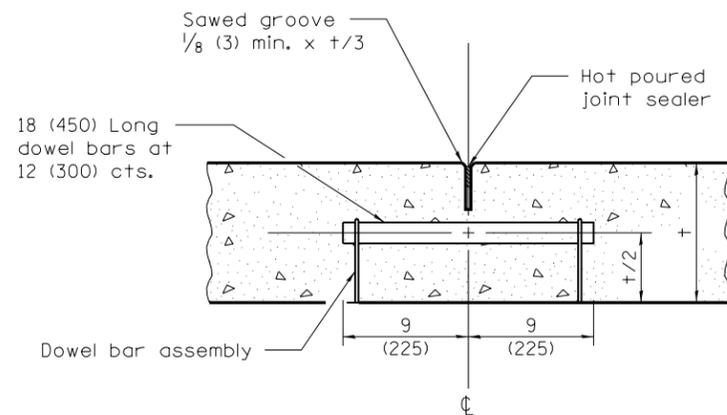
PLAN OF PAVEMENT



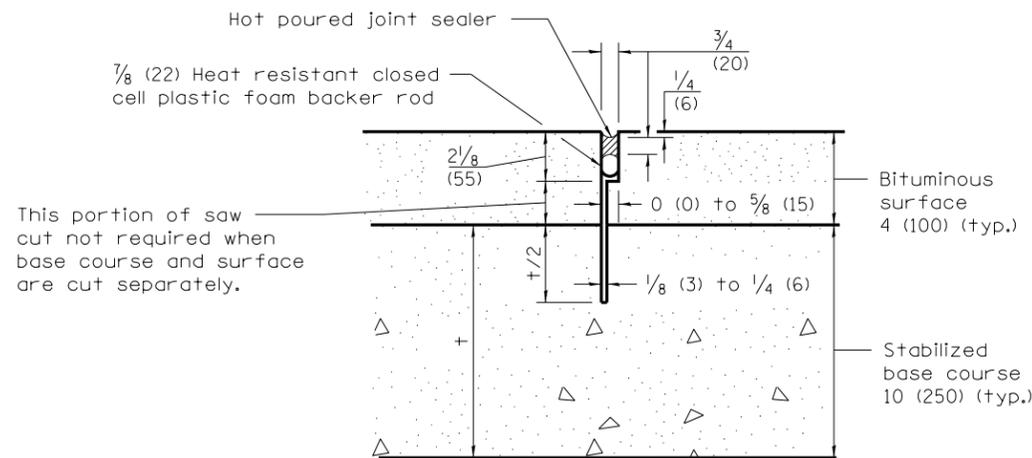
CROSS SECTION OF PAVEMENT



TRANSVERSE CONSTRUCTION JOINT



TRANSVERSE CONTRACTION JOINT



TRANSVERSE CONTRACTION JOINT
(For CAM, CFA and LFA Base Course Mixtures)

This portion of saw cut not required when base course and surface are cut separately.

GENERAL NOTES

See Standard 420001 for details of Transverse Expansion Joints, Longitudinal Sawed Joints and Longitudinal Construction Joints.

Skewed joints shall be used when specified by Special Provisions.

t = Pavement thickness (See Typical Cross Section)

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

DOWEL BAR TABLE

PAVEMENT THICKNESS	DOWEL BAR DIAMETER
8 (200) or greater	1/2 (38)
7 (175) thru 7.99 (199)	1/4 (32)
Less than 7 (175)	1 (25)

DATE	REVISIONS
1-1-09	Switched units to English (metric).
8-1-05	Deleted sheet 2 and minor corrections to remaining joint details.

PORTLAND CEMENT CONCRETE PAVEMENT (NONREINFORCED)

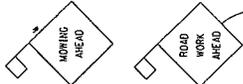
STANDARD B.L.R. 14-10

Illinois Department of Transportation

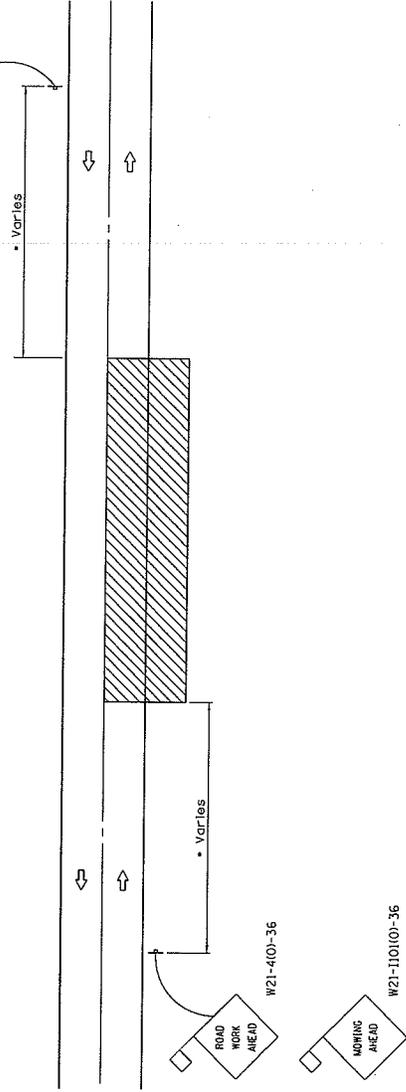
APPROVED January 1, 2009
Charles J. Longwell
ENGINEER OF LOCAL ROADS AND STREETS

APPROVED January 1, 2009
Ken E. Han
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



• Minimum distance between the sign and the work area is 700' (215 m). Maximum distance to be determined by the local authority, but in no case to exceed the length of one-half day's operation or 4 miles (6 km), whichever is less.



**TWO-LANE, TWO-WAY TRAFFIC
RURAL OPERATIONS
DAY OPERATIONS ONLY**

SYMBOLS

- Work area
- Sign with 18x18 (450x450) mm, orange flag attached.

TYPICAL APPLICATIONS

- MOWING
- SPREADING AGGREGATE
- WEED SPRAYING
- SURFACE MAINTENANCE
- BITUMINOUS RESURFACING
- SHOULDER REPAIR
- CLEANING DITCHES

GENERAL NOTES

Maintenance operations shall be confined to one traffic lane, leaving the opposite lane open to traffic. At least 500' (150 m) of both traffic lanes shall be available for traffic movement between work areas at intervals not greater than 1000' (300 m).

When operations are on the pavement and stopping or turning at a speed less than 4 mph (6 km/h), ONE LANE AHEAD, or other appropriate sign, shall be installed in each direction between the ROAD WORK AHEAD sign and the work area. The distance between this sign and the work area shall be a minimum of 400' (120 m) but in no case to exceed the length of one-half day's operation or 4 miles (6 km), whichever is less. The distance between the two signs shall be approximately 400' (120 m).

All signs are to be removed at completion of the day's operation.

Any unattended obstacle, excavation, or pavement drop off greater than 3' (75) in the work area shall be protected by Type I or Type II barricades with flashing lights.

Longitudinal dimensions may be adjusted slightly to fit field conditions.

All vehicles, equipment, men, and their activities are restricted at all times to one side of the pavement.

Flashing lights or rotating beacons are required for all maintenance vehicles while in operation.

Applicable operations illustrated in Standard 701301 may be used when operations do not exceed 15 minutes on the pavement or 60 minutes on the shoulder respectively.

All warning signs shall have minimum dimensions of 36x36 (900x900) and have black legend on an orange reflectorized background.

When fluorescent signs are used, orange flags are not required.

This case is for use on rural local roads where the local authority considers this protection to be appropriate for the specific job conditions.

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

Illinois Department of Transportation
 APPROVED JANUARY 1, 2009
 ENGINEER OF LOCAL ROADS AND STREETS
 APPROVED JANUARY 1, 2009
 ENGINEER OF DESIGN AND ENVIRONMENT

DATE	REVISIONS
1-1-03	Switched units to English (metric). Moved one General Note.
1-1-99	Delete ROW Line.

**TRAFFIC CONTROL DEVICES-
DAY LABOR MAINTENANCE**

STANDARD B.L.R. 18-5