AN ORDINANCE ADOPTING THE	)	**ORDINANCE BILL NO. 4**
2008 OREGON STANDARD SPECIFICATIONS	)	**for 2009**
FOR CONSTRUCTION AND THE CITY OF	)	
LEBANON SUPPLEMENTAL SPECIFICATIONS	)	**ORDINANCE NO. 2774**

WHEREAS, it is desirable and in the public interest that the construction of public improvements and the construction of private improvements within the city right-of-way conform to contemporary standards of engineering and safety; and

WHEREAS, construction standards not formally adopted through action by the governing body of a local agency may be subject to legal challenge by parties affected by the standards; and

WHEREAS, the City Engineer has recommended the 2008 Oregon Standard Specifications for Construction, APWA Oregon Chapter and the Oregon Department of Transportation as a widely recognized and appropriate standard to govern construction in Lebanon;

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF LEBANON AS FOLLOWS:

Section 1. The 2008 Oregon Standard Specifications for Construction, attached hereto and incorporated by this reference as Exhibit "A" are hereby adopted as the standards for construction within the city.

Section 2. The City of Lebanon Supplemental Specifications, attached and incorporated by this reference as Exhibit "B" are adopted by the City to supplement the 2008 Standard Specifications for Construction, Exhibit "A".

Section 3. Except as otherwise provided by written contracts with the City or by supplemental specifications and plans authorized and maintained by the City Engineer, all public improvements, all private improvements located within or affecting city rights-of-way or easements, and all improvements affecting city-owned utilities shall be constructed, reconstructed, repaired, and maintained in accordance with 2008 Oregon Standard Specifications of Construction, APWA Oregon Chapter and the Oregon Department of Transportation, manual published jointly by the American Public Works Association, Oregon Chapter.

Section 4. For the purpose of administration of the provisions of the manual, the term "Owner" shall refer to the city and the term "Contractor" shall refer to the person, persons or firm responsible for the construction, reconstruction, repair, and maintenance of the improvements.

Section 5. Exceptions and additions to the plans and specifications contained in the manual may be authorized or required by the City Engineer. With regard to a particular project or class of project, the City Engineer may disapprove any specification or material otherwise permitted if, in the engineer's opinion, the use of the specification or material would not be suitable or would not conform with the highest standards of safety, engineering and construction practice.

Passed by the Council by a vote of 4 for and 0 against and approved by the Mayor this 8th day of April, 2009.

Robert Elliott

Kenneth I. Toomb, Mayor ☐
Robert Elliott, Council President ☑

ATTEST:

Linda Kaser

Linda Kaser, City Clerk/Recorder

EXHIBIT A & B

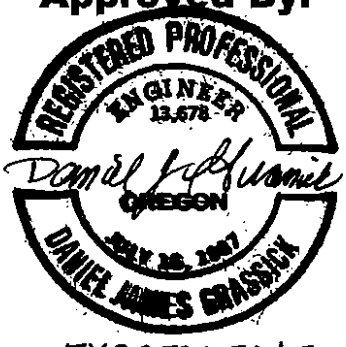
CITY OF LEBANON
It's easier from here.

2008
SUPPLEMENTAL STANDARD SPECIFICATIONS

TO THE

2008 Oregon Standard Specifications for Construction

Approved By:



EXPIRES: JUN 30 2009

City Engineer
City of Lebanon

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PART 00100 - GENERAL REQUIREMENTS

Section 00110 – Organization, Conventions, Abbreviations and Definitions

The General Requirements Section shall be administered in conformance with Section 00110 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Abbreviations

00110.10 Abbreviations – Add the following items:

CWCA – Certification of Work Completion and Acceptance
SPCC – Spill Prevention Control and Countermeasures

Definitions

00110.20 Definitions – Replace or add the following definitions:

As-Built Documents – A complete set of Contract Documents, to include a full-size set of drawings that has recorded in permanent red ink any and all changes, additions, deletions or deviations made during the course of construction. These documents are to be delivered to the Engineer upon completion of the Project.

Bid Booklet – The bound paper version included in the Solicitation Documents, also know as the Proposal

Certification of Work Completion and Acceptance – See **Third Notification**.

Punch List – A detailed list of outstanding construction items issued to the Contractor once construction is substantially completed. This list may include, but is not limited to, construction omissions, damages or other shortcomings that must be remedied before Final Payment or Notice of Final Acceptance.

Submittal – Documentation provided by a Contractor relating to any substantial material or work installed during the course of a project. They shall include but not be limited to, all pertinent manufacture's information, shop drawings, material certifications, test procedures, samples, etc.

Section 00120 – Bidding Requirements and Procedures

The Bidding Requirements and Procedures Section shall be administered in conformance with Section 00120 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

00120.00 Prequalification of Bidders – Delete this subsection and replace with the following:

The Agency will prequalify Bidders according to OAR Chapter 734, Division 10, and OAR 731-005-0025. A Bidder must file for prequalification and pay a non-refundable $50 application or renewal fee. Prequalification must be renewed on an annual basis; it is the responsibility of potential Bidders to maintain a current and accurate prequalification status. Bidders shall make application for prequalification by one of the following methods:

- City of Lebanon Contractor's Prequalification Application or Renewal Application. These forms are available at the following locations:
  City of Lebanon Community Development Center
  853 Main Street
  Lebanon, OR 97355
  Telephone: (541) 258-4271
  Fax: (541) 258-4955

  Prequalification form can be downloaded at the City website at: www.ci.lebanon.or.us

- ODOT Standard Prequalification Forms. These forms are available at the following location:
  ODOT Construction Contracts Unit
  Transportation Building, Room 212
  355 Capitol St. NE
  Salem, OR 97301-3871
  Telephone: (503) 986-3877

Bidders shall return or fax completed forms to the City of Lebanon Community Development Center.

Contracts will only be awarded to Bidders who, prior to the time of Notice of Award, are prequalified in the Class or Classes of Work designated in the Special Provisions, except that a Bidder whose prequalification has been revoked or revised as provided in ORS 279B.125(3) may also be eligible for Award under that statute if the Project was advertised prior to the revocation or revision.

The Agency will regularly evaluate the performance of Contractors on its projects for purposes of responding to reference checks, future prequalification and determinations of responsibility.

00120.01 General Bidding Requirements – Delete this subsection.

00120.05 Requests for Solicitation Documents – Delete this subsection and replace with the following:

Bidders must obtain Solicitation Documents from the following location:
City of Lebanon Community Development Center
853 Main Street
Lebanon, OR 97355
Telephone: (541) 258-4272

Each request must include both the name of the person ordering or obtaining the Solicitation Documents and the name of the Entity intending to use them. (The Agency will add the name of the Entity intending to use the Solicitation Documents to the list of Holders of Bidding Plans.) Bidders are cautioned that only Solicitation Documents obtained from the Agency's Community Development Center may be used to submit Bids.

Informational Plans and Specifications (not for bidding) and copies of the Agency's Supplemental Specifications (based on Oregon Standard Specifications) may be purchased at the Community Development Center. Oregon Standard Specifications may be purchased at the ODOT Contractor Plans Office:

ODOT Contractor Plans Office
Transportation Building, Room 28
355 Capitol St. NE
Salem, OR 97301-3871
Telephone: (503) 986-3720

00120.16 Material, Equipment and Method Substitutions

(a) Add the following sentence to this subsection:

Written requests are to be submitted on the Request For Information (RFI) form included in the Appendix of the Bid Booklet.

00120.30 Changes to Plans, Specifications, or Quantities Before Opening of Bids – Replace this subsection with the following:

The Agency reserves the right to issue Addenda making changes or corrections to the Plans, Specifications, or quantities. The Agency will provide Addenda by fax, delivery service or mail to all holders of bidding plans.

The Agency will not be responsible for failure of bidders to receive addenda sent as described in the preceding paragraph. Bids may be rejected if opened and found by the Agency not to be based on Addenda issued before bids were opened.

00120.40 Preparation of Bid:

(a) General – Delete this subsection and replace with the following:

The Bidders shall not alter, in any manner, the paper documents bound within the Bid Section. Bidders shall complete the certifications and statements included in the Bid Section of the Bid Booklet according to the instructions. Signature of the Bidders authorized representative constitutes the Bidders confirmation of and agreement to all certifications and statements contained in the Bid Booklet. Entries on the documents shall be in ink or typed. Signatures and initials shall be in ink, except for changes submitted by facsimile (FAX) transmission as provided by 00120.60 (in which case FAX signatures shall be considered originals).

The Bidder shall properly complete and bind all of the paper documents in the Bid Section, as specified in 00120.10, between the front and back covers of the Bid Booklet, except that the Bid Bond is not required if another permissible type of Bid guaranty is provided. (see 00120.40(e)).

(c) Bid Schedule Entries – Delete this subsection and replace with the following:

Using figures, Bidders shall fill in the blank spaces in the Bid Schedule. For each item in the Bid Schedule, Bidders shall enter the unit price and the product of the unit price multiplied by the quantity given. The unit price shall contain no more than two decimal places to the right of the decimal point, and shall be expressed in U.S. dollars and cents. Bidders shall also enter the total amount of the Bid obtained by adding amounts for all items in the Bid Schedule. Corrections or changes of item entries shall be in ink, with the incorrect entry lined out, and correct entry entered and initialed.

(d) Bidders Address and Signature Pages – Delete this subsection and replace with the following:

Bidders shall include in the bid the address to which all communications concerning the Bid and Contract should be sent. The Bid must be signed by a duly authorized representative of the Bidder.

(e) Bid Guaranty – All bids shall be accompanied by a Bid guaranty in the amount of 10% of the total amount of the Bid. The Bid guaranty shall be either a Surety bond, irrevocable letter of credit issued by an insured institution as defined in ORS 706.008 or security in the form of a cashier's check made payable to the Agency. (see ORS 279C.365(4)).

If a Surety bond is submitted, Bidders shall use the Agency's standard Bid Bond form included with the Bid Booklet. Bidders shall submit the bond with original signatures and the Surety's seal affixed. The Bid guaranty shall be submitted by mail, delivery service, or hand delivered to the offices and addresses, and at the times given in the Bid Booklet.

(f) Disclosure of First-Tier Subcontractors – Delete this subsection and replace with the following:

If a Bidder's Bid on a public improvement project exceeds $100,000, the Bidder shall, within two working hours of the time Bids are due to be submitted, submit to the Agency on a form provided by the Agency, a disclosure identifying any first-tier Subcontractors that will furnish labor or labor and Materials, and whose contract value is equal to or greater than:

- 5% of the total Project Bid, but at least $15,000, or
- $350,000, regardless of the percentage of the total Project Bid.

For each Subcontractor listed, Bidders shall state:

- The name of the Subcontractor,
- The category of Work that the Subcontractor will be performing and
- The dollar amount of the Subcontract.

If no subcontracts subject to the above disclosure requirements are anticipated, a Bidder shall so indicate by entering "NONE" or by filling in the appropriate check box. For each Subcontractor listed, Bidders shall provide all requested information. An incomplete form will be cause for rejection of the Bid.

The Subcontractor Disclosure Form may be submitted either:

- By filling our the Subcontractor Disclosure Form included in the Bid Booklet and submitting it together with the Bid at the time and place designated for receipt of Bids, or

- By removing it from the Bid Booklet, filling it out and submitting it separately to Community Development Center at the address or facsimile (FAX) number given in the bid booklet.

Subcontractor Disclosure Forms submitted by either method will be considered late if not received by the Community Development Center within two working hours of the time designated for receiving Bids.

E-mail submissions will not be accepted. The Agency is not responsible for partial, failed, illegible or partially legible FAX transmissions. Such forms may be rejected as incomplete.

Bids not in compliance with the requirements of this Subsection will be considered non-responsive.

00120.45 Submittal of Bids – Delete this subsection and replace with the following:

Bids may be submitted by mail, parcel delivery service, courier or in person to the Community Development Center at the address given in the Bid Booklet in a sealed envelope. All Bids shall have the following information clearly marked on the outside of the envelope:

- The words "Bid" and "To Be Opened By Authorized Personnel Only"

- Project Name

- Bid Opening Time and Date

- Bidder's Name

- Contractor's License Number

Bids submitted after the time set for receiving Bids will not be opened or considered. The Agency assumes no responsibility for the receipt and return of late Bids.

00120.50 Submitting Bids for More than One Contract – Delete this subsection.

00120.60 Revision or Withdrawal of Bids – Delete this subsection and replace with the following:

Information entered into the Bid Booklet by the Bidder may be revised after the Bid has been delivered to the Community Development Center, with the following provisions:

- Revisions can only be made to unit prices and/or total prices.

- Revisions or Withdrawals shall be submitted in writing and signed by an authorized representative of the Bidder and must clearly show the following information:

    - The words "Bid Revision"
    - Project Name
    - Bid Opening Time and Date
    - Bidder's Name

- Revisions or Withdrawals may be delivered by mail, parcel delivery service, courier, FAX or in person to the Community Development Center, but must be received no later than the time designated for receiving bids. Revisions or Withdrawals submitted after the time set for receiving Bids will not be considered by the Agency.

00120.65 Opening and Comparing Bids – Add the following to this subsection:

The results of Bid comparisons and considerations will be made available to the public within a reasonable time after opening of the Bids.

00120.70 Rejection of Nonresponsive Bids – Delete this subsection and replace with the following:

A Bid will be considered irregular and will be rejected if the irregularity is deemed by the Agency to render the Bid non-responsive. Examples of irregularities include without limitation:

- The Bid Section documents provided are not properly used or contain unauthorized alterations.
- The Bid is incomplete or incorrectly completed.
- The Bid is submitted on documents not obtained directly from the Community Development Center or is submitted by a Bidder who has not been identified by the Agency as a Holder of Bidding Plans as required by 00120.05.
- A member of a joint venture and the joint venture submit Bids for the same Project. Both bids may be rejected.
- The Bid has entries not typed or in permanent (non-erasable) ink, or has signatures or initials not in permanent ink.
- Each erasure, change or correction is not individually initialed by an authorized Bidder representative.
- The price per unit is illegible or cannot otherwise be determined.
- The Bid guaranty is insufficient or improper.
- The original Bid Bond form is not used or is altered.
- The Oregon Construction Contractor's Board registration number and expiration date are not shown on the Bid if required in the Solicitation Document. This requirement applies to State-funded Projects with the exception of Aggregate production and landscape Projects. (Not required on Federal Aid Projects.)
- A disclosure of first-tier Subcontractors, if required under 00120.40(f), is not received within two working hours of the time Bids are due to be submitted, or the disclosure form is not complete.
- The Bidder has not complied with the DBE requirements of the solicitation.

- The Bid does not evidence recognition of Addenda, if applicable.
- The Bid contains entries with more than two decimals to the right of the decimal point.
- The Bid entries are not expressed in U.S. dollars and cents.

00120.95 Opportunity for Cooperative Arrangement – Delete this Subsection.

Section 00130 - Award and Execution of Contract

The Award and Execution of Contract Section shall be administered in conformance with Section 00130 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

00130.10 Award of Contract – Delete this subsection and replace with the following:

After the Bids have been opened and the Agency's City Council has authorized the Engineer to award the project, the Contract will be awarded to the lowest responsible bidder. For the purposes of this Section, "lowest responsible Bidder" means the lowest Bidder who is not on the list created by the Construction Contractors Board pursuant to ORS Chapter 701, and who has:

- Substantially complied with all prescribed public bidding procedures and requirements
- Made available the appropriate financial, Materials, Equipment, facility and personnel resources and expertise, or ability to obtain the resources and expertise, necessary to indicate the capability of the prospective Bidder to meet all contractual responsibilities
- A satisfactory record of performance
- A satisfactory record of integrity
- Qualified legally to contract with the Agency
- Supplied all necessary information in connection with the inquiry concerning responsibility. If a prospective Bidder fails to promptly supply information requested by the Agency concerning responsibility, the Agency shall base the determination of responsibility upon any available information, or may find the prospective Bidder not to be responsible
- Not been disqualified by the public contracting agency under ORS 279C.440.

If the Bidder is found not to have a satisfactory record of performance or integrity, the Agency will document the record and the reasons for the unsatisfactory finding.

The Agency will issue Notice of Intent to Award either verbally or in writing to the lowest responsible Bidder within three working days of the bid opening. The Award will not be final until the later of the following:

- The Lebanon City Council has approved the Agency's intent to Award, or
- The Agency has provided a written response to each timely protest lodged by adversely affected or aggrieved Bidders, denying the protest(s) and affirming the Award.

If the Agency accepts a Bid and awards a Contract, the Agency will send the successful Bidder written Notice of Acceptance and Award.

Notice of Award and Contracts will be sent within 30 Calendar Days of the opening of Bids or within the number of Calendar Days specified in the Special Provisions.

00130.15 Right to Protest Award – Delete this subsection and replace with the following:

Adversely affected or aggrieved Bidders, limited to the three apparent lowest Bidders, may submit to the Agency a written protest of the Agency's Intent to Award within three Working Days following issuance of Notice of Intent to Award. The protest shall specify the grounds upon which it is based.

The Agency is not obligated to consider late protests.

00130.50 Execution of Contract and Bonds:

(a) By the Bidder – Replace the first sentence in the first paragraph with the following:

The successful Bidder shall deliver the required number of properly executed Contracts, Performance Bonds, Payment Bonds, certification of workers compensation, and required certificates of insurance to the Agency within 10 Calendar Days after the date on which the Contracts are sent or otherwise conveyed to the Bidder under 00130.10.

00130.90 Notice to Proceed – Delete this subsection and replace with the following:

Notice to Proceed will be issued within ten Calendar Days after the Contract is executed by the Agency, or as otherwise indicated in the Project Special Provisions.

Should the Agency fail to issue the Notice to Proceed within ten Calendar Days of Contract execution, or as otherwise indicated in the Project Special Provisions, the Contractor may apply for an adjustment of Contract Time according to 00180.80(c).

Section 00140 – Scope of Work

The Scope of Work Section shall be administered in conformance with Section 00140 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

00140.90 Final Trimming and Cleanup – Add the following to this subsection:

If the Contractor fails to adequately trim and clean the project site as specified, the Agency reserves the right to perform these tasks with Agency personnel and/or equipment and deduct incurred costs from monies due or to become due to the Contractor under the Contract.

Section 00150 – Control of Work

The Control of Work Section shall be administered in conformance with Section 00150 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

00150.01 Project Manager's Authority and Duties – Replace the second paragraph in this subsection with the following:

The Contractor should direct all requests for clarification or interpretation of the Contract in writing to the Engineer or Project Manager, if designated. All requests shall be in writing and submitted on a Request for Information (RFI) form, which is included in the Contract Documents. The Engineer or Project Manager shall respond within a reasonable time. Contract clarification or interpretation obtained from persons other than the Engineer or Project Manager will not be binding on the Agency.

00150.05 Cooperative Arrangements – Delete this subsection.

00150.15 Construction Stakes, Lines and Grades

(a) General – Delete this subsection and replace with the following:

Unless otherwise specified in the Contract Documents, all construction stakes, lines and grades shall be established by the Engineer. Work performed without field controls will be subject to removal at the Contractor's expense.

Should the Contract Documents specify that the Contractor is responsible for setting construction stakes, lines and grades, the Contractor will be solely responsible for work outlined in 00150.15(b-c).

(c) Contractor Responsibilities – Delete the first bulleted item in this subsection and replace with the following:

- Inform the Engineer of staking requirements at least three Working Days before the staking needs to begin;

00150.20 Inspection

(c) Sampling – Delete this subsection and replace with the following:

The Contractor shall furnish the Engineer with samples of Materials that the Engineer deems necessary for testing. The Contractor shall provide access in accordance with 00150.20(b) for acquisition of testing samples. All costs related to required sampling shall be in accordance with 00165.06.

00150.35 Plans and Working Drawings

(b) Working Drawings – Add the following to this subsection:

All working drawings, stamped or unstamped, shall be submitted in accordance with 00160.60(d).

(c) Number and Size of Drawings – Delete the first sentence in this subsection and replace with the following:

The Contractor shall submit four copies of Working Drawings for steel structures and three copies of Working Drawings for other Structures to the Engineer.

(d) Processing Working Drawings:

(2) Unstamped Working Drawings – Delete this subsection and replace with the following:

Unstamped Working Drawings will be designated by the Engineer on the accompanied Submittal Transmittal Form as "No Exceptions Taken" (NET), "Make Corrections Noted" (MCN), "Amend and Resubmit" (A&R) or "Rejected" (R).

The Contractor shall not fabricate or construct any structural components until the stamped or unstamped Working Drawings are returned by the Engineer with written notation of approval or review, as applicable, of the Working Drawings.

The Engineer's processing of the Working Drawings does not amend any contractual obligations of the parties.

The Engineer will process and return working drawings within 15 Working Days (65 Calendar Days if Railroad approval is required) after receipt by the Engineer. If the Engineer fails to return such drawings within this period of time, the Engineer will consider granting a Contract Time extension according to 00180.80.

00150.36 Project Record Drawings ("As-Builts") – Add the following Subsection:

The Contractor shall maintain at the job site one full size set of the Contract drawings for recording as-built conditions. Mark (in red) changes, additions or deletions made during the course of construction. These drawings shall be available to the Engineer for review at any time during construction. Upon completion of the project, turn over the marked up set of prints to the Engineer.

Requests for partial payment will not be approved if the marked prints are not kept current; request for final payment will not be approved until accurate and complete as-builts are delivered to the Engineer.

00150.37 Equipment Lists and Other Submittals – Delete the first sentence in this subsection and replace with the following:

The Contractor shall submit Equipment lists and other required submittals for approval by the Engineer in accordance with 00160.60(d).

00150.56 Cooperation with the Public, Other Agencies – Add this subsection:

(a) General – The Contractor shall make a reasonable effort to accommodate affected businesses, residents, motorists and public or private entities serving the general populace, including but not limited to public and/or private transportation services, public and/or private school systems, solid waste services and postal, parcel and newspaper delivery services.

Project Sites closed to through traffic shall be reasonably accessible to affected residents and businesses during construction. Access to affected residences and businesses shall be unrestricted during off-construction hours.

(b) Notification – Prior to closing or limiting access to any public thoroughfare or pedestrian access, the Contractor shall provide a minimum of ten (10) Working Days notification to all affected businesses, residents and public service agencies, including but not limited to local and county law enforcement, fire and ambulance services, public and/or private transportation services, public and/or private school systems, solid waste services and postal, parcel and newspaper delivery services.

The Contractor shall provide a copy of any notification to the Engineer for review and comment before such notices are distributed. Notices shall contain a minimum of the following information:

- Date and time of commencement and completion of the work;
- Names of affected streets, alleys, intersections or other areas of work;
- Type of work that is being done;
- Routes of detours where possible; and
- Agency contact phone number

The Contractor shall be responsible for re-notifying affected businesses, residents and public service agencies if the schedule of work is changed. Damages or claims resulting from improper or insufficient notification shall be the sole responsibility of the Contractor. See 00220.02 for further information.

00150.60 Construction Equipment Restrictions

(a) Load and Speed Restrictions for Construction Vehicles and Equipment – Delete this subsection and replace with the following:

(a) Load, Speed and Noise Restrictions for Construction Vehicles and Equipment – The Contractor shall comply with legal mass (weight), speed and noise restrictions when moving Materials or Equipment beyond the limits of the Project Site.

The Contractor shall control vehicle and Equipment loads, speeds and noise within the Project Site according to the following restrictions, unless the Special Provisions provide otherwise:

- The Contractor shall restrict loads and speeds as necessary to avoid displacement or loss of Materials on Subgrades and Aggregate Bases.
- The Contractor shall restrict masses (weights) to legal loads, and shall travel at speeds of no more than 40 km/h (25 mph) or the posted construction speed, whichever is less, at any location of the Project Site, to include areas adjacent to Site accesses and exits.
- The Contractor shall not cross Bridges or other Structures with Equipment or vehicles exceeding the legal load limit without prior written permission of the Engineer. The Contractor shall make any such request in writing, describing the loading details and the arrangement, movement and position of the Equipment on the Structure. The Contractor shall comply with any restrictions or conditions included in the Engineer's written permission.
- Noise levels within and adjacent to the Project Site shall comply with all applicable local, state and federal regulations and in accordance with 00290.

00150.75 Protection and Maintenance of Work During Construction – Delete the first paragraph in this subsection and replace with the following:

The Contractor shall protect and maintain the Work and Project Site during construction and until Certification of Work Completion and Acceptance (CWCA) has been issued, unless otherwise provided in the Contract. For the purposes of this Subsection, "maintenance" shall include measures to prevent deterioration of Roadway and Structures at the Project Site and to keep them in good condition at all times during the prosecution of the Work.

The Contractor shall maintain the Project Site in a neat, orderly manner and immediately clear away debris, garbage and other materials deemed unsightly or hazardous by the Engineer. The Contractor shall continuously allocate sufficient Equipment and workers to achieve such maintenance.

00150.90 Final Inspection

(a) On-Site Construction Work – Delete the second paragraph in this subsection and replace with the following:

When all On-Site Work on the Project is completed, including but not limited to Change Order Work and Extra Work, the Engineer will develop and issue a Punch List as needed and issue it to the Contractor.

(b) All Contract Work – Delete the first sentence in this subsection and replace with the following:

The Engineer will issue a CWCA when the Contractor has satisfactorily accomplished all of the following:

00150.95 Final Acceptance – Delete this subsection and replace with the following:

When all work by the Contractor has been completed and accepted, the Agency will issue a CWCA, which will contain the date of final acceptance of the Project.

00150.96 Maintenance Warranties and Guarantees – Delete this subsection and replace with the following:

(a) Project Warranty – The work is guaranteed by the Contractor for a specified period from the date of final acceptance by the Agency. If no warranty period is specified, the work shall be guaranteed for a period of one year from the date of final acceptance by the Agency. If the Contract contains a warranty clause, the CWCA will indicate when that warranty period will expire.

If, within the warranty period, repairs or changes are required in connection with the work, the Contractor shall promptly, without expense to the Agency:

(1) Place in satisfactory condition all guaranteed work;

(2) Correct all damage to structures, sites, equipment or contents thereof which is the result of the use of materials, equipment or workmanship that is inferior, defective or not in accordance with the terms of the Contract; and,

(3) Correct any damage to structures, sites, equipment or contents thereof sustained during the fulfillment of corrective work.

Repairs, replacements or changes made under the warranty requirements shall be warranted for the warranty period as specified in this section, beginning on the date of the acceptance of the repairs, replacements or changes.

If the Contractor fails within ten (10) days to proceed to comply with the terms of the specified warranty, the Agency may have the defects corrected with Agency personnel and equipment or by independent contract. The Contractor and Contractor's surety shall be liable for all expenses incurred. In case of an emergency where delay would cause serious loss or damage, repairs may be made without notice to the Contractor and the Contractor or Contractor's surety shall be responsible for all costs incurred.

(b) Manufacturers' Warrantees – Before the CWCA will be issued, the Contractor shall transfer to the Agency all unexpired manufacturers' warranties and guarantees for Materials and Equipment installed on the Project. Such warranties and guarantees shall indicate that they are enforceable by the Agency.

Section 00160 – Source of Materials

The Source of Materials Section shall be administered in conformance with Section 00160 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

00160.10 Ordering, Producing and Furnishing Materials

(a) Contractor's Duties – Add the following paragraph to the end of this subsection:

It is the sole responsibility of the Contractor to ensure that full quantities of Materials are available to complete the required Work. Quantity estimates by the Engineer are approximate and should be verified by the Contractor before bidding.

00160.50 Agency-Controlled Land; Limitations and Requirements:

(b) Waste, Excess and By-Product Materials – Delete this subsection and replace with the following:

All waste, excess and by-product materials collectively referred to in this Subsection as "By-Products", from the manufacture or production of Materials shall become the property and responsibility of the Contractor, unless specifically stated otherwise in the Contract Documents.

By-Products shall be removed from Agency-Controlled Land in such a manner as to avoid fouling areas containing useable materials or interfering with future plant setups to use materials from the property.

There will be no additional payment for removal of waste, excavation spoils and by-product materials unless otherwise indicated in the Contract Documents.

00160.60 Contractor-Furnished Materials and Sources:

(c) Additional Requirements – Add the following subsection:

(3) Provided all required product certification as required in 00160.60(d).

(d) Materials Conformance Documentation – Add the following subsection:

The Contractor shall provide the Engineer documentation and certification for all substantial Materials installed during the course of the Project. Required Submittals shall include manufacturer's information, shop drawings, test procedures and results, samples, substitution requests and other miscellaneous work-related items.

The Contractor shall furnish all drawings, specifications, data, test results, certificates, manufacturer's recommended installation procedures as well as other information specifically required by the Contract Documents that is needed to demonstrate that the submitted materials; equipment and procedures comply with the provisions and intent of the Contract Documents.

(1) Contractor Responsibility – The Contractor shall be responsible for the accuracy and completeness of the information contained in the required Submittals and shall assure that the material, equipment and methods of work shall be as described in the Submittal. The Contractor shall verify that all product features conform to the Specifications. All Submittals shall be clearly edited to indicate only those items that pertain to the material or equipment

The Contractor is responsible for ensuring that all submitted materials, equipment and procedures are compatible and do not adversely affect the work of the Agency or other contractors.

The Contractor shall coordinate Submittals in such a manner that review and processing of those Submittals shall not adversely affect construction scheduling. No extensions will be allowed due to improperly scheduled Submittals. The Contractor shall not proceed with any work covered by a Submittal until the Submittal process is completed and documented. This requires that Submittals have been returned to the Contractor marked either No Exceptions Taken (NET) or Make Corrections Noted (MCN) as defined in this subsection.

The Contractor shall certify on each Submittal that he has reviewed and verified that the materials, equipment or methods meet specifications or the intent thereof.

(2) Transmittal Procedures – Unless otherwise specified in the Contract Documents, all Submittals shall be accompanied by the Submittal Transmittal form included in the Contract Documents. A separate form shall be used for each specific class of equipment, materials or procedures required. Submittals for various items constituting one manufacturer's package or closely related materials, equipment and procedures may be included in a single Submittal.

All Submittals shall be identified by project name and number and shall include the Contractor's name, Submittal date and revision date. In addition, shop drawings, product data and samples shall include names of the subcontractor, supplier and applicable specification section number. The Contractor's stamp must be initialed or signed to certify review of Submittal, verification of field measurements and compliance with the Contract Documents.

The Contractor shall assign a unique, sequential number to each Submittal. Resubmittals shall be assigned the original Submittal number with the addition of an appropriate sequential suffix. An example would be "Submittal 005 – Rock Materials". Should the Submittal need to be amended or resubmitted, subsequent Submittals shall be numbered "Submittal 005-A", "Submittal 005-B", etc. The Contractor shall supply four (4) complete copies of all required Submittals.

If the Contractor proposes a deviation from the specified materials, equipment or procedures, the Submittal shall clearly indicate and describe the deviation. Incomplete Submittals or undocumented deviations shall be returned to the Contractor without review.

(3) Review Procedure – Submittals are called out for Materials, equipment or procedures that may be selected by the Contractor using his best judgment regarding their conformance with Specifications. The review procedure is based on the Contractor's verification that the materials will meet Specifications. Review does not extend to methods, techniques or fabrication processes unless specifically called out. Acceptance of any particular item does not indicate approval of improper implementation or installation of that item.

Unless otherwise specified, the Engineer shall review, complete and return two (2) copies of a Submittal within 15 Working Days of receipt with one of the following marks:

(a) No Exceptions Taken (NET) – If the Submittal is marked "No Exceptions Taken" (NET), this indicates that the material, equipment or procedures meet project specifications and the Contractor may implement materials covered by that Submittal.

(b) Make Corrections Noted (MCN) – If the submittal is marked "Make Corrections Noted" (MCN), this indicates that limited corrections are required. The Contractor may implement materials covered by that Submittal, provided that the needed corrections have been made prior to work on that item.

(c) Amend and Resubmit (A&R) – If the Submittal is marked "Amend and Resubmit" (A&R), this indicates that the Submittal is insufficient or contains incorrect information. The Contractor shall not proceed with any work covered by such a Submittal until it has been revised, resubmitted and approved.

(d) Rejected (R) – If a Submittal is marked "Rejected" (R), this indicates that the material, equipment or procedure in the Submittal does not comply with project specifications and a new Submittal must be tendered.

If the Engineer fails to return any Submittal within 15 Working Days of receipt, the Contractor may submit for a Contract Time extension in accordance with 00180.80.

(4) Effect of Submittal Review – A mark of 'NET' or 'MCN' on a Submittal indicates that the Agency has no objections to the Contractor, under his own responsibility, using the material, equipment or procedures proposed. Engineering review of a Submittal shall not relieve the Contractor of his responsibility to provide material, equipment or procedures that meet project Specifications. The Agency does not assume any risk or liability associated with insufficient, incomplete or unacceptable work on the part of the Contractor. The Contractor shall have no claim under the Contract on account of the failure or partial failure of the material, equipment or procedures reviewed under any Submittal.

(5) Shop Drawings – All submitted drawings shall be in accordance with 00150.35 unless otherwise specified in the Contract Documents.

Section 00165 - Quality of Materials

The Quality of Materials Section shall be administered in conformance with Section 00165 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Description

00165.01 Rejected Materials – Add the following sentence to this subsection:

Failure of the Contractor to comply with the Engineer's directions shall be cause for the Engineer to have the defective Materials removed from the Project Site and to deduct the cost of removal from payments due or to become due to the Contractor.

00165.03 Testing by Agency – Delete this subsection.

00165.04 Costs of Testing – Delete this subsection.

00165.05 Sampling and Testing – Add this subsection:

The Contractor shall be responsible for process control testing necessary to insure that Materials comply with the Specifications. The Engineer reserves the right to require additional samples and testing of Materials for compliance regardless of prior certification. All testing of Materials will be made in accordance with the methods described or designated in the Specifications or as required, and may be conducted at any time during the production, fabrication, preparation and use of the Materials.

The Contractor shall furnish and make available the required samples without charge and shall provide suitable facilities for collecting samples in accordance with 00150.20. The Contractor shall withhold from use the Materials represented by the samples until tests have been made and the Materials found to comply with the Specifications. Testing results shall be made available in English Units to the Engineer in ample time to permit review prior to use. The Contractor shall have no claim for any delay caused by awaiting test results.

All required testing shall be performed by an independent laboratory designated by the Contractor and approved by the Engineer, even though certain ASTM, AASHTO, AWWA and other Materials specifications may require testing at the place of manufacture. Test methods shall be the most current method used by ODOT for the test specified. In the absence of any reference specification, Materials shall meet the specifications and requirements of the ASTM, AASHTO or AWWA. When there is no coverage under ASTM, AASHTO or AWWA, Materials shall meet the commercial standards of the Commodity Standards Division of the U.S. Department of Commerce. Lacking such coverage, the Materials shall meet requirements established by reputable industry for high quality products of the kind involved.

00165.06 Costs of Sampling and Testing – Add this subsection:

All Materials sampling and testing required as part of the Materials submittals process (00160.60(d) of the Agency Supplemental Specifications) shall be the responsibility of the Contractor.

If the Engineer determines that additional sampling and testing is necessary, such sampling and testing shall be performed by the Contractor and paid for as follows:

- The Agency shall reimburse the Contractor for all incurred costs associated with such sampling and testing. No allowance shall be made for markup or profit.

- **Contractor Expense** – If the Materials tested are found to be out of compliance with the Specifications, all associated costs shall be the sole responsibility of the Contractor.

00165.35 Nonfield Tested Materials:

(d) Certificate of Origin of Steel Materials – Delete the last paragraph in this subsection and replace with the following:

Materials will be subject to acceptance testing in accordance with 00165.05 if the Engineer so elects. The Engineer may reject damaged or non-Specification Materials regardless of the Materials Conformance Documents furnished in Submittals.

00165.40 Statistical Analysis – Delete this subsection.

00165.50 Statistical Acceptance Sampling and Testing – Delete this subsection.

00165.70 Use of Materials without Acceptable Materials Conformance Documents

(a) General – Delete this subsection and replace with the following:

The Contractor shall not incorporate Materials into the Project prior to submittal and review of Materials Conformance Documentation in accordance with 00160.60(d). The Engineer may waive this requirement temporarily if Materials are necessary for immediate traffic safety.

(c) Contractor's Request for Testing Assistance – Delete this subsection.

Section 00170 - Legal Relations and Responsibilities

The Legal Relations and Responsibilities Section shall be administered in conformance with Section 00170 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Description

00170.02 Permits, Licenses, and Taxes – Delete this subsection and replace with the following:

Except as specified in the Special Provisions, the Contractor shall do the following as required to accomplish the Work:

- Obtain all necessary permits and pay all applicable charges, including but not limited to the following:
  - All necessary Rights-of-Way;
  - Permits required for crossing or encroaching upon navigable streams;
  - Permits required for removing materials from or depositing materials in waterways;
  - Permits required for operating in privately owned or Agency-controlled sources of Materials or waste disposal areas;
  - System development fees charged by local units of government;
  - Building construction permits, to include specialty work such as heating, ventilation, air conditioning, or electrical and
  - Cost of referencing and replacing endangered survey monuments;
- Give all notices required by applicable Laws, or under the terms of the Contract;
- Comply with ORS 274.530 relating to lease of stream beds by Oregon Division of State Lands;
- License, in the State of Oregon, all vehicles subject to licensing;
- Comply with ORS 477.625 and ORS 527.670 relating to clearing and fire hazards on forest lands;
- Comply with all orders and permits issued by a governmental authority, whether local, State or federal; and
- Pursuant to ORS 468A.720, obtain a valid DEQ asbestos abatement license for any Project Work involving asbestos abatement.

00170.03 Furnishing Right-of-Way and Permits – Delete this subsection.

00170.60 Safety, Health and Sanitation Provisions – Delete this subsection and replace with the following:

(a) General – The Contractor shall comply with all Laws concerning safety, health and sanitation standards. The Contractor shall not require workers to perform Work under conditions that are hazardous, dangerous or unsanitary.

Workers that are exposed to traffic shall wear upper body garments or safety vests that are highly visible and meet the requirements of 00225.27.

Workers exposed to falling or flying objects or electrical shock shall wear approved hard hats. All workers shall have access to adequate hearing protection in noisy environments.

Workers exposed to concrete dust or other sources of silica-based particulates shall have access to approved respirators.

(b) Sanitary Accommodations – The Contractor shall provide and maintain in a neat and sanitary condition such accommodations for the use of employees as may be necessary to comply with requirements and regulations of the State Department of Health and of other bodies or officers having jurisdiction there over. The Contractor shall permit no public nuisance.

(c) First Aid and Accident Reporting – The Contractor shall maintain at the work site all articles necessary for giving first aid to the injured and establish procedures for the immediate removal of employees or other persons injured on the job site to a hospital or doctor's care.

All accidents causing death or serious injuries or damages shall be reported immediately to the Engineer. The Contractor shall promptly report, in writing, to the appropriate authorities all accidents arising out of, or in connection with, the performance of the work. If any claim is made against the Contractor and or subcontractor on account of any accident, the Contractor shall promptly report the facts, in writing, to the Engineer.

(d) Compliance and Inspection – Upon their presentation of proper credentials, the Contractor shall allow inspectors of the U.S. Occupational Safety and Health Administration (OSHA) and the Oregon Occupational Safety and Health Division (OR-OSHA) to inspect the Work and Project Site without delay and without an inspection warrant.

00170.70 Insurance:

(a) Insurance Coverages – Replace the first and fifth bulleted items in this subsection and replace them with the following bulleted items:

- **Commercial General Liability** - Commercial General Liability Insurance covering bodily injury and property damage in a form and with coverages that are satisfactory to the Agency. This insurance shall include personal and advertising injury liability and products and completed operations coverage. Coverage may be written in combination with Commercial Automobile Liability insurance with separate limits for Commercial General Liability and Commercial Automobile Liability. Coverage shall be written on an occurrence basis. Combined single limit per occurrence shall not be less than $1,000,000. The annual aggregate limit shall not be less than $2,000,000. The policy shall be endorsed to the state that the annual aggregate limit of liability shall apply separately to the contract.

  If the Contractor's Commercial General Liability Insurance limits are less than the required limits stated above, the Contractor shall obtain Excess or Umbrella Liability Insurance with sufficient limits that when added to the Contractor's Commercial General Liability limits the total combined limits of Commercial General Liability Insurance and Excess or Umbrella Liability Insurance equal or exceed the above-stated Commercial General Liability Insurance requirements. The above-stated combined single limit per occurrence and the above-stated annual aggregate limit must each be met. Excess or Umbrella Liability

Insurance coverage shall extend to the same perils, terms, and conditions as the underlying Commercial General Liability Insurance coverage.

- **Commercial Automobile Liability -** Commercial Automobile Liability Insurance covering all owned, non-owned, and hired vehicles. The coverage may be written in combination with Commercial General Liability Insurance with separate limits for Commercial Automobile Liability and Commercial General Liability. Combined single limit per occurrence shall not be less than $1,000,000. If this coverage is written in combination with the Commercial General Liability, the policy shall be endorsed to the state that the Commercial General Liability annual aggregate limit shall apply separately to the Contract.

00170.80 Responsibility for Damage to Work

(d) Vandalism – Delete the first sentence in this subsection and replace with the following:

The Contractor shall provide reasonable protection of the Work from vandalism until Certification of Work Completion and Acceptance has been issued.

00170.82 Responsibility for Damage to Property and Facilities – Delete this subsection and replace with the following:

(a) In General – As used in this subsection, the term "Contractor" shall include the Contractor's agents, Subcontractors and all workers performing Work under the Contract; the term "damage" shall include without limitation soiling or staining surfaces by tracking or splashing mud, asphalt and other materials, as well as damage of a more serious nature.

The Contractor shall be solely responsible for damages arising from:

- The Contractor's operations;
- The Contractor's negligence, gross negligence, or intentional wrongful acts; and
- The Contractor's failure to comply with any Contract provision.

The Agency may withhold funds due the Contractor or the Contractor's Surety until all lawsuits, actions and claims for injuries or damages are resolved and satisfactory evidence of resolution is furnished to the Agency.

(b) Protection and Restoration of Agency Property and Facilities – The following requirements apply to streets, roads, structures and other improvements that are existing, under construction or completed. The Contractor shall:

- Provide adequate protection to avoid damaging Agency property and facilities;
- Be responsible for damage to Agency property and facilities caused by or resulting from the Contractor's operations; and
- Clean up and restore such damage by repair, rebuilding, replacement or compensation, as determined by the Engineer.

(c) Protection and Restoration of Non-Agency Property and Facilities – Prior to commencing any Project Work, the Contractor shall determine the location of properties that could be damaged or otherwise adversely affected by the Contractor's operations and shall protect them from damage.

The Contractor shall give at least ten Work Days notice to owners of property that may be affected to permit removal, salvage and relocation of items including but not limited to plants, trees, fences, landscaped areas or sprinkler systems. The Contractor shall restore property or facilities damaged by its operations to the condition that existed before Construction at no additional compensation.

The Contractor shall provide temporary facilities when needed to maintain normal service for services including, but not limited to garbage pickup and package delivery as directed by the Engineer. Mailboxes removed during the course of Work shall be relocated as specified by the Engineer and in accordance with the Postal Service requirements.

The Contractor shall protect specific service signs, e.g. business logos and tourist-oriented directional signs ("TODS") from damage, whether the signs are to remain in place or be placed on temporary supports. The Contractor shall repair or replace damaged signs at no cost to the Agency or Agency. Liquidated Damages will be assessed against the Contractor in the amount of $200 per Calendar Day for each sign out of service for more than five Calendar Days because of Contractor's operations.

(d) Protection of Permanent Survey Markers – The Contractor shall notify the Engineer not less than seven Work Days prior to starting Work so that the Engineer may take necessary measures to insure the preservation of affected survey monumentation, property corners, stakes and bench marks. The Contractor shall not disturb permanent survey monuments, stakes or bench marks without the consent of the Engineer and shall notify the Engineer and bear the expense of replacing any that are disturbed without permission or proper notification. Replacement of damaged or disturbed monumentation shall be done by a Professional Land Surveyor registered in the state of Oregon pursuant to ORS 209.150–155.

When a change is made in the finished elevation of the pavement of any roadway in which a permanent survey monument is located, the monument cover shall be adjusted to the new grade without disturbing the underlying monument.

(e) Protection, Preservation of Historic Objects – If objects of archeological or paleontological nature, including ruins, sites, buildings, artifacts, fossils and other objects of antiquity are encountered within the Project Site, the Contractor shall cease construction operations in the area, preserve the objects from disturbance or damage and immediately notify the Engineer of their existence and location.

00170.89 Protection of Utility, Fire-Control, and Railroad Property and Services; Repair; Roadway Restoration – Delete this subsection and replace with the following:

(a) Protection of Utility, Fire-Control, and Railroad Property and Services; Coordination – The Contractor shall avoid damaging the properties of Utilities, Railroads, railways and fire-control authorities during performance of the Work. The Contractor shall cooperate with and facilitate the relocation or repair of all Utilities and Utility services, as required under 00150.50, and of Railroad and fire-control property and railways.

Whenever the Work involves the crossing of any railway or encroachment on any Railroad right-of-way, the Contractor shall submit to the Engineer a schedule of proposed operations within the

Railroad right-of-way which has been approved by the appropriate Railroad authority. The Contractor shall comply with all requirements of the Railroad at no cost to the Agency.

When indicated in the Contract Documents, the Contractor shall give bond or insurance of the kind and in the amount specified to each corporation, company, partnership or individual owning or operating any of the properties affected. Any extension of time granted the Contractor to complete the Work shall not relieve the Contractor or the Contractor's Surety from this responsibility.

The Contractor shall conduct no activities of any kind around fire hydrants until the local fire-control authority has approved provisions for continued service.

The Contractor shall immediately notify the Engineer and any Utility, Railroad or fire-control authority whose facilities have been damaged by Contractor operations.

If an Entity has a valid permit from the proper authority to construct, reconstruct or repair Utility, Railroad or fire-control service in the Roadway, the Contractor shall allow the permit holder to perform the work.

(b) Restoration of Roadway after Repair Work – The Contractor shall restore the Roadway to a condition at least equal to that which existed before the repair work addressed under this Subsection was performed, as directed by the Engineer. Restoration will be paid as provided in the Special Provisions or may be paid as Extra Work.

00170.94 Use of Explosives – Delete this subsection and replace with the following:

Unless otherwise noted in the Special Provisions, the use of explosives is prohibited.

Section 00180 – Prosecution and Progress

The Prosecution and Progress Section shall be administered in conformance with Section 00180 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

00180.31 Required Materials, Equipment and Methods:

(b) Substitution of Materials and Equipment to be Incorporated into the Work:

(2) Submittal of Request – Replace this subsection with the following:

The Contractor shall submit requests for substitution to the Engineer, including manufacture's' brochures and other information needed to verify equality of the proposed item(s) in accordance with 00160.60d

00180.40 Limitation of Operations:

(b) On-Site Work – Add the following bulleted item to the subsection:

- The Contractor shall confine construction activities within rights of way, easements, or limits of construction permits. Prior to the use of any property outside these specified boundaries, the Contractor shall file, with the Engineer, the written permission of the property owner. Upon terminating such usage, the Contractor shall file, with the Engineer, a release from all damages signed by the property owner.

00180.50 Contract Time to Complete Work:

(g) End of Contract Time – Delete the phrase "Second Notification" throughout this subsection and replace it with "Substantial Completion Notice".

00180.80 Adjustment of Contract Time:

(c) Contractor's Request required – Replace the second bulleted item of this subsection with the following:

- Are not otherwise deemed waived and are submitted within 21 days after the "Substantial Completion Notice" has been issued.

Section 00195 – Payment

The Payment Section shall be administered in conformance with Section 00195 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

00195.50 Progress Payments and Retained Amounts:

(b) Retainage: Delete the first paragraph of this subsection and replace with the following:

The amount to be retained from progress payments shall be 5% of the value of Work accomplished, and shall be retained in one of the forms specified in Subsection (c) below. No retainage will be withheld from Work performed as Force Account Work, escalation/de-escalation, bonuses, or other items decided by the Agency.

00195.90 Final Payment:

(b) Final Payment – In the third paragraph of this subsection replace the text "of Third Notification" with the following:

"that the "Certification of Work Completion and Acceptance" has been executed…"

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PART 00200 – TEMPORARY FEATURES AND APPURTENANCES

Section 00205 – Field Laboratory, Weighhouse, Etc.

The Field Laboratory, Weighhouse, Etc. Section shall be administered in conformance with Section 00205 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Delete this Entire Section.

Section 00220 – Accommodations for Public Traffic

The Accommodations for Public Traffic Section shall be administered in conformance with Section 00220 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Description

00220.02 Public Safety and Convenience – Delete the last bulleted item and add the following items:

- If construction involves encroachment onto a state highway or designated truck route, the following applies: When narrowing the roadway to less than 18 feet for one lane between positive barriers or reducing vertical clearance, the Contractor must notify the Engineer, in writing, at least 30 days before this work begins. Include the reduced lane width dimension of each stage and the anticipated duration of the reduction. The reduction will not be permitted until the Engineer approves it and the area is adequately signed according to the TCP and Sections 00220 and 00225.

- For open trench pipe installation across a roadway having a pre-construction posted speed greater than 35 mph, backfill the excavation, install surfacing, and open the roadway to traffic by the end of each work shift. If this requirement is not met, maintain all necessary lane closures and provide additional TCM, including flagging, at the Contractor's expense. Do not use temporary steel plating to reopen the roadway unless approved by the Engineer.

Construction

00220.40 General Requirements

(e) Lane Restrictions – Replace this subsection with the following:

Unless prior written authorization has been provided by the Engineer, the following restrictions apply:

The Contractor shall not close any public thoroughfares between:

- 3:00 p.m. on Fridays and midnight on Sundays.

- Noon on the day preceding legal holidays or holiday weekends and midnight on legal holidays or the last day of holiday weekends, except for Thanksgiving, when no thoroughfares may be closed between noon on Wednesday and midnight on the following Sunday.

- Noon on the Thursday prior to the first full weekend in June and midnight on the following Sunday in conjunction with the Lebanon Strawberry Festival.

For the purposes of this section, legal holidays are as follows:

- New Year's Day on January 1
- Memorial Day on the last Monday in May
- Independence Day on July 4
- Labor Day on the first Monday in September
- Thanksgiving Day on the fourth Thursday in November
- Christmas Day on December 25

When a holiday falls on Sunday, the following Monday shall be recognized as a legal holiday. When a holiday falls on a Saturday, the preceding Friday shall be recognized as a legal holiday.

Roadways and sidewalks shall be free of barricades or other obstructions and all lanes opened to traffic during all of the restricted periods listed above.

(f) Bridge Work – Add the following subsection:

Before starting any grading or pavement removal at bridge ends or removal of pavement from bridge decks, arrange so that all equipment, labor, and materials required to complete the pavement replacement work and bridge deck waterproofing work are on hand or are guaranteed to be delivered. Once grading and pavement removal begins, vigorously prosecute and complete this work. Complete paving and membrane waterproofing work in the shortest possible time.

Temporarily taper or bevel longitudinal and transverse grade changes or drop-offs resulting from grading and pavement removal and membrane waterproofing work with asphalt concrete mixture to provide a smooth and safe transition. Construct and maintain a 1V:10H or flatter slope along longitudinal joints. Construct and maintain a 50 feet per 1 inch or flatter taper across transverse joints.

If the road is to be closed during bridge reconstruction, do not close the road until all materials and equipment are on hand or guaranteed to be delivered so that the work can be done in an efficient manner with a minimum period of road closure.

Section 00225 – Work Zone Traffic Control

The Work Zone Traffic Control Section shall be administered in conformance with Section 00225 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Description

00225.01 Abbreviations, Definitions and Standards:

(c) Standards – Add the following to this subsection:

The Agency may provide the Contractor with a traffic control plan that outlines minimum requirements for the TCM. These requirements are to be incorporated into the Contractor's TCM and do not constitute a complete plan for traffic control.

00225.02 General Requirements – Delete the first paragraph in this subsection and replace with the following:

The Contractor shall be responsible for providing and maintaining all TCM. The Engineer may verbally or in writing require immediate changes to the TCM being used on the Project, to include the use of flaggers. Immediately make these changes as directed. Submit all proposed TCM revisions to the Engineer for approval.

00225.03 Traffic Control Outside Project Site – Delete this subsection and replace with the following:

Provide TCM outside the Contract limits when required. The Contractor is responsible for coordinating traffic control with adjacent work by utilities, Agency or other contractors working in the Project area.

00225.05 Contractor's Traffic Control Plan – Delete this subsection and replace with the following:

Submit the following in writing five days before the pre-construction conference for approval:

- Proposed TCP showing all TCM and quantities of all TCD. Submit dimensioned drawings for any required signs not covered by the ODOT Sign Policy or MUTCD

00225.15 Temporary Traffic Signals

(d) Traffic Signal Control Devices – Delete the last two sentences from this subsection and replace with the following:

The controller program, PROM and monitor will be furnished by the Contractor.

Labor

00225.32 Traffic Control Supervisor – Under the paragraph that begins "The TCS's duties include...", replace the last bullet with the following bullet:

- Providing supervision over all TCM on a 24-hour per day basis

Add the following to the end of the paragraph that begins "Notify the Engineer of an alternate...":

Notify the Engineer within 24 hours of designating the TCS for the following 24-hour period. Make succeeding notifications within 24 hours every time a subsequent TCS is appointed to the Project.

Construction

00225.40 General – Add the following to the bulleted list:

- FLAGGER AHEAD (W20-7a) and BE PREPARED TO STOP (W20 7-b) signs are to be deployed or obscured by flaggers immediately prior to or following a flagging operation. At no time shall FLAGGER AHEAD or BE PREPARED TO STOP signs be displayed when a flagging operation is not in progress.

00225.41 Temporary Signing – Add the following paragraph to the end of this subsection:

Install temporary signs according to 00940.47.

(b-2) Portable Sign Supports – Replace the last bullet with the following bullet:

- Use only with roll-up signs from the QPL

00225.43 Temporary Traffic Delineation

(e) Pavement Markers – Replace the sentence that begins with "Unless shown on the plans..." and the following bulleted list with the following:

Unless shown otherwise on the Project Plans, install temporary flexible overlay pavement markers for temporary centerline marking as follows:

- Place and maintain one temporary flexible overlay pavement marker on 20 foot spacings in tangent sections.

- Place and maintain one temporary flexible overlay pavement marker on 10 foot spacings in curved alignment section.

Establish alignment for placing the temporary flexible overlay pavement markers as follows:

- Control markers at:

    - 100 foot intervals on tangents
    - 30 foot intervals on curves

- Use string line or other appropriate means to maintain proper alignment of the markers. Adjust placement to avoid straddling a longitudinal paving joint while maintaining a suitable alignment of markers.

- Remove and replace misaligned markers at Contractor's expense.

(g) Striping – Add the following paragraph after the first paragraph:

For temporary striping on new bridge deck surfaces, use temporary removable tape.

(h) Pavement Edge Delineation – Delete this subsection and replace with the following:

Place tubular or conical markers to delineate the edge of pavement when construction work obscures the painted shoulder stripe (fog line) or when paving creates an abrupt or sloped edge drop-off 1 inch or more in height along the shoulder. Locate and maintain the markers as follows:

- Place markers immediately following any work that obscures or obstructs the painted shoulder stripe or obscured edge
- Space markers not to exceed 10 feet apart
- Place markers between traffic and abrupt or obscured edges
- Remove after a new edge stripe has been painted or the existing stripe has been sufficiently unobscured

00225.44 Temporary Illumination – Add the following sentence to the end of this subsection:

Install temporary illumination in a manner that does not shine the light directly into approaching traffic.

Section 00280 – Erosion and Sediment Control

The Erosion and Sediment Control Section shall be administered in conformance with Section 00280 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Materials

00280.10 - General

(n) Sediment Barriers – Add the following bulleted item:

- **Pump Discharge Preliminary Filter** – Provide as required an approved bag filter attached to discharge pump lines. Filter bags shall be manufactured from tightly-knit burlap or woven geotextile fabric.

Construction

00280.46 Application

(m) Sediment Barriers: – Add the following item:

Type 8: Pump Discharge Preliminary Filter – Install approved filter bags to outlet lines on discharge pumps as shown in project plans or according to manufacturer's recommendations. Filters shall be attached to discharge pump lines in such a manner as to prevent leakage of unfiltered effluent from the pipe attachment point.

Section 00290 – Environmental Protection

The Environmental Protection Section shall be administered in conformance with Section 00290 of the 2002 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Description

00290.20 Hazardous Waste and Hazardous Substances

(c) Fuel Storage – Add the following paragraph:

If above-ground fuel storage will exceed 2498 L (660 gallons) per container or 4996 L (1,320 gallons) aggregate, develop and submit for approval 10 days before the pre-construction conference a spill prevention control and countermeasures (SPCC) plan, signed and stamped by a professional engineer, in accordance with 40 CFR 112. The SPCC plan requirement is in addition to the PCP requirement described above. Employees must be trained as specified in 40 CFR 112 and the SPCC plan. Maintain a copy of the SPCC plan on-site at all times during construction activities, readily available to employees and inspectors.

(d-2) Inert Material – Add the following paragraph:

Retain landfill disposal receipts for all non-inert solid waste generated from the Project site for at least one year after completion of the Project. Provide landfill disposal receipts to the Engineer if requested.

(e) Hazardous Waste Management – Add the following to the end of this subsection:

If the quantity of hazardous waste projected to be generated meets the requirements for a Conditionally Exempt Generator (CEG), in accordance with 40 CFR 261.5, store hazardous wastes on-site for no more than 180 days, with the total stored not to exceed 1000 kg (2,200 pounds) at any one time. All hazardous waste containers shall be in good condition, sealed and labeled with the words "Hazardous Waste" and the accumulation start and end dates. All employees involved in the handling and/or management of hazardous wastes shall comply with the federal and State regulatory requirements for hazardous waste management. If the quantity of hazardous waste generated in a given month exceeds the CEG limits, immediately comply with the requirements for small and large quantity generators, as set forth below, and for the remainder of the calendar year. Within 30 days of such exceedance, complete additional documentation and training required as a result of this change in status.

If the quantity of hazardous waste projected to be generated meets the requirements for a Small Quantity Generator (SQG) or a Large Quantity Generator (LQG), prepare a Hazardous Waste Contingency Plan, in accordance with 40 CFR 262.34 and 265.51. Maintain a copy of the Contingency Plan on-site at all times during construction activities, readily available to employees and inspectors. Employees must receive hazardous waste training as specified in 40 CFR 262.34 and 265.16. On-Site storage of hazardous waste shall comply with the requirements of 40 CFR 262 and 265, OAR 340-102-034 and all other applicable federal, State and local laws and regulations. Submit monthly records of hazardous waste generation, transportation and disposal to the Engineer by the 15th day of the following month. A Certified Hazardous Materials Manager (CHMM) in good standing and with experience managing the hazardous wastes associated with the Project must be available to oversee and direct hazardous waste management at the site.

If hazardous waste is to be treated on-site, all treatment activities shall comply with 40 CFR 262.34 and 268, and ORS 466.095. No on-site hazardous waste treatment may begin prior to receipt of Engineer approval.

00290.30 Pollution Control

(d) **Noise Control** – Delete the third bulleted item and replace with the following:

- Use equipment complying with pertinent equipment noise standards of the EPA. Low Noise pumps, generators and other equipment are required in areas adjacent to hospitals, residences, places of business or other areas identified by the Agency.
- Noise control devices on all equipment shall be no less effective than those provided on original equipment.
- All engine exhausts shall be properly muffled.

PART 00300 – ROADWORK

Section 00305 – Construction Survey Work

Section 00305, which is not a Standard Specification, is included for this Project by Special Provision.

Description

00305.00 Scope – This work consists of all surveying activities necessary to control the many phases of work required to construct the Project to the lines and grades as shown, specified, or established.

Make all supporting computations and field notes required for control of the work and as necessary to establish the exact position, orientation, and elevation of the work from control stations, including furnishing and setting construction stakes and marks, reference marks, and additional stations.

Plans, specifications and other data necessary to lay out the work will be available for inspection at the Project Manager's office.

00305.01 Definitions:

Control Network – An array of control stations either established by the Contractor or provided by the Agency.

Control Station – Any item identified in the Project records as having a position and/or elevation on the Project datum and intended to be used to control the many phases of the construction work.

Digital Terrain Model (DTM) – An electronic computer model of the shape of the ground.

Reference Stakes – Stakes set away from but with information relating back to the intended location and/or grade.

Slope Catch – The location where a design slope intersects the existing ground and where excavation or embankment work should begin to provide the intended earthwork.

Slope Stakes – The process of using measurements and calculations in the field to determine the slope catch. Slope staking shall normally include setting to mark the slope catch and setting a reference stake for every catch stake.

Stakes – Stakes, nails, marks, string lines, or other devices or mechanisms set or established for the purpose of indicating or controlling the location, orientation, or grade of any feature intended for construction, or for the purpose of limiting or influencing the construction work.

Staking – The act of placing stakes.

Survey Marker – Any natural or man-made item specified or identified in a property deed, boundary survey, government document, or other instrument of public record, when the purpose of said item is to mark or reference a property boundary, geographical location, elevation, or other position.

Surveyor – The individual designated by the Contractor and licensed in the state of Oregon as a Professional Land Surveyor and placed in "responsible charge" of the survey work as defined in ORS 672.002(6)(b).

Temporary Bench Mark (TBM) – A control station established for the purpose of providing vertical control for the Project. A TBM may or may not have an established horizontal position.

00305.02 Mandatory Pre-Survey Conference – The Surveyor shall meet with the Project Engineer at the time of the Pre-Construction Conference prior to beginning survey work. The purpose of this meeting will be to discuss methods and practices of accomplishing required survey work.

00305.03 Review by the Engineer – The Engineer may periodically review the notes, calculations and layout work, including field locations, for compliance with these specifications. Survey work that does not meet the tolerances in 00305.40 may be rejected, and the work redone at the Contractors expense to meet the tolerances.

Review by the Engineer does not constitute approval or acceptance of the work, nor does it relieve the Contractor of responsibility for performing work in conformance with the plans and specifications.

00305.04 Engineer Responsibilities:

- Provide copies of plans and specifications
- Establish initial horizontal and vertical control stations in the proximity of the Project. The Engineer will provide a minimum of 2 control stations within the project limits.
- Provide horizontal and vertical alignment data
- Provide cross section finish grade elevations
- Perform measurements and calculations for pay quantities
- Perform final "as constructed" measurements
- Perform right-of-way monumentation

00305.05 Contractor Responsibilities – Perform or provide the following items of work:

- Make calculations, field notes and survey drawings for the layout and control of the work as are necessary to construct the Project as specified
- Provide original or copies of notes, calculations and drawings as requested
- Preserve survey monuments and control stations according to 00305.70 and as governed by applicable law
- Replace and augment control stations as necessary to control the Project
- Establish additional control stations as necessary to control the Project
- Perform slope staking necessary for construction of earthwork including intersections and matchlines
- Provide original ground cross-sections after clearing and grubbing
- Set stakes defining limits for clearing. Set stakes defining approximate right-of-way and easements.
- Perform slope staking necessary for construction of earthwork including intersections and matchlines
- Set stakes defining limits for clearing. Set stakes defining approximate right-of-way and easements.
- Set stakes to define construction centerline, centerline offsets, detour lines, or other lines necessary for control of the Project work
- Set stakes to define the work, that may include but is not limited to the following:

    - Roadway location and grade
    - Fences and gates
    - Guardrail, barrier, barricades, and associated features

- Traffic delineators, reflectors, and guide devices
- Temporary and permanent signing *
- Temporary and permanent pavement striping and pavement marking devices
- Poles and footings, cabinets, junction boxes, sensors, and other features associated with illumination and signal facilities *
- Curbs, walks, stairs, walls, mailboxes, and other miscellaneous structures *
- Pipes, manholes, inlets, weirs, settlement basins and other drainage and water quality structures and facilities *
- Landscaping items
- Earthwork features including guardrail flares and mounds, berms, and mounds
- Buildings and other structures and facilities
- Environmental impact mitigation features

* including field verification of fit and functionality or as instructed by the Engineer

- Remove and dispose of all flagging, lath, stakes and other temporary staking material after the Project is completed
- For bridge work, supply survey drawings depicting the location and elevations of the elements of substructure and superstructure and place stakes for features including but not limited to the following:

Substructure:

- Piling
- Footings
- Columns, walls, and abutments
- Pile caps and cross beams
- Bearing pads or devices

Superstructure:

- Horizontal alignment and deck edges
- Soffit grades
- Seismic restraints
- Wing walls and retaining walls
- Bridge end panels
- Deck elevations
- Railings
- Deck drains and other bridge drainage facilities

- Set reference stakes and elevations in the vicinity of the structure work, as are necessary for the Engineer to check the layout. This may include establishment of a control network.

00305.06 Survey Methods – Survey procedures shall be appropriate for the equipment being used and be according to current Agency practices.

New survey procedures that are not according to current Agency practices shall be submitted to the Engineer for review 21 days prior to conducting the work. The surveyor may be required to demonstrate the capabilities, accuracy, and reliability of the intended procedure. The Engineer will evaluate the procedure and intended application and provide approval or rejection within 21 days. Work may proceed immediately upon approval of procedures by the Engineer.

Test and adjust survey equipment according to Agency's procedures and maintain records of test results and submit copies to the Engineer upon request. Information on Agency test procedures may be obtained from the Engineer.

00305.07 Survey Work Records – Contractor's survey personnel shall maintain a Project daily record of work performed by the survey crew. The daily record shall contain the date, crew names, type and location of work, and work accomplished. Upon request, furnish a copy of diary entries to the Engineer. Furnish a final copy of the diary when the Project is complete.

Contractor's survey personnel shall make all field notes and calculations in a manner consistent with current Agency practices and on forms provided or approved by the Engineer. Computations, survey notes and other records necessary to accomplish the work shall be neat, legible and complete. Furnish copies of computations, notes and other records when requested by the Engineer.

For bridges, furnish computations, layout notes, and drawings of the structure to the Engineer for review 7 days before beginning construction.

Upon completion of construction staking and prior to final acceptance of the Contract, furnish to the Engineer, computations, survey notes, Project records and other data used to accomplish the work. Include an itemized list of the data.

All data and original documentation associated with this Project will become the property of the Agency.

00305.08 Communication With the Surveyor – The Engineer has the right to communicate directly with the surveyor.

00305.09 Electronic Data – The Engineer will not be responsible for any data translations. Compressed data provided by the Engineer or the Contractor will be in a "self-expanding executable" format. The method of exchange of electronic data will be mutually agreed upon at the pre-survey conference.

(a) Data Formats Provided by the Engineer:

- **CAD (graphics) Files** – SoftDesk Design File (.DWG) format
- **Horizontal Control Coordinates** – ASCII Coordinate File format
- **Elevations** – ASCII Elevation File format
- **Horizontal Alignments** – Intergraph Inroads ASCII Horizontal Alignment format
- **Vertical Alignments** – SoftDesk ASCII Vertical Alignment format
- **DTM Data** – SoftDesk Design File (.DWG) format
- **Cross Section Data** – Cross Section or Station, Offset and Elevation (SOE) File Format

Materials

00305.10 Materials – Furnish all materials including supplies, clothing, and incidentals required to accomplish the work. Use materials of good quality and suitable for the purpose intended. Stakes, hubs, and guinnies are to be of sufficient length to provide a solid set in the ground. Mark the stakes in such a way as to remain legible for the intended duration. Provide and use safety equipment required by State and federal regulations.

Equipment

00305.20 Survey Equipment – Furnish survey equipment required to accomplish the work that meets the following requirements:

- Components designed to work together
- Suitable for the purpose intended
- Capable of achieving specified tolerances
- In good operating condition
- Maintained to meet manufacturers specifications
- Kept in proper adjustment throughout the duration of the Project

Submit documentation on survey equipment that is new to the industry, to the Engineer for review 21 days prior to its use. The Engineer will evaluate the equipment and intended application and provide approval or rejection within 21 days. Equipment may be used immediately upon approval by the Engineer.

Labor

00305.30 Personnel – Provide technically qualified personnel capable of performing required tasks in a timely and accurate manner. Perform work under the direction and review of the Surveyor.

The Surveyor is responsible for:

- Maintaining registration as a Professional Land Surveyor in the State of Oregon
- Performing or validating requirements for procedures and testing of equipment
- Maintaining familiarity with the site conditions and progress of the Project
- Becoming familiar with the plans and specifications
- Determining notes and documentation required for types of survey work
- Determining the accuracy required for each survey stake
- Using appropriate equipment and methods
- Keeping close communication with the Project Inspector(s), Project Manager, and Agency survey crews working on the Project
- Being familiar with the varying construction survey requirements of each aspect of the Project, including the various bridge construction techniques when applicable
- Notifying the Project Inspector of conflicts and changes necessary due to utilities, match point variations, design revisions, or other variables

The survey crew leader is responsible for:

- Becoming familiar with the plans and specifications
- Keeping close communication with the Project Inspector(s), Project Manager, and Agency survey crews working on the Project
- Notifying the Project inspector of conflicts and changes necessary due to utilities, match point variations, design revisions, or other variables

Construction

00305.40 Construction Staking Tolerances – Set stakes or other devices at an adequate frequency and within the following tolerances:

Item	Horizontal	Vertical
Bridge Substructures	± 0.03 ft.	± 0.03 ft.
Bridge Superstructures	± 0.02 ft.	± 0.02 ft.
Clearing and Grubbing Stakes	± 1.00 ft.	n/a
Construction Centerline Control Points	± 0.05 ft.	n/a
Construction Centerline Station Points	± 0.10 ft.	n/a
Curbs and Walks	± 0.03 ft.	± 0.02 ft.
Grade Stakes – Roadway Subgrade	± 0.20 ft.	± 0.05 ft.
Grade Stakes – Top of Rock	± 0.20 ft.	± 0.03 ft.
Grade Stakes – Roadway Finish	± 0.10 ft.	± 0.02 ft.
Manholes, Inlets, and Culverts	± 0.10 ft.	± 0.03 ft.
Slope Stakes and References	± 0.30 ft.	± 0.10 ft.
Traffic Markings	± 0.20 ft.	n/a
Walls – Retaining, MSE, Sound, etc.	± 0.10 ft.	± 0.05 ft.
Wetland Mitigation Control Stakes	± 0.20 ft.	± 0.20 ft.
Luminaire and Signal Poles (incl. ftgs.)	± 0.20 ft.	± 0.03 ft.

Miscellaneous items not listed above will have a horizontal and vertical tolerance of 0.20 foot, unless otherwise directed. Features that are to be constructed flush to another surface should take on the same tolerance as that surface.

Tolerances for special circumstances will be discussed at the pre-survey meeting.

00305.41 Slope Stakes and References – Set slope stakes and references on both sides of centerline at 50 foot stations and at terrain breaks and changes in the typical section. Establish slope stakes in the field as the actual point of intersection of the design roadway slope with the existing ground line. Direct staking of the theoretical (computer generated) slope stake catch point requires prior approval of the Engineer.

Set slope stake references farther out from centerline than the actual catch point. Include all reference point and slope stake information on the reference stakes.

If an automated slope staking routine is intended to be used, the system shall be able to perform the proper superelevation, lane transitions, and benching, as well as duplicate other details in the design surface. The system shall record field modifications made to the final catch slopes. Any modifications shall be recorded and provided to the Engineer.

Prepare field notes showing slope stake and reference information, and provide to the Engineer.

00305.42 Clearing Limits – Set clearing limit stakes according to Section 00320. Space clearing limit stakes at intervals not greater than 50 feet or as directed.

00305.43 Grade Stakes – Set grade stakes or other control for grade elevation and horizontal alignment. Set grade stakes at each grade break line. Set additional points at intervals, as necessary, not to exceed the width of the grading equipment, or as approved by the Engineer. Set these rows at 50 foot stations or as required in special situations, as in road connections and other areas where conditions require tighter spacing of grade stakes to assure grade and alignment.

00305.44 Walls – Set stakes or other devices to control the location and elevation of wing walls and other walls as specified. Provide horizontal and vertical control for elements of wall(s) including but

not limited to footings, leveling pads, batter slope and direction, and top elevation. Stake drainage facilities, electrical conduits, water pipes and other items shown or identified that are to be integrated into the construction of the wall(s).

00305.45 Pipes and Culverts – Stake pipes and culverts to fit field conditions. Their location may be different from the plans. Perform the following:

- Determine the roadbed slope catch points at the inlet and outlet of pipes and culverts.
- Set reference point offsets to pipes and culverts. Record information necessary to determine structure length and end treatments.
- Stake ditches or grade to make pipes and culverts functional.
- Submit a copy of the field notes to the Engineer by the next working day following completion of the staking work.

00305.47 Manholes and Inlets – Determine the location of manholes, inlets, siphon boxes, slope protectors, and other similar structures. This may require an approved field adjustment to the planned location in order to avoid obstacles or assure placement at the low point. Determine the elevation of the center of the grate.

Set a stake referencing the center of the structure. Set a guard stake with the following information written on it:

- Type of structure
- Centerline station
- Centerline offset
- Reference distance
- Cut or fill to top of structure
- Center of structure elevation

Establish a reference line to control the alignment of the structure.

00305.49 Horizontal Control – Establish horizontal control stations using Theodolite/EDM network or static GPS techniques. Least squares adjustments shall be applied to either method. The use of traverses will be permitted only if approved by the Engineer.

Preserve all Agency provided and Contractor established horizontal control stations for the life of the Project. If the horizontal control network cannot be preserved in its original position during construction or if the Agency provided control stations are not of adequate quantity or location, establish a secondary horizontal control network using the original control as a basis. This secondary control network may then be used by the Contractor to layout all construction items and may be used by the Agency for right-of-way monumentation and for other purposes.

(a) General Specifications – Horizontal control networks shall conform to these general requirements in addition to Theodolite/EDM or GPS specifications to follow.

(1) Equipment:

- Use tripods for all occupations with theodolite, target, or GPS antenna.
- Test all components and adjust according to manufacturer specifications.

(2) Procedures:

- Include in field notes a detailed point description and vicinity sketch for each control station and survey monument established or used.
- Perform a minimally and fully constrained Least Squares adjustment.
- The line used for the basis of bearing shall be greater than 1,000 feet unless approved by the Engineer.
- Prior to using 2 points for the basis of bearing, perform an analysis to verify that the points are actually those indicated in the record.
- Control station monuments shall conform to the requirements of the Agency "Right-of-Way Monumentation Policy" available from the Engineer.
- If available, include at least three existing control stations in establishing any control network.
- Establish a point identifier for each control point within the range of 1 - 399. Alphanumeric point identifiers up to eight characters may be used. Inscribe the point identifier on the monument.

(3) Acceptance Standards – A least squares adjustment shall be accepted base on the following criteria for all specified tolerances.

- Two-thirds of all values shall be within the total tolerance.
- 100% of all values shall be within 3 times the total tolerance.
- Tolerance for confidence regions at the 95% level is 0.05 feet + 50 ppm based on the shortest distance to the nearest unadjusted control station.

(4) Data Requirements:

- Field notes containing a detailed point description and vicinity sketch for each control station and survey monument established or used.
- Minimally and fully constrained least squares adjustment reports

(b) Theodolite/EDM Networks:

(1) Equipment:

- Use Theodolites with a maximum angular standard of error no greater than ± 6 seconds.
- Use EDMs with a maximum distance standard error no greater than ± 0.02 feet ± 5 ppm.
- All components shall be of compatible accuracy and designed to be used together.

(2) Field Procedures:

- Include distance measurements with all observations unless impractical.
- Have at least one redundant observation for every point in the network.
- Triangulation, trilateration, and resection methods are acceptable.

(3) Acceptance Tolerances:

- Tolerance for angle residuals is ± 3 seconds.
- Tolerance for distance residuals is ± 0.02 feet ± 2 ppm.

(4) Data Requirements – Provide the following to the Engineer for each network or circuit established:

- **Raw Data Files** – These are electronic data files containing original measurements produced by the Theodolite (total station). The file shall contain:
  - Observation data for each measurement, including:
    - point identifier
    - direction, plate reading, or horizontal angle
    - vertical or zenith angle
    - slope distance
  - Supplemental measurement data, including:
    - distance units recorded
    - angular units recorded
    - curvature and refraction correction applied
    - atmospheric correction applied
    - prism correction applied
  - Codes or instructions to the processing software on how to process the data
  - Atmospheric conditions at the time of the survey
  - Angular and distance units recorded, and whether the distance has been corrected for curvature and refraction and/or atmospheric conditions.
- **Set Reduction Report** – This report summarizes the reduction of the angle sets and mean distances.
- **Least Squares Adjustment Reports** – These reports contain details of the least squares adjustment, including a list of all angular and distance residuals, confidence region values at a 95% confidence level, and final adjusted coordinates.

(c) GPS Networks:

(1) Equipment:

- GPS receivers shall be dual frequency geodetic receivers with a manufacturer-specified accuracy of ± 0.02 feet ± 1 ppm or better.
- All components shall be of compatible accuracy and designed to be used together.

(2) Field Procedures:

- Ensure that satellite geometry during the field observation phase is sufficient to produce accurate results. The geometric dilution of precision (GDOP) shall not be greater than 8.
- The number of healthy satellites being observed at any time shall be four or more.
- The elevation mask shall be not less than 15 degrees.

- Horizontal survey measurements, once completed, shall form a closed figure, and shall be connected to at least two existing horizontal control stations.
- Network shall be comprised entirely of independent baselines.
- Adjacent stations shall have direct connections.
- Every station shall be connected to two or more stations.
- Receiver documentation shall be followed for observation times and epoch intervals.
- Each control station shall be occupied no less than twice, of which two occupations shall be separated from each other by time. Separation shall be measured start-time to start-time. Separation shall be 90 minutes or more from initial occupation and 90 minutes or more from any 12 hour multiple thereafter for 30 days. Additional occupations beyond two are not subject to time restrictions.
- Back-to-back occupations of 90 minutes or more shall be separated by off leveling and re-setting the tripod and rotation of the tribrach or leveling equipment by 120 degrees or more.
- Stations closer together than 1,500 feet shall be connected with terrestrial observations.
- Inter-visible stations closer together than 3,000 feet shall be connected with terrestrial observations.

(3) Acceptance Tolerances:

- Tolerance for linear residuals in latitude, longitude, and elevation is ± 0.05 feet

(4) Data Requirements – Provide the following to the Engineer for each network established:

- **Receiver Independent Exchange (RINEX) Data Files** – These are industry-standard non-proprietary electronic data files containing original data collected by the receiver. The provided files shall contain all data supported by both the RINEX file format and the equipment and software employed in the survey. Files provided shall include as a minimum:
  - GPS observation data file
  - GPS navigation message file
- **Observation Log Sheet** – This log includes, for each observation, start and stop times, and antenna height including measurement procedure.
- **Least Squares Adjustment Reports** – These reports contain details of the least squares adjustment, including a list of all latitude, longitude, and height residuals, confidence region values at a 95% confidence level, and final adjusted coordinates.

(d) Traverses:

(1) Equipment:

- Identical to requirements for Theodolite/EDM networks

(2) Field Procedures:

- Include distance measurements with all observations unless impractical.
- Close both traverse for angle and distance.

(3) Acceptance Standards:

Closure shall be a minimum of 1:20,000 after angular adjustment and prior to coordinate adjustment.

(4) Data Requirements – Provide the following to the Engineer for each traverse established:

- **Adjustment Report** – This report contains details of the traverse adjustment, including adjusted coordinates.

- **Other Reports** – All data required for Theodolite/EDM networks except least squares adjustment report.

00305.50 Vertical Control – Establish vertical control stations using differential leveling and third order or better equipment and techniques. The development of vertical control by techniques other than differential leveling must be approved by the Engineer. A least squares adjustment shall be applied to each network of acceptable level circuits.

The Agency provided and Contractor established vertical control stations shall be preserved for the life of the Project. If the vertical control network cannot be preserved in its original position during construction or if the Agency provided control stations are not of adequate quantity or location, establish a secondary vertical control network using the original control as a basis. This secondary control network would then be used to layout all construction items and may be used by the Agency for other purposes.

(a) Field Procedures:

- Use a compensated (or "automatic") optical level or compensated digital level.
- Include a minimum of two published bench marks in each circuit unless otherwise directed.
- If the circuit between benches does not close within the tolerance stated below, close circuit back to the starting point.
- If the use of one benchmark is approved, close circuit back to the starting point.
- Select turning points that are firm, solid objects with a defined high point. Set a nail, spike, or stake if no existing items are acceptable. Turning plates with a weight of not less than 2 kg (4.5 pounds) may be used.
- Balance backsight and foresight distances to within 10 m (30 feet) on each setup and to within 10 m (30 feet) on the entire circuit.
- Make a record of the rod reading(s) and the observation distance on each sighting.
- Set TBMs near significant construction items (bridges, intersections, and other locations where elevations will be needed) and not more than 300 m (1,000 feet) apart throughout the Project.
- Select TBM monuments that are firm, solid objects with a defined high point, not likely to be moved by human or natural influences, readily identifiable, and out of the path of construction.
- Do not use fire hydrants, guardrails, highway signs, or nails or spikes in utility poles or fence posts.
- Include detailed point descriptions and vicinity sketch in field notes.
- Take field notes when recording measurements electronically. Include data and information not electronically measured and recorded.
- Apply a vertical least squares adjustment to allowable errors. The use of proportional distribution of error may be used if approved by the Engineer.

(b) Acceptance Standards – Each leveling circuit shall be accepted based on the "point-to-point" or "closed-loop" limits described below. A single least squares adjustment shall be applied to the observations in the leveling circuits meeting the acceptance standards.

- Accept point to point circuit based on the following. Error of closure shall be no greater than:

  Allowable Error = 0.05 ft. $\sqrt{D}$

  D = Shortest level line distance in miles

- If a closed loop, the error of closure shall be no greater than:

  Allowable Error = 0.035 ft. $\sqrt{E}$

  E = Perimeter of level loop in miles

(c) Data Requirements – Provide the following to the Engineer for each network or circuit established:

- **Raw Data** – These are hand written field notes or hand written field notes accompanied by electronic data files containing original measurements produced by the level. The file shall contain:
  - Data for each measurement, including a:
    - point identifier (within a range of 400 - 499 and also inscribed on the monument)
    - rod reading
    - observation distance
  - Supplemental measurement data, including:
    - distance units recorded
    - curvature and refraction correction applied
- **Level Computation Report** – This report contains the computation of unadjusted elevations, observation distance imbalances, computer allowable error, and closure error.
- **Level Adjustment Report** – This report contains the adjustment details, including residual values, adjusted elevations and standard errors.
- **ASCII Elevation Data File**

00305.51 Bridges – Set stakes, nails, or other devices to control the location and elevation of the various parts of bridges and progressive phases of construction. Provide horizontal and vertical control for all elements of bridge construction. Stake drainage facilities, electrical conduits, water and sewer pipes, pedestrian and bicycle facilities, traffic signal and sign supports, illumination devices, and other items shown or identified that are to be integrated into the construction of the bridge.
Identify marks or provide field notes or reports to the Engineer. Such provision of information shall be adequate for the Engineer to review the location and elevation of the mark for the intended purpose prior to incorporating material that is based on the mark.

(a) Bridge Survey Control Stations – Use the smallest number of original Project control stations as is practical for establishing positions and reference points for bridge construction on one bridge. Use of multiple control stations will increase the probability of incorporating error into the construction. Use control stations that are as closely related mathematically as practical. The Contractor may establish additional control stations as necessary to complete the survey work. Additional control stations shall be established in such a manner as to provide the accuracy needed to meet the tolerances in 00305.40.

Original Project control stations shall be used only after the following evaluation is completed for each bridge:

- Supply a list of original Project horizontal and vertical control stations intended by the Contractor to be used in establishing positions on a given bridge.
- Measure relative positions of original Project horizontal control stations intended to be used.
- Measure elevation differences between original Project vertical control stations intended to be used.
- Supply horizontal and vertical measurement data to the Engineer.
- Compare measured values with those computed from original horizontal network coordinates and vertical network elevations.
- Any discrepancy of concern to either the Contractor or the Engineer will be resolved before that combination of control stations is used.

(b) Layout Marks and Reference Points:

(1) Substructure – Stake, reference, or otherwise identify locations, orientations, and elevations necessary for placement of substructure components, including but not limited to cofferdams, pilings (including batter), footings, columns, abutments, caps, cross beams, bearing devices, temporary supports or falsework, and excavations and embankments associated with any of the above.

Verify and document the locations, elevations and spatial relationships with adjacent substructure components. On bridges where prefabricated beams will be used, measure and document span lengths between bearing devices at each beam location as soon as practical. Supply a copy of such documentation to the Engineer for review before the next stage of construction.

Compute the final elevations after studying the plans, specifications, and shop drawings. Adjust the grades as needed to compensate for camber of prefabricated beams, chording of beams across the low side of superelevations, width of flat beams on superelevated surfaces, and any other factor resulting from design or construction methods.

(2) Superstructure – Stake, reference or otherwise identify locations, orientations, and elevations necessary for placement of superstructure components including but not limited to beams, girders, diaphragms, earthquake restraints, deck, rails, structure mounted traffic control and illumination devices, and concrete forms, temporary supports and falsework associated with any of the above.

Stake alignment of structure as needed at each stage of construction. Stake alignment of poured-in-place items at 10 foot stations or as established by the Engineer. Stake alignment for the following items as needed to maintain the horizontal tolerance defined in 00305.40:

- Outside edge of girder(s)
- Face(s) or centerline(s) of internal girders or stem walls

- Edge of deck
- Alignment of grade breaks
- Pedestrian and bicycle facilities
- Rails and railings

Stake grades at each stage of construction. Stake grade of poured-in-place items at 10 foot stations, or as established by the Engineer. Apply corrections to design grades based on the dynamics of the evolving structure. Corrections that may be required depend upon the design of the bridge and the construction methods employed. Provide correction values to the Engineer at least 15 working days prior to incorporating into the structure. The following list is examples of possible corrections:

- Design camber (upward adjustment to compensate for anticipated deflection)
- Structural deflection (deflection of the bridge under its own increasing weight)
- Post tensioning lift (upward movement of the bridge under post tensioning forces)
- Structural shifting (dynamics of the bridge under eccentric loading)
- Falsework deflection (deflection of falsework beams under increasing weight)
- Falsework crush (compression of falsework supports under increasing weight)
- Form crush (compression of forms under increasing weight)
- Equipment deflection (deflection of deck finishing machine or deck rails)
- Other adjustments to staked value to achieve the design grade

(c) Bridge Deck Grades – Set stakes or other devices to control the deck grade elevations. The exact process will depend upon the type of deck and the equipment being used. Stake and construct finished deck grades within the tolerances of 00305.40.

(1) Portland Cement Concrete Deck – The surveyor and survey crew leader shall attend the first of the two deck pre-placement conferences, described in 00540.02(a), required for each deck placement.

Control of a PCC deck may involve significant work with the deck placement crew to establish control for a deck finishing machine. Rails for supporting the deck finishing machine are generally set up on either side of the deck. Each rail is held up by adjustable supports every 5 feet. Adjust the rail at each support to the desired grade while the rail is supporting the weight of the finishing machine. Corrections may need to be applied as listed in 00305.51(b-2).

(2) Asphaltic Concrete Deck – Control of an AC deck will not generally involve as many variables as PCC. An AC deck serves as a wearing surface, but not a structural component. Asphaltic concrete will frequently be used as filler to create the desired superelevations when flat beams form the superstructure. Stake control of the finish grade like any asphalt finish grade. Under some circumstances, design camber and structural deflection may need to be considered.

00305.52 Pavements – Set stakes or other control devices to control the location and elevation of asphalt and PCC pavement as shown. Provide surveying or survey-related activity necessary to control grade, thickness, and smoothness as required.

00305.53 Signs, Signals, and Illumination – Determine the exact location of posts, poles, cabinets, junction boxes, detectors and other similar appurtenances and their relative location to roadway features such as edge of pavement, curbs, sidewalks, sidewalk ramps, lane lines, etc., by means of field measurements. This may require an approved field adjustment to the planned

location in order to avoid obstacles or ensure its placement in a functional location. Field verify length of poles, posts, mast arms, and tenon locations and field verify orientation of triangular bases for poles, and submit documentation to the Engineer.

Set a stake referencing the center of the item. Set a guard stake with the following information written on it:

- Description of item (by plan number if applicable)
- Centerline station
- Centerline offset distance
- Cut or fill from reference point (and what point the cut or fill is to)
- Intended elevation

If the orientation of the item is significant and is not clear, establish a reference line for the skew of the item.

Temporary

00305.60 Temporary Protection and Direction of Traffic – Provide all work zone signing conforming to "ODOT Signing and Flagging Standards for Short Term Work Zones 1998" and "Short Term Traffic Control Handbook for ODOT Survey Crews 1998".

Signs for use by the survey crew may be constructed of plywood, sheet aluminum or fabric. Signs, flaggers and flagger equipment shall conform to the requirements of Section 00225.

Maintenance and Monumentation

00305.70 Preservation of Survey Markers:

(a) Project Control Points Established by the Engineer – Maintain, relocate or replace existing survey monuments, control points, and stakes, as determined by the Engineer. Perform the work to produce the same level of accuracy as the original monument(s) in a timely manner, and at the Contractor's expense.

(b) Monuments of Record – Preserve survey monuments according to 00170.90, and ORS 209.140 and 209.150 and 209.155.. If such monuments are to be disturbed or destroyed, comply with requirements of these ORS at the Contractor's expense.

00305.71 Project Monumentation – The Contractor will not be responsible for performing right-of-way monumentation.

Measurement

00305.80 General – No separate measurement will be made for construction survey work.

Payment

00305.90 General – Payment for performing construction survey work will be made at the Contract lump sum amount for the item "Construction Survey Work".

Payment will be payment in full for furnishing all material, equipment, labor, and incidentals necessary to complete the work as specified. Payment includes all temporary protection and direction of traffic measures including flaggers and signing necessary for the performance of the construction survey work.

No separate payment will be made for preparing surveying documents including but not limited to office time, preparing and checking survey notes, and all other related preparation work.

The amount to be allowed for "Construction Survey Work" in the progress payments will not be in excess of the reasonable value of the surveying work performed under this specification as said reasonable value is estimated by the Engineer.

Costs incurred as a result of survey errors will be borne by the Contractor. Such costs include price adjustments for failure to meet requirements of the construction specifications, repair or removal and replacement of deficient product, and over-run of material.

Section 00320 – Clearing and Grubbing

The Clearing and Grubbing Section shall be administered in conformance with Section 00320 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Description

00320.02 Definitions:

(c) Clear Zone – Delete this subsection and replace with the following:

The clear zone is the roadside border area, starting at the edge of the traveled way, available for safe use by an errant vehicle. The minimum clear zone line, for purposes of this Section shall be the established right-of-way (ROW) line in the project area.

Construction

00320.40 Clearing Operations:

(b) Preserving and Trimming Vegetation:

(3) Tree Trimming - Delete the second bulleted item in this subsection and replace with the following:

- Branches over roadways and bridges to provide the following clearances according to Agency ordinance:
  - 13 feet over street surfaces
  - 14 feet over established truck routes
  - 8 feet over sidewalks

(4) Trees To Be Saved – The Engineer will identify and mark trees to be saved. Provide and place orange plastic mesh fencing, from the QPL, around critical root zones of marked trees or tree groups as directed. Do not begin construction activity or move equipment into existing tree areas until the plastic mesh fencing is in place.

Do not work within the critical root or canopy zone of marked trees unless written approval is obtained from the Engineer. Where construction operations are necessary within the critical root or canopy zone of marked trees, the Contractor shall make arrangements for alternative construction methods to minimize or eliminate damage to the trees in question.

The Contractor shall be responsible for any damage to or removal of marked trees. Tree damage will be determined by a certified arborist selected by the Engineer.

00320.42 Ownership and Disposal of Matter

(a) Burning – Delete this subsection.

(b) Chipping – Delete this subsection and replace with the following:

With Engineer's approval, woody matter may be disposed of by chipping and spreading the chips (not to exceed 2 inches in any dimension) uniformly in loose layers over selected areas as directed.

(c) Burying – Delete this subsection.

(d) Other Disposal Methods – Delete this subsection and replace with the following:

Dispose of all other material or debris not disposed of according to 00320.42(b), (d) or (e), according to 00310.43(d).

Add the following subsection:

(e) Timber Salvage – Unless otherwise indicated in the Special Provisions, all merchantable timber shall become the property of the Contractor and shall be removed from the project area immediately following the salvage operation.

Payment

0320.92 Incidental Basis – Add the following paragraph:

No separate payment will be made for plastic mesh fencing or alternative construction methods required by 00320.40(b-4).

Section 00330 – Earthwork

The Earthwork Section shall be administered in conformance with Section 00330 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Construction

00330.41 Excavations

(a) General:

(6) Excavation of Existing Surfaces – Add the following paragraph to this subsection:

When excavating existing roadways, no rubber tired equipment such as scrapers, graders, or front end loaders will be allowed on the subgrade due to possible unstable subgrade conditions and/or the close proximity of underground utilities to the subgrade elevation.

(7) Abandoned Pipes and Miscellaneous Matter – Delete the last paragraph in this subsection and replace with the following:

Place watertight caps or plugs in inlets and outlets of remaining abandoned pipes. Pipe ends must be buried a minimum of 2 feet below finish grade. Shape and finish the affected area so no evidence of their existence is apparent upon completion of the work.

(9) Excavation Below Grade: – Replace the last bulleted item with the following:

- Where unstable material is encountered below subgrade in roadbed excavations, excavate such material below subgrade as directed by the Engineer. Dispose of these unstable materials according to 00330.41(a-5). Install an approved subgrade geotextile fabric prior to backfilling any excavations below subgrade. Backfill shall be 3"-0" well graded, clean, durable, angular quarry rock with less than 5% fines passing the #200 sieve. The rock shall have a minimum specific gravity of 2.55. Flat or elongated rock will not be accepted unless individual pieces have a minimum thickness of 1/3 the length.

(c) Embankment Construction:

(3) Embankment Slope Protection – Add the following paragraph:

Construct the outer 12 inches of embankments with suitable materials to establish slope stabilization through permanent seeding. If suitable material is not available, provide suitable materials from a Contractor-provided source which conforms to the requirements of 00330.11 or 00330.13 and provides favorable conditions for germination of seed and growth of grass.

00330.43 Earthwork Compaction Requirements:

(a) General - Add the following to this subsection:

If the specified compaction is not obtained, the Contractor shall notify the Engineer. The Contractor may be required to use a modified compaction procedure or apply additional compactive effort. If approved materials meeting the specifications cannot be compacted to the required density regardless of compactive effort or method, the Engineer may reduce the required density or direct

that alternate materials be used. In no case shall earthwork operations proceed until the Contractor is able to compact the material to the satisfaction of the Engineer.

Section 00331 – Subgrade Stabilization

The Subgrade Stabilization Section shall be administered in conformance with Section 00331 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Materials

00331.16 Acceptance of Backfill – Replace this subsection with the following:

Backfilling for subgrade stabilization shall conform to the following and will be visually inspected by the Engineer. The backfill shall be 3"-0" well graded, clean, durable, angular quarry rock with less than 5% fines passing the #200 sieve. The rock shall have a minimum specific gravity of 2.55. Flat or elongated rock will not be accepted unless individual pieces have a minimum thickness of 1/3 the length.

Construction

00331.40 Excavation – Delete this subsection and replace with the following:

Excavate unstable material to the lines and grades as shown or directed. Dispose of the excavated material according to 00330.41(a-5).

Material that is too wet to be compacted to specified density, but which in the judgment of the Engineer otherwise meets the requirements, may be scarified and aerated to provide optimum moisture content. The scarification and aeration shall be performed at no additional expense to the Agency.

Payment

00331.90 General – Delete this subsection and replace with the following:

Payment will be payment in full for furnishing all materials, equipment, labor and incidentals necessary to complete the work as specified. No separate or additional payment will be made for excavation, scarification, aeration, geotextile, stone embankment or aggregate backfill material or water. These items will be included in the subgrade stabilization item.

Section 00335 – Blasting Methods and Protection of Excavation Backslopes

The Blasting Methods and Protection of Excavation Backslopes Section shall be administered in conformance with Section 00335 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Delete this Entire Section and add the following:

Blasting will not be allowed unless approved.

Section 00340 – Watering

The Watering Section shall be administered in conformance with Section 00340 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Construction

00340.40 Watering:

(a) General – Delete the first paragraph in this subsection and replace with the following:

The Contractor must request metered water from the Agency if needed and notify the Agency a minimum of three Working Days in advance as to the desired location of the water source. Maintain an adequate supply of water at all times.

Measurement

00340.80 Watering – Delete the first paragraph of this subsection and replace with the following:

If Agency water is not available, the pay quantities of Contractor supplied water shall be determined by any of the following measurements:

Section 00344 – Treated Subgrade

The Treated Subgrade Section shall be administered in conformance with Section 00344 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Construction

00344.41 Addition of Stabilizing Material – Add the following paragraph to this subsection:

Stabilizing materials shall be applied only when the temperature is above freezing and when wind and other weather conditions are not detrimental to the work or to the public. The Contractor shall take all precautions necessary to prevent injury to persons, livestock or property. Any material which is spilled or deposited at places other than on areas designated to be treated shall be immediately picked up, buried or otherwise made harmless at no expense to the Agency.

00344.45 Compaction:

(c) Replace the second sentence in this subsection with the following:

Place fabric and backfill the over-excavated subbase area up to the subgrade elevation with 12 inch lifts of 3" - 0 crushed rock and compact.

Section 00360 – Drainage Blankets

The Drainage Blankets Section shall be administered in conformance with Section 00360 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Materials

00360.10 Sand Drainage Blanket – In the first sentence, replace "AASHTO T 27" with "AASHTO T 11/T 27".

Section 00370 – Finishing Roadbeds

The Finishing Roadbeds Section shall be administered in conformance with Section 00370 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Construction

00370.40 Within Roadbed Cross Section

(c) Slopes:

Delete "more than 3 inches in size which are loose or could become loosened." form 1st bullet.

Section 00390 – Riprap Protection

The Riprap Protection Section shall be administered in conformance with Section 00390 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Materials

00390.11 Riprap Requirements:

(b) Test Requirements – Under the "Material Test" column, replace "Soundness (ODOT TM 206)" with "Soundness (AASHTO T 104)".

Under the "Requirement" column next to "Sediment Height" replace "(8")" with "(8.0")".

00390.43 Riprap Backing – Add the following to this subsection:

Use either riprap geotextile or a filter blanket under the riprap.

PART 00400 – DRAINAGE AND SEWERS

Section 00405 – Trench Excavation, Bedding and Backfill

The Trench Excavation, Bedding and Backfill Section shall be administered in conformance with Section 00405 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Description

00405.02 Definitions – Replace the following definition to this subsection:

Rock Excavation – No soft or disintegrated rock; hard-pan or cemented gravel that can be removed with a hand pick, or power operated excavator or shovel; no loose shaken, or previously blasted rock, or broken stone in rock filings or elsewhere; and no rock outside of the minimum limits of measurement allowed, which may fall in the excavation, will be considered as rock excavation.

Materials

00405.11 Trench Foundation – Delete 1st bulleted item from this subsection.

00405.12 Bedding – Replace this subsection with the following:

For rigid pipes, unless otherwise directed, provide ¾"-0" or 1"-0" aggregate pipe bedding.

Construction

00405.41 Trench Excavation

(c) Trench Width – Replace this subsection with the following:

Trench width at ground surface shall be kept to the minimum necessary to install the pipe in a safe manner, but not less than 24 inches. In all cases, make trenches of sufficient width to allow for shoring and to permit proper jointing of the pipe and backfilling of material along the sides of the pipe. The minimum trench width in the pipe zone must provide a clear working space of 6 inches outside the maximum outside diameter of the pipe. Make excavations for manholes and other structures wide enough to provide a minimum of 12 inches between the structure surface and the sides of the excavation. Keep the top of the trench within right-of-way or permit limits.

There will be no additional compensation for trench widths that are larger than required due to improper shoring techniques and or poor trench wall material.

(h) Root Pruning – Add the following subsection to this section:

Tree roots may be encountered during trench excavation. The contractor may do his own root pruning, but shall have a licensed arborist as a subcontractor to provide advice on root pruning. The arborist will supply written guidelines on root pruning procedures prior to any pruning. These will include proper methods for cutting roots, maximum root size that may be cut without review (in inches or a percentage of caliper), and a list of tools required to be kept on-site for pruning. Roots will be properly removed prior to placing new materials. If the contractor does not follow the guideline, the engineer may require that the arborist does the required pruning at no additional cost to the City.

If root pruning will endanger the life or stability of a tree, the arborist will supply a brief written description of the problem and indicate possible options. Options may include, but are not limited to, realigning the facility, deflecting the facility, or removal of the tree. The contractor will notify the engineer immediately and forward the arborist's report. If any option(s) requires work in addition to defined bid items, the contractor will provide a proposed cost for the additional work. If the contractor is directed to do additional work, a change order to compensate the contractor will be executed prior to performing the work. No additional payment will be made for realignment or deflection to a facility.

00405.43 Dewatering – Replace this subsection with the following:

(a) Design Criteria -

- The Contractor shall be responsible for dewatering design and selection of methods and equipment for the dewatering system.
- Dewatering facilities shall be located only where they will not interfere with utilities, traffic, pedestrians, or construction work to be done by others and not result in damage to existing or proposed adjacent properties, buildings, structures, utilities and other work.
- Contractor shall modify dewatering procedures that cause, or threaten to cause damage to new or existing facilities, so as to prevent further damage. The Contractor shall be responsible for determining and making the modifications at no additional cost to the Owner.
- Dewatering systems: The design of the dewatering systems and the selection of equipment and materials for the dewatering systems shall be the Contractor's responsibility. The Engineer reserves the right to request additional or different methods of dewatering.
- Pumps discharging contaminated groundwater to the Waste Water Treatment Plant shall be equipped with totalizing flow meters to accurately determine flow rates and the quantity of water pumped.
- Effluent Filter Bags must be of an approved design and manufactured from a tightly-knit burlap or geotextile fabric. They are not intended to provide complete filtration of suspended solids; other erosion control devices may need to be employed in conjunction with these devices. The Contractor shall remove and replace these devices when they are completely silted or otherwise incapable of providing an adequate preliminary filter for dewatering effluent.

(b) Quality Requirements -

1. Provide for the arrangement, locations and depths of the dewatering system to accomplish the Work and satisfy the specified requirements. Provide sumps of adequate size and screen opening, and filter material of suitable size and gradation to prevent removal of fines from the soils. Make available equipment, machinery and piping, including standby power and pumps in good working condition and of adequate capacity to continue dewatering operations in an emergency.

2. Dispose of water in closed conduits so as not to damage public or private property or create a nuisance or health hazard. Connect the closed conduits to existing sanitary or storm sewers as required which have sufficient capacity for the flow or install new pipes as required.

3. Design dewatering methods which will prevent migration of soil particles into the water pumped after initial development.

(c) Site Conditions -

1. The Contractor shall be responsible for the continuous control of water and safety of excavations at all times during the course of construction, including weekends and holidays and during period of work stoppages, and shall provide adequate backup systems to accomplish control of water. The method of control, handling, and disposal of groundwater and surface water shall be by whatever means are necessary and in conformance with this section to obtain satisfactory working conditions and maintain the progress of the work. All applicable legislative statutes, judiciary decisions, and regulations shall be followed including those pertaining to the use of drilled wells for dewatering.

2. All required drainage, pumping, and disposal shall be done without damage to adjacent property or structures, and without interference with the operations of other contractors, or the rights of public or private owners, or pedestrian and vehicular traffic. The Contractor shall modify the water control system at no cost to the Owner if, after installation and while in operation, it causes or threatens to cause damage to adjacent property or to existing buildings, structures, or utilities.

3. Repair is subject to the Engineer's acceptance for any damage, disruption, or interference resulting directly or indirectly from dewatering operations at no additional cost to the Owner.

(d) Water Control in Excavations -

- Water control methods shall be used which are appropriate to the ground and construction conditions. The methods will involve removal of water within the excavation and may involve removal of water outside the excavation or construction of facilities to control water movement into the excavation from other sources. Water control measures shall minimize adverse effects on the surrounding ground and adjacent facilities and structures. The water control measures shall be designed and operated so as to prevent removal of in-situ materials, or loosening or softening of in-situ materials.
- Groundwater shall be controlled such that the excavation and backfill of shafts and open excavations, and construction of structures will be performed in dry conditions, to control groundwater seepage into excavations and shafts, and to prevent hydrostatic uplift pressures until backfilling has been completed. Static groundwater levels shall be maintained to at least one foot below the lowest excavation. Water shall be controlled and removed during periods when concrete is being placed, and at such other times as is necessary for efficient and safe execution of the work.
- If large quantities of surface or subsurface water drain into surface excavations or shafts, immediate steps shall be taken to control the water inflow. Large quantities of inflow requiring immediate control shall be defined as that which adversely affects the performance of the work for quantities that have the potential of causing loss or damage to adjacent property or structures.

00405.44 Trench Foundation – Where additional excavation is required due to groundwater or unstable conditions, the backfill material shall be 3"-0" well graded, clean, durable, angular quarry rock with less than 5% fines passing the #200 sieve placed over an approved woven geotextile material. The rock shall have a minimum specific gravity of 2.55. Flat or elongated rock will not be accepted unless individual pieces have a minimum thickness of 1/3 the length.

00405.46 Backfilling –

(c) Trench Backfill –

(2) Class A, B, C, or D Backfill – Replace this subsection with the following:

The Contractor shall backfill the trench above the pipe zone in successive lifts. Backfill shall not be allowed to free-fall into the trench until at least 1 m (3 feet) of cover is provided over the top of the pipe. The method of compaction shall be modified as necessary to protect the pipe.

Trench backfill lifts shall not exceed 1 foot. Each lift shall be compacted to a minimum of 95 percent of the maximum density as determined by AASHTO T 99, Method D. At a minimum, the Contractor will be required to take compaction tests every 25 lineal feet along the trench, or as directed by the Engineer. If the specified compaction is not obtained, the Contractor may be required to use a modified compaction procedure and/or reduce the thickness of the lifts. If approved materials meeting the specifications cannot be compacted to the required density regardless of compactive effort, the Engineer may reduce the required density or direct that alternate materials be used. In no case shall excavation and pipe laying operations proceed until the Contractor is able to compact the backfill to the satisfaction of the Engineer.

If the material is not density testable, the Engineer will observe each layer for deflection or reaction under the compaction equipment to verify that no soft or pumping areas remain. Compact until there is no excessive deflection under the compaction equipment.

When the backfilling is complete, finish the surface area as specified. In paved or graveled areas, maintain the surface of the trench backfill level with the existing grade with ¾"-0" crushed aggregate material. On paved streets that will be open to through traffic, the Contractor must provide temporary surfacing such as hot mix asphalt concrete or cold mix until final pavement replacement is complete and accepted.

00405.48 Surface Removal – Add the following sentence to this subsection:

Topsoil resurfacing shall be imported top soil, as per 1040.14, unless otherwise approved by the Engineer.

Section 00430 – Subsurface Drains

The Subsurface Drains Section shall be administered in conformance with Section 00430 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Materials

00430.10 Materials – Delete the following 2 items:

Perforated Corrugated Aluminum Alloy Pipe
Perforated Corrugated Steel Pipe

Section 00440 – Commercial Grade Concrete

The Commercial Grade Concrete Section shall be administered in conformance with Section 00440 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

00440.10 Acceptance Sampling and Testing

(d) Hardened CGC – Replace this subsection with the following:

Acceptance of the hardened CGC will be according to 00440.12. Cast one set of cylinders per 20 cubic yards, with a minimum of one set per day.

Section 00445 – Sanitary, Storm, Culvert, Siphon and Irrigation Pipe

The Sanitary, Storm, Culvert, Siphon and Irrigation Pipe Section shall be administered in conformance with Section 00445 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Description

00445.02 Contractor's Options – Delete this subsection.

Materials

00445.11 Materials – Delete the following 2 items:

Corrugated or Spiral Rib Aluminum Alloy Pipe
Corrugated or Spiral Rib Steel Pipe and Pipe Arches

Construction

00445.40 General –

(b) Line and Grade – Replace this subsection with the following:

Centerline and grade control will be established prior to the start of construction. The Special Provisions will indicate whether it will be done by the Agency or the Contractor.

Do not vary from established line and grade by more than 1/32 inch per inch of pipe diameter. Variances shall not exceed ½ inch, subject to the following limitations:

- The variation does not result in a level or reverse sloping invert
- The variation in the invert elevation between adjoining ends of pipe, due to non-concentricity of joining surfaces and pipe interior surfaces, does not exceed 1/64 inch per inch of pipe diameter, or ½ inch, whichever is less.

The Contractor shall coordinate alignment and grade of new sewer service lines to avoid conflicts with existing and or new utilities. The Contractor shall maintain proper clearances with all potable water lines.

(f) Installation of Sanitary Sewer Services Tees and Wyes – Replace this subsection with the following:

Provide a compacted base of pipe bedding material under all tees, wyes and branch fittings, extending to the springline of the fittings. The last length of all service lines shall be a manufactured wye with pipe extended to the ground surface as a cleanout as required or specified. The cleanout, and the building side service of the wye, on service lines not connecting to an existing sewer, shall be plugged with a removable watertight cap. No additional length of pipe shall be added beyond the wye unless otherwise specified.

Cap all service lines for sanitary sewers with watertight plug suitable for resisting the pressures of hydrostatic or air testing.

The maximum line or grade change accomplished with any one fitting shall not exceed 45 degrees and shall be accomplished with long radius curves or bends.

Finishing, Clean Up and Testing

00445.72 Pipe Testing:

(a) General – Replace this subsection with the following:

After completing installation of the system, including all service connections, backfilling and compaction, conduct a low-pressure air test. Provide all equipment and personnel for the test. Conduct tests during normal working hours. The Engineer may require testing of manhole-to-manhole sections as they are completed in order to expedite the acceptance of the system and allow connections.

When sanitary sewer lines are replaced "in place", pipe and joint testing shall be visual and performed by the Agency's authorized representative. If adequate construction is questionable, the contractor may be required to provide testing of part or all sanitary sewer pipe and/or services as described in this subsection.

The method, equipment and personnel used in testing shall be subject to approval of the Engineer. The Engineer may, at any time, require a calibration check of the instrumentation used.

(1) Safety Precautions – Only qualified personnel will be permitted to conduct the test. All plugs used to close the system for the testing shall be capable of resisting the expected internal pressures. Securely brace plugs, if necessary. Testing equipment shall be placed above ground and personnel will not be permitted to enter a manhole or trench while a line is pressurized. The air or water pressure shall be released before the plugs are removed.

(2) Ground Water – The presence of groundwater will affect the results of the test. Determine the average height of groundwater over the lines immediately before starting the test, using an approved method.

(b) Hydrostatic Testing – Delete this subsection entirely. Hydrostatic testing will not be allowed.

00445.73 Deflection Testing for Flexible Pipe – Replace the last paragraph of this subsection with the following:

Conduct testing on a manhole-to-manhole basis after the line has been completely flushed out with water. Conduct the tests after the trench backfill and compaction have been completed, but prior to final surfacing. The test may be conducted concurrently with television inspection.

00445.74 Television Inspection of Sanitary Sewer and Storm Sewers – Add this bulleted item under "The audio-visual recording shall":

- Be in DVD or CD format

Section 00470 – Manholes, Catch Basins and Inlets

The Manholes, Catch Basins and Inlets Section shall be administered in conformance with Section 00470 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Materials

00470.10 Materials – Delete the following item:

Corrugated Metal Pipe

00470.18 Manhole Steps – Add the following subsection:

The Contractor shall provide steps in all sanitary and storm sewer manholes exceeding a depth of 3 feet. The steps shall have a neoprene coating and be made of either structural steel galvanized or reinforcing steel galvanized.

00470.43 Cast-in-Place Concrete Construction – Modify the following subsection:

(a) General Delete last sentence of paragraph

Section 00490 – Work on Existing Sewers and Structures

The Work on Existing Sewers and Structures Section shall be administered in conformance with Section 00490 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Materials

00490.42 Service Line Connections to Existing Sanitary Sewers – Add the following to this subsection:

Previous use of the service line or building sewer for septic tank or other application, or absence of usable cleanouts for accessing the building sewer, shall not excuse the requirement for testing except as may be authorized by the state building codes inspector.

Service connections shall be made as quickly as possible. The Contractor shall sequence construction and provide a temporary service so as not to interrupt sewer service or flows. Any costs incurred due to a failure of the temporary service shall be the responsibility of the contractor. Flow shall be through the existing or new sewer pipe only. In no case shall sewer flow be allowed into any excavation. The contractor shall also verify that any sanitary sewer service line to be abandoned is out of service.

Section 00495 – Trench Resurfacing

The Work on Trench Resurfacing Section shall be administered in conformance with Section 00495 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Construction

00495.40 General – Add the following paragraph to this subsection:

Prior to placement of any trench resurfacing, all utility work, including sanitary, storm drainage, water and any private utilities shall be completed, inspected and accepted by the Agency.

PART 00600 – BASES

Section 00640 – Aggregate Base and Shoulders

The Aggregate Base and Shoulders Section shall be administered in conformance with Section 00640 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Delete this Entire Section.

Section 00641 – Aggregate Subbase, Base and Shoulders

The Aggregate Subbase and Shoulders Section shall be administered in conformance with Section 00641 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Construction

00641.44 Shaping and Compacting

(c) Open Graded Aggregates – Add the following subsection:

The specified percent of relative maximum density for open-graded aggregates will not be required. Compact the surface of each layer of material using rollers conforming to 00641.24. Roll until there is no appreciable reaction or yielding under the compactor.

PART 00700 – WEARING SURFACES

Section 00730 – Asphalt Tack Coat

The Asphalt Tack Coat Section shall be administered in conformance with Section 00730 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Payment

Add the following subsection:

00730.92 Incidental Basis – When not listed in the Schedule of Items, asphalt tack coat shall be considered incidental to other Contract items.

Section 00745 – Hot Mixed Asphalt Concrete (HMAC)

The Hot Mixed Asphalt Concrete (HMAC) Section shall be administered in conformance with Section 00745 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

General

00745.05 Prepaving Requirements – Add the following subsection:

Prior to placement of any base course surfacing, all utility work, including sanitary, storm drainage, water and private utilities shall be completed, inspected and accepted by the Agency.

The Contractor shall notify and obtain permission from the Engineer prior to placement of any final wearing course.

Materials

00745.11 Asphalt Cement, Additives and Aggregate Treatment –

(a) Asphalt Cement – Replace this subsection with the following:

Use PG 64-22 or PG 70-22 asphalt unless otherwise specified in the contract documents. Provide asphalt cement conforming to ODOT's publication, "Standard Specifications for Asphalt Materials. Copies of the publication are available from ODOT's Pavement Services Engineer. The applicable specifications are those contained in the current publication on the date the project is advertised.

Construction

00745.41 Prepaving Conference – Delete the last sentence in this subsection and replace with the following:

A representative of the Contractor responsible for quality control shall also attend for all Level 3 and Level 4 mixes.

00745.42 Preparation of Underlying Surfaces – Delete the first paragraph in this subsection and replace with the following:

All bases and foundations on which the pavement is to be constructed shall meet the applicable Specifications and be approved prior to the start of paving. Recondition existing bases and foundations according to Section 00610. Trim broken or ragged edges to firm material when directed.

All cuts in existing pavement shall be clean, straight and a minimum depth of 2 inches or half the thickness of the pavement, whichever is greater. Pavement cuts damaged by construction equipment or other means shall be recut at no expense to the Agency prior to the start of paving.

All cracks in existing underlying pavement shall be cleaned and repaired according to Section 00746 prior to the start of paving.

00745.45 HMAC Storage – Add the following item to this subsection:

(f) Open Stockpiles - Storage or holding of HMAC in open stockpiles will not be permitted.

00745.48 Hauling, Depositing and Placing

(a) Hauling – Add the following sentence to this subsection:

Each load of mixture delivered to the project shall have a weigh memo provided by the Contractor.

(c) Placing – Delete this subsection and replace with the following:

Alternative equipment and means may be allowed by the Engineer if the use of a paver is impractical.

Do not place HMAC during rain or other adverse weather conditions, unless allowed by the Engineer. HMAC in transit at the time adverse conditions occur may be placed if:

- It has been covered during transit.
- The HMAC temperature is satisfactory.
- It is placed on a foundation free from pools or flow of water.
- All other requirements are met.

When leveling irregular surfaces and raising low areas, do not exceed 2 inches actual compacted thickness of any one lift. This may require portions of the mixture to be laid in two or more lifts.

Place the mixture in the number of lifts and courses, and to the compacted thickness for each lift and course as shown. Place each course in one lift unless otherwise specified. Do not exceed a compacted thickness of 3 inches for any lift. Limit the minimum lift thickness to twice the maximum aggregate size in the mix.

Do not intermingle HMAC produced from more than one JMF. Each base course panel placed during a working shift shall conform to a single JMF. The wearing course shall conform to a single JMF, except for adjustments in the JMF according to 00745.16 (b-1).

00745.49 Compaction, QC

(a) General – Add the following to this subsection:

The specified compaction for all levels of dense graded HMAC shall be a minimum of 92% of theoretical maximum density as determined by ODOT TM 306.

(b) Normal Pavement (Nominal Thickness 2 Inches or Greater) – Replace the subsection heading with the following:

(b) Normal Pavement (Nominal Thickness 1 ½ inches or Greater

(1) General – Delete this subsection and replace with the following:

Compliance with the density specifications for dense graded HMAC shall be determined by random testing of the compacted road surface with calibrated nuclear gauges.

A pneumatic roller is not required for Level 1, Level 2 HMAC or paving sections less than 500 feet in length. The Contractor shall have at least one available pneumatic tired roller conforming to 00745.24(c) on the project and in good operating condition for Level 3 and Level 4 HMAC.

The CDT shall notify the Engineer when the average density of a sublot falls below 90% or exceeds 95% of theoretical maximum density.

(2) Random Testing – Delete this subsection and replace with the following:

Determine the density of each sublot by averaging five QC tests performed at random locations with the nuclear gauge operated in the backscatter mode. Lots and sublots shall correspond with those defined in 00745.02. In addition, perform at least one density test each day of production. The additional testing may be waived by the Engineer.

When a Contract indicates placement of less than one sublot (1000 ton), random compaction tests shall be conducted at one per every two hundred ton placed unless otherwise indicated in the Special Provisions.

a. Testing – After completion of the finish rolling, test according to WAQTC TM 8. Do not locate the center of a density test less than 1 foot from the panel edge. Complete density testing before traffic is allowed on the new mat.

b. Core Correlation of Nuclear Gauge Readings – When requested by the Contractor or Engineer, correlation of nuclear gauge readings shall be according to WAQTC TM 8 and ODOT TM 327.

If correlations are requested, correlate each nuclear gauge used on the project. New correlations are required if the aggregate source or the asphalt cement source changes.

Apply correlation factors to all nuclear gauge readings for all dense graded mixtures placed on the project. Cut the required cores and patch the core holes with dense graded HMAC to match grade. Seal cored pavement with CSS-1 and sand. Determine the core correlation factor according to WAQTC TM 8 and provide the results to the Engineer. Costs of the core correlation will be paid for by the requesting party.

c. Aggregate Gradation and Asphalt Content Sampling – The Contractor shall take samples from the grade, unless otherwise directed by the Engineer, on a random basis determined by the Engineer. The samples for acceptance testing shall be taken in the presence of the Engineer. One sample per 500 ton shall be taken, with a minimum of three samples per project of each JMF.

When samples are not obtained as required, the Engineer may require the gradation and asphalt content to be determined by core samples. Core samples will be tested by an independent testing laboratory at the direction of the Engineer. The Contractor shall bear all costs associated with coring and testing.

(3) Moving Average Maximum Density (MAMD) Method – Delete this subsection.

(4) Control Strip Method – Delete this subsection.

(6) Compaction Standard Testing – Add this subsection:

The Engineer shall have the right to test any areas that appear defective in compaction. If the areas are found deficient, the Engineer may require the Contractor to bring the areas into conformance with the Specifications.

Acceptance will not be made for mixture compacted to less than 88% of theoretical maximum density (Rice Density), or 94% of target density. The Engineer may decide to allow the deficient pavement to remain in place. In that case, the Engineer and Contractor shall agree in writing that the pavement will remain in place.

If the Contractor takes core samples to verify the densities, core holes shall be filled with dense graded HMAC to match grade. Seal cored pavement with CSS-1 and sand. The density of the core samples shall be tested by an independent testing laboratory in accordance with ASTM 2726. All verifying work shall be performed by the Contractor at no expense to the Agency.

Where placed pavement fails to meet minimum compaction standards, the Engineer may accept the pavement and adjust Contractor payment according to Section 00745.96.

In addition to adjusted payment, if the in place compaction of more than 25% of the top pavement lift is 90% or less of Rice Density, the Engineer may require the Contractor to fog coat the top lift of paving in the affected area according to Section 00705 and as directed. This treatment will be at no expense to the Agency.

Additional remedial work or replacement of HMAC compacted to 88% or less of Rice Density may be required by the Engineer. Remedial work or replacement shall be at no expense to the Agency.

(f) Pavement Thickness – Add this subsection:

The Engineer may select locations for non-destructive measurement or core samples of in place HMAC to determine pavement thickness.

If non-destructive measurement indicates a pavement section is less than the thickness shown on the plans or is otherwise out of specification, the Contractor may take cores at the locations in question to verify the Engineer's measurements. If the pavement section is found to comply with specification requirements, coring and restoration will be paid for as extra work. Pavement found to be out of specification shall be subject to remedial work, adjusted payment or replacement in accordance with Section 00746.98.

In determining deficient or excessive thickness in HMAC overlays, the Engineer may adjust the cross section measurement sequence, average series of measurements or take other appropriate steps to allow for the desirable leveling of low or high areas on the existing pavement.

In determining payment adjustment for deficient or excessive pavement thickness, a section of pavement will normally be one full roadway section (100 feet). For non-roadway paving and in other situations where the Engineer determines the above section is inappropriate, the Engineer may establish a different unit of work on which to calculate average thicknesses and price adjustments according to Section 00745.98.

Where a deficiency is found and the Engineer determines the deficiency or excess serious enough to impair the traffic service expected from the pavement, the area in question shall be removed by the

Contractor and replaced with pavement meeting specification requirements at no expense to the Agency.

When pavement thickness, as determined by the Engineer's measurements or test cores, is found deficient by more than the thickness of the specified wearing course of HMAC, the Engineer may allow the Contractor to place an additional lift (overlay) of HMAC to bring the total thickness of the pavement into conformance with specifications. Overlays shall be subject to all applicable specification requirements.

Temporary

00745.50 Temporary Surfacing Course – Delete the last sentence in this subsection.

00745.61 Longitudinal Joints

(a) Location

(2) Wearing Course – Add the following sentence to this subsection:

The placement of HMAC along existing concrete gutters shall be raked in such a manner that the compacted pavement shall not vary more than ¼" inch from the top face of gutter unless otherwise approved by the Engineer.

00745.62 Transverse Joints:

(a) Travel Lanes

(1) Temporary End Panel – Delete this subsection and replace with the following:

Maintain pavement depth, line and grade at least 4 feet beyond the selected transverse joint location. From that point, wedge down on the appropriate slope until the top of the course being laid meets the underlying surface (assuming a pavement course thickness of 2 inches as follows:

- For wedges that will be under traffic for less than 24 hours, construct a 4 foot long wedge (1V:25H taper rate).
- For wedges that will be under traffic for 24 hours or longer, construct a 8 foot long wedge (1V:50H taper rate).
- Construct, maintain, remove and dispose of the temporary wedge at no expense to the Agency. HMAC for the temporary wedge will be paid for at the pay item price.

When the pavement course thickness is different than the above 2 inch example, use the appropriate taper rate to compute the length of the wedge. The wedge length plus the 4 feet or longer panel form the "temporary end panel".

(6) Matching Existing Pavements – Add this subsection:

Where new HMAC is constructed to join or overlay existing pavements, the Contractor shall seal the joints and taper edges with CSS–1 and sand.

Finishing and Cleaning Up

00745.75 Correction of Pavement Roughness

(a) Methods

(2) Wearing Course – Add the following item to this subsection:

- Apply emulsion fog coat

(c) Other Action – Add this subsection:

Where surface irregularities are localized or where the Engineer determines corrective work would not be in the Agency's best interests, the Engineer may deduct from payment due the Contractor amounts equivalent to the Engineer's estimate or work costs had the corrective work been done.

Measurement

00745.80 Measurement – Delete this subsection and replace with the following:

The accepted quantities of HMAC will be measured by the Mg (ton) according to Section 00190 with no separate measurement being made for the asphalt concrete mixture and the asphalt cement contained in the mixture. No deduction will be made for lime, RAP or any other approved additive used in the mixture.

00745.83 Other Items – Add the following to this subsection:

AC saw cutting shall be measured by the foot as marked in the field.

Payment

00745.90 Payment – Delete this subsection and replace with the following:

The accepted quantities of HMAC incorporated into the project, whether or not recycled materials are used, will be paid for at the contract price per Mg (ton) for the following item:

Pay Item

Level ____ , ____ , ____ , HMAC, _____

No separate payment will be made for asphalt cement used in the mixture.

The following information will be inserted in the blanks:

- The level(s) of HMAC (1, 2, 3, 4) will be inserted in the first blank.
- The type(s) of HMAC 1 inch Dense, ¾ inch Dense, ½ inch Dense, ⅜ inch Dense, ¾ inch Open, ½ inch Open, ¾ inch ATPB), will be inserted in the second blank.
- The words "Lime Treated" will be inserted in the third blank when applicable.
- The words "in Leveling", "in Temporary", or "in Leveling and Temporary" will be inserted in the fourth blank when applicable.

Payment will be payment in full for furnishing and placing the materials and for furnishing all equipment, labor and incidentals necessary to complete the work as specified.

00745.95 HMAC Price Adjustments – Delete this subsection

00745.97 Price Adjustment for Compaction – Add this subsection:

HMAC pavement which does not comply with compaction requirements shall be removed, replaced or subject to a price reduction credited to the Agency at the discretion of the Engineer. Price reductions are determined from the following table:

Compaction Adjustment Schedule

% Maximum Density (ODOT TM 306)	% Pay for HMAC Bid Item
92.0 and above	100
91.5 - 91.9	95
91.0 - 91.4	90
90.5 - 90.9	85
90.0 - 90.4	80
89.5 - 89.9	70
89.0 - 89.4	60
88.1 - 89.0	0 - 50 [1]
88.0 and below	0 [2]

[1] As determined by the Engineer
[2] No payment will be made for any area of HMAC with 88.0% or less compaction, even though the pavement may be allowed by the Engineer to remain in place.

00745.98 Price Adjustment for Thickness – Add this subsection:

When the pavement in any section of HMAC is found deficient in thickness by less than the specified thickness of the wearing course and the Engineer allows the pavement to remain in place, payment for that pavement will be made at an adjusted price determined from the following table. The reduced payment shall be credited to the Agency.

Thickness Adjustment Schedule

% Deficiency in Thickness	% Pay Reduction for HMAC Bid Item
0.0 – 5.0	No deduction
5.0 – 10.0	0.5 x Deficiency
10.0 – 15.0	1.0 x Deficiency
15.0 – 20.0	1.5 x Deficiency
20.0 – 25.0	2.0 x Deficiency
25.0 – 30.0	2.5 x Deficiency
30.0 and greater	100 [1]

[1] No payment will be made for any area of HMAC found deficient in thickness by 30.0% or greater, even though the pavement may be allowed by the Engineer to remain in place.

When HMAC in any section is found to exceed the specified thickness by more than ¼ inch, the Engineer shall calculate the tonnage of material in the excess thickness of the pavement and deduct that quantity from tonnage payment due under the Contract.

Section 00749 – Miscellaneous Asphalt Concrete Structures

The Miscellaneous Asphalt Concrete Structures Section shall be administered in conformance with Section 00749 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Materials

00749.13 Asphalt Concrete – Delete this subsection and replace with the following:

Unless another class is shown, provide level of HMAC specified in the Contract Documents for wearing surfaces according to Section 00745. Statistical analysis will not apply.

Construction

00749.42 Foundations – Delete this subsection and replace with the following:

Construct foundations or other bedding using selected granular backfill material according to Section 00330 or using aggregate base according to Section 00749 when shown or directed. Salvage and reuse of in place materials will not be allowed unless otherwise directed by the Engineer.

Section 00755 – Continuously Reinforced Concrete Pavement

The Continuously Reinforced Concrete Pavement Section shall be administered in conformance with Section 00755 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Description

00755.04 Aggregate Production and Prepaving Conference: – Delete this subsection and replace with the following:

00755.04 Prepaving Conference – Supervisory personnel of the Contractor and any subcontractors who are to be involved in the concrete paving work shall meet with the Project Manager at a mutually agreed time to discuss methods of accomplishing all phases of the paving work.

Construction

00755.41 Preparation of Base:

(a) Condition – Add the following to this subsection:

All cuts in existing pavement shall be clean, straight and a minimum depth of 2 inches or half the thickness of the pavement, whichever is greater. Pavement cuts damaged by construction equipment or other means shall be recut at no expense to the Agency prior to the start of paving.

00755.47 Test Strip – Delete this subsection and replace with the following:

At the beginning of paving operations, construct one initial test strip of concrete pavement at least 300 feet, but not more than 500 feet in length at the specified paving width. Use the same equipment for the remainder of the paving. Do not perform further paving until the test strip is evaluated according to 00755.55. An additional test strip will be required when:

- The Contractor proposes using different paving equipment.
- Any portion of a test strip fails to meet the smoothness requirements of 00755.55.

Change methods and/or equipment and construct additional test strips until a test strip meets smoothness requirements without grinding or other corrective work. Limit these additional test strips to 300 feet.

If three test strips fail to meet smoothness requirements before grinding, remove all three strips at the Contractor's expense and construct additional test strips.

00755.55 Surface Tolerance, Testing and Correction

(b) Graphic Profile Testing (GPT) and Tolerance:

(2) Surface Test – Delete the second paragraph in this subsection and replace with the following:

Obtain profiles on the pavement surface along lines parallel to and approximately 3 feet from each edge and longitudinal joint(s) for 12 foot wide lanes and 4 feet from each edge and longitudinal joint(s) for 14 foot wide lanes or as necessary to provide a profile in each vehicle wheel path. Take profiles through transition areas as close to the wheel path as practical.

Section 00756 – Plain Concrete Pavement

The Plain Concrete Pavement Section shall be administered in conformance with Section 00756 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Description

00756.04 Aggregate Production and Prepaving Conference: – Delete this subsection and replace with the following:

00756.04 Prepaving Conference – Supervisory personnel of the Contractor and any subcontractors who are to be involved in the concrete paving work shall meet with the Project Manager at a mutually agreed time to discuss methods of accomplishing all phases of the paving work.

Construction

00756.41 Preparation of Base – Add the following to this subsection:

All cuts in existing pavement shall be clean, straight and a minimum of 2 inches or half the thickness of the pavement, whichever is greater. Pavement cuts damaged by construction equipment or other means shall be recut at no expense to the Agency prior to the start of paving.

00756.47 Test Strip – Delete this subsection and replace with the following:

At the beginning of paving operations, construct one initial test strip of concrete pavement at least 300 feet, but not more than 500 feet in length at the specified paving width. Use the same equipment for the remainder of the paving. Do not perform further paving until the test strip is evaluated according to 00756.55. An additional test strip will be required when:

- The Contractor proposes using different paving equipment.
- Any portion of a test strip fails to meet the smoothness requirements of 00755.55.

Change methods and/or equipment and construct additional test strips until a test strip meets smoothness requirements without grinding or other corrective work. Limit these additional test strips to 300 feet.

If three test strips fail to meet smoothness requirements before grinding, remove all three strips at the Contractor's expense and construct additional test strips.

00756.55 Surface Tolerance, Testing and Correction

(b) Graphic Profile Testing (GPT) and Tolerance:

(2) Surface Test – Delete the second paragraph in this subsection and replace with the following:

Obtain profiles on the pavement surface along lines parallel to and approximately 3 feet from each edge and longitudinal joint(s) for 12 foot wide lanes and 4 feet from each edge and longitudinal joint(s) for 14 foot wide lanes or as necessary to provide a profile in each vehicle wheel path. Take profiles through transition areas as close to the wheel path as practical.

PART 00800 – PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES

Section 00815 – Bollard

The **PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES** Section shall be administered in conformance with Section 00815 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Materials

00815.11 Posts and Sleeves – Replace this subsection with the following:

Use 4 inch steel pipe or square tubing (0.250 gauge) for posts and 3 - ½ inch steel pipe or square tubing (0.250 gauge) for sleeves.

00815.14 PVC Pipe – Replace this subsection with the following:

The use of PVC pipe will not be allowed in the construction of either bollards or removable bollards.

Section 00860 – Longitudinal Pavement Markings - Paint

The Longitudinal Pavement Markings Section shall be administered in conformance with Section 00860 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Description

00860.00 Scope – In the first sentence, replace the words "in accordance to the ODOT Traffic Line Manual" with "in compliance with the MUTCD".

Construction

00860.45 Placement Tolerance – Add the following to this subsection:

Place striping parallel and true to line. Make skip ends square and clean. Place skip stripes so that they are in cycle with at least one end of any adjacent project.

Allowable tolerances for installation are:

- **Side to side** – ½ inch on tangents; 1 inch on curves
- **Length of skips** – 5 feet ± 2 inches
- **End to end on skips** – 15 feet ± 2 inches. Place skips on a cycle to a tolerance of 2 inches.
- **Double Lines** – Parallel, with a gap tolerance of ± ½ inch.

Section 00867 – Transverse Pavement Markings – Legends and Bars

The Section 00867 – Transverse Pavement Markings – Legends and Bars Section shall be administered in conformance with Section 00867 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

00867.45 – Installation – Replace this subsection with the following

Place permanent markings only when the manufacture's representative determines that the pavement is ready for the pavement marking material.

Transverse joints will be allowed with no overlap or gap allowed at the joint.

Minimum initial retororeflectivity shall be 250 mcd/m^2/lx.

Apply the following marking material type –

- **Type B: Preformed, Fused Thermoplastic Film** – Install preformed, fused film as shown. Install Type B – HS, preformed fused thermoplastic film high skid, that has intermixed reflective elements with factory installed crushed glass or aggregate on the surface.

PART 00900 – PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS

Section 00930 – Metal Sign Supports

The Metal Sign Supports Section shall be administered in conformance with Section 00930 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

00930.02 Working Drawings – Replace this section with the following:

Submit four copies of stamped working drawings, plans, details, and calculations according to 00150.35 for all structural metal work. Any material ordered or work done before the review of working drawings shall be at the Contractor's risk. All engineered details and drawings that are not prepared by the Agency but are required in the Contract Documents and Specifications for the Project shall be submitted for review prior to fabrication.

In addition to the working drawings, submit four copies of all available data including Manufacture's pamphlets and brochures, technical bulletins, working drawings and other technical information relative to products used on the Project. After installation, submit corrected working drawings that represent the material as installed and in operation. Include sufficient information to enable the Agency's maintenance forces to replace all or part of the commercially manufactured sign structures, under routine or emergency maintenance, by direct reference to the information furnished by the Contractor.

Working drawings are not required for the following types of steel supports:

- Single Post Breakaway Sign Supports
- Triangular Base Breakaway Sign Supports
- Multi-Post Breakaway Sign Supports

Working Drawings for the supports will be provided by ODOT's Sign Design Unit or City of Lebanon Standard Drawings.

Materials

00930.10 Materials – Replace this subsection with the following:

Provide structural steel materials conforming to the applicable portions of Section 02530, with masses (weights) and sizes as shown or specified.

Provide galvanized bolts, nuts, hardened washers and direct tension indicators conforming to 02560.20.

All components of steel sign structures shall be galvanized after fabrication and before assembly. Galvanizing shall conform to the requirements of Section 02530.

(a) Sign Posts – All sign posts shall be round 2 ⅜ inch, 16 gauge galvanized post, 10 foot, 6 inches in length unless otherwise specified.

(b) Sign Supports – All sign mounting supports shall "V-Loc Socket System" or an approved equal. Soil bearing or pavement supported V-locs shall be installed as per manufacture's specifications.

(c) Sign Mounting Hardware – All sign mounting hardware shall be clamp-on U-brackets or approved equal. Single or double clamp-on U-brackets shall be installed as per manufacture's specifications. Use ½ inch wide hex nut bolts with a rubber or neoprene washer to mount signs to bracket. Metal washers will not be accepted.

00930.30 Payment –

Unit of Measurement for **Pay Items** (k) through (q) shall be "Each"

Section 00940 – Signs

The Signs Section shall be administered in conformance with Section 00940 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Construction

00940.40 General –

Under **Acceptable Substrate Materials**," Plywood" shall not be allowed for any **Sign Size**.

00940.41 Aluminum Panel Sign Fabrication –

(b) Extruded Aluminum – Replace this paragraph, except for the heading, with the following:

Each panel of extruded aluminum panel signs shall be a continuous section. Apply the sign sheeting to the extrusion a sufficient distance around the edge to ensure that no aluminum surface is visible on the face of the sign.

00940.43 Plywood Sign Fabrication – Delete this subsection

Section 00962 – Metal Illumination and Traffic Signal Supports

The Metal Illumination and Traffic Signal Supports Section shall be administered in conformance with Section 00962 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Materials

00962.10 Materials – Insert the following bulleted items under "Furnish Steel pole meeting the requirements of 02530 modified as follows:"

- Provide aluminum poles, meeting prevailing utilities approval, in commercial/ industrial areas, and/or as directed by the City Engineer.
- Provide wood poles, meeting prevailing utilities approval, in residential areas, and/or as directed by the City Engineer.

PART 01100 – WATER SUPPLY SYSTEMS

Section 01140 – Potable Water Pipe and Fittings

The Potable Water Pipe and Fittings Section shall be administered in conformance with Section 01140 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Construction

01140.39 Operation of Valves on City Water System – Add the following subsection:

At no time shall the Contractor operate a live valve. Only the City Engineer or authorized representative shall operate live valves. The Contractor shall make arrangements with the Engineer prior to needing valves operated.

01140.40 Trench Work – Replace this subsection with the following:

Excavate trench, prepare bedding, install pipe zone material, backfill, and dispose of excavated material according to Section 00405 and the following:

(f) Grade and Alignment Changes – The Contractor shall coordinate alignment and grade of new waterlines to avoid conflicting with other utilities. The Contractor shall deflect the water pipe as required to maintain proper clearances under existing structures and major tree roots as recommended by the Contractor's licensed arborist and approved by the Engineer.

Minimum Cover over new water mains shall be 36 inches below finished grade. Minimum cover over new water services shall be 24 inches from finished grade.

01140.44 Thrust Restraint – Delete this subsection and replace with the following:

(a) Mechanical Restraints – All horizontal or vertical deflections, tees, reducers and dead end lines on new installations shall be mechanically restrained for a sufficient length along the installed pipe run to offset the hydrostatic forces generated by alignment deflections or terminations. Mechanical restraints shall conform to 02475.50.

Horizontal deflections and dead end runs for ductile iron pipe shall be mechanically restrained for a minimum length as specified in the following table. Vertical deflections, tees and reducers shall be restrained according to specific installation requirements as required by the Engineer.

FITTING TYPE / SIZE	PIPE SIZE					
	16"	12"	10"	8"	6"	4"
	Number of 18' Pipe Lengths or Equivalent Length to be Restrained in Each Direction of Fitting					
11 ¼° / 22 ½° Bend	2	1	1	1	1	1
45° Bend	3	2	1	1	1	1
90° Bend	4	3	2	2	2	1
Valve / Dead End	5	4	3	3	3	2

(b) Thrust Blocks – Thrust blocks shall be used for work on existing systems in areas where installation of mechanical joint restraint is not a viable option. All thrust block design and placement shall be approved by the Engineer prior to placement.

Place concrete thrust blocks as shown, at bends, tees, dead ends, and crosses. Pour concrete thrust blocks in place against solid, undisturbed earth at the sides and bottom of the trench excavation. Shape the blocks so as not to obstruct access to the joints of the pipe, fittings, or bolts.

No tie-rods or alternate thrust restraints shall be used unless otherwise approved by the Engineer. Retainer glands may be used in addition to specified thrust blocks at no expense to the Agency.

01140.47 Connections to Existing Mains – Replace this subsection with the following:

All connections to existing mainlines and existing service lines shall be made under the supervision of the Engineer. The Contractor shall notify the Engineer and all affected water customers, in writing, 36 hours prior to the scheduled connection. The maximum down time shall be six (6) hours per day. The Contractor shall pay to the Agency, as liquidated damages, $100.00 per hour for each hour elapsed in excess of the six (6) hours allowed for down time.

Service connections shall be made as quickly and safely as possible. The Contractor shall notify and coordinate with each customer for making the service connection. Following the service connection, the Contractor shall flush the new service line.

Measurement

01140.80 Measurement – Delete items (a) and (d) from this subsection.

01140.83 Fittings and Couplings – Add this subsection:

All fittings and couplings shall be measured on a per-item basis as described in the Schedule of Bid Items and/or Special Provisions.

Payment

01140.90 Payment – Delete this subsection and replace with the following:

The accepted quantities of work performed under this Section will be paid at the Contract unit price, per unit of measurement, for the following items:

	Pay Item	**Unit of Measurement**
(a)	___ Inch Potable Water Pipe, and Couplings with Class ___ Backfill	Foot
(b)	___ Inch Potable Water Pipe and Couplings with Restrained Joints and Class ____ Backfill	Foot
(c)	Extra Trench Excavation with Class ___Backfill	Cubic Yard
(d)	Blowoff Assembly,___inch	Each
(e)	___Inch (type)___Fitting	Each

The contract unit price for the appropriate pay items reflect plan requirements or the Contractor's choice from the applicable options listed on the Pipe Data Sheets (if shown).

In items (a) and (b), the nominal diameter of pipe and couplings will be inserted in the first blank. The class of backfill will be inserted in the second blank. The quantities include the pipe and coupling plus the allowance for the couplings.

In items (c), the class of backfill will be inserted in the blank.

In item (d), the nominal diameter of assembly will be inserted in the blank.

In item (e), the nominal diameter of pipe will be inserted in the first blank. The type of fitting will be inserted in the second blank.

Payment will be payment in full for furnishing and placing all materials, and for furnishing all equipment, labor, and incidentals necessary to complete the work specified.

Trench resurfacing will be paid for according to 00495.90

Installation under pavement by tunneling, jacking or boring methods will be paid for according to 00406.90.

Valves will be paid for according to 01150.90.

No separate or additional payment will be made for

- trench excavation
- bedding
- pipe zone material
- backfill work
- polyethylene encasement
- mechanical restraints
- concrete thrust blocks
- detectable marking tape and wire
- flushing, hydrostatic testing and disinfection, and water for testing
- exposing and cleaning existing mains, cutting and removing existing pipe, draining existing mains, disinfecting existing mains, and refilling existing mains

Section 01170 – Potable Water Service Connections, 2 Inch and Smaller

The Potable Water Service Connections, 2 Inch and Smaller Section shall be administered in conformance with Section 01170 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

Construction

01170.41 Reconnecting Existing Services – Replace this subsection with the following:

Where shown, reconnect existing service connections to new mains. Verify the location of existing service connections in the field. Notify affected customers of the service interruption, in writing, at least 36 hours prior to service interruption. Use insulating couplings at all connections between existing galvanized steel or iron pipe and new copper pipe. All fittings, appurtenances, and other miscellaneous materials on the sections of existing pipe that have been removed become the property of the Contractor.

01170.43 Meter Installation – Add the following subsection:

Meters shall be installed per the manufacture's recommendation unless otherwise specified.

The top of the meter shall be a minimum of 3 inches and a maximum of 8 inches below the finish grade of the top of the meter box and centered in the box. Fill around meter with top soil so as to cover the meter body and yet expose the meter stop and the customers hand valve handle and shaft.

Payment

01170.90 Payment - Replace this subsection with the following:

The accepted quantities of work performed under this Section will be paid for at the Contract unit price, per unit measurement, for the following items:

	Pay Item	**Unit of Measurement**
(a)	___ Inch Water Service Connections	Each
(b)	Reconnecting Existing Services, ___Inch	Each
(c)	Water Sampling Stations	Each
(d)	Inch Type K Copper Water Service Line	Ln./Ft.
(e)	___ Inch Water Meter Assembly	Each
(f)	___ Relocate ___Inch Water Meter Assembly	Each

In items (a), (b) and (d), the size will be inserted in the blank.

Items (a) and (d) includes excavating, tapping the main, laying and jointing the pipe and fittings and appurtenances, backfilling, testing, flushing and disinfection of the service connection.

Item (b) includes excavating, tapping the main, laying and jointing the pipe and fittings and appurtenances, backfilling, testing, flushing and disinfection of the reconnected service connection.

Item (c) includes excavating, tapping the main, laying and jointing the pipe and fittings and appurtenances, backfilling, concrete pad, testing, flushing and disinfection of the sampling station.

Payment will be payment in full for furnishing and placing all materials, and for furnishing all equipment, labor, and incidentals necessary to complete the work as specified.

In items (e) and (f), the nominal size will be inserted in the blank. The pay item includes all fittings, hand valves, meter boxes and mainline saddles. Item (f) also includes abandoning existing service lines at the mainline. Excavation and backfill shall be done according to Section 00405.

PART 02000 – MATERIALS

Section 02475 – Potable Water Fitting Materials

The Potable Water Fitting Materials Section shall be administered in conformance with Section 02475 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

02475.10 General – Replace this subsection with the following:

Bolts, nuts, and washers used for securing fittings shall be of similar materials. Steel bolts shall meet the requirements of ASTM A 307for carbon steel, or ASTM F 593 for stainless steel. Nuts shall meet the requirements of ASTM A 563 for carbon steel, or ASTM F 594 for stainless steel. Iron bolts and nuts shall meet the requirements of ASTM A 536, grade 65-45-12. Galvanize carbon steel bolts, nuts and washers according to 02560.40.

T-Bolts for all flanged and mechanical joints shall be of domestic origin high strength, low alloy steel bolts only, meeting the current provisions of American National Standard ANSI/AWWA C111/A2.11-90 for rubber gasket joints for ductile iron pressure pipe and fittings. Bolt manufacturer's certifications of compliance must accompany each shipment.

Pipe fittings shall be at least equal in class to the pipe on which they are used. Joint materials shall be compatible with the adjacent pipe.

Main line tapping sleeves shall be either an all ductile M.J. tapping sleeve or an all stainless steel Ford Fast or JCM tapping sleeve.

02475.50 Restrained Joints – Delete this subsection and replace with the following:

Mechanical restraints for ductile iron pipe, fittings and valves shall be EBAA Iron Series 1100 Megalug® restraint, US Pipe Field Lok® / MJ Field Lok® or approved equal. Restraint devices shall conform to ANSI/AWWA C111/A21.11.

Bolted mechanical restraint systems shall incorporate a follower gland and ductile iron heat-treated wedges conforming to ASTM A536-84. Wedges shall have a minimum hardness of 370 BHN and shall incorporate a torque-limiting twist-off nut. No device utilizing round point set screws will be permitted. The device shall be rated to operate at a minimum working pressure of 250 psi for all sizes.

Section 02480 – Potable Water Valve Materials

The Potable Water Valve Materials Section shall be administered in conformance with Section 02480 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

02480.20 Gate Valves – Replace this subsection with the following:

Gate valves shall be resilient seat and only be installed on waterline 2 inches to 8 inches in diameter. Gate valves shall meet the requirements of AWWA C500 or AWWA C509. The minimum design working pressure shall be 200 psi for pipe 2 inches to 8 inches in diameter.

02480.22 Butterfly Valves – Replace this subsection with the following:

All valves 8 inches and above in diameter shall be butterfly type valves. Butterfly valves shall be rubber seated and shall meet the requirements of AWWA C504, Class 150B. Shaft seals shall be standard O-ring seals, designed for replacement under line pressure.

02480.25 Valve Boxes – Replace this subsection with the following -

Install valve boxes on all buried valves. The valve box components shall be Rich 925 Columbia, Tens-O-Loy 926, Tyler 7000 or approved equal with a magnet imbedded and weighted lid. The cover shall have the word "WATER" cast in it. Align covers with "ears" or "tabs" in the direction of the mainline the valve is associated with.

Section 02485 – Hydrant and Appurtenance Materials

The Hydrant and Appurtenance Materials Section shall be administered in conformance with Section 02485 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

02485.10 Fire Hydrants – Replace this subsection with the following -

Fire hydrants shall be dry barrel, conforming to AWWA C502. Hydrants shall be designed for a minimum working pressure of 150 psi and the bury shall be a minimum of 3 ½ feet.

Hydrants shall be Mueller Super Centurion or Kennedy Guardian.

Hydrants shall be furnished with pentagonal top operation nut, two 2 ½ inch hose nozzles and one 4 ½ inch steamer nozzle configured per City of Lebanon standard drawing. A Storz adaptor cap shall be installed on the steamer nozzle. The Storz Adaptor shall be a Hydra-Shield HYST-5054-ST CAP.

The nominal diameter of the main valve opening shall be 5 ¼ inches.

Hydrants shall be furnished with a 6 inch M.J. shoe.

Section 02490 – Potable Water Service Connection Materials, 50 mm (2 Inch) and Smaller

The Potable Water Service Connection Materials, 2 Inch and Smaller Section shall be administered in conformance with Section 02490 of the 2008 Oregon Standard Specifications for Construction supplemented and/or modified as follows:

02490.10 General – Replace this subsection with the following:

Service line materials shall conform to AWWA C800 and these specifications. Service line materials shall be designed for a working pressure of 150 psi.

All materials in contact with potable water shall conform to ANSI.NSF Standard 61, Drinking Water System Components – Health Effects, or equivalent.

Service saddle tap, corporations stop, and the pipe coupling side of the meter stop shall be a minimum size of 1 inch in diameter. For meters greater than 1 inch, the service saddle, corporation stop, and meter stop shall be sized according to the size of meter to be installed.

02490.20 Saddles – Replace this subsection with the following:

Service saddles shall be ductile iron bodied stainless steel strapped Romac 101-N saddles or approved equal.

Saddles used for ¾ inch and 1 inch services shall be single strap. Saddles used for 1 ½ inch and 2 inch services shall be double strap.

02490.35 Meter Stops – Add the following subsection:

Meter Stops shall be angle type, Ford, McDonald, or Mueller, with a lockwing.

02490.36 Hand Valves – Add the following subsection:

The hand valve on the customer side of the water meter shall be either a straight or angled, Ford, McDonald, or Mueller globe meter valve.

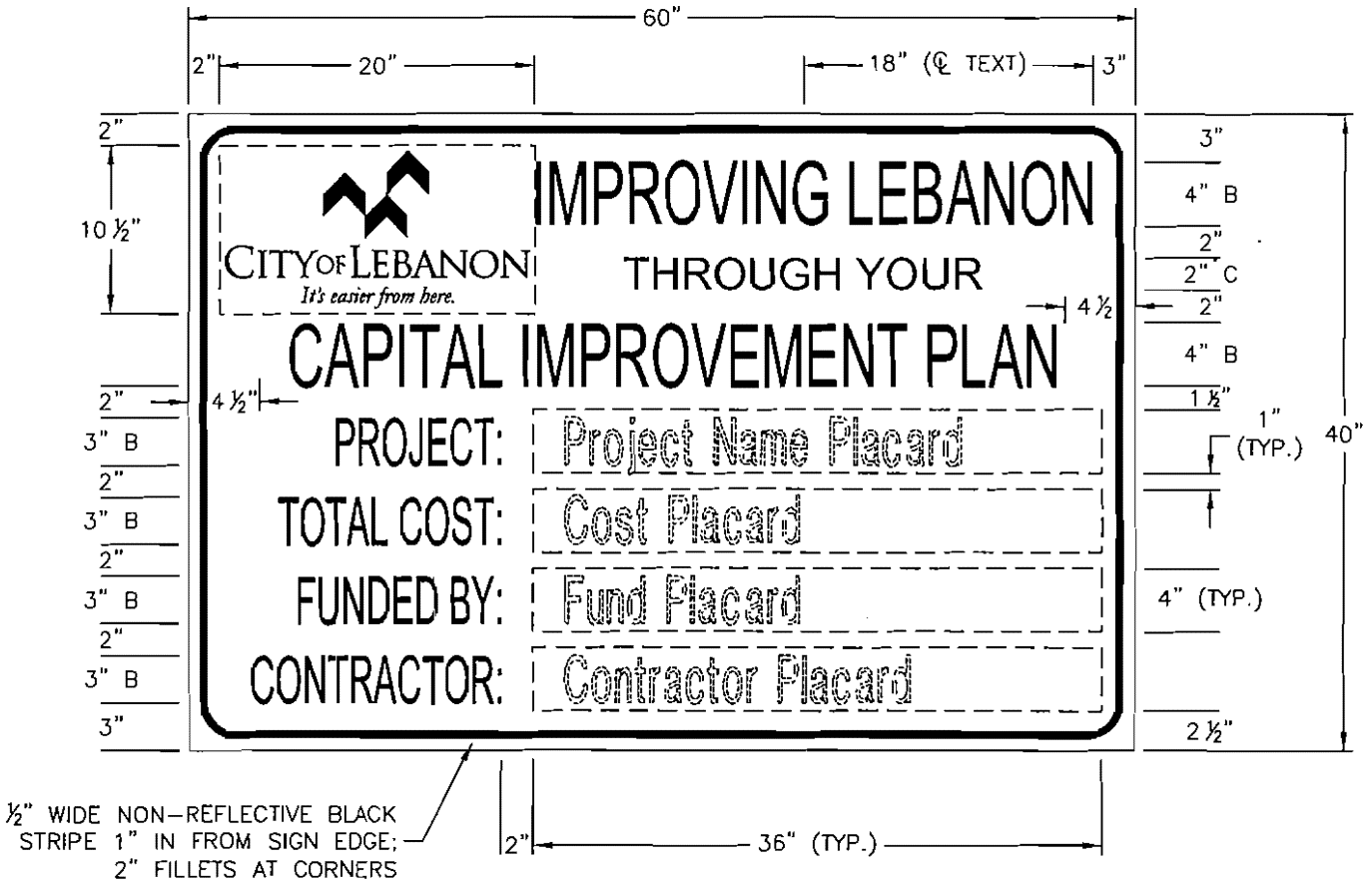
02490.60 Meter Types – Add the following subsection:

Meters shall be Rockwell SR II or approved equal with a test bypass provided for meters 2 inches and larger.

02490.70 Meter Boxes – Replace this subsection with the following:

For meters that are 5/8 inch to 1 inch, use a Brooks #37, Old Castle or approved equal meter box with cover and reading lid. For meters that are 1 ½ inches to 2 inches, use a Brooks #66 meter box with cover and reading lid or an approved equal.

In areas of vehicular traffic, use an approved traffic rated cover.



NOTES:

1. FURNISH AND INSTALL "IMPROVING LEBANON" SIGNS WITH PLACARDS WHEN CALLED FOR IN THE PROJECT PLANS OR SPECIFICATIONS. LOCATION WILL BE DESIGNATED BY THE PROJECT ENGINEER.
2. SIGNS AND PLACARDS SHALL BE TYPE "W1".
3. SIGN LETTERING SHALL USE F.H.W.A. LETTERING OF THE SIZE AND TYPE INDICATED.
4. PLACARDS SHALL USE 3.0" F.H.W.A. TYPE "B" LETTERING AND CONSIST OF UPPER AND LOWER-CASE LETTERING.
5. SUBMIT WORKING DRAWINGS SHOWING THE LAYOUT OF THE LEGENDS AND VERIFY ALL DIMENSIONS BEFORE POSTING.
6. MOUNT PLACARDS BY METHOD APPROVED BY THE ENGINEER TO PREVENT UNNECESSARY DAMAGE TO THE SIGN FACING. RIVETS, ADHESIVE OR OTHER PERMANENT FASTENERS WILL NOT BE ALLOWED.
7. CITY LOGO STICKER WILL BE SUPPLIED BY THE CITY.

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CITY of LEBANON SUPPLEMENTAL DRAWING

APPROVED

Donald J. Hamick

CITY ENGINEER

IMPROVING LEBANON PROJECT SIGN

DATE:	DRAWING NO:
Jan. 2009	00200-01

CITY OF LEBANON

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CITY of LEBANON SUPPLEMENTAL DRAWING

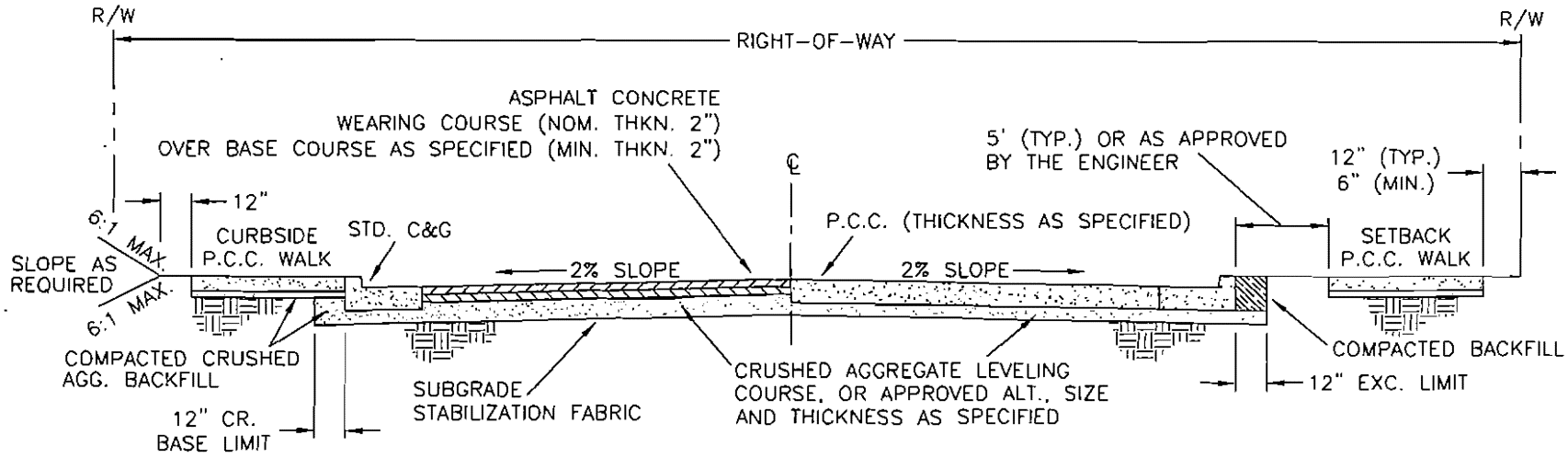
TYPICAL STREET SECTIONS

APPROVED

CITY ENGINEER

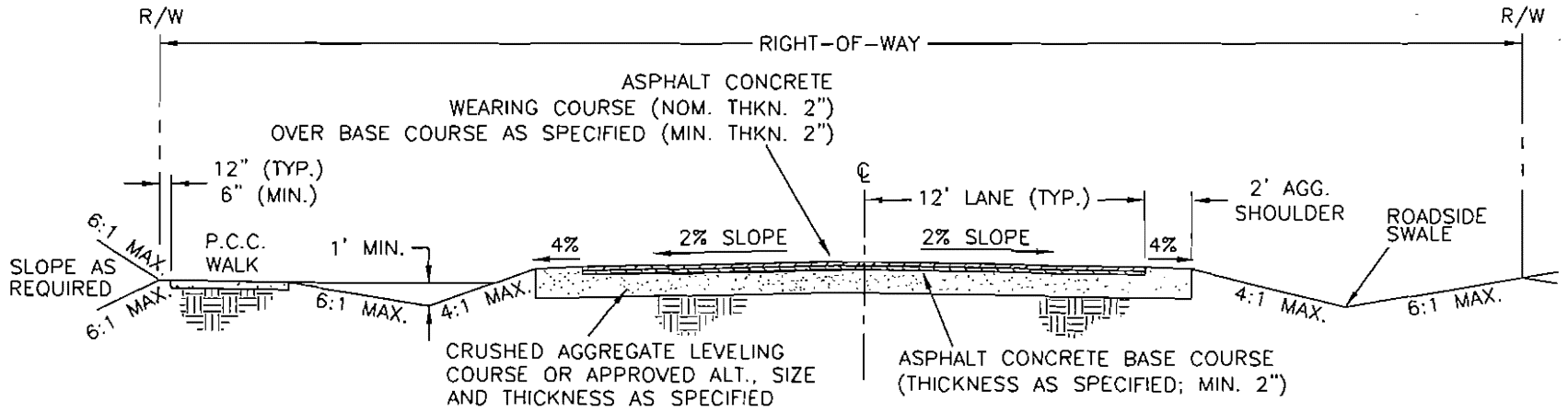
DATE: Jan. 2009

DRAWING NO: 00300-01

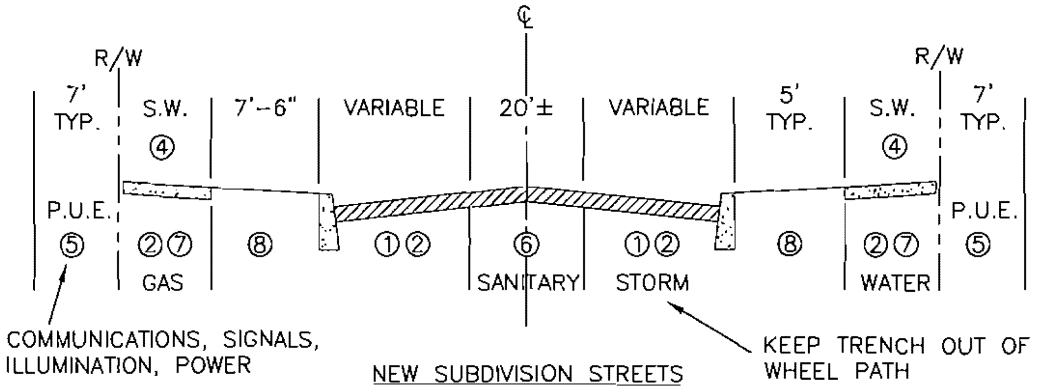


TYPICAL ASPHALT PAVING SECTION

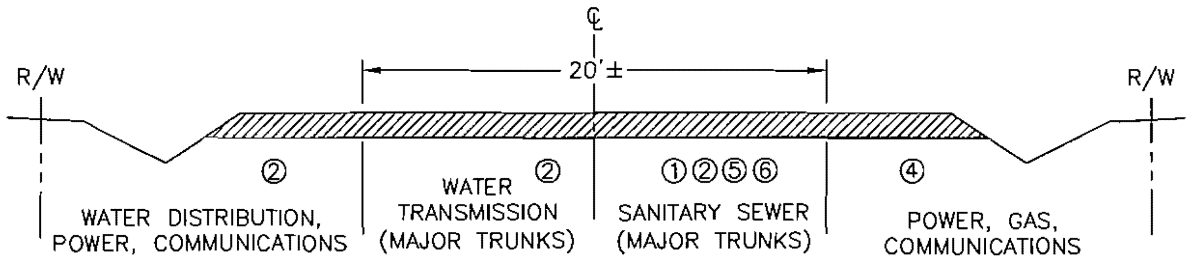
TYPICAL CONCRETE PAVING SECTION



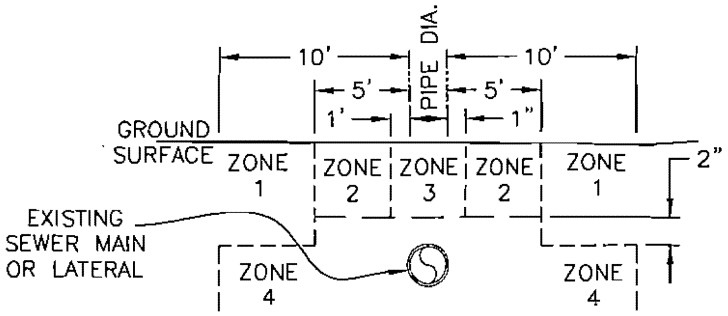
ALTERNATIVE RESIDENTIAL STREET SECTION
(WITH APPROVAL OF THE CITY ENGINEER)



NEW SUBDIVISION STREETS
(SEE APPLICABLE NOTE NUMBER BELOW)



NEW SUBDIVISION STREETS
(SEE APPLICABLE NOTE NUMBER BELOW)



ZONE 1: ONLY CROSSING RESTRICTIONS APPLY
ZONE 2: CASE-BY-CASE DETERMINATION
ZONE 3: PARALLEL WATER LINE PROHIBITED
ZONE 4: PARALLEL WATER LINE PROHIBITED

ATTENTION:
VERTICAL AND HORIZONTAL SEPARATION DISTANCES ARE CONTROLLED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY, DEPARTMENT OF COMMERCE, STATE HEALTH DIVISION, AND LOCAL UTILITY COMPANIES.

WATER LINE-SEWER LINE SEPARATION
(AS REQUIRED BY OAR 333-061-0050)

NOTES:

1. MANHOLES SHALL NOT BE INSTALLED IN VEHICLE WHEEL PATHS.
2. A 4' MINIMUM COVER IS REQUIRED FOR DISTRIBUTION FACILITIES TO CROSS OVER PIPE.
3. SEWER MAINS SHALL BE LOCATED UNDER PAVED AREAS.
4. ISSUES CONCERNING VAULTS, HYDRANTS, CATCH BASINS, PEDESTALS, MAILBOXES, ETC. SHALL BE RESOLVED WITH THE INVOLVED UTILITIES PRIOR TO CONSTRUCTION.
5. RECOMMENDED FOR RIGHTS-OF-WAY LESS THAN 60'.
6. LATERALS ARE TO BE INSTALLED FROM THE SANITARY SEWER MAIN TO RIGHT-OF-WAY DURING INITIAL CONSTRUCTION. SEE SUPP. DWG. 00400-02 FOR SERVICE LATERAL MARKER DETAILS.
7. WATER AND GAS UTILITIES SHALL BE INSTALLED ON OPPOSITE SIDES OF THE RIGHT-OF-WAY.
8. PLACEMENT OF SIDEWALK AGAINST THE CURB WILL ONLY BE ALLOWED WITH APPROVAL OF THE CITY ENGINEER.

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CITY of LEBANON SUPPLEMENTAL DRAWING

APPROVED

CITY ENGINEER

TYPICAL UTILITY LOCATIONS

DATE: Jan. 2009

DRAWING NO: 00300-02

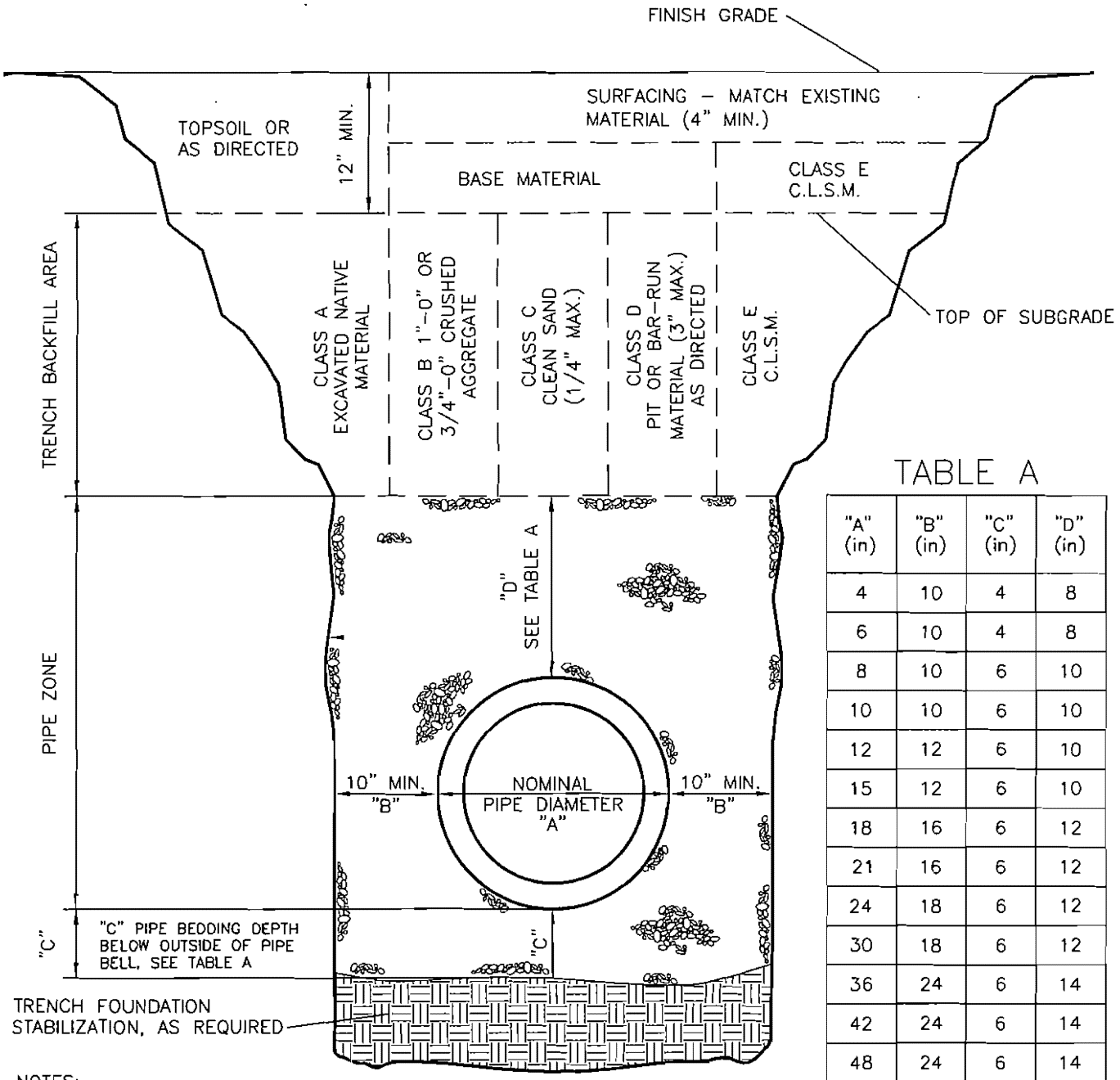

TABLE A

"A" (in)	"B" (in)	"C" (in)	"D" (in)
4	10	4	8
6	10	4	8
8	10	6	10
10	10	6	10
12	12	6	10
15	12	6	10
18	16	6	12
21	16	6	12
24	18	6	12
30	18	6	12
36	24	6	14
42	24	6	14
48	24	6	14
54	24	6	14
60	24	6	14
66	24	6	14
72	24	6	14

NOTES:

1. BACKFILL IN PIPE ZONE SHALL NOT EXCEED 6 INCH LIFTS NOR SHALL SUBSEQUENT LIFTS EXCEED 12 INCHES.
2. TWO COMPACTION TESTS SHALL BE PERFORMED FOR EVERY 25 LINEAR FEET OF TRENCH. A MINIMUM OF ONE TEST IS REQUIRED FOR TRENCH LENGTHS LESS THAN 25 LINEAR FEET.
3. SURFACING OF PAVED AREAS SHALL COMPLY WITH STREET CUT STD. DWG. 00400–2.

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CITY of LEBANON SUPPLEMENTAL DRAWING

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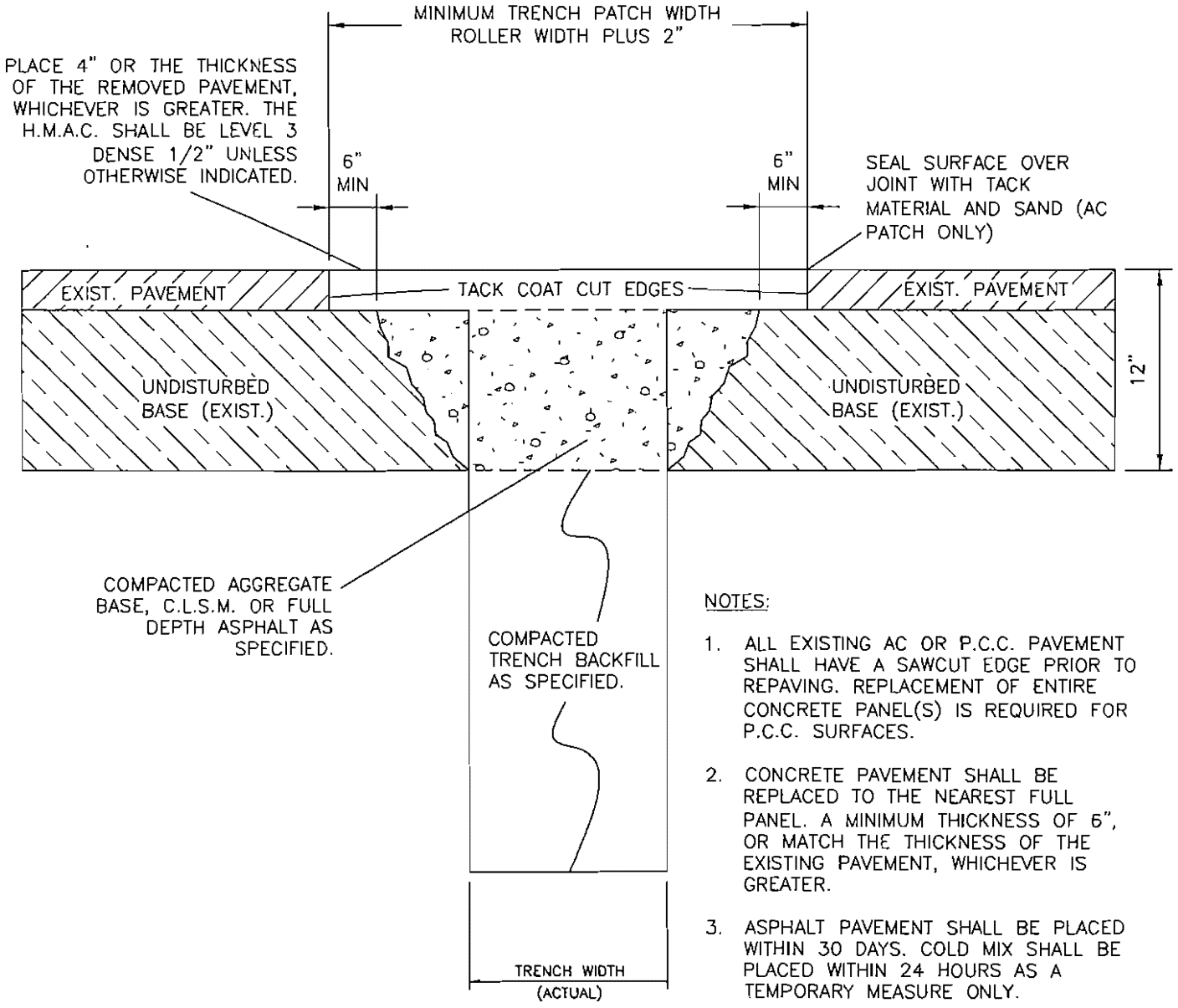
CITY ENGINEER

TRENCH BACKFILL PIPE BEDDING AND PIPE ZONE

DATE: Jan. 2009

DRAWING NO: 00400-01



NOTES:

1. ALL EXISTING AC OR P.C.C. PAVEMENT SHALL HAVE A SAWCUT EDGE PRIOR TO REPAVING. REPLACEMENT OF ENTIRE CONCRETE PANEL(S) IS REQUIRED FOR P.C.C. SURFACES.
2. CONCRETE PAVEMENT SHALL BE REPLACED TO THE NEAREST FULL PANEL. A MINIMUM THICKNESS OF 6", OR MATCH THE THICKNESS OF THE EXISTING PAVEMENT, WHICHEVER IS GREATER.
3. ASPHALT PAVEMENT SHALL BE PLACED WITHIN 30 DAYS. COLD MIX SHALL BE PLACED WITHIN 24 HOURS AS A TEMPORARY MEASURE ONLY.
4. TWO COMPACTION TESTS SHALL BE PERFORMED FOR EVERY 25 LINEAR FEET OF STREET CUT, OR AS DIRECTED BY THE ENGINEER. A MINIMUM OF ONE TEST IS REQUIRED FOR STREET CUTS LESS THAN 25 LINEAR FEET IN LENGTH.

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CITY of LEBANON SUPPLEMENTAL DRAWING

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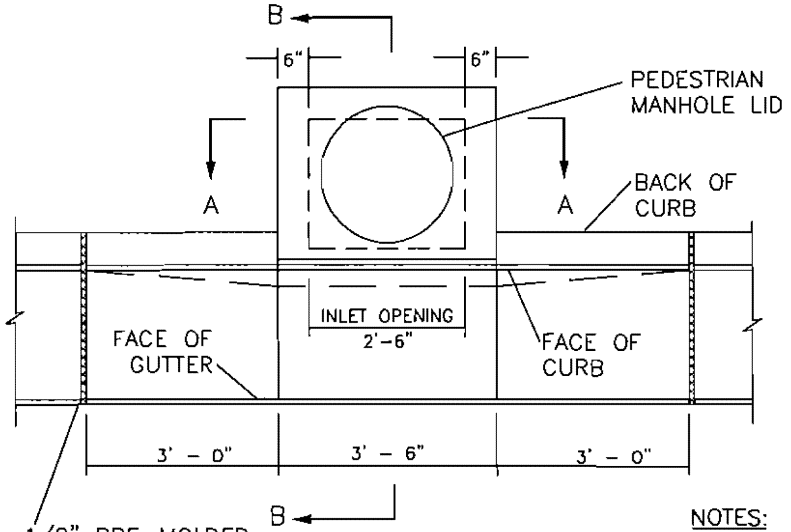
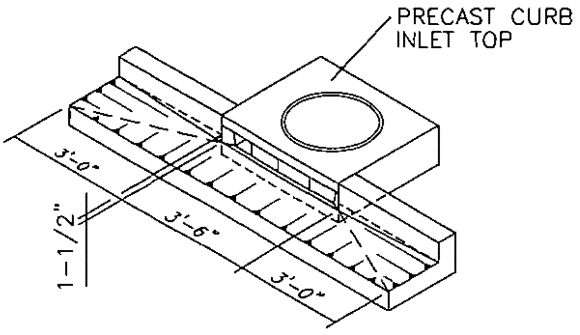
CITY ENGINEER

STANDARD STREET CUT

DATE:	DRAWING NO:
Jan. 2009	00400-02



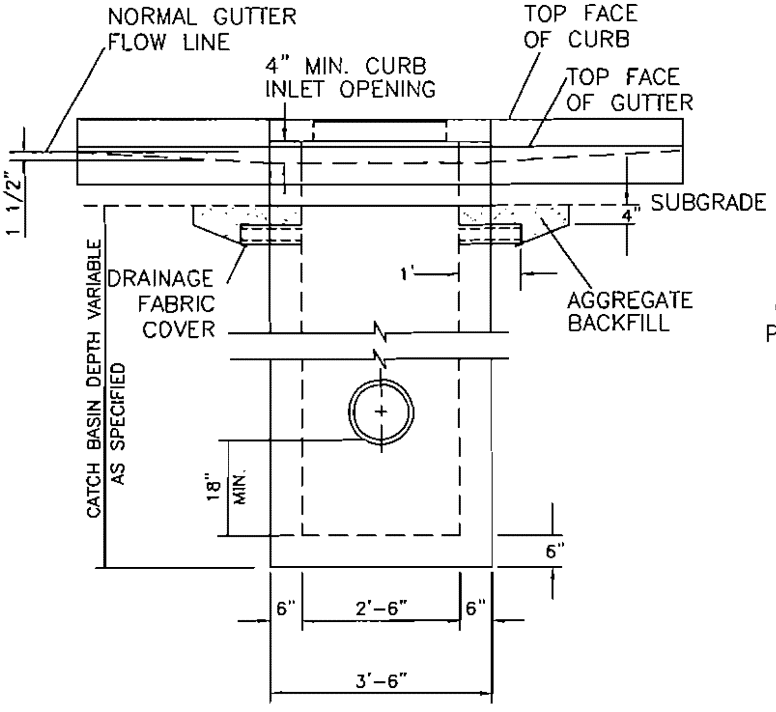
PLAN VIEW



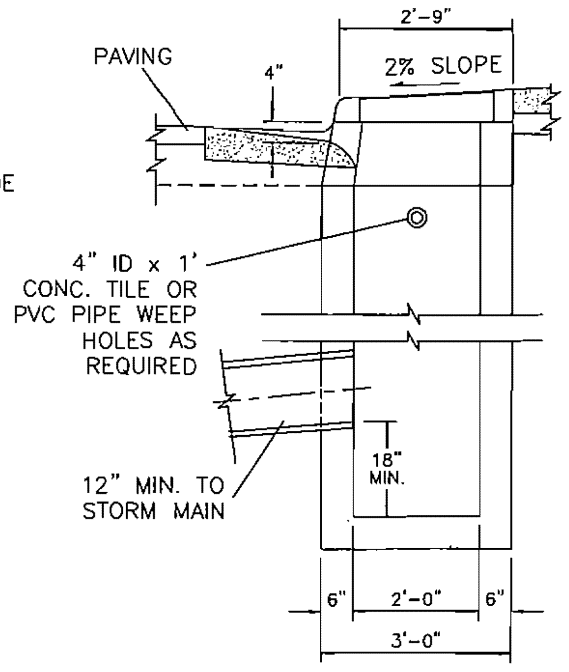
PERSPECTIVE VIEW SHOWING DEPRESSED GUTTER AT CURB INLET

NOTES:

1. ALL CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE.
2. ALL FABRICATED METAL PARTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
3. INLET BASE MAY BE CAST-IN-PLACE OR PRECAST. WHERE PRECAST INLET BASE IS USED AS AN ALTERNATE, A 4" COMPACTED LEVELING BED OF SAND OR 1/4"-0" CRUSHED AGGREGATE SHALL BE PROVIDED.



SECTION A-A



SECTION B-B

CITY OF LEBANON
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CITY of LEBANON SUPPLEMENTAL DRAWING

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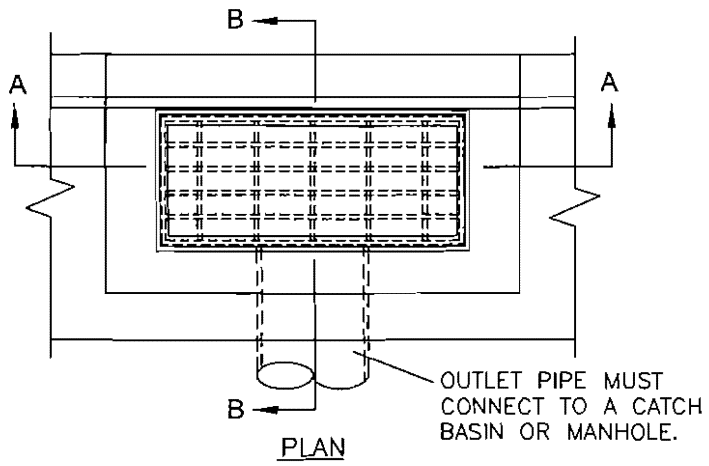
CITY ENGINEER

MODIFIED TYPE CG-3 INLET

DATE: Jan. 2009

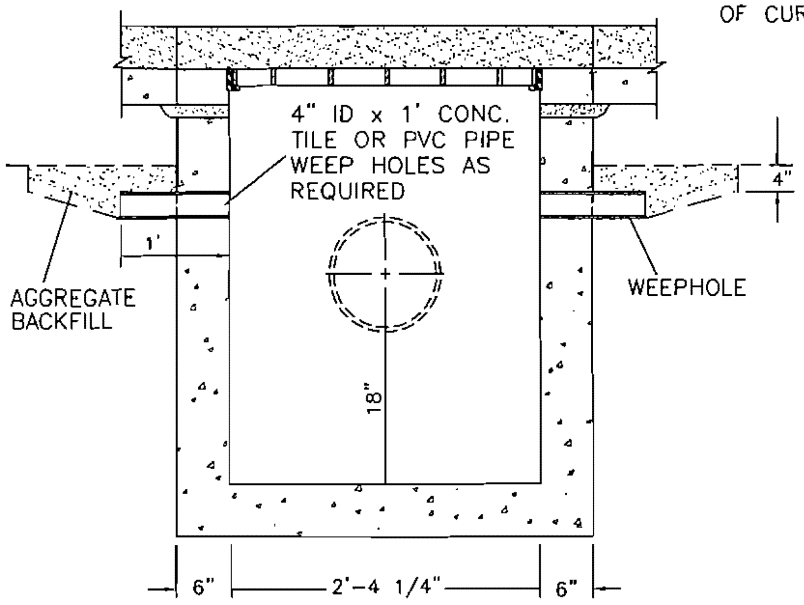
DRAWING NO: 00400-03



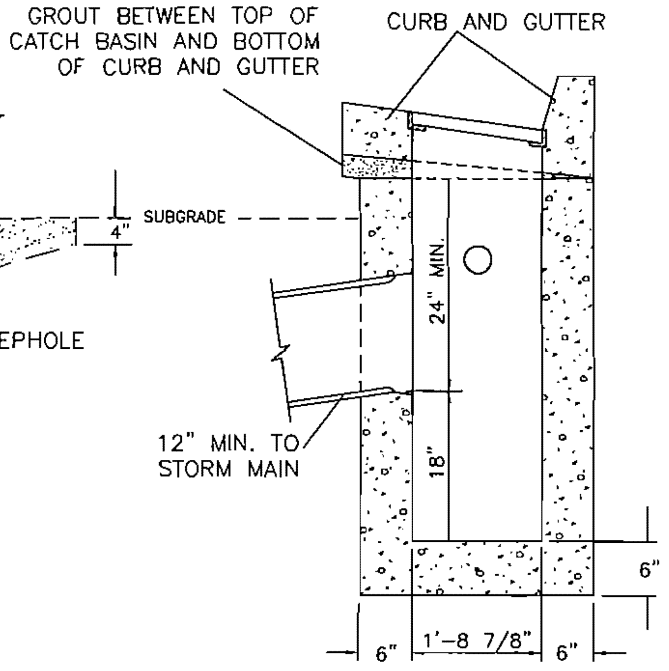
PLAN

NOTES:

1. ALL CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE.
2. ALL FABRICATED METAL PARTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
3. INLET BASE MAY BE CAST-IN-PLACE OR PRECAST. WHERE PRECAST INLET BASE IS USED AS AN ALTERNATE, A 4" COMPACTED LEVELING BED OF SAND OR 1/4"-0" CRUSHED AGGREGATE SHALL BE PROVIDED.
4. SEE STD DWG 00400-8 FOR FRAME AND GRATE DETAILS.



SECTION A-A



SECTION B-B

CITY OF LEBANON
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CITY of LEBANON SUPPLEMENTAL DRAWING

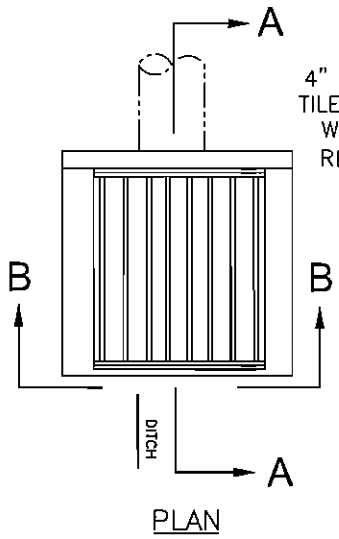
APPROVED

Donald J. Adamick
CITY ENGINEER

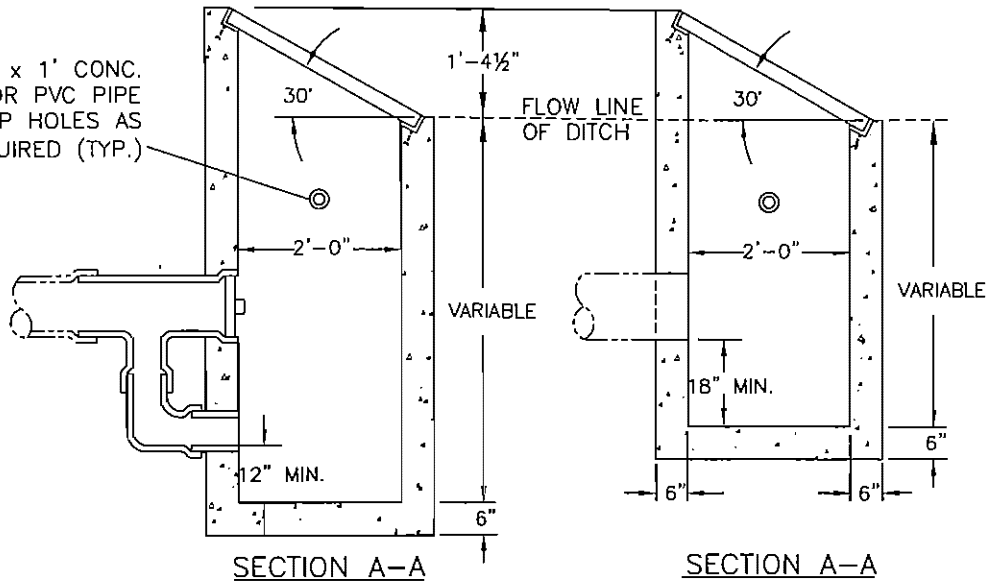
MODIFIED TYPE G-1 INLET

DATE: Jan. 2009

DRAWING NO: 00400-04



PLAN

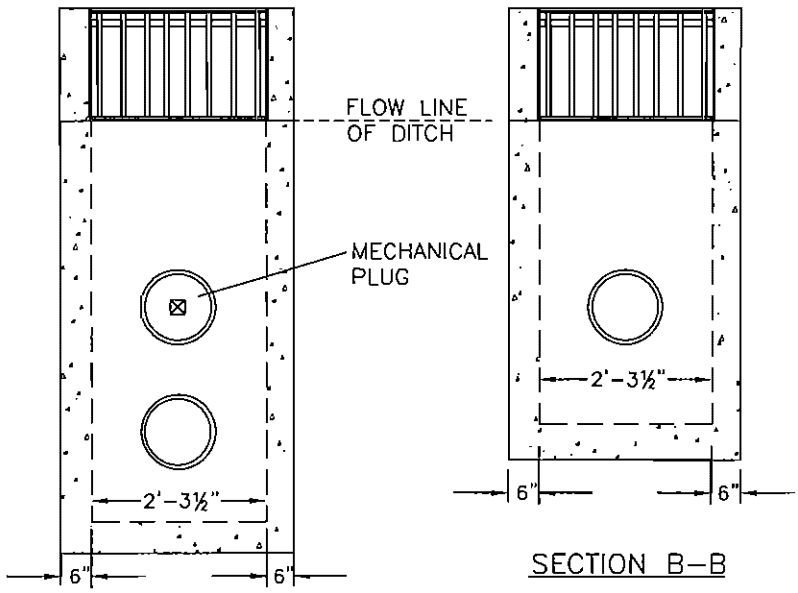


SECTION A–A
POLLUTION CONTROL

SECTION A–A

NOTES:

1. CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE.
2. PRECAST CONCRETE CATCH BASINS MAY BE USED WHEN SPECIFIED OR APPROVED.
3. USE POLLUTION CONTROL DITCH INLET AS REQUIRED OR DIRECTED
4. SEE STD. DWG. 00400–08 FOR GRATE DETAILS.



SECTION B–B
POLLUTION CONTROL

SECTION B–B

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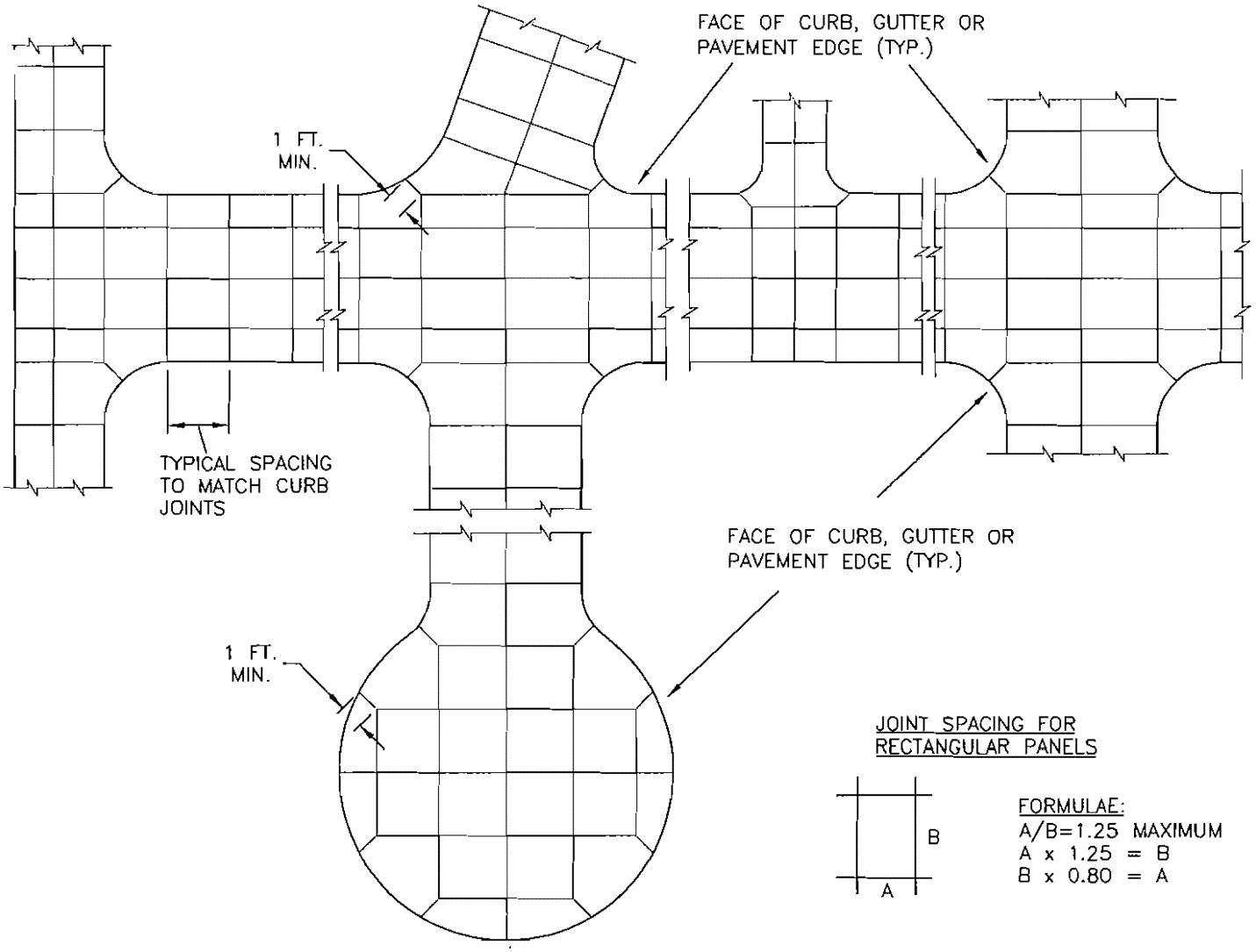
CITY of LEBANON SUPPLEMENTAL DRAWING

APPROVED

CITY ENGINEER

MODIFIED TYPE G-2MA INLET

DATE:	DRAWING NO:
Jan. 2009	00400-05



JOINT SPACING FOR RECTANGULAR PANELS

FORMULAE:
A/B=1.25 MAXIMUM
A x 1.25 = B
B x 0.80 = A

NOTES:

1. ALL TRANSVERSE CONTRACTION JOINTS SHALL MATCH AND ALIGN WITH JOINTS IN CURB AND GUTTER UNLESS PAVING AND CURBS ARE SEPARATED BY AN ISOLATION JOINT. JOINTS IN CUL-DE-SAC CURBS SHOULD BE PLANNED TO MATCH JOINT PATTERN IN PAVING.
2. MAXIMUM JOINT SPACING, IN FEET, SHALL BE 2 ½ TIMES THE PAVEMENT THICKNESS IN INCHES. (EXAMPLE: 8" THICKNESS x 2.5 = 20' SPACING).
3. SPECIAL TREATMENT WILL BE REQUIRED FOR JOINTING ADJACENT TO MANHOLES, VAULTS OR OTHER STRUCTURES INCORPORATED INTO THE PAVING SURFACE.
4. USE APPROVED FLEXIBLE CRACK SEALANT TO FILL ALL CONTRACTION JOINTS FLUSH WITH PAVEMENT SURFACE.
5. SEE SUPP. DWG. 00600-02 FOR JOINT DETAILS.

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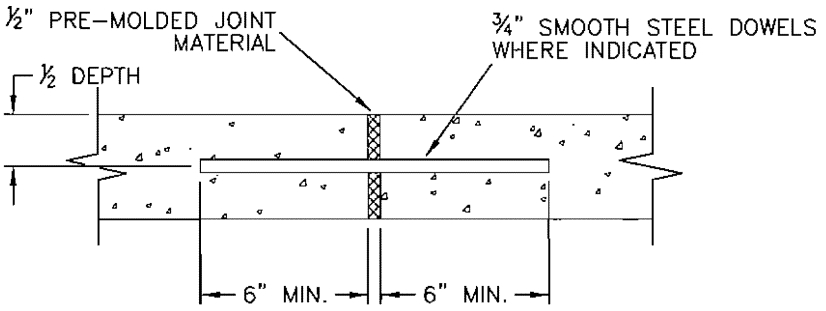
APPROVED

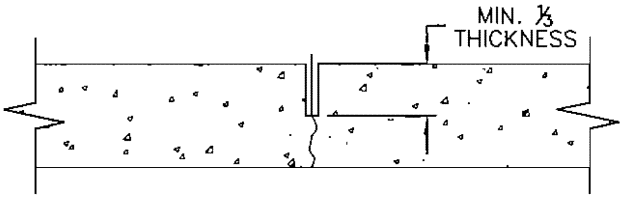
Donald J. Hamick
CITY ENGINEER

CONTRACTION JOINT PATTERN FOR P.C.C. PAVING

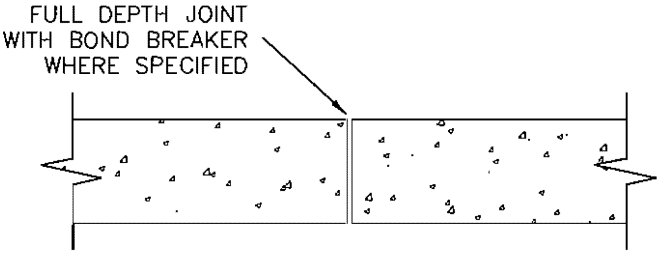
DATE:	DRAWING NO:
Jan. 2009	00600-01



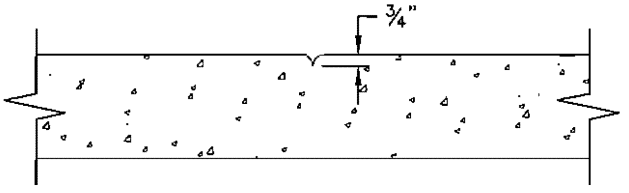
TYPICAL EXPANSION JOINT
(WITH DOWELS WHERE SPECIFIED)



TYPICAL CONTRACTION JOINT



TYPICAL ISOLATION (COLD) JOINT



TYPICAL TOOLED (DUMMY) JOINT

NOTE:

1. ALL JOINTS SHALL BE TOOLED WITH ¾" RADIUS UNLESS SAWCUT.

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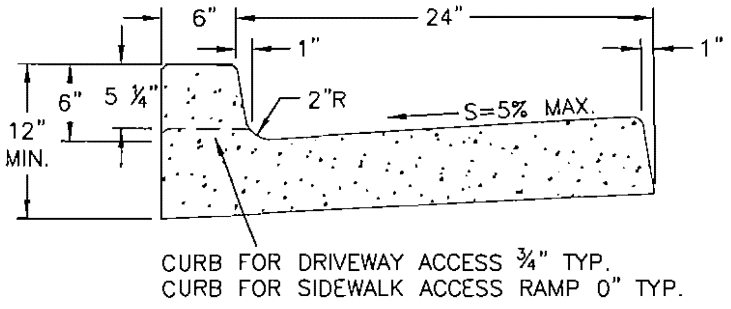
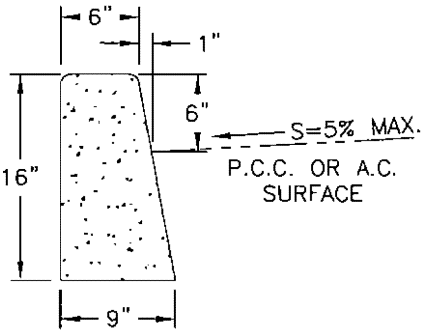
P.C.C. PAVING
JOINT DETAILS

DATE: Jan. 2009

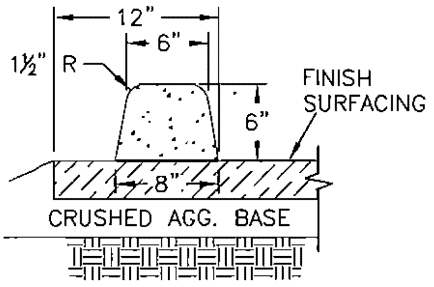
DRAWING NO: 00600-02



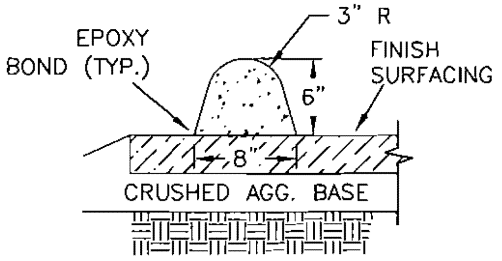
STANDARD CURB & GUTTER



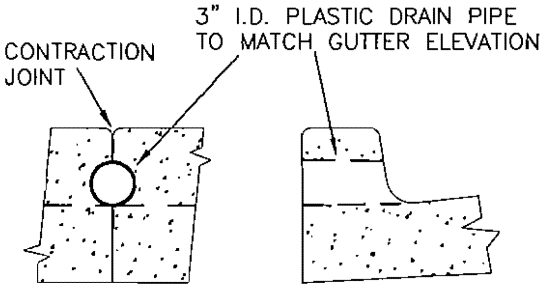
TYPICAL STRAIGHT CURB



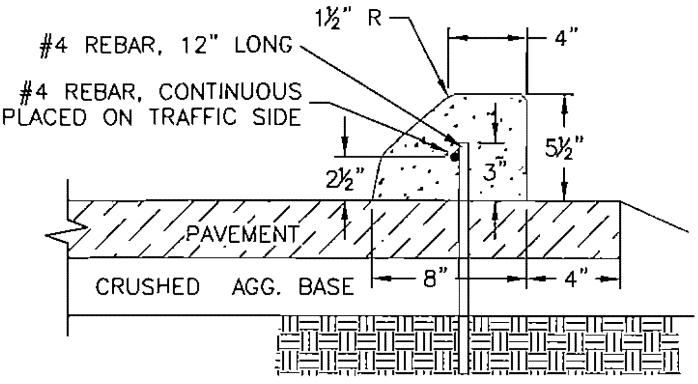
EXTRUDED P.C.C. BONDED CURB



EXTRUDED A.C. BONDED CURB



STANDARD WEEPHOLE



DOWEL REINFORCED CURB

NOTES:

1. ALL RADII SHALL BE ¾" UNLESS SPECIFIED OTHERWISE.
2. ISOLATION AND EXPANSION JOINTS SHALL BE PLACED ONLY AS SPECIFIED.
3. CONTRACTION JOINTS SHALL BE PLACED AT 15' INTERVALS AND OVER WEEPHOLE LOCATIONS UNLESS SPECIFIED OTHERWISE. JOINTS SHALL EXTEND AT LEAST 50% THROUGH THE CURB OR CURB & GUTTER SECTION.
4. CURB INSTALLATIONS WITHIN EXISTING ROADWAYS REQUIRE A 2.0' MINIMUM REMOVAL AND REPLACEMENT OF ADJACENT PAVEMENT (SEE SUPP. DWG. 00400-02).
5. STANDARD P.C.C. CURBING SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3000 P.S.I.
6. REINFORCED P.C.C. CURBING SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4000 P.S.I. AND SHALL BE USED ONLY WHEN SPECIFIED.
7. REFER TO SUPP. DWG. 00300-01 FOR ADDITIONAL INFORMATION.

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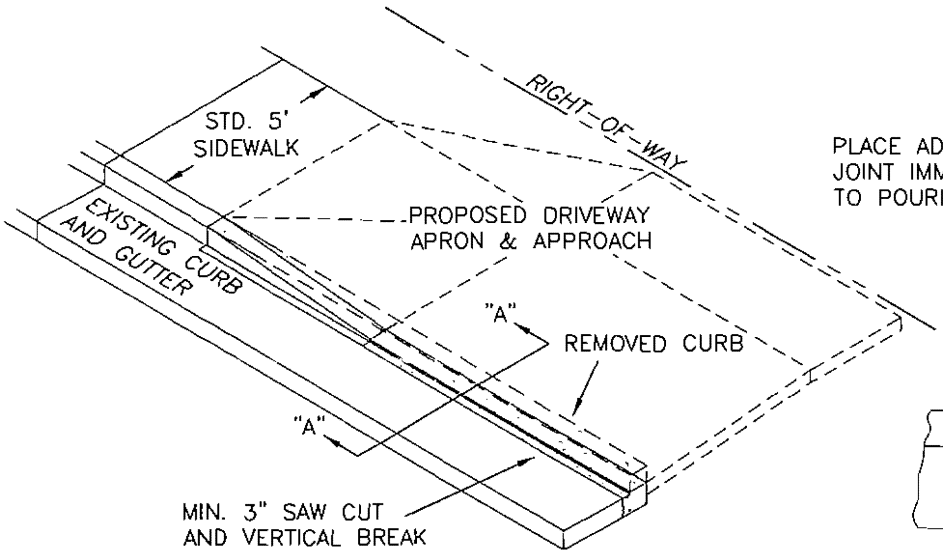
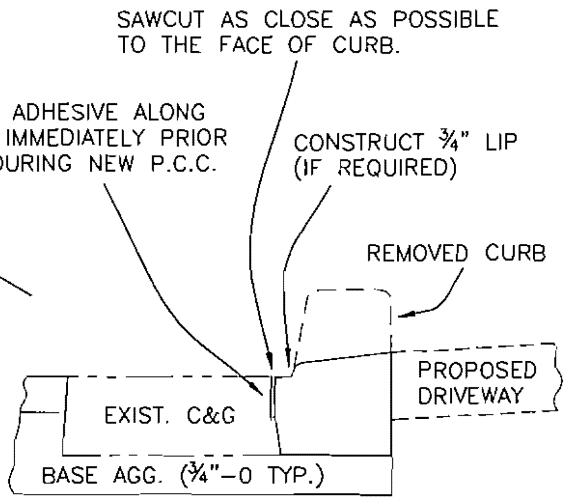
TYPICAL
CURB, GUTTER &
WEEPHOLE DETAILS

DATE: Jan. 2009

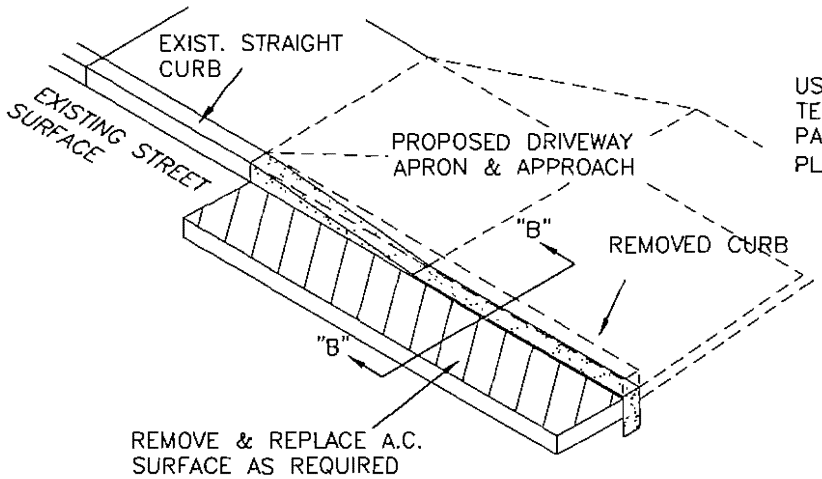
DRAWING NO: 00700-01



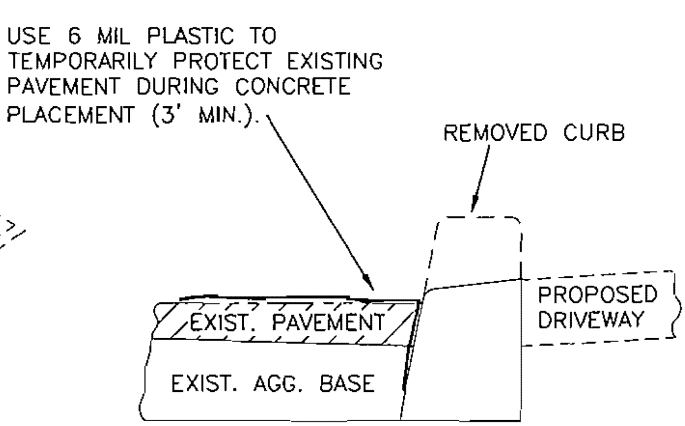
STANDARD CURB & GUTTER KNOCK-OUT



SECTION "A-A"



STRAIGHT CURB KNOCK-OUT



SECTION "B-B"

NOTES:

1. SAWCUT THROUGH GUTTER BAR SHALL BE MADE AS CLOSE AS POSSIBLE TO THE EXISTING FACE OF CURB.
2. WHEN STRAIGHT CURB IS TO BE REPLACED, REMOVE AND REPLACE PAVEMENT AS REQUIRED (2.0' MIN.; SEE SUPP. DWG. 00400-02).
3. WHEN EXISTING GUTTER SLOPE EXCEEDS 5.0% ON SIDEWALK ACCESS RAMPS, REMOVE AND REPLACE ENTIRE CURB AND GUTTER SECTION. COMPLETE CURB AND GUTTER REMOVAL FOR GUTTER SLOPES LESS THAN 5.0% REQUIRES APPROVAL OF THE CITY ENGINEER.
4. SEE SUPP. DWGS. 00700-05, 00700-06 AND 00700-08 FOR SIDEWALK AND DRIVEWAY ACCESS DETAILS.

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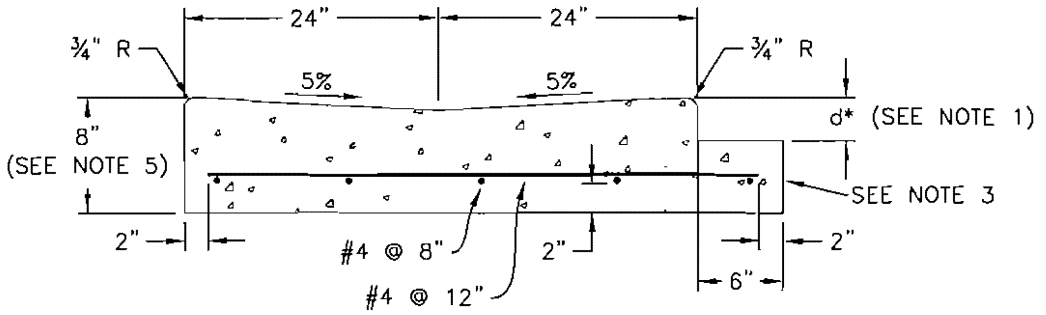
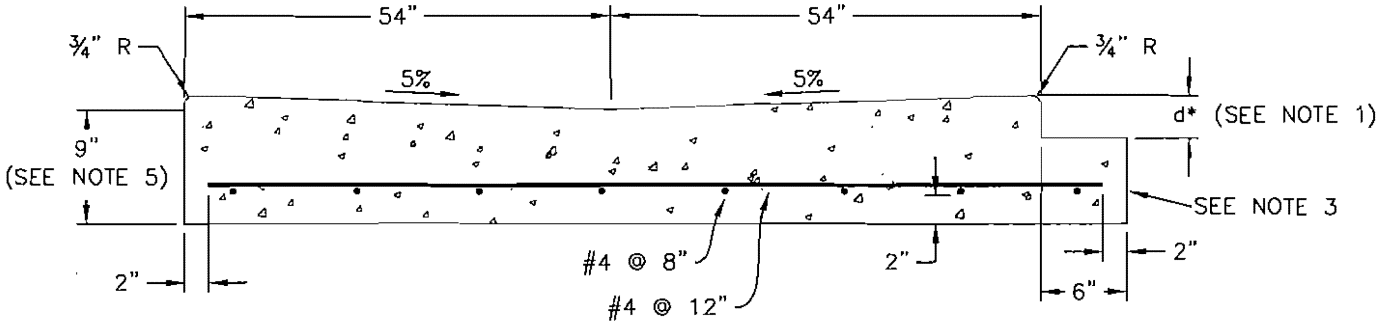
CURB KNOCK-OUT DETAILS

DATE: Jan. 2009

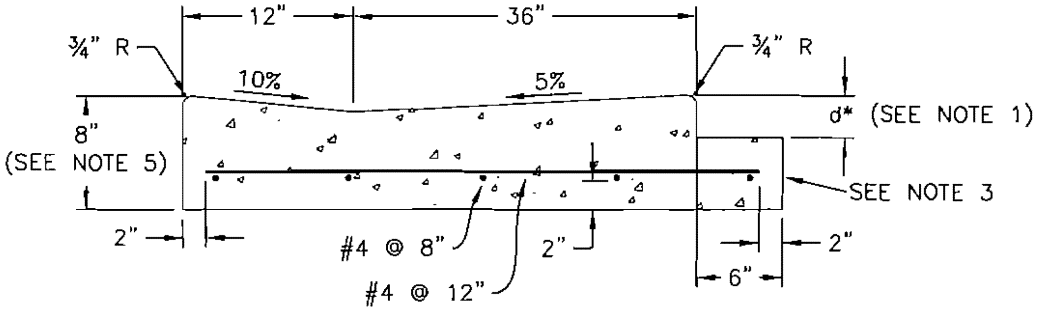
DRAWING NO: 00700-02



SYMMETRICAL "V" TYPE GUTTER



WIDE VALLEY GUTTER



NON–SYMMETRICAL "V" GUTTER

NOTES:

1. d* = THICKNESS OF A.C. PAVEMENT WEARING COURSE.
2. STANDARD P.C.C. SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4000 P.S.I.
3. CONSTRUCT 6" BENCHES MONOLITHICALLY WITH THE VALLEY GUTTER TO MATCH DEPTH OF ASPHALT WEARING COURSE ("d").
4. WHERE BENCHING IS NOT REQUIRED, CONSTRUCT A 1" BATTER ON VERTICAL FACES ABUTTING A.C. PAVEMENT.
5. PLACE APPROVED PRE–MOLDED FILLER AGAINST VERTICAL FACES ABUTTING P.C.C. PAVEMENT.
6. ALL VALLEY GUTTER INSTALLATIONS REQUIRE A MINIMUM OF 2.0" COMPACTED AGGREGATE BASE.

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P.C.C. VALLEY GUTTER DETAILS

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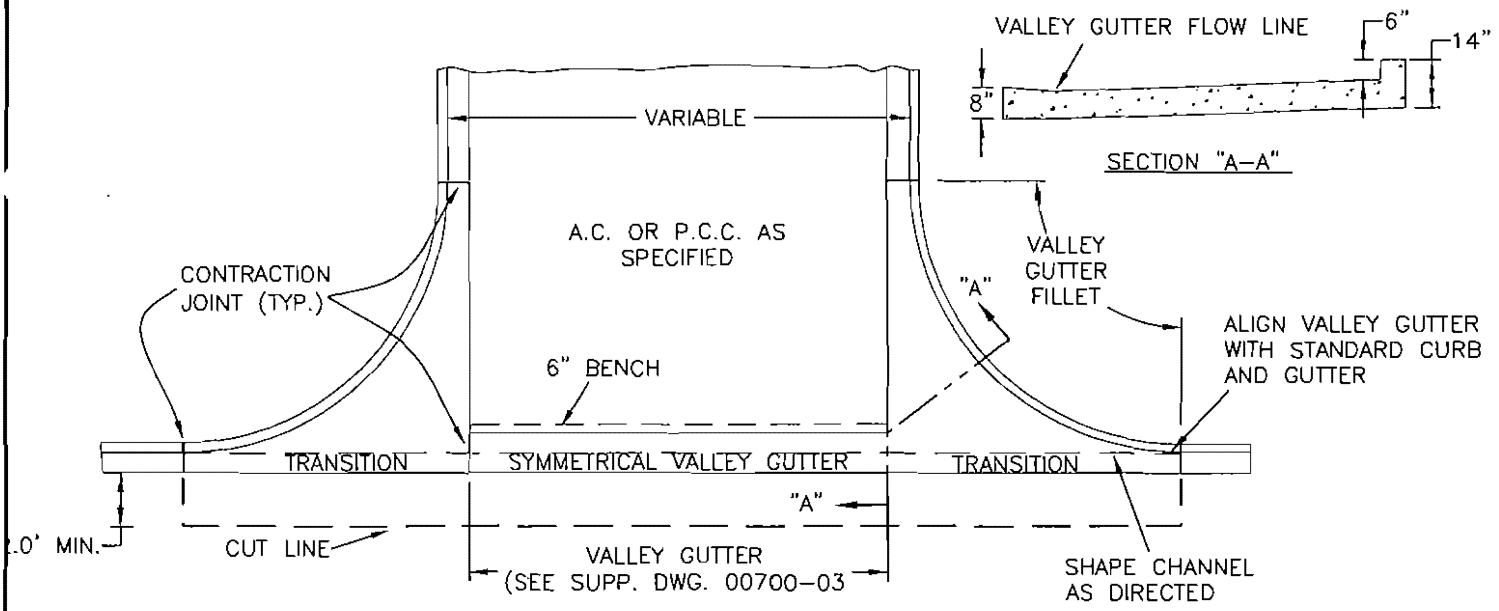
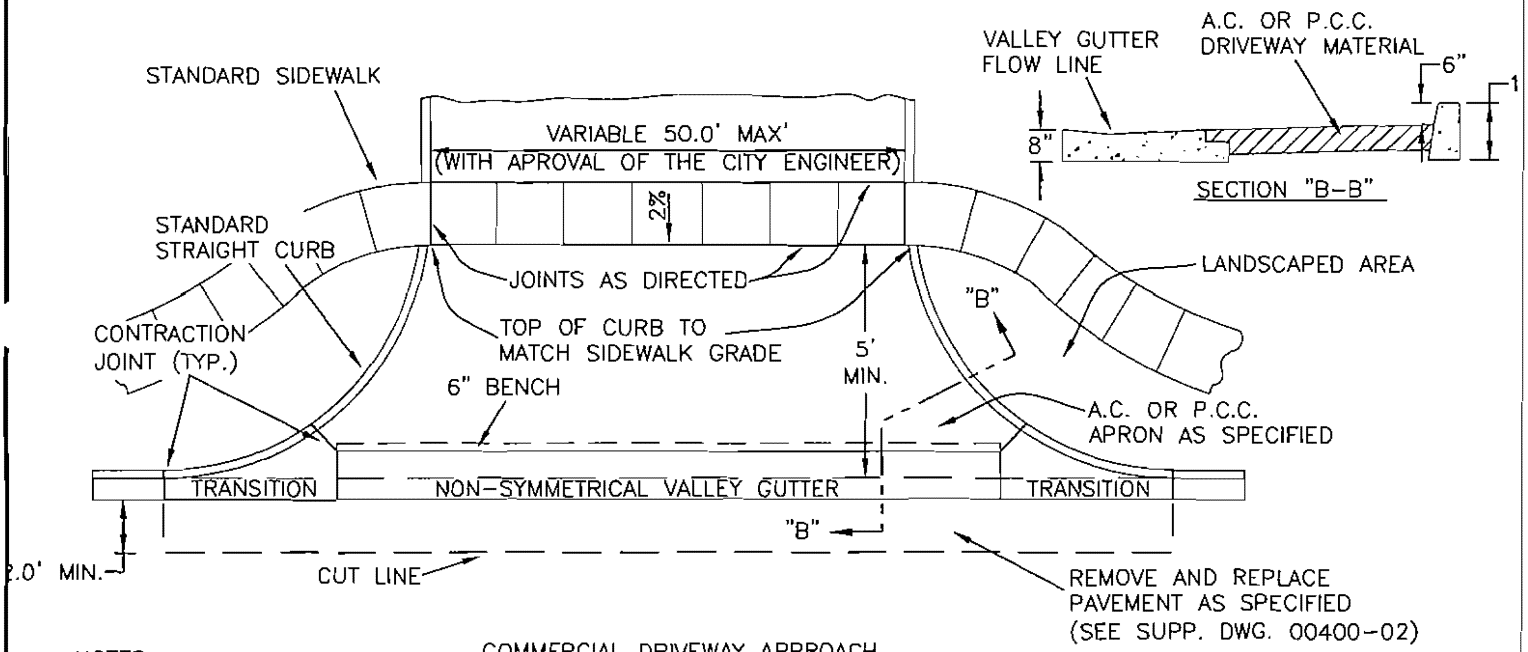
DRAWING NO: 00700-03



VALLEY GUTTER ACROSS INTERSECTION



COMMERCIAL DRIVEWAY APPROACH

NOTES:

1. COMMERCIAL DRIVEWAY ORDER OF CONSTRUCTION:
   A. CONSTRUCT VALLEY GUTTER AND TRANSITION SECTIONS.
   B. CONSTRUCT 8" THICK SIDEWALK ACROSS DRIVEWAY AREA.
   C. CONSTRUCT DRIVEWAY APRON. P.C.C. APRONS SHALL BE JOINTED AS DIRECTED (SUPP. DWG. 00600–02).
2. P.C.C. SHALL HAVE 28 DAY COMPRESSIVE STRENGTH OF 4000 P.S.I..
3. CONSTRUCT CURBING MONOLITHICALLY WITH FILLET AND TRANSITION SECTIONS.
4. SEE STANDARD SIDEWALK ACCESS RAMP DETAILS (SUPP. DWG. 00700–06) FOR ACCESS RAMP REQUIREMENTS AT INTERSECTIONS.

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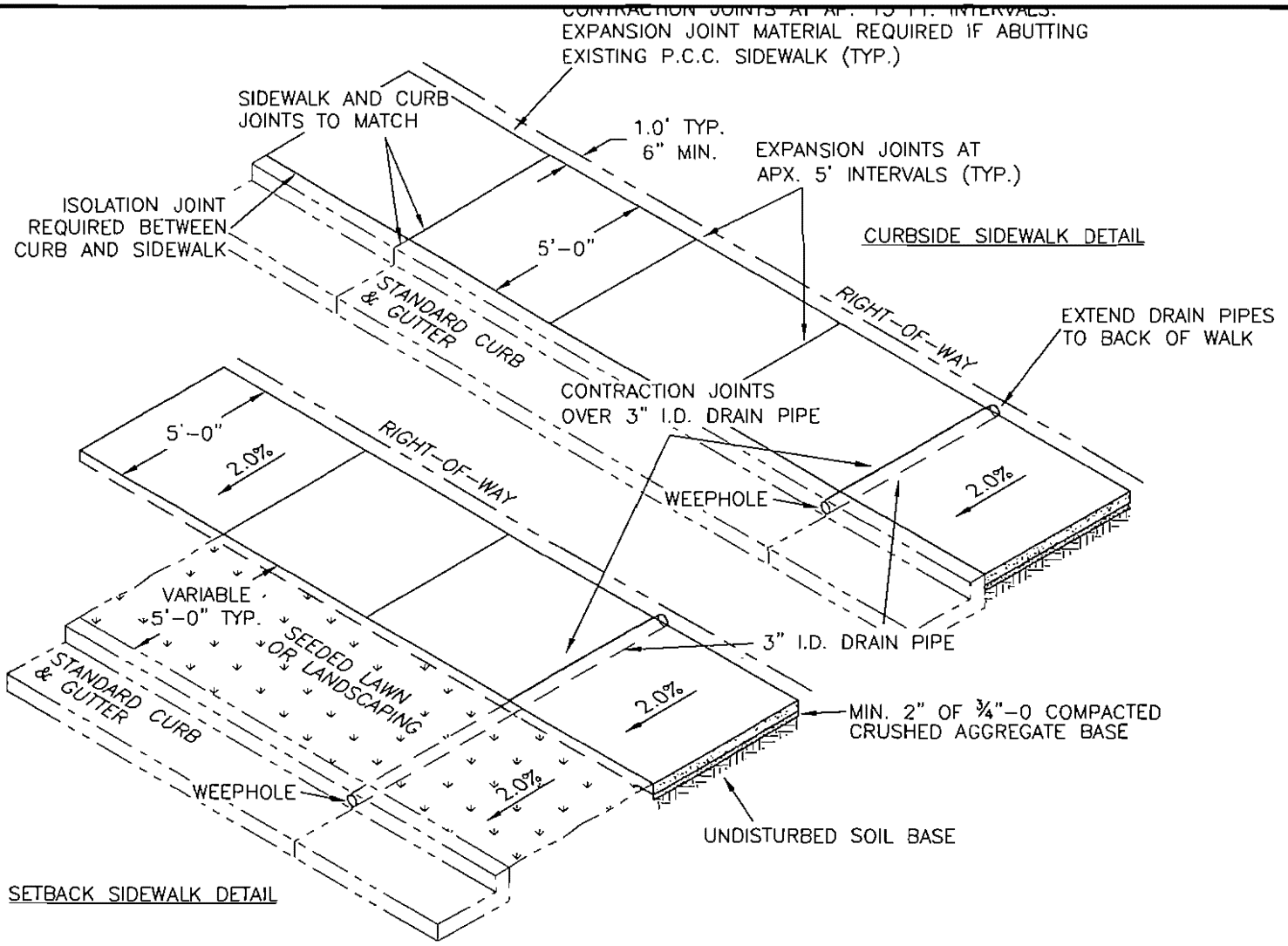
VALLEY GUTTERS ACROSS DRIVEWAYS/ INTERSECTIONS

DATE:	DRAWING NO:
Jan. 2009	00700-04



CURBSIDE SIDEWALK DETAIL

SETBACK SIDEWALK DETAIL

NOTES:

1. SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.0%. WHEN ADJOINING LOT IS BELOW THE TOP OF CURB AND SLOPES AWAY FROM THE CURB, A NEGATIVE (AWAY FROM STREET) 2.0%. SLOPE MAY BE REQUIRED.
2. SIDEWALK NOMINAL DEPTH IS 4.0"; P.C.C. SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3000 P.S.I.
3. UNDER NO CIRCUMSTANCES SHALL SIDEWALK WIDTHS BE LESS THAN 5.0' WIDE FOR MORE THAN 200 LINEAL FEET.
4. EXPANSION JOINTS (FULL DEPTH) WITH PRE-MOLDED FILLER SHALL BE INSTALLED BETWEEN DRIVEWAYS AND SIDEWALKS AND AROUND ALL SIDEWALK OBSTRUCTIONS (SEE SUPP. DWGS. 00700-07 & 00700-08).
5. ISOLATION JOINTS (FULL DEPTH) SHALL BE INSTALLED BETWEEN BACK OF CURB AND FRONT OF SIDEWALK.
6. CONTRACTION JOINTS (⅓ DEPTH OF CONCRETE) SHALL BE INSTALLED AT APX. 15' INTERVALS.
7. TOOLED JOINTS (¾" DEPTH) SHALL BE INSTALLED AT APX. 5' INTERVALS IN WET CONCRETE WITH A JOINTER TOOL (SEE SUPP. DWG. 00600-02). TOOLED JOINTS SHALL MATCH CURB CONTRACTION JOINTS WHERE APPLICABLE. SIDEWALKS 8' AND WIDER SHALL HAVE A LONGITUDINAL TOOLED JOINT AT MIDPOINT.
8. WEEP HOLES AND PIPING SHALL EXTEND TO BACK OF SIDEWALK AND REQUIRE A COUPLER AT TERMINATION.
9. SIDEWALK SECTIONS MUST BE REPLACED AS FULL PANELS. PARTIAL REMOVAL OF PANELS IS PROHIBITED.

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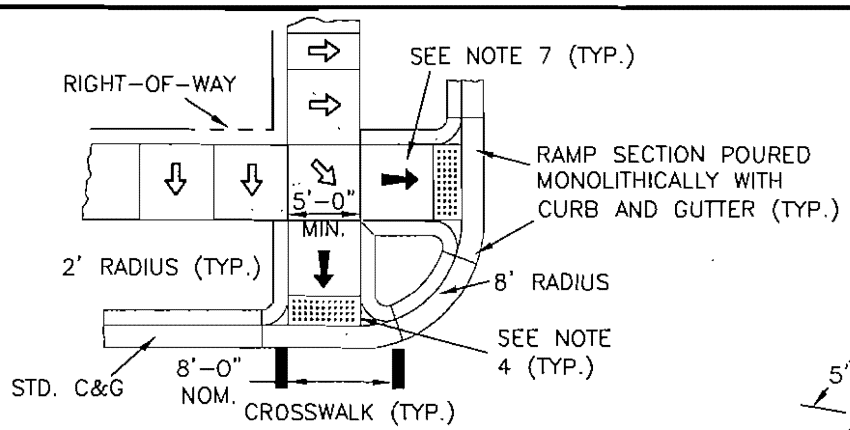
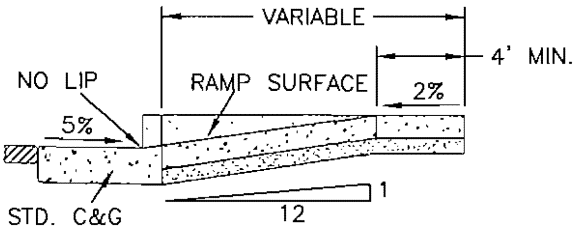
STANDARD P.C.C. SIDEWALK DETAILS

DATE: Jan. 2009

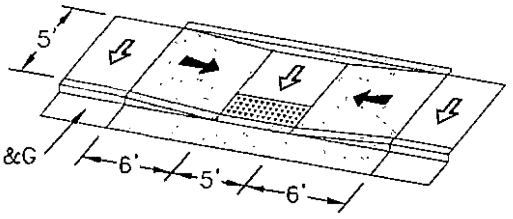
DRAWING NO: 00700-05



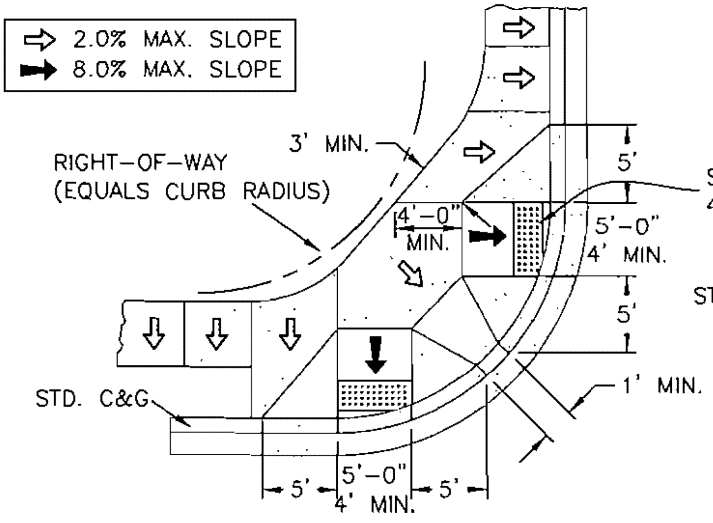
PERPENDICULAR CURB RAMPS (TYPE 1)



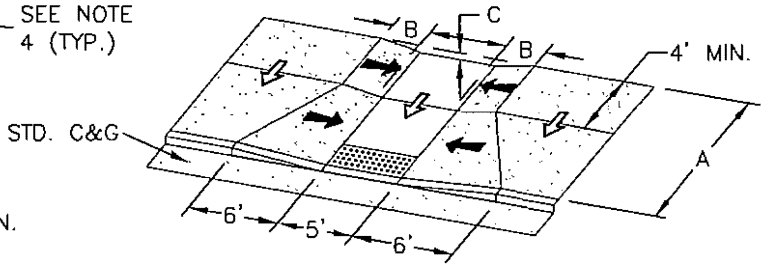
TYPICAL SECTION THROUGH RAMP



PARALLEL CURB RAMP
(WITH APPROVAL OF THE CITY ENGINEER)



PERPENDICULAR CURB RAMPS (TYPE 2)



COMBINED CURB RAMP
(WITH APPROVAL OF THE CITY ENGINEER)

NOTES:

1. THE "AMERICAN DISABILITIES ACT" REQUIRES THAT ALL ACCESS RAMPS TO SIDEWALKS CONFORM TO ALL APPLICABLE FEDERAL GUIDELINES.
2. UTILITY POLES ARE NOT PERMITTED WITHIN THE RAMP AREA.
3. 2.0% (MAX.) SLOPED LANDINGS SHALL BE PLACED AT THE TOP OF EACH RAMP. GUTTER PANS SHALL NOT EXCEED 5.0% SLOPE THROUGH RAMP THROATS.
4. APPROVED TRUNCATED DOME DETECTABLE WARNING SURFACES SHALL BE USED WHEREVER RAMP ACCESSES MEET THE STREET (SEE ODOT STD. DWG. RD759).
5. RAMPS FOR BIKEWAYS SHALL EXTEND FULL WIDTH OF THE BIKEWAY, (8' WIDTH TYP.).
6. SIDEWALK ACCESS RAMP SLOPES MAY BE REDUCED FROM 1:12 (MAX.) TO 1:8 (MAX.) WHEN MODIFYING EXISTING FACILITIES, WITH APPROVAL OF THE CITY ENGINEER.
7. RAMP THROATS MUST BE PERPENDICULAR TO THE STREET AND IN LINE WITH THE STRIPED CROSSWALK (WHERE APPLICABLE).
8. WHEN INSTALLING RAMPS WITHIN EXISTING ROADWAYS, REMOVE AND REPLACE EXISTING PAVEMENT AS REQUIRED (SEE SUPP. DWG. 00400-02).

COMBINED CURB RAMP DIMENSIONS

A	B	C
5'	5.0'	5"
5.5'	4.5'	4½"
6'	4.25'	4¼"
6.5'	3.75'	3¾"
7'	3.5'	3½"
7.5'	3.0'	3"
8'	2.75'	2¾"
8.5'	2.25'	2¼"
9'	2.0'	2"
9.5'	1.5'	1½"
10'	1.25'	1¼"
10.5'	0.75'	¾"
11'	0.5'	½"
11.5'	0'	0"

EQUATION FOR CHART:
$C=[((A-4')\times 0.02)+0.50']-[(A-4'+0.50')\times \frac{1}{12}]\times 12$

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SIDEWALK ACCESS RAMPS

DATE: Jan. 2009

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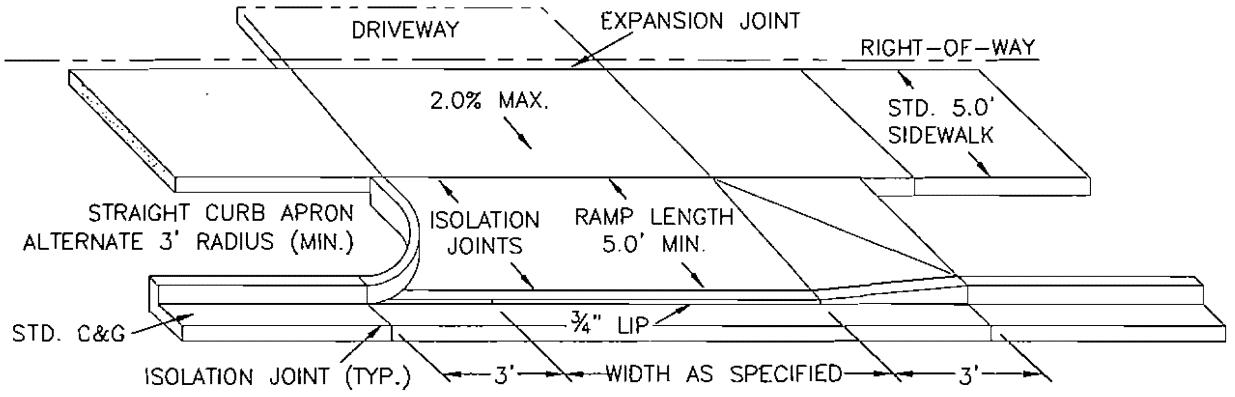
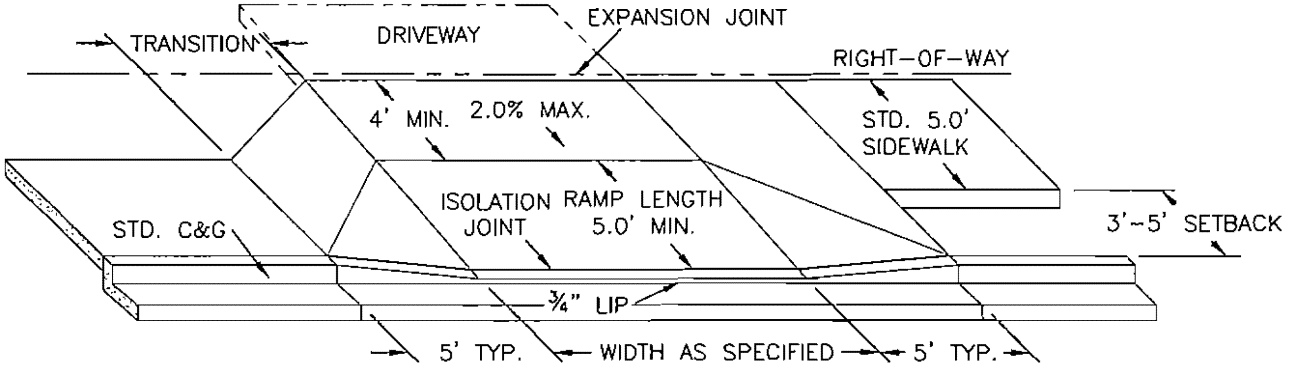
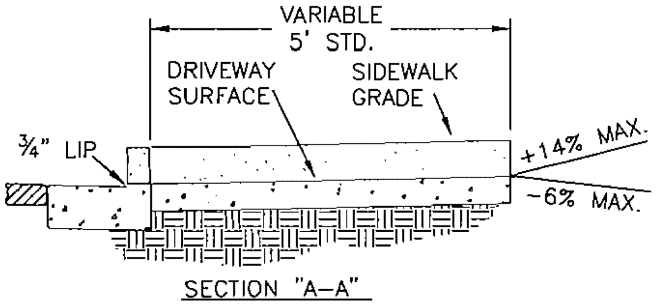


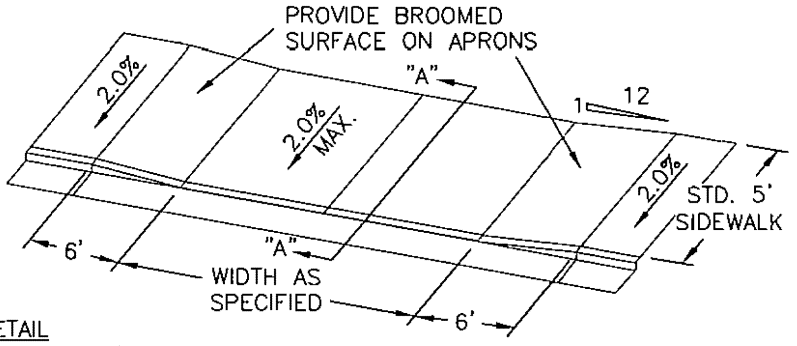
DRIVEWAY/ALLEY APPROACH FOR SETBACK SIDEWALK



DRIVEWAY/ALLEY APPROACH FOR CURBLINE & PARTIALLY SETBACK SIDEWALKS



SECTION "A-A"



ALTERNATE DRIVEWAY DETAIL
(WITH APPROVAL OF THE CITY ENGINEER)

NOTES:

1. ALL RESIDENTIAL DRIVEWAYS AND INCLUDED SIDEWALKS SHALL HAVE A NOMINAL P.C.C. THICKNESS OF 6.0" AND A 28 DAY COMPRESSIVE STRENGTH OF 3000 P.S.I. ALLEY APPROACHES AND COMMERCIAL DRIVEWAYS SHALL HAVE A NOMINAL P.C.C. THICKNESS OF 8.0" AND A 28 DAY COMPRESSIVE STRENGTH OF 4000 P.S.I.
2. CONSTRUCT ONE OR MORE TOOLED JOINTS, DEPENDING ON THE WIDTH OF THE APPROACH OR DRIVEWAY.
3. IF THE APPROACH OR DRIVEWAY IS TO BE USED AS A SIDEWALK ACCESS, THE ¾" LIP MAY BE OMITTED. FOR SIDEWALK DETAILS, SEE SUPP. DWG. 00700-05.
4. WHEN INSTALLING APPROACHES ADJACENT TO AN EXISTING ROADWAY, REMOVE AND REPLACE PAVEMENT AS REQUIRED (2.0' MIN.; SEE SUPP. DWG. 00400-02).

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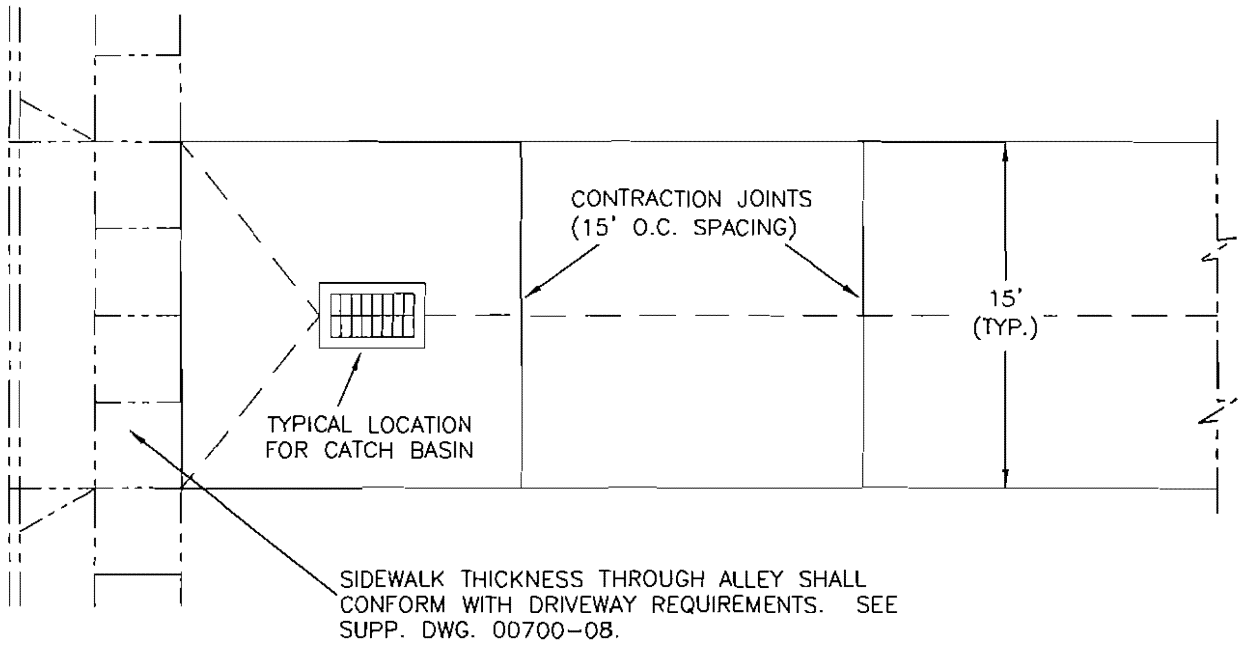
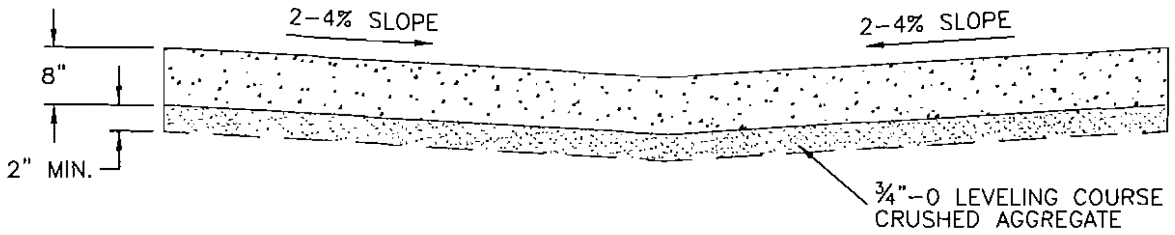
TYPICAL DRIVEWAY AND ALLEY APPROACHES

DATE:	DRAWING NO:
Jan. 2009	00700-08



TYPICAL ALLEY (PLAN VIEW)



TYPICAL ALLEY SECTION (INVERTED CROWN)

NOTES:

1. ALL EDGES SHALL BE TOOLED WITH ¾" RADIUS.
2. ALL CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4000 P.S.I.
3. SEE SUPP. DWGS. 00700-08 FOR APPROACH DETAILS..

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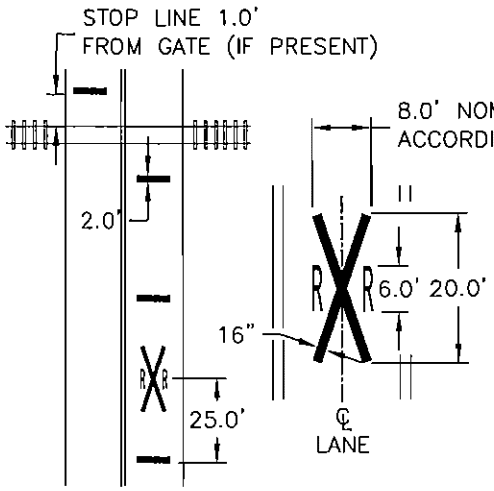
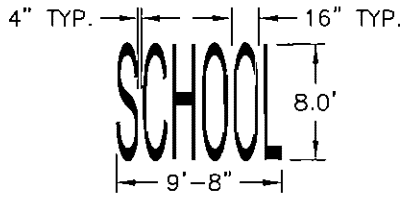
ALLEY DETAILS

DATE: Jan. 2009

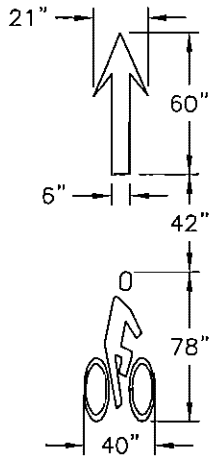
DRAWING NO: 00700-09



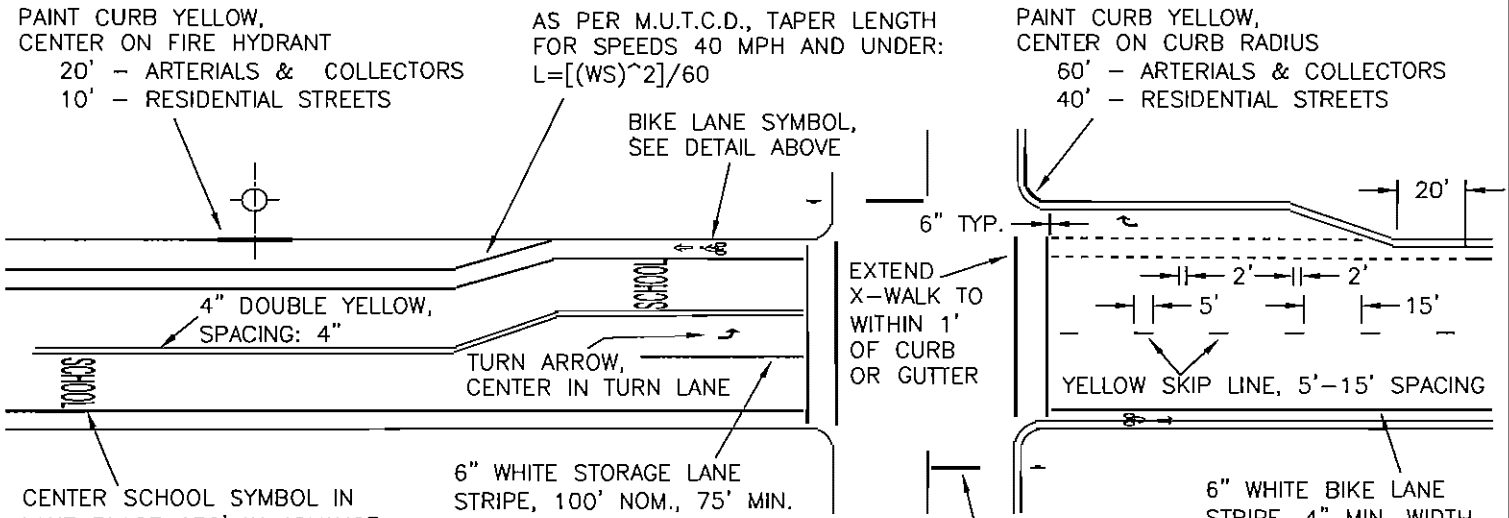
RR CROSSING PAVEMENT MARKING DETAIL
(TYPICAL BOTH OIRECTIONS)



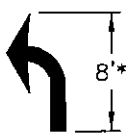
SCHOOL SYMBOL DETAIL
(REFER TO F.H.W.A. LETTERING GUIDE)



BIKE SYMBOL DETAIL



STRIPING DETAIL



*STANDARD SIZES FOR NORMAL INSTALLATION; MAY BE REDUCED UP TO ⅓ FOR LOW-SPEED (URBAN) CONDITIONS

NOTES:

1. ALL TURN ARROWS, CROSSWALK BARS, STOP BARS, SCHOOL MARKINGS, BIKE SYMBOLS AND R.R. CROSSING MARKINGS SHALL BE TYPE "B" THERMOPLASTIC.

2. ALL CROSSWALK STRIPING SHALL BE 1.0' WIDE. HIGH-INTENSITY CROSSWALKS SHALL HAVE 2.0' WIDE STRIPES WITH 2.0' GAPS ONLY AT LOCATIONS DESIGNATED BY THE ENGINEER. SEE SUPP. DWG. 00700-06 FOR CROSSWALK WIDTH INFORMATION.

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CITY of LEBANON SUPPLEMENTAL DRAWING

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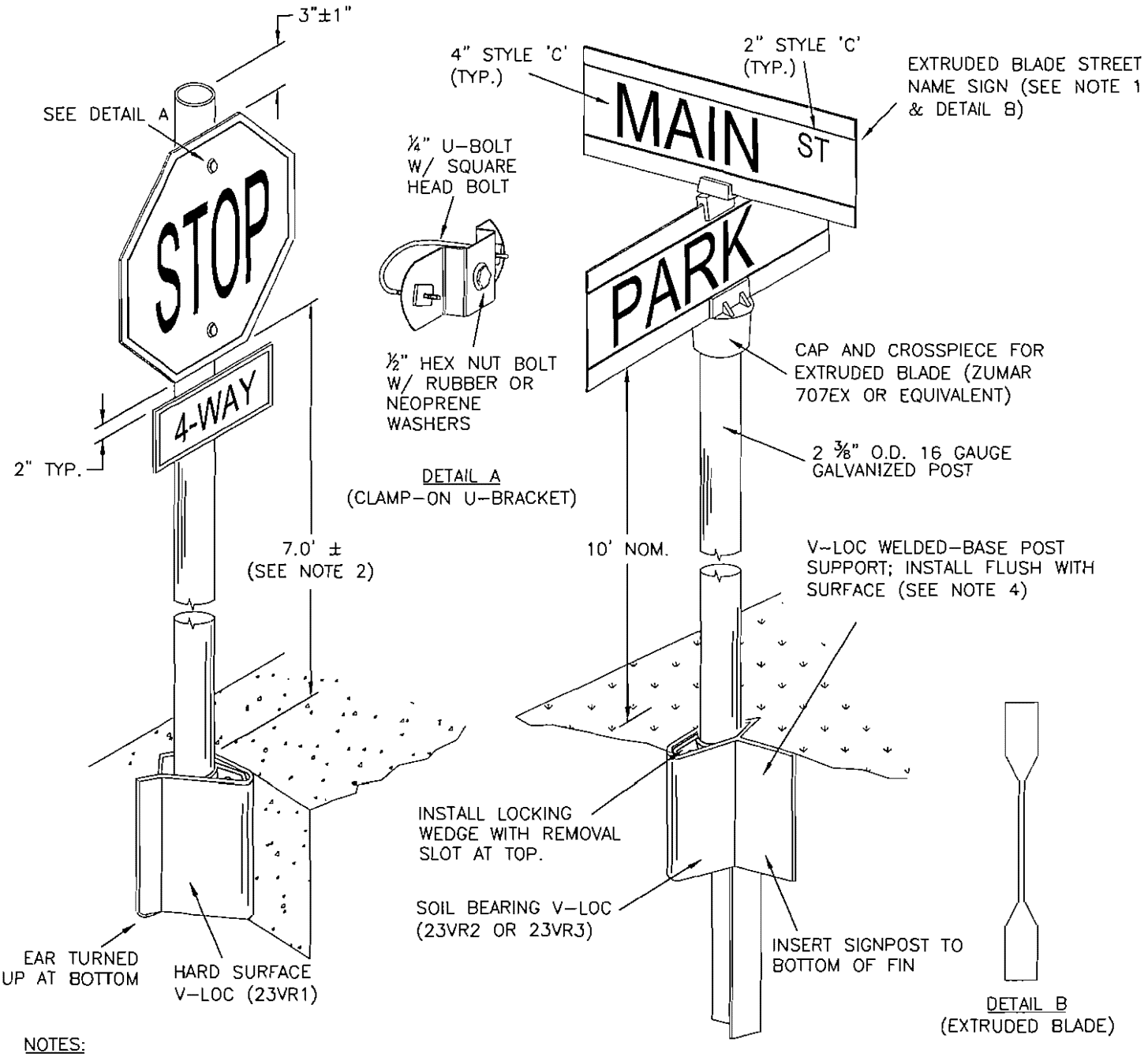
STRIPING DETAILS

DATE: Jan. 2009

DRAWING NO: 00800-02



NOTES:

1. DOUBLE-FACED STREET NAME SIGNS SHALL BE CITY OF LEBANON TYPE "G1 OR "G2". STANDARD SIGN SIZE: 6"Hx24"W (30" WIDTH IF NEEDED).

2. PRIMARY SIGN MOUNTING HEIGHT IS 6'-8" (MIN.), 4'-0" FOR SECONDARY SIGNS (SEE SUPP. DWG. 00200-02).

3. V-LOC SIGN POST SUPPORTS (OR APPROVED EQUAL) SHALL BE APPROPRIATE TO THE INSTALLATION SITE:
   TYPE 23VR1 -- HARD SURFACE MOUNT
   TYPE 23VR2 -- NATIVE SOIL BEARING MOUNT
   TYPE 23VR3 -- LOOSE SOIL BEARING MOUNT

4. POSITION V-LOC AS SPECIFIED BY MANUFACTURER AND USE APPROVED DRIVER TO INSTALL LOCKING WEDGE.

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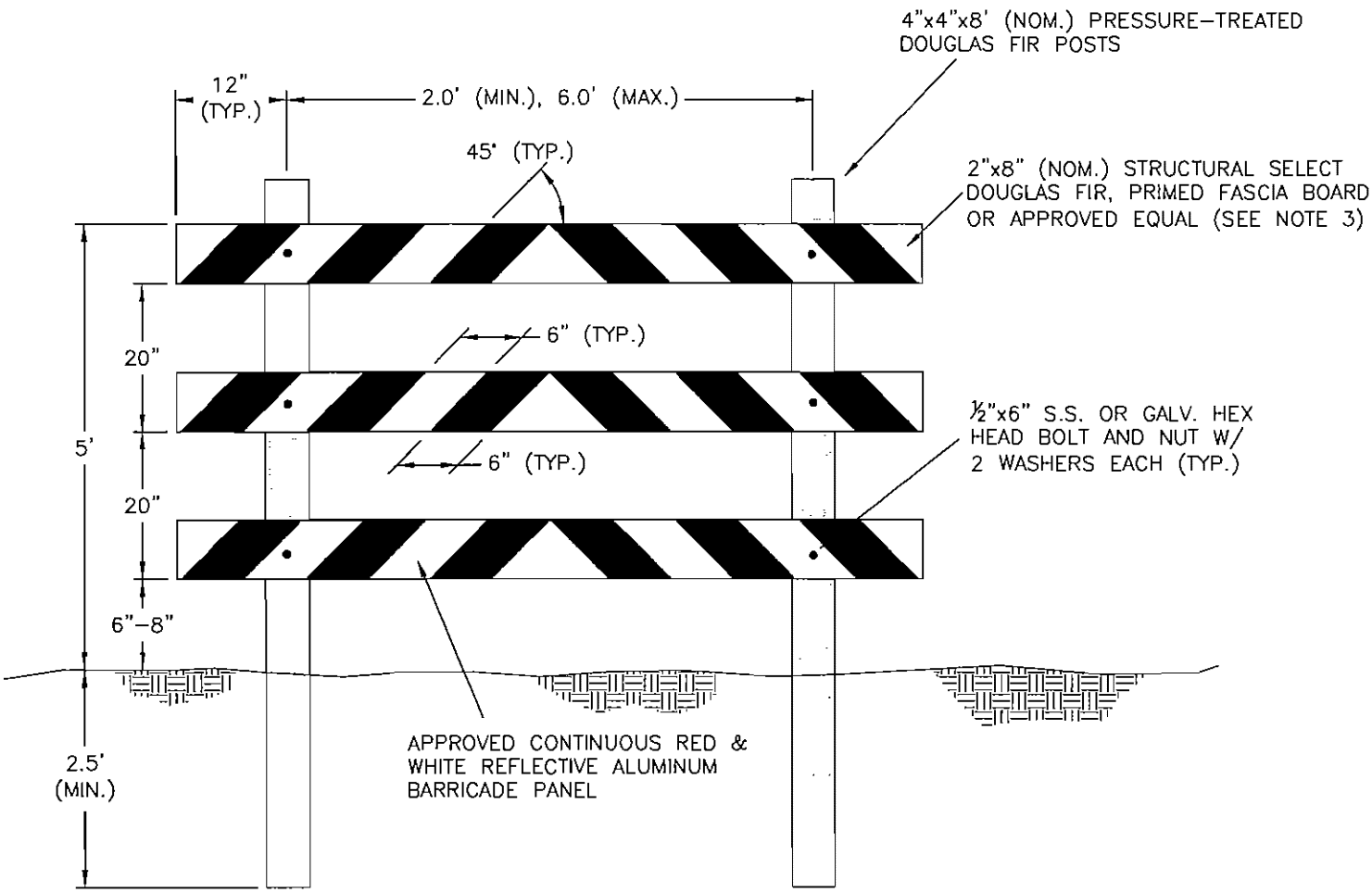
SIGN MOUNTING

DATE: Jan. 2009

DRAWING NO: 00900-01



NOTES:

1. SLOPE REFLECTORIZED STRIPING ON BARRICADE RAILS DOWNWARD AT A 45° ANGLE IN THE DIRECTION TRAFFIC IS TO PASS. WHERE BARRICADES EXTEND ACROSS AN ENTIRE ROADWAY, SLOPE STRIPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO DETOUR. WHERE TRAFFIC IS PERMITTED TO DETOUR IN MULTIPLE DIRECTIONS, SLOPE STRIPING IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE (AS SHOWN ABOVE).
2. PAINT KILN-DRIED LUMBER AND PRIMED FASCIA BOARDS ON ALL SIDES WITH AN APPROVED WHITE LATEX PAINT PRIOR TO INSTALLATION/ASSEMBLY.
3. ATTACH BARRICADE PANELS TO 2"x8" RAILS USING 1" SELF-TAPPING METAL ROOFING SCREWS. POSITION SCREWS 1" FROM PANEL EDGES AT EACH CORNER AND AT 12" ON CENTER.
4. PROVIDE A 3' LEVEL CLEAR ZONE AROUND BARRICADES AND A 6" THICK CRUSHED AGGREGATE GROUND COVER.
5. FOR ROAD CLOSURES, BLOCK THE ENTIRE ROADWAY FROM CURB TO CURB. CLOSURES REQUIRE INSTALLATION OF A GATE WITH 8' WIDE CLEAR OPENING, INSTALLED AS CLOSE TO THE SIDE OF THE ROAD AS POSSIBLE.

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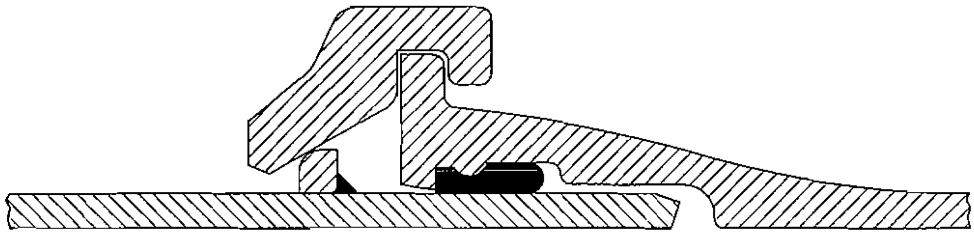
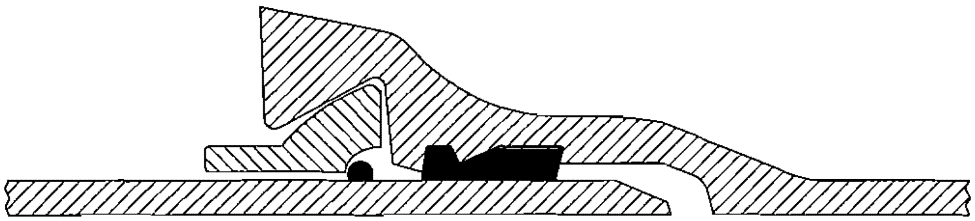
PERMANENT TYPE III BARRICADE DETAIL

DATE:	DRAWING NO:
Jan. 2009	00900-02



TYPE 'A': SIZES 6" – 24" TYTON JOINT



TYPE 'B': SIZES 30" – 36" FASTITE JOINT

FITTING TYPE / SIZE	PIPE SIZE			
	12"	8"	6"	4"
	NUMBER OF 18' PIPE LENGTHS REQUIRED WITH RESTRAINED JOINTS IN EACH DIRECTION			
90° BENDS, TEES, CROSSES, VALVES & DEAD-ENDS	7	5	4	3
11-¼° BENDS	2	2	1	1
22-½° BENDS	3	3	2	2
45° BENDS	5	4	3	3

NOTE: FOR STATIC SYSTEM PRESSURE GREATER THAN 85 P.S.I. ADJUST AS FOLLOWS:

- FOR 12" PIPE, ADD ONE FULL 18' PIPE LENGTH PER EACH 10 P.S.I. IN EXCESS OF 85 P.S.I.
- FOR 8" PIPE, ADD ONE FULL 18' PIPE LENGTH PER EACH 15 P.S.I. IN EXCESS OF 85 P.S.I.
- FOR 4" & 6" PIPE, ADD ONE FULL 18' PIPE LENGTH PER EACH 20 P.S.I. IN EXCESS OF 85 P.S.I.

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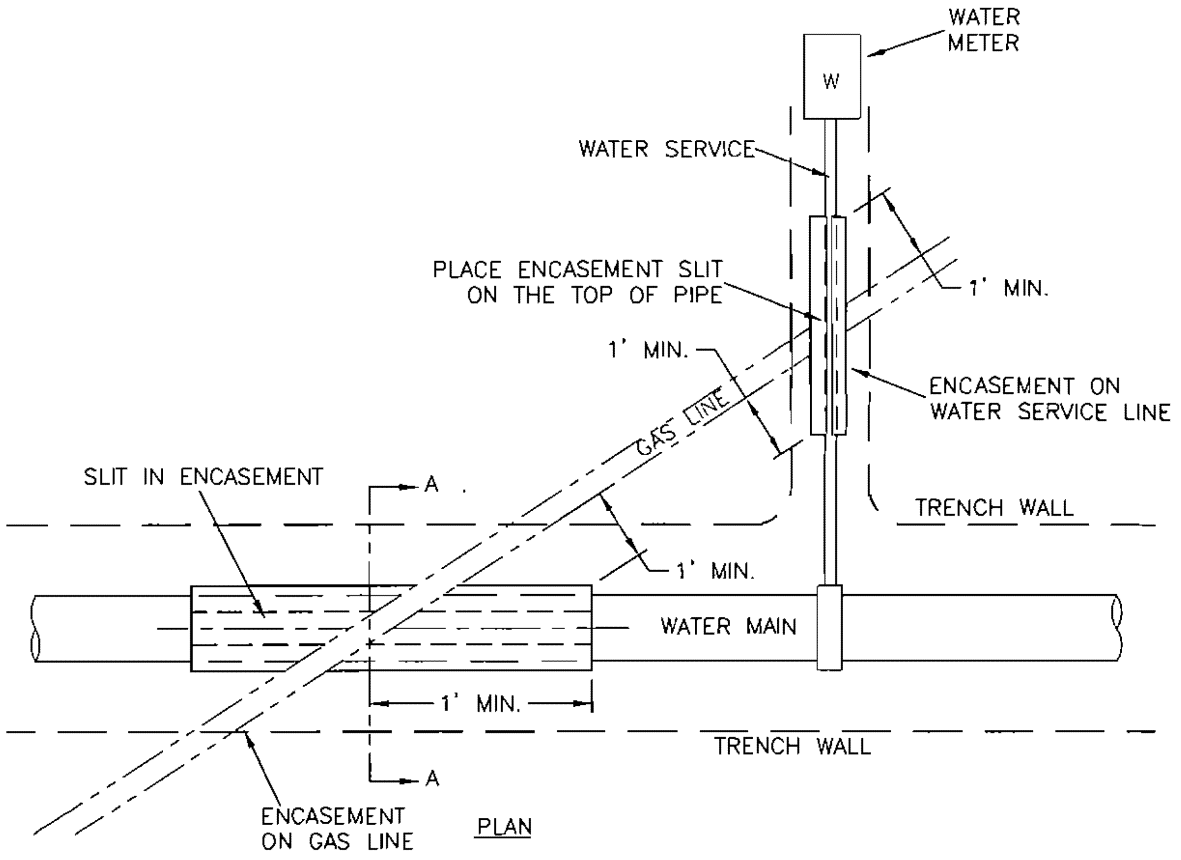
APPROVED

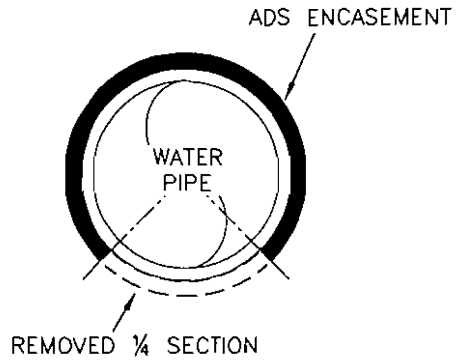
Donald J. Hamish
CITY ENGINEER

RESTRAINED PIPE PUSH-ON JOINTS

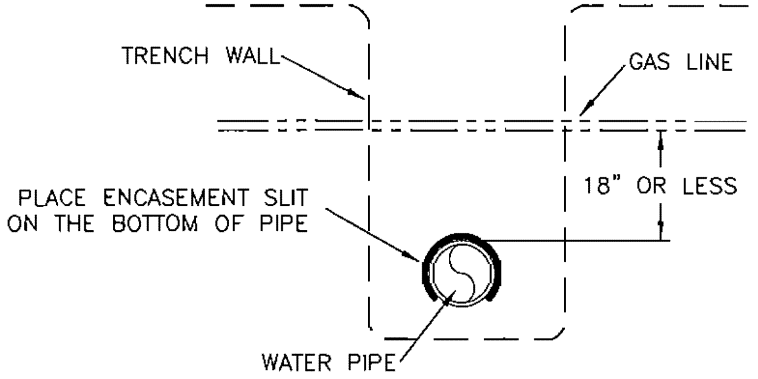
DATE: Jan. 2009

DRAWING NO: 01100-01





ENCASEMENT DETAIL



SECTION A–A

NOTES:

1. ENCASEMENT SHALL BE A.D.S. PIPE (OR APPROVED EOUAL) AND SHALL BE PLACED AROUND THE WATER LINE AS SHOWN ABOVE. THE ENCASEMENT I.D. MUST BE GREATER THAN THE WATER PIPE O.D.
2. REMOVE ¼ SECTION OF ENCASEMENT AND PLACE OVER THE WATER PIPE WITH OPENING AT THE BOTTOM.
3. ENCASEMENT IS NOT REQUIRED FOR NON–METALLIC GAS LINE CROSSINGS.

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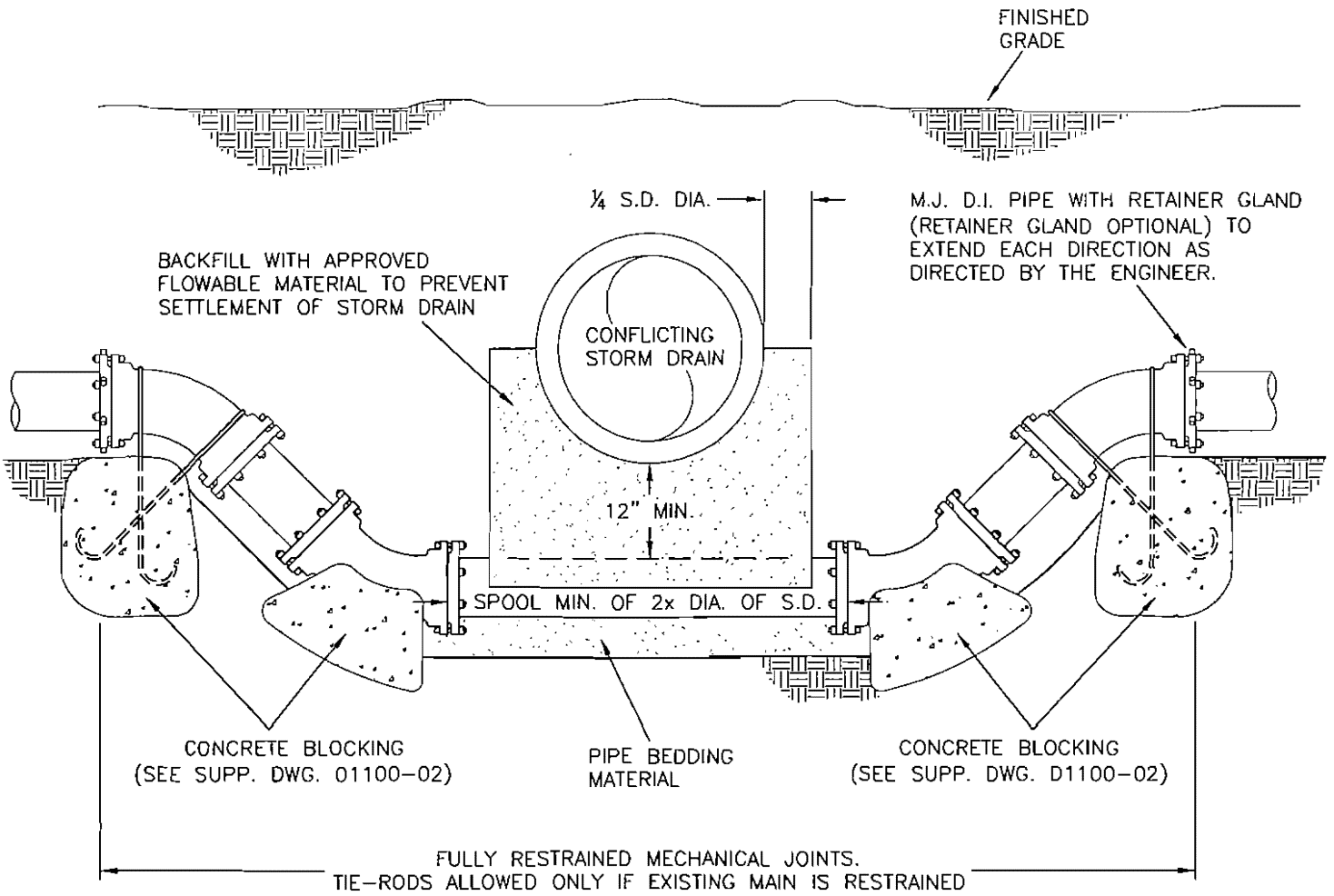
CITY ENGINEER

GAS LINE CROSSING CATHODIC PROTECTION

DATE:	DRAWING NO:
Jan. 2009	01100-02



NOTES:

1. SEE SUPPLEMENTAL DRAWING 01100-04 FOR BEARING AREA OF THRUST BLOCKS.
2. IN ADDITION TO REQUIRED THRUST-BLOCKING, MEG-A-LUG RETAINER GLANDS (OR APPROVED EQUAL) ARE REQUIRED ON ALL JOINTS THROUGH CROSSINGS.

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CITY of LEBANON SUPPLEMENTAL DRAWING

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STORM DRAIN CROSSING STANDARD DETAIL

DATE:	DRAWING NO:
Jan. 2009	01100-03

HORIZONTAL THRUST BLOCK BEARING AREA (S.F.)									(VERTICAL DOWN) THRUST BLOCK VOLUME (C.Y.)			
FITTING SIZE	TEE, WYE, DEAD END AND HYDRANT (SEE NOTE 7)	STRADDLE BLOCK	90° BEND PLUGGED CROSS	TEE PLUGGED ON RUN		45° BEND	22½° BEND	11¼° BEND	90° BEND	45° BEND	22½° BEND	11¼° BEND
				A-1	A-2							
6"	2.1	3.2	3.0	4.2	3.0	1.6	RG*	RG*	1.5	RG*	RG*	RG*
8"	3.8	5.7	5.3	7.6	5.3	2.9	1.5	RG*	2.6	1.4	RG*	RG*
12"	8.5	12.8	12.0	17.0	12.0	6.5	3.3	1.7	5.9	3.2	1.6	RG*
16"	15.1	22.7	21.3	30.2	21.3	11.6	5.9	3.0	10.5	5.7	2.9	1.5

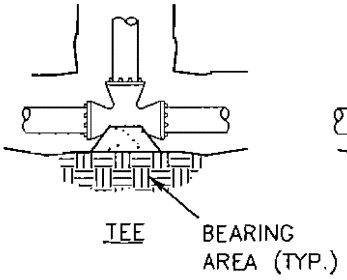
BEARING AREAS BASED ON STANDARD TEST PRESSURE OF 150 P.S.I. AND ASSUMED ALLOWABLE SOIL BEARING STRESS OF 2000 P.S.F. COMPUTE BEARING AREAS FOR DIFFERENT SOIL BEARING STRESSES BY USING THE EQUATION: AREA=(2000/SOIL BEARING STRESS)x(TABLE VALUE).

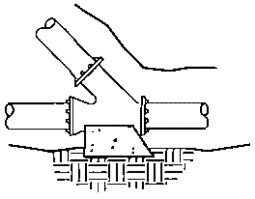
VOLUMES BASED ON STD. TEST PRESSURE (150 P.S.I.) AND WEIGHT OF CONCRETE.

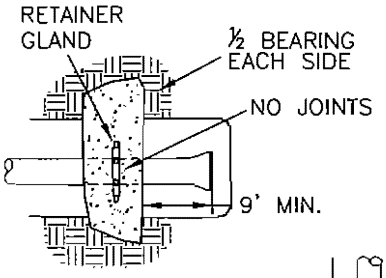
*RG = MEG-A-LUG RETAINER OR APPROVED EQUAL.

THRUST BLOCK WIDTH TO HEIGHT RATIO
THRUST BLOCK HEIGHT (H) PIPE DIAMETER < H < 1/2 TRENCH DEPTH
THRUST BLOCK WIDTH (B): H < B < 2H

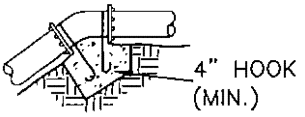
RODS FOR VERTICAL DOWN BENDS		
FITTING SIZE	ROD SIZE	EMBEDMENT
6"	#4	24"
8" AND 12"	#6	30"
16"	#8	36"



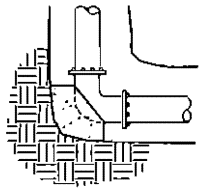


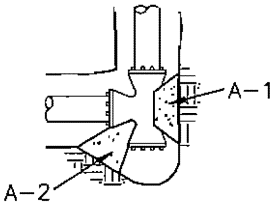


STRADDLE BLOCK

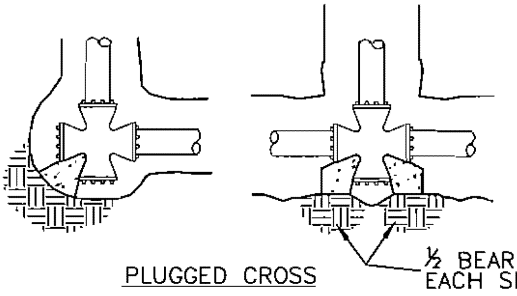


VERTICAL DOWN BEND


BEND



PLUGGED TEE



PLUGGED CROSS

NOTES:

1. ALL THRUST BLOCKING MUST BE POURED AGAINST UNDISTURBED EARTH AND HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3000 P.S.I.
2. CONCRETE SHALL BE KEPT CLEAR OF ALL JOINTS AND ACCESSORIES. INSTALL ISOLATION MATERIAL BETWEEN PIPES AND/OR FITTINGS BEFORE POURING THRUST BLOCKS.
3. TIE RODS SHALL BE DEFORMED GALVANIZED COLD-ROLLED STEEL (MIN. 40,000 P.S.I. TENSILE STRENGTH). EPOXY COATED BARS MAY BE USED IN LIEU OF GALVANIZED PROVIDED EPOXY COATING IS APPLIED AFTER FABRICATION.
4. MEG-A-LUG SYSTEM (OR APPROVED EQUAL) MAY BE USED ON ALL M.J. FITTINGS IN PLACE OF THRUST BLOCKING.
5. ALL THRUST BLOCKING (EXCEPT VERTICAL DOWN) MUST MEET THE WIDTH-TO-HEIGHT RATIO SHOWN ABOVE.
6. SEE TABLE IN SECTION 01140-44 OF THE CITY SUPPLEMENTAL STANDARD SPECIFICATIONS FOR RESTRAINT REQUIREMENTS.

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APPROVED

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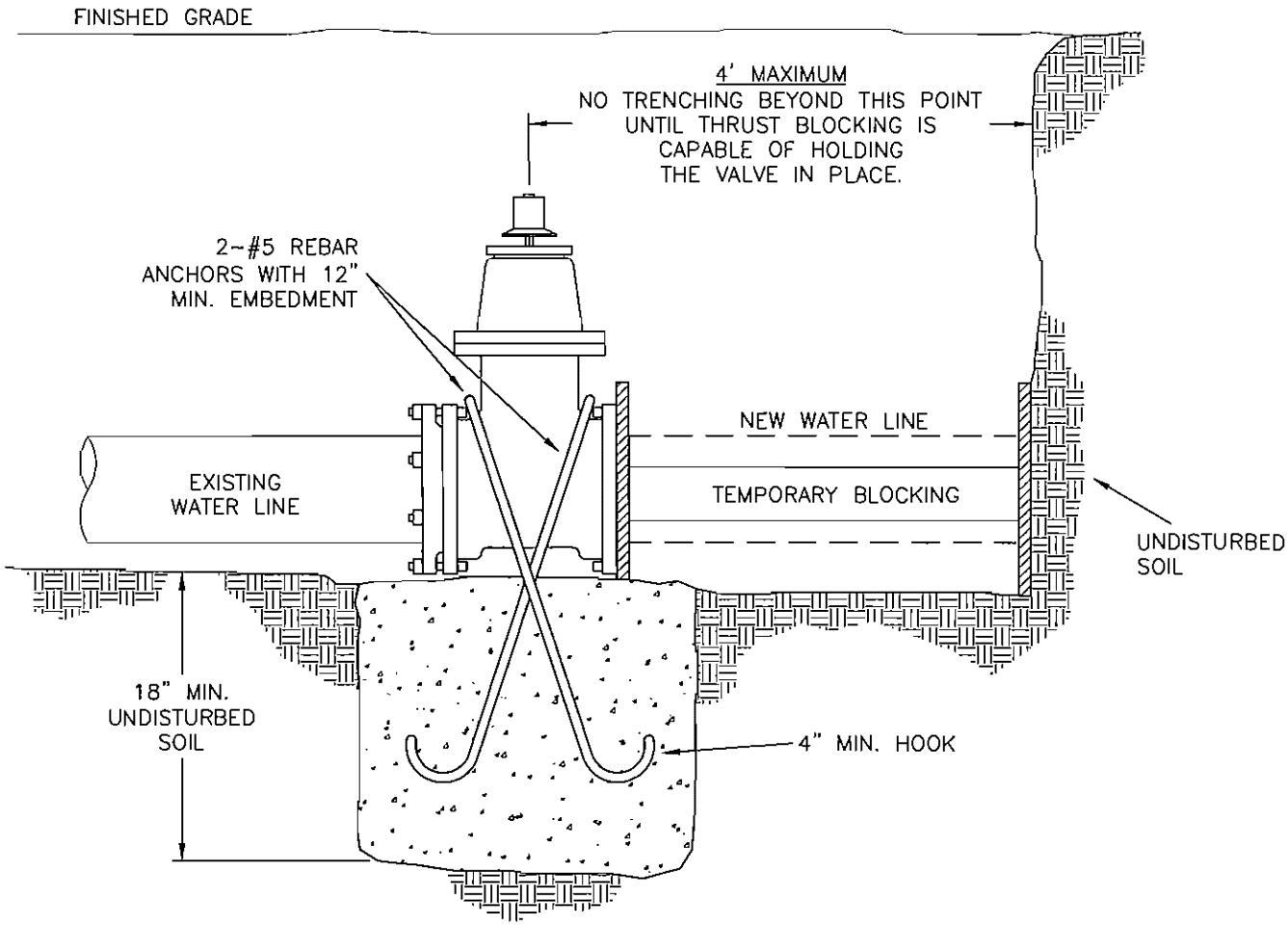
CITY ENGINEER

THRUST BLOCKING

DATE: Jan. 2009

DRAWING NO: 01100-04



NOTES:

1. USE ONLY WITH APPROVAL OF THE CITY ENGINEER.
2. USE THRUST BLOCKING STANDARDS FOR BEARING AREAS (SEE SUPP. DWG. 01100-04).
3. THE FOLLOWING STRADDLE BLOCK METHODS ARE RECOMMENDED:
   A. INSTALL A M.J. VALVE WITH AN APPROVED RETAINER GLAND ON DUCTILE IRON OR C-900 P.V.C. PIPE. ENCASE WITH A STRADDLE BLOCK ON THE EXISTING PIPE A MINIMUM OF 9' FROM THE VALVE. NON-RESTRAINED PIPE JOINTS WILL NOT BE ALLOWED BETWEEN THE STRADDLE BLOCK AND THE VALVE.
   B. INSTALL A M.J. VALVE ON AN A.C. OR STEEL PIPE WITH ALL-THREAD TIE RODS ANCHORED TO A STRADDLE BLOCK, MINUS THE RETAINER GLAND INSIDE THE STRADDLE BLOCK.
   C. INSTALL A FLG.xM.J. VALVE ON A FLG.xP.E. DUCTILE IRON SPOOL WITH A STRADDLE BLOCK.
4. STRADDLE BLOCKS MUST ENCASE AN APPROVED PIPE RETAINER GLAND UNLESS THE EXISTING LINE MATERIAL IS ASBESTOS CONCRETE OR STEEL PIPE.

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CITY of LEBANON SUPPLEMENTAL DRAWING

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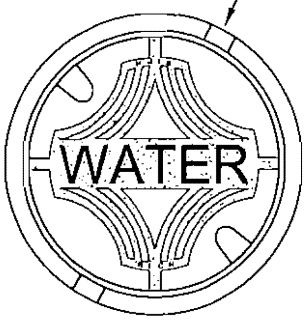
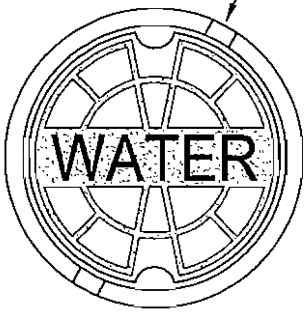
EXISTING WATER LINE EXTENSION (WITH VALVE)

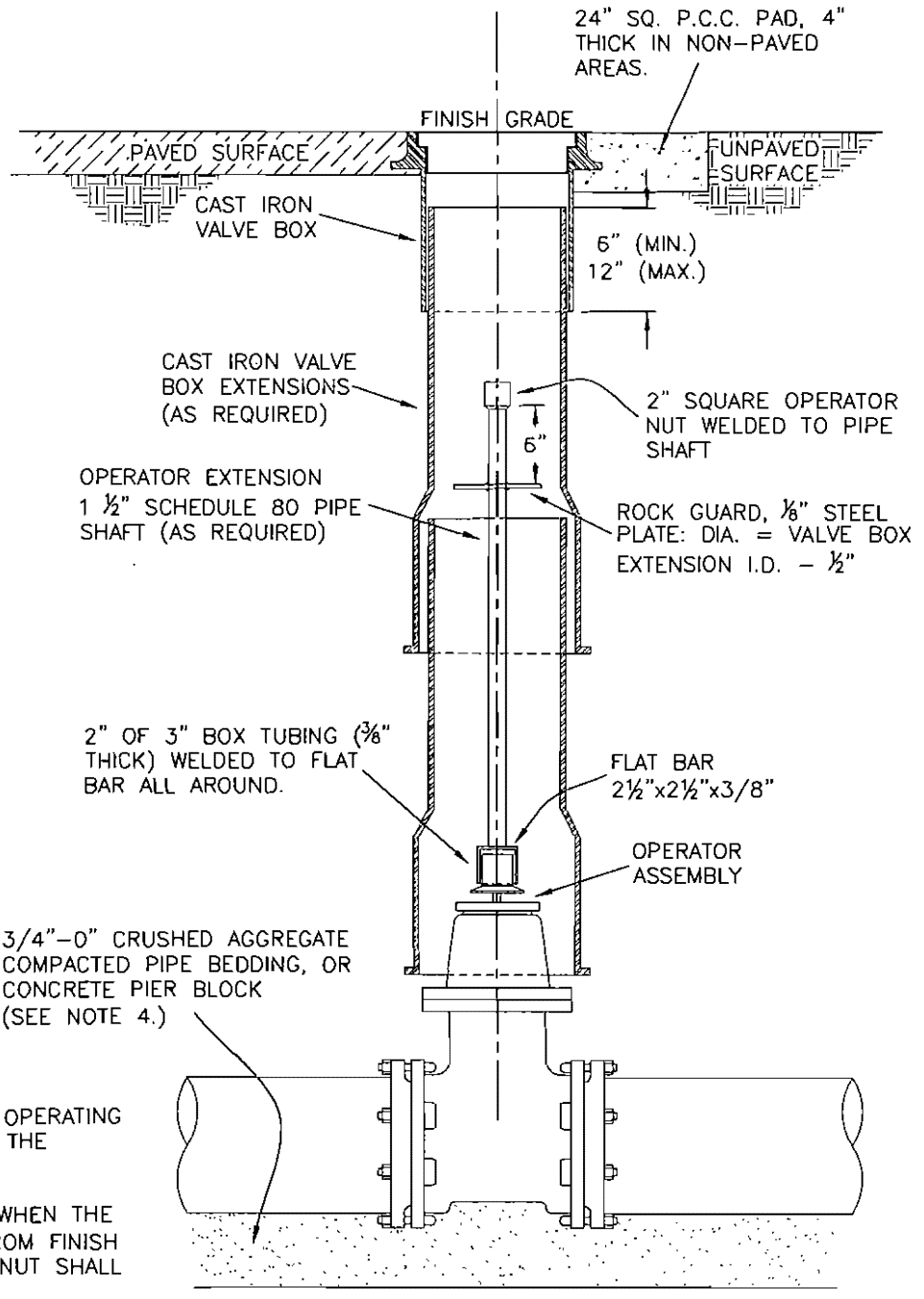
DATE:	DRAWING NO:
Jan. 2009	01100-05



CAST IRON VALVE BOX
(RICH STYLE COVER)



CAST IRON VALVE BOX
(TYLER STYLE COVER)



NOTES:

1. VALVE BOX MUST BE CENTERED ON OPERATING NUT AXIS AND SHALL NOT REST ON THE OPERATING ASSEMBLY.
2. OPERATOR EXTENSION IS REQUIRED WHEN THE VALVE NUT IS DEEPER THAN 4.0' FROM FINISH GRADE. TYPICALLY, THE OPERATOR NUT SHALL BE 28"–30" FROM GRADE.
3. OPERATOR EXTENSIONS SHALL BE EITHER STAINLESS STEEL OR HOT–DIPPED GALVANIZED FOLLOWING FABRICATION.
4. VALVES 12" AND SMALLER SHALL BE PROVIDED WITH CLASS 'B' BASE ON UNDISTURBED SUBGRADE. VALVES LARGER THAN 12" SHALL BE INSTALLED ON PRECAST P.C.C. PIER BLOCKS. PIER BLOCK ARE REQUIRED ON ALL P.V.C. LINE INSTALLATIONS.
5. VALVE BOX LUGS OR NOTCHES SHALL BE ALIGNED PARALLEL TO THE REGULATED MAIN.
6. VALVE BOXES SHALL BE CLEAR OF ROCKS OR OTHER DEBRIS.
7. VALVE BOX COMPONENTS SHALL BE RICH 925 COLUMBIA, TYLER 7000 OR APPROVED EQUAL.

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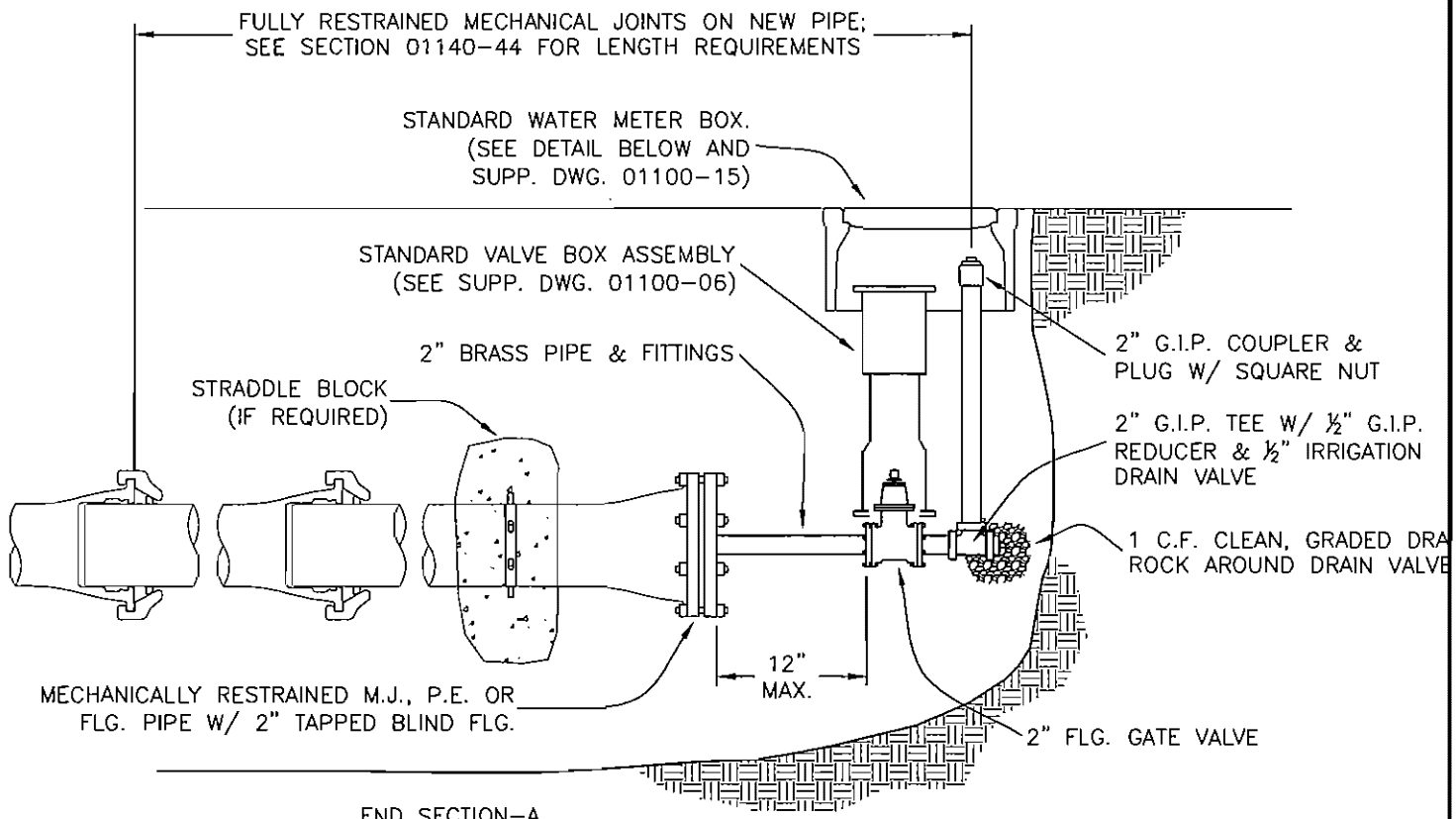
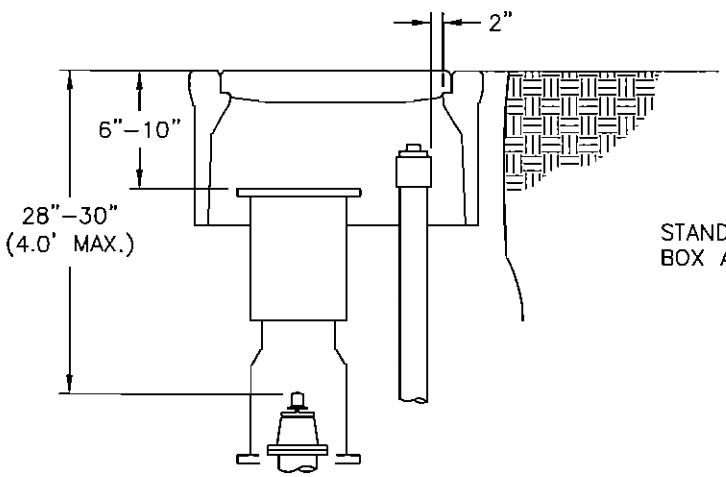
VALVE BOX & OPERATOR EXTENSION ASSY.

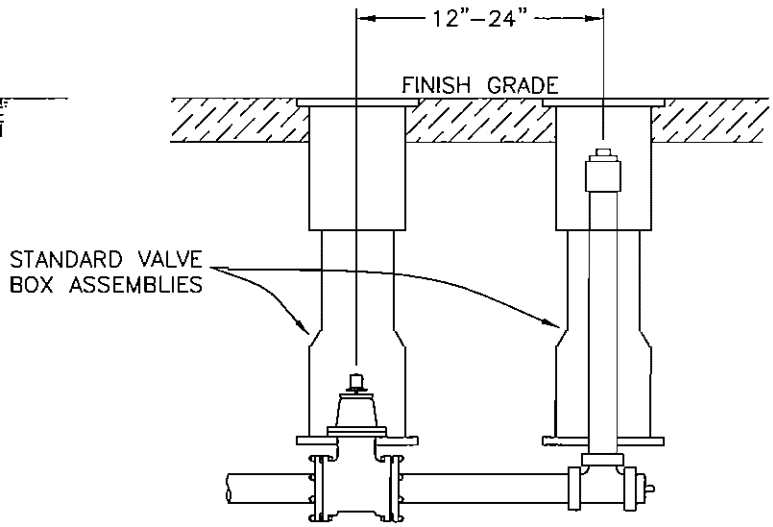
DATE:	DRAWING NO:
Jan. 2009	01100-06



END SECTION-A
(NON-TRAFFIC AREAS)



WATER METER & VALVE BOX CLEARANCES
(TYP. FOR ALL INSTALLATIONS)



END SECTION-B
(PAVED/TRAFFIC AREAS)

NOTES:

1. IF EXISTING WATER MAIN IS UNRESTRAINED, USE THRUST BLOCKING AS REQUIRED (SEE SUPP. DWG. 01100-04).
2. ALL PIPE AND FITTINGS SHALL BE GALVANIZED IRON PIPE (G.I.P.) UNLESS OTHERWISE NOTED.

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CITY of LEBANON SUPPLEMENTAL DRAWING

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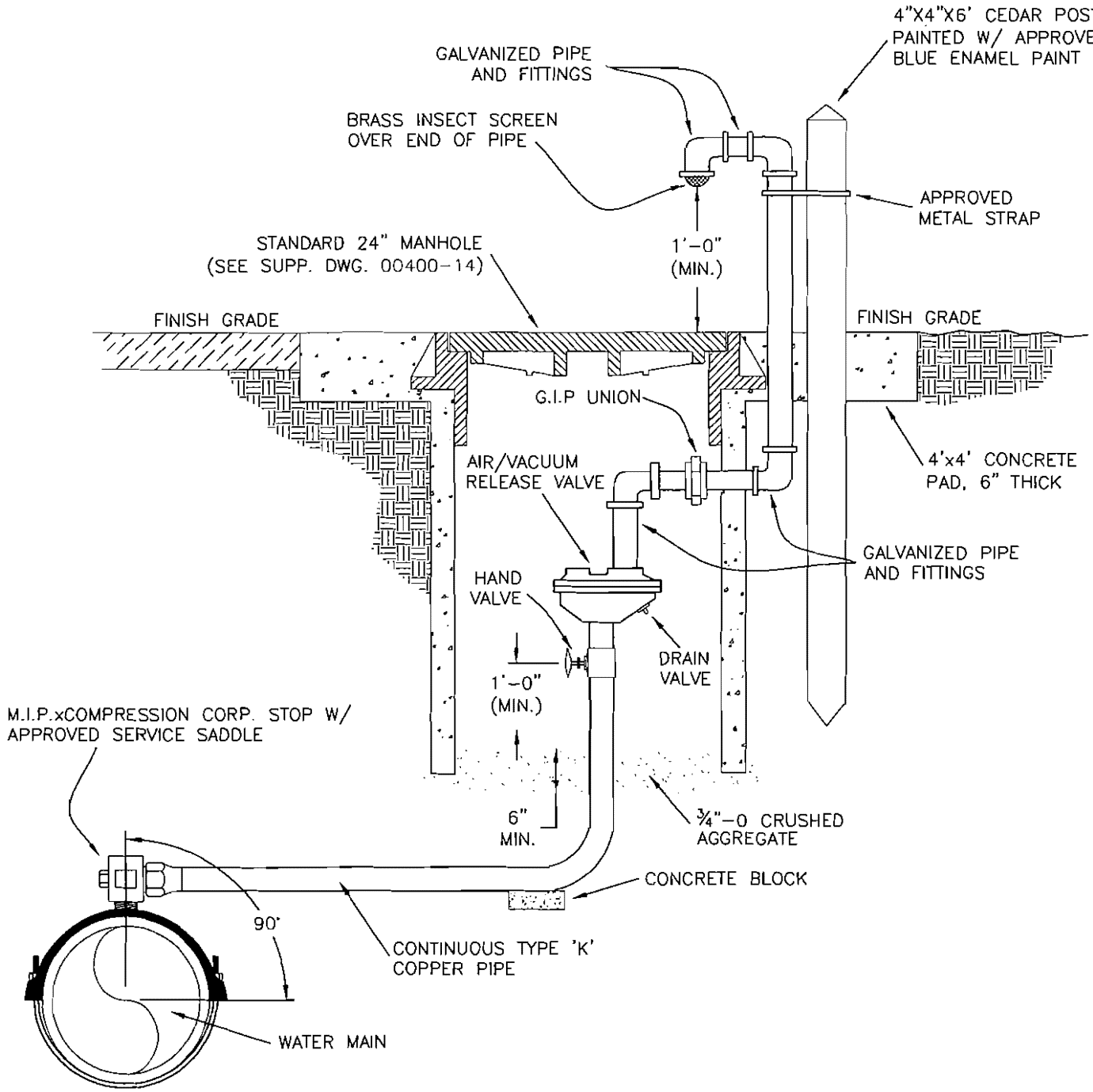
TYPICAL MAIN DEAD-END BLOW-OFF ASSEMBLY

DATE:	DRAWING NO:
Jan. 2009	01100-07



NOTES:

1. A COMBINATION AIR/VACUUM RELEASE VALVE MAY BE INSTALLED ONLY WITH APPROVAL OF THE CITY ENGINEER.
2. COMBINATION AIR/VACUUM RELEASE VALVES SHALL BE APCO SERIES 140 C OR APPROVED EQUAL.
3. ASSEMBLIES SHALL BE INSTALLED AT HIGH POINTS IN WATER LINE. BREATHER TUBE MUST EXTEND ABOVE FINISH GRADE LEVEL (AS SHOWN ABOVE), FACE DOWNWARDS AND BE FITTED WITH AN APPROVED BRASS INSECT SCREEN.
4. PIPE AND VALVE SIZES WILL BE SPECIFIED BY THE ENGINEER.

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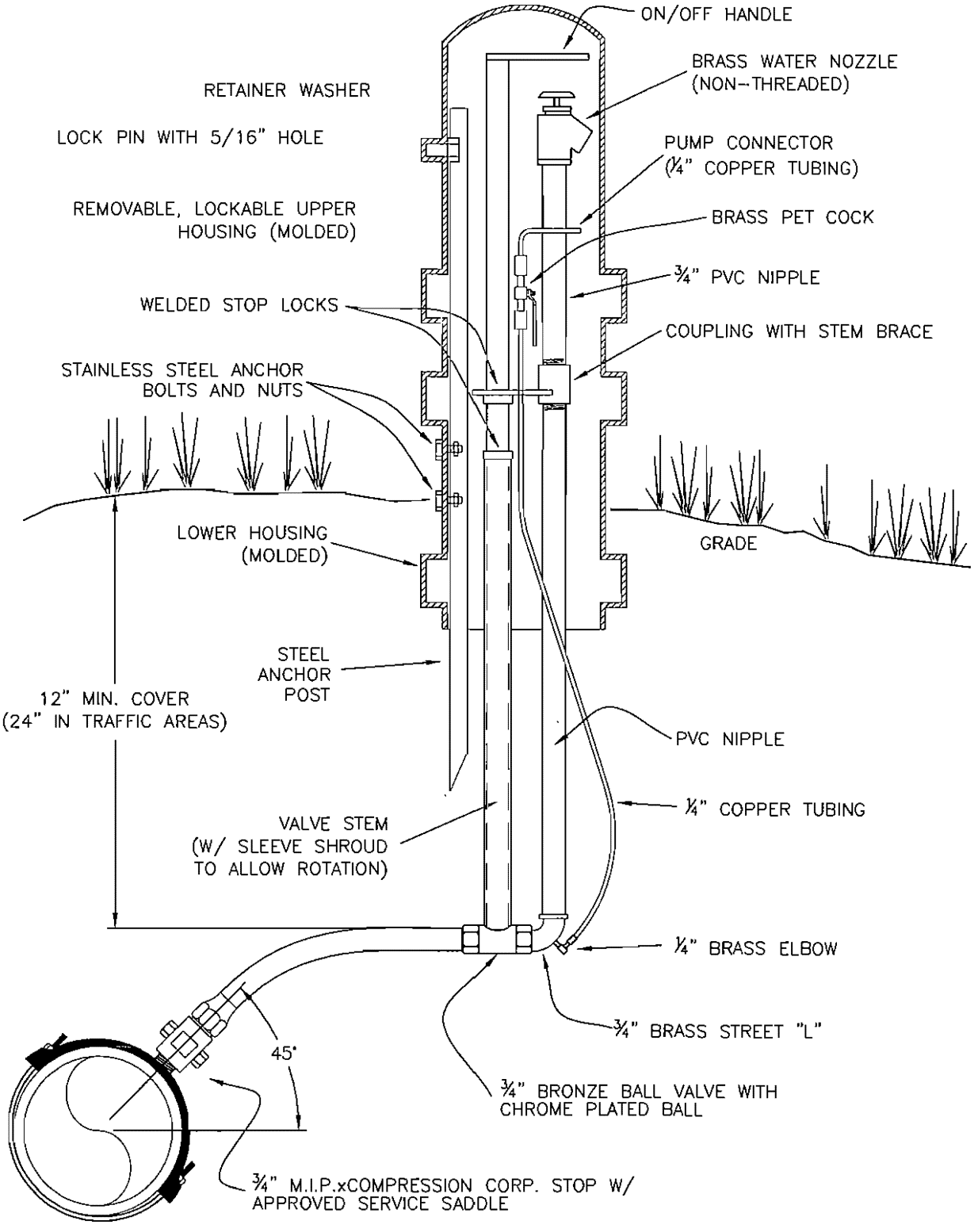
APPROVED

CITY ENGINEER

COMBINATION AIR-RELEASE VALVE ASSY. (2" & SMALLER)

DATE: Jan. 2009

DRAWING NO: 01100-08



NOTES:

1. USE THRUST BLOCKING STANDARDS FOR BEARING AREAS (SEE SUPP. DWG. 01100-04).
2. ALL PIPE AND FITTINGS SHALL BE GALVANIZED IRON UNLESS OTHERWISE NOTED.

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CITY of LEBANON SUPPLEMENTAL DRAWING

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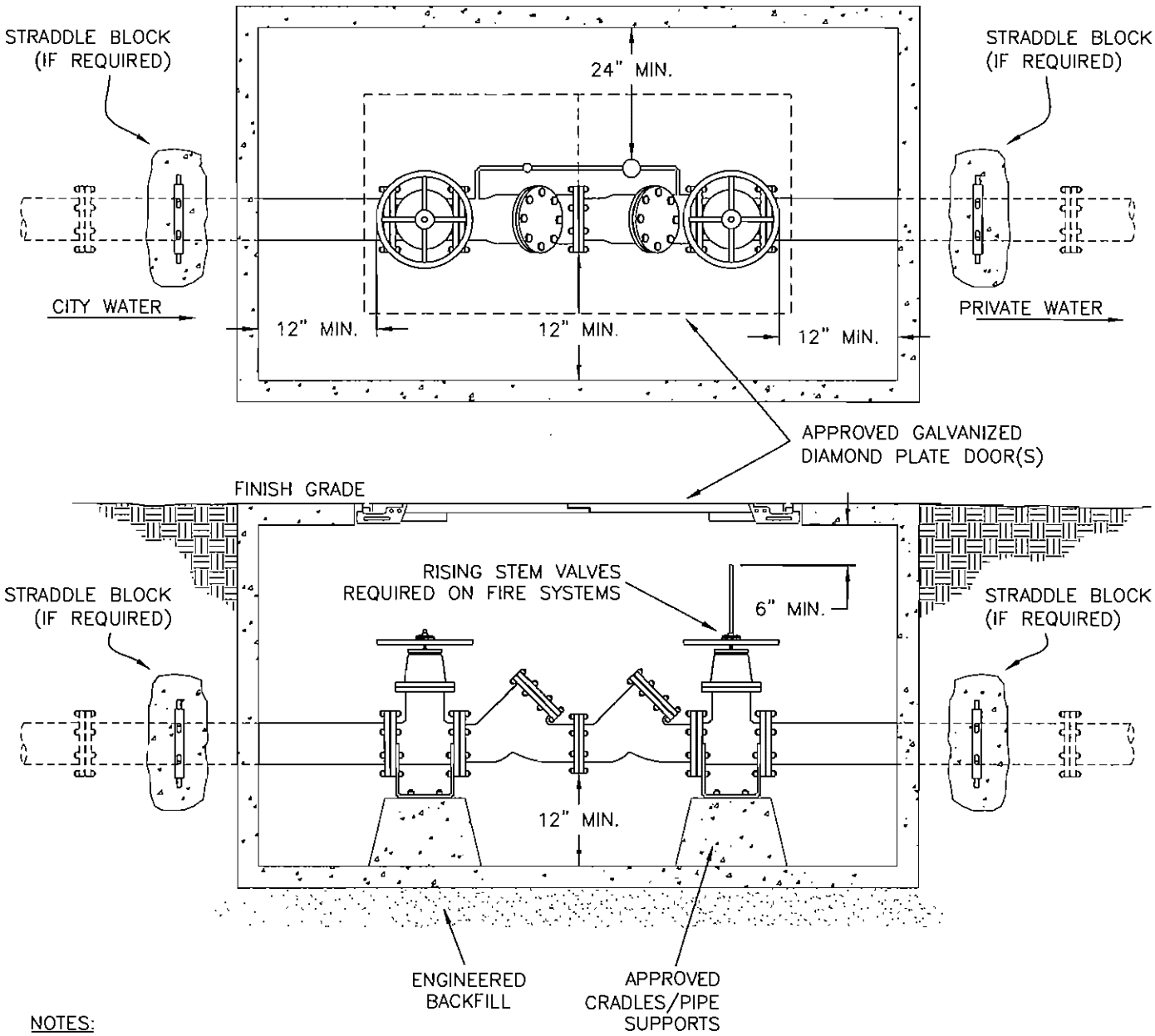
CITY ENGINEER

WATER SAMPLING STATION

DATE:	DRAWING NO:
Jan. 2009	01100-09



NOTES:

1. VAULTS SHALL BE SIZED TO MEET SPECIFICATION AND MINIMUM CLEARANCES SHOWN HERE. VAULT DEPTH SHALL PROVIDE A MINIMUM OF 6" CLEARANCE TO VAULT LID WHEN VALVES ARE FULLY OPEN.
2. ALL VAULTS AND ASSEMBLIES SHALL BE ADEQUATELY SUPPORTED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE STATE PUBLIC HEALTH DIVISION REQUIREMENTS.
3. WHEN REQUIRED, VAULTS SHALL BE DESIGNED FOR SITE-SPECIFIC CONDITIONS BY A LICENSED STRUCTURAL ENGINEER. APPROVED PRECAST VAULTS MAY BE USED IF SPECIFIED SIZES ARE AVAILABLE.
4. TO ACCOMMODATE VALVE MAINTENANCE AND REMOVAL, VAULT DOORS MUST BE PLACED DIRECTLY ABOVE DEVICES AND VALVES/FITTINGS SHALL BE SUPPORTED AND RESTRAINED WITH APPROVED CRADLES AND/OR PIPE SUPPORTS.
5. A SUMP PUMP MAY BE REQUIRED TO CONTROL WATER INFILTRATION.
6. ALL PIPES, VALVES AND FITTINGS SHALL BE DUCTILE IRON UNLESS OTHERWISE SPECIFIED.

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CITY of LEBANON SUPPLEMENTAL DRAWING

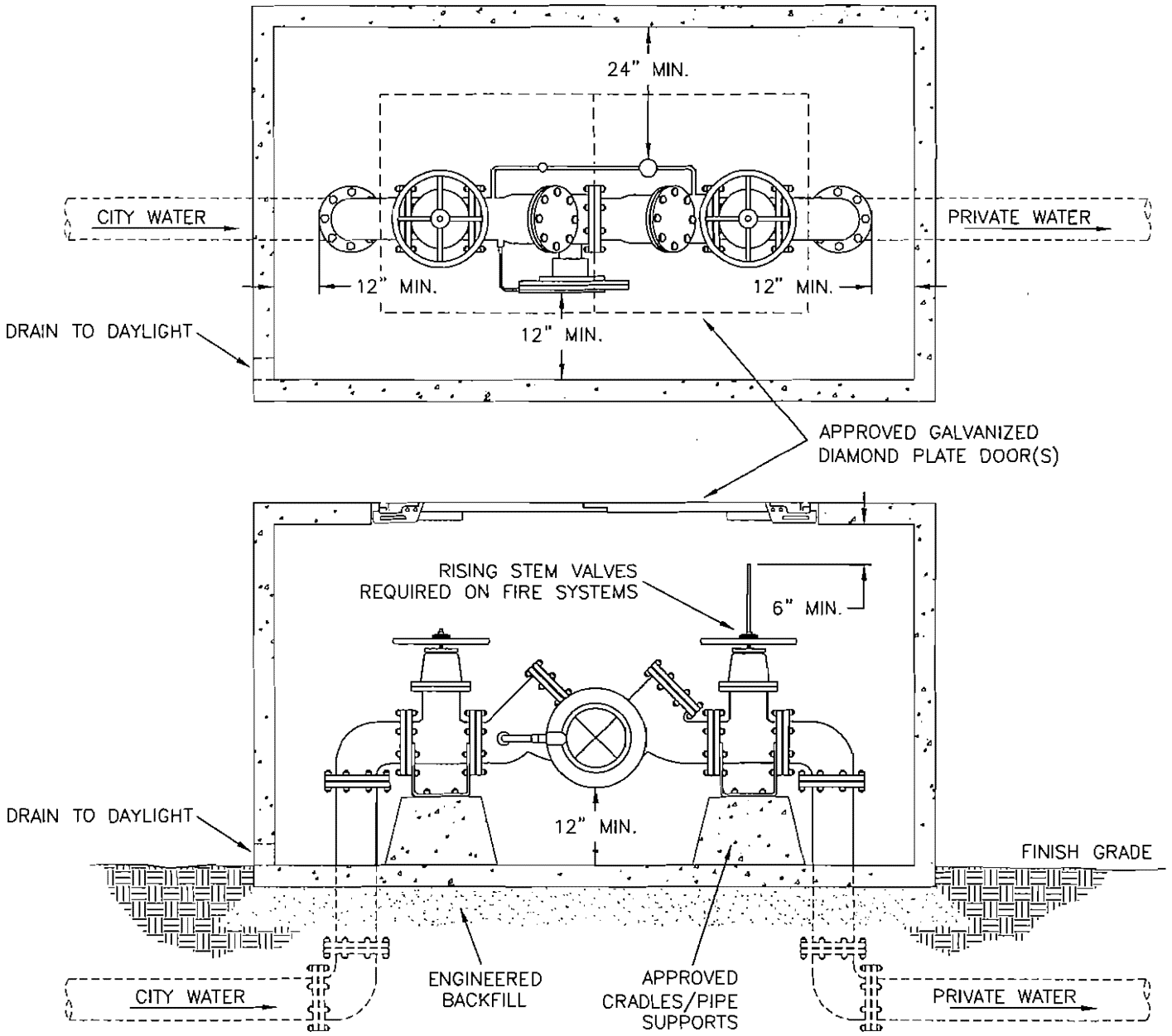
APPROVED

Donald J. Haanica
CITY ENGINEER

STANDARD DOUBLE DETECTOR CHECK VALVE ASSY.

DATE: Jan. 2009

DRAWING NO: 01100-10



NOTES:

1. VAULTS SHALL BE SIZED TO MEET SPECIFICATION AND MINIMUM CLEARANCES SHOWN HERE. VAULT DEPTH SHALL PROVIDE A MINIMUM OF 6" CLEARANCE TO VAULT LID WHEN VALVES ARE FULLY OPEN.
2. ALL VAULTS AND ASSEMBLIES SHALL BE ADEQUATELY SUPPORTED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE STATE PUBLIC HEALTH DIVISION REQUIREMENTS.
3. WHEN REQUIRED, VAULTS SHALL BE DESIGNED FOR SITE-SPECIFIC CONDITIONS BY A LICENSED STRUCTURAL ENGINEER. APPROVED PRECAST VAULTS MAY BE USED IF SPECIFIED SIZES ARE AVAILABLE.
4. TO ACCOMMODATE VALVE MAINTENANCE AND REMOVAL, VAULT DOORS MUST BE PLACED DIRECTLY ABOVE DEVICES AND VALVES/FITTINGS SHALL BE SUPPORTED AND RESTRAINED WITH APPROVED CRADLES AND/OR PIPE SUPPORTS.
5. ALL PIPES, VALVES AND FITTINGS SHALL BE DUCTILE IRON UNLESS OTHERWISE SPECIFIED.

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CITY of LEBANON SUPPLEMENTAL DRAWING

APPROVED

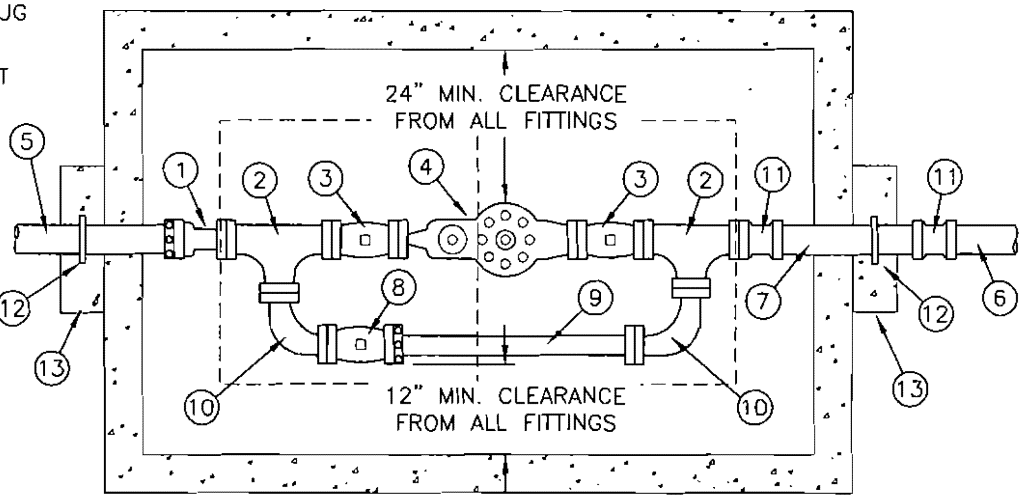
CITY ENGINEER

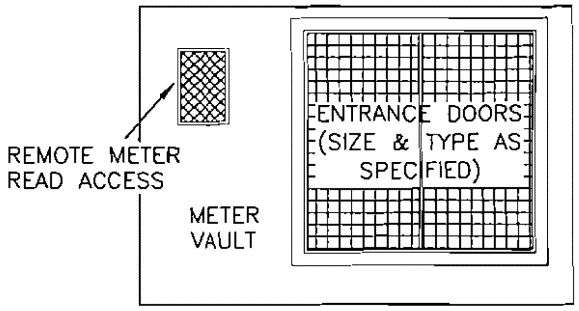
REDUCED PRESSURE BACKFLOW PREVENTION ASSY.

DATE: Jan. 2009

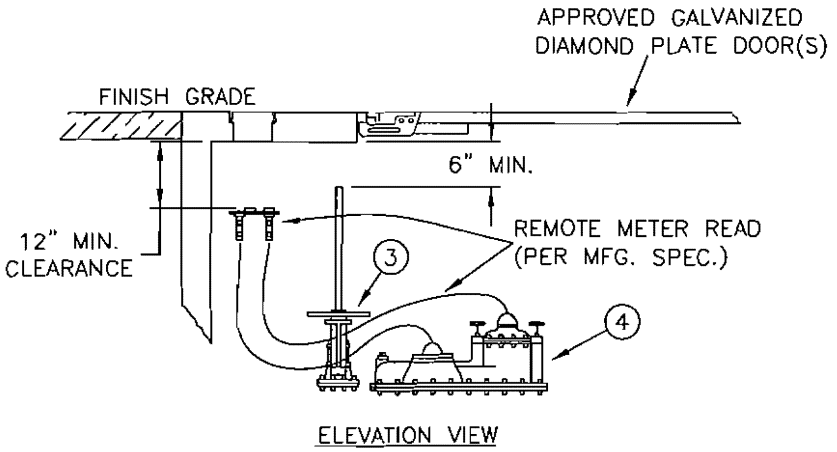
DRAWING NO: 01100-11

1. M.J.xFLG. ADAPTER WITH MEG-A-LUG RETAINER GLAND
2. FLG. TEE WITH APPROVED SUPPORT
3. FLG. GATE VALVE
4. COMPOUND METER (DOMESTIC)
5. DUCTILE IRON SERVICE (CITY SIDE)
6. EXISTING SERVICE
7. AS SPECIFIED
8. FLG.xM.J. GATE VALVE
9. FLG.xP.E. SPOOL
10. FLG. 90° ELBOW
11. ADAPTER
12. RETAINER GLAND (TYP.)
13. STRADDLE BLOCK (SEE SUPP. DWG. 01100-04)





PLAN VIEW



ELEVATION VIEW

NOTES:

1. VAULTS SHALL BE SIZED TO MEET SPECIFICATION AND MINIMUM CLEARANCES SHOWN HERE. VAULT DEPTH SHALL PROVIDE A MINIMUM OF 6" CLEARANCE TO VAULT LID WHEN VALVES ARE FULLY OPEN.
2. ALL VAULTS SHALL BE ADEQUATELY SUPPORTED, WATER-TIGHT AND DESIGNED TO PREVENT BUOYANCY DUE TO GROUNDWATER CONDITIONS.
3. WHEN REQUIRED, VAULTS SHALL BE DESIGNED FOR SITE-SPECIFIC CONDITIONS BY A LICENSED STRUCTURAL ENGINEER. APPROVED PRECAST VAULTS MAY BE USED IF SPECIFIED SIZES ARE AVAILABLE.
5. TO ACCOMMODATE VALVE MAINTENANCE AND REMOVAL, VAULT DOORS MUST BE PLACED DIRECTLY ABOVE DEVICES AND VALVES/FITTINGS SHALL BE SUPPORTED AND RESTRAINED WITH APPROVED CRADLES AND/OR PIPE SUPPORTS.
6. A SUMP PUMP MAY BE REQUIRED TO CONTROL WATER INFILTRATION.
7. ALL PIPES, VALVES AND FITTINGS SHALL BE DUCTILE IRON UNLESS OTHERWISE SPECIFIED.
8. STANDARD BYPASS SIZE IS 2" DIA.; SERVICE LINE SIZE MAY VARY ACCORDING TO NEED.
9. METER ASSEMBLIES MAY BE ELIMINATED ON STATIC PRESSURE FIRE SUPPRESSION SYSTEMS, PROVIDED A DETECTION LOOP IS INSTALLED WITH THE BACKFLOW PREVENTION DEVICE.
10. BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED ON ALL IRRIGATION LINES, SERVICES 2" AND LARGER OR AS OTHERWISE REQUIRED (SEE SUPP. DWG. 01100-12 & 01100-13).

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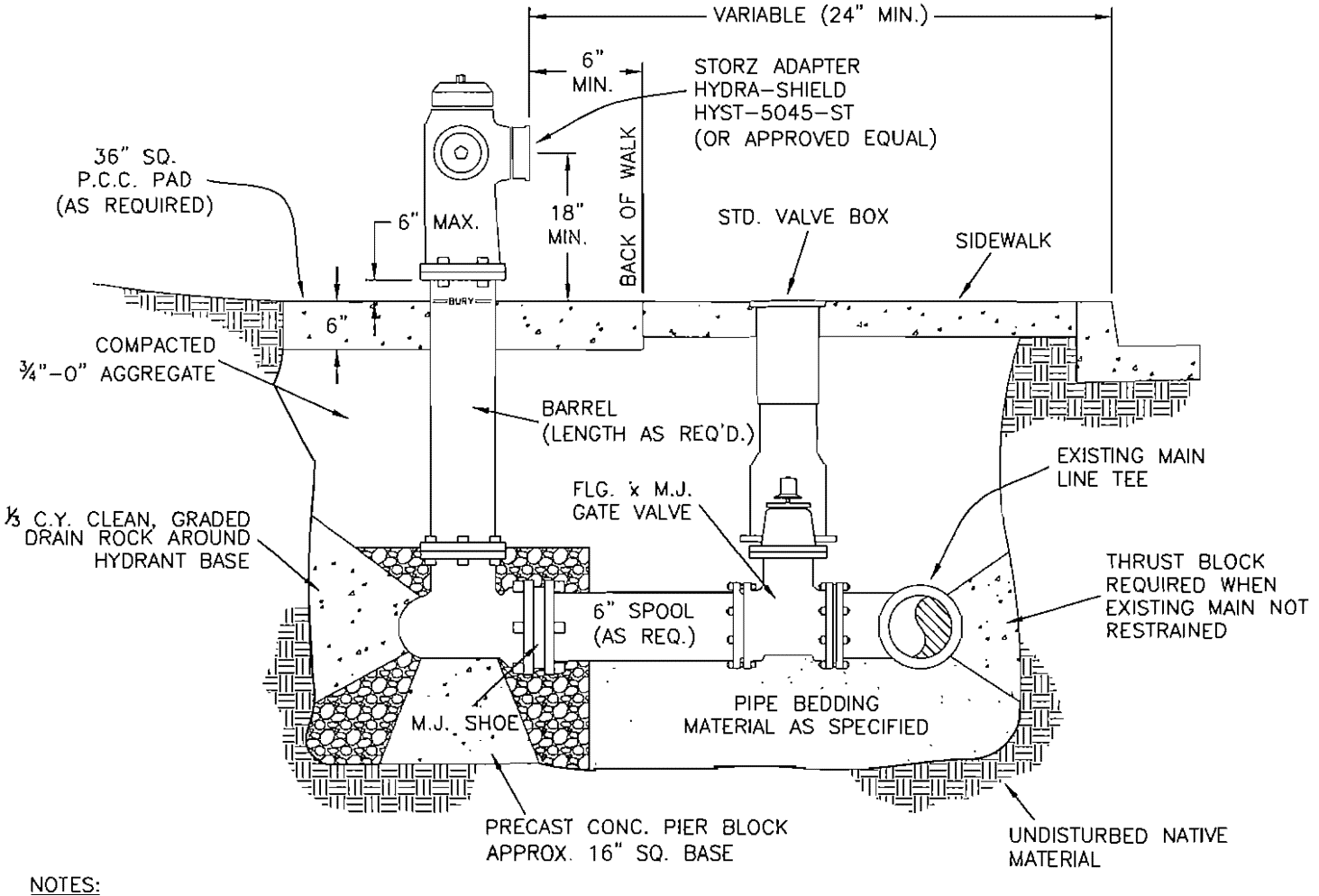
CITY of LEBANON SUPPLEMENTAL DRAWING

APPROVED

CITY ENGINEER

METER VAULT WITH REMOTE READ (LARGER THAN 2")

DATE:	DRAWING NO:
Jan. 2009	01100-12



NOTES:

1. HYDRANTS MUST BE 6" MUELLER SUPER CENTURIAN, KENNEDY GUARDIAN OR APPROVED EQUAL.
2. HYDRANT BASES MUST BE SUPPORTED ON COMPETENT SUBGRADE WITH A PRECAST P.C.C. PIER BLOCK.
3. THRUST BLOCKING MUST BE USED AS SHOWN ABOVE (SEE SUPP. DWG. 01100-04). ALL TEES, VALVES AND HYDRANT COMPONENTS SHALL BE ISOLATED WITH PLASTIC SHEETING FROM POURED P.C.C. THRUST BLOCKS TO FACILITATE FUTURE MAINTENANCE AND REMOVAL. HYDRANT DRAIN MUST BE KEPT CLEAR OF ALL THRUST BLOCKING.
4. ALL HYORANT VALVES, FITTINGS AND PIPE JOINTS MUST BE MECHANICALLY RESTRAINED BY APPROVED METHOD.
4. A MINIMUM OF ⅓ CUBIC YARD OF CLEAN, GRADED DRAIN ROCK SHALL BE PLACED AROUND THE FOOT OF THE HYDRANT TO ALLOW PROPER DRAINAGE.
5. HYDRANT, VALVE AND PIPING SHALL BE PLUMB, LEVEL AND SQUARE PRIOR TO BACKFILL. HYDRANT SHALL BE HORIZONTALLY ADJUSTED TO ALIGN THE PUMPER OUTLET NOZZLE PERPENDICULAR TO THE ADJACENT ROADWAY.
6. WHEN PLACED ADJACENT TO THE CURB, THE PUMPER OUTLET (STEAMER) NOZZLE SHALL BE LOCATED A MINIMUM OF 24" FROM FACE OF CURB.
7. FOLLOWING INSTALLATION AND ADJUSTMENT, HYDRANTS SHALL BE REPAINTED WITH FEDERAL SAFETY YELLOW #31-E-551 OR APPROVED EQUAL.
8. SEE SUPP. DWG. 01100-14 FOR NOZZLE AND OPERATING NUT DETAILS.

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CITY of LEBANON SUPPLEMENTAL DRAWING

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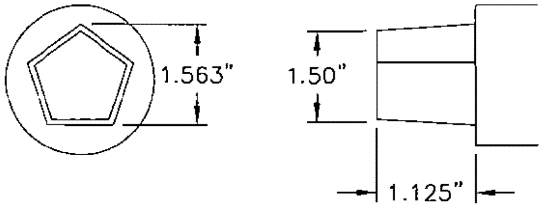
CITY ENGINEER

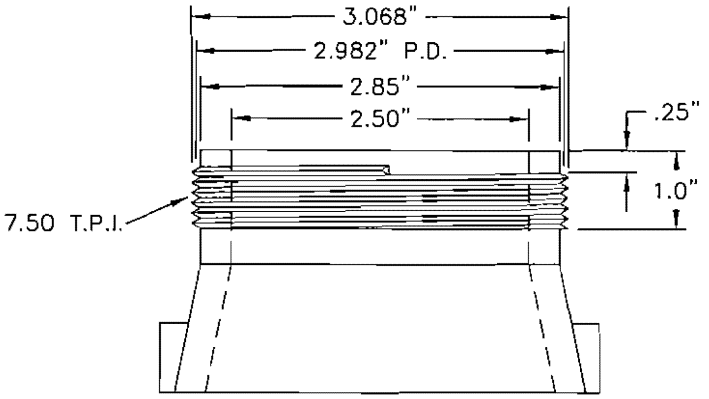
FIRE HYDRANT ASSEMBLY DETAIL

DATE: Jan. 2009

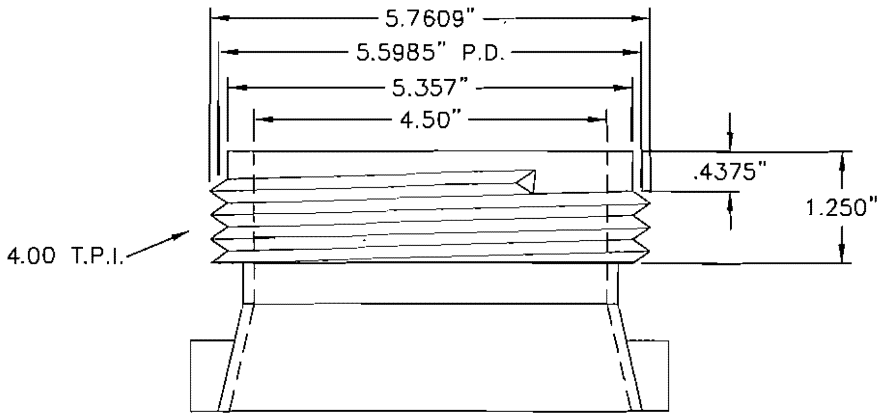
DRAWING NO: 01100-13



1 ½" OPERATING NUT



2 ½" HOSE NOZZLE
(NATIONAL STANDARD)



4 ½" PUMPER OUTLET (STEAMER) NOZZLE
(NATIONAL STANDARD)

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CITY of LEBANON SUPPLEMENTAL DRAWING

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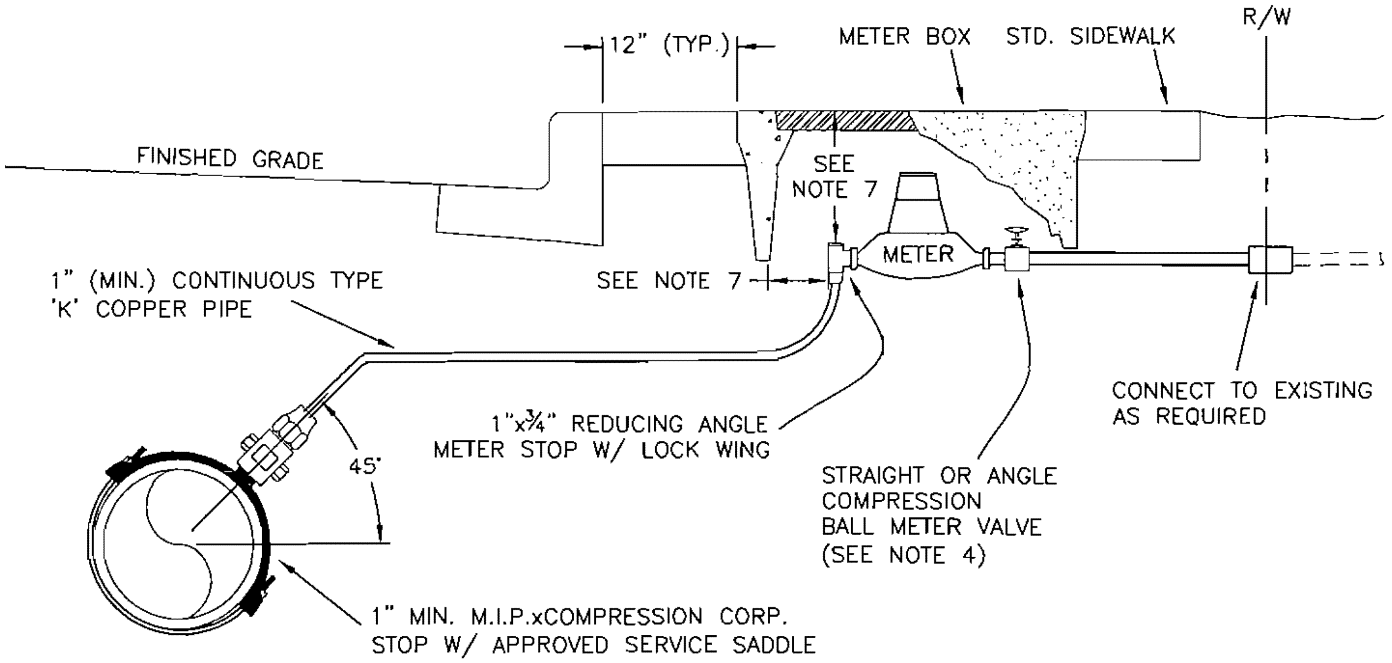
CITY ENGINEER

FIRE HYDRANT
NUT & NOZZLE
DETAIL

DATE:	DRAWING NO:
Jan. 2009	01100-14



NOTES:

1. THE DETAIL SHOWN ABOVE REPRESENTS A STANDARD WATER SERVICE WITH A ⅝"x¾" METER ASSEMBLY. LARGER METERS AS NOTED ON THE PLANS REQUIRE PIPING AND FITTINGS EQUAL TO THE SIZE OF THE METER INSTALLED.
2. ALL COPPER PIPING PLACED WITHIN RIGHT-OF-WAY SHALL BE CONTINUOUS 1" MINIMUM TYPE 'K' COPPER LINE, FREE OF KINKS OR ABRUPT ANGLES. IN-LINE JOINTS ARE PROHIBITED.
3. PIPING PLACED WITHIN THE RIGHT-OF-WAY MUST HAVE A MINIMUM OF 24" COVER FROM FINISH GRADE OR BE PLACED A MINIMUM OF 12" BELOW SUBGRADE, WHICHEVER IS GREATER.
4. METER VALVES SHALL BE FORD, MUELLER, McDONALD BRASS OR APPROVED EQUAL STRAIGHT OR ANGLE COMPRESSION BALL VALVES.
5. METER BOX ASSEMBLIES SHALL BE BROOKS #37, OLD CASTLE OR APPROVED EQUAL.
6. CONNECTIONS TO PRIVATE LINES SHALL BE MADE AT THE RIGHT-OF-WAY AS SHOWN ABOVE OR ON THE CUSTOMER SIDE OF THE EXISTING METER AS NOTED ON THE PLANS.
7. METER BOX CLEARANCES:

   FOR ⅝"x¾" METERS:

   A. METER STOPS MUST BE 6" TO 10" BELOW THE TOP OF THE METER BOX.
   B. METER STOPS MUST BE 2 ½" TO 4 ½" FROM THE INSIDE WALL.

   FOR 1" METERS:

   A. METER STOPS MUST BE 6" TO 10" BELOW THE TOP OF THE METER BOX.
   B. METER STOPS MUST BE 2 ½" TO 3 ½" FROM THE INSIDE WALL.

   FOR 1 ½" & 2" METERS:

   A. USE A BROOKS #66 METER BOX OR APPROVED EQUAL.
   B. METER STOPS MUST BE 9" TO 11" BELOW THE TOP OF THE METER BOX.
   C. METER STOPS MUST BE 4" TO 6" FROM THE INSIDE WALL.

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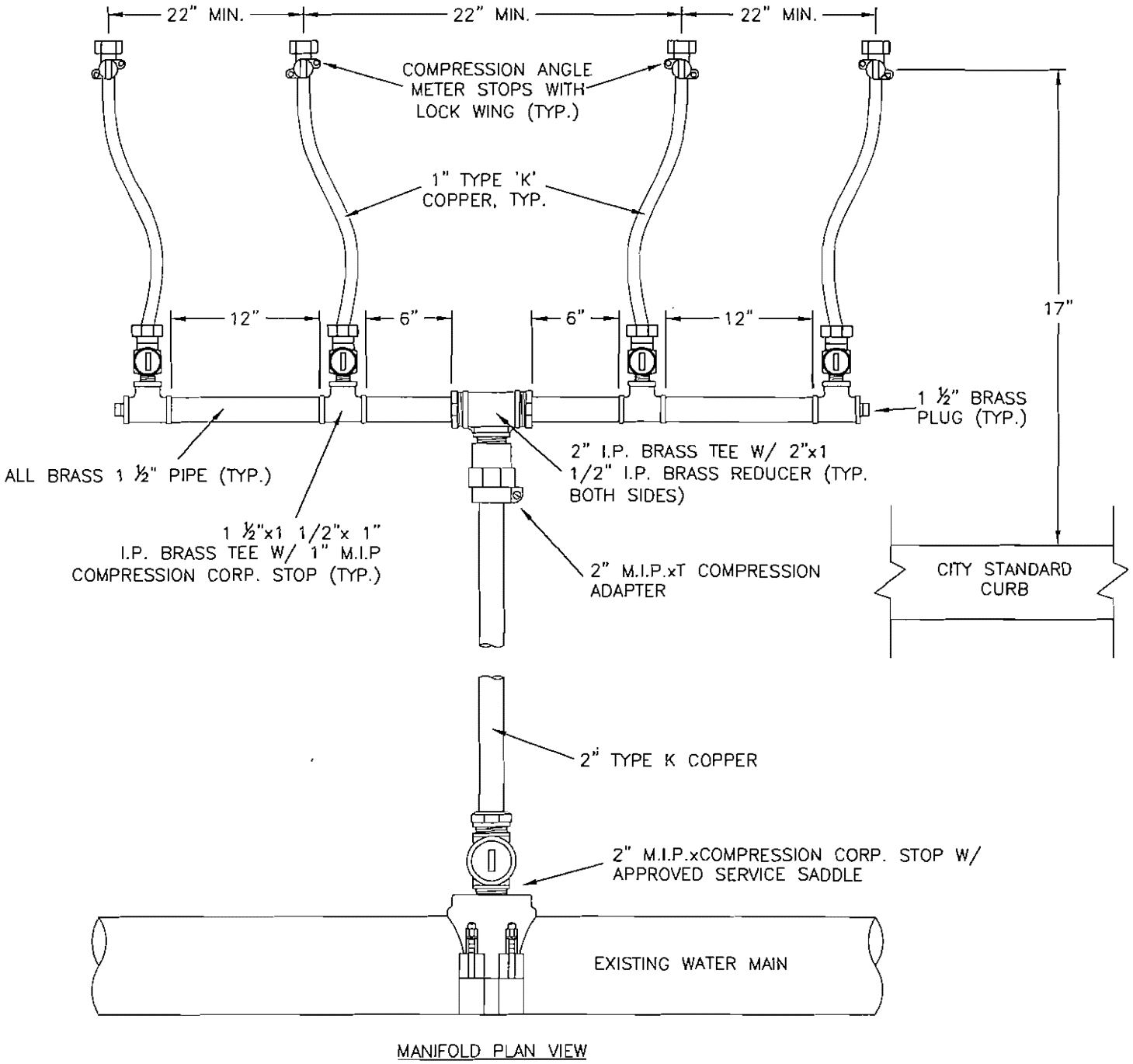
CITY of LEBANON SUPPLEMENTAL DRAWING

APPROVED

CITY ENGINEER

STANDARD WATER METER ASSEMBLY (¾" TO 2")

DATE:	DRAWING NO:
Jan. 2009	01100-15



MANIFOLD PLAN VIEW

NOTES:

1. MANIFOLD ASSEMBLIES ARE ALLOWED ONLY WITH APPROVAL OF THE CITY ENGINEER.
2. ALL BRASS COMPRESSION FITTINGS MUST BE FORD, MUELLER, McDONALD BRASS OR APPROVED EQUAL.
3. WATER MAIN SERVICE SADDLE MUST BE ROMAC 202–N OR APPROVED EQUAL.
4. ALL PARTS MUST BE DOMESTICALLY MANUFACTURED UNLESS OTHERWISE APPROVED.

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CITY ENGINEER

WATER SERVICE MANIFOLD DETAIL

DATE: Jan. 2009

DRAWING NO: 01100-16