TOWN OF EATONVILLE

PUBLIC WORKS DEVELOPMENT AND CONSTRUCTION STANDARDS

SEPTEMBER 1991

INDEX

INSTRUCTIONS FOR OBTAINING EXTENSIONS TO TOWN OF EATONVILLE UTILITIES

GENERAL

It is the policy of the Town of Eatonville that the cost of utility extensions and improvements shall be paid for by the property to be benefitted. With the available resources, the Town will provide the necessary utility system basic needs such as supply, treatment, etc. However, those developing property may be required to pay a share of basic utility systems.

Extensions may be accomplished in one of two ways:

1. Direct construction by Developers.

2. Through a Local Improvement District.

Under either arrangement, it is necessary that the territory to be served be within the boundaries of the Town. If the territory is not currently within the Town boundaries it may be annexed by either of two methods:

a. A petition is signed by owners of 75% of the annexed land area. The Town will hold a hearing after public advertising for two weeks. The Town Council then may pass a resolution approving the annexation in principle. This resolution will become part of the Notice of Intention for Annexation which is prepared for the Boundary Review Board at the Expense of the benefitted parties. If the proposal is approved by both the Boundary Review Board and Pierce County Council, the Town Council may annex the territory to the Town by means of a resolution.

b. Twenty percent (20%) of the electors in the area may petition the Town for annexation. The process of obtaining approval is similar to that described above for the petition method, except that the additional step of holding a special election will be required, at which time a majority of the property owners voting must indicate a desire to be annexed.

EXTENSION BY DEVELOPERS

If a Developer or other person desires to extend any public utility, they may do so at their own expense, provided they comply with all Standards, Permits and Municipal Codes of the Town. In the majority of cases it has proven to be more efficient in terms of time and money for the Engineer of the Town to perform all necessary engineering tasks. (The Engineer of the Town works for the Town and the Developer must pay the Town for the Engineering Service). Such services include preparation of basic plans, costs, estimates, specifications, obtaining of permits, and inspection of

construction. The fee for this service is noted in the enclosed Application (Form A) to Extend Town of Eatonville Utilities. Special circumstances may make it desirable for a Developer to Utilize the services of another engineer for certain of these tasks (Application, Form B). However, in order to insure that the Town's Standards are satisfied, the Town requires, in any event, the Director of Public Works or Town Engineer check all plans, provide inspection during the construction process, test the new extensions, conduct a final inspection, and see that all required bonds and other paper work are properly provided. With this latter arrangement (Form B) the Town Engineer and Public Works Director will receive a fee for their services computed on an hourly basis. Under this latter arrangement (Form B), the Developer must obtain the Town's Conditions and Standard document.

The following steps are necessary for any extension to the utility system:

1. Prior to the time that the Preliminary Plat is filed, a letter requesting a Certificate of (Water, Sewer) Availability should be submitted to the Town. A preliminary plat should accompany this request. If plat is not involved, a letter requesting a Certificate of Availability should be submitted to the Town.

2. Prior to the installation of the extensions an :Application to Construct Extensions to the Town Utility Systems" must be signed by the Developer or Owner. At this time, if the Town Engineer is to perform all engineering tasks (Form A), the Developer should authorize the Town Engineer to proceed with design work and furnish the Town Engineer two copies of the Final Plat. If the Developer's Engineer is going to provide the engineering (Form B) the Developer must provide the Director of Public Works a plat or plan showing County approval. Along with the Application (Form A or B) a $1,000 cash deposit is required as evidence of good faith.

3. After the plans are approved and the Developer wishes to proceed with calling for bids, the Public Works Director will aid in identifying a suitable contractor to do this work. When a contractor not previously experienced in the Town is selected by the Developer, the Public Works Director shall be immediately notified of this selection so that the Public Works Director will have time to interview the contractor regarding their qualifications to perform the contract. It is required that the Developer secure a Performance-Maintenance Bond guaranteeing the completion of this work, payment of bills, and guarantee of materials and workmanship for one year from the date of final acceptance. It is required that the Developer employ licensed contractors.

4. The Public Works Director and the utility representative of the Town shall be notified not less than three working days in

advance of beginning work. Any work that is performed without proper notification of the Public Works Director will be summarily rejected.

5. During the progress of the work the Public Works Director shall be kept informed and an inspection requested prior to covering buried utilities or completing other major phases of construction.

6. After completion of construction a performance test appropriate for the utility must be performed. For a water system, this shall include a pressure test and bacteria test. For a sanitary sewer, this shall include a pressure test.

7. For water systems, all fees and charges must be paid prior to ordering meters. This includes engineering fees, permit fees, and Town charges that are applicable to the development.

8. After construction and testing by the Contractor, the Developer and the Contractor should ask for a final inspection and acceptance of the mains. This inspection should be performed by the Public Works Director, the Contractor and the Developer.

9. The Developer must furnish the Town with a cost breakdown showing the total cost of construction for the development.

10. The Developer must furnish the Town permanent easements that might be necessary or applicable to the installation.

11. At this stage of the development, and after review of final Plat, if applicable, the Developer may order and secure water meters from the Town. Any areas where excessive pressure exists (in excess of 80 pounds per square inch) the Developer is responsible for the installation of individual pressure reducing valves.

12. Before acceptance of the utility extensions by the Town, all of the following conditions must be satisified: a) Final written approval by the PUBLIC WORKS DIRECTOR of completed construction, record drawings, and documents, b) Submission of a Bill of Sale deeding these utilities to the Town, and c) All recorded or Right-of-Way dedications required by the Town.

The Conditions and Standards, which are the Specifications, on all Developer's jobs are on file at the TOWN Office. It is the responsibility of the Developer and their Contractor to familiarize themselves with the Specifications prior to starting work. On all construction work the Developer and Contractor answer and are responsible only to the Town Engineer.

EXTENSION BY LOCAL IMPROVEMENT DISTRICT (LID)

Under this method, the property benefitted pays all or a portion of the cost of an extension through assessments. The assessments may be paid in cash, or over a period of ten to fifteen years, with interest. The Town sells revenue bonds to finance the project, and the assessments are paid into the Revenue Bond Redemption Fund.

The following steps are necessary:

1. Obtain a petition requiring the extension signed by the owners of at least fifty-one percent (51%) of the area of the land within the proposed LID. The form of petition may be obtained from the Town.

2. The petition is filed with the Town who have the petition checked and call for a hearing on the formation of the LID.

3. If the Town concurs on the formation of the LID, the assessment roll is filled and notices are given. A public hearing is then held on the assessment roll at which time comments to the amount of the assessment are heard. After the hearing, the assessment roll is confirmed by the Town Council, and notice of confirmation is published.

4. Plans and call for bids on the construction can be started any time after the formation of the LID and legal approval of the action.

An alternate procedure to steps 1 and 2 can be accomplished if the Town Council wish to adopt a resolution for the formation of a LID, without the customary petition form the owners of the land within the improvement district. However, this method of procedure can be stopped at the public hearing on such a resolution, if the land owners of 40% of the affected area protest the formation of the proposed LID.

CHECKLIST

DEVELOPER'S EXTENSION

TOWN OF EATONVILLE

PROJECT	DEVELOPER
NAME OF EXTENSION	NAME
UTILITY (IES):	ADDRESS
Water	
Sewer	TELEPHONE

A. PRELIMINARY

_____ 1. Application form completed (Developer).

_____ 2. $1,000 cash deposit to Town (Developer).

_____ 3. Water/Sewer - Avaiability requested by letter (Developer)

B. REQUIRED BEFORE EXTENSION IS STAKED IN FIELD

_____ 1. Conditions and Standards Reviewed (Developer).

_____ 2. Plot plan, legal description, (Developer).

_____ 3. Approval of Contractor (Town).

_____ 4. Performance-Maintenance Bond (Contractor-Developer).

_____ 5. Obtain approval of design by Fire Marshall (Developer).

_____ 6. Right-of-Way Permit (Developer).

_____ 7. Plans and Specifications prepared by State of Washington Registered Engineer and approved by Public Works Director (Developer)

C. REQUIRED BEFORE CONSTRUCTION BEGINS

_____ 1. Three working days notice of starting date (Contractor).

_____ 2. Basic control survey tying project area to established control points (Contractor).

_____ 3. Request for utility to be staked 3 working days prior to construction.

D. DURING CONSTRUCTION

_____ 1. Three working days notice to the Town is required prior to connection with existing utilities (Contractor).

_____ 2. Notify Public Works Director for inspection prior to covering extension (Contractor).

E. REQUIRED FOR ACCEPTANCE OF TITLE

_____ 1. All fees paid, including engineering fees, connection charges, permit fees, etc. (Developer).

_____ 2. New system testing (Contractor-Town Engineer).

_____ 3. Approval of all construction (Town Engineer).

_____ 4. Cost breakdown of construction costs to Town (Developer).

_____ 5. Provide Town required Easements, and Bill of Sale (Developer).

_____ 6. Resolution by Town Council accepting title to water mains (Town).

F. ONE YEAR AFTER ACCEPTANCE

_____ 1. Release of Performance-Maintenance Bond (Town). (After demonstration of satisfactory performance of utilities).

FORM A

APPLICATION AND AGREEMENT REGARDING CONSTRUCTION OF EXTENSION TO UTILITY SYSTEMS TOWN OF EATONVILLE, WASHINGTON

(ENGINEERING SERVICES BY TOWN)

The undersigned (hereinafter "Applicant"), hereby makes application to the Town of Eatonville (hereinafter "the Town"), for permission to construct and install an extension to the Town's existing utility system(s) in public rights-of-way, under the Town's franchises therefor, and/or easements approved by the Town, and to connect said extension to the Town's existing utility system(s). Applicant makes the following representations to and agreements with the Town.

1. Description of Proposed Improvements. The proposed improvements shall be approximately _____ lineal feet in length and will be installed in roads, rights-of-way or easements approved in writing by the Town and shall be for the use and benefit of the following described property which is owned by the Applicant or other persons who are contributing to the cost thereof:

2. Proposed Utility Extensions.

   WATER SEWER

   A detailed description of the improvements is attached hereto as "Exhibit A" and incorporated herein.

3. Construction Plans and Standards. The proposed water main and/or sewer extension shall be constructed and installed in accordance with plans prepared at the Applicants expense by the Town Engineer. The Town shall charge the Developer the standard, current hourly rate and direct non-salary expenses plus fifteen percent (15%) for such engineering services.

The Engineering fee shall be paid by the Applicant for the following services:

a. General consultation with the Applicant regarding the requirements of the Town.
b. Preparation of the Contract Plans, Specifications, Proposal, Statement of Town of Eatonville Charges, Performance-Maintenane Bond, Bill of Sale, and Easement.
c. Application for State, County and other required permits. (Permit Fee is to be paid by Developer.)
d. Stalking of proposed extension.
e. Inspection of the construction in progress, for compliance with the conditions and Standards of the Town.
f. Observation of improvement performane tests. (Sampling bottles for water purity tests to be paid for by the Developer.)
g. Final inspection of the completed utility extension for acceptance by the Town.
h. Providing administrative documentation for the Town records as required.
i. Processing record drawings and documentation in the Town's files for future use.

Design, construction and installation shall also be in accordance with the latest edition of the Town of Eatonville Public Works Development and Construction Standards adopted by the Town Council. A copy of said documents are on file at the Town Hall and in the office of the Town Engineer. The terms of said document are made a part of this agreement by this reference.

4. Contractor Qualifications. The name, address, and telephone number of the Contractor or Contractors who will install the water system extension are:

Prior to the commencement of any construction activity, Applicant will furnish the Town with written evidence, satisfactory to the Town, that said Contractors are properly licensed, bonded and experienced in public works construction.

5. Costs Payable by Applicant. Any and all costs reasonably incurred by the Town in connection with the receipt, study, approval or rejection of this application, including, without limitation, all legal, engineering and accounting fees, shall be borne by the Applicant. The Applicant agrees to pay such costs within 30 days of billing by the Town. In consideration of the Town's review of the proposed plans, Applicant will deposit with the Town the sum of $1,000 or $1.75 per lineal foot of the proposed main (as shown in the construction plans), whichever sum is greater, when plans are submitted to the Town for review. This sum shall be held by the Town as a deposit to pay any and all costs incurred by the Town in connection with this agreement. The Town will return any funds remaining after acceptance of the constructed system. (Interest will not be paid on monies received). If the deposit is not sufficient to pay all costs, the Town will request additional deposits from time to time which the Developer shall pay within 10 days after the request.

If after authorizing the Town to commence these tasks, the Applicant decides not to complete the proposed project, the Town shall receive payment from the Applicant computed on an hourly basis for all services performed as set forth in Item 3 above.

6. Observation and Supervision by the Town. Applicant acknowledges that the Town requires that all construction, connections to the existing system, and all testing of the improvements be made in the presence of the Public Works Director or his authorized representative. Applicant shall require their Contractor to make written application for and to obtain written permission from the Public Works Director or his authorized representative to make final connection to the Town's utility system on a specified date at a specified time. The Town shall have full right and authority to stop construction at any time if the Contractor deviates from the approved specifications and plans or refuses to comply with any other reasonable request of the Public Works Director.

7. Charges for Water Used in Testing. Among the costs to be paid by the Applicant shall be the cost of all water furnished by

the Town for testing, flushing or purifying of the proposed extension, at the rate of 10 cents per one hundred cubic feet of water, based upon the Town Engineer's estimate of the quantity of water used, which estimate shall be conclusive.

8. Insurance. Applicant agrees to provide the Town, prior to the commencement of any construction, with proof of adequate liability and property damage of not less than $500,000 and for personal injury of not less than $500,000. Applicant will furnish the Town with written evidence of prepayment and renewal of such insurance from time to time as requested by the Town. The policy or certificate of insurance shall name the Town, Town employees, Town consultants and elected or appointed officials as additional insured parties.

9. Easements. Applicant shall be responsible for securing any required easements, franchises or rights-of-way necessary for the construction of the utility extensions and shall deliver executed and recorded copies thereof to the Town prior to commencing construction. The form and content of such documents shall be approved by the Director of Public Works and Attorney.

10. Permits. Applicant shall be responsible for obtaining and paying for all necessary building, land use, route-crossing and other permits and environmental reviews and notices which may be required by any governmental agency for the construction of the aforesaid improvements. Copies of all such documents shall be furnished to the Town prior to the commencement of construction. The Town may require that such documents be prepared by its own Engineer or Attorney. Applicant shall pay all costs and fees associated with such preparation.

11. Applicant's Guaranty of System. Applicant guarantees that all materials, equipment, workmanship and labor utilized in the system for a period of one year after acceptance of the utility extension by the Town. If any modifications, repairs or maintenance must be performed on the system during that period, Applicant shall pay all costs. Thereafter, the Town shall be responsible for maintaining and repairing the system.

12. Performance Bond. Applicant shall furnish to the Town a

Performance Bond, in an amount equal to 50% of the Town Engineer's estimated total cost of the improvements, prior to the staking of all work for construction. The Performance Bond shall guarantee satisfactory completion of the construction improvements, shall grantee all materials, equipment, workmanship and labor for a period of one year from acceptance of the completed improvements by the Town and shall benefit all persons furnishing labor and materials, whether claiming under the Public Works Lien statutes or the Mechanics and Materialmens Lien statues of the State of Washington. The Town reserves the right to reject the form of the bond or the surety company issuing the Performance Bond and to require the submittal of a bond in revised form or from a different surety company. In lieu of a performance bond the Town may accept an assignment of funds deposited in a local bank.

13. Grading of Roads. Applicant agrees to grade all roads to the design subgrade elevation prior to the start of construction and to advise the Town during construction of any changes which may be contemplated or required. If the Applicant changes the subgrade elevation of the road after completion of the utility construction, Applicant agrees to raise or lower the utility as required by the new subgrade elevation, and revise all utilities to the satisfaction of the Town at no cost to the Town.

14. Conveyance of Improvements to Town. Upon completion of construction, and upon the Town's approval, and prior to the acceptance of the improvements by the Town Council, title to the system shall be conveyed to the Town, at no cost to the Town, such conveyance to be evidenced by a Deed and Bill of Sale in form approved or furnished by the Town. Thereafter, such extension shall be under sole control, use and operation of the Town, subject to all regulations and conditions of service and utility rate charges established from time to tome by the Town Council. When delivering the Deed and Bill of Sale, Applicant shall furnish to the Town a schedule showing the costs of all materials, labor and equipment, together with a detailed list of all materials and the name of the manufacturer and supplier of all components of the system.

This information is required for inventory, insurance and maintenance of the Town's utility systems.

15. Duration of This Agreement. This agreement shall expire one year from its date. If the extension is not completed and accepted within that time, then Applicant's rights under this agreement shall cease and Applicant shall make new or amended application and pay any and all additional administrative, legal, engineering and observation costs involved, as determined by the Town.

16. Indemnification. Applicant hereby agrees to indemnify and hold the Town, the Town Engineer, the Town Council and their employees harmless from any and all costs or claims which may arise from construction of the proposed extension, including, without limitation, any and all claims for property damage and personal injury or claims arising from deficiencies in the system during the one year period of Applicant's guarantee of the system.

17. Annexation. In the event that the property to be served by the proposed utility extension, as described herein above, is not presently within the boundaries of the Town, Applicant agrees to obtain and present to the Town a petition, in form satisfactory to the Town, for annexation of said property into the Town, and to pay all legal, engineering and other costs incurred by the Town in conducting the necessary annexation proceedings. Included within such costs are, without limitation, the costs of amending the Town's Comprehensive Utility Plans and obtaining approval of the annexation by the Town and the Pierce County Boundary Review Board. If an annexation is necessary, applicant agrees to deposit the estimated legal and engineering costs of such annexation proceedings with the Town, in amount to be determined by the Town, prior to the Town's approval of this application and prior to the Town's acceptance of the annexation petition.

18. Attorney's Fee. If any legal proceedings are instituted to enforce any provision of this agreement or to collect any sums owing under this agreement, Applicant agrees to pay all reasonable attorney's fees and court costs incurred by the Town.

19. Consideration Payable by Town. Applicant agrees that the sole consideration to be furnished by the Town for this agreement shall be the Town's agreement to furnish utility service to the system upon the Town's acceptance thereof, and that the Town has made no agreement to pay to the Applicant any "latecomers charges" or other compensation for Applicant's conveyance of the system to the Town, unless such compensation has been specifically agreed to by the Town in a separate written document executed herewith.

20. Other Charges by Town. Applicant has been furnished with a copy of the Town's current schedule of charges for meter installations, water use fees, sewer service fees, connection fees and other charges now in effect throughout tne Town. Applicant understands that the future utility service to the extension shall be conditioned upon the payment of such additional charges by Applicant and other residents who later decide to connect to the system. Said charges are subject to change from time to time, as determined by the Town Council, and the actual charges to be assessed will be those in effect at the time the service is actually requested by those users who desire to connect to the system.

WHEREFORE, the Applicant has submitted this application this _____ day of _____, 19___.

_____
APPLICANT

_____
APPLICANT

_____
APPLICANT

This application is accepted and approved by the Town this _____ day of _____, 19___. Upon compliance with the terms and conditions of this contract by the Applicant, Town agrees to accept said extension and furnish utility service thereto.

TOWN OF EATONVILLE, WASHINGTON

By_____

_____ _____

TOE:UA.AGT

FORM B

APPLICATION AND AGREEMENT REGARDING CONSTRUCTION OF EXTENSION TO UTILITY SYSTEMS TOWN OF EATONVILLE, WASHINGTON

(ENGINEERING SERVICES BY DEVELOPER)

The undersigned (hereinafter "Applicant"), hereby makes application to the Town of Eatonville (hereinafter "the Town"), for permission to construct and install an extension to the Town's existing utility system(s) in public rights-of-way, under the Town's franchises therefor, and/or easements approved by the Town, and to connect said extension to the Town's existing utility system(s). Applicant makes the following representations to and agreements with the Town.

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2. Proposed Utility Extensions.

   WATER SEWER

   A detailed description of the improvements is attached hereto as "Exhibit A" and incorporated herein.

3. Construction Plans and Standards. The proposed water main and/or sewer extension and all appurtenances shall be constructed and installed in accordance with plans prepared by the Applicant at his expense. Plans and specifications shall be prepared by a registered Professional Engineer and approved by the Town Engineer. The Town's Engineering fee and Public Works Director's salary and related costs shall be paid by the Applicant for the following services:

a. General consultation with the Applicant regarding the requirements of the Town.

b. Inspection of the construction in progress, for compliance with the Conditions and Standards of the Town.

c. Observation of improvement performance tests. (Sampling bottles for water purity tests to paid for by the Developer.)

d. Final inspection of the completed utility extension for acceptance by the Town.

e. Processing record drawings and documentation in the Town's files for future use.

Design, construction and installation shall also be in accordance with the latest edition of the Town of Eatonville Public Works Development and Construction Standards adopted by the Town Council. A copy of said documents are on file at the Town Hall and in the office of the Town Engineer. The terms of said document are made a part of this agreement by this reference.

4. Contractor Qualifications. The name, address, and telephone number of the Contractor or Contractors who will install the water system extension are:

Prior to the commencement of any construction activity, Applicant will furnish the Town with written evidence, satisfactory to the Town, that said Contractors are properly licensed, bonded and experienced in public works construction.

5. Costs Payable by Applicant. Any and all costs reasonably incurred by the Town in connection with the receipt, study, approval or rejection of this application, including, without limitation, all legal, engineering and accounting fees, shall be borne by the Applicant. The Applicant agrees to pay such costs within 30 days of billing by the Town. In consideration of the Town's review of the proposed plans, Applicant will deposit with the Town the sum of $1,000 or $1.75 per lineal foot of the proposed water main (as shown in the construction

plans), whichever sum is greater, when plans are submitted to the Town for review. This sum shall be held in trust by the Town as a deposit to pay any and all costs incurred by the Town in connection with this agreement. The Town will return any funds remaining after acceptance of the constructed system. (Interest will not be paid on any monies returned.) If the deposit is not sufficient to pay all costs, the Town will request additional deposits from time to time which the Developer shall pay within 10 days after the request.

If, after authorizing the Town for the Engineer to commence these tasks, the Applicant decides not to complete the proposed project, the Town shall receive payment from the Applicant computed on an hourly basis for all services performed including all hourly rates with benefits, all overhead costs plus 15%.

6. Observation and Supervision by the Town. Applicant acknowledges that the Town requires that all construction, connections to the existing system, and all testing of the improvements be made in the presence of the Public Works Director or his authorized representative. Applicant shall require their Contractor to make written application for and to obtain written permission from the Public Works Director or his authorized representative to make final connection to the Town's utility system on a specified date at a specified time. The Town shall have full right and authority to stop construction at any time if the Contractor deviates from the approved specifications and plans or refuses to comply with any other reasonable request of the Public Works Director.

7. Charges for Water Used in Testing. Among the costs to be paid by the Applicant shall be the cost of all water furnished by the Town for testing, flushing or purifying of the proposed extension, at the rate of 10 cents per one hundred cubic feet of water, based upon the Town Engineer's estimate of the quantity of water used, which estimate shall be conclusive.

8. Insurance. Applicant agrees to provide the Town, prior to the commencement of any construction, with proof of adequate liability and property damage of not less than $500,000 and for personal injury of not less than $500,000. Applicant will

furnish Town with written evidence of prepayment and renewal of such insurance from time to time as requested by the Town. The policy or certificate of insurance shall name the Town, Town employees, Town consultants and elected or appointed officials as additional insured parties.

9. Easements. Applicant shall be responsible for securing any required easements, franchises or rights-of-way necessary for the construction of the utility extensions and shall deliver executed and recorded copies thereof to the Town prior to commencing construction. The form and content of such documents shall be approved by the Town's Engineer and Attorney.

10. Permits. Applicant shall be responsible for obtaining and paying for all necessary building, land use, route-crossing and other permits and environmental reviews and notices which may be required by any governmental agency for the construction of the aforesaid improvements. Copies of all such documents shall be furnished to the Town prior to the commencement of construction. The Town may require that such documents be prepared by its own Engineer or Attorney. Applicant shall pay all costs and fees associated with such preparation.

11. Applicant's Guaranty of System. Applicant guarantees that all materials, equipment, workmanship and labor utilized in the system for a period of one year after acceptance of the utility extension by the Town. If any modifications, repairs or maintenance must be performed on the system during that period, Applicant shall pay all costs. Thereafter, the Town shall be responsible for maintaining and repairing the system.

12. Performance Bond. Applicant shall furnish to the Town a Performance Bond, in an amount equal to 50% of the Town Engineer's estimated total cost of the improvements, prior to the staking of all work for construction. The Performance Bond shall guarantee satisfactory completion of the construction improvements, shall grantee all materials, equipment, workmanship and labor for a period of one year from acceptance of the completed improvements by the Town and shall benefit all persons furnishing labor and materials, whether

claiming under the Public Works Lien statutes or the Mechanics and Materialmens Lien statues of the State of Washington. The Town reserves the right to reject the form of the bond or the surety company issuing the Performance Bond and to require the submittal of a bond in revised form or from a different surety company. In lieu of a performance bond, the Town may accept an assignment of funds deposited in a local bank.

13. Grading of Roads. Applicant agrees to grade all roads to the design subgrade elevation prior to the start of construction and to advise the Town during construction of any changes which may be contemplated or required. If the Applicant changes the subgrade elevation of the road after completion of the utility construction, Applicant agrees to raise or lower the utility as required by the new subgrade elevation, and revise all utilities to the satisfaction of the Town at no cost to the Town.

14. Conveyance of Improvements to Town. Upon completion of construction, and upon the Town's approval, and prior to the acceptance of the improvements by the Town Council, title to the system shall be conveyed to the Town, at no cost to the Town, such conveyance to be evidenced by a Deed and Bill of Sale in form approved or furnished by the Town. Thereafter, such extension shall be under sole control, use and operation of the Town, subject to all regulations and conditions of service and utility rate charges established from time to tome by the Town Council. When delivering the Deed and Bill of Sale, Applicant shall furnish to the Town a schedule showing the costs of all materials, labor and equipment, together with a detailed list of all materials and the name of the manufacturer and supplier of all components of the system. This information is required for inventory, insurance and maintenance of the Town's utility systems.

15. Duration of This Agreement. This agreement shall expire one year from its date. If the extension is not completed and accepted within that time, then Applicant's rights under this agreement shall cease and Applicant shall make new or amended application and pay any and all additional administrative, legal, engineering and observation costs involved, as

determined by the Town.

16. Indemnification. Applicant hereby agrees to indemnify and hold the Town, the Town Engineer, the Town Council and their employees harmless from any and all costs or claims which may arise from construction of the proposed extension, including, without limitation, any and all claims for property damage and personal injury or claims arising from deficiencies in the system during the one year period of Applicant's guarantee of the system.

17. Annexation. In the event that the property to be served by the proposed utility extension, as described hereinabove, is not presently within the boundaries of the Town, Applicant agrees to obtain and present to the Town a petition, in form satisfactory to the Town, for annexation of said property into the Town, and to pay all legal, engineering and other costs incurred by the Town in conducting the necessary annexation proceedings. Included within such costs are, without limitation, the costs of amending the Town's Comprehensive Utility Plans and obtaining approval of the annexation by the Town and the Pierce County Boundary Review Board. If an annexation is necessary, applicant agrees to deposit the estimated legal and engineering costs of such annexation proceedings with the Town, in amount to be determined by the Town, prior to the Town's approval of this application and prior to the Town's acceptance of the annexation petition.

18. Attorney's Fee. If any legal proceedings are instituted to enforce any provision of this agreement or to collect any sums owing under this agreement, Applicant agrees to pay all reasonable attorney's fees and court costs incurred by the Town.

19. Consideration Payable by Town. Applicant agrees that the sole consideration to be furnished by the Town for this agreement shall be the Town's agreement to furnish utility service to the system upon the Town's acceptance thereof, and that the Town has made no agreement to pay to the Applicant any "latecomers charges" or other compensation for Applicant's conveyance of the system to the Town, unless such compensation has been specifically agreed to by the Town in a separate

written document executed herewith.

20. Other Charges by Town. Applicant has been furnished with a copy of the Town's current schedule of charges for meter installations, water use fees, sewer service fees, connection fees and other charges now in effect throughout the Town. Applicant understands that the future utility service to the extension shall be conditioned upon the payment of such additional charges by Applicant and other residents who later decide to connect to the system. Said charges are subject to change from time to time, as determined by the Town Council, and the actual charges to be assessed will be those in effect at the service is actually requested by those users who desire to connect to the system.

WHEREFORE, the Applicant has submitted this application this _____ day of _____, 19___.

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APPLICANT

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APPLICANT

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APPLICANT

This application is accepted and approved by the Town this _____ day of _____, 19___. Upon compliance with the terms and conditions of this contract by the Applicant, Town agrees to accept said extension and furnish utility service thereto.

TOWN OF EATONVILLE, WASHINGTON

By_____

_____

TOWN OF EATONVILLE

PUBLIC WORKS WATER DEVELOPMENT

AND CONSTRUCTION STANDARDS

DENNIS STRANIK, MAYOR

COUNCIL MEMBERS

KIRK HEINZ
KENNETH KILDAHL
KEITH MALCOM
BRUCE MORRIS
ROY SWANSON

PREPARED BY

WHITACRE ENGINEERS, INC.

PART 1. GENERAL REQUIREMENTS

A. PURPOSE OF STANDARDS

These standards are the minimum acceptable design criteria and standards for water distribution systems to be accepted by the Town of Eatonville.

B. SCOPE OF STANDARDS

All property owners within the Town, within the area served by the water distribution system of the Town, are required and shall be compelled to connect to the public water distribution unless the owner utilizes a water source approved by the Washington State Department of Health and the Tacoma-Pierce County Health Departments.

New private wells or private sources of water will not be allowed. Existing facilities covered by a current water right permit from the State of Washington will be allowed if they conform with all local, state and federal laws and regulations. All property owners outside of the Town limits but within the Town service area shall comply with this standard.

C. DEFINITIONS

These definitions are a supplement to Section 13.10 of the Town of Eatonville Municipal Code.

WSDOT/APWA STANDARD SPECIFICATIONS. Shall have reference to Standard Specifications for Road, Bridge and Municipal Construction prepared jointly by the Washington State Department of Transportation and the Washington State Chapter of American Public Works Association, most current edition as adopted by the Town.

CROSS-CONNECTION. Any physical arrangement whereby a public water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture or other device which contains or may contain contaminated water, sewage or other wastes or liquids of unknown or unsafe quality, which may be capable of imparting contamination to a public water supply as a result of backflow.

DOE. Washington State Department of Ecology.

DOH. Washington State Department of Health.

HEALTH OFFICER. The Director of Public Health of the Tacoma-Pierce County Health Department or his duly authorized representative.

MUTCD. Manual Uniform Traffic Control Devices, prepared by the Washington State Department of Transportation, latest edition.

AWWA. American Water Works Association.

D. DEVELOPER EXTENSION AGREEMENTS

1. When extension of the existing water system is required for service a Developer Extension Agreement shall be entered into between the owner and the Town.

2. Developer agreements shall be approved by the Mayor prior to the issuance of any permits.

3. To initiate the Developer Extension Process, the owner must submit an application for utility permits along with property legal description and six sets of site and improvement plans. Upon completion of design review by th Town, approved design plans and specifications and a pre-construction letter of requirements will be sent to the owner. The owner shall resubmit plans for final approval, if required. The contractor shall work from Town approved plans only. After completion of construction, turnover documents, including as-built plans, will be provided to the Town along with a request for turnover of the constructed public facilities.

4. The owner is required to bond the project at the rate of 50% total construction costs for one (1) year after acceptance.

5. Developer Extension projects shall be deeded to the Town for the purpose of maintenance and operations by bill of sale.

E. CONNECTION CHARGES

All property benefitting from existing water facilities shall pay the following applicable connection charges, at the current rates, as specified in the Town of Eatonville Water Ordinances:

1. Permit: Plan/Inspection fee charge.

2. Regular connection charge.

3. A deposit fee for installation of domestic water meters by Town forces as specified in the Municipal Code.
4. Special connection charges for the development's contribution to the Town's mains.

To determine these fees, an owner is required to supply a legal description of the property to the Public Works Department with the plan submittal.

F. LATECOMER'S AGREEMENT AUTHORIZED

1. The Town may enter into Agreements with property owners who have installed water mains and appurtenances in order to provide for the reimbursement to owners of a fair pro-rata share of the cost of construction thereof by the owners of any real estate who have not contributed to the original cost of such facilities and who subsequently connect to the water system or use same.

2. Such agreement may be entered into at the time of acceptance of the water system. Pursuant to such agreement, the Town may agree to collect latecomer fees from owners of benefitting property who have not paid their pro-rata share. Fifteen percent (15%) will be charged for administrative costs at the time of application for service.

PART II. WATER DISTRIBUTION SYSTEM DESIGN STANDARDS

A. GENERAL

All water distribution systems shall conform to the design requirements of the State of Washington Department of Health, as well as the Town of Eatonville design requirements as stated herein.

All plumbing permits will be processed by the Town Building Officer.

All water mains, service lines and fire lines shall be tested in accordance with these Standards. In addition, all fire lines and appurtenances will be tested in accordance with NFPA 13 Standards.

All hydrants used will have to be on an approved list of the Water Division of the Public Works Department and meet the requirements of the Town.

All related Town of Eatonville code and ordinance requirements shall be met in the design and construction of any element of the distribution system, including Chapter of the Eatonville Municipal Code and Standards outlined in this development and construction manual.

B. COMPREHENSIVE WATER SYSTEM DESIGN

The Town of Eatonville has developed and will update a Comprehensive Water Plan to insure the development of an efficient and adequate water supply system for the Town. All extensions, additions, changes, or alterations to the Town water system shall be consistent with the Comprehensive Plan.

The exact location or configuration of the system may be modified or adjusted by the developer, provided the proposed system remains consistent with the overall concept of the Plan. All modifications to the Comprehensive Plan require specific approval of the Town, which will be required prior to the acceptance of the extension lines.

One element of the Comprehensive Plan is a map of proposed water main extensions to service areas presently without water. The comprehensive plan of proposed extensions indicates the general location of supply mains, branches and loops, intended to provide the framework for distribution system upgrading in deficient areas and for potential future service areas. All proposed water system improvements and extensions shall be consistent with the Comprehensive Water Plan.

C. SERVICE AREA CONSIDERATIONS

All water extensions shall be designed for the ultimate development of the potential service area in accordance with current land use plans and the Comprehensive Water Plan. The determination of the tributary area shall be based on the Comprehensive Water Plan adopted by the Town and specific detailed studies of the areas affected.

New water systems shall be designed on the basis of per capita flows or other methods as approved by the Town and DOH. Detailed design calculations and service area maps shall be required for the system design. Said calculations shall be certified by a professional engineer.

Special consideration must be given to water extensions for industrial districts.

D. EXTENT OF WATER IMPROVEMENTS

In general, a developer shall be required to extend the water system improvements to the extreme boundary of his property in accordance with the comprehensive plans. The extension shall be of the size to be extended in the future as required by the plan. In cases where the plan does not require future extension, the water main shall be extended as required to serve the affected property.

In cases where required extension of the system is beyond the needs for the development, and other benefitting properties can be identified, the developer may be able to arrange through a developer's agreement for partial reimbursement at the time of other developments. Any such arrangement must be agreed to in writing through the Town prior to acceptance of the system as public through the Town Council and/or Mayor.

E. EASEMENTS

Permanent easements for mainline water systems shall be a minimum of 10 feet (10') wide. Construction easements shall be a minimum of twent feet (20') wide. Easement legal descriptions shall be prepared by a Surveyor or Engineer licensed to practice in the State of Washington. Easement legal description shall be reviewed and approved by the Town prior to acceptance.

F. WATER SYSTEM PRESSURE

All water mains shall be sized after a hydraulic analysis based on the required fire flow demands and pressure requirements. The system shall be designed to maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow. For most areas normal working pressures range between 50 psi and 60 psi. Any deviation will require approval in writing by the Town Engineer, Public Works Director or Mayor.

G. DESIGN STANDARDS FOR PLAN SUBMITTALS

1. Plans and Specifications

All plans and specifications for water main extensions and branches must be presented to the Town for review and approval prior to beginning of construction.

Permits to install public water mains, extensions, valves, meters, hydrants, fire mains, connections to

public systems, irrigation sprinkler connections and branches shall be secured from the Town before commencing any installation.
A street repair bond to assure restoration may be required prior to issuance of a permit.

Application for water service connections shall be filed with and approved by the Public Works Department before the installation of a water service connection is made.

2. Drafting Standards

The following information shall be shown on all water plan submittals to the Town.

a. Drawing must be on a 22" x 34" plan paper with 1-1/2 inch left margin for binding.

b. Scale of drawing should be 50 scale. If this scale is not appropriate for a specific development, a 20 scale or 100 scale may be substituted. Other scales are unacceptable.

c. Developer's engineer is to check with the Town Engineer as to whether a profile is required. As a general rule, where the topography varies significantly, or where the project area includes 5 acres or more, a profile drawing is required.

d. The Town's notes are to be included at the top right corner. The North Arrow should preferably be pointed up. It may be oriented to the left if required by the layout.

e. Size of pipe shall be specified.

f. Type and class of pipe shall be indicated.

g. Permanent or proposed street grades.

h. All surface and subsurface utilities and improvement structures, and all pertinent topography. A topographic map with contour intervals of not more than two feet (2') will be required for any development larger than 5 acres. Spot elevations shown on a map will be required for areas less than 5 acres.

i. All connection bends, tees, valves, water main thrust blocking, crosses, hydrants, air vacuum relief valves, and other appurtenances.

j. Location of existing buildings and services.

k. Existing and proposed street rights-of-way and easement limits for all utilities, including reference to any necessary permission and release from damages for owners of property through the ultimate supply point or facility.

l. All thrust blocks, special structures, appurtenances or other construction, all of which shall be detailed.

m. Identify any possible utility conflicts.

n. The water line and fixtures to be installed must be shown with heavier lines than the other lines. Hydrants, MJ & FL connections, etc. must be shown.

o. The Public Works Director and the Town's Engineer must receive the completed drawings a minimum of ten days prior to anticipated approval.

H. SYSTEM REQUIREMENTS

1. GENERAL

All pipes, fittings, valves, hydrants, joints, and related appurtenances shall conform to the latest standards issued by the AWWA, APWA, and be acceptable for use by the Town of Eatonville.

All fittings shall be cast iron or ductile, with flanged or mechanical joint connections and be of the same thickness class as the pipe used. All fittings shall be cement mortar lined.

2. PIPE SIZE.

1. Minimum single family residential water main shall be eight inches (8") inside diameter. In special cases a 6" line may be approved if it is no longer than 100', serves 2 or less residences and cannot be extended in the future.

2. Minimum commercials, industrial or multiple family unit water mains shall be a minimum of ten inches (10") in diameter for looped and twelve

inches (12") in diameter for non-looped systems or per the size required in the Comprehensive Water Plan, whichever is greater.

3. FLOW VELOCITY

Under maximum flow conditions, velocities as determined by engineering analysis shall not exceed ten feet per second (10 fps).

4. PIPE DEPTH

Water mains shall have a minimum depth of thirty-six inches (36") below finished grade. All water mains and services shall not be more than six feet (6') below finished grade.

5. ALIGNMENT

Horizontal and vertical curves will not be allowed unless approved in writing by the Town.

6. EXTENSIONS

If it is anticipated or indicated on the Town's Comprehensive Water Plan that the system may be expanded in the future to serve other areas, said expansion will be incorporated into the design.

7. LOOPED SYSTEM

Where possible, systems shall be closed or "looped" to avoid dead lines on water mains. Where dead-end mains occur they shall be provided with a fire hydrant if flow and pressure are sufficient, or with an approved flushing hydrant or blow-off for flushing purposes. No flushing devices shall be directly connected to any sewer. For dead-end mains serving fire hydrant longer than 50 feet, eight inch diameter pipe shall be utilized.

8. FIRE HYDRANTS

Standard fire hydrants are required approximately every 600 feet, except in commercial and industrial areas spacing shall be 300 feet. In addition, fire hydrants shall be required at all street intersections.

9. AIR/VACUUM VALVES

Two inch (2") air/vacuum valve installations shall be installed at principal high points in the system.

10. ISOLATION VALVES

Sufficient valves shall be provided on water mains so that inconvenience and sanitary hazards will be minimized during repairs. Valves shall be located at every other block or at not more than 660 foot intervals.

11. PIPE AND HYDRANT LOCATIONS

Pipe shall be generally located North and East of road center-line. Both pipe and hydrants shall be in the right-of-way.

12. SEPARATION FROM SEWER SYSTEMS

Where practical, water mains shall be designed with a ten foot horizontal separation, edge to edge, from any existing or proposed sewer. Where water mains cross over a sewer line a vertical distance of 18 inches should be maintained between the outside of the sewer main and the outside of the water main. Where these conditions can not be met, or when the water line must cross under the sewer line, special construction procedures should be specified.

13. PRESSURE REDUCING VALVES

Developer will be responsible for installing individual pressure reducing valves in areas of excessive pressure (over 80 psi).

14. DETECTOR CHECK VALVES

Where detector check is installed in conjunction with a valve controlling fire flow, all pipe leading from both sides of the valve shall consist of the same class and size if ductile iron pipe. This pipe shall meet Town standards as stated in the General Specifications for Materials. Said pipe shall extend to the water main cut-in and to the facility for which the fire flow is intended.

15. LOCATOR TAPE

Water line locator tape shall be placed 12 inches above all new or replaced lines.

PART III. CONSTRUCTION MATERIALS

A. GENERAL

All materials used for construction shall be new and undamaged and shall be inspected and approved by the Town prior to installation. Where possible, the same manufacturer of each item shall be used throughout the project. Acceptance of the materials by the Town shall not relieve the developer from the responsibility to guarantee construction and materials.

All materials and methods referenced herein shall conform to the applicable standards for materials and construction found in the "Standard Specifications for Roads, Bridge and Municipal Public Works Construction", latest edition, published by the Washington State Department of Transportation and Washington State Chapter of t e American Public Works Association (WSDOT/APWA Standard Specifications)

When reference to the following capitalized abbreviations are made, they refer to specifications, standards, or the respective society or jurisdiction entity.

ANSI	American National Standards Institute
APWA	American Public Works Association
ASTM	American Society of Testing and Materials
AWWA	American Water Works Association

WSDOT/ APWA	Washington State Department of Transportation and Washington State Chapter of American Public Works Association Standard Specifications for Road, Bridge and Municipal Construction

The numbers and letters following the abbreviations denote the serial designation for the specification or standard to which reference is mad . Unless a particular issue is designated, all references to the above specifications, standards, or methods shall, in each instance, be understood to refer to the issue in effect (including all amendments) on the date of the approved plans.

B. DUCTILE IRON PIPE AND FITTINGS

Ductile Iron Pipe shall conform to AWWA C151. pipe shall be designed for the working water pressure plus 100 psi surge allowance. Joints shall be push-on or mechanical joint in accordance with AWWA C111. Rubber gaskets shall

conform to AWWA C111 and be suitable for the specific pipe sizes and pressure and shall be furnished by the pipe manufacturer. The pipe shall be standard cement mortar lined and seal coated in accordance with AWWA C104. An outside coating of bituminous material minimum 1 mil thick shall be applied.

Minimum pipe thickness classes are as follows:

Diameter	Thickness Class	Metal Wall Thickness
12"	Class 52	Metal Thickness 0.37"
10"	Class 52	Metal Thickness 0.35"
8"	Class 52	Metal Thickness 0.33"
6"	Class 52	Metal Thickness 0.31"

Ductile Iron fittings shall be mechanical joint or flanged conforming to AWWA C110. Fittings shall be cement lined in accordance with ANSI A21.4 and shall be coated inside and out with a bituminous material minimum 1 mil thick. Mechanical joint gaskets shall conform to AWWA C111. Flanged joint rubber gaskets shall be rubber, ring or full faced and minimum 1/8 inch thick conforming to all material requirements of AWWA C111.

C. CAST IRON FITTINGS

1. Mechanical Joint. Mechanical joint cast iron fittings shall be short body conforming to AWWA STANDARD C110 with a 250 psi pressure rating for sizes four to twelve inches. Fittings shall be cement lined in accordance with ANSI A21.4 and coated inside and out with a bituminous material minimum 1 mil thick. Joints and rubber gaskets shall be in accordance with AWWA STANDARD C111.

2. Flanged. Flanged cast iron fittings shall be 250 psi pressure rated for sizes four to twelve inches conforming to AWWA STANDARD C110. Fittings shall be short body, cement lined in accordance with ANSI A21.4, and coated inside and out with a bituminous material minimum one mil thick. Bolt circle and bolt holes of fittings shall match those of Class 125 flanges shown in ANSI B16.1. Flanges shall be plain faced without projection and shall be finished smooth or with shallow serrations. Flange gaskets shall be rubber, ring or full faced and minimum 1/8 inch thick conforming to material requirements of AWWA STANDARD C111. Bolts shall be in accordance with Appendix A of AWWA STANDARD C110.

3. Fittings for Connections to Existing Asbestos Cement Pipe. Fittings shall be "roll-up" type, cast iron, and conform to AWWA STANDARD C110 with bells designed to accept asbestos cement pipe. Bell dimensions shall conform to AWWA STANDARD C400, Appendix A.

D. STEEL PIPE

Steel pipe shall conform to AWWA Standard C200 **with wall thickness as specified on plans.** Pipe shall be electrically welded or seamless type and shall be subjected to a minimum mill hydrostatic test pressure of 500 psi.

Joints: Except where shop-welded, field welded, or mechanically coupled joints are required, pipe ends shall be bell and spigot with rubber gasket, and conform to AWWA Standard C200, Paragraph 3.6.6. Field-welded lap joints or butt joints shall conform to AWWA Standard C206. Pipe with plain ends shall be furnished where jointing is with mechanical couplings or flanged coupling adapters. The hold-back on plain end pipe shall be at least eight inches. Flanges for pipe shall be steel hub flanges, as specified, conforming to AWWA Standard C207. Nuts, bolts, and gaskets for flanged joints shall be as recommended in AWWA Standard C207.

Coal-tar enamel: The interior surface of steel pipe shall be cleaned, and lined with coal-tar enamel, and the exterior shall be cleaned, primed, lined and coated with coal tar enamel with a bonded felt wrapper. All such material and application shall be in accordance with AWWA Standard C203. Field repair of defects in the coating shall be per AWWA Standard C203 and the manufacturer's recommendations.

Cement-mortar coated and lined: If specified, the interior surface of steel pipe shall be cleaned and lined with cement-mortar, and the exterior surface of the pipe shall be cleaned and coated with wire reinforced cement-mortar. All such materials and applications shall be in accordance with AWWA Standard C205.

Fittings: Fittings shall be standard steel tube turns, or segmentally welded sections of the same material and thickness as the pipe. Dimensions of fittings shall conform with AWWA Standard C208. Coatings shall be in accordance with AWWA Standard C203 or C205 as appropriate. Steel bends shall have the same joints as specified for steel pipe.

E. POLYVINYL CHLORIDE (PVC) PIPE

PVC pipe shall conform to AWWA C900. PVC pipe shall have the same outside dimensions as ductile iron pipe. PVC pipe shall be pressure Class 150. The pipe shall bear the seal of the National Sanitation Foundation for potable water pipe.

F. POLYVINYL CHLORIDE (PVC) PIPE FITTINGS

Fittings for PVC pipe shall be the same as specified for ductile iron pipe. Dimensions of fittings and design of bell may be modified to conform with the pipe being used.

G. GALVANIZED STEEL PIPE AND FITTINGS

Galvanized steel pipe shall conform to ASTM A-120, Schedule 40. Fittings shall be galvanized malleable iron screwed fittings, in accordance with ANSI B16.3.

H. VALVES

1. Buried Gate Valves. Buried gate valves shall be double-disk and shall conform to AWWA Standard C500 or, resilient seat and shall conform to AWWA Standard C509. Valves 12" and smaller shall be 200 psi iron body, bronze fitted, single gate, nonrising stem, with O-ring seals and two inch square operating nut. Valves 16" and larger shall be as directed by the Engineer. A bypass shall be required for valves twelve inch and larger or as specified. The bypass valve shall be cast iron body, non-rising stem, with two inch operating nut. The bypass valve shall be two inch for twelve inch valves and as specified by AWWA

I. FIRE HYDRANTS

Fire Hydrants shall conform to AWWA STANDARD C502 and have a 5-1/4 inch main valve opening (MVO), O-ring stem seal, two 2-1/2 inch NST hose nozzle connections and one 4 1/2" pumper connection. Inlet connection shall be six inch flanged. Operating nut shall turn counterclockwise to open and be 1-1/4 inch pentagonal. Unless otherwise designated, cover over pipe shall be 42 inches. Paint hydrant with High Visibility White enamel. Hydrants shall be Iowa, Mueller or approved equal by the Town.

J. VALVE BOXES

Valve Boxes and covers shall be Cast Iron, two (2) piece, equal to Rich Company or Olympic Foundry Company and shall conform to WSDOT/APWA Standards.

K. DETECTOR CHECK VALVE

The detector check assemblies shall be Hersey, Viking, or approved equal and consist of a counter weighted check valve, a metered bypass line, two OS & Y gate valves, and a concrete vault.

The counter weighted check valve shall be UL listed. It shall prevent leakage against the direction of normal flow and be weighted to hold drip tight to a 1.5 psi pressure differential in the direction of flow.

The check valve shall be tapped and a metered bypass line shall be installed as shown on Standard Detail. The tap shall be standard pipe threads and the meter shall be sized as follows:

Valve Size	Meter Size
4"	3/4"
6"	3/4"
8"	3/4"
10"	1'

The check valve shall be painted red with a coal tar enamel paint.

The OS & Y (outside screw and yolk) valves shall be UL listed. They shall be flange by flange and each valve shall have attached one flange by a mechanical joint cast iron adaptor with a cast iron retainer gland. The OS & Y valves shall be painted red with a coal tar enamel paint.

The counter weighted check valve and OS & Y valves shall be sized as indicated on the drawings.

The concrete vault shall be as specified for a meter vault. It shall be sized as indicated on the drawings and in the standard details.

The metered bypass shall be installed by the Contractor.

L. WATER METERS

The size and type of meter shall be specified by the Town. Meters shall conform to AWWA STANDARD C700, C701, C702. C703, and C704 as appropriate. Meter shall be manufactured by Rockwell or as approved by the Town. Meters shall be purchased through the Town.

M. METER SETTER AND RESETTER

Meter setters shall have a copper tube inlet, IP outlet, curbstop with drilled wings for padlock, and be equal to Ford Meter Box Company's "Coppersetter".

Meter resetters shall be compatible with meter, brass and copper with drilled wings for padlock and be equal to Ford Meter Box Company's valve type "Resetter".

N. ANGLE METER STOP

Angle Meter Stop shall have copper tube inlet, swivel nut meter coupling, drilled wings for padlock, equal to Mueller No. H-14255 Lock Wing Angle Type.

O. CORPORATION STOP

Corporation Stop threads shall conform to AWWA C800. Corporation Stop shall be brass with outlet coupling nut for copper service, AWWA thread for insertion directly into water main or service clamp, equal to Mueller No. H-15000.

For 1-1/2 inch and 2 inch tap, Corporation Stop shall have IP inlet and outlet thread equal to Mueller No. H-10013 without coupling.

P. SERVICE CLAMPS

Pipe saddles shall be of galvanized malleable iron, ductile iron or brass with galvanized straps, rubber gasket, equal to Smith-Blair 311 Single Strap and Smith-Blair 313 Double Strap.

For 3/4 inch and 1 inch tap, use a single strap saddle in all sizes with AWWA thread. For 1-1/2 inch to 2 inch tap use double strap saddle in all sizes with IP thread.

Q. CURB STOP

Curb stops shall have solid tee head, copper inlet and IP thread outlet, equal to Mueller H-15316 or Hays 5050 (Copper Pipe).

R. PIPE COUPLINGS

For AC and steel pipe, couplings shall be as specified for type and size of pipe connection. Smith-Blair or approved equal.

Cast or ductile iron pipe shall be coupled with a mechanical joint sleeve. Sleeve shall be long body. Tyler or approved equal.

S. SERVICE PIPE

Copper: Type K, soft annealed copper service pipe.

Polyethylene: Pipe and tubing shall be 160 psi ultra-high molecular weight polyethylene conforming to ASTM D-1248, ASTM D-2239, ASTM D-2737 as applicable. Polyethylene pipe shall be copper tube size (CTS) and cold flared.

T. METER BOX

Meter Box shall be concrete with full steel plate lid, equal to Fog-Tite Meter Seal Co. 1-D, or all cast iron equal to Olympic Foundry Co, or high density plastic when not in any vehicle traffic or parking area.

U. METER VAULT

Meter Vaults shall be pre-cast concrete with concrete top and galvanized steel lid. Minimum inside vault size shall be as shown on the plans. Lid and frame shall be hot dipped galvanized and have a design loading of AASHTO H-20. Lid shall have a spring lock and hinge allowing 180° swing to open. Minimum inside clear opening shall be 34" x 34".

Water tight cement grout shall be placed around all pipe entering or leaving the vault and shall be finished smooth to the full wall thickness.

V. COMBINATION AIR RELEASE & VACUUM VALVE

Combination Air Release and Vacuum Valve shall be furnished with both a large and small orifice. The small orifice shall be a minimum diameter of 3/32". The large orifice shall be the full diameter of the nominal size of the valve. The valve shall have a screwed inlet and outlet and be manufactured by Olympic Foundry, GA Industries, or approved equal. See Standard Detail.

W. HYDRANT GUARD POST

Post shall be six feet long and nine inches in diameter, precast reinforced concrete as manufactured by Fog-Tite Meter Seal Co. or equal. See Standard Detail.

X. VALVE MARKER POST

Post shall be 42 inches long and minimum four inches by four inches above ground dimension, precast reinforced concrete as manufactured by Fog-Tite Meter Seal Co. or equal. See Standard Detail.

Y. CONCRETE BLOCKING

All blocking shall be concrete - ready-mixed. See Detail.

PART IV. CONSTRUCTION STANDARDS

A. CONSTRUCTION PERMITS AND AUTHORIZATION

All construction on water main extensions and distribution system improvements shall be in accordance with the WSDOT/APWA Standard Specifications and DOH standards.

B. TRENCH EXCAVATION

Trenches shall be constructed per OSHA/WISHA requirements.

The trench shall be kept free from water until pipe joining is complete. Surface water shall be diverted so as not to enter the trench. The Contractor shall maintain sufficient pumping equipment on the job to insure that these provisions are carried out. Pump discharge shall be diverted such that downstream properties are not damaged.

The owner shall perform all excavation of every description and of whatever substance is encountered. Boulders, rocks, roots and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth of 6 inches (6") below water main grade. Where material is removed from below water main grade, the trench shall be backfilled to grade with material satisfactory to the Town and thoroughly compacted.

C. PIPE BEDDING.

All pipe bedding for rigid piping (ductile iron, concrete, etc.) See Standard Detail.

Bedding for PVC pipe shall extend at least twelve inches (12") above the crown of the pipe as shown for Class F in.

D. BACKFILLING.

Backfilling and surface restoration shall closely follow installation of pipe, so that not more than 100 feet is

left exposed. If suitable native material, as determined by the Town, is not available from trenching operations, the Town may order the placing of select backfill or some other suitable material in the trench profile. Backfill material shall be placed and compacted above the bedding material and compacted to 95% of the maximum density as determined by ASTM Designation D 1557-66T Method.

a. When other governmental agencies other than the Town have jurisdiction over roadways within the construction area, the backfill and compaction shall be performed to the satisfaction of the agency having jurisdiction.

E. CONSTRUCTION ON EASEMENTS.

All construction on easements shall be performed strictly in accordance with the easement provisions. The contractor is responsible to make himself aware of all conditions pertaining to the easement agreement. No work shall be permitted in easement areas until specifically authorized by the Town. All affected property owners must be notified in writing at least 3 days prior to construction.

F. INSTALLATION OF WATER MAINS

The water main shall be installed as shown on the plans. The exact locations will be staked in the field by the developer at a location approved by the Town. The contractor shall notify the Town at least three working days prior to starting any new section of line. Unless otherwise specified, the minimum cover over the pipe shall be thirty six inches (36").

All nonmetallic water lines (mains and service lines) shall be installed with detectable marking tape. Detectable marking tape placement, material specifications, and color code designation shall conform to the latent edition of WSDOT/APWA Standard Specifications 1991.

Principal fittings, including modifications, shall be staked in the field. Pipe shall be laid to specified grade and alignment. Replacement of stakes lost or destroyed shall be made at the contractor's expense and in accordance with the plans, including modifications approved by the Town.

G. VALVE INSTALLATION

Valve installation shall conform to AWWA STANDARD C600. Valves shall be set vertically on a stable trench foundation so that the pipe will not be required to support the weight of the valve. In no case shall valves be used to bring misaligned pipe into alignment during installation. All valves shall be opened and closed under pressure and show no leakage. A valve box or vault shall be provided for every valve.

H. VALVE BOX INSTALLATION

The valve box shall be installed so as not to transmit shock or stress to the valve and shall be centered over the operating nut. Box cover shall be set flush with pavement and two inches below grade in gravel roads.

I. VALVE VAULT INSTALLATION

Vaults shall be provided for all valves that have exposed gearing or operating mechanisms and installed as shown on plans. Vault structures shall have adequate foundation to prevent settlement on the pipe. All valve operating mechanisms shall be readily accessible through the valve vault opening. Vault covers shall be flush with finished grade or as specified. A two inch drain with grate shall be provided in solid base installations. Place cement grout around all pipe entering vault to prevent entrance of earth and rocks.

J. VALVE MARKER INSTALLATION

Concrete marker posts shall be set for all valves, except auxiliary hydrant valves. The post shall be set at right angles to the road from the valve and shall be situated in a safe and reasonable conspicuous location, normally on the property line. Posts shall be painted with quick-dry High Visibility Blue Enamel No. X-3472 as manufactured by Farwest Paint MFG. Co. Distance to valve shall be neatly stenciled on the post with two inch numerals using black enamel paint. See Standard Detail.

K. CONCRETE BLOCKING

Concrete blocking shall be cast in place and have minimum of 1/4 square foot bearing against the fitting and bearing area against undisturbed.

L. PIPE IN FILLS

Special treatment may be required at the discretion of the Town. This treatment may consist of compacting the backfill in six inch layers, careful choice of backfill materials, use of Mechanical Joint/Restrained Joint Pipe or such other methods that are reasonable and necessary in the opinion of the Town.

M. HIGHWAY CROSSINGS

Highway crossings shall be as shown on the plans. The work shall be done according to the requirements of the Town, State and County Highway Departments and shall be subject to their approval. The Contractor shall give at least two working days notice to the Highway Department before commencing work. Prior to any work on Town streets or right-of-ways, the Public Works Director must be notified in writing and approved by the Public Works Director.

Normally, highway crossings require the placing of a steel, or concrete pipe casing by jacking or tunneling and laying the water main within this casing. In case of tunneling, subsequent low pressure grouting through the pavement may be required. In "open cut" situations the ditch shall be backfilled with crushed rock and compacted to avoid settlement.

N. CONNECTION TO EXISTING WATER MAINS

Connections and live taps will be made by the contractor and supervised by the Town. The Contractor will notify the Town at least three (3) working days prior to the time he desires the work done. The hours selected for cut-in or connection to existing mains shall be subject to the approval of the Town.

Cut-ins on six inch diameter pipe and smaller shall be made with mechanical joint sleeves, cast iron tee and flanged valve. Connections to eight inch diameter pipe and larger shall be made with a tapping sleeve and valve. See Standard Details.

O. SERVICE CONNECTIONS

Service connections shall be protected during construction. Connection to new mains will be made by the Contractor unless otherwise specified.

Connections shall be installed with pipe saddles on asbestos cement and steel pipe and by direct tap into ductile iron pipe except where connections 1 1/2 inch and larger are made to ductile iron pipe in dimensions six inches and less. In this case saddles shall be used.

P. CLEARING AND GRUBBING

Within the clearing limits set forth on the drawings, all trees, stumps, brush, logs, fences, upturned stumps and roots of down trees and other similar items shall be removed and disposed of, except as otherwise shown, specified or directed. The Contractor shall be responsible for keeping the clearing operations within the designated limits. No work shall be done outside of the designated clearing limits.

No firewood shall be removed from the construction site without written permission from the land owner. The refuse resulting from the clearing operation shall be hauled to a waste site secured by the Contractor and shall be disposed of in such a manner as to meet all requirements of State, County and municipal regulations regarding health, safety, and public welfare. When authorized by the proper fire authorities, the Contractor may dispose of such refuse by burning on the site of the project provided all requirements set forth by the authorities are met.

In all cases, the authority to burn shall not relieve the Contractor in any way from damages which may result from his operations. In no case shall any material be left on the project, shoved into abutting private properties, or be buried in embankments or trenches on the project.

The Contractor shall be responsible for all damages to existing improvements or conditions resulting from his operations.

All plants, trees, shrubs and other planting in landscaped areas shall be salvaged or replaced, as directed by the Town.

Q. RESTORATION AND CLEAN-UP

The areas disturbed by construction shall be graded to resemble the original contours except as otherwise shown and shall present a uniform appearance.

In residential areas, the Contractor shall restore the site of construction as directed by the Town. This restoration will generally include replacing disturbed

lawn either by replacing sod or reseeding, replanting shrubs removed during construction, replacing any other items or fixtures disturbed by the Construction and restoring the site to its original, pre-construction condition.

The Contractor shall, as directed by the Town, remove at his own expense from all public and private property, all temporary structures, rubbish and waste materials resulting from his operation. This requirement shall no apply to property used for permanent disposal of rubbish or waste materials in accordance with permission of such disposal granted to the Contractor by the owner thereof.

R. HYDROSTATIC TESTS

Except as specified herein, hydrostatic tests shall be in accordance with AWWA C600. Prior to acceptance of the work, the installation shall be subject to a pressure test of 200 psi or static pressure plus 100 psi at the lowest elevation, whichever is greater. A leakage test shall be conducted concurrently with the pressure test. Test pressure shall not vary by more than $\pm$5 psi.

Any leaks or imperfections developing under said pressure shall be remedied by the Contractor before final acceptance of the work. Leakage shall be measured by approved means. Test pressure shall be maintained while the entire installation is inspected. The Contractor shall provide all necessary equipment and shall perform all work connected with the test. Blocking shall be in place at the time of testing. Insofar as is practical, tests shall be made with pipe joints, fittings and valves exposed for inspection. Not more than 2,000 feet of line shall be left exposed for testing at any one time, except by permission of the Town.

The cost of the Hydrostatic test shall be included in the price quoted for the installation of pipe.

Allowable leakage per 1,000 feet of pipe - gallons per hour (gph): (18 foot pipe lengths, 200 psi test pressure)

2" - 0.21 gph	8" - 0.85 gph	14" - 1.48 gph
4" - 0.43 gph	10" - 1.06 gph	16" - 1.48 gph
6" - 0.64 gph	12" - 1.28 gph	18" - 1.91 gph

S. STERILIZATION AND FLUSHING OF WATER MAINS

Disinfection procedures shall be in accordance with AWWA STANDARD C651. Dry calcium hypochlorite granules may be

used subject to the approval of the Town, and shall be in accordance with the following procedure:

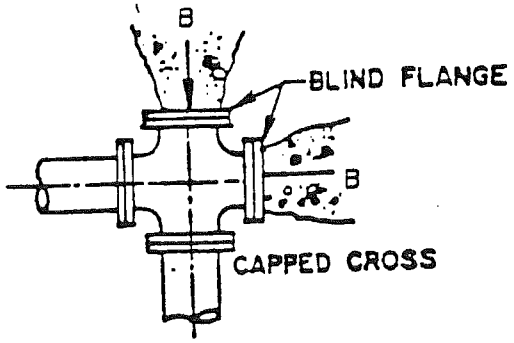
As each length of pipe is laid, sufficient high test calcium chlorite (65-70% chlorine) shall be placed in the pipe to yield a dosage of not less than 50 ppm available chlorine, calculated on the volume of water which the pipe and appurtenances will contain. (The amount of 65% test calcium hypochlorite required per 18-foot length of 12 inch diameter pipe is one ounce). Where this procedure is followed, flushing shall be done after disinfection.

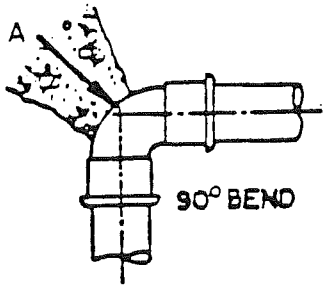
Dry calcium hypochlorite tablets may be used subject to the approval of the Town, and use shall be in accordance with the procedure detailed in AWWA Standard C651-86.

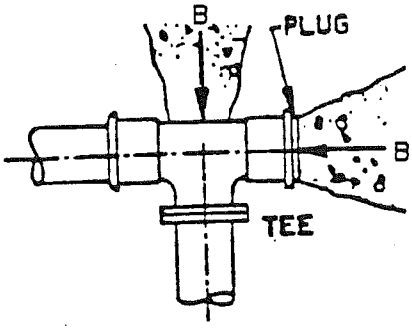
Water samples shall be taken for approval to the local health agency by the Town. The Contractor shall exercise special care in flushing to avoid damage to surrounding property.

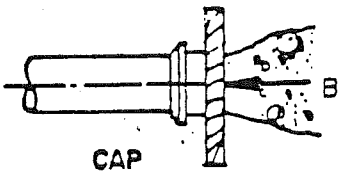
INDEX OF WATER STANDARD DETAILS

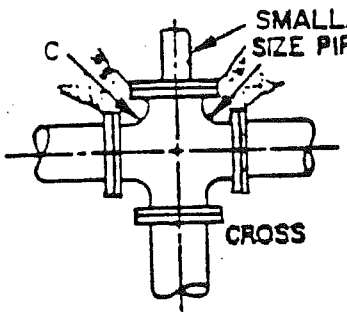
FOR THE TOWN OF EATONVILLE

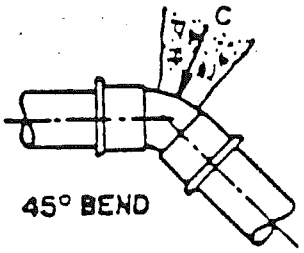


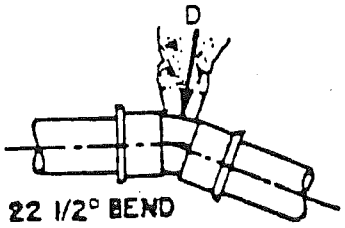


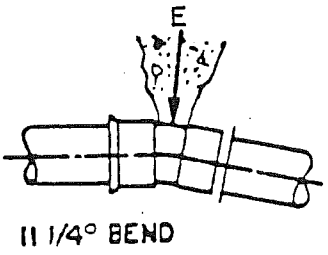












NOTES:

SEE THRUST BLOCK TABLE

PROVIDE POLYETHYLENE SHEETING TO COVER BOLTS AND JOINTS FOR DISMANTLING.

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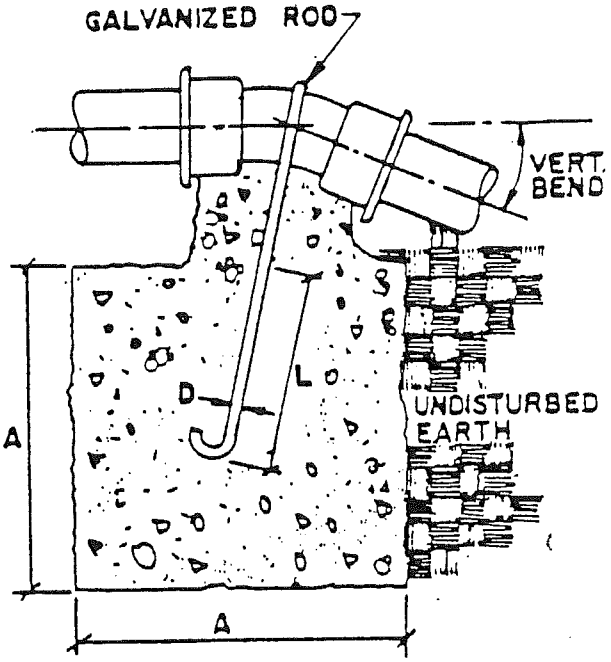
DATE	REVISION	BY	APPR'D

CONCRETE BLOCKING
HORIZONTAL

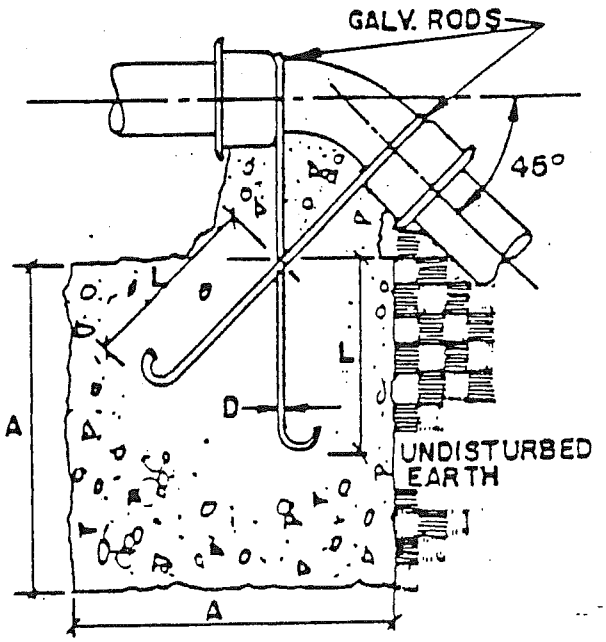
FOR 11 1/4°, 22 1/2°, 30° BENDS

PIPE SIZE	V B	CU FT	A	D	L
4"	11 1/4° 22 1/2° 30°	8 11 17	2.0' 2.2' 2.6'	3/4"	1.5' 2.0'
6"	11 1/4° 22 1/2° 30°	11 25 41	22' 2.9' 3.5'	3/4"	2.0'
8"	11 1/4° 22 1/2° 30°	16 47 70	2.5' 3.6' 4.1'	3/4" 3/4"	2.0' 2.5'
10"/12"	11 1/4° 22 1/2° 30°	32 88 132	3.2' 4.5' 5.1'	3/4" 7/8"	2.0' 3.0'



VERTICAL BLOCKING
FOR 11 1/4°, 22 1/2° & 30° BENDS

VERTICAL BLOCKING FOR 45° BENDS					
4"	45°	30	3.1'	3/4"	2.0'
6"		68	4.1'		
8"		123	5.0'		
10"/12"		232	6.1'	3/4"	2.5'



VERTICAL BLOCKING
FOR 45° BENDS

NOTE: CONCRETE BLOCKING BASED ON 200 PSI PRESSURE AND 2500 PSI CONCRETE

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CONCRETE BLOCKING VERTICAL

THRUST BLOCK - TABLE
Min. Bearing Area Against Undisturbed Soil
Square Feet

Pipe Size	A(ft.^{2})	B(ft.^{2})	C(ft.^{2})	D(ft.^{2})	E(ft.^{2})
4"	3	2	2	2	2
6"	4	4	2	2	2
8"	7	6	4	2	2
10"	11	10	6	3	2
12"	16	14	9	5	3

Notes:

1. Bearing area of concrete thrust - block based on 200 psi pressure and safe soil bearing load of 2,000 pounds per square foot.
2. Areas must be adjusted for other pipe sizes, pressures and soil conditions.
3. Concrete blocking shall be cast in place and have a minimum of 1/4 square foot bearing against the fitting.
4. Block shall bear against fittings only and shall be clear of joints to permit taking up or dismantling of joint.
5. Contractor shall install blocking adequate to withstand full test pressure as well as to continuously withstand operation pressure under all conditions of service.

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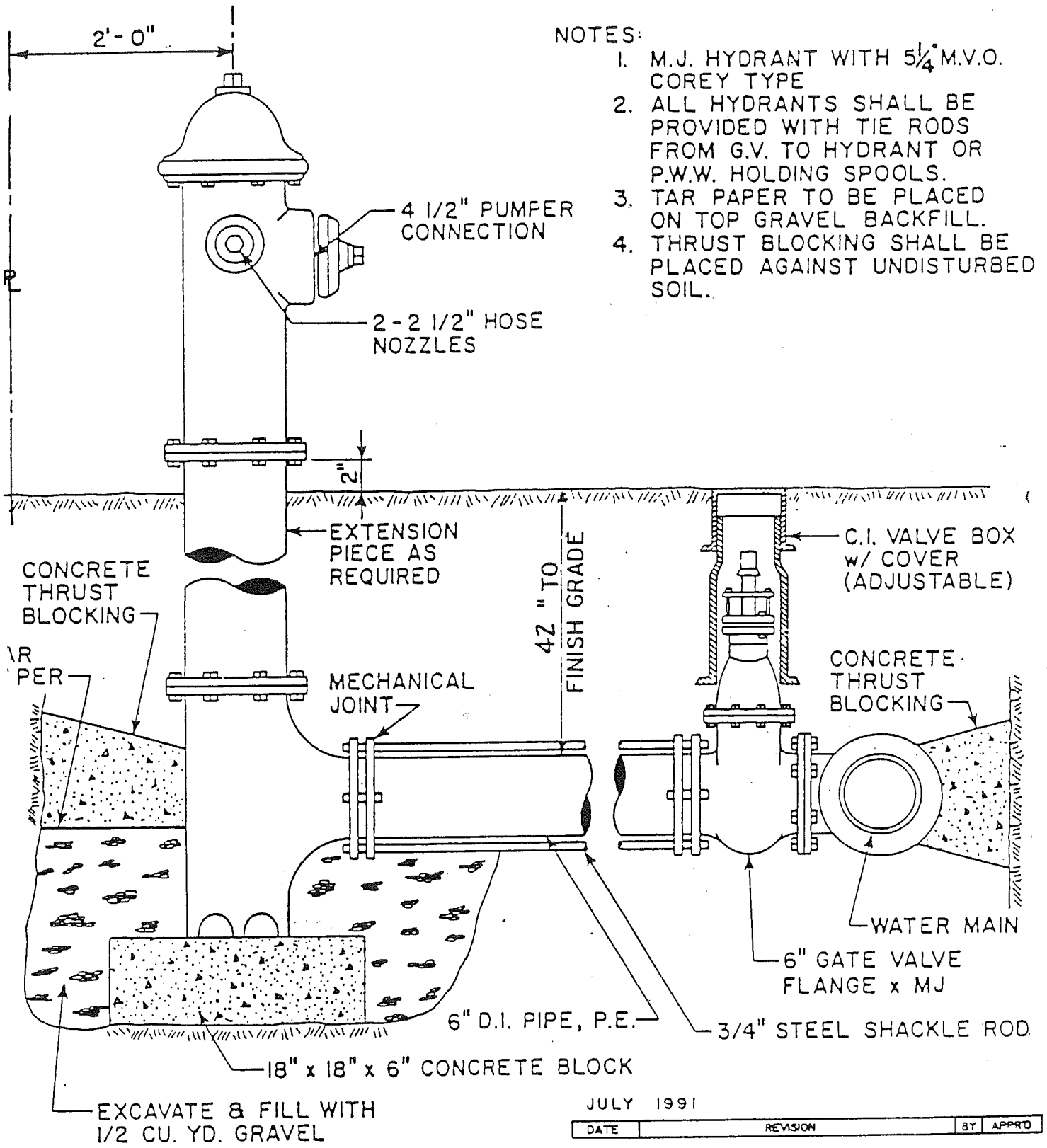

NOTES:

1. M.J. HYDRANT WITH 5¼" M.V.O. COREY TYPE
2. ALL HYDRANTS SHALL BE PROVIDED WITH TIE RODS FROM G.V. TO HYDRANT OR P.W.W. HOLDING SPOOLS.
3. TAR PAPER TO BE PLACED ON TOP GRAVEL BACKFILL.
4. THRUST BLOCKING SHALL BE PLACED AGAINST UNDISTURBED SOIL.

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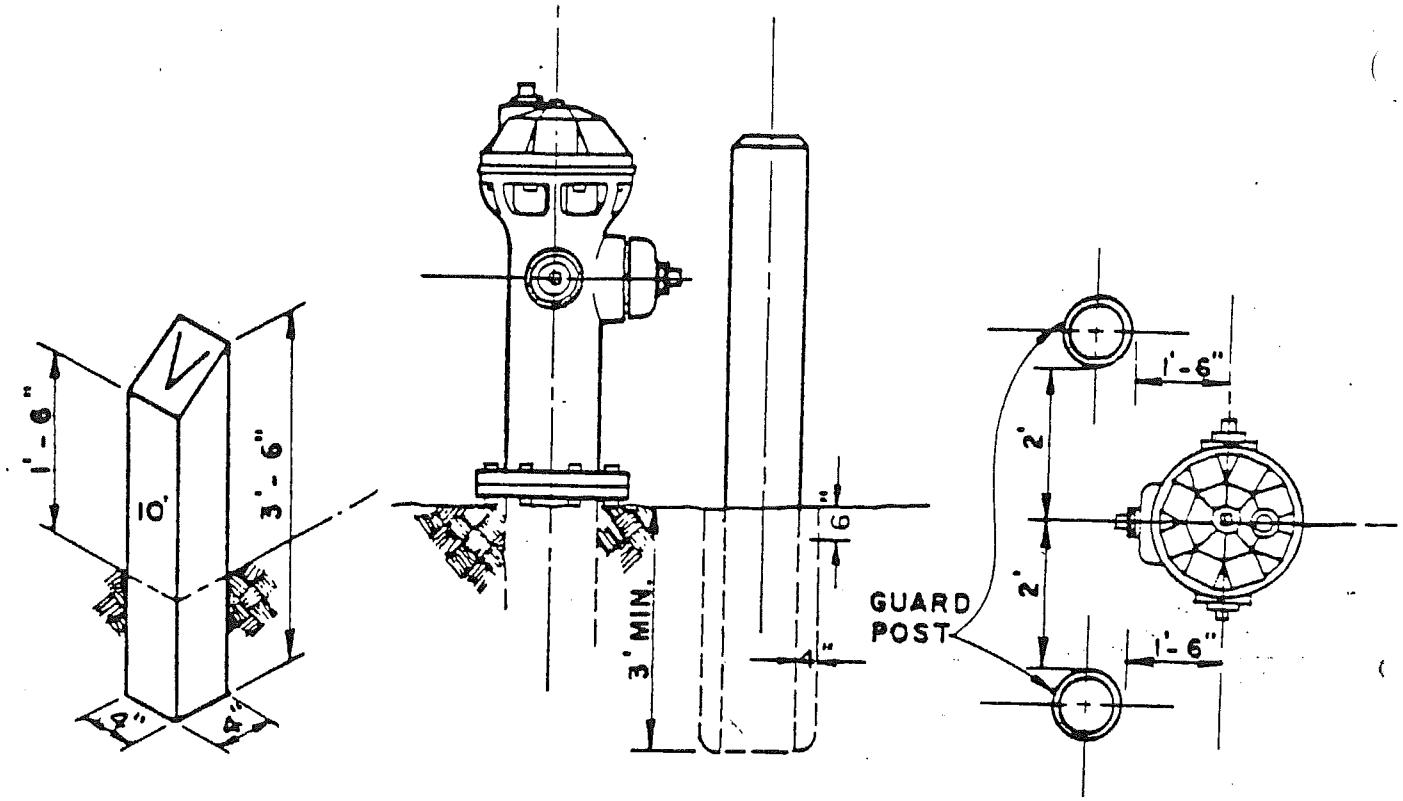
SHACKLE RODS SHALL BE CLEANED AND GIVEN 1 COAT OF AN APPROVED PRIMER (RED LEAD OR ZINC CHROMATE) AFTER CUTTING AND BEFORE INSTALLATION. AFTER INSTALLATION RODS SHALL BE PAINTED WITH ONE COAT OF AN APPROVED BITUMINOUS PAINT.



VALVE MARKER POST

FIRE HYDRANT- GUARD POST

ELEVATION

PLAN

CONCRETE BACKFILL TO 6" FROM GROUND WHERE SPECIFIED EARTH BACKFILL COMPACTED IN 6" LAYERS ELSEWHERE.

NOTES:

GUARD POST SHALL BE 6' LONG AND 9" IN DIAMETER PRECAST CONCRETE AS MANUFACTURED BY FOG-TITE METER SEAL CO. OR EQUAL. PAINT POST WITH HIGH VISIBILITY ~~YELLOW~~ ENAMEL ~~NO-X-3472~~ AS MANUFACTURED BY FARWEST PAINT MFG. CO.

VALVE MARKER POST SHALL BE MINIMUM 42" LONG PRECAST CONCRETE AS MANUFACTURED BY FOG-TITE METER SEAL CO. OR EQUAL. PAINT POST WITH HIGH VISIBILITY BLUE AS MANUFACTURED BY FARWEST PAINT MFG. CO. NEATLY STENCIL DISTANCE TO VALVE ON POST WITH 2" NUMERALS USING BLACK ENAMEL PAINT.

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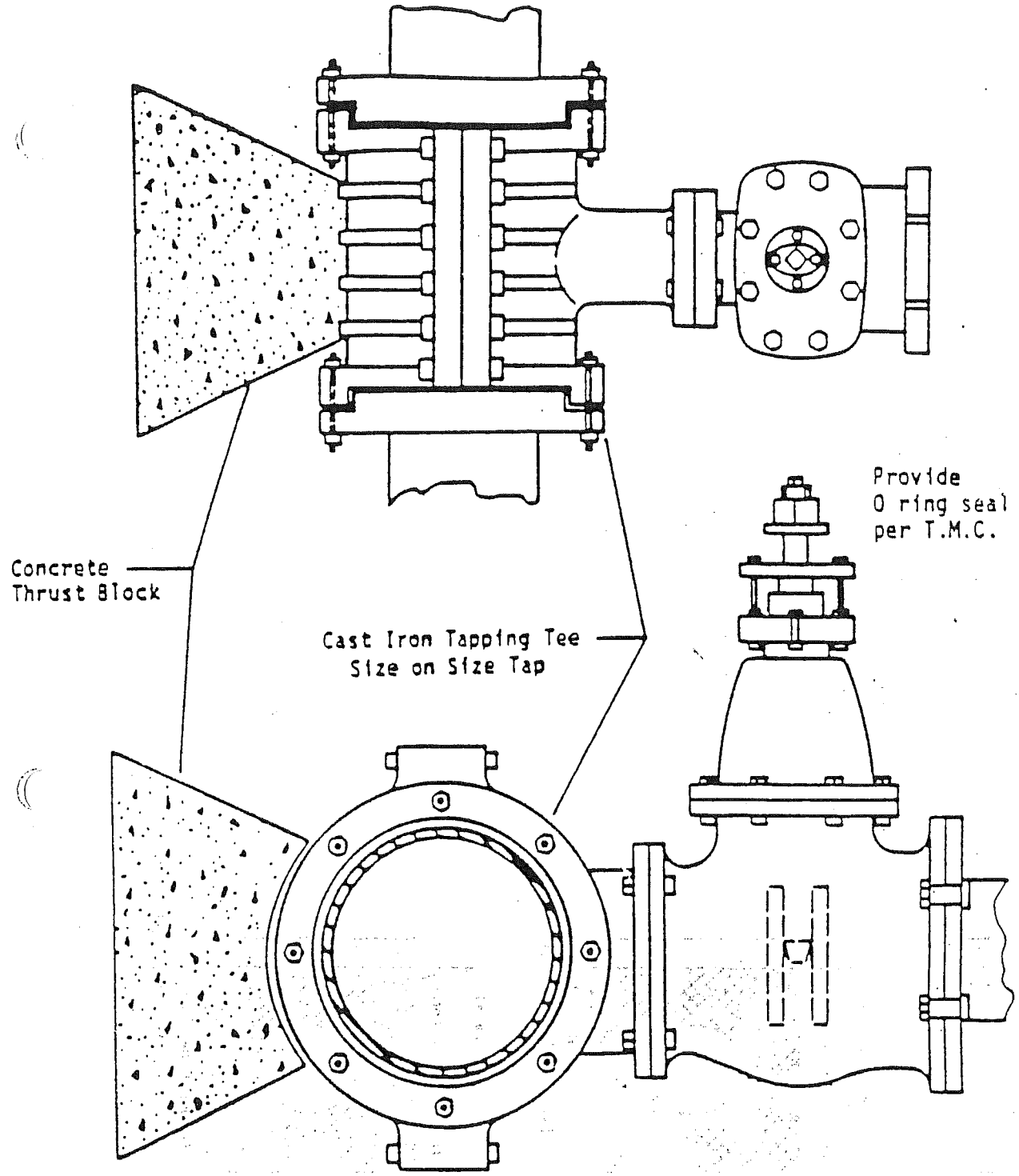

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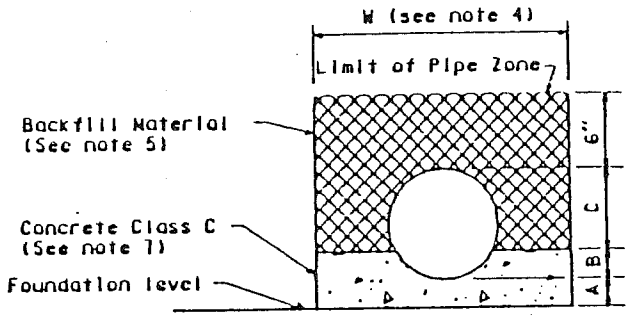
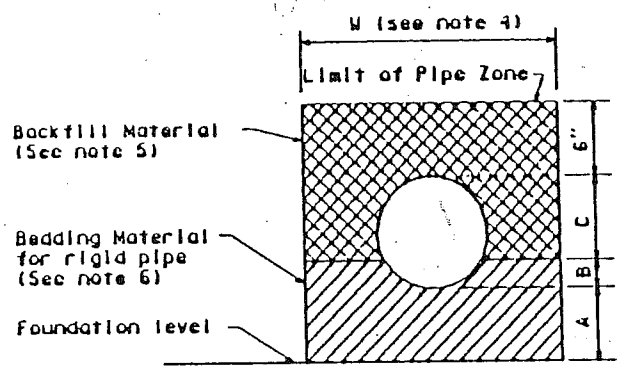
NOTE:
FOR TAPS ON CEMENT LINED, ASBESTOS CEMENT, CAST IRON OR SIZE ON SIZE UP TO AND INCLUDING 12" I.D.

WET TAP ASSEMBLY

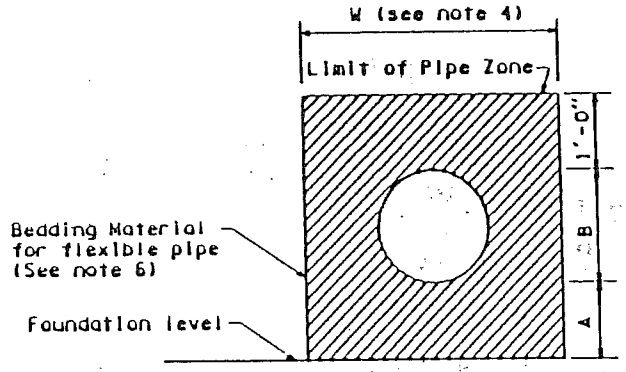


(Class A design)



(Class B, C, D design)

BEDDING FOR RIGID PIPE IN TRENCHES



(Class F design)

BEDDING FOR FLEXIBLE PIPE IN TRENCHES

NOTES:

1. Provide uniform support under barrel.
2. Hand tamp under haunches.
3. Compact bedding material to 95% MAX density except directly over pipe, hand tamp only.
4. See Sec. 7-17.3(1) for trench width "W" and trenching options. The pipe zone will be the actual trench width, except for class A bedding, the minimum concrete width shall be 1½ I.D. + 18". (APWA/WSDOT)
5. Trench backfill shall conform to Sec. 7-17.3(3), except that rocks or lumps larger than 1" per foot of pipe diameter shall not be used in the backfill material. (APWA/WSDOT)
6. See section 9-03.15.16 of the Standard Specifications for material specifications. (APWA/WSDOT)
7. Pipe must be anchored in such a manner as to ensure flow line is maintained.

	BEDDING CLASS DESIGN				
DIMENSION	CLASS A	CLASS B	CLASS C	CLASS D	CLASS F
A	4" MIN ¼ I.D. 12" MAX	*	*	Zero	*
B	¼ O.D.	½ O.D.	⅛ O.D.	Zero	O.D.
C	¾ O.D.	½ O.D.	⅛ O.D.	O.D.	-

* A = 4" MIN, 27" I.D. and under
6" MIN, over 27" I.D.

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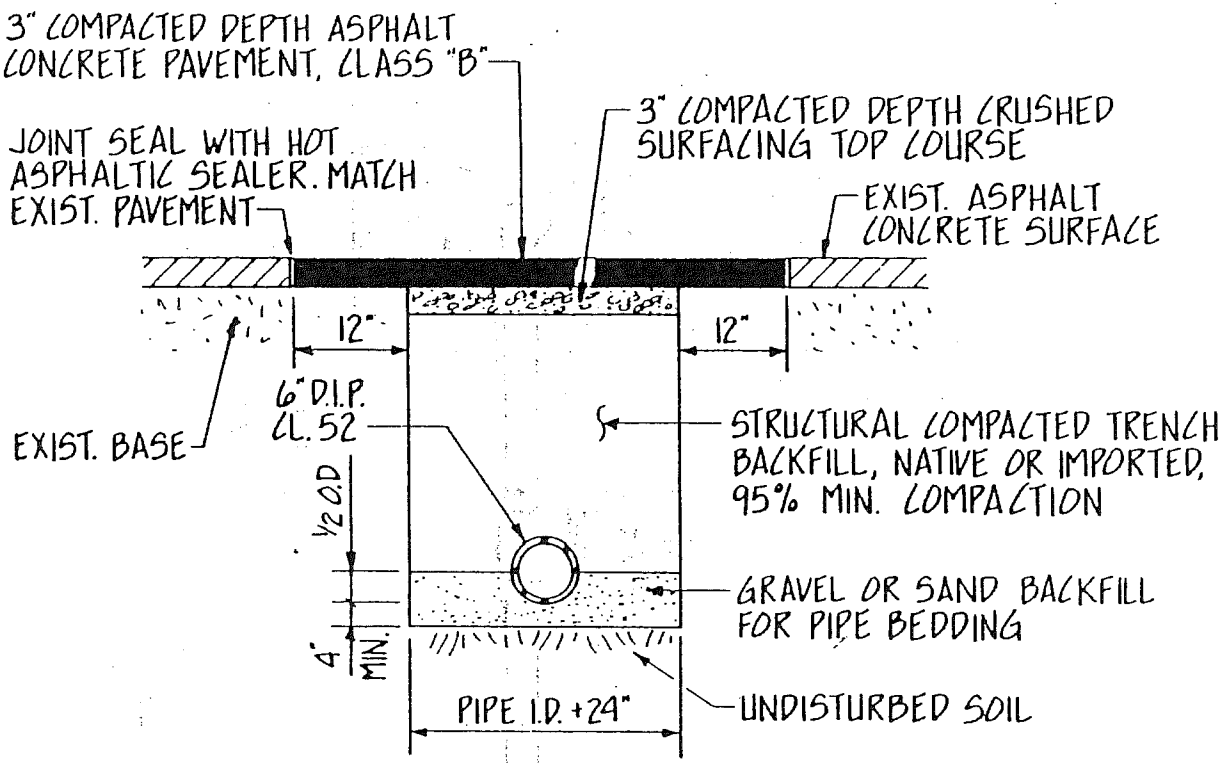
PIPE TRENCH



TRENCH DETAIL / A.C. PAV'T. SECTION

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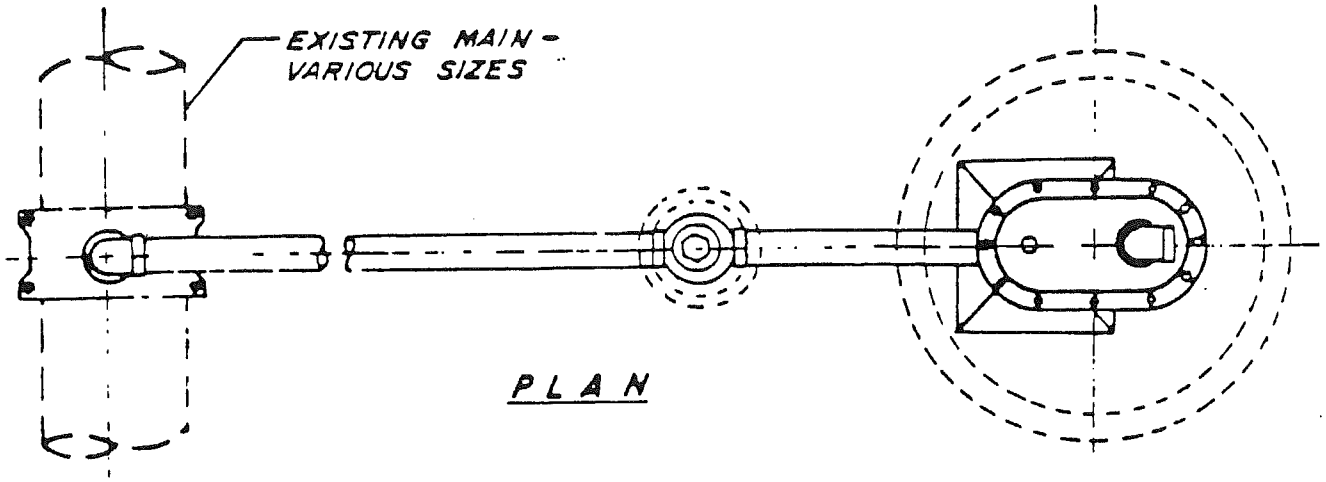
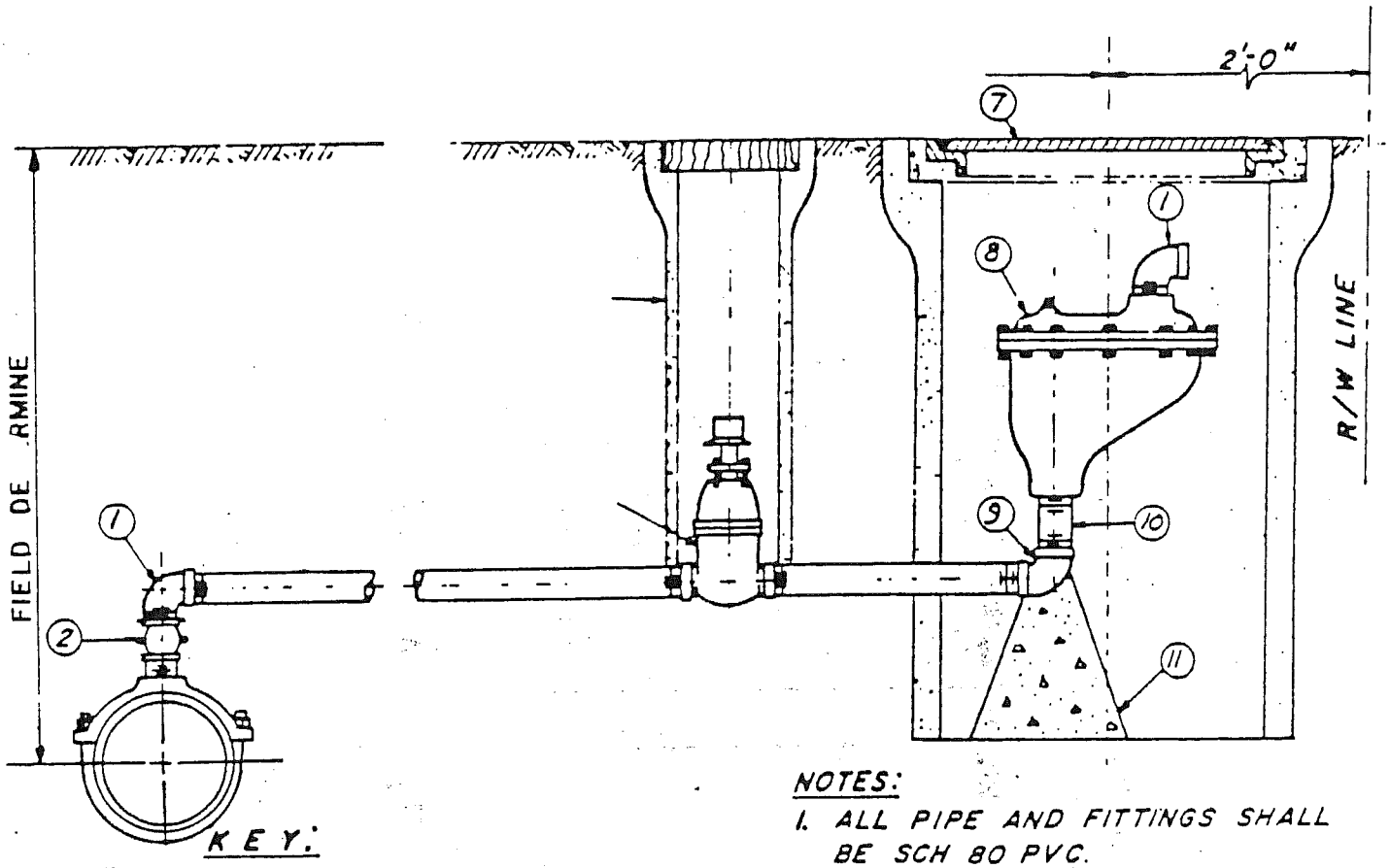


PLAN



KEY:

1. 1" STREET ELL
2. 1" CORPORATION STOP, FORD OR EQUAL
3. DOUBLE STRAP SERVICE CLAMP
4. 1" GATE VALVE, AWWA, WITH OPERATING NUT
5. CAST IRON VALVE BOX
6. 21" CONC. SEWER PIPE
7. 18" SIDEWALK MANHOLE COVER WITH SOLID LID
8. 1" AIR & VACUUM RELEASE VALVE, APCO OR EQUAL
9. 1" ELBOW
10. 1" NIPPLE
11. CONC. SUPPORT

NOTES:

1. ALL PIPE AND FITTINGS SHALL BE SCH 80 PVC.

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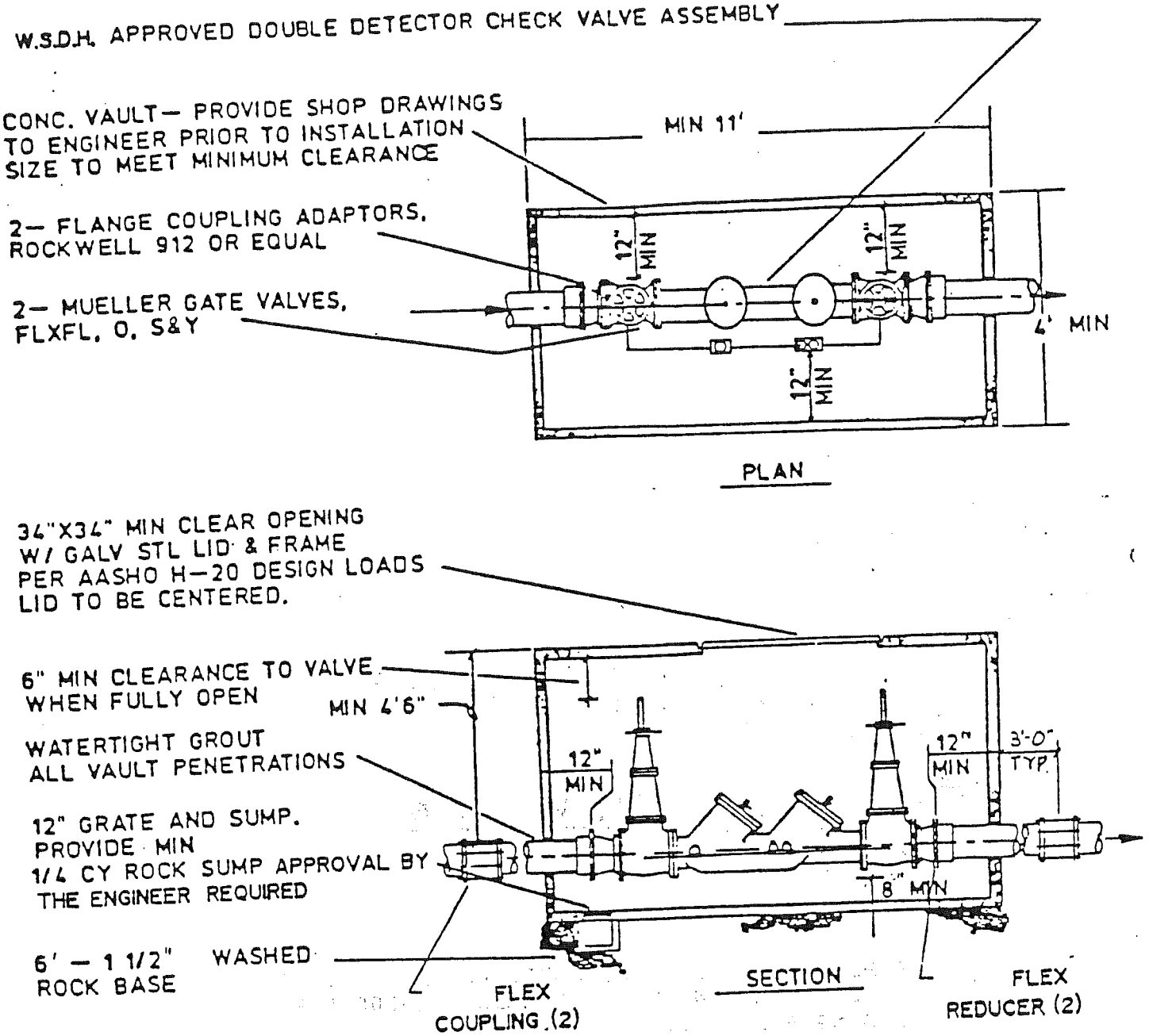
AIR AND VACUUM
RELIEF VALVE ASSEMBLY



NOTES:

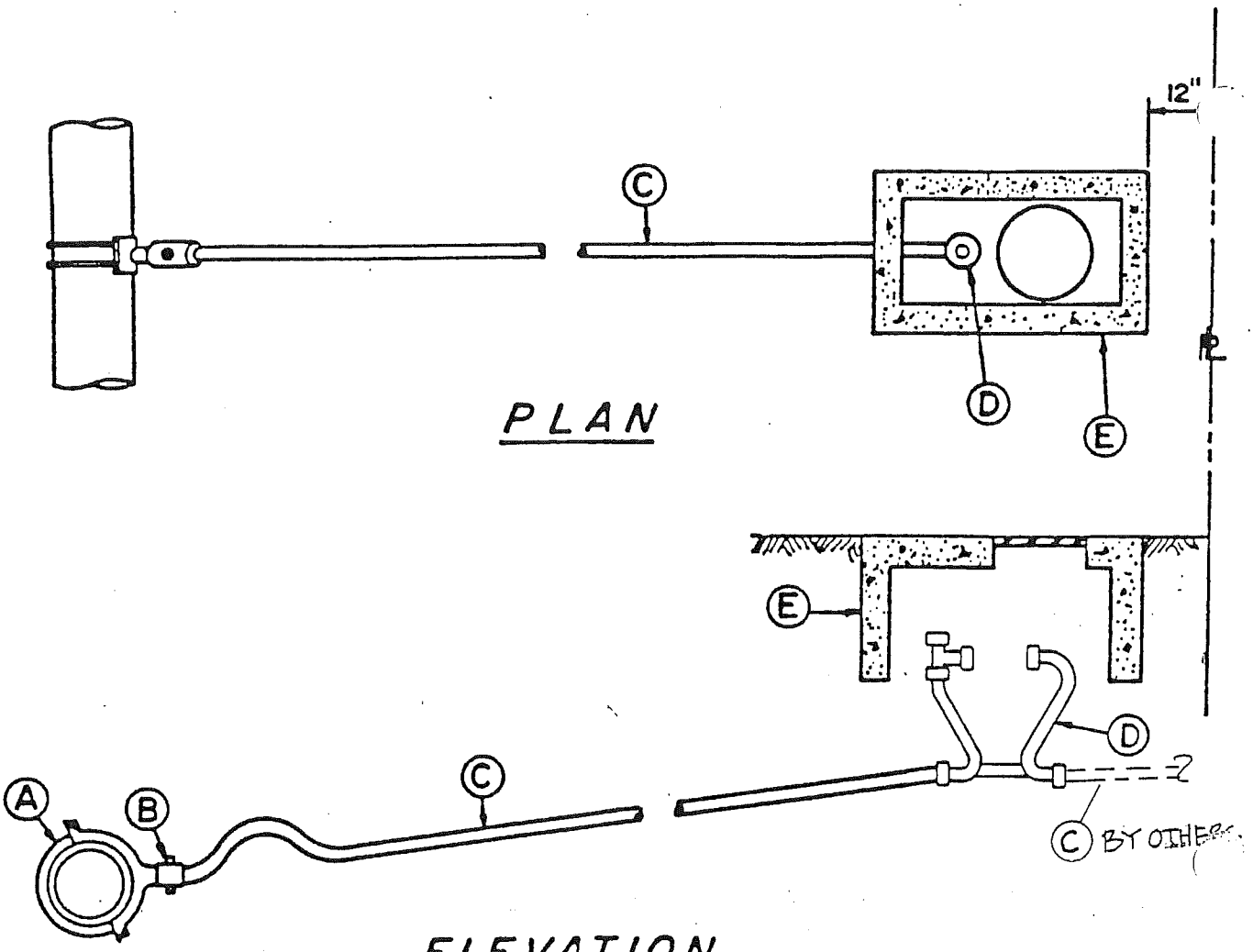
1. SLOPE PAVEMENT AWAY FROM COVER WHEN VAULT IS IN TRAFFIC AREA.

2. BYPASS METER TO READ IN CUBIC FEET.

DETECTOR CHECK TYPE-1 DETAIL

JULY 1991

DATE	REVISION	BY	APP'D



Ⓐ PIPE SADDLE, 1" TAP, SMITH BLAIR # 313 OR EQUAL

Ⓑ 1" CORPORATION STOP, MUELLER H-15208 FOR 1" O.D. TUBING & 1" I.P. THD.

Ⓒ HIGH MOLECULAR WEIGHT POLYETHYLENE-PHILLIPS DRISCOPIPE # 5100-SDR 9, ASTM D-1248, D2737 (1" O.D. TUBING)

Ⓓ 3/4" WATER METER SETTER, MUELLER H-1404-2 WITH (2) 14227 (FOR 5/8" X 3/4" METER) RISER HEIGHT = 18" MIN.

Ⓔ CONC. METER BOX, FOG TITE # B-9½ OR EQUAL.

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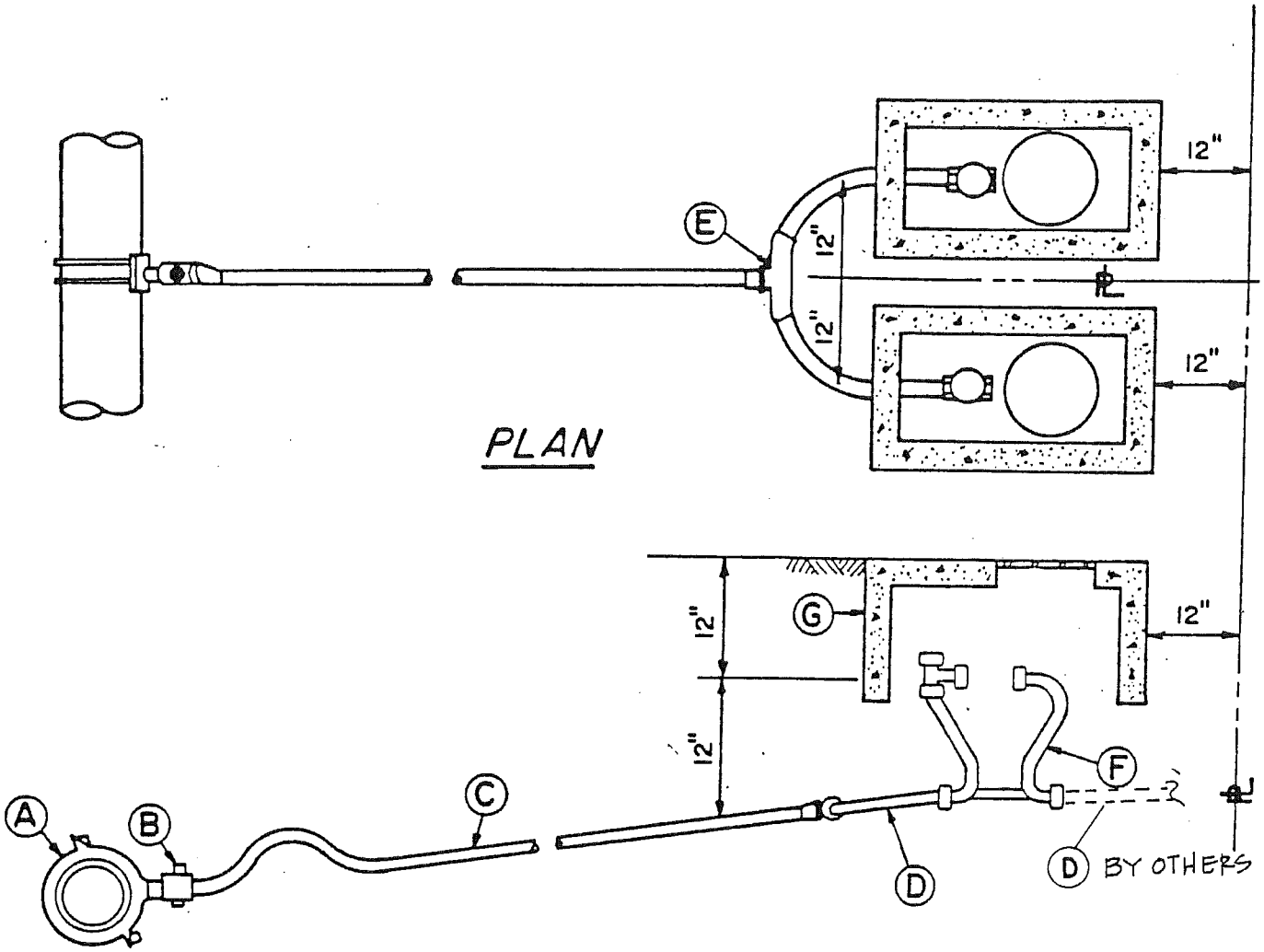


PLAN

ELEVATION

Ⓐ PIPE SADDLE, 1' TAP, SMITH BLAIR #313 OR EQUAL

Ⓑ 1" CORPORATION STOP, MUELLER H-15028, FOR 1" O.D. TUBING & 1" I.P. THD.

Ⓒ HIGH MOLECULAR WEIGHT POLYETHYLENE PHILLIPS DRISCOPIPE # 5100 - SDR 9, ASTM D-1248, D-2737 (1" O.D. TUBING)

Ⓓ SAME AS "C"

Ⓔ SERVICE TEE 1" WITH COMPRESSION FITTING ADAPTORS (FOR 1" O.D. TUBING)

Ⓕ 3/4" WATER METER SETTER, MUELLER H-1404-2 WITH (2) 14227 (FOR 5/8" X 3/4" METER) RISER HEIGHT = 18" MIN.

Ⓖ CONC. METER BOX, FOG TITE # B-9½ OR EQUAL

JULY 1991

DATE	REVISION	BY	APPR'D

TOWN OF EATONVILLE

PUBLIC WORKS SEWER DEVELOPMENT

AND CONSTRUCTION STANDARDS

DENNIS STRANIK, MAYOR

COUNCIL MEMBERS

KIRK HEINZ
KENNETH KILDAHL
KEITH MALCOM
BRUCE MORRIS
ROY SWANSON

PREPARED BY

WHITACRE ENGINEERS, INC.

PART 1. GENERAL REQUIREMENTS

A. PURPOSE OF STANDARDS

These specifications are the minimum standards acceptable to the Town of Eatonville for sanitary sewer collection systems. The procedures and requirements described herein apply equally to sewers which are privately owned (side sewers, private mains) as well as to public systems (mainline extensions). On-site sewage disposal systems (septic tank and drainfield systems) where used shall conform to Pierce County Standards and shall be approved through the Tacoma-Pierce County Health Department, On-Site, Sewage Section.

B. SCOPE OF STANDARDS

All property owners within the Town, within the area served by the sewerage system of the Town, are required and shall be compelled to connect their private wastewater drains and sewers with the sewerage system of the Town. It is unlawful for any property owner to fail or refuse to make connections.

C. DEFINITIONS

These definitions are a supplement to Section 13.14 of the Town of Eatonville Municipal Code.

WSDOT/APWA STANDARD SPECIFICATIONS. Shall have reference to Standard Specifications for Road, Bridge and Municipal Construction prepared jointly by the Washington State Department of Transportation and the Washington State Chapter of American Public Works Association, most current edition as adopted by the Town.

COMMERCIAL AND INDUSTRIAL SEWAGE SERVICE. Sewage collection and/or sewage disposal service furnished, or available to the use or premises used or engaged in the selling, manufacturing, processing, and/or dispensing of products or services, or otherwise catering to the public.

CROSS-CONNECTION. Any physical arrangement whereby a public water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture or other device which contains or may contain contaminated water, sewage or other wastes or liquids of unknown or unsafe quality, which may be capable of imparting contamination to a public water supply as a result of backflow.

DOE. Washington State Department of Ecology.

DOH. Washington State Department of Health.

HEALTH OFFICER. The Director of Public Health of the Tacoma-Pierce County Health Department or his duly authorized representative.

MUTCD. Manual Uniform Traffic Control Devices, prepared by the Washington State Department of Transportation, latest edition.

SANITARY SIDE SEWER. A sanitary sewer laid generally perpendicularly from a main sanitary sewer in a public right-of-way to the property line of the property to be served by the sewage collection and/or sewage disposal service.

SEWAGE COLLECTION SYSTEM. The collection and carrying of sewage through the Town's system of sanitary sewers.

SEWAGE DISPOSAL SERVICE. The disposition of sewage by purification in a sewage treatment plant.

D. DEVELOPER EXTENSION AGREEMENTS

1. When extension of the existing sewer system is required for service, a developer extension agreement shall be entered into between the owner and the Town.

2. Developer's agreement shall be approved by the Mayor prior to issuance of any permits.

3. To initiate the developer extension process, the owner must submit an application for utility permits along with property legal description and six sets of site improvement plans. Upon completion of design review by the Town, an approved design plan and specification and a pre-construction letter of requirements will be sent to the owner. The owner shall resubmit plans for final approval, if required. The contractor shall work from the Town approved plan only. After completion of construction, turnover documents, including as-built plans, will be provided to the Town along with a request for turnover of the constructed public facilities. These proposed public facilities will be accepted by the Mayor, and if rejected, will remain the sole property and maintenance responsibility of the developer. The turnover of proposed public facilities is not tied to the certificate of occupancy, and remains the sole

responsibility of the developer to provide the necessary documentation to allow consideration for such turnover through the Town's elected and appointed officials.

4. Developer extension projects shall be deeded to the Town for maintenance and operations by bill of sale.

5. The developer is required to bond the project at 50% of the total construction cost for one (1) year after acceptance.

E. CONNECTION CHARGES

All property benefitting from existing sewer facilities shall pay the following applicable connection charges, at the current rates, as specified in the Town of Eatonville Sewer Ordinance.

1. Permit: Plan/Inspection fee charge

2. Regular connection charge

3. Special connections charges for the development's contribution to the Town's mains.

To determine these fees, an owner is required to supply a legal description of the property to the Public Works Department with the plan submittal.

F. LATECOMER'S AGREEMENT AUTHORIZED:

1. The Town may enter into agreements with property owners who have installed sewer mains and appurtenances in order to provide for the reimbursement to owners of a fair pro-rata share of any real estate who have not contributed to the original cost of such facilities and who subsequently connect to the sewerage system or use same.

2. Such agreements shall be entered into at the time of or before the acceptance of the sewerage system by the Town. The Town shall determine the pro-rata share in one payment from the benefitting properties, based on a cost determined at the time of acceptance of the facility. Fifteen percent (15%) charge for administrative costs at the time of application for service shall be applied for the handling of this assessment.

PART II. SANITARY SEWERAGE SYSTEM DESIGN STANDARDS

A. GENERAL

All sanitary sewerage systems, whether public or private, shall conform to the design standards described herein as well as the standards of the Washington State Department of Ecology, the Washington State Department of Health and the Tacoma Pierce County Health Department. DOE's "Criteria for Sewage Works Design" (published in 1978; revised 1980) sets forth guidelines and standards of applicable minimum requirements for sewer systems.All related Town of Eatonville code and ordinance requirements shall be met in the design and construction of any element of the sewerage system including **Chapter** 13 of the Eatonville Municipal Code and standards outlined in this development and construction manual.

B. COMPREHENSIVE SEWERAGE PLAN

The Town of Eatonville has developed or will develop a Comprehensive Sewer Plan to allow for the orderly and cost effective development of sewerage facilities to serve existing and future users of the Eatonville sewer system.

One element of the Comprehensive Plan is a map of proposed sewer extensions to service areas presently without sewers. The comprehensive plan of proposed extensions indicates the general location of interceptor and trunk sewers, intended to provide the framework for the collection system for upgrading deficient sewerage systems and for potential future service areas. All proposed sewer improvements and extensions shall be consistent with the Comprehensive Sewer Plan.

C. SERVICE AREA CONSIDERATIONS

All sewer extensions shall be designed for the ultimate development of the potential service area in accordance with current land use plans and the Comprehensive Sewer Plan. The determination of the tributary area shall be based on the Comprehensive Sewer Plan adopted by the Town and specific detailed studies of the areas affected.

New sewer systems shall be designed on the basis of per capita flows or other methods as approved by the Town and DOE. Detailed design calculations and service area maps shall be required for the system design. Said calculations shall be certified by a professional engineer.

Special consideration must be given to sanitary sewer extensions for industrial districts. The potential for pre-treatment requirements, excessive sewage flows or special flow metering or sampling requirements must be consideration prior to industrial sewer collection system designs.

D. EXTENT OF SEWER IMPROVEMENTS

In general, a developer shall be required to extend the sanitary sewer improvements to the extreme boundary of his property in accordance with the comprehensive plans. The extension shall be of size and grade to be extended in the future as required by the plan. In cases where the plan does not require future extension, the sewer shall be extended as required to serve the affected property.

In cases where required extension of the sewer is beyond the needs for the development, and other berefitting properties can be identified, the developer may be able to arrange through a developer's agreement for partial reimbursement at the time of other developments. Any such arrangement must be agreed to in writing through the Town prior to acceptance of the system as public through the Town Council and/or Mayor.

E. EASEMENTS

Permanent easements for mainline sewer systems shall be a minimum of 10 feet wide. Construction easements shall not be less than 20 feet wide. Easement legal descriptions shall be prepared by a surveyor or engineer licensed to practice in the State of Washington. Easement legal descriptions shall be reviewed and approved by the Town prior to acceptance. Only the Mayor or Town Council accepts new facilities for the public.

F. SYSTEM REQUIREMENTS

1. PIPE DIAMETER - MAINS. The minimum size of sanitary sewer mains to be accepted by the Town shall be eight inches (8") in diameter. Larger diameter sewers shall be required where indicated in the comprehensive plan or where design studies indicate larger sizes are required to adequately convey sewage.

2. PIPE DIAMETER - SIDE SEWERS. All commercial side sewers shall be a minimum diameter of six inches (6"). All single residential side sewers shall be a minimum of four inches (4").

3. SEWER MAIN DEPTH. All sewer mains shall be buried deep enough to provide adequate depth to service the lowest fixtures in the properties served and to provide structural protection of the pipe. In any case, the minimum depth of cover for a sewer in street right-of-way is three feet (3'). Greater depths may be required to maintain minimum manhole depths.

4. ROUGHNESS COEFFICIENT. An 'n' value of 0.013 shall be used in Manning's formula for the design of all sewer facilities.

5. SEWER SLOPES. All sanitary mains shall be designed and constructed to give mean velocities, when flowing at the maximum rated flow per the designed flow from the service area of not less than 2.0 feet per second. The following minimum slopes should be provided; however, slopes greater than these are desirable. Steeper slopes will give higher velocities which reduce maintenance, especially in sewers not running full.

SEWER SIZE (INCHES)	MINIMUM SLOPE (FEET PER 100 FEET)
4(Side Sewer only)	2.00
6	0.60(Side Sewer Only)
8	0.40
10	0.28
12	0.22
14	0.17
15	0.15

Sewers shall be laid with uniform slope between manholes. Sewers of 20% slope or greater shall be anchored securely with concrete anchors, approved by the Town.

6. ALIGNMENT. All sewers shall be designed with a straight alignment between manholes. Rates of curvature must be within the manufacturer's tolerances for the particular pipe used.

7. SANITARY SEWER MANHOLES.

   a. LOCATION. Sanitary sewer manholes are required at the following locations:

      i.) End of all sewer mains, including end reaches over 150 linear feet in length (mains less than 150 linear feet in length may be

provided with cleanouts in lieu of a manhole at upper end only).

ii.) All changes in slope.

iii.) Changes in pipe diameter.

iv.) Changes in sewer alignment.

v.) At all intersections of sewer mains.

vi.) All connections of sewers 8" and larger (including side sewers 8 inches and larger).

vii.) Manholes shall be located at distances not greater than 400 linear feet for all sewer mains.

b. OUTSIDE DROP CONNECTIONS. An outside drop connection shall be provided for a sewer entering a manhole at an elevation of 24 inches or more above the invert of the outfall invert elevation (measured at the wall of the manhole). (See standard drop connection plans S-5)

c. CONNECTIONS. All manholes shall be provided with stubs to first joints no more than 24 inches from the outside face of the manhole barrel.

d. STANDARD MANHOLES. Manholes shall be designed per the criteria in the Sewer Standard Plans of these standards.

The minimum of sewer manholes shall be 48 inches for sewer lines up to 21 inch diameter.

All Town manholes shall have precast concentric cones. The maximum heights of the riser section shall be 24 inches, including the frame and cover. The minimum clear opening in the manhole frame shall be 23-3/4 inches (see Standard Plan 3-3).

e. CHANNELIZATION. All sanitary sewer manholes shall be fully channeled to the crown of the sewers. The manholes shall be channeled to accomplish smooth flow through the transition and to minimize turbulence. To maintain the energy gradient and velocity through grade changes and changes in diameter at manholes, the invert of the downstream manhole shall be designed a minimum of 0.1 foot below all incoming invert elevations.

f. MANHOLE FOUNDATIONS. Care must be taken to insure that pressures exerted on the soils beneath the manholes and the adjacent mains are approximately uniform. Unequal soil pressures ay

result in excessive settlement at manholes. A spread foundation or other measures may be required to reduce the unit load imposed by the manhole.

8. SEWER SEPARATION FROM WATER SYSTEMS.

   a. HORIZONTAL SEPARATION. All sanitary sewers shall be located at least 10 feet horizontally from any existing or proposed water main. Said separation shall be measured from the outside edges of the pipes. Should local conditions prevent the required separation, the sewer main shall be located below and no closer than 4 feet horizontally from the water main. Said sewer shall be constructed of ductile iron pipe with mechanical joint fittings or double sleeved with the approval of the Public Works Director.

   b. VERTICAL SEPARATION. All sanitary sewer crossings under water mains shall be laid at such an elevation that the top of the sewer pipe is a minimum of 18 inches below the bottom of the water main. In cases where said clearance cannot be achieved, the water mains shall be relocated to provide the required clearance, or the sewer shall be constructed with ductile iron pipe, and concrete encased for a distance of 10 feet on either side of the water main or double sleeved with the approval of the Public Works Director.

9. SEWER SEPARATION FROM WELLS. No sanitary sewer shall be constructed within 100 feet of a potable water supply well or other water source.

10. STREAM CROSSINGS. Sewers entering or crossing streams shall be located at least 5 to 7 feet below the elevation of the stream bed. The sewer shall be designed to withstand all anticipated loading, erosion impacts and hydraulic forces. Construction methods and materials shall insure that the sewers remain water tight and free from changes in alignment or grade. All pipe under streams shall be Ductile Iron Pipe, Class 52.
    Construction activities in waterways require permits and approvals from outside agencies. All work in stream crossings shall be scheduled during the summer months and at times which no conflict with fish runs occurs. All stream crossings shall be approved by the Town. Stream crossings for sewer lines will be discouraged unless no other alternative is available.

11. SANITARY SIDE SEWERS.

a. SIDE SEWER DESIGN. All sanitary side sewers shall be laid on a minimum slope of two percent (2%). The maximum slope shall not exceed two hundred percent (200%). The minimum cover over the pipe shall be twelve inches (12") inside the property line. All side sewers shall be not less than six inches (6") in diameter from the sanitary main to the property line. Only one house shall be connected to a lateral side sanitary sewer except in certain cases approved by the Town; except also, where connection is to an existing sanitary side sewer within a public street.

All side sewers shall not be less than six inches (6") in diameter, except services to single-family residences shall not be less than four inches (4") in diameter from the property line to the building. All side sewers shall have cleanouts located at 100 foot intervals, and at the termination of the sewer at the building, at the property line (including a test "T") and all vertical or horizontal bends in the pipe of 90% or greater. The maximum length of a 6" side sewer shall be 150 feet (150').

Each lot or parcel of real property within the area to be served with a sanitary sewage disposal system, upon which such lot or parcel of property there shall be situated any building or structure for human occupancy or use for any purpose, shall be provided with a connection to the public sewer system. Each building or structure shall be provided with its own sanitary side sewer. Buildings within 150 linear feet of a sanitary sewer line or lateral shall be deemed to be within the area served by side sewer; however, a septic system may only be allowed per the requirements of Pierce County. If over 150 feet from a sewer line, an individual on-site sanitary disposal system may be installed in leiu of a sewer line when approved by the Town and the Tacoma-Pierce County Health Department provided the Developer/Owner agrees not to object to a LID or ULID for future sewer extension and agrees to connect to a sewer line when it is located within 150 feet.

The sanitary side sewer shall be designed in such a manner as to be sufficient size to carry all

sanitary sewage and waste fluids of any kind from said buildings in said sanitary sewage system, and each toilet, sink, stationary wash stand, or any other piece of equipment discharging waste fluids.

Materials allowable for sanitary side sewer construction are plastic (PVC), concrete where soil conditions permit and slopes are less than 15%, ductile iron pipe, or cast iron where its use is justified due to scouring velocities or other special soils foundation problem exist. Ductile iron pipe placed in peat areas or areas of potential corrosion shall be polyethylene encased.

12. CONNECTION TO PUBLIC SEWER SYSTEM

In general, each legally defined lot adjacent to a Town sewer main shall be serviced with a six inch side sewer stubout. The developer shall design the side sewer system to utilize the stubout supplied.

The Town maintains as-built records concerning the location and approximate depth of side sewer stubouts. These records are for informational purposes only and it shall be the developer's responsibility to verify the location and depth of the existing services.

In cases where a stubout has not been supplied, the developer shall connect directly to the Town main, using a core drill. The developer shall assume all costs for said connection, including, but not limited to, street repairs, tapping charges, bonds, permits, etc. Cuts into Town streets shall be repaired per the Town's Standard Pavement Patch Plan.

G. DESIGN STANDARDS FOR PLAN SUBMITTALS

1. PLANS AND SPECIFICATIONS.

All plans and specifications for sewer main extensions and branches must be submitted to the Town for review and approval prior to beginning of construction.

Permits to install extensions, manholes, services or other connections to the system shall be secured from the Town before commencing any installation.

A street bond to assure restoration may be required prior to issuance of a permit.

Application for sewer connections shall be filed with and approved by the Town before the installation of a sewer service connection is made.

2. DRAFTING STANDARDS.

The following information shall be shown on all sewer plan submittals to the Town.

a. Drawing must be on 22" x 34" plan paper with 1-1/2 inch left margin for binding.

b. Scale of drawing should be 50 scale. If this scale is not appropriate for a specific development, a 20 scale or 100 scale may be substituted. Other scales are unacceptable.

c. The Town's General Notes are to be included at the top right corner. The North arrow should preferably be pointed up. It may be oriented to the left if required by the layout.

d. Length and slope of all sewer pipe shall be indicated.

e. Type and class of pipe shall be specified.

f. Invert elevation at all manholes, side sewers or cleanouts and at the inlets and outlets of manholes.

g. Manholes shall be numbered.

h. Permanent or proposed street grades.

i. All surface and subsurface utilities and improvement structures, and all pertinent topography. A topographic map with contour intervals of not more than two feet (2') will be required for any development larger than 5 acres. Spot elevations shown on a map will be required for areas less than 5 acres.

j. Location of existing buildings and services.

k. Existing and proposed street right-of-ways and easement limits for all utilities, including reference to any necessary permission and release from damages for owners of property through the ultimate supply point or facility.

l. Identify any possible utility conflicts.

m. The sewer line and manholes to be installed must be shown with heavier lines than the other lines.

n. Profile of all lines showing existing and proposed topography, sewer line grade, manholes, invert elevations and utility crossings. A profile shall be shown for each section of main. Profile drawings shall be to scale and shall be shown on the same sheet as the plan.

o. The Public Works Director and the Town's Engineer must have the completed drawings a minimum of ten days prior to anticipated approval.

PART III. CONSTRUCTION MATERIALS

A. GENERAL

All materials used for construction shall be new and undamaged and shall be inspected and approved by the Town prior to installation. Acceptance of the materials by the Town shall not relieve the developer from the responsibility to guarantee construction and materials. All materials and methods referenced herein shall conform to the applicable standards for materials and construction found in the "Standard Specifications for Roads, Bridge and Municipal Public Works Construction", latest edition, published by the Washington State Department of Transportation and Washington State Chapter of the American Public Works Association (WSDOT/APWA Standard Specifications) and Department of Ecology and Department of Health criteria for sewage work design.

B. GRAVITY SEWER PIPE

Pipe approved by the Town for sanitary mains includes:

1. Polyvinyl chloride (PVC) conforming to ASTM D-3034, SDR 35
2. Concrete sewer pipe, rubber gasketed, tested, reinforced, conforming to ASTM C-14, Class 3.
3. Ductile iron, Class 50, conforming to ASTM-A53.

All sanitary sewer pipe shall be clearly marked by type, class and/or thickness, as applicable. The lettering shall be legible and permanent under normal handling and storage conditions.

All nonmetallic sewer pipes (collector mains, laterals, and side sewers) shall be installed with detectable

marking tape. Detectable marking tape placement, material specifications, and color code designation shall conform to the latent edition of WSDOT/APWA Standard Specifications (1991; 7-11.3(10), 9-75.78).

The supplier shall provide the Town with a certificate for materials, as requested.

C. PRESSURE SEWER PIPE

All pressure sewer pipe shall be approved by the Town Engineer. Pipe shall be ductile iron or high density polyurethane, or PVC pipe. Pressure sewer lines must use hydromatic pumps. Each residence served by a pressure sewer must sign a right-of-entry agreement for inspection and maintenance. Each wastewater lift station must have a lockable access lid flush with the ground surface.

D. FITTINGS.

All fittings shall be made of the same materials as the pipe. Tees or wyes shall be the same diameter as the adjoining pipe unless otherwise specified. All open ends shall be capped or plugged with a plug of material and gasket approved by the Town. All fittings shall be able to withstand test pressures and loading forces for the specific application, and conform to applicable standards of the AWPA/WSDOT Standard Specifications.

E. MANHOLES.

All manholes shall be precast concrete in conformance with WSDOT/APWA Section 7.05 Standard Plan S-3. The contractor/developer shall provide the Town with certification of materials and shop drawing for manholes, as requested.

F. FRAMES AND COVERS.

Manhole frames and covers shall be cast iron only and conform to WSDOT/APWA Section 7.05 Standard Plan S-8. All manhole covers located outside the street section shall have locking lids.

G. LADDERS AND STEPS.

All manholes shall have ladders and safety steps per Standard Plan S-7.

H. PUMP STATION OR LIFT STATION.

All Pump and Lift Stations shall be designed and constructed in accordance with "Criteria for Sewage Works Design" issued by the State of Washington Department of Ecology.

PART IV. CONSTRUCTION STANDARDS

A. CONSTRUCTION PERMITS AND AUTHORIZATION

All construction on sanitary sewer systems by private development shall be in accordance with the WSDOT/APWA Standard Specifications and DOE standards.

B. TRENCH EXCAVATION

Trenches shall be constructed per OSHA/WISHA requirements.

The trench shall be kept free from water until pipe joining is complete. Surface water shall be diverted so as not to enter the trench. The Contractor shall maintain sufficient pumping equipment on the job to insure that these provisions are carried out. Pump discharge shall be diverted such that downstream properties are not damaged.

The Contractor shall perform all excavation of every description and of whatever substance is encountered. Boulders, rocks, roots and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth of 6 inches (6") below sewer main grade. Where material is removed from below sewer main grade, the trench shall be backfilled to grade with material satisfactory to the Town and thoroughly compacted.

C. PIPE BEDDING.

All pipe bedding for rigid piping (ductile iron, concrete, etc.) shall be as per Standard Plan S-6

Bedding for PVC sewer pipe shall extend at least twelve inches (12") above the crown of the sewer pipe as shown Standard Plan S-6.

D. BACKFILLING.

Backfilling and surface restoration shall closely follow installation of pipe, so that not more than 100 feet is left exposed. If suitable native material, as determined by the Town, is not available from trenching operations,

the Town may order the placing of select backfill or some other suitable material in the trench profile. Backfill material shall be placed and compacted above the bedding material and compacted to 95% of the maximum density as determined by ASTM Designation D 1557-66T Method.

When other governmental agencies other than the Town have jurisdiction over roadways within the construction area, the backfill and compaction shall be performed to the satisfaction of the agency having jurisdiction.

E. DROP CONNECTIONS

All drop manholes shall conform with Town Standard Plans S-5 and applicable WSDOT/APWA standard specifications.

F. CONSTRUCTION ON EASEMENTS.

All construction on easements shall be performed strictly in accordance with the easement provisions. The contractor is responsible to make himself aware of all conditions pertaining to the easement agreement. No work shall be permitted in easement areas until specifically authorized by the Town.

G. TESTING OF SANITARY SEWERS

All sanitary sewer mains shall be air tested. Sanitary side sewers shall be air or water tested. All testing shall be accomplished after the trench has been backfilled and compacted. Manholes shall be channeled prior to testing.

H. AIR TESTING

All sanitary sewer lines shall be air tested in accordance with WSDOT/APWA Standard Specifications for air-permeable or non air-permeable pipe, as applicable. The contractor shall furnish all materials and equipment necessary for conducting the tests and all testing shall be performed under the supervision of the Town.

The contractor may desire to make an air test prior to backfilling for his own purposes. However, the air test acceptance shall be made after backfilling has been completed and compacted.

Water testing shall be allowed for sanitary side sewers only.

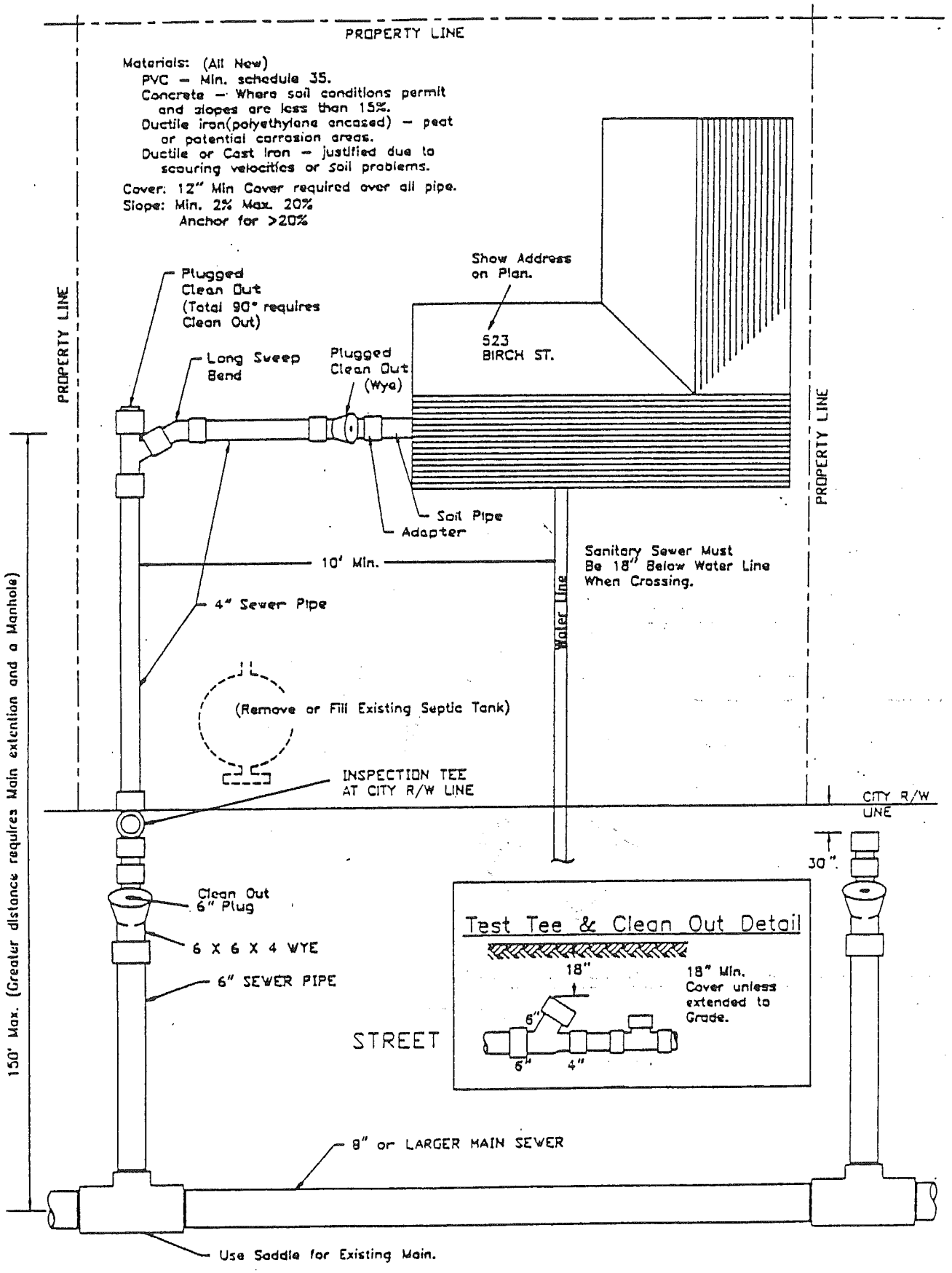
I. TV INSPECTION

All new sanitary sewer mains shall be TV camera inspected by the contractor on VHS format and presented to the Director of Public Works for review for sign-off of sewer permits. The TV inspection maybe waived by the Public Works Director if the Town's inspector was present during pipe laying, bedding, backfilling and water/air testing and the system can be light tested between manholes

The contractor/developer shall also be responsible to insure that the sewer mains are in fact ready for TV camera inspection. The contractor shall pay all costs incurred in correcting any deficiencies found during TV inspection, including the cost of any additional TV inspection required to verify corrections.

INDEX OF SANITARY SEWER STANDARD DETAILS

FOR THE TOWN OF EATONVILLE



JULY 1991

SANITARY SIDE SEWER

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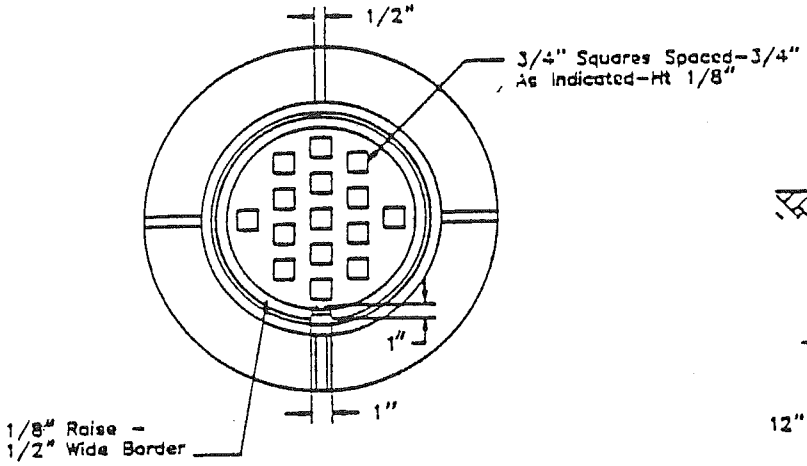
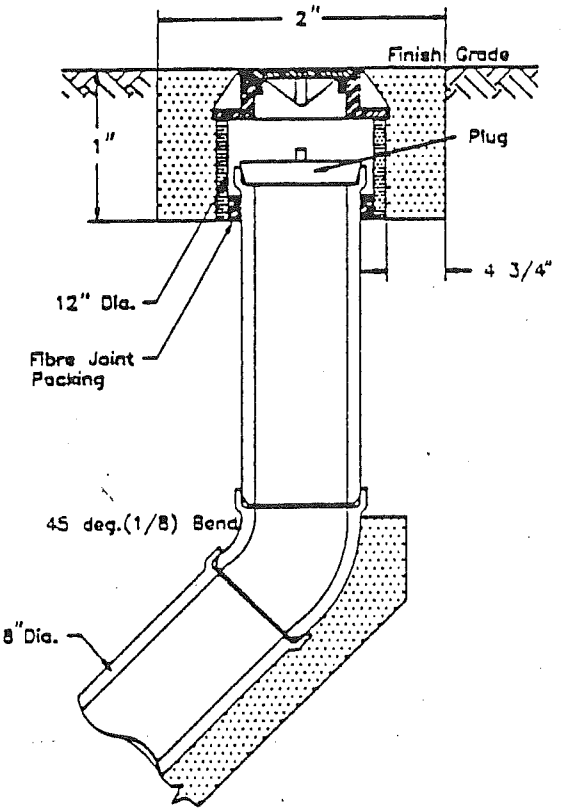
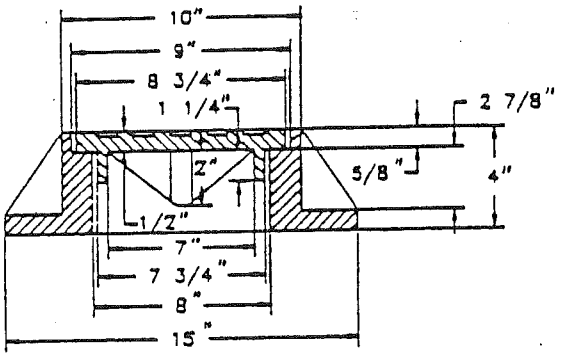
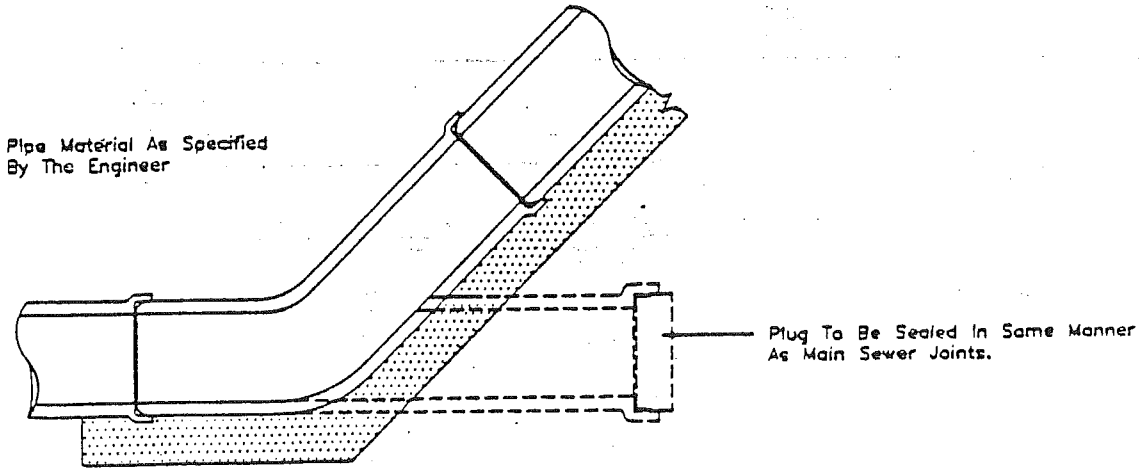






Cast Iron Ring And Cover



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8" CLEAN-OUT

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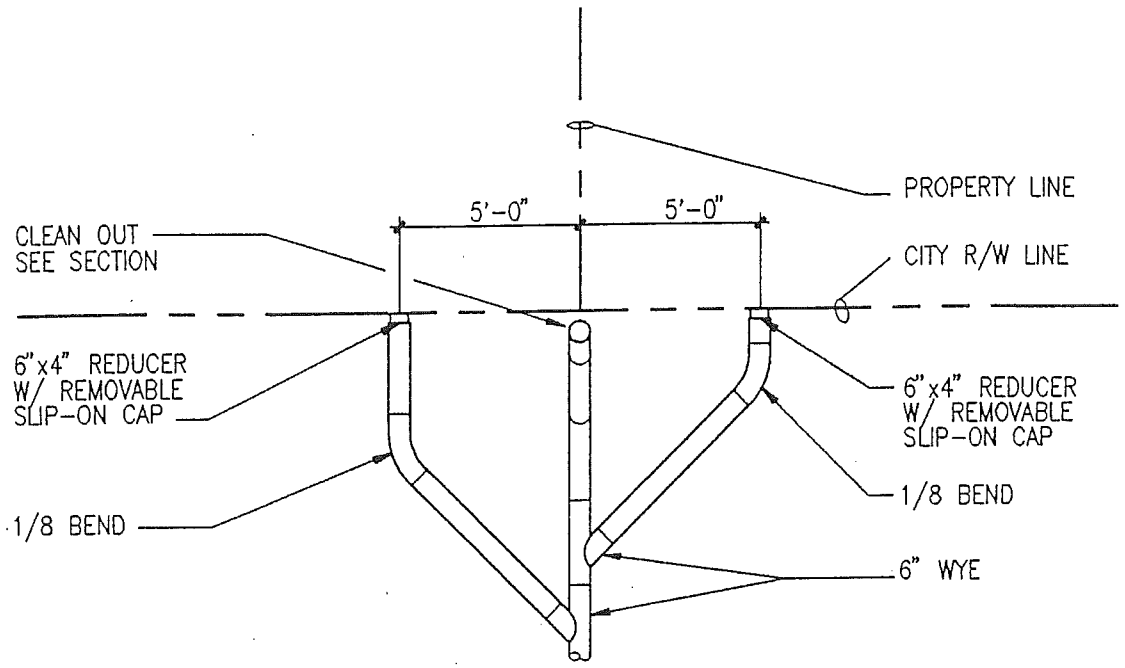

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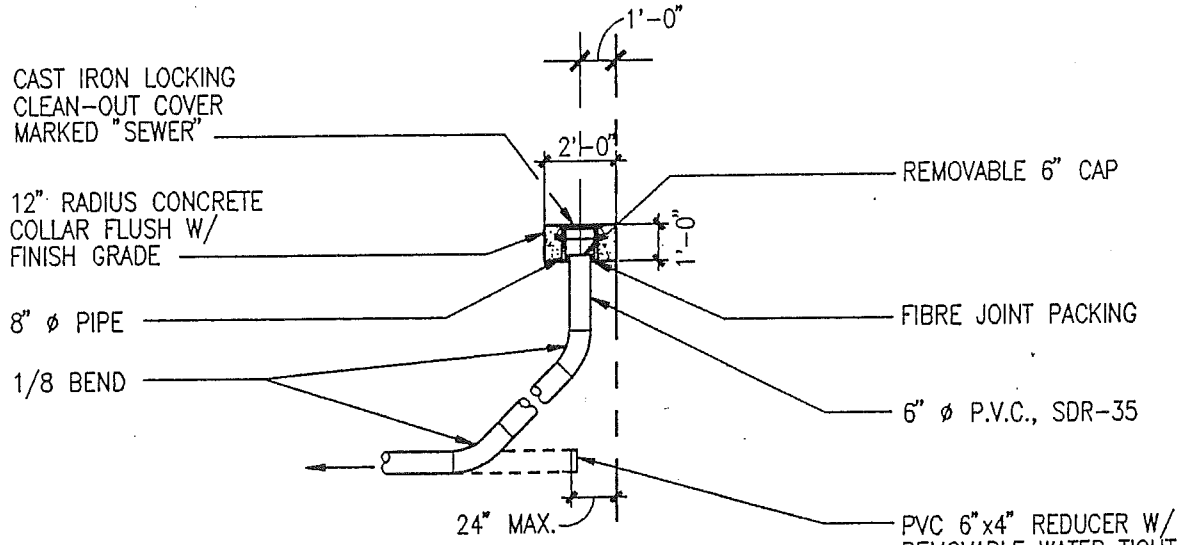

SECTION

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TOWN OF
EATONVILLE

SANITARY SIDE SEWER
DOUBLE SERVICE

APPROVED BY:	DATE: 1/6/95

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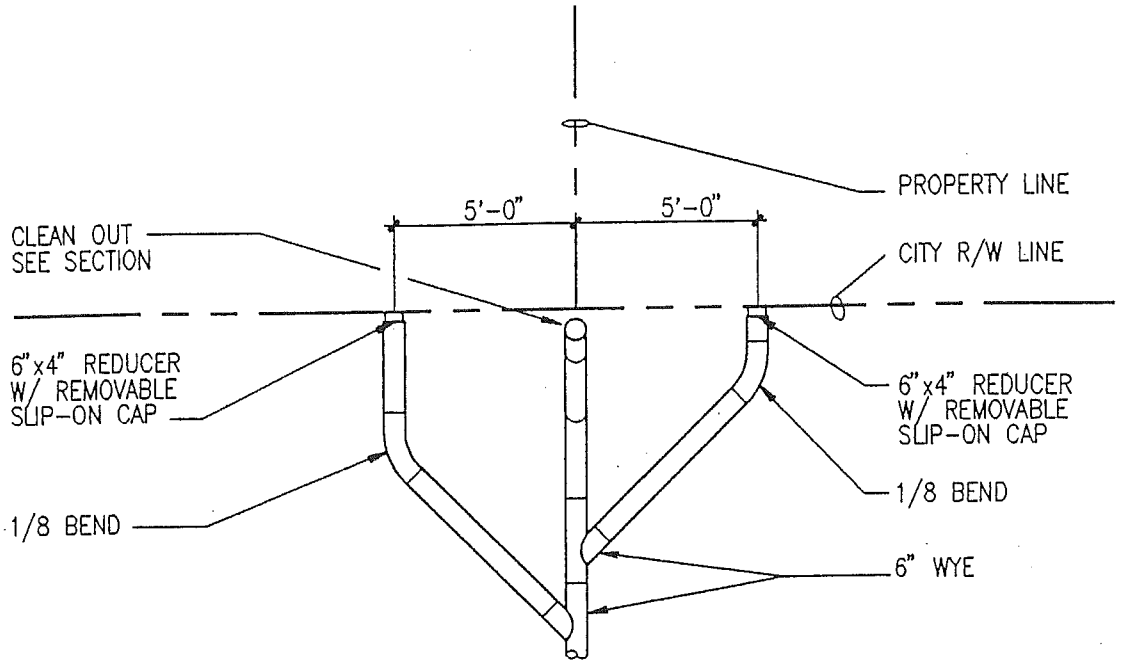

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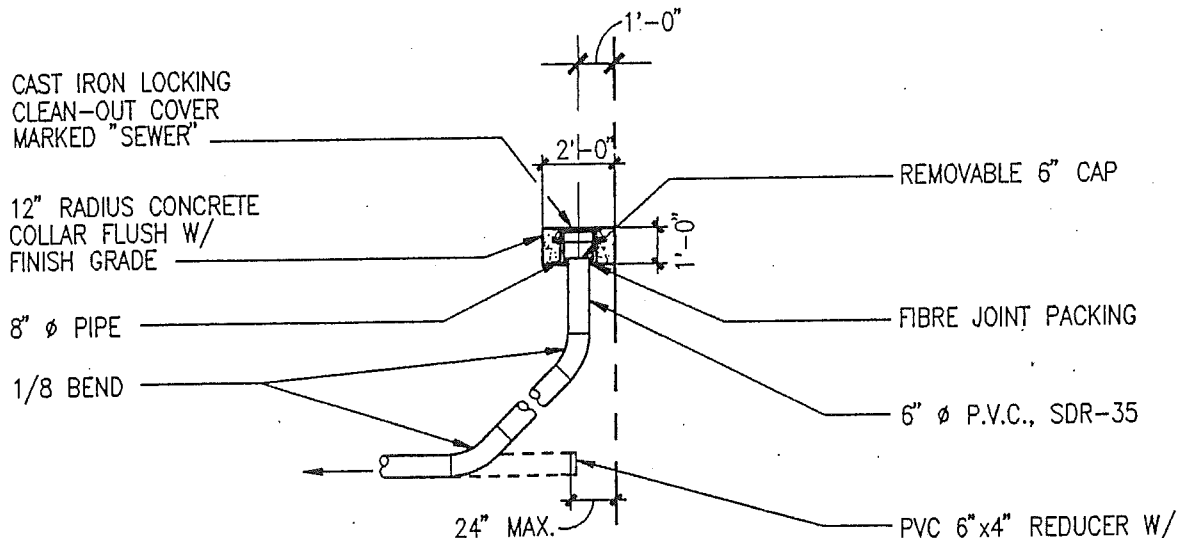

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TOWN OF
EATONVILLE

SANITARY SIDE SEWER
DOUBLE SERVICE

APPROVED BY:

DATE: 1/6/95

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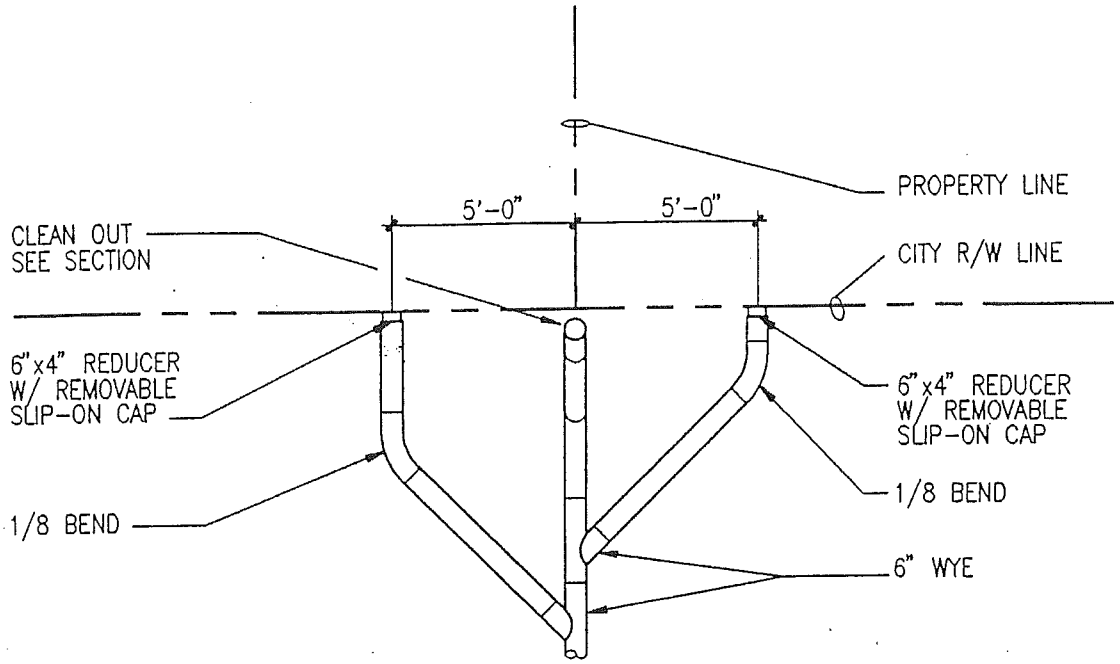

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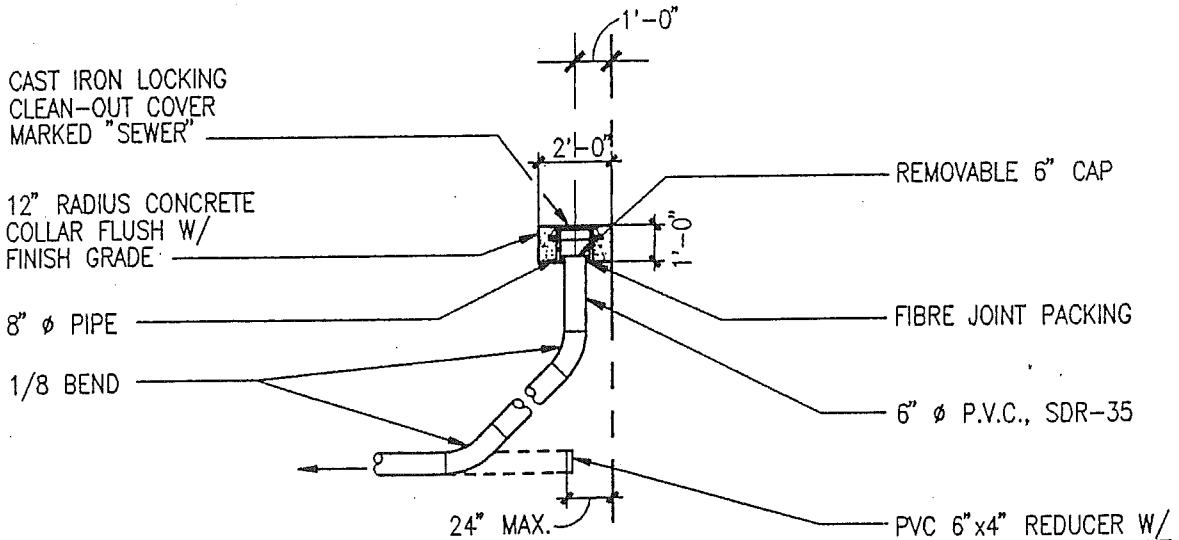

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TOWN OF
EATONVILLE

SANITARY SIDE SEWER
DOUBLE SERVICE

APPROVED BY:

DATE: 1/6/95

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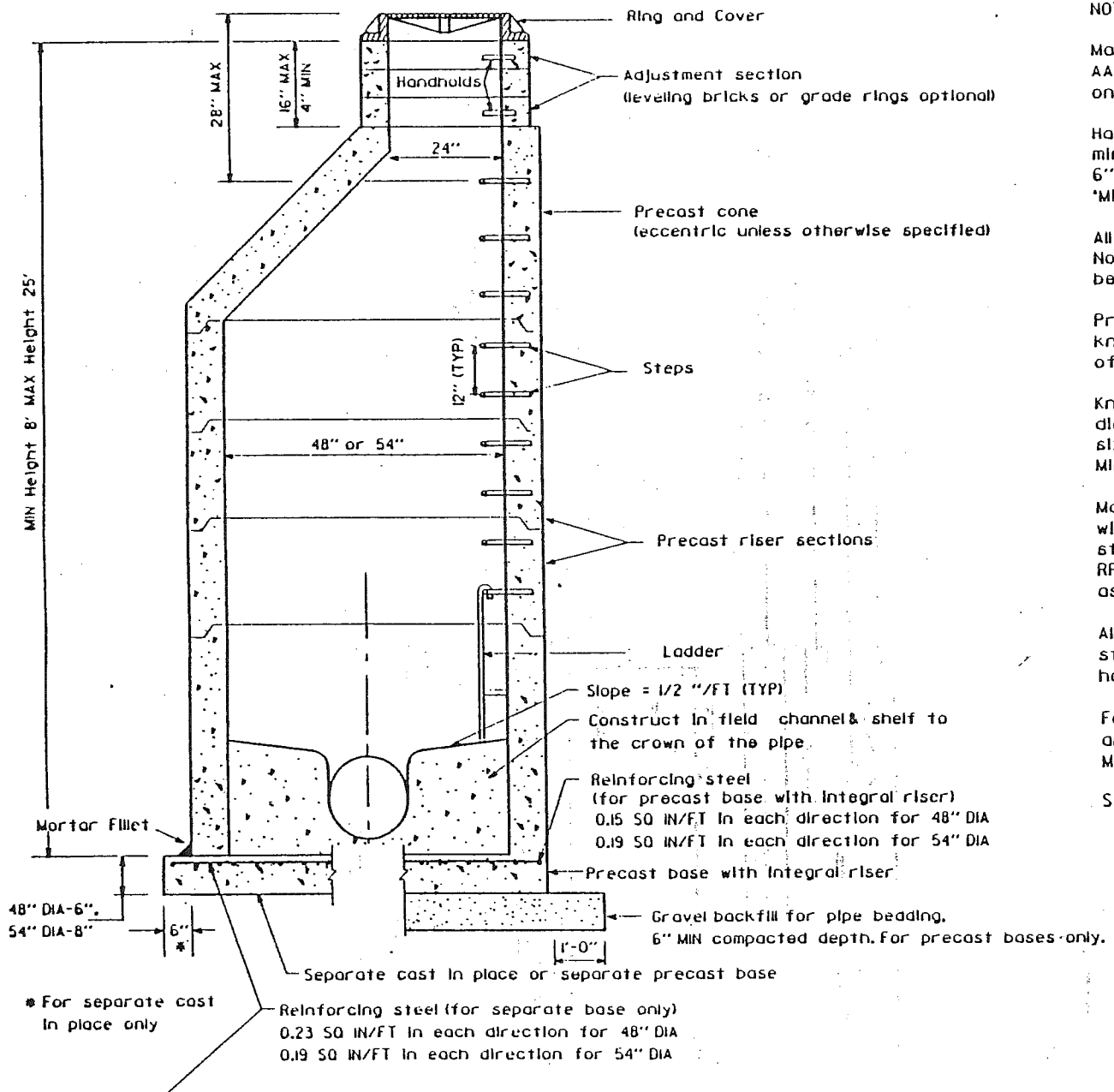

Design Assumptions

Height: 8' to 12'; Soil bearing value equals 3300 #/FT^2 (MIN)

Height: Over 12' to 25'; Soil bearing value equals 3800 #/FT^2 (MIN)

NOTES

Manholes to be constructed in accordance with AASHTO M-199 (ASTM C 478) unless otherwise shown on plans or noted in the Standard Specifications.

Handholds in adjustment section shall have 3" minimum clearance. Steps in manhole shall have 6" minimum clearance. See Standard Plan 'Miscellaneous Manhole Details.'

All reinforced cast in place concrete shall be Class A. Non-reinforced concrete in channel and shelf shall be Class C. All precast concrete shall be Class AX.

Precast bases shall be furnished with cutouts or knockouts. Knockouts shall have a wall thickness of 2" minimum.

Knockout or cutout hole size is equal to pipe outer diameter plus manhole wall thickness. Maximum hole size is 36" for 48" manhole, 42" for 54" manhole. Minimum distance between holes is 8".

Manhole rings and covers shall be in accordance with Standard Specifications and meet the strength requirements of Federal Specification RR-F-621D. Mating surfaces shall be finished to assure non-rocking fit with any cover position.

All base reinforcing steel shall have a minimum yield strength of 60,000 PSI and be placed in the upper half of the base with 1" minimum clearance.

For details showing Grade Ring, Ladder, Steps, Handholds and Top Slabs, see Standard Plan 'Miscellaneous Manhole Details.'

See the Standard Specifications for joint requirements.

JULY 1991

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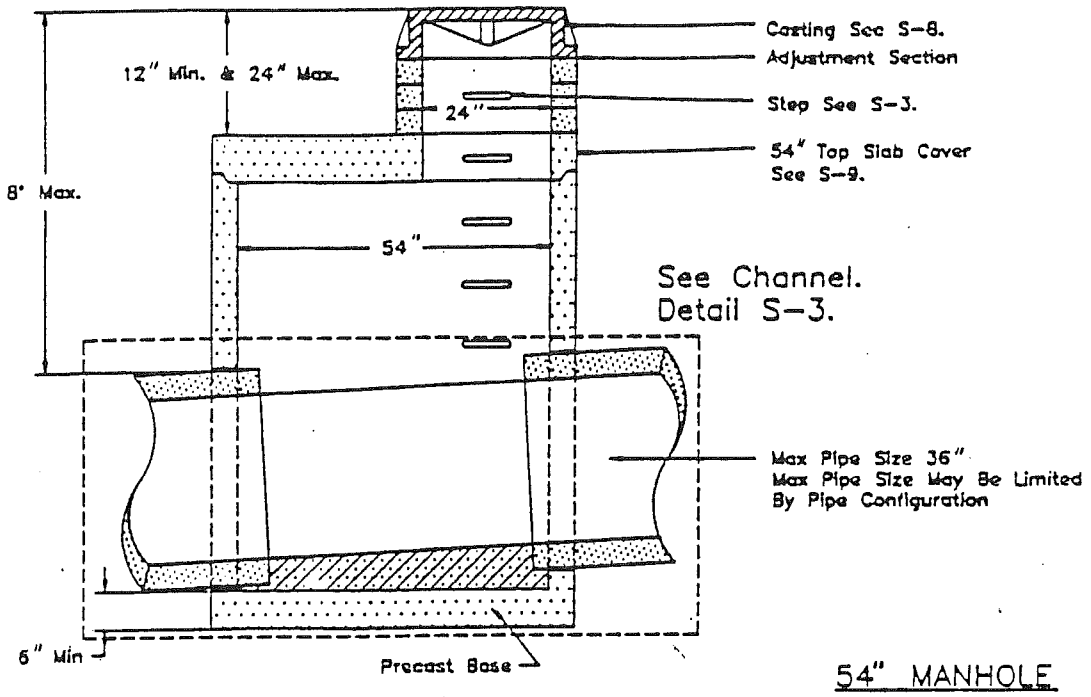
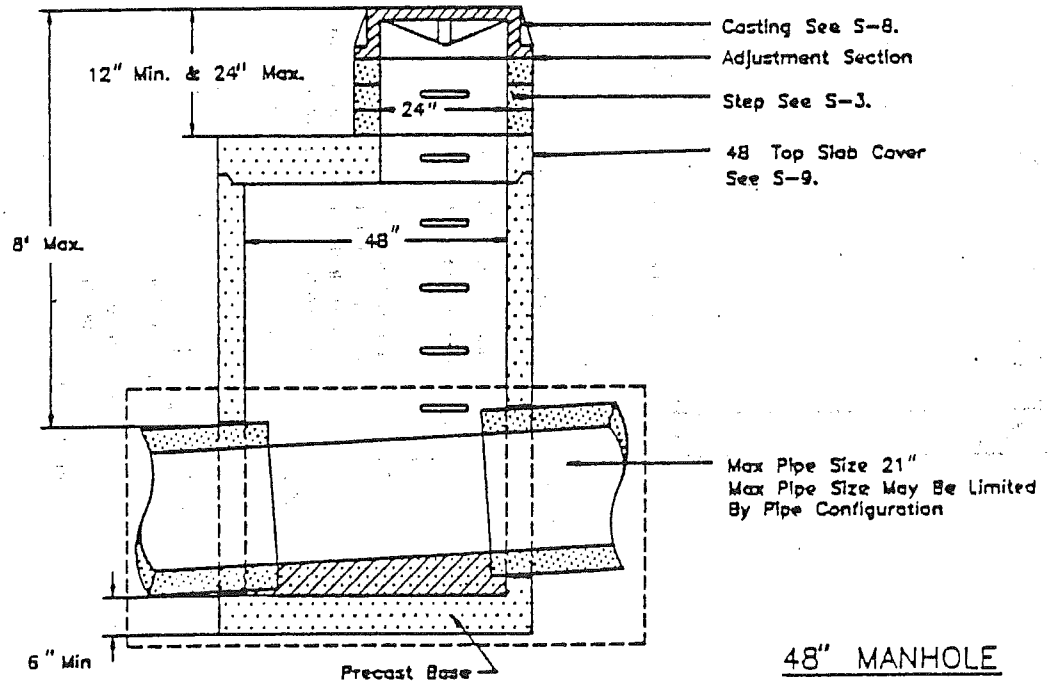


54" MANHOLE



48" MANHOLE

Note:

36" Opening required when Crown to Slab is less than 4'.

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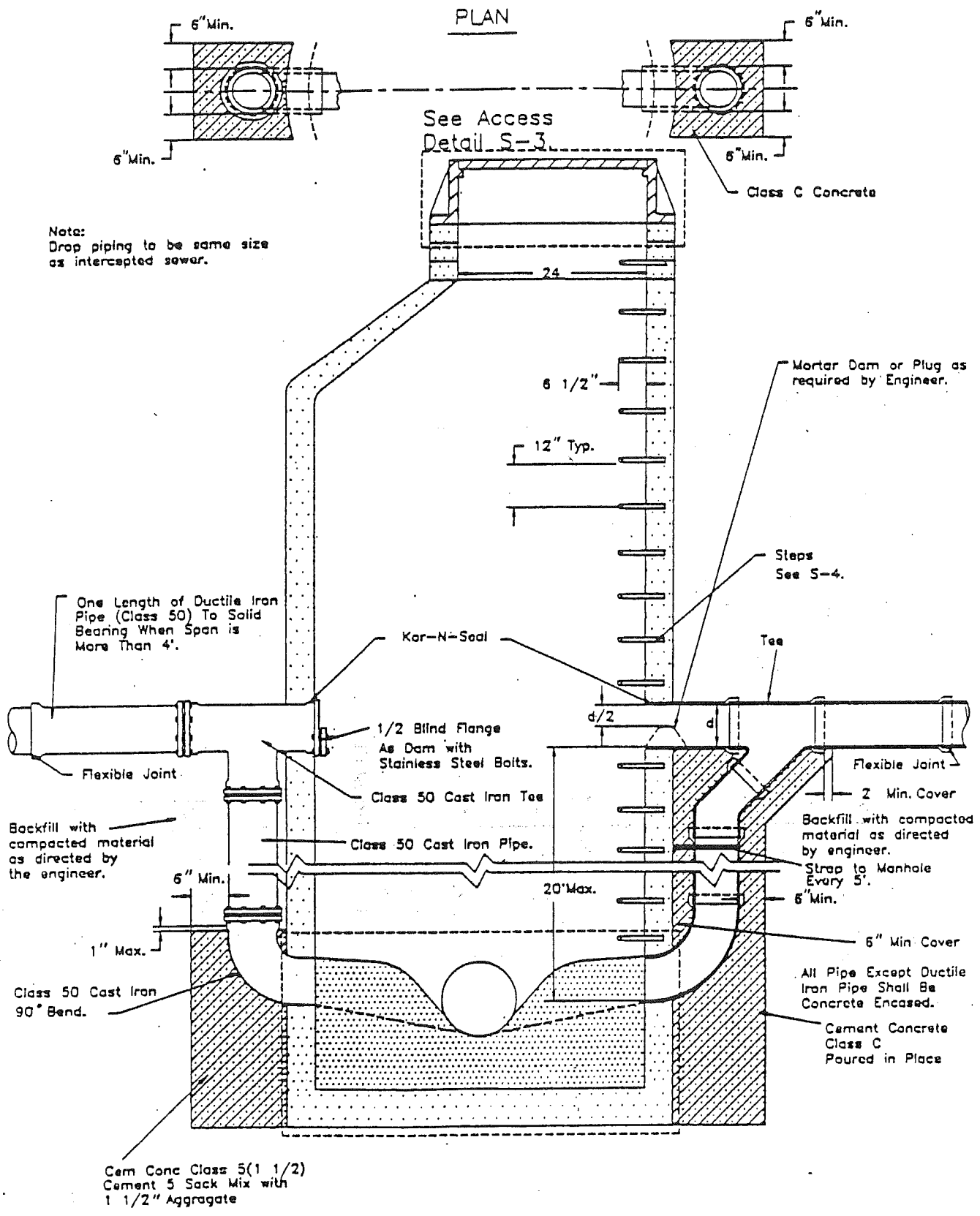
SHALLOW SANITARY SEWER MANHOLE — 48" & 54"



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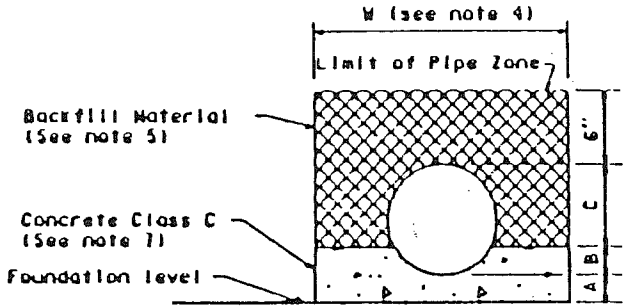
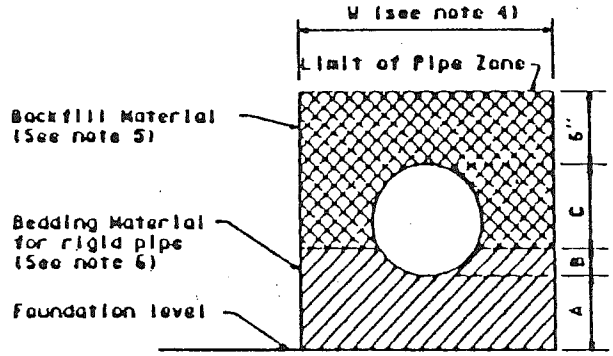
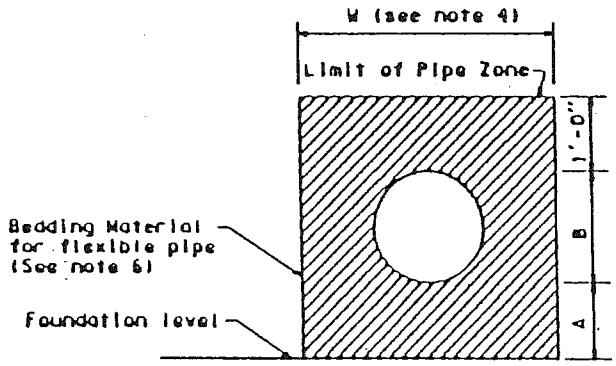


(Class A design)



(Class B, C, D design)

BEDDING FOR RIGID PIPE IN TRENCHES



(Class F design)

BEDDING FOR FLEXIBLE PIPE IN TRENCHES

NOTES:

1. Provide uniform support under barrel.
2. Hand tamp under haunches.
3. Compact bedding material to 95% MAX density except directly over pipe, hand tamp only.
4. See Sec. 7-17.3(1) for trench width "W" and trenching options. The pipe zone will be the actual trench width, except for class A bedding, the minimum concrete width shall be 1½ I.D. + 18". (APWA/WSDOT)
5. Trench backfill shall conform to Sec. 7-17.3(3), except that rocks or lumps larger than 1" per foot of pipe diameter shall not be used in the backfill material. (APWA/WSDOT)
6. See section 9-03.15.16 of the Standard Specifications for material specifications. (APWA/WSDOT)
7. Pipe must be anchored in such a manner as to ensure flow line is maintained.

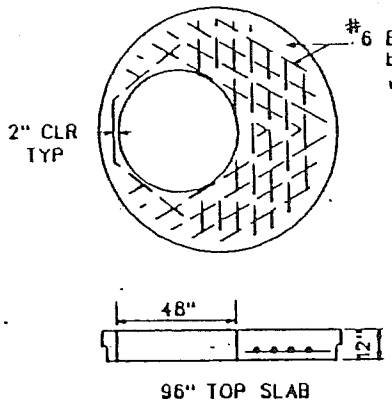
	BEDDING CLASS DESIGN				
DIMENSION	CLASS A	CLASS B	CLASS C	CLASS D	CLASS F
A	4" MIN ¼ I.D. 12" MAX	*	*	Zero	*
B	¼ O.D.	½ O.D.	⅛ O.D.	Zero	O.D.
C	¾ O.D.	½ O.D.	⅛ O.D.	O.D.	-

* A = 4" MIN. 27" I.D. and under
6" MIN. over 27" I.D.

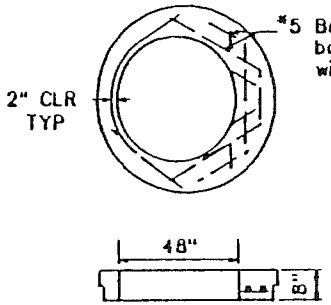
PIPE BEDDING FOR SANITARY SEWER IN TRENCHES ONLY

JULY 1991

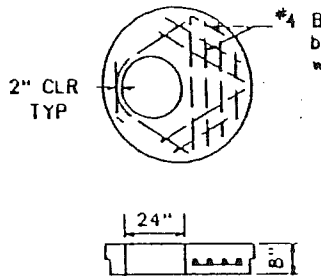
DATE	REVISION	BY	APP'D



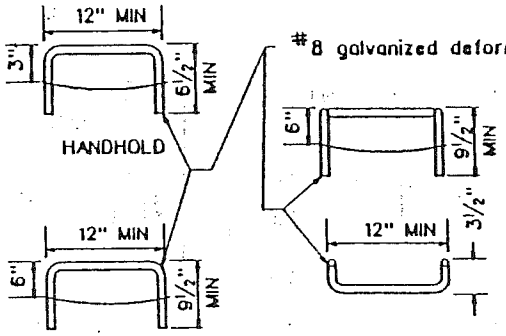
96" TOP SLAB



72" TOP SLAB

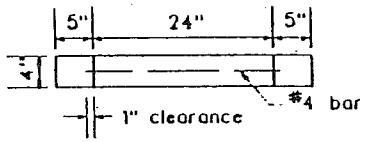


48" & 54" TOP SLAB



MANHOLE STEP

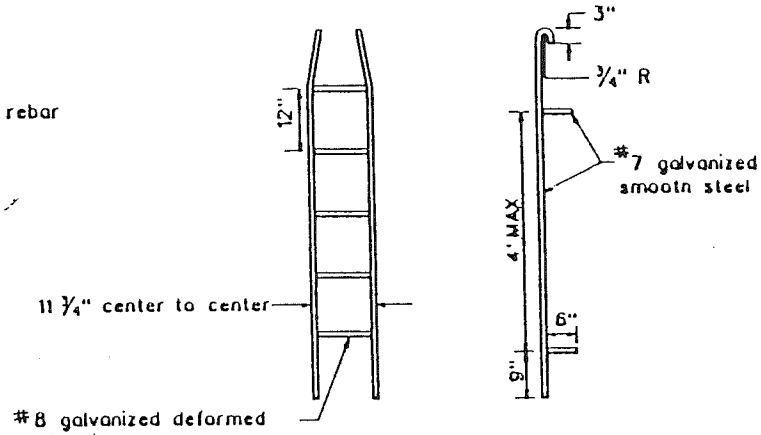
DROP RUNG
MANHOLE STEP



GRADE RING

NOTES:
Proprietary manhole steps are acceptable, provided that they conform to Section R, ASTM C 478 (AASHTO M 199) and meet all WISHA requirements.

Manhole step legs shall be parallel or approximately radial at the option of the manufacturer, except that all steps in any manhole shall be similar. Penetration of outer wall by a leg is prohibited.

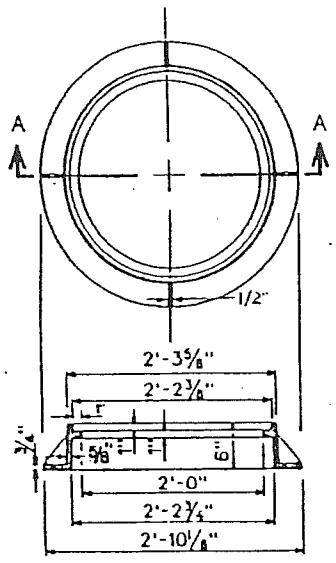


PREFABRICATED LADDER

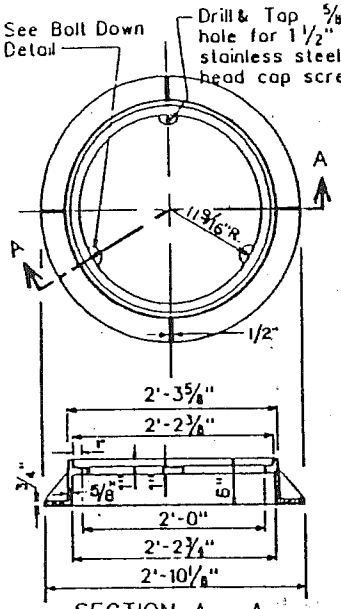
MISCELLANEOUS MANHOLE DETAILS

JULY 1991

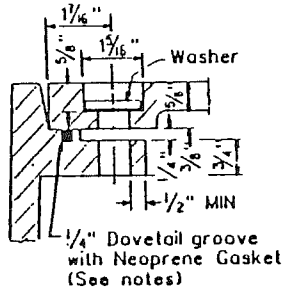
DATE	REVISION	BY	APPR'D



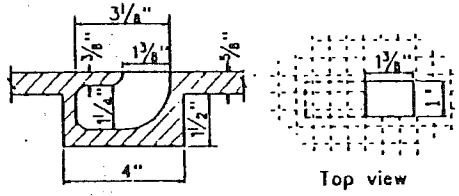
SECTION A - A



SECTION A - A



BOLT-DOWN
WATERTIGHT DETAIL



BLIND PICK NOTCH DETAIL

Notes
Gasket and groove may be in the seat or underside of cover.

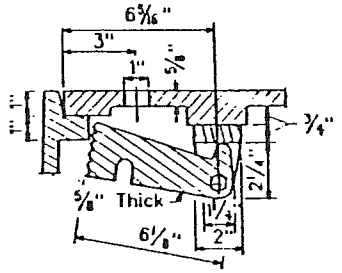
For bolt down manhole ring and covers that are not watertight, the neoprene gasket, groove and washer are not required.

Washer shall be lead or neoprene.

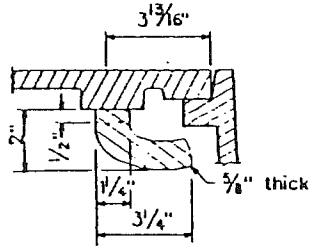
Unless otherwise shown on the Plans, or specified in the Special Provisions, Type 1, Standard Manhole Rings and Covers shall be used.

In lieu of blind pick notch for storm sewer manhole covers, drill three 1 inch diameter holes at 120° spacing.

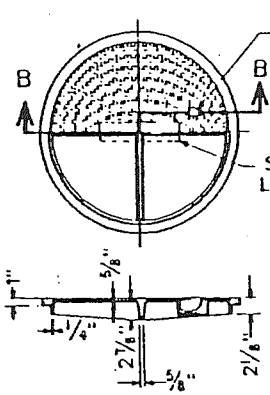
For Manholes Type 4,5,& 6 see Standard Specifications For Manhole Rings and Covers.



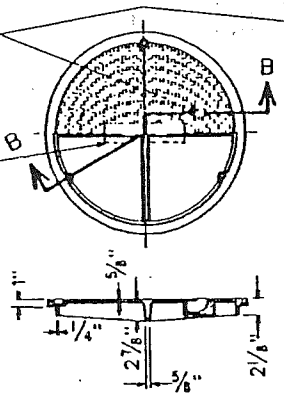
BOLT ON CAM TYPE
LOCKING DEVICE-SECTION C



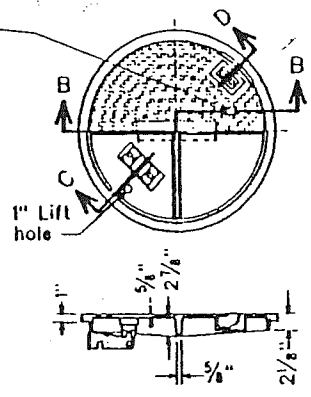
BOLT ON CAM TYPE
LOCKING DEVICE-SECTION D



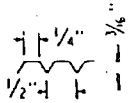
SECTION B - B
TYPE 1
STANDARD



SECTION B - B
TYPE 2
BOLT-DOWN/WATERTIGHT



SECTION B - B
TYPE 3
CAMLOCK



COVER SKID DESIGN DETAIL

MANHOLE
RING AND COVER

JULY 1991

DATE	REVISION	BY	APPR'D

TOWN OF EATONVILLE

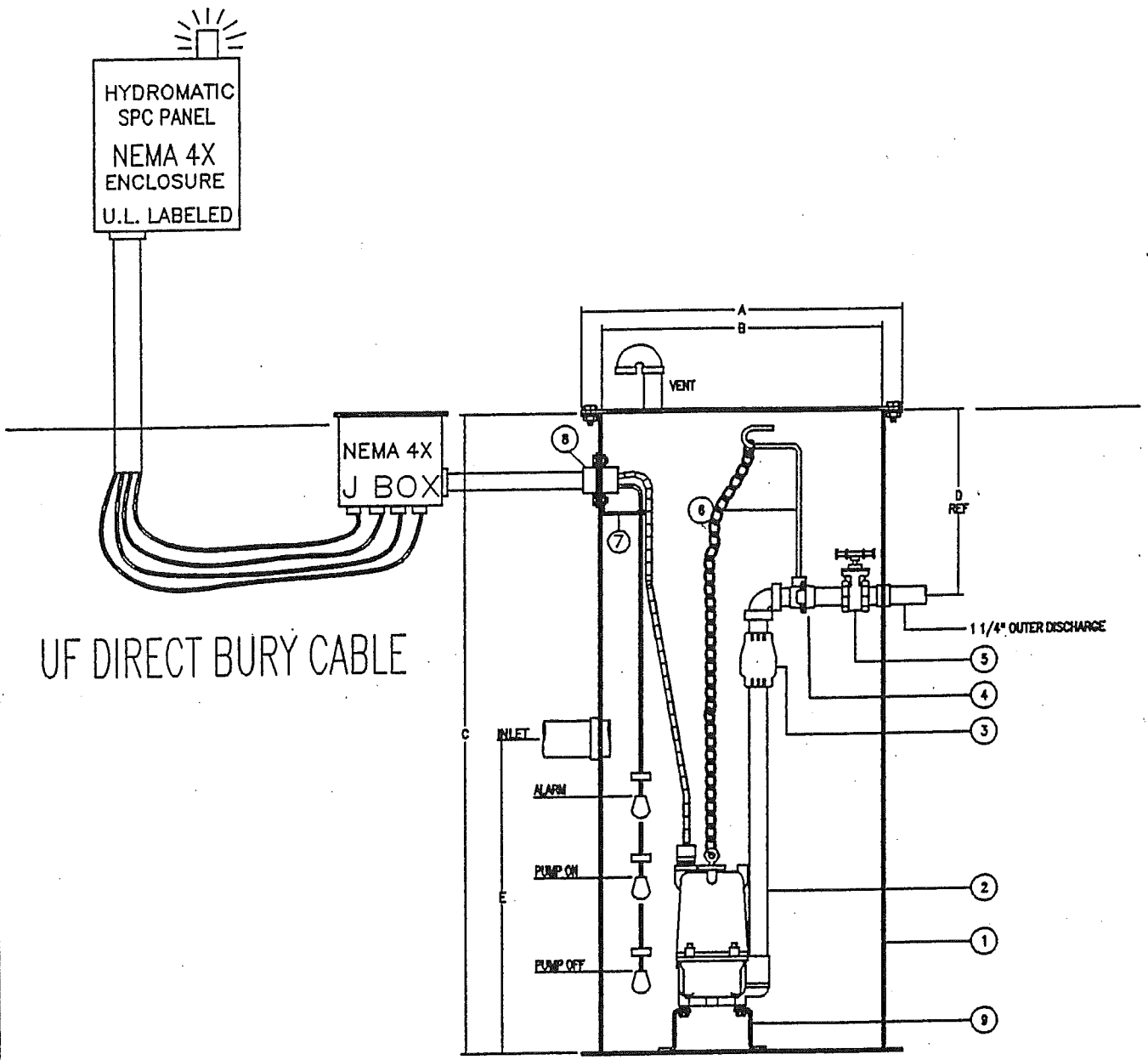
PUMPTECH 2 HORSEPOWER SEWAGE GRINDER SYSTEM FOR SINGLE FAMILY RESIDENCE USING HYDROMATIC GRINDER PUMPS

MODEL SPG-P-3ET
230 VOLT SINGLE PHASE

INCLUDING
2 HP HYDROMATIC SPG GRINDER PUMP
CONTROL PANEL WITH HIGH WATER ALARM LIGHT
24 INCH X 60 INCH FIBERGLASS TANK
3 CONTROL FLOATS
EXTERNAL ELECTRICAL JUNCTION BOX
INTERNAL 1 1/4 INCH GATE VALVE
QUICK DISCONNECT FITTING
INTERNAL PIPING WITH CHECK VALVE
1 SET OF GRINDER FEET
FIBERGLASS LID WITH VENT FITTING

PUMPTECH BELLEVUE WASHINGTON.
PHONE 206 644 8501 FAX 206 562 9213

TOWN OF EATONVILLE



GRINDER PUMP SYSTEM SINGLE FAMILY HOMES

DIMENSION REFERENCES					
P.D.Q. SYSTEM IDENTIFICATION	A	B	C	D	E
SPG	29"	24"	60"	24"	

PUMP TECH INC

P.D.Q. SYSTEM
SPG-P-3ET

FILE NAME	SCALE	DRAWING NUMBER	DATE	SHEET
SPGP3ET	NONE		5-1-95	2 of 5

TOWN OF EATONVILLE

LIST OF MATERIALS SPG-P-3ET

1	FIBERGLASS TANK 24" X 60"
2	1 1/4" PVC SCH 80 DISCHARGE PIPE
3	1 1/4" PVC CHECK VALVE
4	1 1/4", BRONZE TWO PIECE QUICK DISCONNECT
5	1 1/4" GATE VALVE
6	3/8" STAINLESS STEEL LIFTING HANDLE
7	STAINLESS STEEL FLOAT BRACKET
8	1 1/4" PVC ELECTRIC OUTLET
9	STAINLESS STEEL GRINDER FEET

TOWN OF EATONVILLE

PUMPTECH PACKAGE GRINDER LIFT STATION MODEL SPG-P-3ET

PACKAGE GRINDER LIFT STATION SHALL BE EQUAL TO PUMPTECH PDQ QUICK DISCONNECT RESIDENTIAL STATION AS MANUFACTURED BY PUMPTECH, INC. PACKAGE STATION TO INCLUDE THE FOLLOWING ITEMS AND BE AS DESCRIBED HYDROMATIC MODEL SPG 200M2-2 2HP-SEWAGE GRINDER PUMP WITH 2 STAGE REVERSIBLE CUTTER ASSEMBLY, OIL FILLED MOTOR, TANDEM SEAL ASSEMBLY, CONNECTION BOX TO HAVE AN EPOXY BARRIER AND COMPRESSION FITTING WITH EPOXY ENCAPSULATION OF STRIPED LEADS, SEMI OPEN IMPELLER WHICH CAN BE FIELD TRIMMED TO MEET VARYING CONDITIONS

1. PACKAGE CONTROL SYSTEM FOR SIMPLEX STATION CONSISTING OF: HYDROMATIC SIMPLEX Q SPC CONTROL PANEL U.L. LABELED WITH THREE UL LISTED MERCURY LEVEL CONTROL SWITCHES, VISUAL HIGH WATER ALARM, NEMA 4X ENCLOSURE WITH, HOA MAGNETIC STARTER, OVERLOAD PROTECTION 120 VOLT.

2. 24" X 60" FIBERGLASS BASIN WITH ANTI FLOTATION FLANGE, FIBERGLASS COVER, COVER SHALL BE EQUIPPED WITH 1 1/2" PVC TANK FITTING FOR MOUNTING VENT, ATTACHMENT OF LID TO TANK WILL BE ACCOMPLISHED USING 6-3/8" STAINLESS STEEL BOLTS, TANK TO BE GEL COATED INSIDE AND OUT TO PREVENT WICKING, TANK AND LID TO BE GREEN IN COLOR

3 PUMP WILL BE REMOVED USING GALVANIZED CHAIN ATTACHED TO THE PUMP AND A 3/8" STAINLESS STEEL HANDLE ATTACHED TO A BRONZE TWO PIECE 1/1/4" QUICK DISCONNECT FITTING. DISCHARGE PIPING WILL BE SCHEDULE 80 PVC 1 1/4" PIPE WITH A 1 1/4" PVC FLAP TYPE CHECK VALVE.

4. 1 1/4" BRASS GATE VALVE WITH 3/8" 303 SS HANDLE EXTENSION TO ALLOW OPERATION OF THE VALVE FROM THE TOP OF THE TANK

5. 6" X 6" X 6"PVC UL LISTED NEMA 4X ELECTRIC JUNCTION BOX WITH 1 1/4" MYERS HUB FOR CONNECTION TO OUTLET FROM TANK AND WATER TIGHT STRAIN RELIEF CONNECTORS FOR USE WITH UNDRGROUND CABLES. FOR THE FLOAT AND PUMP CORDS, JUNCTION BOX WILL HAVE REMOVABLE LID WITH GASKET FACING STRAIGHT UP.

6. PVC SCREENED VENT WITH 180 DEGREE FITTING

B. THE SYSTEM SHALL OPERATE BY THREE CONTROL FLOATS. ON SUMP LEVEL RISE, THE FIRST FLOAT SHALL BE ACTIVATED BUT WILL NOT TURN ON THE PUMP. AS THE LEVEL CONTINUES TO RISE, THE SECOND FLOAT WILL BE ACTIVATED AND WILL START THE PUMP SEQUENCE. WHEN THE LEVEL FALLS TO THE FIRST FLOAT, THE PUMP WILL TURN OFF. IF THE LEVEL CONTINUES TO RISE ABOVE THE SECOND FLOAT, THE THIRD FLOAT SHALL BE ACTIVATED, ENERGIZING THE HIGH LEVEL ALARM LIGHT.

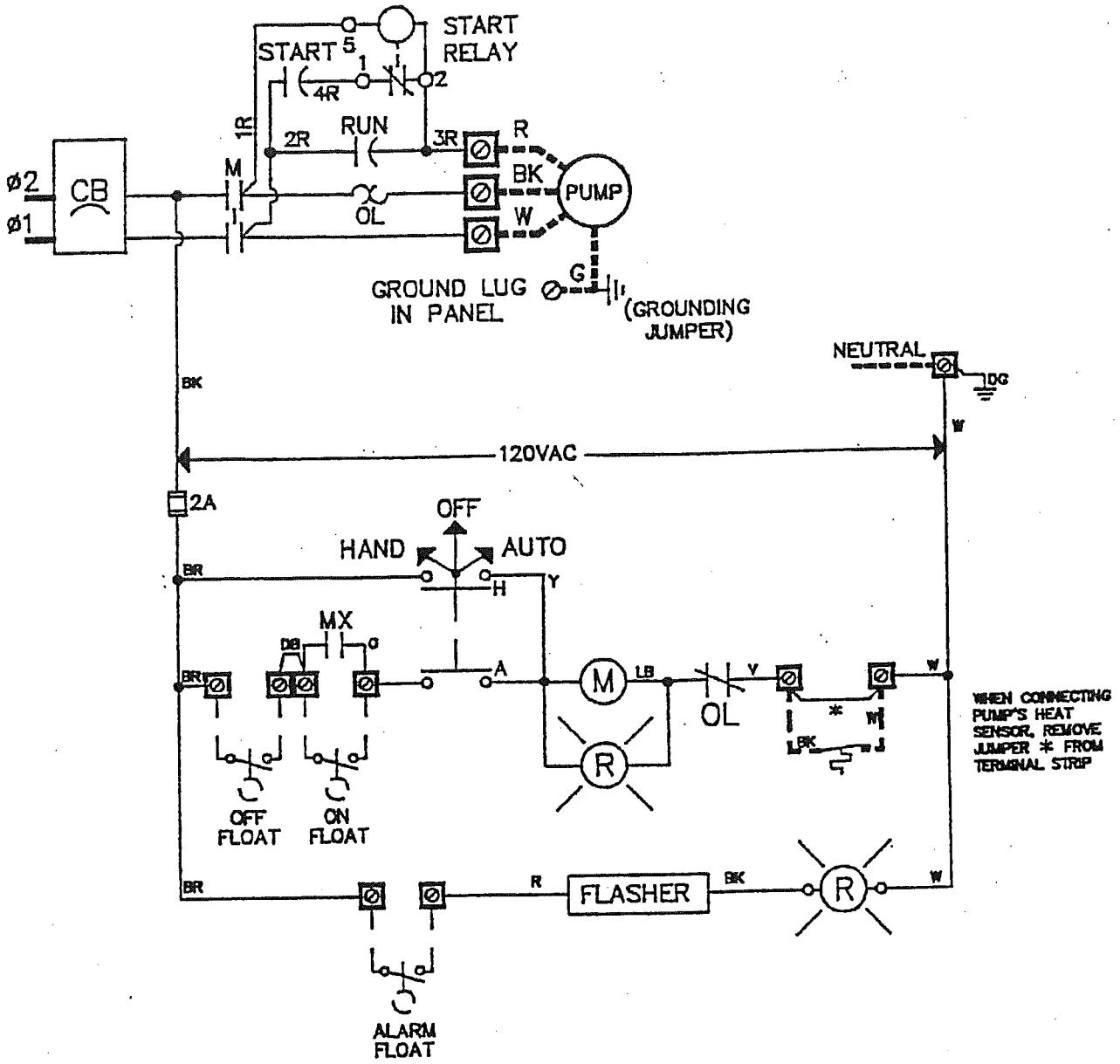
C. THE PACKAGE SYSTEM SHALL MEET THE REQUIREMENTS OF THE DEPARTMENT OF LABOR AND INDUSTRIES ELECTRICAL INSPECTION DIVISION FOR RESIDENTIAL GRINDER PUMP SYSTEMS.

D. <u>OWNER SUPPLIED ELECTRICAL SERVICE:</u>
230 VOLT SINGLE PHASE POWER WITH A 30 AMP BREAKER FOR THE PUMP SYSTEM

E. THE SUPPLIER WILL HAVE SERVICE PERSONNEL ON STAFF AT ALL TIMES AND HAVE A PROVEN RECORD OF SERVICE CAPABILITIES ALSO THIS SUPPLIER WILL HAVE A PAST HISTORY OF MAINTAINING PARTS INVENTORY FOR THIS PUMP SYSTEM

230 VOLTS, SINGLE PHASE, SIMPLEX

NOTE: REMOVE NEUTRAL "GROUNDING JUMPER" WHEN PANEL IS NOT USED AS PRIMARY SERVICE EQUIPMENT



BASE TYPE AAO

NOTE: USE COPPER, 60°C WIRE INSULATION FOR ALL FIELD WIRING TERMINALS

MODEL NO. 15.60 SPG200M2-2 AFL, HWA

HYDROMATIC AURORA / HYDROMATIC PUMPS, INC.	ELECTRICAL SCHEMATIC/ DIAGRAM	PANEL PART NO. 63900-100-7	REV. A
		DATE: 11-10-1993	PAGE 1 OF 1

NOTE

WARNING: DISCONNECT POWER BEFORE SERVICING !

IMPORTANT: METAL BACK PANEL TO BE CONNECTED TO A GOOD GROUND IN ACCORDANCE WITH LOCAL ELECTRICAL CODES

NOTE

S-9A

INSTRUCTIONS FOR OBTAINING APPROVAL FOR IMPROVEMENTS TO TOWN OF EATONVILLE ROADS, STREETS AND STORM DRAINAGE

GENERAL

It is the policy of the Town of Eatonville that the cost of road, street and storm drainage improvements shall be paid for by the property to be benefited. Those developing property may be required to pay a share of adjoining roads or storm sewer improvements if they are impacted by the new development.

Improvements may be accomplished in one of two ways:

1. Direct construction by Developers.

2. Through a Local Improvement District.

Under either arrangement, it is necessary that the territory to be served be within the boundaries of the Town. If the territory is not currently within the Town boundaries it may be annexed.

EXTENSION BY DEVELOPERS

If a Developer or other person desires to extend any road, street and/or storm drainage system, they may do so at their own expense, provided they comply with all Standards, Permits and Municipal Codes of the Town. In the majority of cases it has proven to be more efficient in terms of time and money for the Engineer of the Town to perform all necessary engineering tasks. (The Engineer of the Town works for the Town and the Developer must pay the Town for the Engineering Service). Such services include preparation of basic plans, cost estimates, specifications, obtaining of permits, and inspection of construction. The fee for this service is noted in the enclosed Application (Form A) to Extend Town of Eatonville Roads, Streets and Storm Drainage. Special circumstances may make it desirable for a Developer to utilize the services of another engineer for certain of these tasks (Application Form B). However, in order to insure that the Town's Standards are satisfied, the Town requires, in any event, the Director of Public Works or Town Engineer check all plans, provide inspection during the construction process, test the new extensions, conduct a final inspection, and see that all required bonds and other paper work are properly provided. With this latter arrangement (Form B) the Town Engineer and Public Works Director will receive a fee for their services computed of an hourly basis. Under this latter arrangement (Form B), the Developer must obtain the Town's Conditions and Standard document.

The following steps are necessary for any extension to the roads, streets and storm sewer system:

1. Prior to the time that the Preliminary Plat or Short Plat is filed, a letter detailing the proposed improvements must be submitted to the Town. A pre-preliminary plat or short plat should accompany this request.

2. Additional requirements may be added to the road construction plan as a mitigation measure required through the SEPA process.

3. Prior to the construction of the improvements an "Application to Construct Road, Street and Storm Drainage Systems" must be signed by the Developer or Owner. At this time, if the Town Engineer is to perform all engineering tasks (Form A), the Developer shall notify the Director of Public Works and enter into an agreement with the Town to authorize the Town Engineer to proceed with design work and furnish the Town Engineer two copies of the Final Plat. If the Developer's Engineer is going to provide the engineering (Form B) the Developer must provide the Director of Public Works a plat or plan showing all required approvals. Along with the Application (Form A or B) a $1,000.00 cash deposit is required a s evidence of good faith.

4. After construction plans are approved by the Town and the Developer wishes to proceed with calling for bids, the Public Works Director may aid in identifying a suitable contractor to do this work. When a contractor not previously experienced in the Town is selected by the Developer, the Public Works Director shall be immediately notified of this selection so that the Public Works Director will have time to interview the contractor regarding their qualifications to perform the contract. It is required that the Developer secure a Performance- Maintenance Bond guaranteeing the completion of this work, payment of bills, and guarantee of materials and workmanship for one year from the date of final acceptance. In addition a $5,000.00 bond will be required to work in the Town Right of Way. It is required that the Developer employ state licensed contractors.

5. The Public Works Director of the Town shall be notified not less than three working days in advance of beginning work. Any work that is performed without proper notification of the Public Works Director will be <u>summarily rejected.</u>

6. During the Progress of the work the Public Works Director shall be kept informed and an inspection requested prior to covering buried drainage systems or completing other major phases of construction.

7. After completion of construction a performance test appropriate for the system must be performed.

8. After construction and testing by the Contractor, the Developer and the Contractor should ask for a final inspection and acceptance of the system. This inspection should be performed by the Public Works Director, the Contractor and the Developer.

9. The Developer must furnish the Town with a cost breakdown showing the total cost of construction for the development.

10. The Developer must furnish the Town permanent easements that might be necessary or applicable to the installation.

11. Before acceptance of the systems by the Town, all of the following conditions must be satisfied: a) Final written approval by the PUBLIC WORKS DIRECTOR of completed construction, record

drawings, and documents, b) Submission of a Bill of Sale deeding the systems to the Town, and c) All recorded or right-of-way dedications required by the Town.

The conditions and Standards, which are the Specifications, on all Developer's jobs are on file at the TOWN office. It is the responsibility of the Developer and their Contractor to familiarize themselves with the Specifications prior to starting work.

EXTENSION BY LOCAL IMPROVEMENT DISTRICT (LID)

Under this method, the property benefited pays all or a portion of the cost of an extension through assessments. The assessments may be paid in cash, or over a period of ten to fifteen years, with interest. The Town sells revenue bonds to finance the project, and the assessments are paid into the Revenue Bond Redemption fund.

The following steps are necessary:

1. Obtain a petition requiring the extension signed by the owners of at least fifty-one percent (51%) of the area of the land within the proposed LID. The form of petition may be obtained from the Town.

2. The petition is filed with the Town who have the petition checked and call for a hearing on the formation of the LID.

3. If the Town concurs on the formation of the LID, the assessment roll is filled and notices are given. A public hearing is then held on the assessment roll at which time comments to the amount of the assessment are heard. After the hearing, the assessment roll is confirmed by the Town Council, and notice of confirmation is published.

4. Plans and call for bids on the construction can be started any time after the formation of the LID and legal approval of the action.

An alternate procedure to steps 1 and 2 can be accomplished if the Town Council wishes to adopt a resolution for the formation of a LID without the customary petition from the owners of the land within the improvement district. However, this method of procedure can be stopped at the public hearing on such a resolution, if the land owners of 40% of the affected area protest the formation of the proposed LID.

CHECKLIST

ROAD, STREET AND STORM DRAINAGE IMPROVEMENTS

TOWN OF EATONVILLE

_____	_____
PROJECT	DEVELOPER
_____	_____
NAME OF EXTENSION	NAME
	_____
	ADDRESS
TYPE OF CONSTRUCTION:	_____
WATER	_____
SEWER	_____
ROADS (STREETS)	_____
	TELEPHONE
STORM DRAINAGE	

A. PRELIMINARY

_____ 1. Letter detailing proposed improvements (Developer).

_____ 2. Application form completed (Developer).

_____ 3. $1,000.00 cash deposit to Town (Developer).

_____ 4. Water/Sewer - Availability requested by letter (Developer).

B. REQUIRED BEFORE EXTENSION IS STAKED IN FIELD

_____ 1. Conditions and Standards Reviewed (Developer).

_____ 2. Plot plan, legal description (Developer).

_____ 3. Approval of Contractor (Town).

_____ 4. Performance-Maintenance Bond (Contractor-Developer).

_____ 5. Obtain approval of design by Fire Marshall (Developer)

_____ 6. Right-of-Way Permit (Developer)

_____ 7. Plans and Specifications prepared by State of Washington Registered Engineer and approved by Public Works Director (Developer).

8. Environmental Check List (Developer)

C. REQUIRED BEFORE CONSTRUCTION BEGINS

_____ 1. Three working days notice of starting date (Contractor).
_____ 2. Basic control survey tying project area to established control points (Contractor).

_____ 3. Contractor to stake 3 working days prior construction.

D. DURING CONSTRUCTION

_____ 1. Three working days notice to the Town is required prior to connection with existing utilities (Contractor).

_____ 2. Notify Public Works Director for inspection prior to covering extension, pouring of concrete or paving (Contractor).

E. REQUIRED FOR ACCEPTANCE OF TITLE

_____ 1. All fees paid, including engineering fees, connection charges, permit fees, etc. (Developer).

_____ 2. New system testing (Contractor-Town Engineer).

_____ 3. Approval of all construction (Town Engineer or Public Works Director).

_____ 4. Cost breakdown of construction costs to Town (Developer).

_____ 5. Provide Town required Easements, and Bill of Sale (Developer).

_____ 6. Resolution by Town Council accepting title to storm sewer systems, sidewalks, curbs, gutters and right-of-ways. (Town Roads)

F. ONE YEAR AFTER ACCEPTANCE

_____ 1. Release of Performance-Maintenance Bond (town). (After demonstration of satisfactory performance of utilities).

FORM A

APPLICATION AND AGREEMENT REGARDING CONSTRUCTION OF EXTENSION TO ROAD AND STREET SYSTEMS TOWN OF EATONVILLE, WASHINGTON (ENGINEERING SERVICES BY TOWN)

The undersigned (hereinafter "Applicant"), hereby makes application to the Town of Eatonville (hereinafter "the Town"), for permission to construct and install an extension to the Town's existing road, street and/or storm drainage system(s) in public rights-of-way, under the Town's franchises therefore, and/or easements approved by the Town, and to connect said extension to the Town's existing road, street and storm drainage systems. Hereinafter, whenever the terms road and street are used it is understood to include storm drainage. Applicant makes the following representation to and agreements with the Town.

1. Description of Proposed Improvements: The proposed improvements shall be approximately _____ lineal feet in length and will be installed in roads, rights-of-way or easements approved in writing by the Town and shall be for the use and benefit of the following described property which is owned by the Applicant or other persons who are contributing to the cost thereof:

2. Proposed Extensions.

   A detailed description of the improvements is attached hereto as "Exhibit A" and incorporated herein.

3. Construction Plans and Standards. The proposed extension shall be constructed and installed in accordance with plans prepared at the Applicant's expense by the Town Engineer. The Town shall charge the Developer the standard, current hourly rate and direct non-salary expenses plus fifteen percent (15%) for such engineering services.

The Engineering fee shall be paid by the Applicant for the following services:

a. General consultation with the Applicant regarding the requirements of the Town.

b. Preparation of the Contract Plans, Specifications, Proposal, Statement of Town of Eatonville Charges, Performance-Maintenance Bond, Bill of Sale, and Easement.

c. Application for State, County and other required permits. (Permit fee is to be paid by Developer).

d. Staking of proposed extension.

e. Inspection of the construction in progress, for compliance with the Conditions and Standards of the Town.

f. Observation of improvement performance tests.

g. Final inspection of the completed extension for acceptance by the Town.

h. Providing administrative documentation for the Town records as required.

i. Processing record drawings and documentation in the Town's files for future use.

Design, construction and installation shall also be in accordance with the latest edition of the Town of Eatonville Public Works Development and Construction Standards. A copy of said documents are on file at the Town Hall and in the office of the Town Engineer. The terms of said documents are made a part of this agreement by this reference.

4. Contractor Qualifications. The name, address, and telephone number of the Contractor or Contractors who will install the extension(s) are:

Prior to the commencement of any construction activity, Applicant will furnish the Town with written evidence, satisfactory to the Town, that said Contractor(s) are properly licensed, bonded and experienced in public works construction.

5. Costs Payable by Applicant. Any and all costs reasonably incurred by the Town in connection with the receipt, study, approval or rejection of this application, including, without limitation, all legal, engineering and accounting fees, shall be borne by the Applicant. The Applicant agrees to pay such costs within 30 days of billing by the Town. In consideration of the Town's review of the proposed plans, Applicant will deposit with the Town the sum of $1,000.00 or $1.75 per lineal foot of the proposed extension (as shown in the construction plans), whichever sum is greater, when plans are submitted to the Town for review. This sum shall be held by the Town as a deposit to pay any and all costs incurred by the Town in connection with this agreement. The Town will return any funds remaining after acceptance of the constructed system. (Interest will not be paid on monies received). If the deposit is not sufficient to pay all costs, the Town will request additional deposits from time to time which the Developer shall pay within 10 days after the request. If after authorizing the Town to commence these tasks, the Applicant decides not to complete the proposed project, the Town shall receive payment from the

Applicant computed on an hourly basis for all service performed as set forth in Item 3 above.

6. Observation and Supervision by the Town. Applicant acknowledges that the Town requires that all construction, connections to the existing system, and all testing of the improvements be made in the presence of the Public Works Director or his authorized representative. Applicant shall require their Contractor to make written application for and to obtain written permission from the Public Works Director or his authorized representative to make final connection to the Town's utility system on a specified date at a specified time. The Town shall have full right and authority to stop construction at any time if the Contractor deviates from the approved specifications and plans or refuses to comply with any other reasonable request of the Public Works Director.

7. Insurance. Applicant agrees to provide the Town, prior to the commencement of any construction, with proof of adequate liability and property damage insurance of not less than $500,000.00 and for personal injury of not less than $500,000.00. Applicant will furnish the Town with written evidence of prepayment and renewal of such insurance from time to time as requested by the Town. The policy or certificate of insurance shall name the Town, Town employees, Town consultants and elected or appointed officials as additional insured parties.

8. Easements. Applicant shall be responsible for securing any required easements, franchises or rights-of-way necessary for the construction of the extension and shall deliver executed and recorded copies thereof to the Town prior to commencing construction. The form and content of such documents shall be approved by the Director of Public Works and Attorney.

9. Permits. Applicant shall be responsible for obtaining and paying for all necessary building, land use, route-crossing and other permits and environmental reviews and notices which may be required by any governmental agency for the construction of the aforesaid improvements. Copies of all such documents shall be furnished to the Town prior to the commencement of construction. Applicant shall pay all costs and fees associated with such preparation.

10. Applicant's Guaranty of System. Applicant guarantees that all materials, equipment, workmanship and labor utilized in the system for a period of one year after acceptance of the extension by the Town. If any modifications, repairs or maintenance must be performed on the system during that period, Applicant shall pay all costs. Thereafter, the Town shall be responsible for maintaining and repairing the system.

11. Performance Bond. Applicant shall furnish to the Town a Performance Bond, in an amount equal to 50% of the Town

Engineer's estimated total cost of the improvements, prior to the staking of any work for construction. The Performance Bond shall guarantee satisfactory completion of the constructed improvements, shall guarantee all materials, equipment, workmanship and labor for a period of one year from acceptance of the completed improvements by the Town and shall benefit all persons furnishing labor and materials, whether claiming under the Public Works Lien statutes or the Mechanics and Materialmens Lien Statutes of the State of Washington. The Town reserves the right to reject the form of the bond or the surety company issuing the Performance Bond and to require the submittal of a bond in revised form or from a different surety company. In lieu of a performance bond the Town may accept an assignment of funds deposited in a local bank.

12. Grading of Roads. Applicant agrees to grade all roads to the design subgrade elevation prior to the start of construction and to advise the Town during construction of any changes which may be contemplated or required. If the Applicant changes the subgrade elevation of the road after completion of the storm drainage construction, Applicant agrees to raise or lower the storm drainage as required by the new subgrade elevation, and revise all utilities to the satisfaction of the Town at no cost to the Town.

13. Conveyance of Improvements to Town. Upon completion of construction, and upon the Town's approval, and prior to the acceptance of the improvements by the Town Council, title to the system shall be conveyed to the Town, at no cost to the Town, such conveyance to be evidenced by a Deed and Bill of Sale in form approved or furnished by the Town. Thereafter, such extension shall be under sole control, use and operation of the Town, subject to all regulations and conditions of service charges established from time to time by the Town Council. When delivering the Deed and Bill of Sale, Applicant shall furnish to the Town a schedule showing the costs of all materials, labor and equipment, together with a detailed list of all materials and the name of the manufacturer and supplier of all components of the system and warranties of all equipment. This information is required for inventory, insurance and maintenance of the Town's systems.

14. Duration of this Agreement. This agreement shall expire one year from its date. If the extension is not completed and accepted within that time, then Applicant's rights under this agreement shall cease and Applicant shall make new or amended application and pay any and all additional administrative, legal, engineering and observation costs involved, as determined by the Town.

15. Indemnification. Applicant hereby agrees to indemnify and hold the Town, the Town Engineer, the Town Council and their employees harmless from any and all costs or

claims which may arise from construction of the proposed extension, including without limitation, any and all claims for property damage and personal injury or claims arising from deficiencies in the system during the one year period of Applicant's guarantee of the system.

16. Annexation. In the event that the property to be served by the proposed extension, as described herein above, is not presently within the boundaries of the Town, Applicant agrees to obtain and present to the Town a petition, in form satisfactory to the Town, for annexation of said property into the Town, and to pay all legal, engineering and other costs incurred by the Town in conducting the necessary annexation proceedings. Included within such costs are, without limitation, the costs of amending the Town's Comprehensive Road and Street Plan and obtaining approval of the annexation by the Town and Pierce County Boundary Review Board. If an annexation is necessary, Applicant agrees to deposit the estimated legal and engineering costs of such annexation proceedings to the Town, in an amount to be determined by the Town, prior to the Town's approval of this application and prior to the Town's acceptance of the annexation petition.

17. Attorney's Fees. If any legal proceedings are instituted to enforce any provision of this agreement or to collect any sums owing under this agreement, Applicant agrees to pay all reasonable attorney's fees and court costs incurred by the Town.

18. Consideration Payable by Town. Applicant agrees that the sole consideration to be furnished by the Town for this agreement shall be the maintenance and repair of the street system upon the Town's acceptance thereof, and that the Town has made no agreement to pay to the Applicant any "latecomers charges" or other compensation for Applicant's conveyance of the system to the Town, unless such compensation has been specifically agreed to by the Town in a separate written document executed herewith.

19. Other Charges by Town. Applicant has been furnished with a copy of the Town's current schedule of charges for sewer service fees, connection fees and other charges now in effect throughout the Town. Applicant understands that the future utility service to the extension shall be conditioned upon the payment of such additional charges by Applicant and other residents who later decide to connect to the system. Said charges are subject to change from time to time, as determined by the Town Council, and the actual charges to be assessed will be those in effect at the time the service is actually requested by those users who desire to connect to the system.

WHEREFORE, the Applicant has submitted this application this___day of

_____, 19___.

_____
APPLICANT

_____
APPLICANT

_____
APPLICANT

This application is accepted and approved by the Town this __ day of _____, 19___. Upon compliance with the terms and conditions of this contract by the Applicant, Town agrees to accept said extension and furnish service thereto.

TOWN OF EATONVILLE, WASHINGTON

By_____

_____

FORM B

APPLICATION AND AGREEMENT REGARDING CONSTRUCTION OF EXTENSION TO ROAD AND STREET SYSTEMS TOWN OF EATONVILLE, WASHINGTON

(ENGINEERING SERVICES BY DEVELOPER)

The undersigned (hereinafter "Applicant"), hereby makes application to the Town of Eatonville (hereinafter "the Town"), for permission to construct and install an extension to the Town's existing road, street and/or storm drainage system(s) in public rights-of-way, under the Town's franchises therefore, and/or easements approved by the Town, and to connect said extension to the Town's existing road, street and storm drainage system(s). Applicant makes the following representations to and agreements with the Town.

1. Description of Proposed Improvements. The proposed improvements shall be approximately _____ lineal feet in length and will be installed in roads, rights-of-way or easements approved in writing by the Town and shall be for the use and benefit of the following described property which is owned by the Applicant or other persons who are contributing to the cost thereof:

2. Proposed Extensions.

A detailed description of the improvements is attached hereto as "Exhibit A" and incorporated herein.

3. Construction Plans and Standards. The proposed extension and all appurtenances shall be constructed and installed in accordance with plans prepared by the Applicant at his expense. Plans and specifications shall be prepared by a registered Professional Engineer and approved by the Town Engineer. The Town's Engineering fee and Public Works Director's salary and related costs shall be paid by the Applicant for the following services:

   a. General consultation with the Applicant regarding the requirements of the Town.

   b. Inspection of the construction in progress, for compliance with the Conditions and Standards of the Town.

   c. Observation of improvement performance tests.

   d. Final inspection of the completed extension for acceptance by the Town.

   e. Processing record drawings and documentation in the Town's files for future use.

   Design, construction and installation shall also be in accordance with the latest edition of the Town of Eatonville Public Works Development and Construction Standards adopted by the Town Council. A copy of said documents are on file at the Town Hall and in the office of the Town Engineer. The terms of said

document are made a part of this agreement by this reference.

4. Contractor Qualifications. The name, address, and telephone number of the Contractor or Contractors who will install the extension are:

Prior to the commencement of any construction activity, Applicant will furnish the Town with written evidence, satisfactory to the Town, that said Contractors are properly licensed, bonded and experienced in public works construction.

5. Costs Payable by Applicant. Any and all costs reasonably incurred by the Town in connection with the receipt, study, approval or rejection of this application, including, without limitation, all legal, engineering and accounting fees, shall be borne by the Applicant. The Applicant agrees to pay such costs within 30 days of billing by the Town. In consideration of the Town's review of the proposed plans, Applicant will deposit with the Town the sum of $1,000 or $1.75 per lineal foot of the proposed extension (as shown in the construction plans), whichever sum is greater, when plans are submitted to the Town for review. This sum shall be held by the Town as a deposit to pay any and all costs incurred by the Town in connection with this agreement. The Town will return any funds remaining after acceptance of the constructed system. (Interest will not be paid on any monies returned.) If the deposit is not sufficient to pay all costs, the Town will request additional deposits from time to time which the Developer shall pay within 10 days after the request. If, after authorizing the Town to commence these tasks, the Applicant decides not to complete the proposed project, the Town shall receive payment from the Applicant computed on an hourly basis for all services performed including all hourly rates with benefits, all overhead costs plus 15%.

6. Observation and Supervision by the Town. Applicant acknowledges that the Town requires that all construction, connections to the existing system, and all testing of the improvements be made in the presence of the Public Works Director or his authorized representative. Applicant shall require their Contractor to make written application for and to obtain written permission from the Public Works Director or his authorized representative to make final connection to the Town's system on a specified date at a specified time. The Town shall have full right and authority to stop construction at any time if the Contractor deviates from the approved specifications and plans or refuses to comply with any other reasonable request of the Public Works Director.

7. Insurance. Applicant agrees to provide the Town, prior to the commencement of any construction, with proof of adequate liability and property damage of not less than $500,000 and for personal injury of not less than $500,000. Applicant will furnish Town with written evidence of prepayment and renewal of such insurance from time to time as requested by the Town. The policy or certificate of insurance shall name the Town, Town employees, Town consultants and elected or appointed officials as additional insured parties.

8. Easements. Applicant shall be responsible for securing any required easements, franchises or rights-of-way necessary for the construction of the extensions and shall deliver executed and recorded copies thereof to the Town prior to commencing construction. The form and content of such documents shall be approved by the Town's Engineer and Attorney.

9. Permits. Applicant shall be responsible for obtaining and paying for all necessary building, land use, route-crossing and other permits and environmental reviews and notices which may be required by any governmental agency for the construction of the aforesaid improvements. Copies of all such documents shall be furnished to the Town prior to the commencement of construction. The Town may require that such documents be prepared by its own Engineer or Attorney. Applicant shall pay all costs and fees associated with such preparation.

10. Applicant's Guaranty of System. Applicant guarantees that all materials, equipment, workmanship and labor utilized in the system for a period of one year after acceptance of the extension by the Town. If any modifications, repairs or maintenance must be performed on the system during that period, Applicant shall pay all costs. Thereafter, the Town shall be responsible for maintaining and repairing the system.

11. Performance Bond. Applicant shall furnish to the Town a Performance Bond, in an amount equal to 50% of the Town Engineer's estimated total cost of the improvements, prior to the staking of all work for construction. The Performance Bond shall guarantee satisfactory completion of the construction improvements, shall guarantee all materials, equipment, workmanship and labor for a period of one year from acceptance of the completed improvements by the Town and shall benefit all persons furnishing labor and materials, whether claiming under the Public Works Lien statutes or the Mechanics and Materialmens Lien statues of the State of Washington. The Town reserves the right to reject the form of the bond or the surety company issuing the Performance Bond and to require the submittal of a bond in revised form or from a different surety company. In lieu of a performance bond, the Town may accept an assignment of funds deposited in a local bank.

12. Grading of Roads. Applicant agrees to grade all roads to the design subgrade elevation prior to the start of construction and to advise the Town during construction of any changes which may be contemplated or required. If the Applicant changes the subgrade elevation of the road after completion of the storm drainage construction, Applicant agrees to raise or lower the storm drainage as required by the new subgrade elevation, and revise all utilities to the satisfaction of the Town at no cost to the Town.

13. Conveyance of Improvements to Town. Upon completion of construction, and upon the Town's approval, and prior to the acceptance of the improvements by the Town Council, title to the system shall be conveyed to the Town, at no cost to the Town, such conveyance to be evidenced by a Deed and Bill of Sale in form approved or furnished by the Town. Thereafter, such extension shall be under sole control, use and operation of the

Town, subject to all regulations and conditions of service charges established from time to time by the Town Council. When delivering the Deed and Bill of Sale, Applicant shall furnish to the Town a schedule showing the costs of all materials, labor and equipment, together with a detailed list of all materials and the name of the manufacturer and supplier of all components of the system. This information is required for inventory, insurance and maintenance of the Town's utility systems.

14. Duration of This Agreement. This agreement shall expire one year from its date. If the extension is not completed and accepted within that time, then Applicant's rights under this agreement shall cease and Applicant shall make new or amended application and pay any and all additional administrative, legal, engineering and observation costs involved, as determined by the Town.

15. Indemnification. Applicant hereby agrees to indemnify and hold the Town, the Town Engineer, the Town Council and their employees harmless from any and all costs or claims which may arise from construction of the proposed extension, including, without limitation, any and all claims for property damage and personal injury or claims arising from deficiencies in the system during the one year period of Applicant's guarantee of the system.

16. Annexation. In the event that the property to be served by the proposed extension, as described herein above, is not presently within the boundaries of the Town, Applicant agrees to obtain and present to the Town a petition, in form satisfactory to the Town, for annexation of said property into the Town, and to pay all legal, engineering and other costs incurred by the Town in conducting the necessary annexation proceedings. Included within such costs are, without limitation, the costs of amending the Town's Comprehensive Road and Street Plan and obtaining approval of the annexation by the Town and the Pierce County Boundary Review Board. If an annexation is necessary, applicant agrees to deposit the estimated legal and engineering costs of such annexation proceedings with the Town, in amount to be determined by the Town, prior to the Town's approval of this application and prior to the Town's acceptance of the annexation petition.

17. Attorney's Fees. If any legal proceedings are instituted to enforce any provision of this agreement or to collect any sums owing under this agreement, Applicant agrees to pay all reasonable attorney's fees and court costs incurred by the Town.

19. Consideration Payable by Town. Applicant agrees that the sole consideration to be furnished by the Town for this agreement shall be the Town's agreement to furnish utility service to the system upon the Town's acceptance thereof, and that the Town has made no agreement to pay to the Applicant any "latecomers charges" or other compensation for Applicant's conveyance of the system to the Town, unless such compensation has been specifically agreed to by the Town in a separate written document executed herewith.

20. Other Charges by Town. Applicant has been furnished with a copy of the Town's current schedule of charges for sewer service fees, connection fees and other charges now in effect throughout the Town. Applicant understands that the future utility service to

the extension shall be conditioned upon the payment of such additional charges by Applicant and other residents who later decide to connect to the system. Said charges are subject to change from time to time, as determined by the Town Council, and the actual charges to be assessed will be those in effect at the service is actually requested by those users who desire to connect to the system.

WHEREFORE, the applicant has submitted this application this____day of _____, 19___.

_____
APPLICANT

_____
APPLICANT

_____
APPLICANT

This application is accepted and approved by the Town this_____day of_____ , 19_____. Upon compliance with the terms and conditions of this contract by the Applicant, Town agrees to accept said extension and furnish utility service thereto.

TOWN OF EATONVILLE, WASHINGTON

By_____

_____

C O N T E N T S

1.00 INTRODUCTION

The purpose of these Road Standards is to standardize road design elements where necessary for consistency and to insure, so far as practical, that the minimum requirements of the public are met. These requirements include safety, welfare, convenience, pleasant appearance and economical maintenance.

These Standards cannot provide for all situations. They are intended to assist, but not to substitute for competent work by professional engineers. It is expected that the professional engineer will bring to each project the best of his skills and abilities to see that the project is designed correctly and accurately.

Also, these Standards are not intended to limit unreasonably any innovative or creative effort which could result in better quality, better cost savings, or both. Any proposed departure from these Standards will be judged, however, on the likelihood that such variance will produce a compensating or comparable result, in every way adequate for the road user and Town resident.

1.01 Shortened Designation: These Town of Eatonville Road Standards will be cited routinely in the text as the "Standards."

1.02 Applicability: These Standards shall govern all construction and upgrading of all roads in existing Town right-of-way or roads which are proposed for dedication to the Town of Eatonville, except for those projects done by the Town of Eatonville.

Before the Public Works Director accepts a road as dedicated Town road it shall meet these Standards. If field conditions change after plan approval, improvements shall be made, as necessary, to bring the road up to these Standards.

1.03 Specifications and Plans: Except where these Standards provide otherwise, design detail, workmanship and materials shall be in accordance with the following publications, current editions. Publications from W.S.D.O.T. can be purchased from the W.S.D.O.T. Pre-Contract Administration. Their address is: Transportation Building, Room 2B-10, Olympia, WA 98504.

A. Standard Specifications for Road and Bridge Construction published by the Washington State Department of transportation.

B. Standard Plans for Road and Bridge Construction published by the Washington State Department of Transportation.

C. U.S. Department of Transportation Manual on Uniform Traffic Control Devices, as amended and approved by Washington State Department of Transportation;

abbreviated as the "M.U.T.C.D.".

D. Standard Specifications for Highway Bridges, adopted by the American Association of State Highway and Transportation Officials (A.A.S.H.T.O.), current edition.

1.04 Time Limitation of Approval: The approval of road construction plans shall be valid for a time period of 3 years from the date of approval by the Public Works Director or during the 3-year preliminary plat stage plus 1 year automatic extension period. Plans not implemented within this time period shall be submitted to the Town for review and any revisions or modifications necessary to meet the current Standards shall be made before the plans are approved by the Town.

1.05 Variances: Variances from these Standards may be granted by the Public Works Director upon evidence that such variances are in the public interest, that they are based upon sound engineering judgment, and that requirements for safety, function, appearance, and maintainability are fully met. Desired variances must be approved prior to construction. A variance to this ordinance shall be authorized by the Public Works Director upon submittal of additional information, plans and/or design data by a professional engineer retained by the Applicant showing that the requested variance is safe and can be economically maintained by Town forces.

1.06 Environmental Considerations:
An environmental checklist shall be submitted to the Town of Eatonville for the work shown on the road and/or storm drainage construction plans submitted to the Public Works Director for review and approval unless the proposed work is part of a project for which an environmental checklist has already been submitted. A declaration of non- significant impact or a final environmental impact statement must be issued for the work before the project plans are given final approval by the Public Works Director.

1.07 Financial Guarantees:

A. Maintenance Guarantees:

1. The Town shall require a bond or other financial surety acceptable to the Town to guarantee that the Applicant will correct any defect or subsequent problem in a dedicated improvement, including the satisfactory functioning of the project's drainage and/or drywell system caused by improper design, faulty construction, poor housing construction practices or other reasons determined by the Town. The guarantee shall not exceed 7.5% of the construction cost of the project as determined by the Town. The guarantee shall remain in effect for a period of 18 months from the time that the Town accepts

the road and/or storm drainage system for maintenance. The Applicant shall remain financially responsible for any and all costs exceeding the amount of the original financial guarantee.

2. The guarantee shall be submitted to the Town before the improvements are dedicated to the Town or, if applicable, before the posted construction bond is released back to the Applicant at the Applicant's option.

B. Construction Guarantees:

1. A financial guarantee may be submitted to the Town in lieu of construction of the required improvements except in situations where the required work involves a safety or public welfare issue. Project approval shall not be granted until all required safety and public welfare issues are completed to the satisfaction of the Town.

2. The Applicant will be allowed a 2-year time period from the acceptance of the financial guarantee in which to complete the work after which the financial guarantee is subject to default to the Town of Eatonville who will complete the work and use the guarantee for reimbursement. The Applicant shall remain financially responsible for any and all costs exceeding the amount of the original financial guarantee.

3. Final approval of the road construction plans will not be given or a construction permit issued until a financial guarantee is submitted in the amount necessary when so required by the Town.

1.09 Penalties:

A. Failure to comply with these Standards will be cause for withholding or withdrawing approval of plans, forfeiture of bond or non-acceptance of the work by the Town of Eatonville.

B. Any person, firm or corporation who fails to obtain the necessary permit(s) as required by this chapter shall be deemed guilty of a misdemeanor, and such violation shall be punishable by a fine of $250.00 for each offense and up to 90 days in jail. Each person, firm or corporation found guilty of a violation shall be deemed guilty of a separate offense for every day during any portion of which any violation of any provision of this chapter is committed by such person, firm or corporation and

shall be punishable therefore as provided for in this chapter.

1.09 Meaning of Terms:

Applicant: The person, party, firm or corporation who proposes to do the improvement work.

Public Works Director/Town Engineer: Authorized representative of the Town of Eatonville.

Engineer: A professional engineer licensed by the State of Washington, retained by the Applicant, and acting in their behalf.

Land Surveyor: A professional land surveyor licensed by the State of Washington.

M.U.T.C.D.: The most current edition of the Manual on Uniform Traffic Control Devices as published by the U.S. Department of Transportation and adopted by Pierce County.

Road and Street: Will be considered interchangeable terms for the purpose of these Standards.

W.S.D.O.T.: The Washington State Department of Transportation. Their address is P.O. Box 9327, Olympia, Washington 98504.

W.S.D.O.T. Specifications: The most current State of Washington Standard Specifications for Road and Bridge Construction as published by the Washington State Department of Transportation.

1.10 Severability: If any of these Design Standards and Specifications as established by ordinance shall be found invalid, all other parts shall remain in effect.

1.11 Standard Forms:

A. The following forms for financial guarantees shall be used when making a submittal to the Public Works Director:

1. Performance Bond

2. Bond to Insure Correction of Defective Improvements

3. Assignment of Funds
All financial guarantees shall run continuously until release by the Town and will not have an expiration or cancellation date on them.

B. The following deeds and easements should be used to convey property or rights to the Town of Eatonville:

1. Quit Claim Deed (Individual, Partnership or Corporate) - By signing this document the Grantor(s) quit any claim they have to the property described in the Quit Claim Deed.

2. Storm Sewer Easement - This document conveys to the Town of Eatonville the right to have and maintain a storm sewer system across a specific parcel of property.

3. WARRANTY DEED (Individual, Partnership or Corporation)- by signing this document the Grantor(s) transfers deed to the property and warrants this transfer as described in the Deed.

4. Special Drainage Easement - this document conveys to the Town of Eatonville the right to drain storm water runoff across the parcel described in the Special Drainage Easement.

5. Slope and Utility Easement - This document conveys the right to have fill material or a cut slope and have on private property and also the right to maintain and repair the same.

C. The following Permit forms are available from the Town:

1. Permit (General) - this permit is to be used any time work is being done in the Town right-of-way. The permit is to be completed and approved by the Public Works Director before work commences. A financial guarantee may be required before the permit is issued.

2. Permit (Driveway) - This permit is to be used when constructing a driveway or doing other minor work items in the Town right-of-way. The permit is to be completed and approved by the Public Works director before work commences. A financial guarantee may be required before the permit is issued.

The Public Works Director reserves the right to require complete construction plans which comply with these Standards for the proposed work before issuance of a permit.

1.12 Appeals: Any person aggrieved by any act or decision of the Public Works Director under this ordinance may appeal to the Eatonville Town Council.

2.00 Plan Format

2.01 Submittal Procedure: Plans for proposed road construction shall be submitted to the Public Works Director with a transmittal letter.

A. For proposed road and drainage construction by a

developer, complete road plans and profile, together with drainage calculations, supporting topography mapping, contributing areas, etc., and shall be signed, stamped and submitted by the Applicant's Engineer to the Public Works Director for review.

B. Review fees, if applicable, shall be paid by the Applicant before review of the project by the Public Works Director.

C. Plans shall be reviewed by the Public Works Director according to the date they were submitted. Previously approved plans submitted to the Public Works Director for a revision shall be considered a new submittal. Approved plans under construction will be considered a resubmittal and will be reviewed prior to new submittals.

2.02 General Formatting: General formatting, copying, and submittal processes shall be as follows:

A. Plan-profile sheets and plan sheets shall use a sheet size of 24" x 36". Original sheets shall be mylar, tracing paper or equal.

B. First submittal: 2 sets of prints of road plans, profiles, and detail sheets, including 2 sets of prints of drainage area plans and drainage calculations. When required the erosion and sedimentation control plan shall be submitted at this time.

C. Final submittal: Original and 1 set of prints of corrected road plans, profiles, detail sheets, drainage plans and calculations, and erosion and sedimentation control plans, when required by the Engineer; quantity take-off and Engineer's cost estimate of proposed construction when the project is to be bonded; together with the most recent review set previously marked up by the Town reviewers. Upon the Public Works Director's approval of the final submittal, the Public Works Director will make in-house prints and a reproducible set and return the original set to the Engineer. The Public Works Director will retain this reproducible set utilizing it to make copies for public inspection and distribution as required.

D. All submitted work shall be stamped, signed and dated by a licensed, professional engineer before review by the Public Works Director.

E. Construction plans for roads accessing State highways shall be submitted by the Applicant's Engineer directly to the W.S.D.O.T. All requirements shall be complied with by the Applicant's Engineer. A signed agreement or approval for the intersection or road approach must be obtained by the Applicant before final plan approval will be granted by the Town of

Eatonville. A copy of the approved plan from W.S.D.O.T. shall be submitted to the Town of Eatonville.
The address of the W.S.D.O.T. is: P.O. Box 9327, Olympia, WA 98504.

F. It shall be the responsibility of the Applicant's Engineer to contact the Public Works Director for correct road names.

2.03 Cover Sheet:

A. Road construction plans submitted to the Public Works Director for review and approval for roads in a proposed formal plat, short plat, large lot subdivision or work in existing Town right-of-way or other projects which have a total road length in excess of 1,200 feet shall have a plan cover sheet.

B. The plan cover sheet shall be sheet 1 of the road construction plans and shall contain the following information:

1. An overall site plan drawn to an appropriate scale; such as, 1" = 100', 1" = 200', or 1" = 400' showing the entire development and road system network including its connection to an existing County road or State highway.

2. The project's storm sewer system along with easements, tracts, drainage facilities, all buffer and screening areas, offsite and onsite natural drainage courses or areas shall be shown on the overall site plan.

3. Soil logs and soil log locations when an onsite storm drainage percolation system is proposed.

4. A simple vicinity map drawn to a scale of 4" = 1 mile or other similar scale, with the north area pointed in the same direction as the cover sheet north arrow, showing project site, existing public road system and any other pertinent information.

5. Standard notes which are applicable to the project.

6. The Applicant's and the Applicant's Engineer name, address and telephone number.

7. Field topographic information including contour lines of the property in its natural undeveloped condition. County or U.S.G.S. topographic mapping must be field verified and supplemented with additional field topographic information when necessary to provide an accurate depiction of the property. Field topographic information submitted for the project's storm drainage plan

does not have to be duplicated on the road construction plans. A 5-foot contour interval shall be used except when the property is extremely flat or undulating and the cross slope varies or when pothole areas, wetlands, swales, or drainage courses exist on the property, then a topographic map with contour intervals of 2 feet will be required.

8. When more than 3 sheets are used, a table of contents shall be shown.

9. When the road and/or storm drainage construction plans for a project are outside the boundary of a formal plat, the legal description of the road right-of-way shall be included on the plans along with the name and address of the actual property owner(s).

C. At the Engineer's option the information shown on the cover sheet may be shown on additional sheets.

2.04 Horizontal Plan: Horizontal plan elements shall include the following in addition to those items required on the cover sheet when a cover sheet is not required.

A. Road alignments with 100-foot stationing, preferably increasing to the north or east and reading from left to right, and stationing at points of curve, tangent, and intersection, with ties to section or quarter corners or other established and monumented survey control points at the intersection of the proposed road or roads and the existing County road or State highway. All lettering shall be right reading.

B. Section, township, and range on each page; plat or project name.

C. Bearings on road centerline.

D. Curve data including radius, delta, and arc length on all horizontal lines.

E. Right-of-way lines and width for proposed road and intersecting roads. The plans shall show properly dimensioned lot lines and lot numbers to properly locate and dimension all tract and easement areas. Lot lines and lot numbers are requested to expedite plan review but are not required.

F. All topographic features within right-of-way limits and sufficient area beyond to resolve questions of setback, slope, drainage, access onto abutting property, and road continuations. This shall include, but is not limited to, ditch flow lines, all drainage structures with invert elevations, utility locations, fences, existing curbing and approaches, pertinent trees and shrubbery, and other appurtenances which would effect the construction of

the project.

G. Identification of all existing roads and adjoining subdivisions when it is pertinent to the scope of the project.

H. Typical roadway cross-section(s) of proposed road.

I. Existing and proposed drainage features, indicating direction of flow, size, and kind of each drainage channel, pipe, and structure. The status of existing drainage structures must be clarified as either "existing-retain", "existing-abandon" or "existing-remove."

J. Scale: 1" = 50'. However, 1" = 100' shall be optional for development of lots 1 acre or larger. Details for clarification may be shown on a convenient scale, normally 1" - 10' or 1" = 20'.

K. North arrow shall point to the top, left or to the right side of the sheet.

L. All miscellaneous details such as drainage basins, pipe details, construction details, etc.

2.05 Profile Elements: Profile elements shall include the following:

A. Original ground line at 100-foot stations and at significant ground breaks and topographic features, with accuracy to within 0.2 feet on unpaved surface and 0.02 feet on paved surface.

B. Final road and storm drain profile with stationing the same as the horizontal plan, preferably reading from left to right, to show stationing points of curve, tangent, and intersection of vertical curves, with elevations to 0.01 feet for each road in the project.

C. Road grade and vertical curve data, road to be measured at centerline.

D. Datum and all bench mark information must use established U.S.C.& G.S. control or Pierce County bench marks when there is an existing bench mark within 1/2 mile of the project.

E. Vertical scale 1" = 5'. Clarifying details may be done to a convenient scale. Use 1" = 10' for vertical scale when horizontal plans are at 1" - 100'.

F. When roads end at a property line, the existing ground profile shall be continued a minimum of 200 feet to show that the proposed vertical alignment is reasonable.

G. When intersecting profile grades have a difference of 1% or less, a vertical curve is not required. All other vertical grade intersections will require a minimum 50-foot vertical curve.

2.06 Intersection Plan Details:

A. When either of the road centerline profile grades within 35 feet of an intersection have a gradient of 8% of more, an intersection detail drawn to a scale of 1" = 20' must be included as a detail on the road construction plans. The detail will show spot elevations every 25 feet on the road centerline, around the curb return, and grate elevations for drainage structures in the intersection. The intersection plan must be clearly detailed to show flow line grades and how surface drainage will be controlled at the intersection. Curb return data for lesser gradients shall be shown on the road drawings.

B. Profile grades for all roads (public and private) intersecting onto a Town road (existing or proposed) shall be designed and constructed so that adequate sight distance is available at the intersection. For design purposes the driver's eye height shall be 3.50 feet. The driver's eye shall be located a distance of 10 feet from edge of pavement. The standard vehicle height shall be 4.25 feet.

2.07 Standard Notes: The following standard notes are to be added to the construction plans if applicable. Other notes should be added as appropriate and necessary.

A. All materials and workmanship shall be in accordance with the requirements of the latest State of Washington, Department of Transportation Standard Specifications for Road and Bridge Construction and Town of Eatonville Public Road Standards.

B. Inspection of the storm drain system must be called for before any backfill is placed for the drain system.

C. Catch basins shall be Type 1 with B-2a frame and grate unless otherwise noted.

D. If adequate inspection is not called for before completion of the roadway construction, it may be necessary for core drilling and testing to be performed to assure an acceptable quality of roadway. When core drilling is found to be necessary, the developer will be billed and held responsible for all costs incurred.

E. It will be the developer's or his agent's responsibility to contact all utility companies in order to assure that all lines, pipes, poles and

other appurtenances are properly located and their installation is coordinated with the road construction. All utility relocation work shall be at the expense of the developer and must be in accordance with standards adopted by the Town prior to road acceptance.

F. Culvert pipe shall be 12-inch concrete culvert pipe unless otherwise noted.

G. Buried utilities are shown in their approximate location. The contractor shall have the utilities verified on the ground prior to any construction.

H. Before working in the Town of Eatonville right-of-way, the contractor and/or Applicant shall provide proof of liability insurance in an amount established by the Public Works Director.

I. A financial guarantee in the amount determined by the Public Works Director to insure the correction of defective improvements will be required and will remain in effect for a period of 18 months from the time that the Town of Eatonville accepts the road for maintenance.

J. Onsite erosion control measures shall be the responsibility of the Applicant. Any problems occurring before final acceptance by the Town of Eatonville and within 18 months thereafter shall be corrected by the developer.

K. Any revisions to these plans must be made by the Engineer and approved by the Public Works Director prior to any implementation in the field.

L. All pavement markings shall conform to the requirements of the M.U.T.C.D.

M. Before striping takes place the contractor shall contact the Public Works Director.

N. A copy of these approved plans must be on the job site whenever construction is in progress.

O. Town of Eatonville shall be notified 48 hours before construction is started.

P. Temporary cul-de-sac, fill unpaved portion of 40-foot radius with 2-inch compacted depth crushed surfacing top course and slope at 2% towards the road and level to the thickened edge.

Q. Slopes to be stabilized to prevent erosion. In case erosion occurs in ditches, ditch lining is to be

provided as requested and specified by the Public Works Director.

R. All Type 2 catch basins over 4 feet in height shall have standard steps.

S. Where newly constructed paving meets existing paving, overlay and feather new pavement to provide a smooth transition from existing to proposed paving. Apply tack coat to insure proper bonding.

T. Provide 6-foot shoulder of 2-inch compacted depth minimum crushed surfacing top course around entire radius and taper to existing shoulder on both sides. (See Plan View for typical locations).

3.00 ROAD TYPES, GEOMETRICS AND DESIGN PARAMETERS

The Town of Eatonville has two (2) basic roadway sections which shall be used as shown below. Details of these roadway sections are found in the Appendix.

1. Vertical Curb Type Roadway, Drawing No. 1 shall be used in the following situations:

   a) For all roads which serve lots that are smaller than 1 acre in area.

   b) When road gradients exceed 6%. If due to soil conditions an erosion problem will be created with a lesser gradient.

   c) For all roads which have an arterial classification.

   d) When an existing 40-foot right-of-way from a plat of record is to be developed.

   e) When a 50-foot right-of-way width is to used.

   f) For roads that serve commercial projects.

   g) For all roads within the Urban Area Boundary as established by the most recent Puget Sound Council of Governments Urban Area Boundary Line in accordance with R.C.W. 36.79.010 as designated by the State Transportation Commission.

2. Thickened Edge Roadway, Drawing No.2 shall be used in the following situation:

   For roads which serve lots that are 1 acre or larger in area, or roads which serve as access only to a development unless Conditions b) through g) above apply.

The road construction centerline may be shifted from the right-of-way centerline when unusual or mitigating situations warrant such a revision. The Engineer shall

submit information to the Town of Eatonville to justify the revision and the final decision shall be made by the Public Works Director. The right-of-way centerline shall be monumented.

3.01 Cul-de-Sacs - Permanent: See detail Plate 17.
Description: A dead-end local access road or existing Town road which will not be extended in the foreseeable future.

A. Geometrics of stem section are the same as for local access or existing Town road.

B. Minimum right-of-way width across bulb section: 110 feet.

C. Minimum pavement width across bulb: 90 feet.

D. Cul-de-sac streets shall not be more than 500 feet in length unless authorized by the Public Works Director. It must be shown by the Applicant's Engineer that a cul-de-sac of a longer length is the only alternative method of serving or developing the property.

E. The minimum length of a cul-de-sac shall be 20 feet from the edge of pavement of the through road to the beginning of the bulb.

3.02 Cul-de-Sacs - Temporary: See detail in Appendix.

Description:
A dead-end local access road or existing Town road that will likely be extended within a 5-year time period.

A. Geometrics of stem section are the same as for local access or existing Town road.

B. Minimum easement width across bulb section: 80 feet.

C. Minimum pavement width across bulb section. Additional paving outside of the normal roadway section will not be required. The paved roadway section shall be constructed to the property line.

D. The following note shall be used: "Temporary cul-de-sac, fill unpaved portion of 40-foot radius with 2 inches minimum compacted depth crushed surfacing top course and slope at 2% towards the road and level to the thickened edge."

3.03 Intersections for Local Access Roads: Criteria

A. Angle of Intersection (min. & max.) 85 to 95

B. Centerline Radius (local access intersecting local access) 35 feet

C. Minimum Property Line Radius 20 feet

D. Centerlines of intersections of road approaches on opposite sides of the road shall be designed to directly oppose each other or shall be offset by a minimum of 125 feet.

E. On sloping approaches at an intersection, the landing is not to exceed a 1-foot difference in elevation for a distance of 30 feet approaching an arterial road or 20 feet approaching a local access road, measured from nearest right-of-way line of the intersection street.

5.00 WORK IN TOWN RIGHT-OF-WAY AND ROAD ACCEPTANCE PROCEDURE

5.01 Requirements for Working in Town Right-of-Way:

A. No work shall occur in existing, deeded Town right-of-way until construction plans have been approved showing the limits and all details of the proposed work and a bond or other financial guarantee and liability insurance acceptable to the Town has been submitted to cover all proposed work or a permit has been obtained from the Town. A construction permit shall be obtained by the Applicant before work commences in Town right-of-way.

B. An Engineer's estimate shall be submitted to the Town by the Engineer detailing the quantity of work to be done in the Town right-of-way. The estimate shall be based on current construction costs.

An executed contract for the total project between a licensed, bonded contractor and the project Applicant may be substituted in lieu of the Engineer's estimate.

C. The Public Works Director shall review the Engineer's estimate or the executed contract and, if it is in order, the Public Works Director will establish the amount of the financial guarantee. The financial guarantee shall be 125% of the Engineer's estimate or of the executed contract to allow for inflation and engineering administration expenses should the Town have to complete the project.

D. Liability insurance in the form and amount determined necessary by the Town of Eatonville shall be obtained by the Applicant or his contractor before work commences in Town right-of- way. Proof of proper insurance coverage shall be provided to the Town upon request. Specific information, forms, etc., can be

obtained from the Town of Eatonville.

5.02 Widening and Overlaying of Existing Facilities:

A. Road widening and/or overlaying of existing Town roads may be required as the result of development approval, the permit process, subdivision approval or due to a decision rendered by elected officials of the Town or their representative. When road widening and/or overlaying is required, the existing road shall be upgraded as required by these Standards. The purpose of road widening is to provide a safe and efficient roadway surface for the increased traffic that will be created as a result of the proposed development. Road overlays are necessary to provide a stable and structurally sound roadway surface that will result in a maintenance-free road for the Town.

B. Lane and shoulder widths shall be constructed to full width throughout the entire length of the project.

C. Storm drainage control and improvements may be required as the result of the additional widening that would be done. The increased runoff generated by the improvement work must be satisfactorily controlled as per storm drainage design guidelines of the Town.

D. Road widening and/or overlays shall be done as per the detail shown in the Appendix.

5.03 Road Acceptance Procedure:

A. The Town of Eatonville has no obligation to accept any private road into the Town's road system for dedication or maintenance. It shall be the Applicant's responsibility to submit a preliminary site plan showing the road(s) proposed for dedication to the Town and must receive the Public Works Director's written approval before preceding with road construction plans.

B. Road construction plans done in accordance with these Standards shall be submitted for review and must be approved by the Public Works Director before road construction activity commences.

C. All construction work must be completed to the Town of Eatonville standards and/or financial guarantee(s) submitted to the Town in the form and amount as required by these Standards before the Town of Eatonville will accept the road for dedication and maintenance.

D. The Applicant must submit all necessary deeds, easements, etc., to the Town for acceptance and recording by the Pierce County Auditor's Office.

E. Once the road has been dedicated to the Town and

accepted for maintenance, the road shall remain open for public use and may not be closed except by the Town.

6.00 ROADSIDE APPURTENANCES

6.01 Clearing: The entire right-of-way shall be cleared and grubbed as per W.S.D.O.T. Specifications unless otherwise authorized by the Town. Due to extreme potential liability problems faced by the Town, clearing less than the total right-of-way must be justified by the Engineer before consideration of approval by the Public Works Director.

6.02 Side Slopes:

A. Side slopes shall be constructed no steeper than 1-1/2 to 1 on fill slopes and 1 to 1 on cut slopes. Flatter slopes are preferred and may be required by the Town if there are indications that the earth is unstable and subject to sliding, sloughing or erosion.

B. Side slopes shall be stabilized by grass sod, hydroseeding, by other planting or surfacing materials, or by the use of other material types acceptable to the Town.

C. Side slopes may also have to be flattened to accommodate utility placement. Placement of utilities outside of their standard location as per other adopted standards due to steep side slopes shall not be permitted.

D. Side slopes higher than 15 feet shall be terraced.

6.03 Rock Retaining Walls:

A. Rock retaining walls may be used for the containment of cut slopes or fill embankments up to a maximum height as shown in the chart on the Rock Wall Detail (Appendix Plate 15), in stable soil conditions which will result in no significant foundation settlement or outward thrust upon the walls. For heights over 14 feet or when soil is unstable, a structural wall of acceptable design shall be used and calculations shall be submitted to the Public Works Director for approval. A soils investigation and report by a Geotechnical Engineer may be required by the Public Works Director if soil conditions are questionable.

B. Materials:

1. Rock sizes shall be as shown on the Rock Wall Detail on Plate 15.

2. The rock material shall be as nearly rectangular

as possible. No stone shall be used which does not extend through the wall. The rock material shall be hard, sound, durable and free from weathered portions, seams, cracks and other defects. The rock density shall be a minimum of 160 pound per cubic foot.

C. The retaining wall shall be started by excavating a trench, not less than 12 inches in depth below subgrade in excavation sections or below the existing ground level in embankment sections.

D. Rock selection and placement shall be such that there will be minimum voids and, in the exposed face of the wall, no open voids over 6 inches across in any direction. The final course shall have a continuous appearance and be placed to minimize erosion of the backfill material. The larger rocks shall be placed at the base of the rockery so that the wall will be stable and have a stable appearance. The rocks shall be placed in a manner such that the longitudinal axis of the rock shall be at right angles or perpendicular to the rockery face. The rocks shall have all inclining faces sloping to the back of the rockery. Each course of rocks shall be seated as tightly and evenly as possible on the course beneath.

E. The wall backfill shall consist of gravel backfill for walls as per W.S.D.O.T. Specifications. This material shall be placed to a 12-inch minimum thickness between the entire wall and the cut or fill material. The backfill material shall be placed in lifts to an elevation approximately 6 inches below the top of each course of rocks as they are placed, until the uppermost course is placed. Any backfill material on the bearing surface of a rock course shall be removed before setting the next course.

F. A 6-inch perforated drain pipe shall be installed behind the first course of rock and laid on original ground. The perforated drain pipe shall be surrounded by gravel backfill for drains as shown on the standard plan found in the Appendix. Positive drainage for the perforated drain pipe shall be provided and shown on the construction plan.

G. The face of the rockery shall be sloped at 1/4 to 1 or flatter.

H. For rock walls in fill sections all fill material placed beyond the backfill shall be placed and compacted in a maximum of 6-inch compacted lifts.

6.04 Survey Monuments:

A. All existing survey control monuments which are disturbed, lost, or destroyed during surveying or construction shall be replaced at the expense of the Applicant by a licensed land surveyor.

B. Survey control monuments shall be placed by a licensed land surveyor as shown on the approved construction plans in accordance with recognized good practice in land surveying, and in accordance with the approved details for survey monuments.

C. Survey monuments shall be required at all intersections, P.C.'s, P.T.'s, centers of cul-de-sacs and other appropriate locations as determined necessary by the Public Works Director. Monuments at P.C.'s and P.T.'s may be eliminated and replaced with a monument at the P.I., if the P.I. falls within the paved roadway surface.

D. For formal recorded documents containing a surveyor's certificate, monumentation and staking shall be placed in accordance with the certificate and the Survey Recording Act by the responsible surveyor. Two (2) copies shall be submitted to the Town for its files.

6.05 Traffic Control:

A. All traffic control and traffic control devices shall be as specified in the latest edition of the M.U.T.C.D. If required by the Public Works Director, the Engineer shall submit temporary traffic control plans for review and approval. The Applicant shall implement the approved plan, when necessary, until the project is given final approval by the Town of Eatonville.

B. During the progress of the work barriers and warning signs shall be erected and maintained as necessary or as directed by the Public Works Director for the protection of the traveling public. The barriers shall be properly lighted when necessary.

6.06 Road Approaches: Road approaches shall be constructed by the Applicant for all existing driveways and approaches before acceptance of the road by the Public Works Director. The approach(es) shall be constructed in accordance with the Town's Road Standards. Grading and restoration of the private road or driveway beyond the end of the road approach shall be done by the Applicant to provide a smooth, passable, and safe transition to the existing facility.

6.07 Utilities and Utility Location:

A. It will be the Applicant or Engineer's responsibility to contact all utilities to see that the utilities are located in accordance with these or other adopted standards and that the installation work is coordinated with the road construction work.

B. Improper location or construction of utilities will be sufficient reason for the refusal of the Public

Works Director to accept a road for dedication and maintenance.

C. Utilities to be located within existing but unconstructed Town rights-of-way and roads which are proposed for dedication to the Town shall be constructed in accordance with current franchise procedures and in compliance with these Standards.

D. Utilities shall be located and installed as per the standard drawings found in the Appendix. Exceptions may be approved by the Public Works Director, when necessary, due to existing utilities, storm sewer systems and sanitary sewer lines.

6.08 Utilities Installation and Relocation:

A. As a matter of policy, utility trenching or transverse cuts in new Town roads will be discouraged. They will not be permitted unless it can be shown that alternatives such as boring or jacking or relocating outside the paved roadway area is not feasible unless the utility can be installed just prior to construction or overlay of the road. When trenching or cutting is permitted backfilling shall be done in accordance with W.S.D.O.T. Specifications.

B. Pole utilities and underground utilities, including service crossings, shall be installed or relocated prior to the start of road construction if planned road cuts and fills are minimal and location of road elements can be clearly indicated in advance. Otherwise such utilities, with connections, shall be installed or relocated after the subgrade has been completed but before surfacing has been placed.

C. All utilities relocation work shall be done at the Applicant's expense.

6.09 Street Lighting: If street lighting is required as part of overall project approval the Applicant's Engineer should contact the Town for installation details. All work shall be in accordance with applicable local and state standards and as approved by the Public Works Director.

6.10 Roadway Striping, Buttoning and Delineation:

A. When required by the Town, roadway striping, buttoning or other traffic delineators shall be installed in accordance with the approved plans and the M.U.T.C.D., and the detail sheet found in the Appendix titled "Traffic Delineation Details."

B. Before any pavement marking work takes place, the Applicant shall contact the Town's Public Works Director. An onsite meeting may be required to review the work and method of construction.

6.11 Sidewalks

A. Sidewalks shall be installed in accordance with the details shown in the Appendix.

B. The entire right-of-way shall be cleared, grubbed and graded to create a uniform and smooth profile grade for the sidewalk. All organic matter shall be removed and the subgrade compacted under the sidewalk as required by the Town.

C. After the removal of the forms, the sidewalk shall be backfilled and the right-of-way restored to the satisfaction of the Town.

6.12 Street Name Signs:

A. Street name signs for private roads may be installed in Town right-of-way if the sign and its placement is in accordance with these Standards.

B. Variation from the standard placement location shall be by written approval of the Public Works Director only. All clearing in Town right-of-way to provide visibility will be the responsibility of the Applicant.

C. Placement of private road street name signs in Town right-of-way shall be by Town general permit only.

D. Any sign constructed in Town right-of-way in non-conformance to these Standards may be removed by Town forces and any liability incurred by the Town due to non-conformance by the Applicant will be transferred to the Applicant.

6.13 Stop Signs:

A. Stop signs shall be installed by the Applicant at locations determined by the Public Works Director as soon as the road under construction is opened to vehicular use. The signs and their placement location shall be in conformance to the standards noted in the Appendix. Variation from the standard placement location shall be by written approval from the Public Works Director only.

B. Placement of stop signs in Town right-of-way shall be by Town general permit or in accordance with approved road construction plans only.

C. All clearing necessary to provide visibility will be the responsibility of the Applicant.

D. Any sign constructed in Town right-of-way in non-conformance to these Standards may be removed by Town forces and any liability incurred by the Town due to non-conformance by the Applicant will be transferred

to the Applicant.

7.00 DRAINAGE

7.01 Drainage Plan:

A. When construction plans for roads which are to become public roads or roads in existing Town right-of-way are submitted to the Town they shall be accompanied by a comprehensive storm water drainage plan. The drainage plan shall be done in accordance with the Town of Eatonville Storm Drainage Ordinance.

B. Storm drainage will be controlled by the simplest and most easily maintainable system possible. Long-range maintenance costs shall be a prime consideration when reviewing and approving a storm drainage system. Whenever possible projects will connect into, either directly or in the form of an overflow, an existing storm sewer system that has a positive outlet.

7.02 Storm Drain Systems:

A. All storm drain pipe shall be minimum 12-inch diameter rubber-gasketed concrete pipe, except for perforated pipe and major underground detention facilities. Runoff shall be computed and, if the flow requires it, a larger pipe shall be used. The rubber-gasket requirement may be waived by the Town if it can be shown that joint leakage will not be detrimental to the road prism.

B. The maximum desirable velocity in the pipe system is 15 feet per second. The Applicant's Engineer must show that an alternative drainage design is not feasible when water velocities exceed 15 feet per second. Capacities of pipes with velocities exceeding 15 feet per second shall be computed taking into account entry and exit losses. Energy dissipators may be required to mitigate high velocities.

C. When extreme slope conditions or other unusual topographic conditions exist and subject to approval by the Public Works Director, other pipe materials and methods, such as, but not limited to, plastic or ductile iron pipe may be used.

D. Storm drain gradients shall be such as to assure minimum flow velocity of 2 feet per second when flowing full.

E. Debris barriers shall be required at the inlets of all culverts larger than 18 inches unless waived by the Town.

F. Access barriers shall be required at the outlets of all culverts larger than 18 inches unless waived by the Town when the pipe is accessible by the general

public and, in particular, small children.

G. Downsizing of downstream culverts within a closed system with culverts 18 inches in diameter and smaller shall not be permitted.

H. Where any pipe discharges onto an area at a point other than a natural, well defined drainage course, the discharge shall be dispersed over an area sufficient to approximate the pre-developed condition. When required the dispersion trench will meet the specifications shown in the Appendix. An easement for the dispersion area shall be provided to the Town.

I. Maximum spacing of structures for storm drainage conveyance lines running within an easement area shall be 200 feet. Structures shall have solid covers and locking lids when required by the Town.

J. Where an approved connection of a private storm drainage system into a Town system occurs, a minimum of a Type 1 catch basin shall be used. Tee connections into the side of a pipe shall not be permitted.

7.03 Storm Drainage Easements: Structures, including percolation trench systems, within an easement, shall not be located closer than 5 feet from a drainage easement line. Drainage easements shall be a minimum of 15 feet in width. Easement widths in excess of 15 feet may be required for pipe sizes in excess of 36 inches or depths greater than 10 feet.

7.04 Storm Drainage Percolation Systems:

A. Whenever possible storm drainage percolation systems must be installed in the road right-of-way. When a percolation system is constructed outside of the right-of-way a separate tract for the system shall be dedicated to the Town of Eatonville. The tract shall be 15 feet in width and the length shall be 10 feet greater than the constructed length of the percolation trench. The maximum percolation trench width shall be 5 feet and, when possible, limited to one side of the roadway.

The tract may be dedicated to the Town of Eatonville by notation on a final plat or by separate Quit Claim Deed.

B. Standard placement of the perforated pipe shall be 18 feet from centerline of the road to centerline of the perforated pipe. A storm drain pipe for the percolation system shall not be installed under the paved roadway surface or in fill material unless previously approved by the Town. The maximum trench width shall be 5 feet.

C. Pipe for storm drain percolation systems shall meet W.S.D.O.T. Specifications for zinc coated (galvanized) corrugated iron or steel underdrain pipe (Chapter 9-05.2(4)) or perforated corrugated aluminum alloy underdrain pipe (Chapter 9-05.2(5)).

Perforated underdrain pipe meeting W.S.D.O.T. Specifications, Chapter 9.05.2(2) and A.A.S.H.T.O. Designation M175, Type 1, may be used with the additional conditions: The perforations shall be circular and a minimum of 1/2-inch in diameter. They shall be cleanly cut and the inside and outside of the pipe shall be perfectly smooth and uniform. There shall be a minimum of 7 sets of perforations with 2 holes per set of perforations for each 3-1/2 feet of pipe length. Rubber gaskets or grouting of joints for perforated pipe runs will not be required. Inspection of the perforated pipe shall be made by the Town before installation of the pipe in the ground.

D. Before entering the perforated pipe system, storm drainage must pass through a Town of Eatonville standard drywell. The drywell shall be constructed as per the standard detail shown in the Appendix.

Standard placement of the drywell shall be 18 feet minimum from the road centerline, to centerline of drywell unless otherwise required by the Town.

E. Due to the size of the drywell with surrounding backfill and the location of the perforated pipe the graded shoulder width shall be increased to 10 feet or wider, if necessary to accommodate utilities.

F. Backfill for the perforated pipe system shall be 3/4 inch to 2-1/2 inches washed gravel. Material passing the #40 sieve shall not exceed 2% by weight.

G. Design and construction of the perforated pipe system shall be as per the detail found in the Appendix.

H. When the perforated pipe system is installed in sandy soils (more than 30% of the native material passing #4 sieve) the trench shall be surrounded with filter fabric and installed as per the manufacturer's installation recommendation.

I. Continuous perforated pipe systems shall not exceed 150 feet in length from a structure. A Type 1 catch basin with solid cover shall be installed at intermediate locations as necessary.

J. For the design of a percolation system, percolation rates verified by the Applicant's Engineer must be submitted with the design calculations. The percolation rate shall be based on actual soil logs taken at the location of the proposed percolation system. The soil logs and soil log locations will be

shown in the road plans. The soil logs will be a minimum of 1 foot deeper than the limits of the proposed percolation system. The maximum percolation rate that will be used for design purposes will be 3 minutes per inch. Soils exhibiting percolation rates slower than this are not suitable for percolation systems. Wet weather-high water level information must be included as part of the soil log information when required by the Town. The soil logs will be stamped and signed by the Engineer. If a high water table is expected a winter review may be required.

7.05 Catch Basins, Frames, Grates and Lids:

A. Maximum spacing of catch basins for contained storm sewer systems shall be 200 feet for pipe grades up to .3%. When pipe grades are .3% or greater, maximum spacing shall be 350 feet.

B. Maximum surface runs for storm drain on the paved roadway surface shall be as follows:

Slope (%)	Max. Spacing (ft)
.7 to 1	200
1 to 6	350
6 to 8	250
8 to 12	150

C. Unless otherwise required by the Town, Type 1 catch basins as per W.S.D.O.T. Specifications shall be used at the following locations or for the following situations:

1. When overall structure height does not exceed 8 feet.

2. When pipe sizes do not exceed 15 inches and connect at right angles to the long side of the structure; or 12 inches connecting to the short side.

3. When all pipes tying into the structure connect at or very near to right angles.

D. Unless otherwise required by the Town, Type 1a catch basins as per W.S.D.O.T. Specifications may be used at the following locations or for the following situations:

1. When overall structure height does not exceed 8 feet.

2. When all pipes tying into the structure do not exceed 15 inches; connecting to the long side, or 15 inches connecting to the short side at or very near to right angles.

E. Unless otherwise required by the Town, Type 2, 48-inch diameter catch basins as per W.S.D.O.T. shall be

used at the following locations or for the following situations:

1. When overall structure height does not exceed 15 feet.

2. When all pipes tying into the structure do not exceed 21 inches. Type 2 catch basins over 4 feet in height shall have standard ladders.

F. Structures for conditions outside of those noted above shall be as per W.S.D.O.T. standard plans or shall be designed for the particular situation by a licensed engineer.

G. Metal frame and grate for catch basin and inlet, W.S.D.O.T. Standard Plan B-2a shall be used for all structures collecting drainage from the paved roadway surface.

H. When the road profile equals or exceeds 6% between structures, an asphalt berm as per the detail found in the Appendix shall be installed around the inlet of the structure.

I. Solid metal covers for catch basins, W.S.D.O.T. Standard Plan B-2 shall be used for all structures not collecting drainage from the roadway surface.

J. When required by the Town, locking lids will be installed on structures containing restrictor or flow devices. The locking lids shall be of a quality and design acceptable to the Town.

K. Pipes connecting into a structure shall match crown elevations unless otherwise approved by the Town.

7.06 Flow Restrictor/Oil Pollution Control Device:

A. Structures containing the control device shall be accessible by a maintenance vehicle and shall be within security fencing when possible. If access to the control device is not secured by fencing a locking lid shall be utilized for the structure cover.

B. An access road to the restrictor device shall be provided. The access road will be constructed of 2 inches of crushed surfacing top course over a base suitable to the Town. A standard residential road approach shall be constructed at the approach of the access road to the Town road. The minimum radius of the access road shall be 35 feet.

C. Flow restrictor devices shall be placed in a Type 2 catch basin or larger if so warranted by pipe sizing. The emergency overflow outlet capacity of the restrictor device shall not be less than the combined inlet capacities.

D. All metal parts and surfaces must be made of corrosion-resistant material or completely galvanized.

E. The control device shall be designed and installed as per the detail found in the Appendix.

7.07 Open Retention/Detention Basin:

A. If the side slopes of the basins are steeper than 4:1 or if the water depth exceeds 18 inches the basin shall be fenced. The fence will be Type 1 chain link fence with pull wire in place of top rail. A 14-foot gate shall be provided for access to the basin. For basins requiring fencing the fence shall be placed 1 foot inside the tract boundary or a minimum of 5 feet from the top slope catch point. Maximum side slopes shall not exceed 2:1.

B. An access road to the bottom of the basin shall be provided. The grade of the ramp will not exceed a 6:1 slope and will have a 10-foot minimum width. The access road will be constructed of 2 inches of crushed surfacing top course over a base suitable to the Town. A standard residential road approach shall be constructed at the approach of the access road to the Town road. The minimum radius of the access road shall be 35 feet.

C. A minimum of a 6-foot area from slope catch point outward shall be included as part of the basin area dedicated to the Town.

D. The basin including the access to the basin shall be dedicated to the Town.

E. Any pipe stem access to a basin shall be fenced with a Type 4 chain link fence with a 14-foot gate. The main body of the basin shall be fenced as per the above-noted requirements.

F. All retention/detention basins shall have a minimum of 1 foot of freeboard above the maximum design water surface elevation. Retention basins shall have a maximum design water depth of 4 feet. Detention basins with a water depth in excess of 4 feet must have the prior approval of the Town.

G. For embankments less than 4 feet in height the top shall have a minimum 6-foot width with back slopes not to exceed 2 horizontal to 1 vertical.

H. For embankments greater than 4 feet in height the top width shall have a minimum 15-foot width with backslopes not to exceed 2 horizontal to 1 vertical. A key section will be included in the design if required by the Town. If required by the Town, the Engineer will submit design data for the embankment along with a letter verifying its adequacy. The Town

may also require the designing Engineer to verify the construction of embankment.

I. All embankments for basins shall be compacted as per Method C, Section 2-03.3(14)C of W.S.D.O.T. Specifications. Embankments adjacent to a stream or other body of water shall be sufficiently protected with riprap or other means acceptable to the Town to prevent erosion of the basin embankment. A hydraulic analysis of the adjacent watercourse may be necessary to determine what erosion control measures may be necessary.

J. All constructed and graded detention basins shall be sloped no flatter than 1% towards the outlet to insure positive drainage out of the basin. Slopes less than 1% shall require prior Town approval and shall be verified by the Applicant's Engineer upon construction completion.

K. All detention basins having a design capacity in excess of 10,000 cubic feet shall have a spillway whose overflow elevation is .5 feet higher than the maximum design water surface elevation. Retention basins having a design capacity in excess of 10,000 cubic feet shall have a spillway meeting the above-noted design criteria when so required by the Town.

L. Spillway surfacing may be rock quarry spalls, asphalt concrete or cement concrete. Rock spalls will have a minimum dimension of 4 inches and will be laid in 2 or more layers to a minimum depth of 6 inches. Asphalt concrete shall be 2 inches minimum compacted depth over base of 2 inches compacted depth crushed surfacing top course. Cement concrete shall be 6 inches of Portland Cement Concrete Class 3000. Spillway shall have side slopes at the ends not to exceed a slope of 3 horizontal to 1 vertical.

M. Spillway for basins shall be designed as a broad-crested weir with the maximum depth of flow over the weir not to exceed 4 inches.

N. A minimum of 2 cross sections through the center of the basin (one for each direction of the basin) shall be shown on the construction plans. The cross sections shall be drawn to scale of 1" = 20' horizontal and 1" = 2' vertical and will show all applicable topographic features.

O. Easements for landscaping purposes will be granted to individuals, corporations or homeowner associations to screen and obscure an open retention/detention basin. A landscaping plan must be presented to the Town for review and approval before landscaping work commences. The easement must contain provisions for maintenance of the landscaping by the party to whom the easement will be granted.

P. Detention basins shall be seeded and all slopes stabilized in their entirety including all disturbed areas within the tract to be dedicated to the Town. Retention basins shall be seeded and all slopes stabilized except for those areas which are calculated and designed as percolation areas.

7.08 Closed Detention Systems:

A. Underground detention systems may be constructed of cement concrete or steel. All steel used for the detention system shall be galvanized and have a Treatment 1 asphalt coating or shall be aluminized steel as specified in the W.S.D.O.T. Specifications. All materials used for the detention system must be structurally sound.

B. Adequate access shall be provided to all closed detention systems. One access riser with standard ladder shall be provided for each 100 lineal feet of detention system, but not less than 1 riser per detention facility. When outside the fenced area, the catch basins and access risers shall have solid round locking lids. The stub-end detention system shall have an access riser with standard ladder in addition to the control catch basin with flow restrictor/oil pollution device.

C. The detention system and access manhole shall be capable of holding a HS 20 loading. Structural calculations will be submitted by the Applicant's Engineer when required by the Town.

D. An air vent of 4-inch minimum diameter must be provided for all closed detention systems with pipe diameters greater than 36 inches.

E. The detention systems shall be sloped at .5% towards the outlet to provide positive drainage out of the system.

F. Closed detention systems shall not be permitted under the paved roadway surface. When the system is outside the road right-of-way a separate tract dedicated to the Town of Eatonville shall be provided. The tract shall be a minimum of 5 feet beyond the outside of the systems when cuts are 5 feet in depth or less and shall be a minimum of 10 feet beyond the outside of the system when cuts are in excess of 5 feet.

7.09 Ditches, Designed and Constructed Channels:

A. All road ditches shall be as shown on roadway section Drawing No. 3. All other ditches or channels shall have a minimum side slope of 2 horizontal to 1 vertical. Flatter side slopes or riprapping may be required by the Town if side slope stabilization is necessary to prevent erosion. Ditches or channels may be "V" shaped or trapezoidal.

B. Bank stabilization is required when the design flow velocities of constructed ditches or channels exceed 5 feet per second.

C. Headwalls will be required at culvert entrances or exits when maximum ditch side slopes cannot be met. Otherwise ditches shall have rock-lined bottoms and side slopes at discharge points of storm sewers or culverts when design flow velocities exceed 5 feet per second. The rock blanket shall have a minimum thickness of 8 inches and extend for a minimum of 6 feet downstream from the end of the storm sewer or culvert and will be keyed into the swale section.

D. Where velocity of flow in road ditches exceed 5 feet per second the two sides of the "V" ditch shall be lined with rock. The minimum rock thickness will be 8 inches. The top of rock lining shall extend to the bottom of the roadway shoulder on both sides of the ditch.

E. Fencing equivalent to that for drainage basins may be required by the Town when side slopes are steeper than 4:1 and actual water depth is greater than 18 inches.

F. All ditches and channels shall be designed with a minimum freeboard of .5 feet when the design flow is 10 cubic feet per second or less and 1 foot when the design discharge is greater than 10 cubic feet per second.

G. Ditches and channels in property other than Town right-of-way will require a drainage easement when required by the Town. A 10-foot wide access easement along one side of the ditch or channel may be necessary in addition to the normal easement width. Otherwise the easement width will be the width of the ditch or channel (measured from catch point to catch point) plus 5 feet on each side of the ditch or channel.

7.10 Riprapping and Energy Dissipation:

A. All drainage structures and pipes shall be provided with sufficient riprapping and/or energy dissipation to prevent scour or erosion at all pipe inlets or outlets.

B. Riprapping at pipe outlets shall be provided in all situations. Rock size shall be sufficient to provide the necessary energy dissipation to prevent erosion. The size of the riprap pad shall be as follows for the various pipe diameters:

Pipe Diameter	Riprap Width	Pad Size Length	Depth
12"	36"	48"	12"
15"-18"	48"	60"	18"
24"-30"	48"	72"	24"

C. Riprapping or headwalls at pipe inlets shall be provided when required by the Town. Erosion at the pipe inlet, hydraulic efficiency and traffic safety shall be the criteria used to determine the necessity for inlet riprapping or headwalls.

8.00 EROSION AND SILTATION CONTROL:

A. It shall be the responsibility of the Applicant and his contractor to control erosion and siltation when working in existing Town right-of-way when deemed necessary by the Town or on the project site when required by the Town of Eatonville.

B. Excavation and grading shall be done in a manner to maintain controlled drainage on the worksite and to minimize the exposure of unprotected slopes to the action of precipitation or flowing ground water. When possible, existing natural vegetation shall be left intact.

C. Exposed slopes shall be given appropriate permanent protection as soon after completion as practical. Hydroseeding, ground cover, riprap or other methods approved by the Town shall be installed when required by the Town. This shall include but is not limited to side slopes of drainage basins, cut and fill slopes, easements and tracts dedicated to the Town for storm drainage or other purposes.

INDEX

EATONVILLE ROAD & STORM STANDARDS

26. MANHOLE - TYPE 4

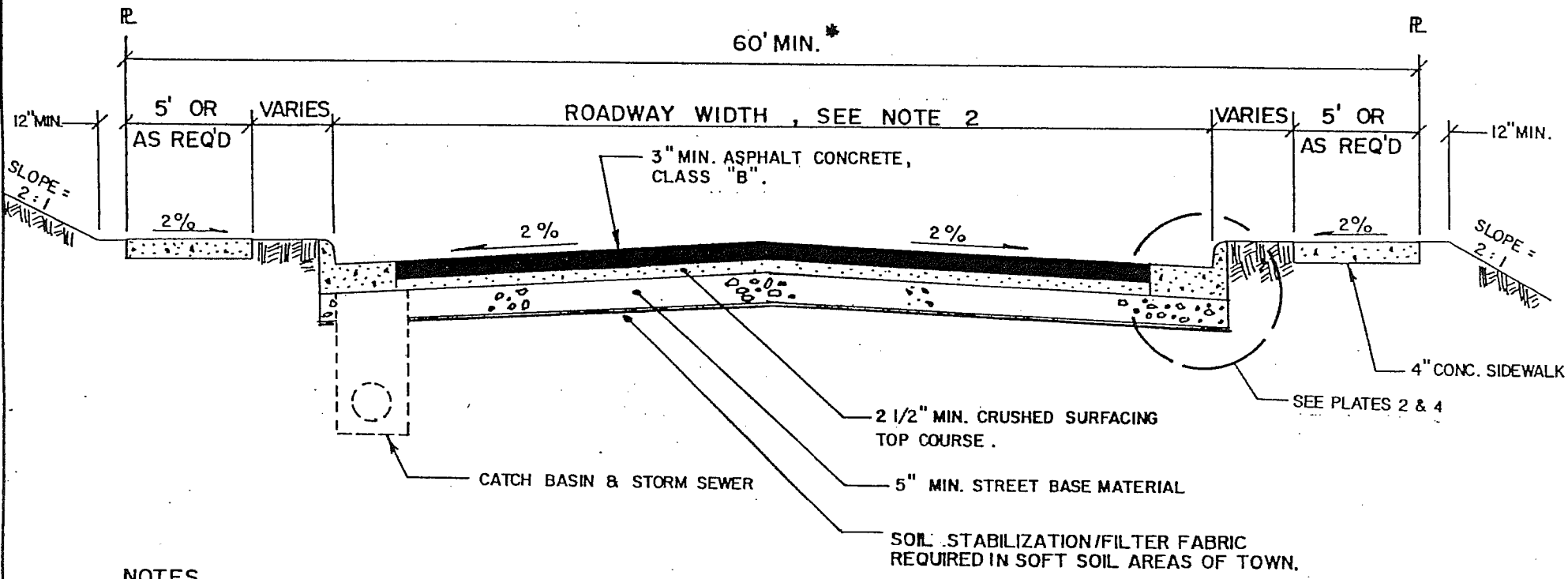
27. MISCELLANEOUS MANHOLE DETAILS

28. SIDEWALK DRAIN FOR BUILDING DOWNSPOUT TYPE 1

29. SMALL FLOW SIDEWALK DRAIN

30. STANDARD BASIN DETAIL

31. CATCH BASIN INLET DETAIL



NOTES

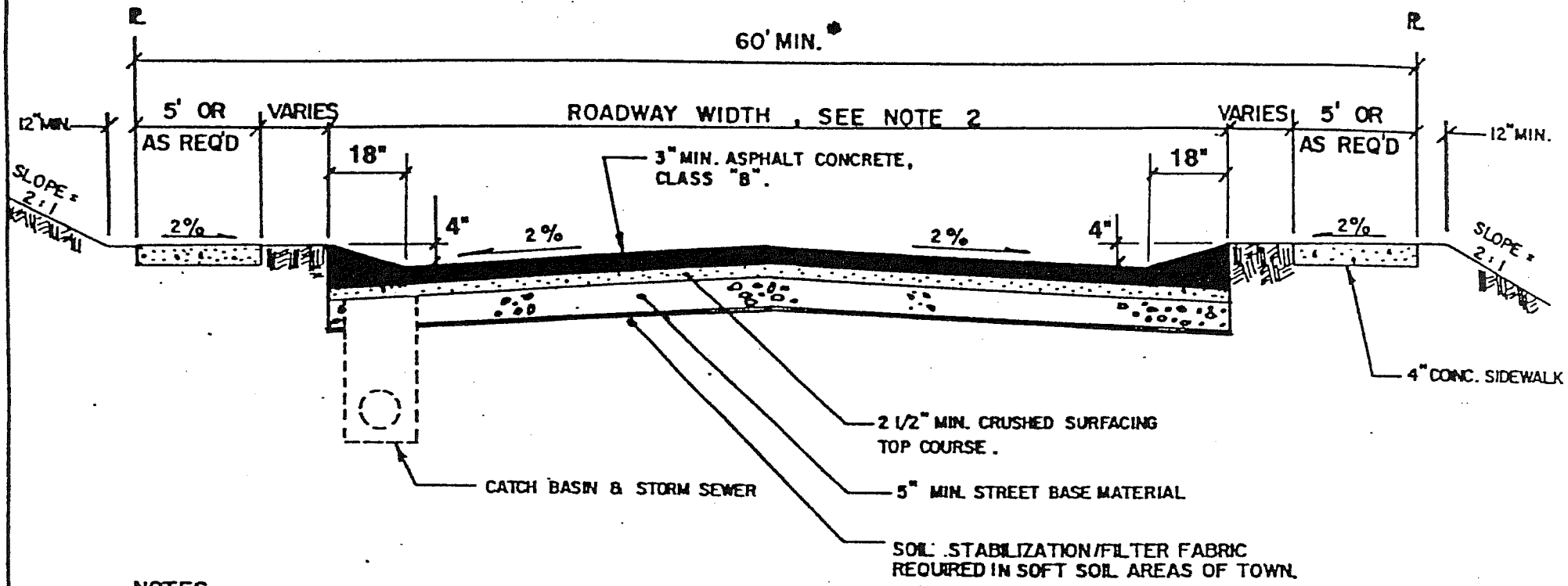
1. ALL DEPTHS INDICATED ARE MINIMUM COMPACTED REQUIREMENTS. PAVEMENT SECTION DESIGN CALCULATIONS SHALL BE SUBMITTED.
2. MINIMUM WIDTH MEASURED FROM FACE TO FACE OF THE CURB:
   A. RESIDENTIAL - 34 FEET
   B. COLLECTOR OR HIGH DENSITY AREA - 44 FEET
   C. ARTERIAL AND HIGH VOLUME STREETS - WIDTH SHALL BE DETERMINED BY THE PUBLIC WORKS DIRECTOR.

* 3. CUL DE SAC 44' MIN. R/W.

VERTICAL CURB TYPE ROADWAY

TOWN OF EATONVILLE, WA.

DWG. NO. 1



NOTES

1. ALL DEPTHS INDICATED ARE MINIMUM COMPACTED REQUIREMENTS. PAVEMENT SECTION DESIGN CALCULATIONS SHALL BE SUBMITTED.
2. MINIMUM WIDTH MEASURED FROM FACE TO FACE OF THE CURB:
   A. RESIDENTIAL - 35 FEET
   B. COLLECTOR OR HIGH DENSITY AREA - 45 FEET
   C. ARTERIAL AND HIGH VOLUME STREETS - WIDTH SHALL BE DETERMINED BY THE PUBLIC WORKS DIRECTOR.

* 3. CUL DE SAC 44' MIN. R/W.

THICKENED EDGE TYPE ROADWAY

TOWN OF EATONVILLE, WA.

DWG. NO. 1.1

NOTES FOR: ROADWAY CROSS SECTION

1. All depths indicated are a minimum compacted depth.

2. MINIMUM STREET WIDTHS (measured from face to face of the curb):
   A. Residential - 34 feet
   B. Collector or high density area - 44 feet
   C. Arterial and high volume streets - width shall be determined by the Public Works Director.

3. SUBGRADE PREPARATION:
The upper one (1) foot of the subgrade soils shall be compacted to at least 95% of the modified proctor maximum dry density. Below the one (1) foot 90% minimum compaction shall be required.

The Contractor shall meet the requirements as outlined in Section 2.06 of the Standard Specifications, for Subgrade Preparation.

It shall be the responsibility of the Contractor to accomplish the specified compaction for the subgrade materials and to control all operations of this work.

Compliance tests will be made by the Contractor to confirm that compaction is meeting the requirements set forth above.

If compaction tests fail to meet the requirements set forth, the Contractor shall re-compact the area to bring the density up to the specified level.

Subsequent compaction tests required to confirm that the re-compacting methods have brought up the subgrade to the specified density shall be paid for by the Contractor. The Contactor's confirmation tests shall be performed in accordance to these specifications.

4. BANKRUN GRAVEL:

Subbase material shall be compacted to 95% of the modified proctor maximum dry density.

The bankrun gravel shall meet the requirements as set forth in Section 4.02 Gravel Base of the Standard Specifications.

The Contractor shall furnish and place the bankrun gravel in accordance with the Standard Specification as set forth above. The Contractor shall select the source, but the source and quality of the material shall be approved by the Engineer.

5. Eight (8) inches of crushed ballast - 2" minus along with an approved 8 oz. soil stabilization fabric may be used in lieu of the ten (10) inches of bankrun gravel.

ROADWAY CROSS SECTION	
TOWN OF EATONVILLE, WA	I-A

6. CRUSHED BALLAST - 2" MINUS:

The Crushed Ballast - 2" minus shall meet the requirements as set forth in Section 4.04 Ballast and Crushed Surfacing of the Standard Specifications.

7. SOIL STABILIZATION FABRIC:

Where directed by the Engineer, the Contractor shall place a geotextile fabric over the existing subgrade with a minimum of a twenty-four (24) inch overlap.

The subgrade shall be prepared as outlined in Division 2 of these specifications before the placing of the fabric on the subgrade.

The geotextile fabric shall be a woven polypropylene fabric. The fiber filaments shall be formed into a stable network such that the filaments retain their relative position.

The Contractor shall not be allowed to use any portion of a used roll of fabric. All rolls of material delivered to the site shall be properly packaged per the manufacturer's recommendation. The material shall be Mirafi 500X or an approved equal.

8. CRUSHED SURFACING TOP COURSE:

Base material shall be compacted to 95% of the modified proctor maximum dry density.

Crushed Surfacing Top Course shall meet the requirements as outlined in Section 4.04 Ballast and Crushed Surfacing of the Standard Specifications.

The Contractor shall furnish and place the crushed surfacing in accordance with the Standard Specifications as set forth above. The Contractor shall select the source, but the source and the quality of the material shall be approved by the Engineer.

9. ASPHALT CONCRETE PAVEMENT:

Asphalt Concrete Pavement Thickness:

A. Residential street - 3" minimum
B. Collector street - 3" minimum
C. Arterial streets - 4" minimum

The Contractor shall furnish and place Asphalt Concrete Pavement in accordance with Section 5.04 Asphalt Concrete Pavement of the Standard Specifications or as set forth in the Standard Detail.

ROADWAY CROSS SECTION

TOWN OF EATONVILLE, WA | I-B

CLASS B

Asphalt Concrete Pavement Class B shall be composed of the following materials and shall produce a uniformly graded mixture.

SIEVES	%PASS
5/8" square	100%
1/2" square	90-100%
3/8" square	75-90
1/4" square	55-75
US #10	32-48%
US #40	11-24%
US #80	6-15%
US #200	3-7%
Asphalt Cement	4.0-7.5% AR 4000

CLASS G

Asphalt Concrete pavement Class G shall be composed of the following materials and shall produce a uniformly graded mixture.

SIEVES	%PASS
1/2" square	100%
3/8" square	97-100%
1/4" square	60-88
US #10	32-53%
US #40	11-24%
US #80	6-15%
US #200	3-7%
Asphalt Cement	4.0-7.5% AR 4000

The Town of Eatonville reserves the right to modify the gradation to provide for a finer mix if the conditions warrant doing so.

The Contractor shall provide the Engineer with a job mix formula to be reviewed prior to placement of any asphalt.

Temperatures shall not exceed 325 degrees Fahrenheit at the discharge of the plant nor be less than 185 degrees Fahrenheit leaving the spreader box.

ROADWAY CROSS SECTION

TOWN OF EATONVILLE, WA | I-C

Pavement being placed three (3) inches thick and less shall be placed in one lift. Pavement greater than three (3) inches thick shall be placed in successive lifts, no single lift shall exceed three (3) inches in thickness. All measurements of lifts given shall be compacted measurements.

The acceptable level of compaction shall be a minimum average compacted density of 92% of the maximum density as determined by WSDOT Test Method 705.

On curb and gutter streets, the seam between the new asphalt and the gutter shall be sealed after paving.

Compliance tests will be made by the Contractor to confirm that compaction is meeting the requirements set forth above.

Control lots not meeting the prescribed minimum density standard shall be removed and replaced with satisfactory material.

Subsequent compaction tests required to confirm that the re-working methods have brought up the asphalt pavement to the specified density shall be paid for by the Contractor. The Contractor's confirmation tests shall be performed in accordance to these specifications.

10. ASPHALT FOR TACK COAT:

Asphalt used for tack coat for an asphalt overlay shall be CSS-1 and shall not be cut back more than 50%. The tack coat asphalt shall be applied uniformly over the roadbed at a rate of 0.06 gallons per square yard at temperature 100 degrees Fahrenheit and shall be allowed to set to a tacky state prior to applying asphalt pavement.

11. ASPHALT MEET LINES:

All meet lines between passes of the asphalt shall be uniform, with the edges vertical and at the desired thickness. If the subsequent passes are not completed within 48 hours of each other or the edges are extremely contaminated, the meet lines shall be sprayed with tack coat as described above.

12. ADUSTMENT OF EXISTING STRUCTURES:

All existing manhole covers, valve boxes and monument cases shall be removed by the Contractor and stored. The manholes and valves shall be covered with an appropriate sized metal cover to prevent dirt and debris from entering.

After paving, castings shall be re-installed and patched.

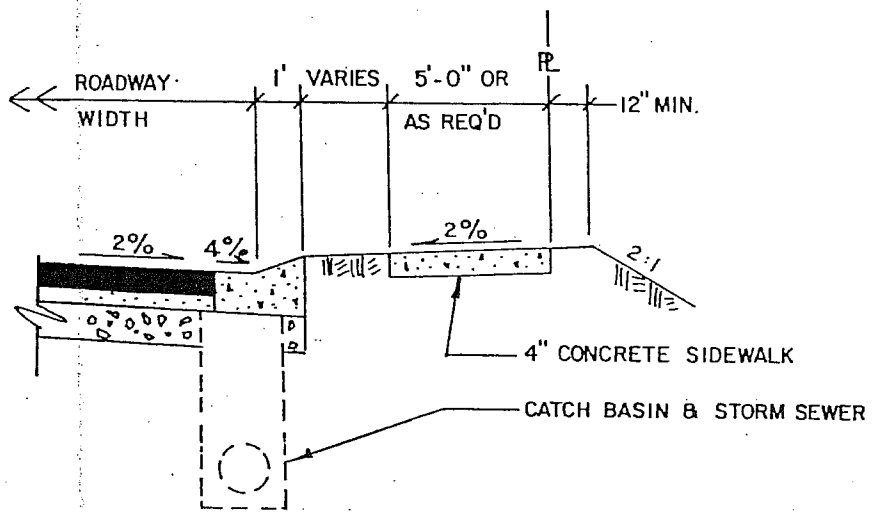
Adjusting castings to finished grade shall be accomplished by methods conforming to the Standard Specifications.

13. Any change/changes from the standard pavement section shall require the approval of the Public Works Director. A structural pavement cross section design (calculations and information) shall be required.

14. Monuments shall not be removed by Contractor until properly referenced by Owner of qualified representative.

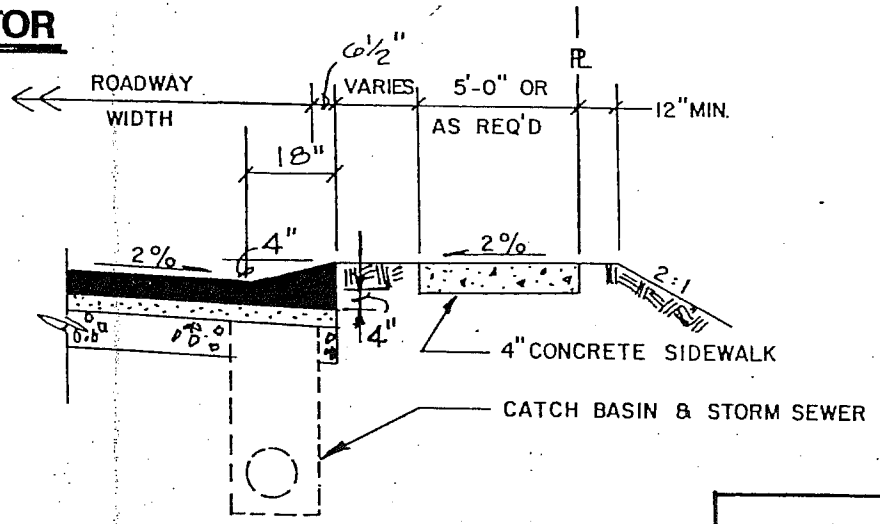
ROADWAY CROSS SECTION

TOWN OF EATONVILLE, WA | DWG NO. 1-E



ROLLED CURB TYPE ROADWAY

COLLECTOR



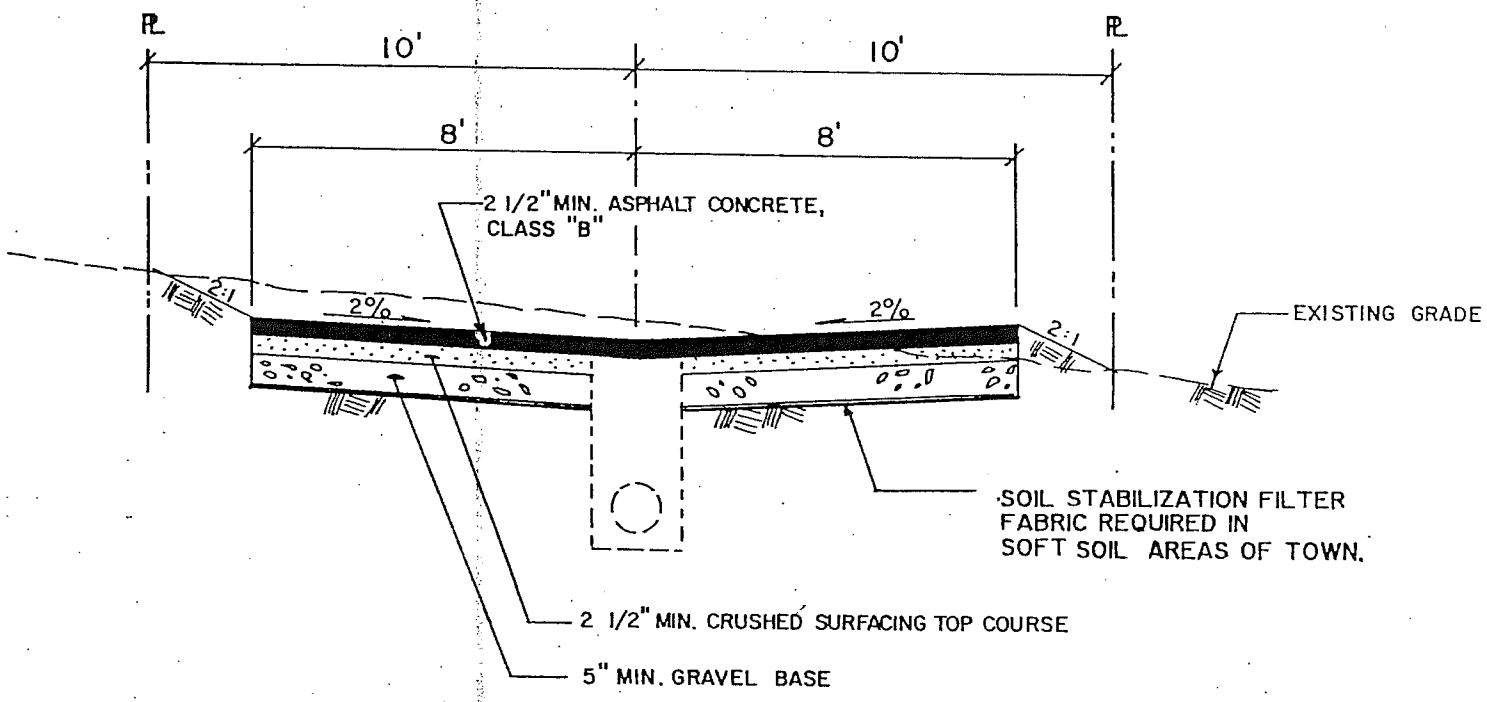
THICKENED EDGE ROADWAY

CUL DE SAC & SUB COLLECTOR

ROADWAY EDGE DETAILS

TOWN OF EATONVILLE, WA.

DWG. NO. 2

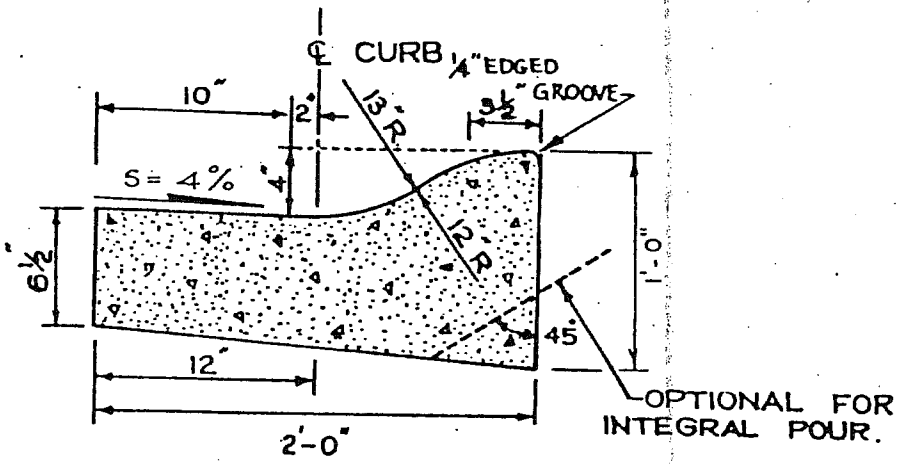


NOTE:
ALL DEPTHS INDICATED ARE MINIMUM COMPACTED REQUIREMENTS. PAVEMENT SECTION DESIGN CALCULATIONS SHALL BE SUBMITTED.

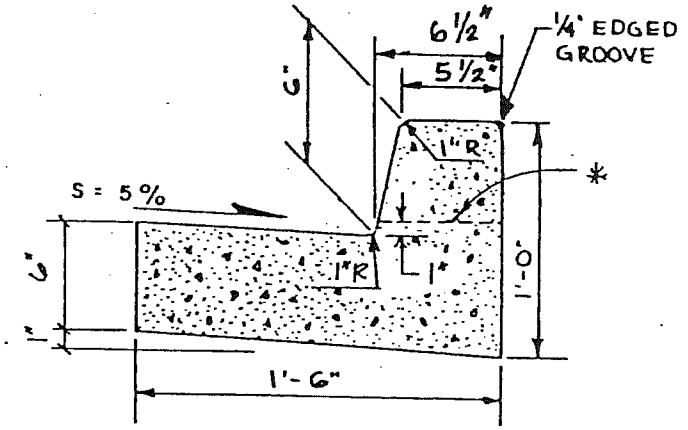
TYP. ALLEY SECTION - ASPHALT

TOWN OF EATONVILLE, WA.

DWG. NO. 3



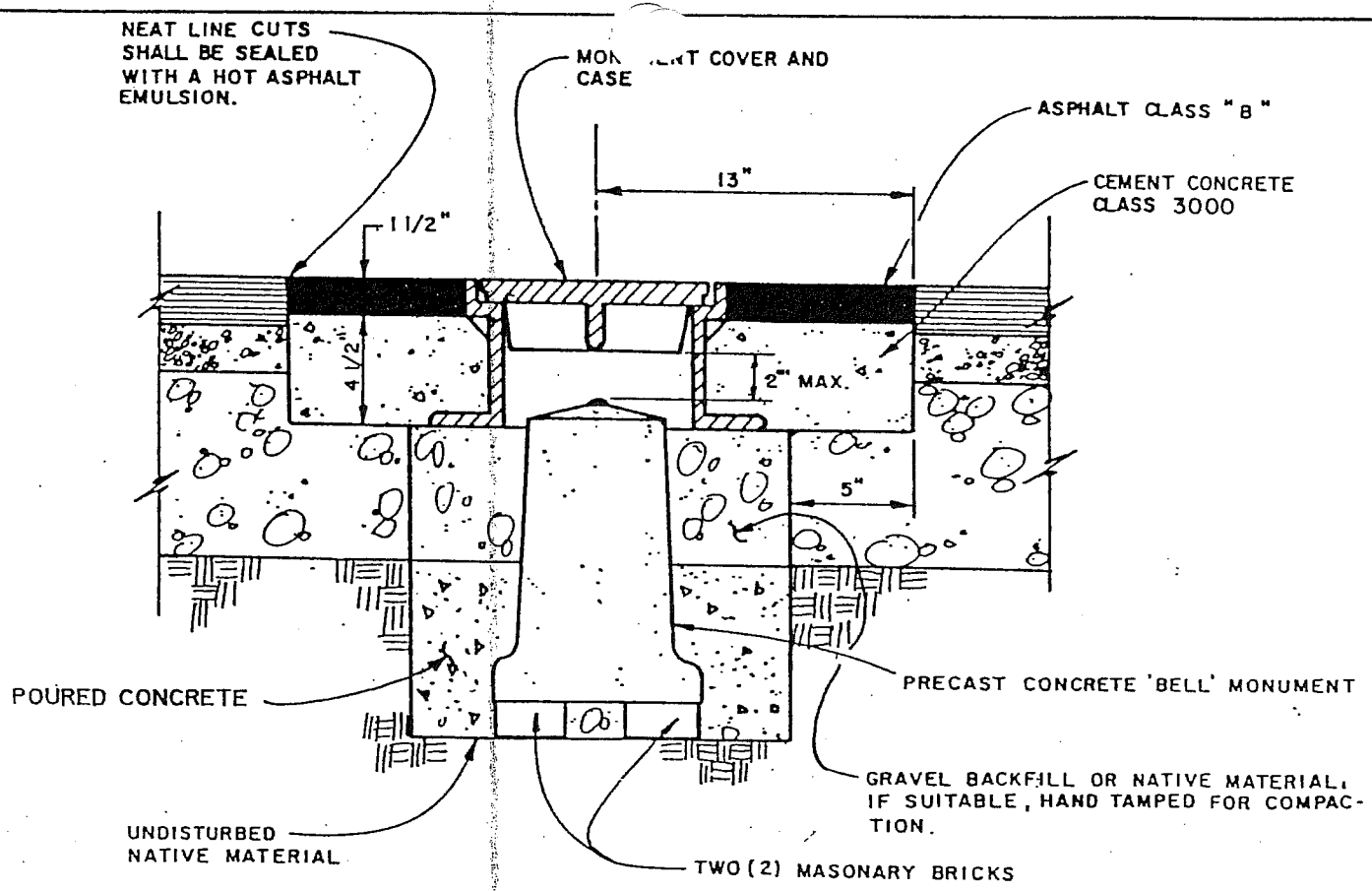
CEMENT CONCRETE ROLLED CURB.

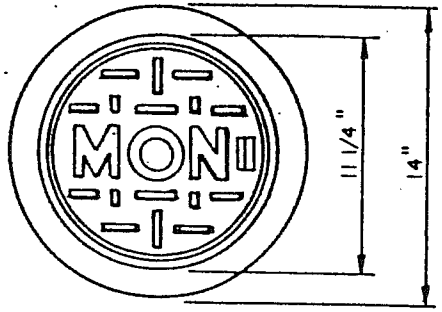


* NOTE : TOP OF CURB @ DRIVEWAYS.

CEMENT CONCRETE CURB & GUTTER.

CURB DETAILS	
TOWN OF EATONVILLE, WA.	DWG. NO. 4





MONUMENT COVER

NOTES:

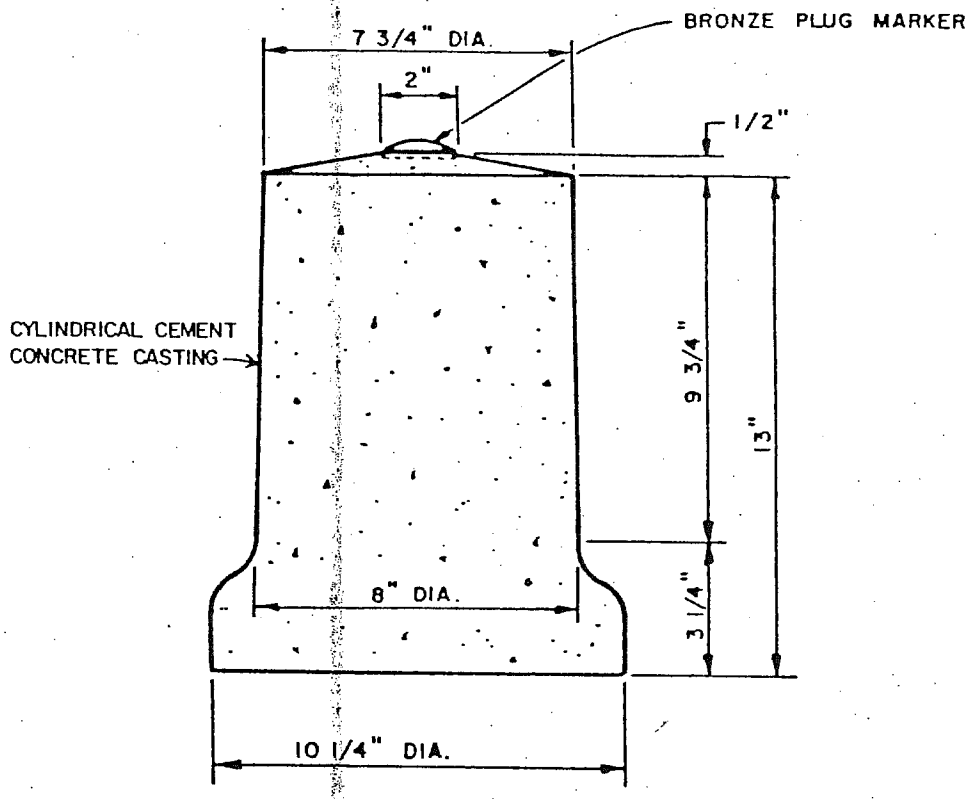
1. MACHINE BEARING SURFACES OF COVER AND CASE TO INSURE POSITIVE FIT.
2. MATERIAL SHALL CONFORM TO THE "1991" STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION" PREPARED BY THE WASHINGTON STATE DEPT. OF TRANSPORTATION AND AMERICAN PUBLIC WORKS ASSOCIATION, WASHINGTON STATE CHAPTER.

FOR ARTERIALS

MONUMENT IN ASPHALT

TOWN OF EATONVILLE, WA.

DWG. NO. 5



NOTES:

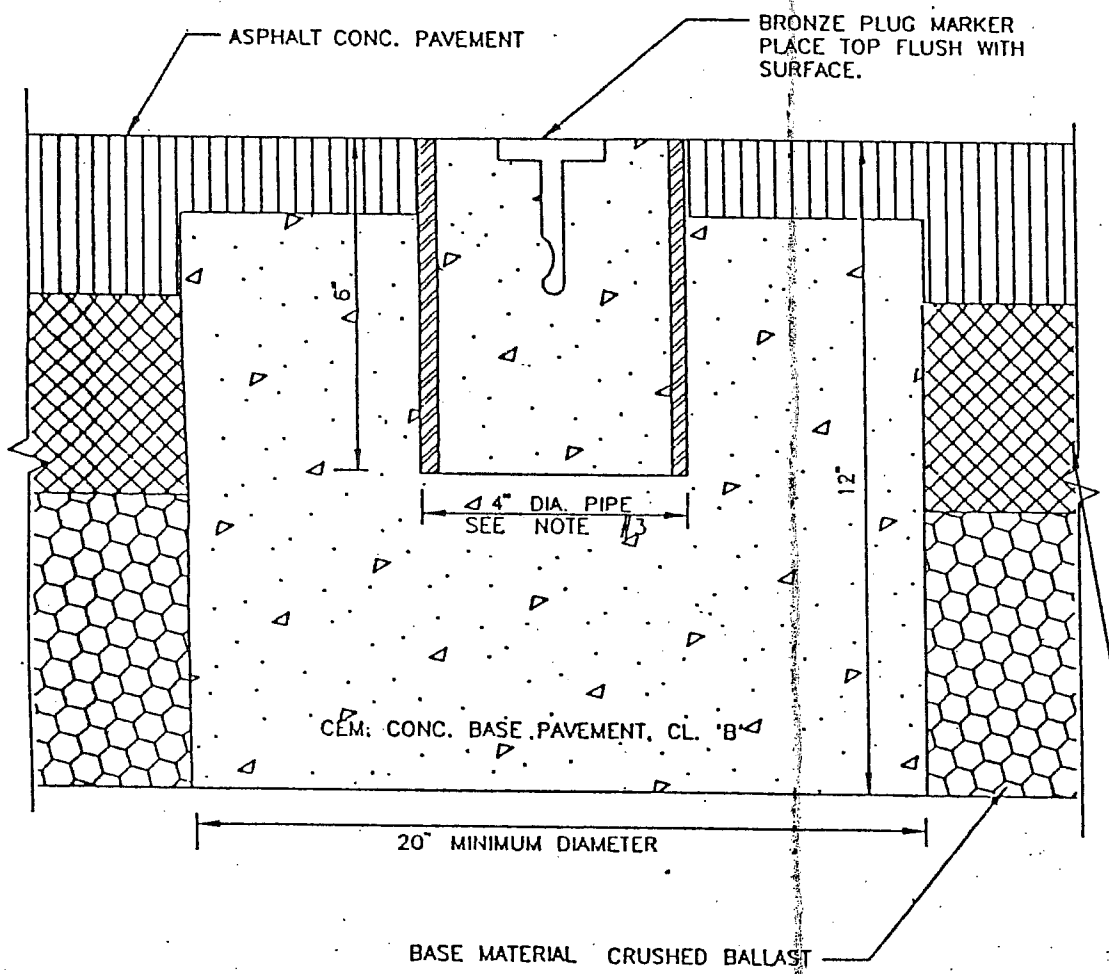
1. All other lot corners shall be marked with a permanent metal marker not less than three-eights inch in diameter and twenty-four inches long and driven flush with the finished grade. When curb and gutter are installed, the extension of property lines shall be marked in top of curb with a tack.

2. Concrete monuments shall be set at all corners of the subdivision.

3. All surveys shall be of second degree accuracy.

4. Minimum ultimate compressive strength of concrete casting at 28 days = 3000 PSI. Maximum aggregate size to be 1". Monument to be furnished by contractor.

PRECAST CONCRETE MONUMENT	
TOWN OF EATONVILLE, WA.	DWG. NO. 6



NOTES

1. CONCRETE BASE DIMENSIONS SHOWN ARE MINIMUM. CONCRETE BASE NEED NOT BE FORMED.
2. THE EXISTING OR NEW PAVEMENT STRUCTURE MAY DIFFER FROM THAT AS SHOWN ON THIS STANDARD PLAN. THE REMOVAL OF ANY EXISTING MONUMENTS AND ALL PAVEMENT REMOVAL SHALL BE INCIDENTAL TO THE CONSTRUCTION OF THE MONUMENT.
3. THE REQUIRED FOUR INCH (4") DIAMETER PIPE SHALL BE FURNISHED BY THE CONTRACTOR. IT MAY BE STEEL OR PLASTIC, RIGID ENOUGH TO ALLOW ITS PLACEMENT IN THE CONCRETE AND THE PLACEMENT OF THE ASPHALT. THE ENDS SHALL BE CUT SQUARE FOR A TRUE FIT PRIOR TO PLACEMENT. THE COST OF FURNISHING AND PLACING THIS PIPE SHALL BE INCIDENTAL TO THE CONSTRUCTION OF THIS MONUMENT.
4. THIS DETAIL IS TO BE USED PRIMARILY IN ASPHALT CONCRETE PAVEMENT COLLECTOR & SUB-COLLECTOR STREETS ONLY WITH PUBLIC WORKS DIRECTOR APPROVAL.

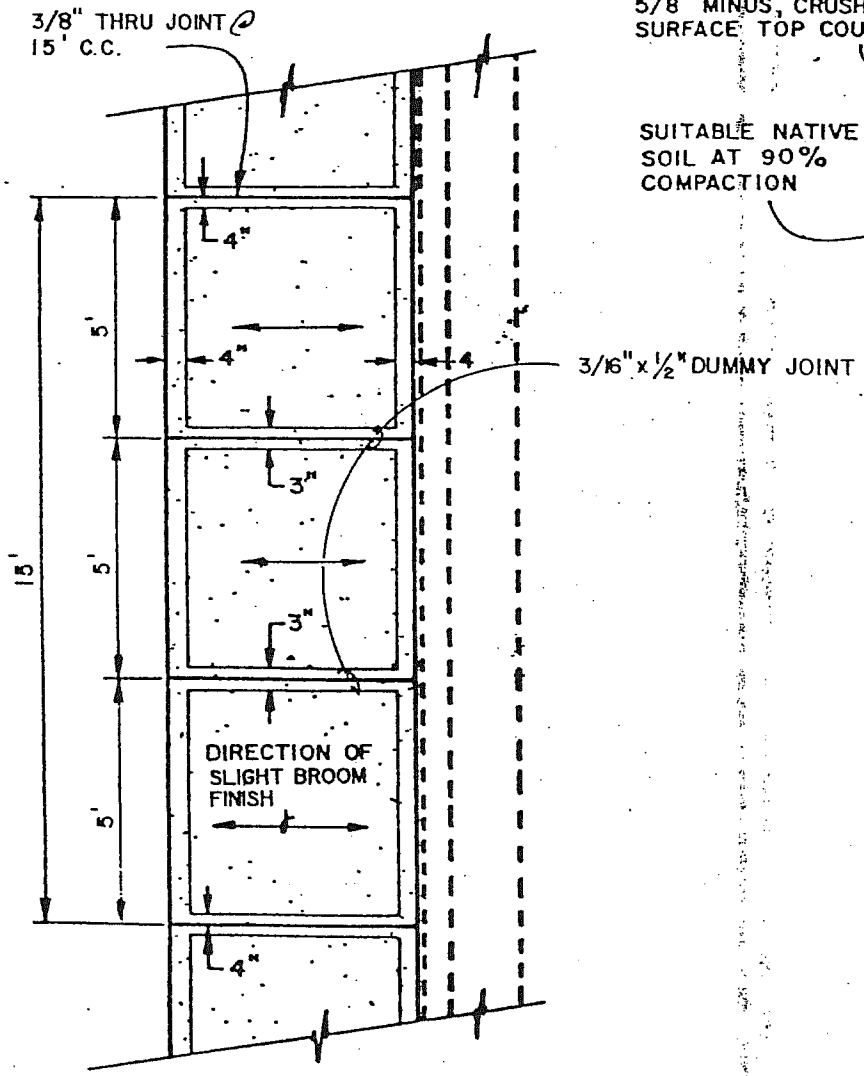
POURED MONUMENT - TYPE "C"

TOWN OF EATONVILLE, WA.

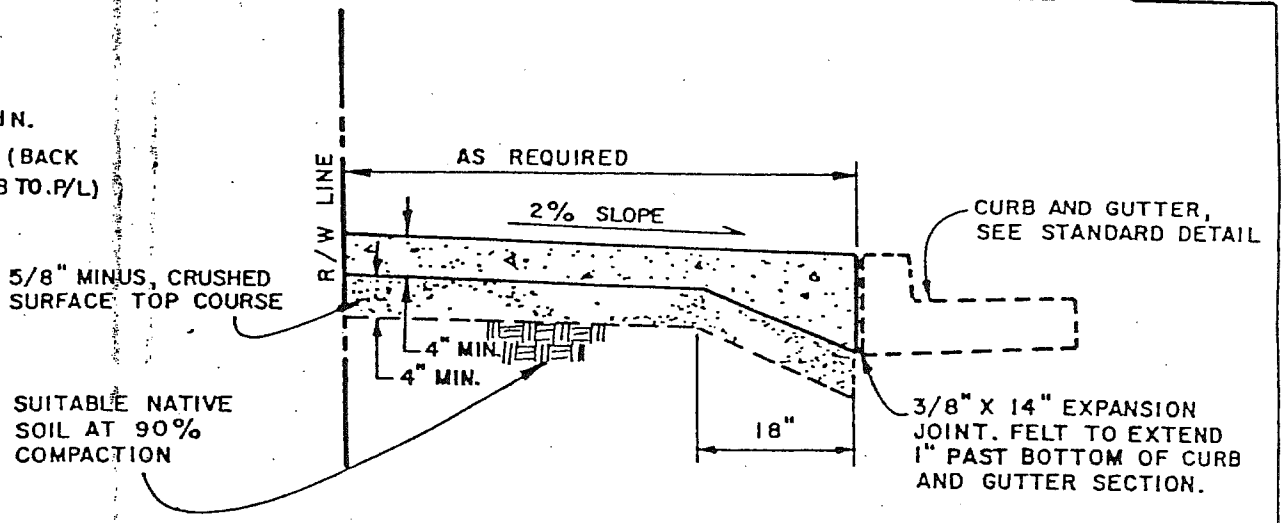
DWG. NO. 7

MINIMUM SIDEWALK WIDTH

ALL RESIDENTIAL AREAS	5 FT.
INDUSTRIAL AREAS	7 FT. MIN.
COMMERCIAL AREAS	VARIES (BACK OF CURB TO P/L)



PLAN



SECTION

NOTES:

1. JOINTS THRU AND DUMMY JOINTS SHALL BE AS SHOWN. THRU JOINTS SHALL ALSO BE PLACED IN THE SIDEWALK SECTION AT DRIVEWAY AND ALLEY RETURNS. ALL JOINTS SHALL BE CLEAN AND EDGED WITH AN EDGER HAVING A 1/4" RADIUS. JOINTS SHALL BE FLUSH WITH THE FINISHED SURFACE.
2. ALL UTILITY POLES, METER BOXES, ETC., IN SIDEWALK AREA SHALL HAVE 3/8" JOINT MATERIAL (FULL DEPTH) PLACED AROUND THEM BEFORE PLACING CONCRETE.
3. PREMOLDED JOINT FILLER SHALL BE 3/8" X 2" ASPHALT SATURATED FELT OR PAPER.
4. FORMS SHALL BE EITHER WOOD OR STEEL AND SHALL MEET ALL REQUIREMENTS OF SPECIFICATIONS.
5. CONCRETE SHALL BE CLASS 3000.

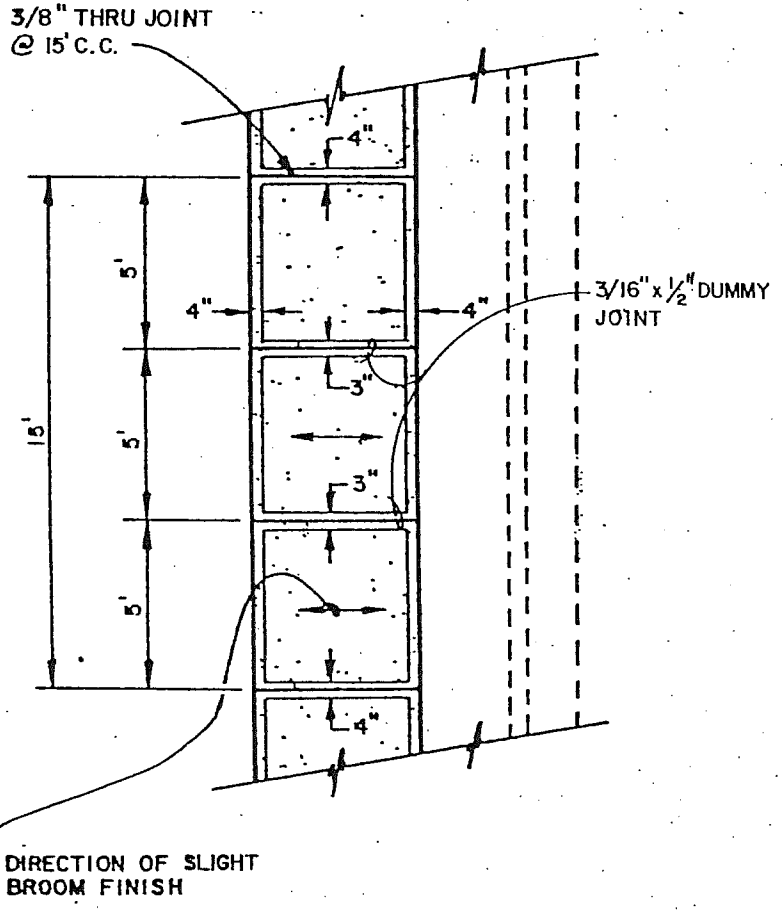
SIDEWALK WITHOUT PLANTING STRIP

TOWN OF EATONVILLE, WA. | DWG. NO. 8

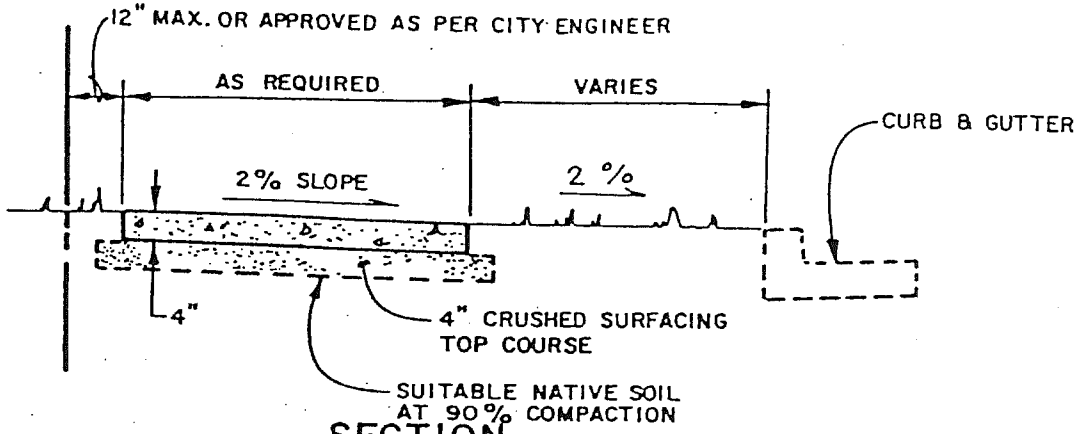
MINIMUM SIDEWALK WIDTHS

ALL RESIDENTIAL AREAS ..... 5 FT.

ALL INDUSTRIAL ..... 7 FT. MIN.



PLAN



SECTION

NOTES:

1. JOINTS THRU AND DUMMY JOINTS SHALL BE AS SHOWN. THRU JOINTS SHALL ALSO BE PLACED IN THE SIDEWALK SECTION AT DRIVEWAY AND ALLEY RETURNS. ALL JOINTS SHALL BE CLEAN AND EDGED WITH AN EDGER HAVING A 1/4" RADIUS. JOINTS SHALL BE FLUSH WITH THE FINISHED SURFACE.

2. ALL UTILITY POLES, METER BOXES, ETC., IN SIDEWALK AREA SHALL HAVE 3/8" JOINT MATERIAL (FULL DEPTH) PLACED AROUND THEM BEFORE PLACING CONCRETE.

3. PREMOLDED JOINT FILLER SHALL BE 3/8" X 2" ASPHALT SATURATED FELT OR PAPER.

4. FORMS SHALL BE EITHER WOOD OR STEEL AND SHALL MEET ALL REQUIREMENTS OF SPECIFICATIONS.

5. CONCRETE SHALL BE CLASS 3000.

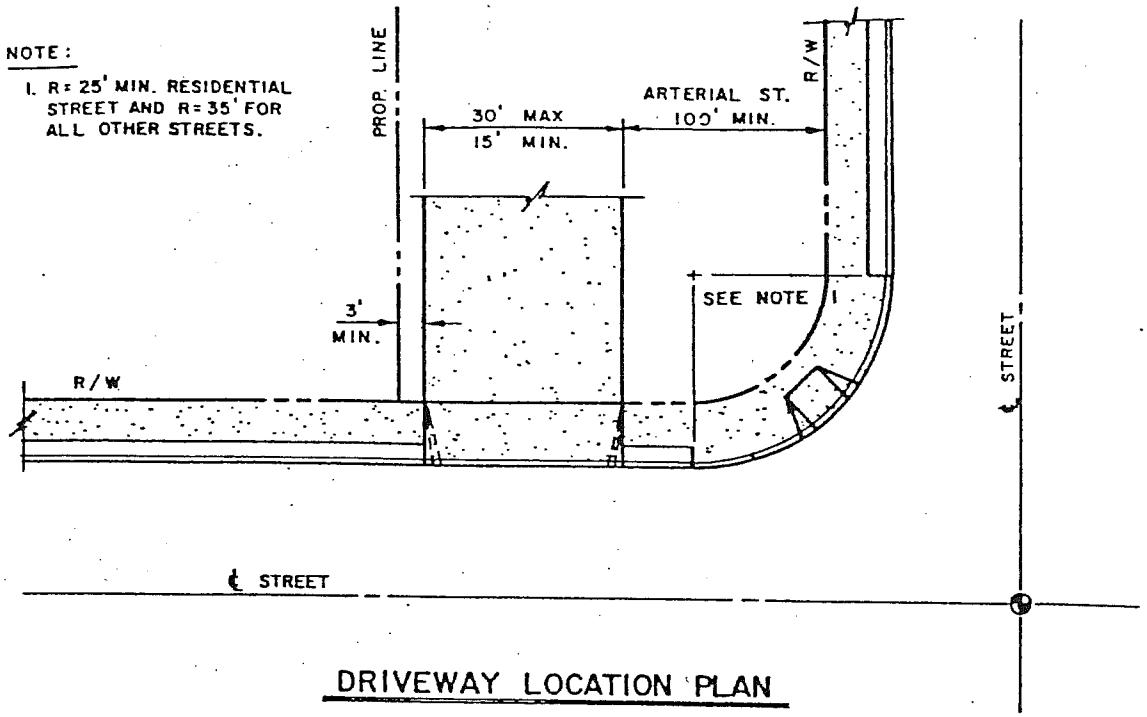
SIDEWALK WITH PLANTING STRIP

TOWN OF EATONVILLE, WA.

DWG. NO. 9

NOTE:

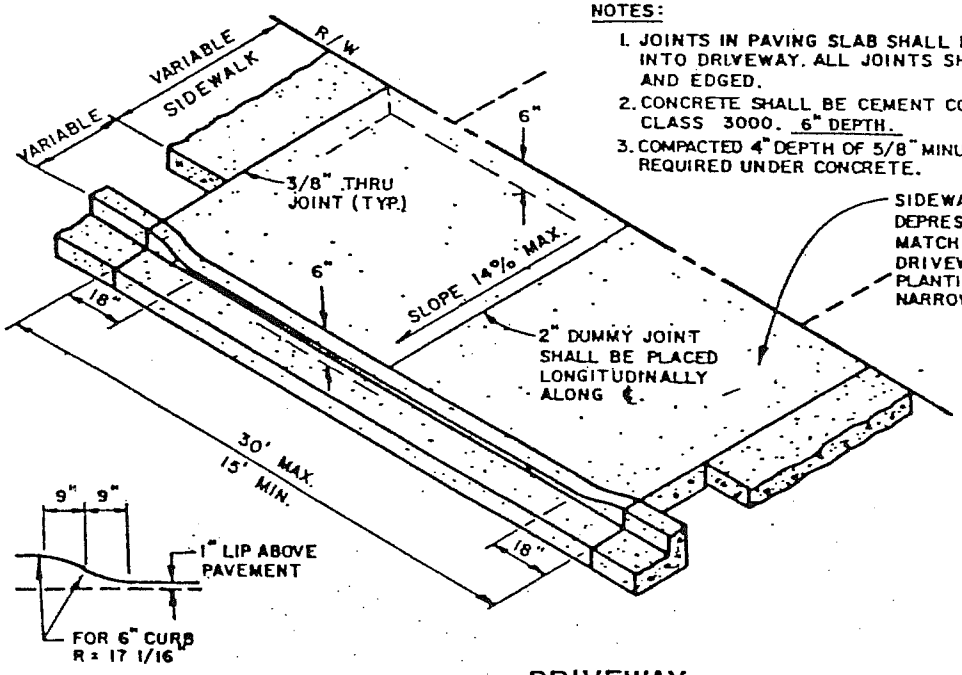
1. R = 25' MIN. RESIDENTIAL STREET AND R = 35' FOR ALL OTHER STREETS.



DRIVEWAY LOCATION PLAN

NOTES:

1. JOINTS IN PAVING SLAB SHALL NOT EXTEND INTO DRIVEWAY. ALL JOINTS SHALL BE CLEAN AND EDGED.
2. CONCRETE SHALL BE CEMENT CONCRETE CLASS 3000. 6" DEPTH.
3. COMPACTED 4" DEPTH OF 5/8" MINUS CRUSHED ROCK REQUIRED UNDER CONCRETE.



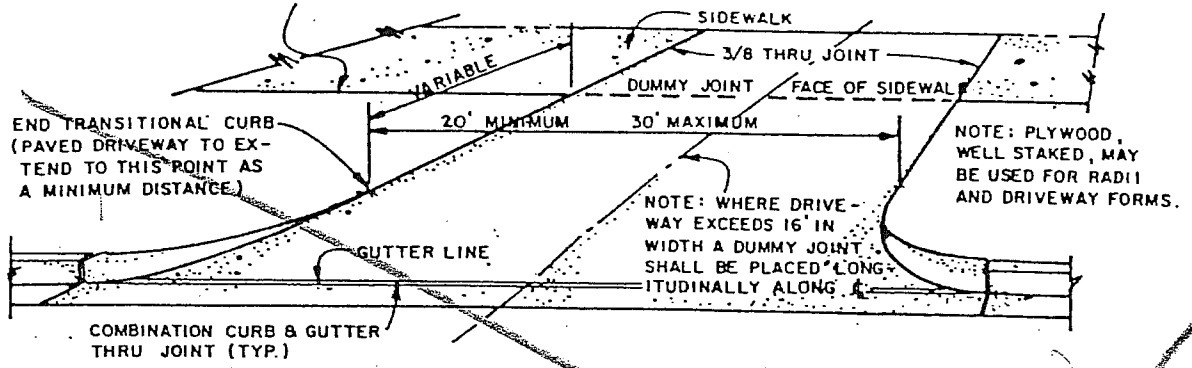
DRIVEWAY

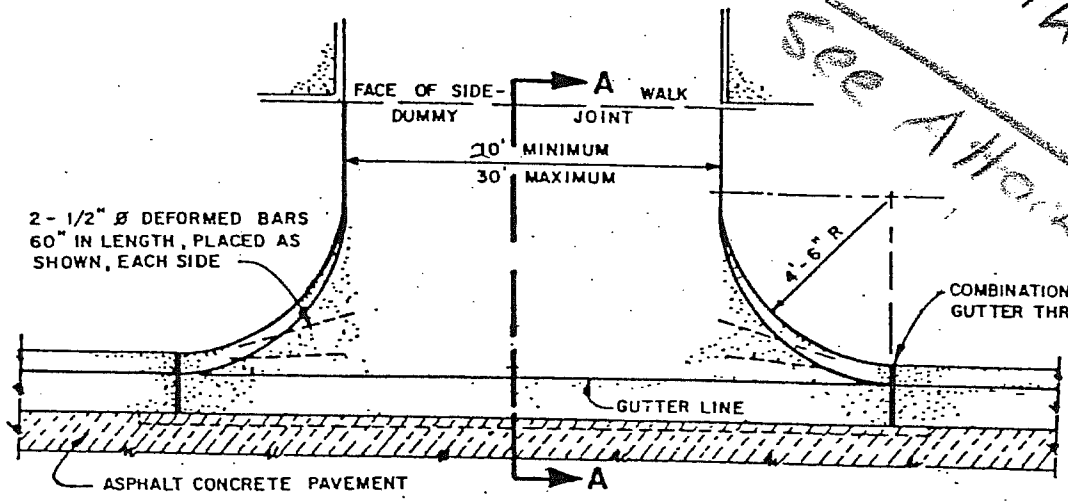
RESIDENTIAL DRIVEWAY APPROACH

TOWN OF EATONVILLE, WA.

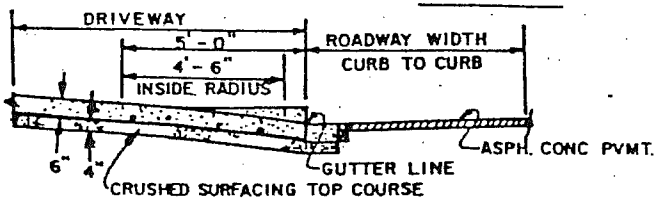
DWG. NO. 10

NOTE: WHERE DISTANCE FROM FACE OF CURB TO FRONT FACE OF WALK EXCEEDS 12', A 2" TRANSVERSE DUMMY JOINT SHALL BE PLACED AT RADIUS POINT OR AS DIRECTED BY ENGINEER.





PLAN



SECTION A-A

Void
Does not comply with ADA
See Worksheet

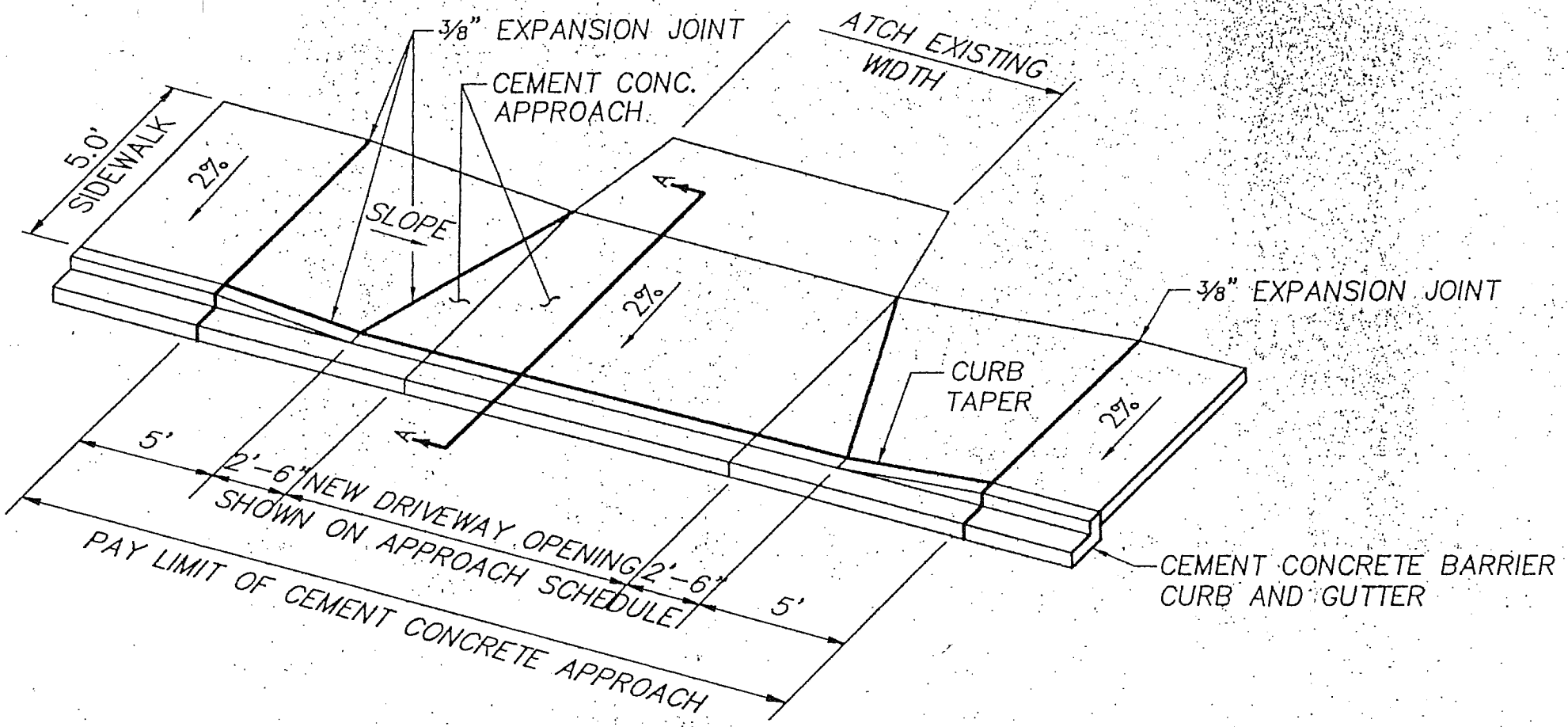
NOTES:

1. DRIVEWAYS TO BE PLACED BEFORE ASPHALT CONCRETE PAVEMENT OR BITUMINOUS PLANT MIX PAVEMENT.
2. THRU JOINTS SHALL BE 3/4" THROUGH EXPANSION JOINT.

COMMERCIAL DRIVEWAY APPROACH

TOWN OF EATONVILLE, WA.

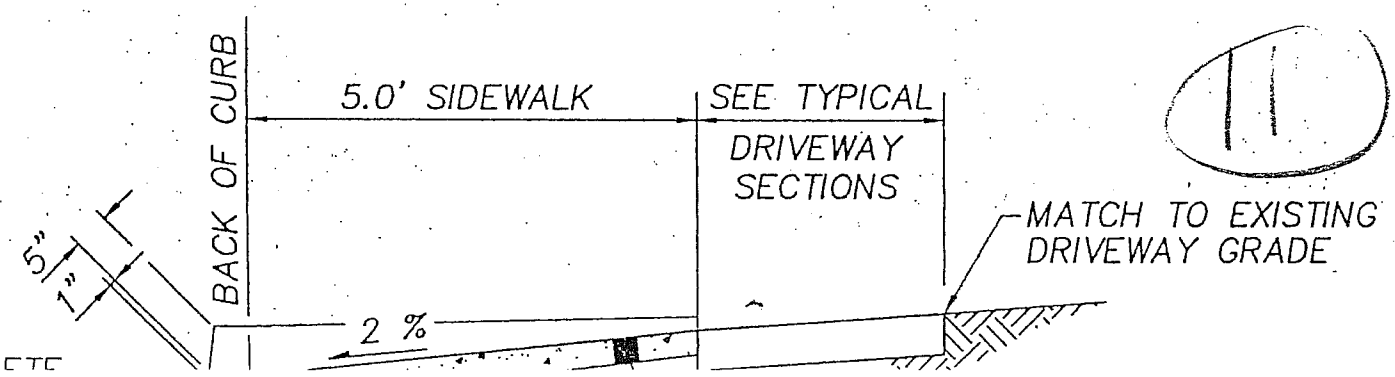
DWG. NO. 11



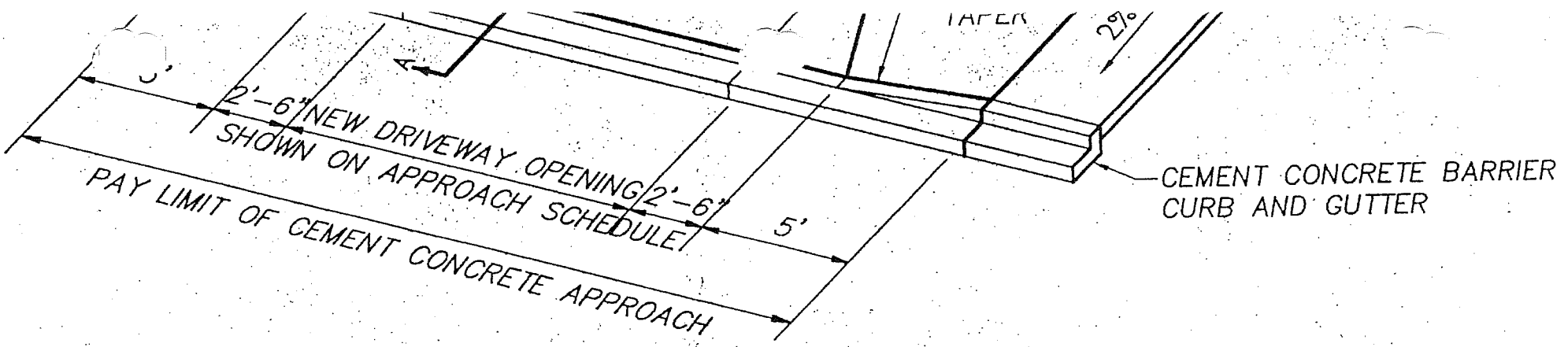
CEMENT CONCRETE APPROACH

DETAIL 1

NO SCALE



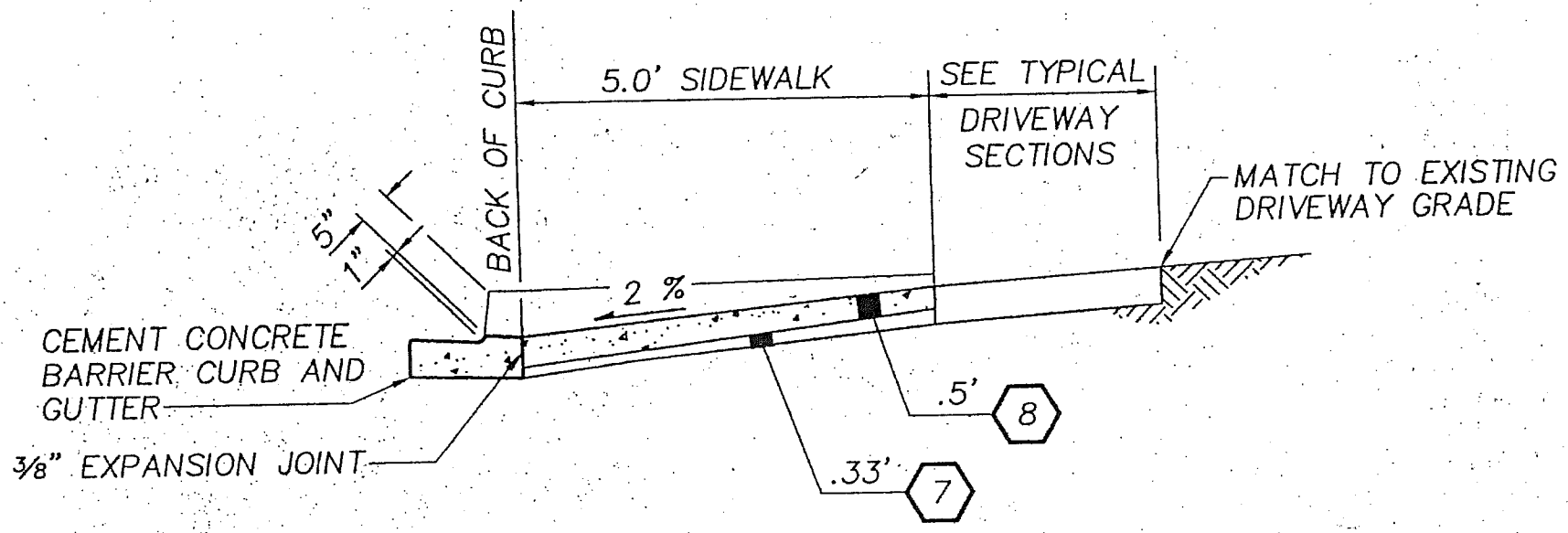
CEMENT CONCRETE



CEMENT CONCRETE APPROACH

DETAIL (1)

NO SCALE



SEE APPROACH SCHEDULE FOR LOCATIONS

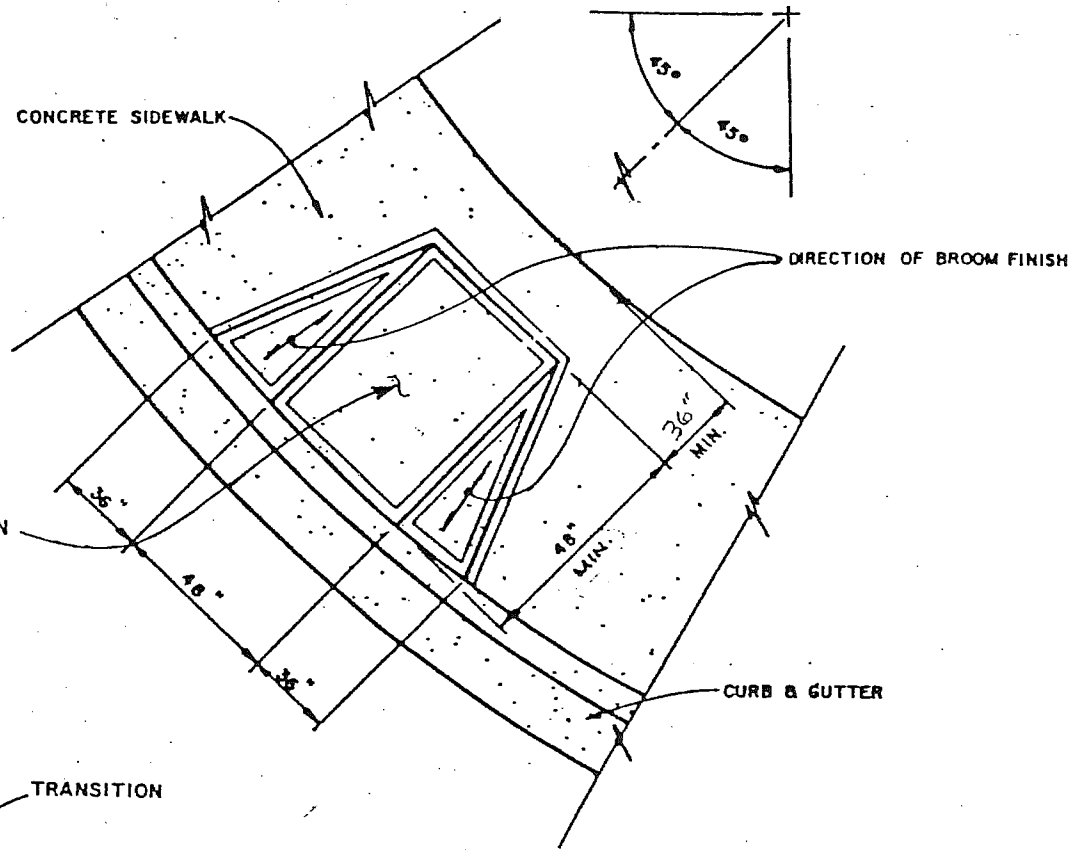
CEMENT CONCRETE APPROACH

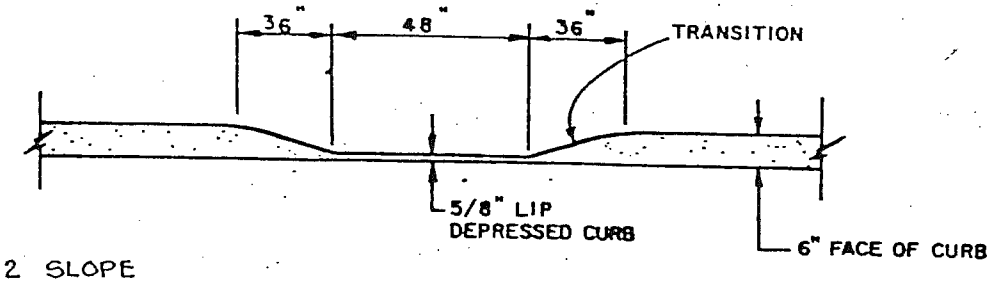
SECTION (AA)

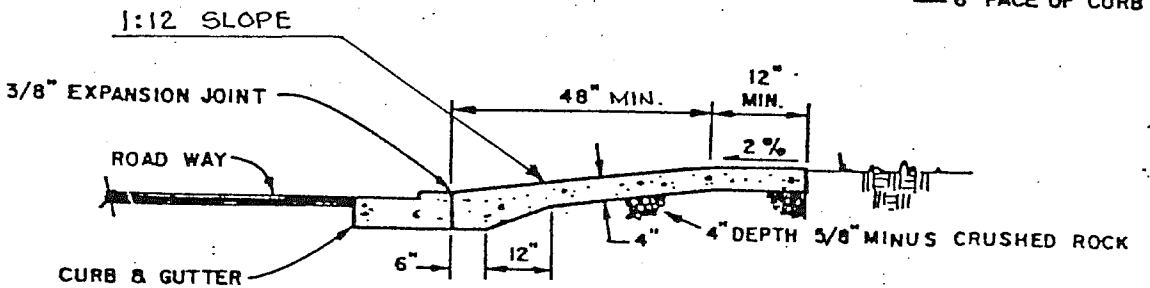
NO SCALE

11-4

NOTE:
WHEEL CHAIR RAMPS SHALL BE PROVIDED AT ALL INTERSECTIONS.

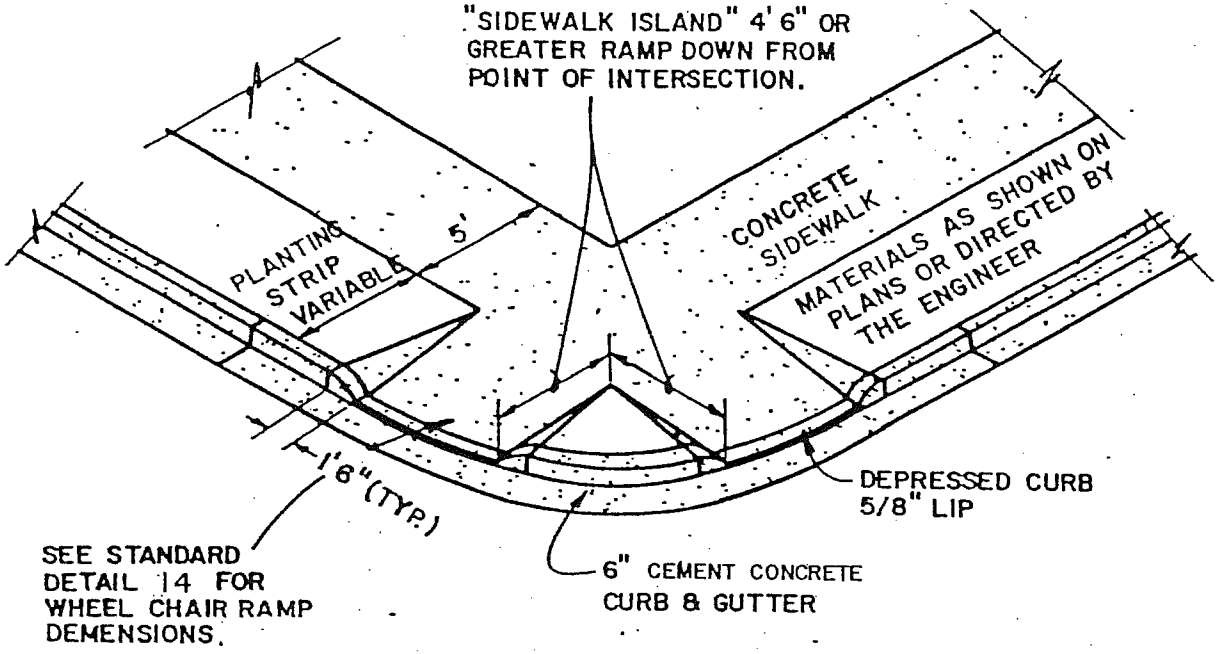






WHEEL CHAIR RAMP TYPE "A"

TOWN OF EATONVILLE, WA.	DWG. NO. 12

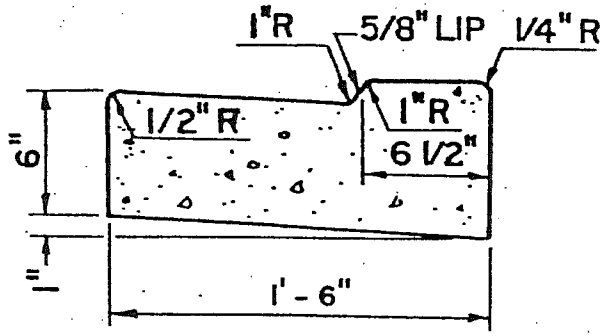


INTERSECTION DETAIL

NOT TO SCALE

NOTES:

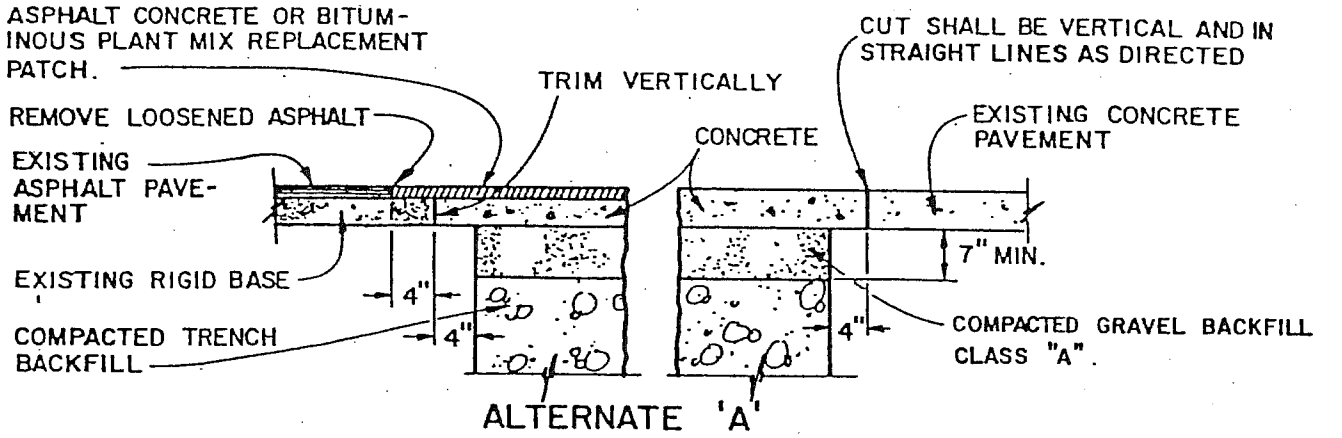
1. IF "SIDEWALK ISLAND" IS GREATER THAN 4'-6", USE THIS SHEET. IF LESS THAN 4'-6", USE DETAIL 14.
2. DETERMINATION OF RAMPING OF SIDEWALKS SHALL BE BY THE PUBLIC WORKS DIRECTOR.



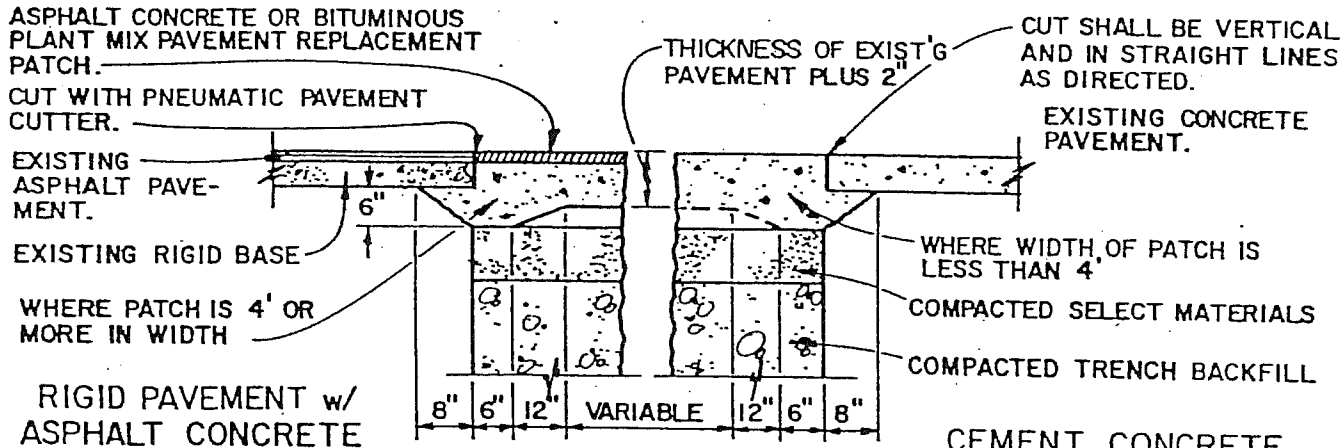
TYPICAL SECTION DEPRESSED CURB & GUTTER

NOT TO SCALE

WHEEL CHAIR RAMP TYPE "B"	
TOWN OF EATONVILLE, WA.	DWG. NO. 13



ALTERNATE 'A'

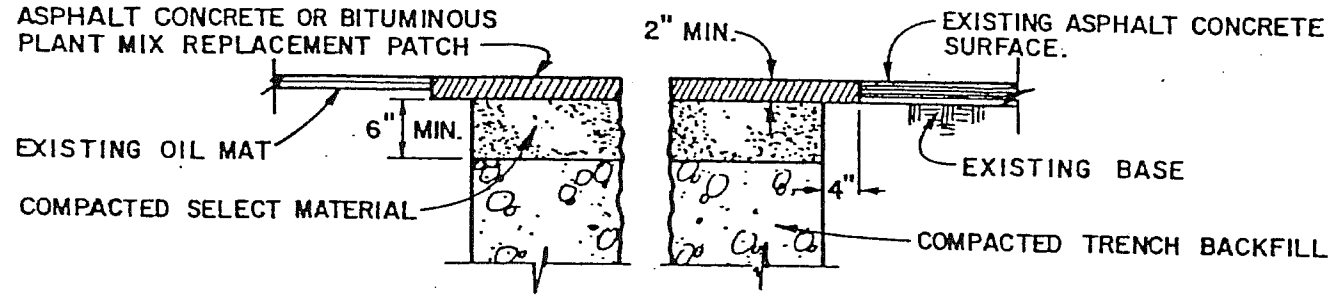


RIGID PAVEMENT w/ ASPHALT CONCRETE SURFACE

ALTERNATE 'B'

CEMENT CONCRETE PAVEMENT

TYPICAL PATCH FOR RIGID PAVEMENT



TYPICAL PATCH FOR FLEXIBLE PAVEMENT

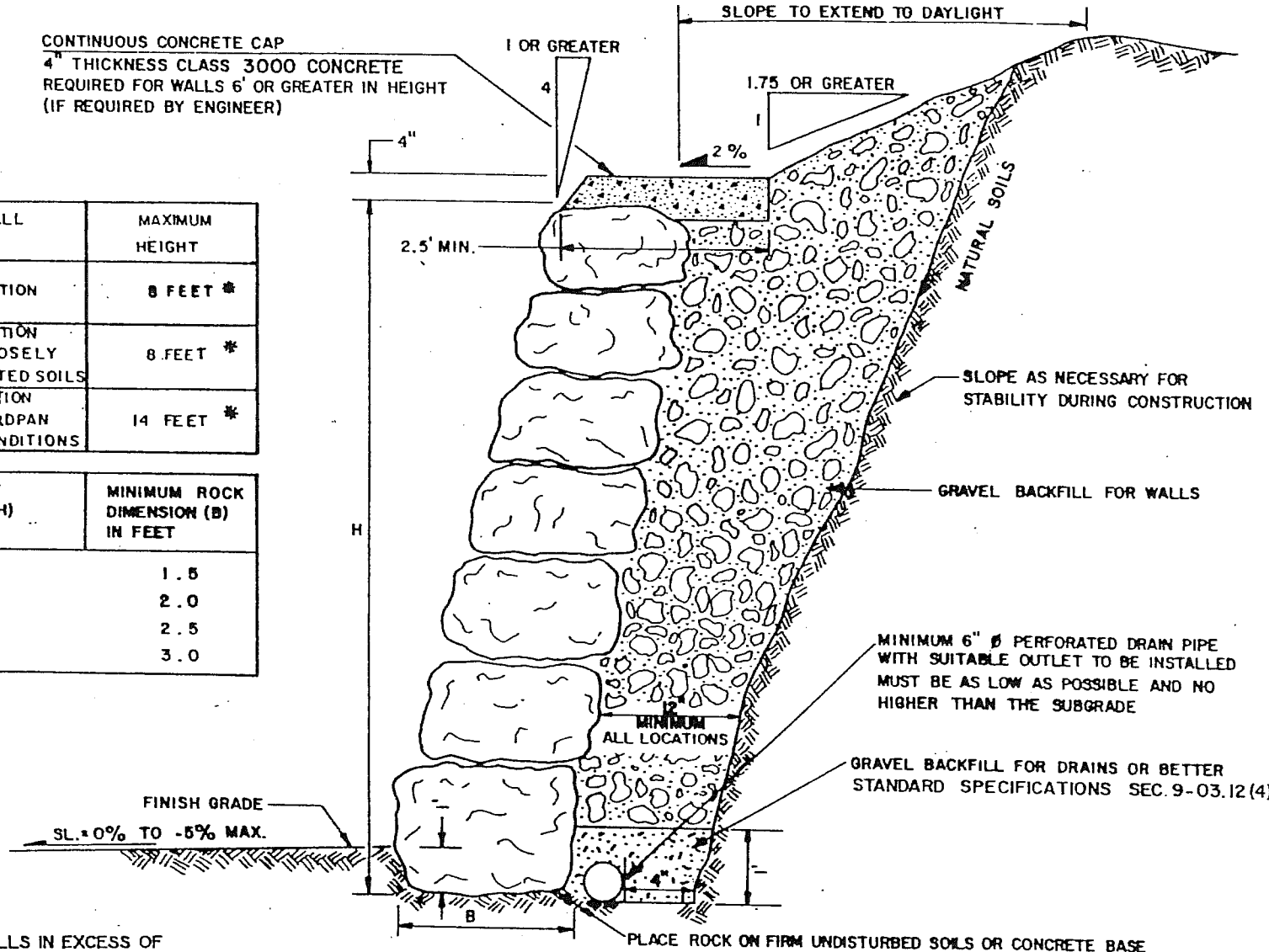
GENERAL NOTE

CONCRETE MIX SHALL BE CLASS 3000.

PAVEMENT PATCHING

TOWN OF EATONVILLE, WA.

DWG. NO. 14



ROCK WALL SECTION	MAXIMUM HEIGHT
FILL SECTION	8 FEET *
CUT SECTION WITH LOOSELY COMPACTED SOILS	8 FEET *
CUT SECTION WITH HARDPAN SOIL CONDITIONS	14 FEET *

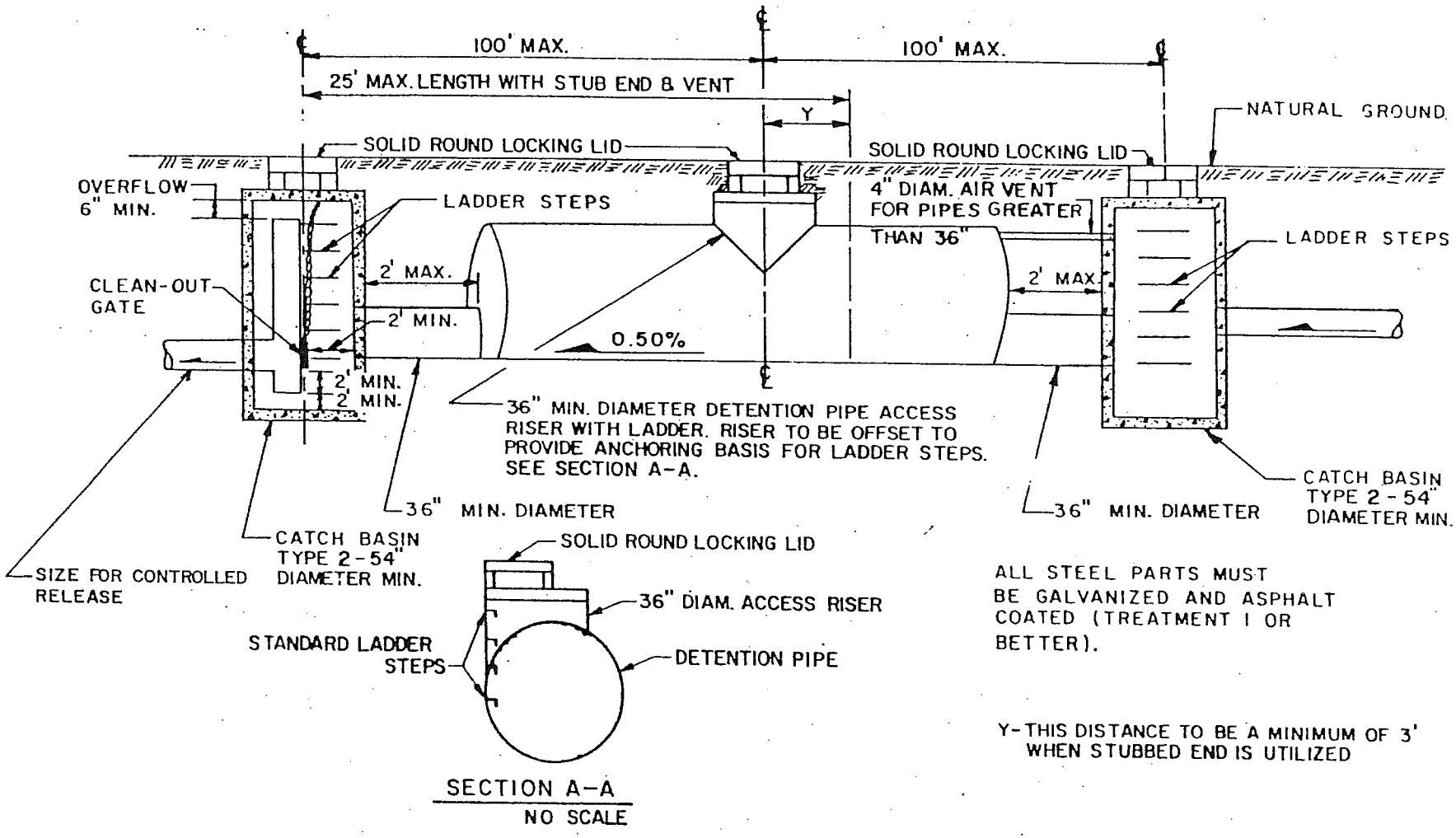
ROCKERY HEIGHT (H) IN FEET	MINIMUM ROCK DIMENSION (B) IN FEET
0 - 6	1.5
7 - 8	2.0
9 - 11	2.5
12 - 14	3.0

* ROCK WALLS IN EXCESS OF TABLE MAXIMUMS REQUIRE DESIGN BY A PROFESSIONAL ENGINEER LEGALLY REGISTERED IN THE STATE OF WASHINGTON.

ROCKWALL DETAIL

TOWN OF EATONVILLE, WA.

DWG. NO. 15



SECTION A-A
NO SCALE

ALL STEEL PARTS MUST BE GALVANIZED AND ASPHALT COATED (TREATMENT 1 OR BETTER).

Y- THIS DISTANCE TO BE A MINIMUM OF 3' WHEN STUBBED END IS UTILIZED

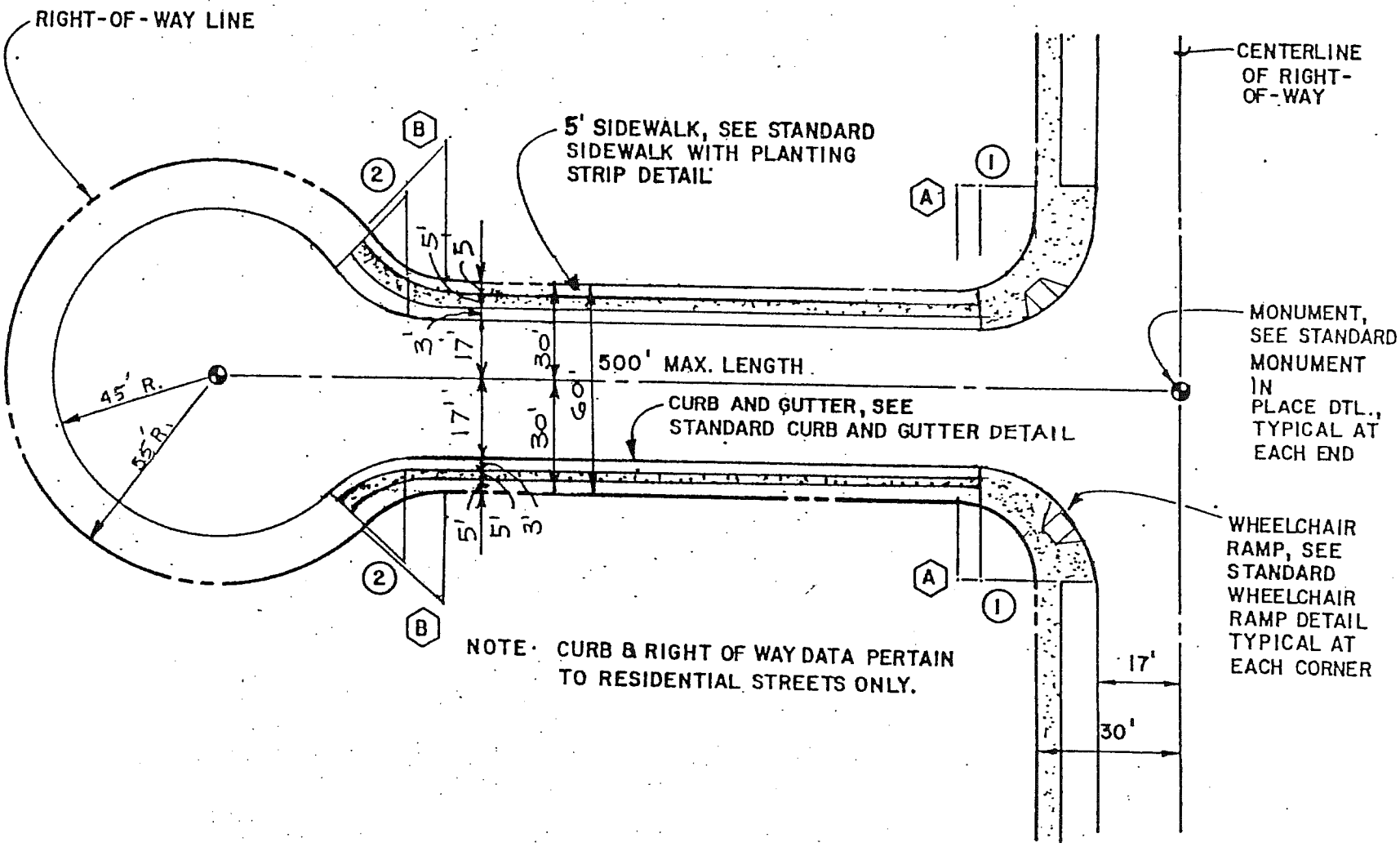
FOR CLOSED SYSTEM HOLDING WATER FROM DEVELOPED AREA LARGER THAN ONE ACRE.

NOTE:
CALCULATIONS FOR RUNOFF, DETENTION AND RELEASE MUST BE SUBMITTED.

TYPICAL CLOSED DETENTION PIPE DETAIL

TOWN OF EATONVILLE, WA.

DWG. NO. 16



NOTE: CURB & RIGHT OF WAY DATA PERTAIN TO RESIDENTIAL STREETS ONLY.

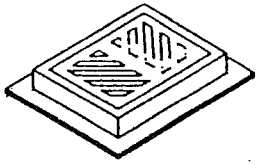
RIGHT-OF-WAY DATA			
⬡	△	R	ℓ
A	90°	25'	39.25'
B	44°	25'	19.20'

CURB DATA			
○	△	R	ℓ
1	90°	30'	47.10
2	45°	25'	19.64'

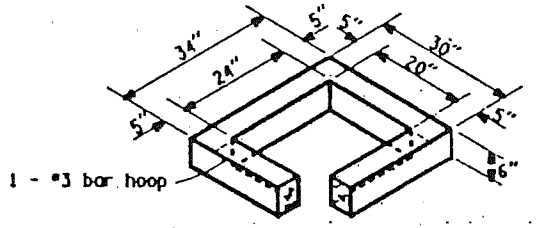
RESIDENTIAL CUL-DE-SAC

TOWN OF EATONVILLE, WA.

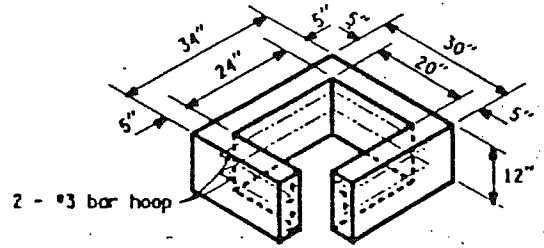
DWG. NO. 17



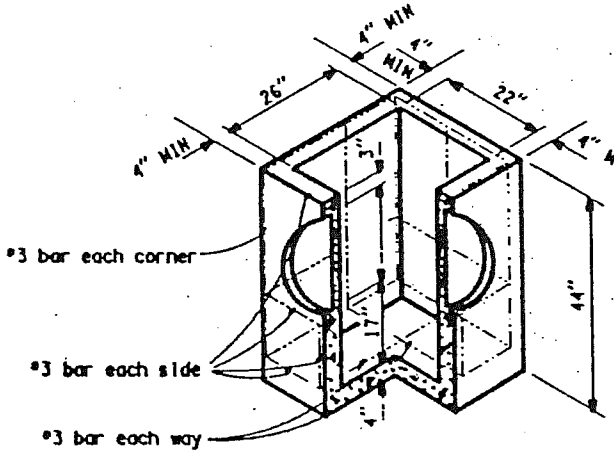
Frame and grate
(See Standard Plan for details)



6" Riser Section



12" Riser Section



Precast Base Section
(Measurement at the top of the base)

Notes:

Catch Basins to be constructed in accordance with ASTM C 478 (AASHTO M 199) & ASTM C 890 unless otherwise shown on plans or noted in the Standard Specifications.

As an acceptable alternate to rebar, welded wire fabric having a minimum area of 0.12 square inches per foot may be used. Welded wire fabric shall comply to ASTM A 497 (AASHTO M 221). Wire fabric shall not be placed in the knockouts.

The bottom of the precast base section may be rounded.

Precast bases shall be furnished with cutouts or knockouts. Knockouts shall have a wall thickness of 2" minimum.

Knockouts may be on all 4 sides with maximum diameter of 20". Knockouts may be either round or "D" shape. Pipe to be installed in factory supplied knockouts.

Knockout or cutout hole size is equal to pipe outer diameter plus catch basin wall thickness.

The maximum depth from the finished grade to the pipe invert is 5'-0".

The taper on the sides of the precast base section and riser section shall not exceed 1/2"/ft.

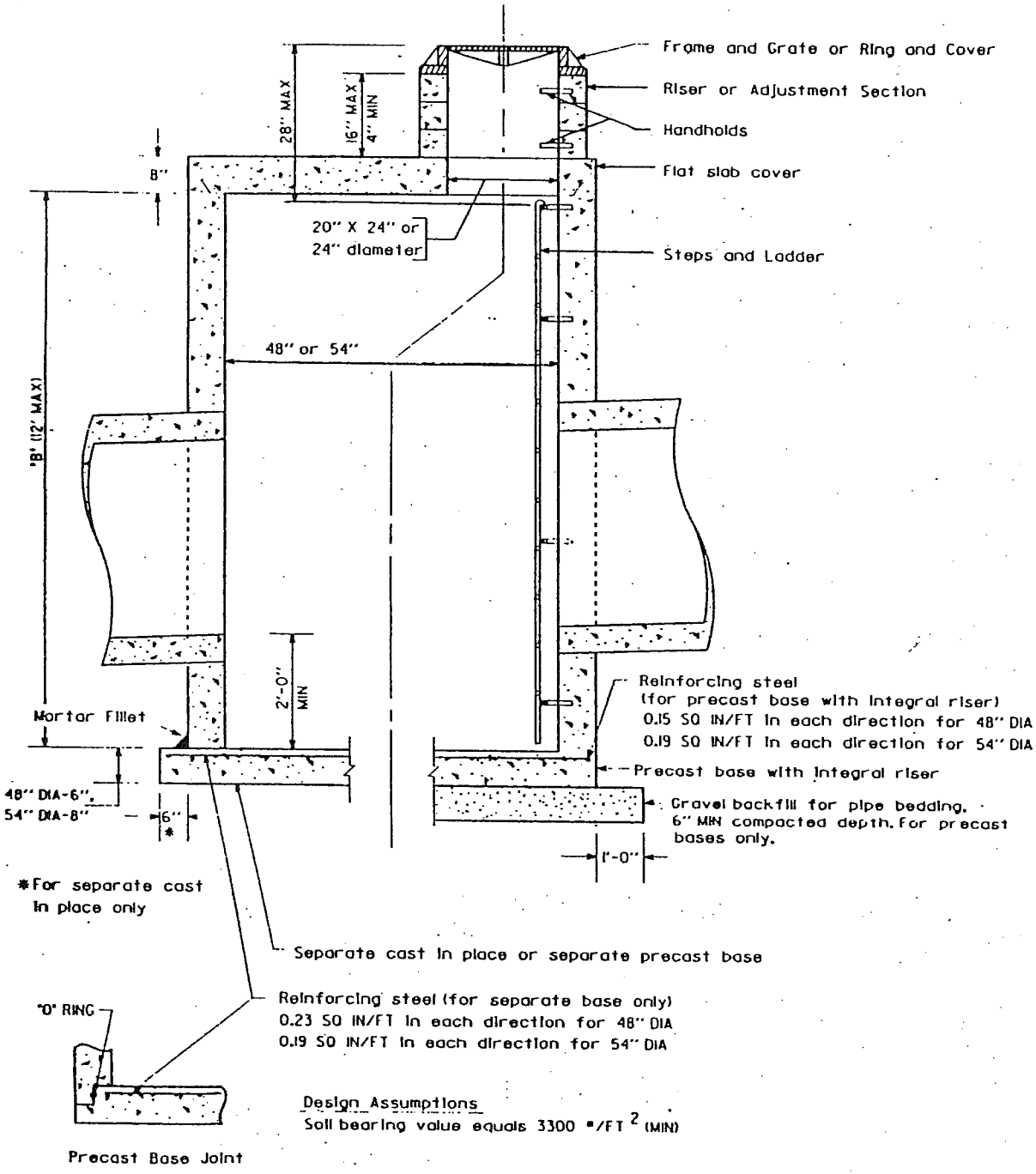
Catch basin frame and grate shall be in accordance with Standard Specifications and meet the strength requirments of Federal Specification RR-F-621D. Mating surfaces shall be finished to assure non-rocking fit.

Frame and grate may be installed with flange down or cast into riser.

CATCH BASIN TYPE I

TOWN OF EATONVILLE, WA.

DWG. NO. 18



Design Assumptions

Soil bearing value equals 3300 #/FT^2 (MIN)

NOTES

Catch Basins to be constructed in accordance with ASTM C 478 (AASHTO M 199) & ASTM C 890 unless otherwise shown on plans or noted in the Standard Specifications.

Handholds in riser or adjustment section shall have 3" minimum clearance. Steps in catch basin shall have 6" minimum clearance. No steps are required when "B" is 4' or less.

All reinforced cast in place concrete shall be Class 3000 All precast concrete shall obtain 4000 PSI @ 28 days.

Precast bases shall be furnished with cutouts or knockouts. Knockouts shall have a wall thickness of 2" minimum.

Knockout or cutout hole size is equal to pipe outer diameter plus catch basin wall thickness Maximum hole size is 36" for 48" catch basin, 42" for 54" catch basin Minimum distance between holes is 8".

Frame and grate or ring and cover shall be in accordance with Standard Specifications and meet the strength requirments of Federal Specification RR-F-621D. Mating surfaces shall be finished to assure non-rocking fit.

All base reinforcing steel shall have a minimum yield strength of 60,000 PSI and be placed in the upper half of the base with 1" minimum clearance.

The bottom of the precast Catch Basin may be rounded.

For details showing frame and grate , ring and cover see Standard Plan "Metal Frame and Grate for Catch Basin and Inlet".

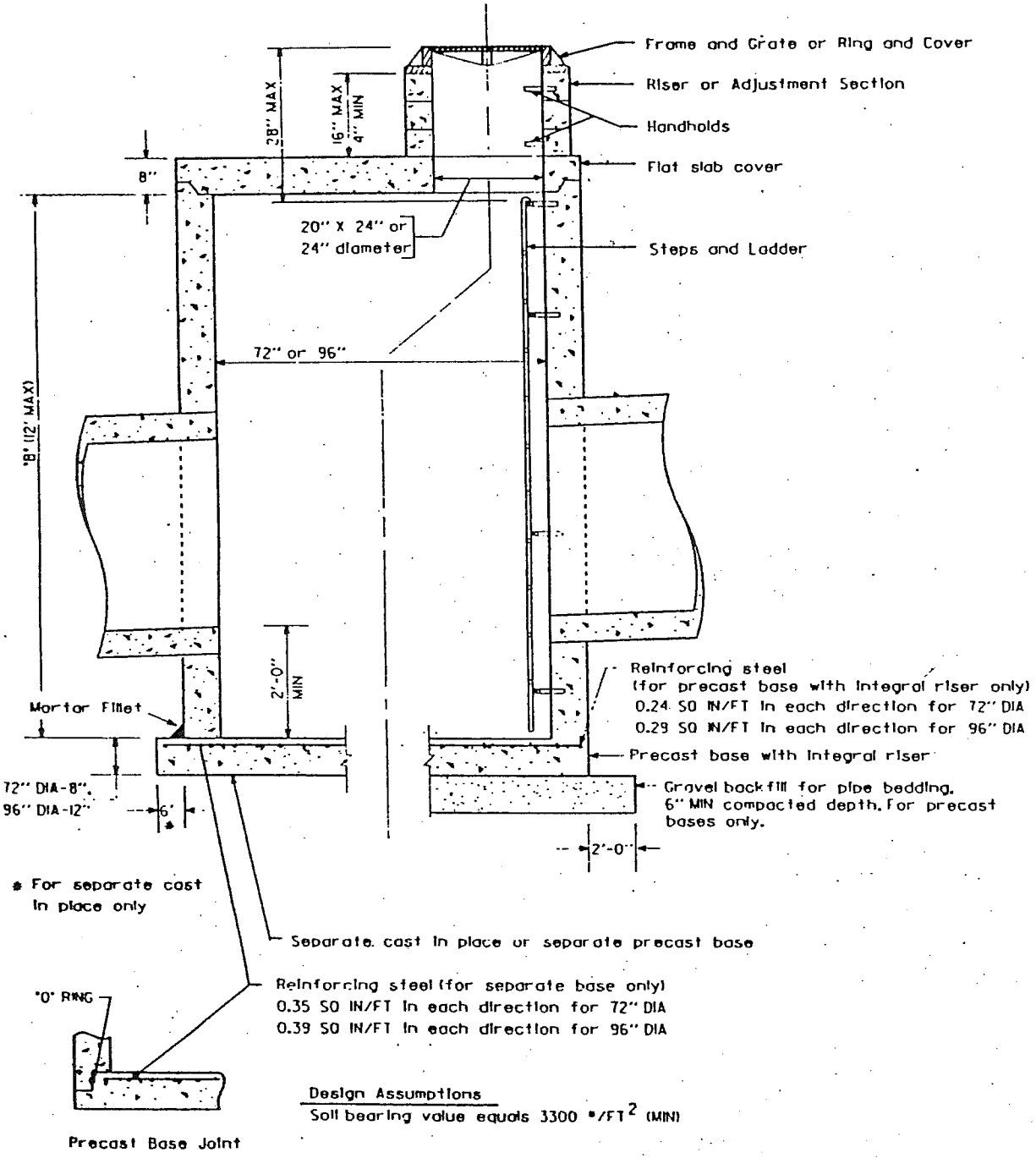
For details showing ladder, steps, handrail and top slab see Standard Plan "Miscellaneous Catch Basin Details".

Frame and grate may be installed with flange down or cast into riser.

CATCH BASIN TYPE 2
48" & 54"

TOWN OF EATONVILLE, WA.

DWG. NO. 19



Design Assumptions

Soil bearing value equals 3300 #/FT^2 (MIN)

NOTES

Catch Basins to be constructed in accordance with ASTM C 478 (AASHTO M 199) & ASTM C 890 unless otherwise shown on plans or noted in the Standard Specifications.

Handholds in riser or adjustment section shall have 3" minimum clearance. Steps in catch basin shall have 6" minimum clearance. No steps are required when "B" is 4' or less.

All reinforced cast in place concrete shall be Class 3000. All precast concrete shall obtain 4000 PSI @ 28 days.

Precast bases shall be furnished with cutouts or knockouts. Knockouts shall have a wall thickness of 2" minimum.

Knockout or cutout hole size is equal to pipe outer diameter plus catch basin wall thickness. Maximum hole size is 60" for 72" catch basin, 84" for 96" catch basin. Minimum distance between holes is 12".

Frame and grate or ring and cover shall be in accordance with Standard Specifications and meet the strength requirments of Federal Specification RR-F-621D. Mating surfaces shall be finished to assure non-rocking fit.

All base reinforcing steel shall have a minimum yield strength of 60,000 PSI and be placed in the upper half of the base with 1" minimum clearance.

The bottom of the precast Catch Basin may be rounded.

For details showing frame and grate , ring and cover see Standard Plan "Metal Frame and Grate for Catch Basin and Inlet".

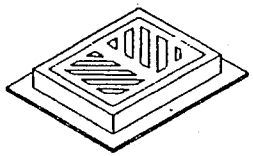
For details showing ladder, steps, handrail and top slab see Standard Plan "Miscellaneous Catch Basin Details".

Frame and grate may be installed with flange down or cast into riser.

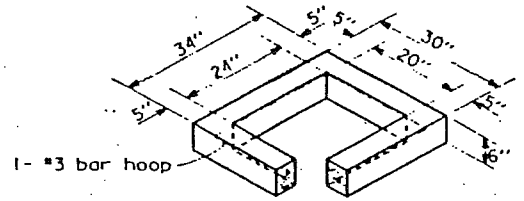
CATCH BASIN TYPE 2
72" & 96"

TOWN OF EATONVILLE, WA.

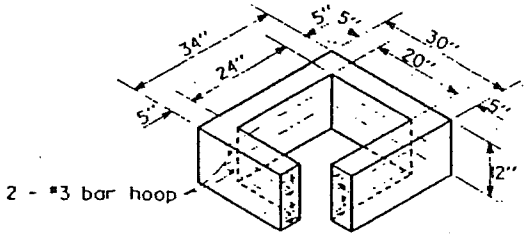
DWG. NO. 20



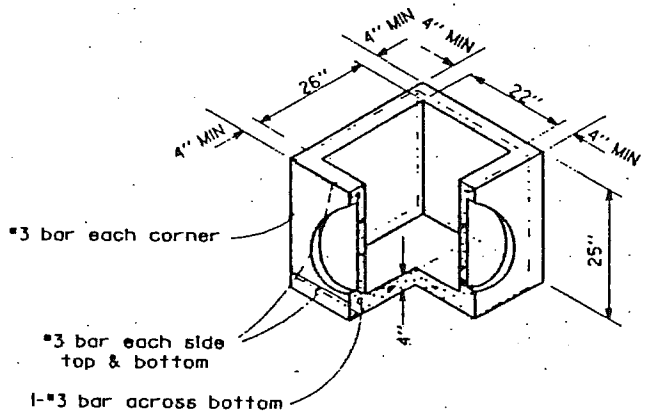
Frame and grate
(See Standard Plan for details)



6" Riser Section



12" Riser Section



Precast Base Section
(Measurement at the top of the base)

NOTES

Concrete inlet to be constructed in accordance with ASTM C 478 (AASHTO M 199) & ASTM C 890 unless otherwise shown on plans or noted in the Standard Specifications.

As an acceptable alternate to rebar, welded wire fabric having a minimum area of 0.12 square inches per foot may be used. Welded wire fabric shall comply to ASTM A 497 (AASHTO M 221). Wire fabric shall not be placed in the knockouts.

The bottom of the precast base section may be rounded.

Precast bases shall be furnished with cutouts or knockouts. Knockouts shall have a wall thickness of 2" minimum.

Knockout or cutout hole size is equal to pipe outer diameter plus concrete inlet wall thickness.

Knockouts may be on all 4 sides with maximum diameter of 17". Knockouts may be either round or "D" shape. Pipe to be installed in factory supplied knockouts.

Concrete inlet frame and grates shall be in accordance with Standard Specifications and meet the strength requirements of Federal Specification RR-F-621D. Mating surfaces shall be finished to assure non-rocking fit.

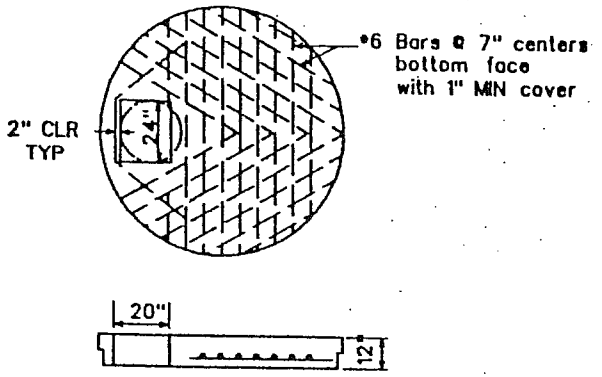
The taper on the sides of the precast base section and riser section shall not exceed 1/2"/ft.

Frame and grate may be installed with flange down or cast into riser.

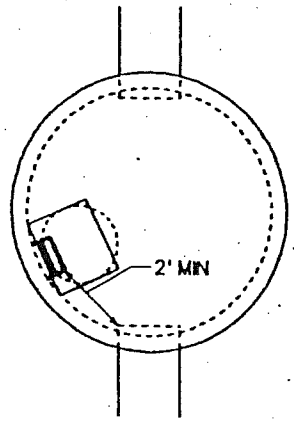
CONCRETE INLET

TOWN OF EATONVILLE, WA.

DWG. NO. 21



96" TOP SLAB



TYPICAL ORIENTATION
FOR ACCESS AND STEPS

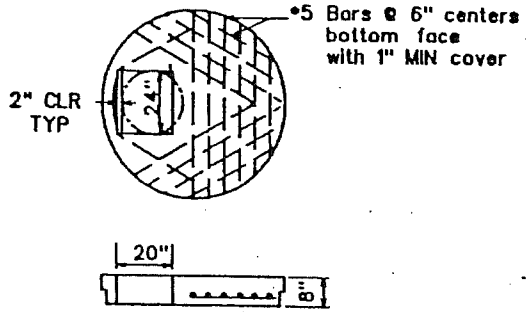
NOTES:

1. Proprietary catch basin steps are acceptable, provided that they conform to Section R, ASTM C 478 (AASHTO M 199) and meet all WISHA requirements.

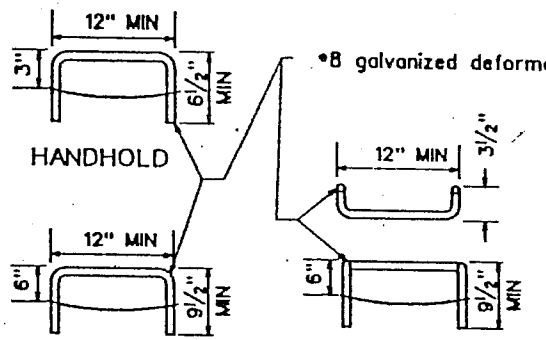
2. Catch basin step legs shall be parallel or approximately radial at the option of the manufacturer, except that all steps in any catch basin shall be similar. Penetration of outer wall by a leg is prohibited.

3. Slab opening may be 24" x 20" or 24" diameter.

4. As an acceptable alternate to rebar, welded wire fabric having a minimum area of 0.12 square inches per foot may be used. Welded wire fabric shall comply to ASTM A 497 (AASHTO M 221).

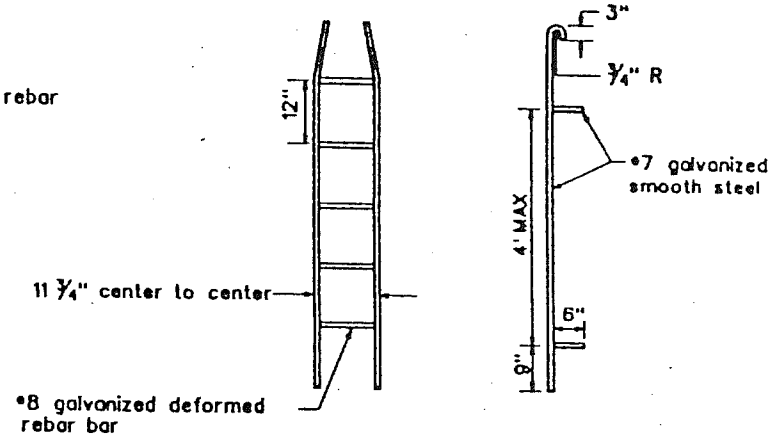


72" TOP SLAB

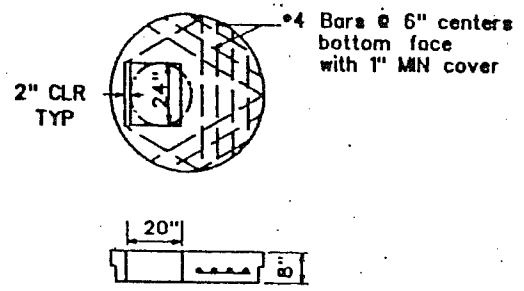


CATCH BASIN STEP

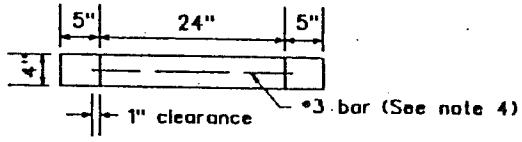
DROP RUNG
CATCH BASIN STEP



PREFABRICATED LADDER



48" & 54" TOP SLAB

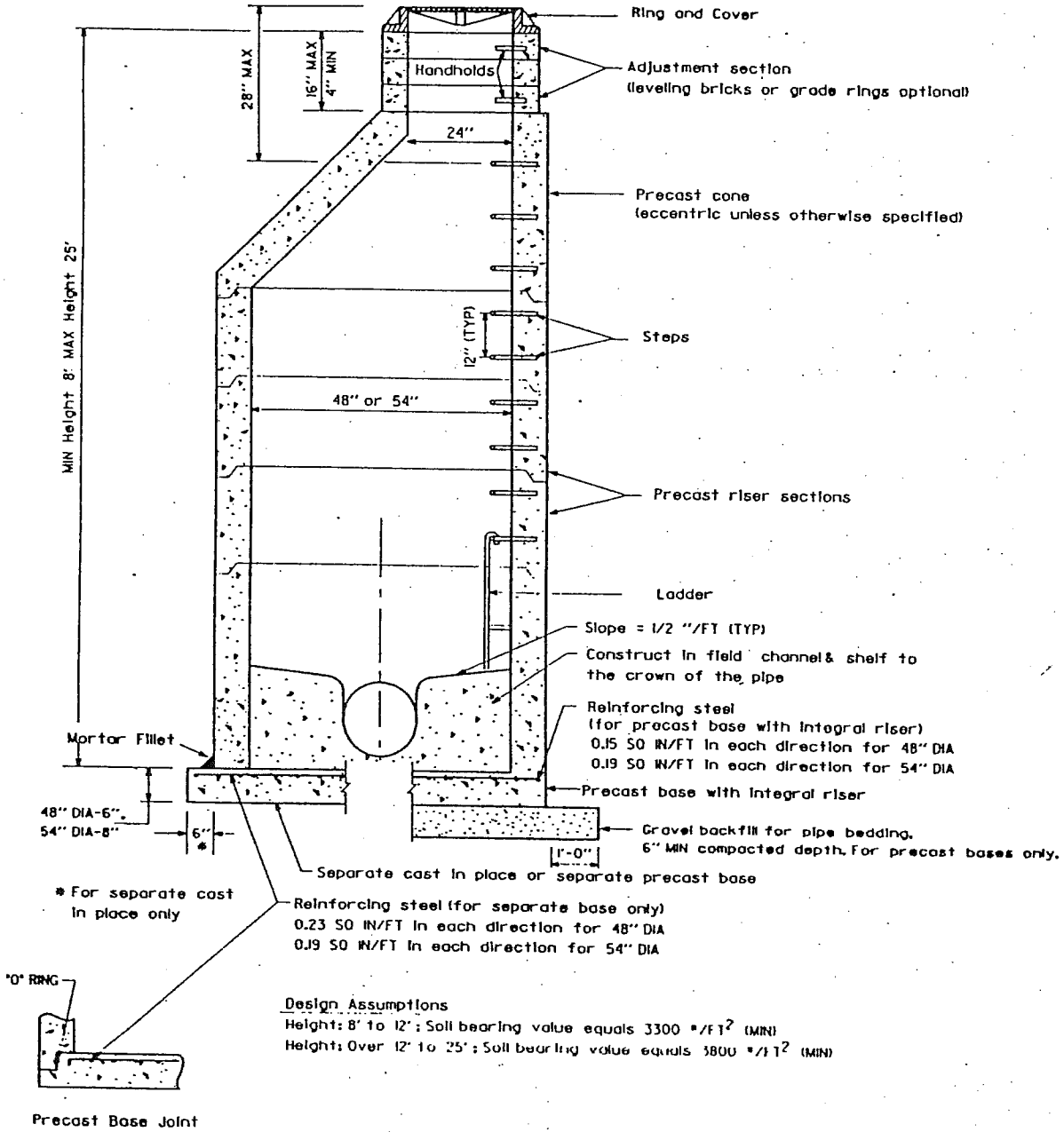


GRADE RING

MISCELLANEOUS CATCH BASIN DETAILS

TOWN OF EATONVILLE, WA.

DWG. NO. 22



Design Assumptions
Height: 8' to 12' ; Soil bearing value equals 3300 #/FT^2 (MIN)
Height: Over 12' to 25' ; Soil bearing value equals 3800 #/FT^2 (MIN)

NOTES

Manholes to be constructed in accordance with AASHTO M-199 (ASTM C 478) unless otherwise shown on plans or noted in the Standard Specifications.

Handholds in adjustment section shall have 3" minimum clearance. Steps in manhole shall have 6" minimum clearance. See Standard Plan "Miscellaneous Manhole Details."

All reinforced cast in place concrete and Non-reinforced concrete in channel and shelf shall be Cl. 3000. All precast concrete shall be Class 4000.

Precast bases shall be furnished with cutouts or knockouts. Knockouts shall have a wall thickness of 2" minimum.

Knockout or cutout hole size is equal to pipe outer diameter plus manhole wall thickness. Maximum hole size is 36" for 48" manhole, 42" for 54" manhole. Minimum distance between holes is 8".

Manhole rings and covers shall be in accordance with Standard Specifications and meet the strength requirements of Federal Specification RR-F-621D. Mating surfaces shall be finished to assure non-rocking fit with any cover position.

All base reinforcing steel shall have a minimum yield strength of 60,000 PSI and be placed in the upper half of the base with 1" minimum clearance.

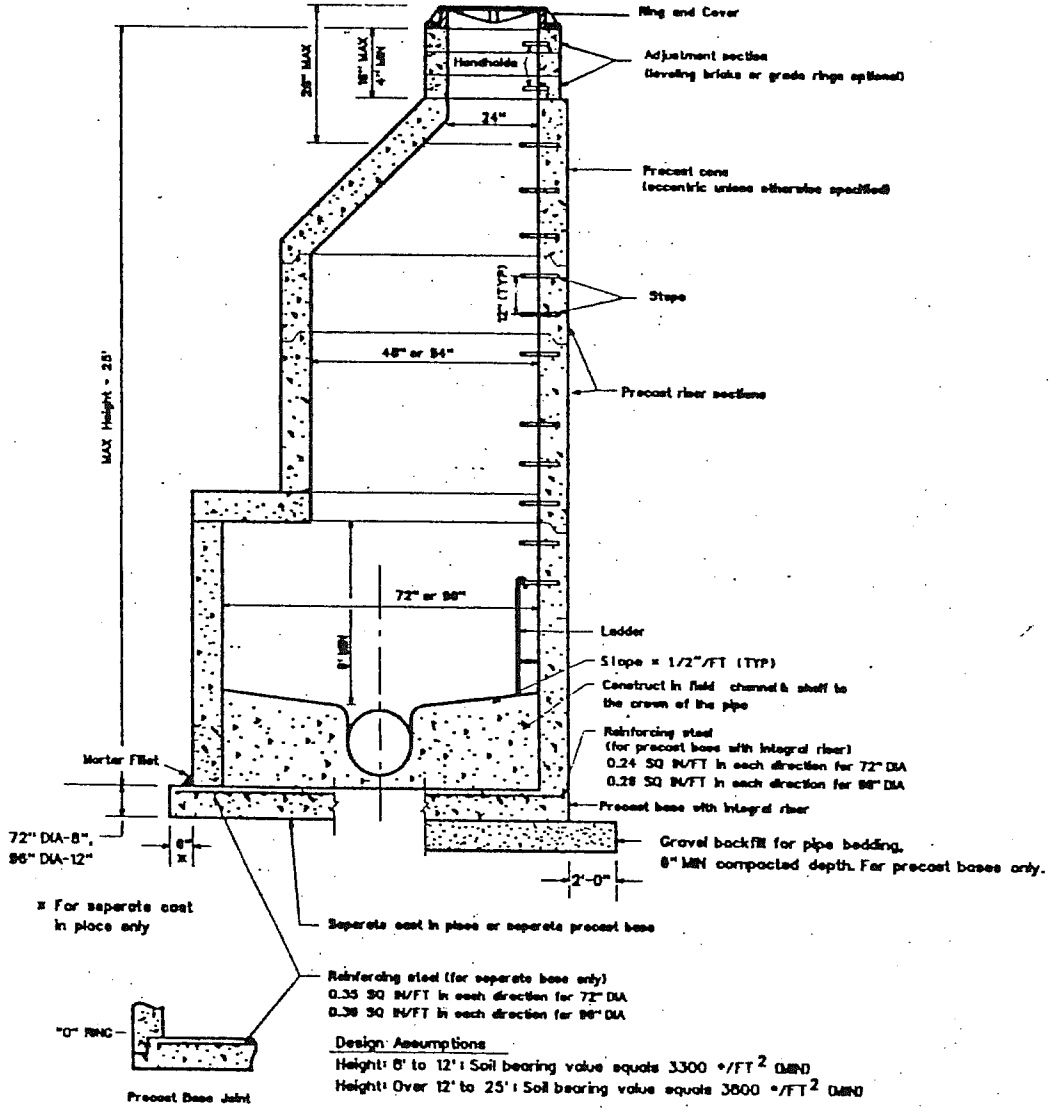
For details showing Grade Ring, Ladder, Steps, Handholds and Top Slabs, see Standard Plan "Miscellaneous Manhole Details."

See the Standard Specifications for joint requirements.

MANHOLE - TYPE I
48" & 54"

TOWN OF EATONVILLE, WA.

DWG. NO. 23



NOTES

Manholes to be constructed in accordance with AASHTO M-199 (ASTM C 478) unless otherwise shown on plans or noted in the Standard Specifications.

Handholds in adjustment section shall have 3" minimum clearance. Steps in manhole shall have 6" minimum clearance. See Standard Plan "Miscellaneous Manhole Details."

All reinforced cast in place concrete and Non-reinforced concrete in channel and shelf shall be Cl. 3000. All precast concrete shall be Class 4000.

Precast bases shall be furnished with cutouts or knockouts. Knockouts shall have a wall thickness of 2" minimum.

Knockout or cutout hole size is equal to pipe outer diameter plus manhole wall thickness. Maximum hole size is 60" for 72" manhole, 84" for 96" manhole. Minimum distance between holes is 12".

Manhole rings and covers shall be in accordance with Standard Specifications and meet the strength requirements of Federal Specification RR-F-621 D. Mating surfaces shall be finished to assure non-rocking fit with any cover position.

All base reinforcing steel shall have a minimum yield strength of 60,000 PSI and be placed in the upper half of the base with 1" minimum clearance.

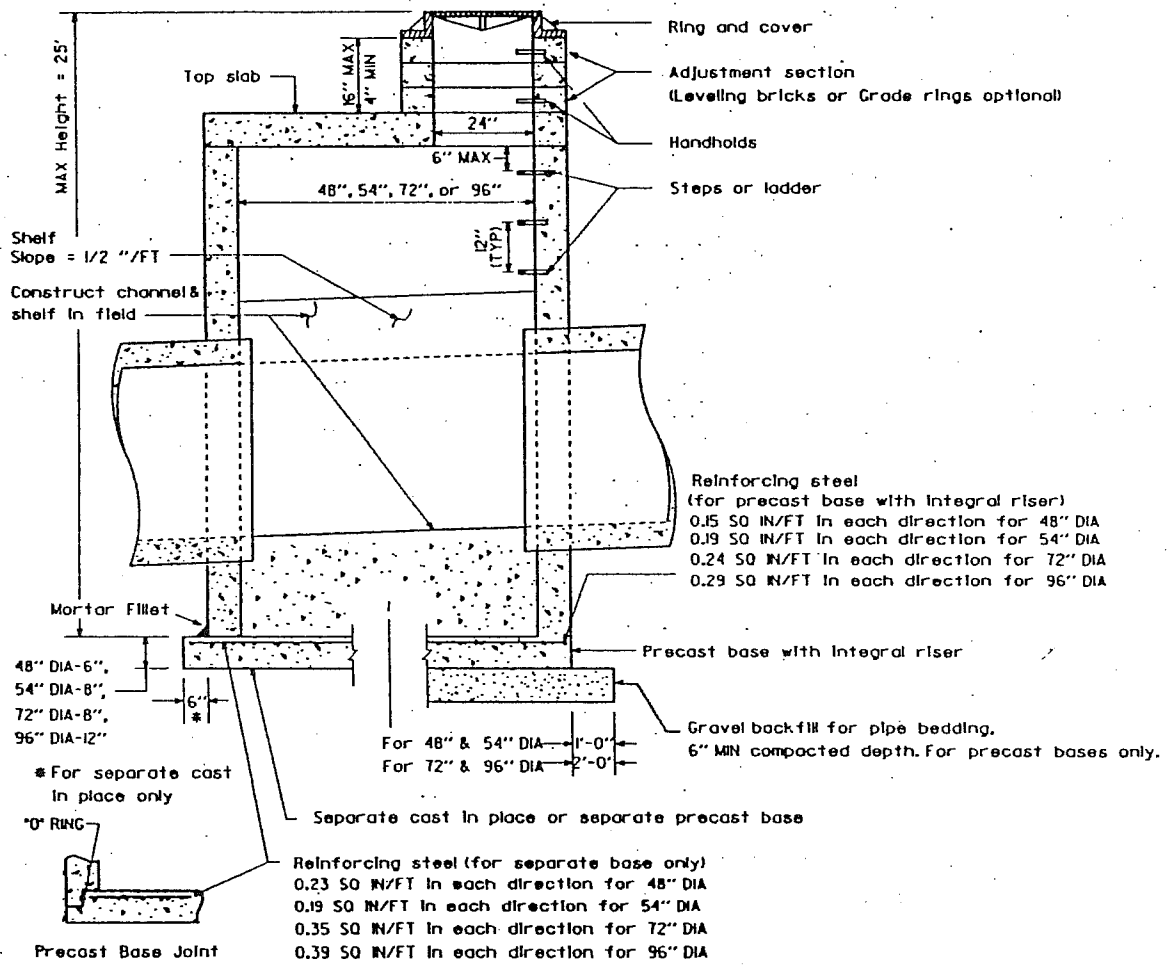
For details showing Grade Ring, Ladder, Steps, Handholds and Top Slabs, see Standard Plan "Miscellaneous Manhole Details."

See the Standard Specifications for joint requirements.

MANHOLE - TYPE 2
72" & 96"

TOWN OF EATONVILLE, WA.

DWG. NO. 24



NOTES

Manholes to be constructed in accordance with AASHTO M-199 (ASTM C 478) unless otherwise shown on plans or noted in the Standard Specifications.

Handholds in adjustment section shall have 3" minimum clearance. Steps in manhole shall have 6" minimum clearance. See Standard Plan "Miscellaneous Manhole Details."

All reinforced cast in place concrete and Non-reinforced concrete in channel and shelf shall be CL. 3000. All precast concrete shall be Class 4000

Precast bases shall be furnished with cutouts or knockouts. Knockouts shall have a wall thickness of 2" minimum.

Knockout or cutout hole size is equal to pipe outer diameter plus manhole wall thickness. Maximum hole size is 36" for 48" manhole, 42" for 54" manhole. Minimum distance between holes is 8". Maximum hole size is 60" for 72" manhole, 84" for 96" manhole. Minimum distance between holes is 12".

Manhole rings and covers shall be in accordance with Standard Specifications and meet the strength requirements of Federal Specification RR-F-621D. Mating surfaces shall be finished to assure non-rocking fit with any cover position.

All base reinforcing steel shall have a minimum yield strength of 60,000 PSI and be placed in the upper half of the base with 1" minimum clearance.

For details showing Grade Ring, Ladder, Steps, Handholds and Top Slabs, see Standard Plan "Miscellaneous Manhole Details."

See the Standard Specifications for joint requirements.

Design Assumptions

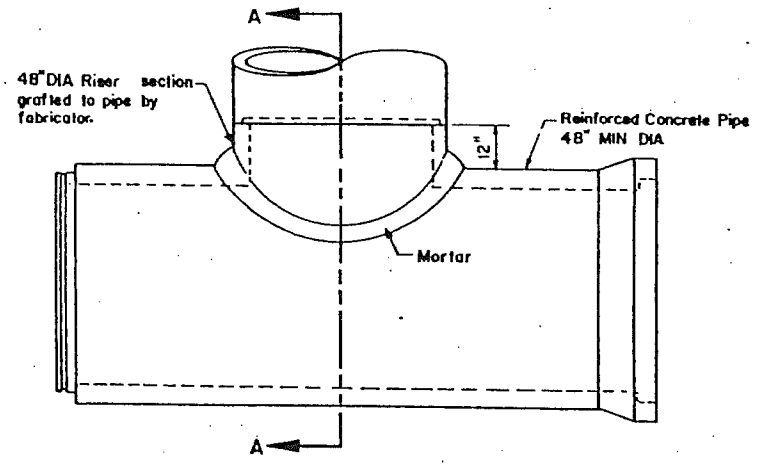
Height: 8' to 12'; Soil bearing value equals 3300 #/FT^2 (MIN)

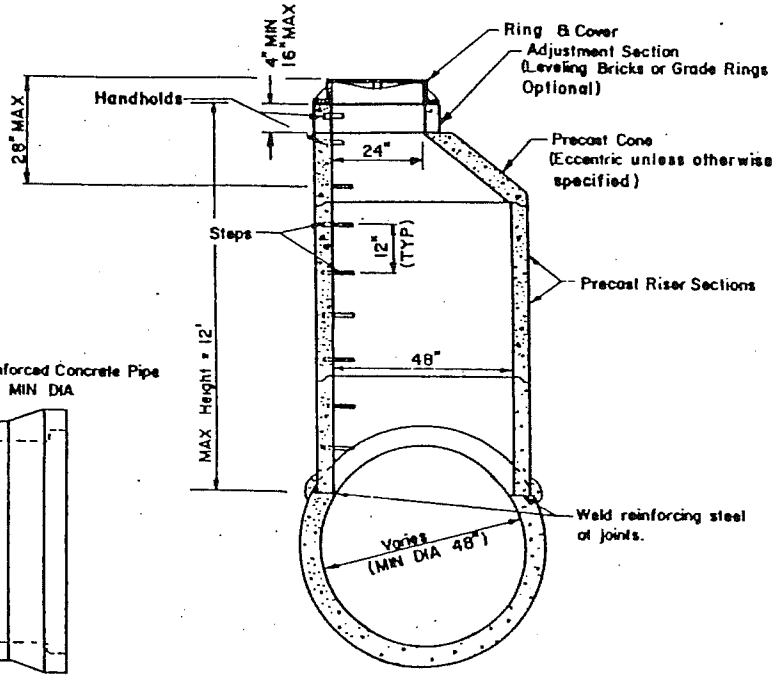
Height: Over 12' to 25'; Soil bearing value equals 3800 #/FT^2 (MIN)

MANHOLE - TYPE 3
48", 54", 72", & 96"

TOWN OF EATONVILLE, WA.

DWG. NO. 25





SECTION A-A

NOTES

Manholes to be constructed in accordance with AASHTO M-199 unless otherwise shown on plans or noted in the Standard Specifications.

Handholds in adjustment section shall have 3" minimum clearance. Steps in manhole shall have 6" minimum clearance. See Standard Plan "Miscellaneous Manhole Details."

Manhole rings and covers shall be in accordance with WSDOT Standard Specifications and meet the strength requirements of Federal Specification RR-F-621D. Mating surfaces shall be finished to assure non-rocking fit with any cover position.

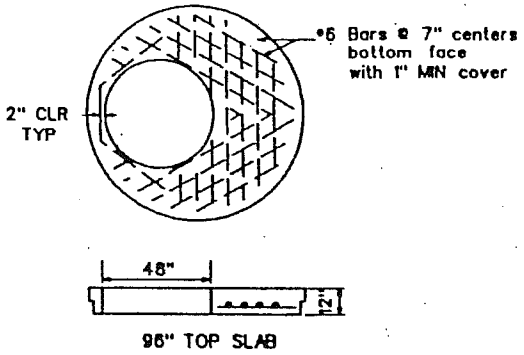
All precast concrete shall be Class 4000 .

For details showing Grade Ring, Ladder, Steps, Handholds and Top Slabs, see Standard Plan "Miscellaneous Manhole Details."

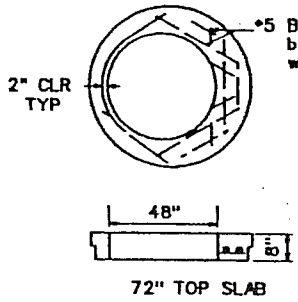
MANHOLE - TYPE 4

TOWN OF EATONVILLE , WA.

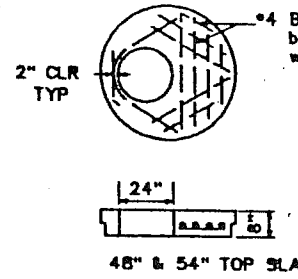
DWG. NO. 26



96" TOP SLAB



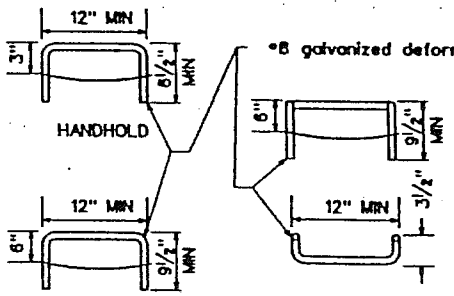
72" TOP SLAB



48" & 54" TOP SLAB

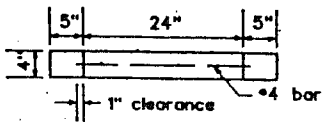
NOTES:
Proprietary manhole steps are acceptable, provided that they conform to Section R, ASTM C 478 (AASHTO M 199) and meet all WISHA requirements.

Manhole step legs shall be parallel or approximately radial at the option of the manufacturer, except that all steps in any manhole shall be similar. Penetration of outer wall by a leg is prohibited.

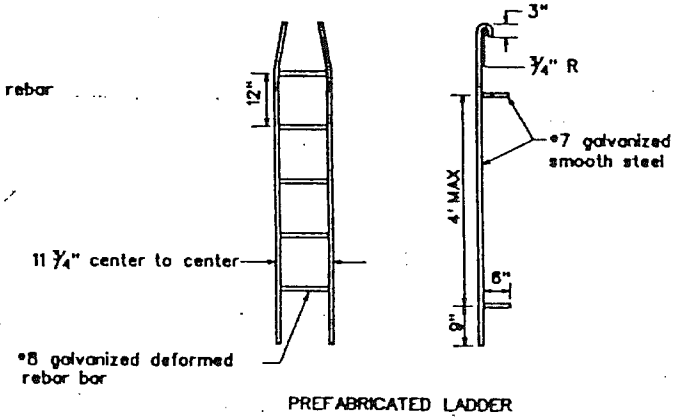


MANHOLE STEP

DROP RUNG MANHOLE STEP



GRADE RING

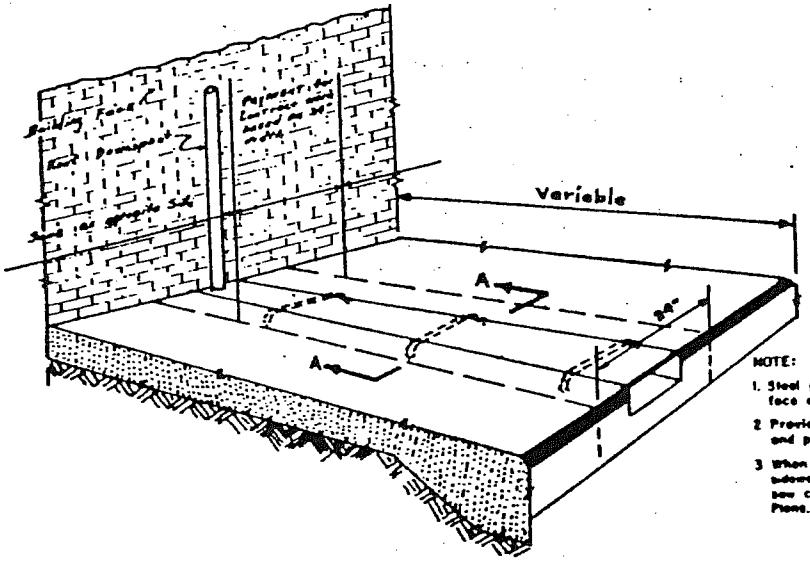


PREFABRICATED LADDER

MISCELLANEOUS MANHOLE DETAILS

TOWN OF EATONVILLE, WA.

DWG. NO. 27



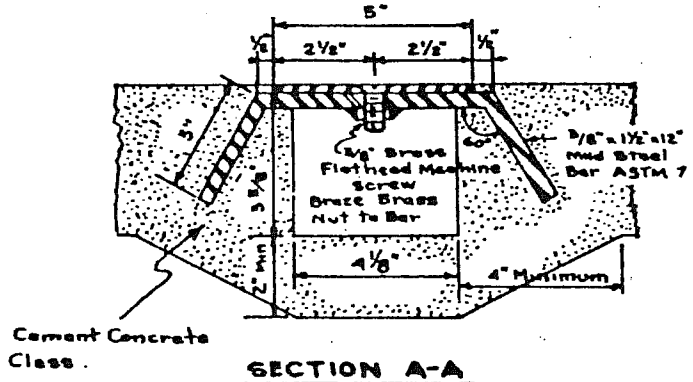
NOTE:

1. Steel plate to end 1/2" from face of curb.
2. Provide space between bldg. and plate for downspout.
3. When drain is placed in existing sidewalk the sidewalk shall be saw cut as specified in Contract Plans.

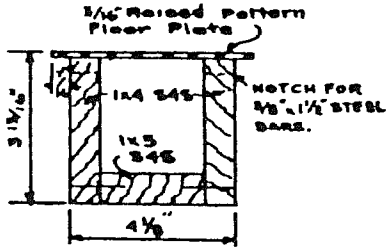
NOTES:

For walks 6' and less use 2 bars, 6' to 10' use 3 bars, and walks over 10' use 4 bars.

Concrete shall be Cement Concrete Class B

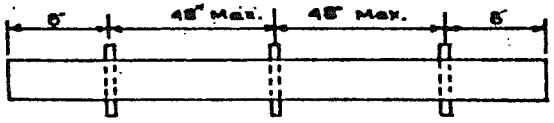


SECTION A-A



Note: Forms to be removed.

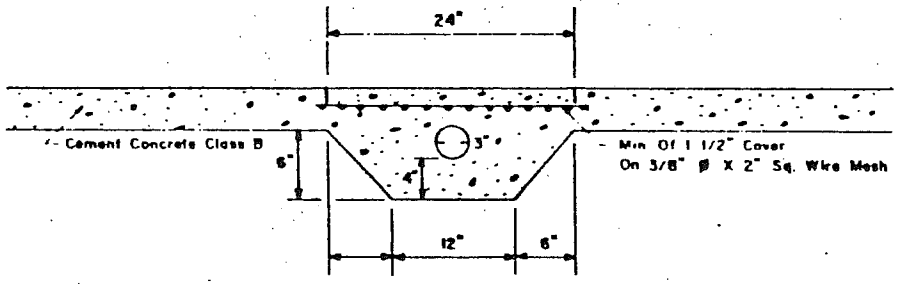
FORMING DETAIL



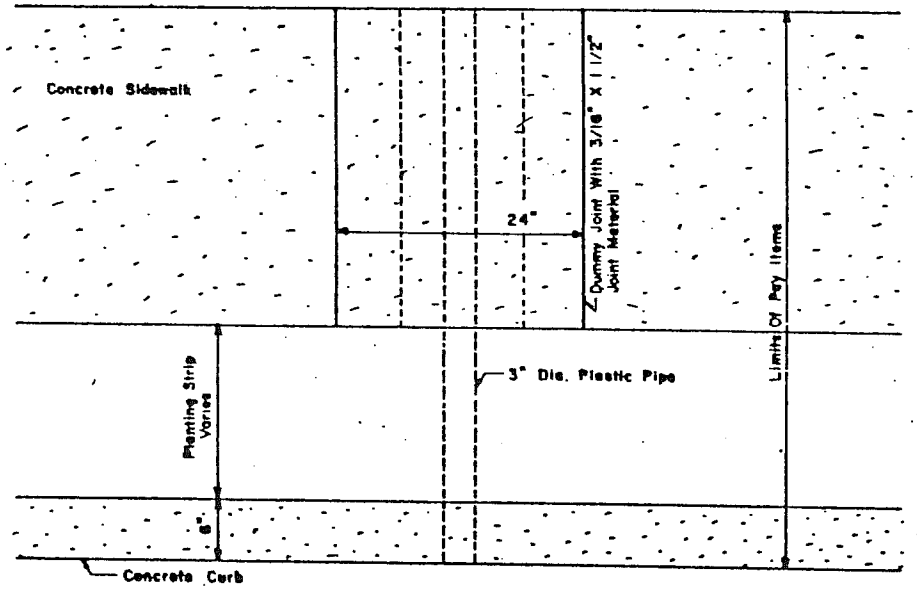
BAR SPACING
(See Notes)

(SEE WSDOT STANDARD PLAN B 20)

SIDEWALK DRAIN FOR BUILDING DOWNSPOUT TYPE 1	
TOWN OF EATONVILLE, WA	DWG NO. 28



ELEVATION



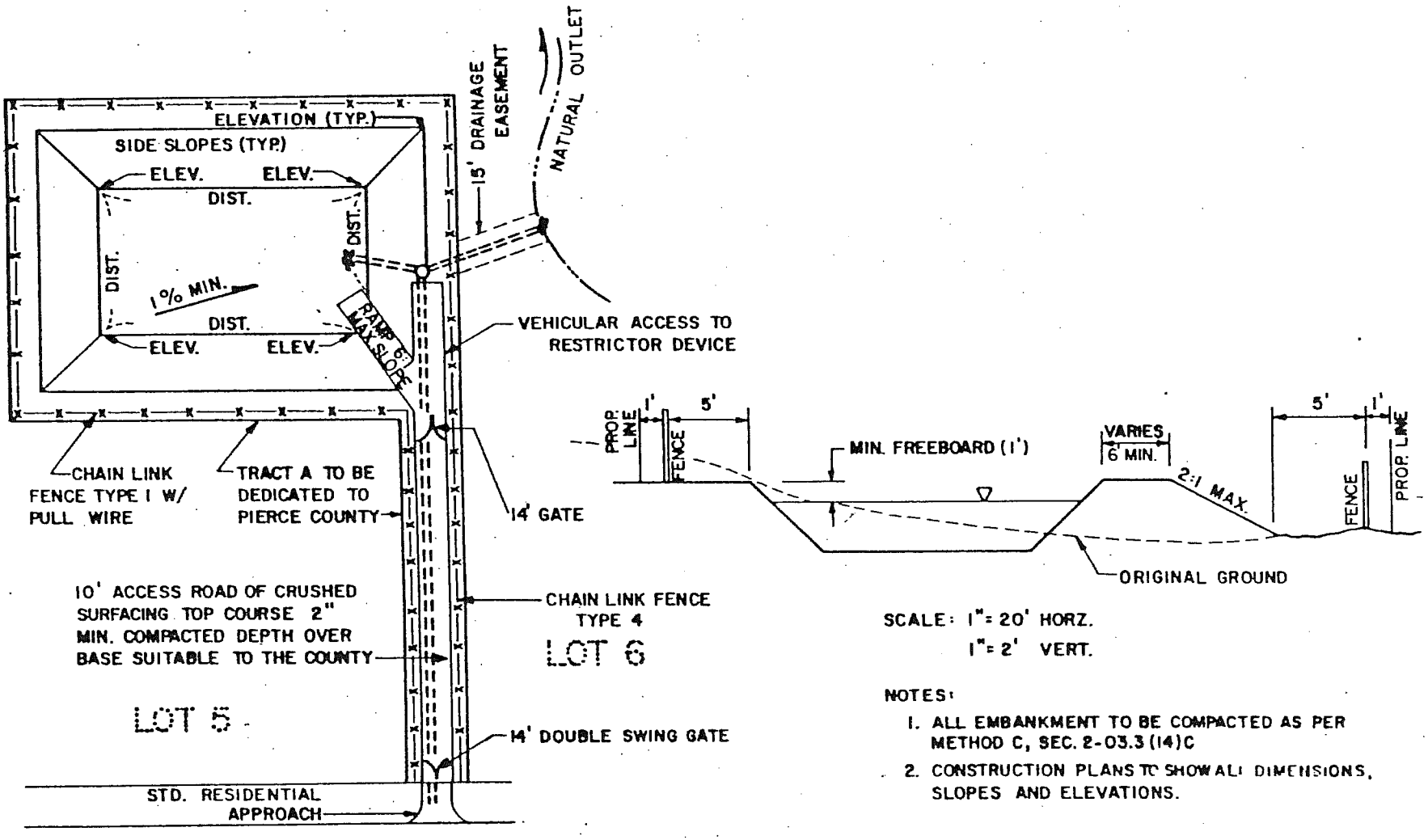
PLAN

(SEE WSDOT STANDARD PLAN B 20.d)

SMALL FLOW SIDEWALK DRAIN

TOWN OF EATONVILLE, WA

DWG NO. 29



SCALE: 1"= 20' HORZ.
1"= 2' VERT.

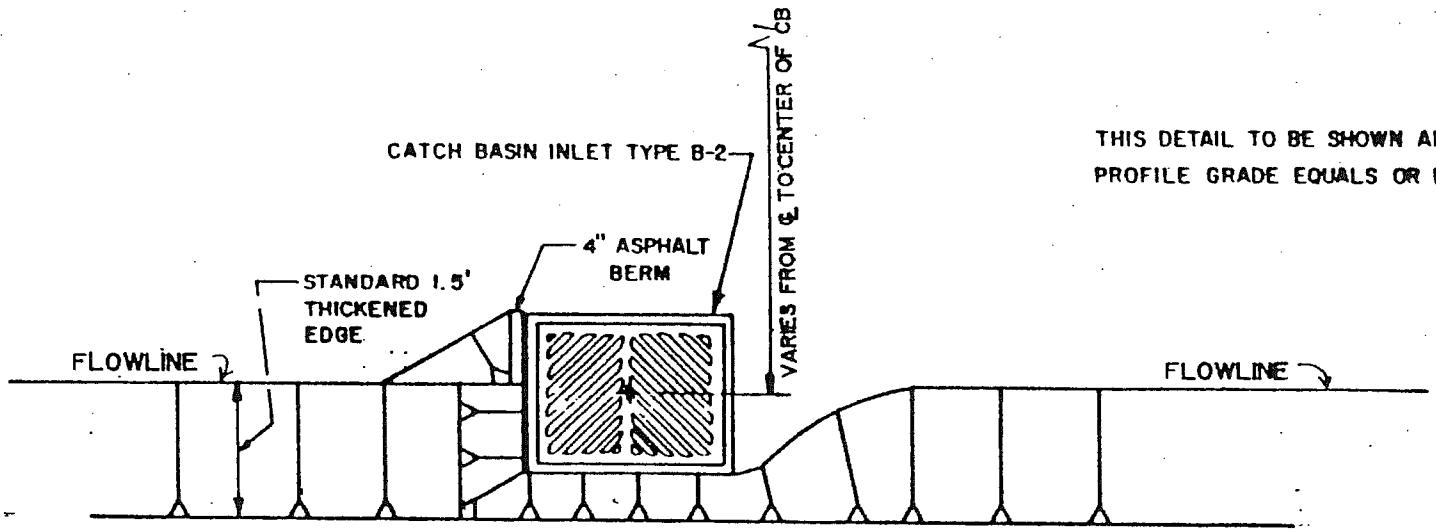
NOTES:

1. ALL EMBANKMENT TO BE COMPACTED AS PER METHOD C, SEC. 2-03.3 (14)C
2. CONSTRUCTION PLANS TO SHOW ALL DIMENSIONS, SLOPES AND ELEVATIONS.

STANDARD BASIN DETAIL

TOWN OF EATONVILLE, WA

DWG NO. 30



THIS DETAIL TO BE SHOWN AND CONSTRUCTED WHEN PROFILE GRADE EQUALS OR EXCEEDS 6%.

NOTE:

ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST STATE OF WASHINGTON DEPARTMENT OF HIGHWAYS STANDARDS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

WHERE NO CURBLINE OR GUTTER EXISTS.

CATCH BASIN INLET DETAIL

TOWN OF EATONVILLE, WA

DWG NO. 31

A P P E N D I X D E T A I L

1. RUN-OFF FACTORS (C-FACTORS)
2. AVERAGE VELOCITIES FOR ESTIMATING TRAVEL TIME FOR OVERLAND FLOW
3. RETENTION/DETENTION BASIN EQUATIONS
4. RAINFALL INTENSITY-DURATION-FREQUENCY
5. SILTATION FENCE DETAIL
6. STILLING WELL DESIGN
7. STONE SIZE FOR RIPRAPPING
8. ESTIMATION OF STONE SIZE AND DIMENSIONS FOR CULVERT APRONS.

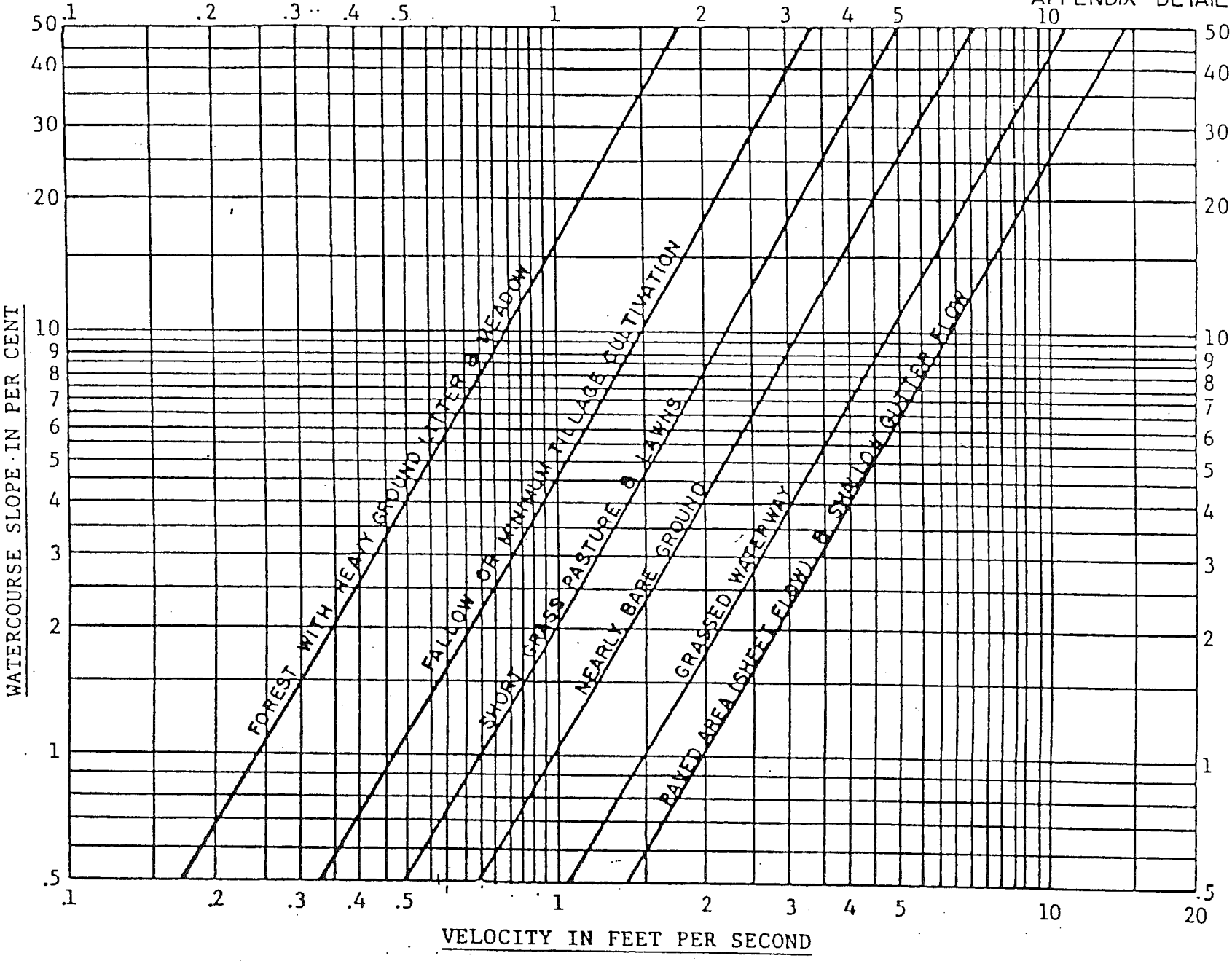
RUNOFF FACTORS (C FACTORS)

	FLAT 0 - 5%	ROLLING > 5%
UNDEVELOPED LAND		
Wood & Forest	0.05	0.10
Sparse Trees, Ground Cover	0.10	0.15
Light Grass to Bare Ground	0.15	0.20
DEVELOPED AREA		
Pavement & Roofs	0.90	0.90
Gravel Roads & Parking Lots	0.75	0.80
City Business	0.85	0.90
Apartment Dwelling Areas	0.80	0.85
Industrial Areas (Heavy)	0.70	0.80
Industrial Areas (Light)	0.60	0.70
Earth Shoulder	0.50	0.50
Playground	0.25	0.30
Lawns, Meadows & Pastures	0.20	0.25
Parks & Cemetery	0.15	0.20

SINGLE FAMILY RESIDENTIAL
(Dwelling Unit/Gross Acre)

1.0-1.5 DU/GA	0.30
1.5-3.0 DU/GA	0.35
3.0-3.5 DU/GA	0.40
3.5-4.0 DU/GA	0.45
4.0-6.0 DU/GA	0.50
6.0-9.0 DU/GA	0.60
9.0-15.0 DU/GA	0.70

APPENDIX DETAIL # 2



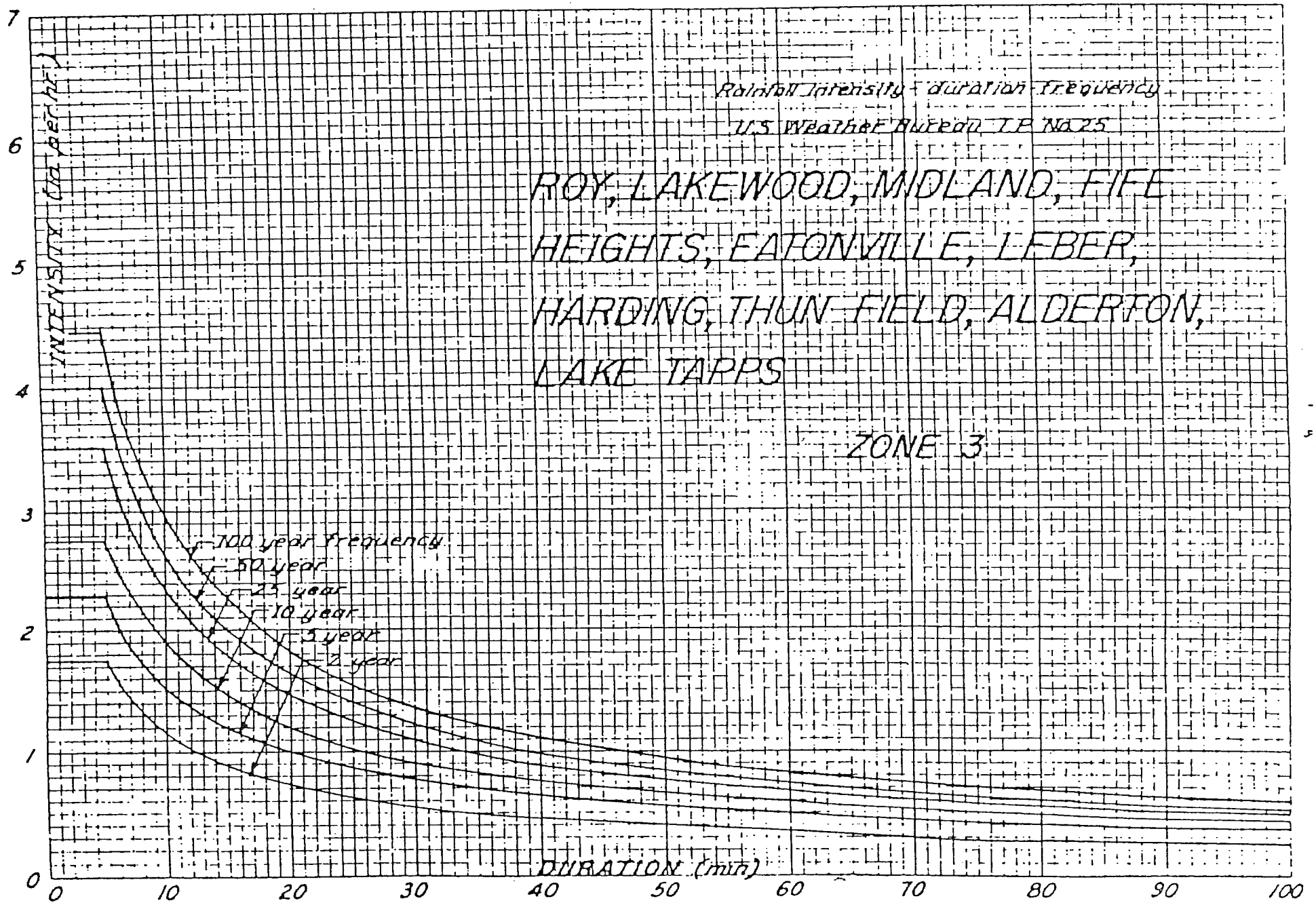
AVERAGE VELOCITIES FOR ESTIMATING TRAVEL TIME FOR OVERLAND FLOW

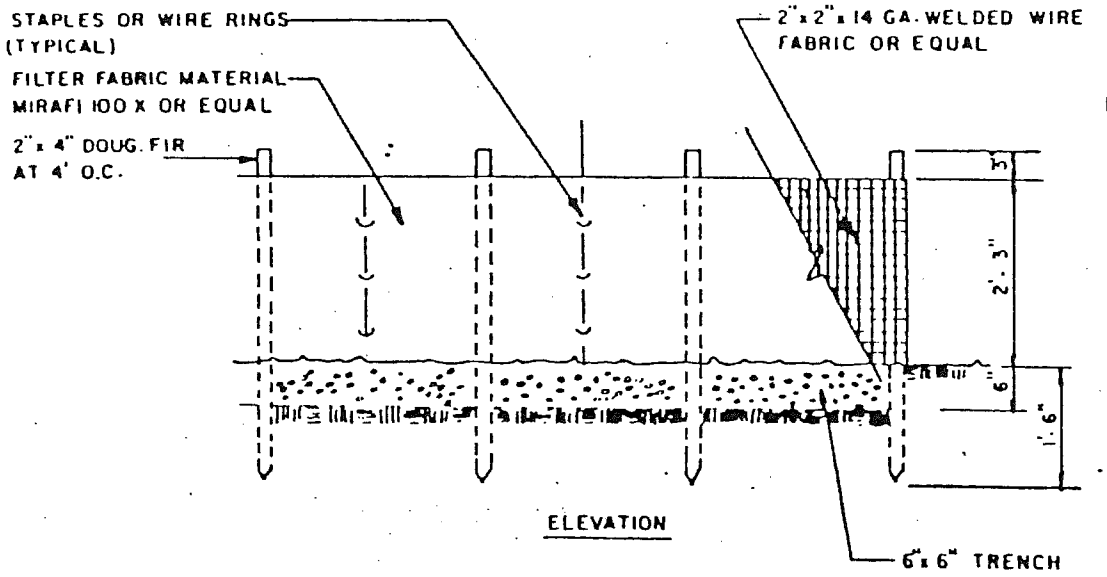
CREDIT:
SOIL CONSERVATION SERVICE

RETENTION/DETENTION BASIN EQUATIONS

APPENDIX DETAIL # 3

AREA (ZONE)	TYPE OF OUTLET	25-YEAR DESIGN STORM		100-YEAR DESIGN STORM	
		PEAK STORAGE TIME (MINUTES)	MAX. STORAGE VOLUME (FT^3/AC)	PEAK STORAGE TIME (MINUTES)	MAX. STORAGE VOLUME (FT^3/AC)
EATONVILLE	ORIFICE WITH HEAD	$T = -25 + \sqrt{\frac{2194}{Q_o}}$	$V_s = \frac{3510\,T}{T+25} - 40\,Q_o T$	$T = -25 + \sqrt{\frac{2850}{Q_o}}$	$V_s = \frac{4560\,T}{T+25} - 40\,Q_o T$
	CONSTANT FLOW	$T = -25 + \sqrt{\frac{1462}{Q_o}}$	$V_s = \frac{3510\,T}{T+25} - 60\,Q_o T$	$T = -25 + \sqrt{\frac{1900}{Q_o}}$	$V_s = \frac{4560\,T}{T+25} - 60\,Q_o T$

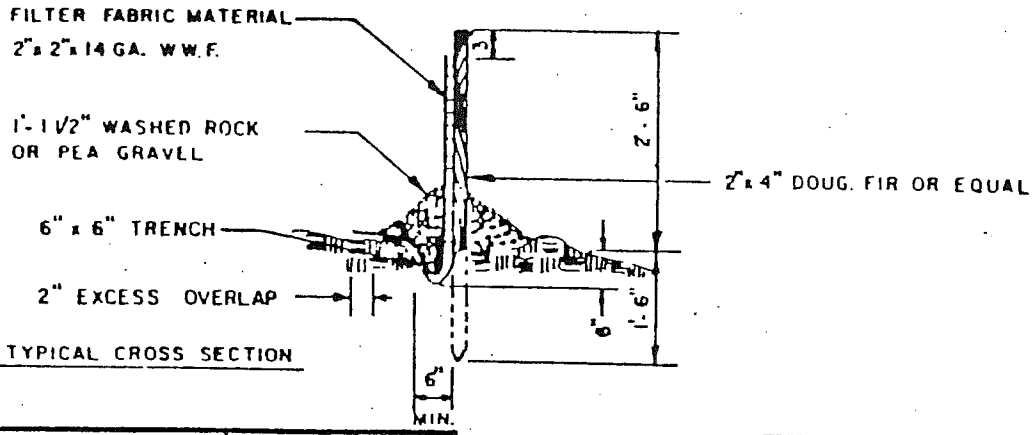

Rainfall Intensity - duration - frequency
U.S. Weather Bureau TP No 25
ROY, LAKEWOOD, MIDLAND, FIFE HEIGHTS, EATONVILLE, LEBER, HARDING, THUN FIELD, ALDERTON, LAKE TAPPS
ZONE 3
100 year frequency
50 year
25 year
10 year
5 year
2 year
RAINFALL INTENSITY (inches per hour)
DURATION (min)
0
1
2
3
4
5
6
7
0
10
20
30
40
50
60
70
80
90
100



ELEVATION

NOTES:

1. PLACE 1' OF 3/4"—1-1/2" WASHED ROCK OR PEA GRAVEL ON BOTH SIDES OF FENCE TO CREATE A BEVEL SHAPE
2. FABRIC SHALL COVER BOTTOM OF 6" x 6" TRENCH AND EXTEND BEYOND THE LIMITS OF THE GRAVEL IN ORDER TO MAINTAIN AN EXCESS OVERLAP OF 2" MINIMUM AS SHOWN IN TYPICAL CROSS-SECTION.



TYPICAL CROSS SECTION

9/26/84	ORIGINAL DRAWING		C W I
DATE	REVISIONS	APPROVED	DRAWN

SILTATION FENCE DETAIL

STILLING WELL DESIGN

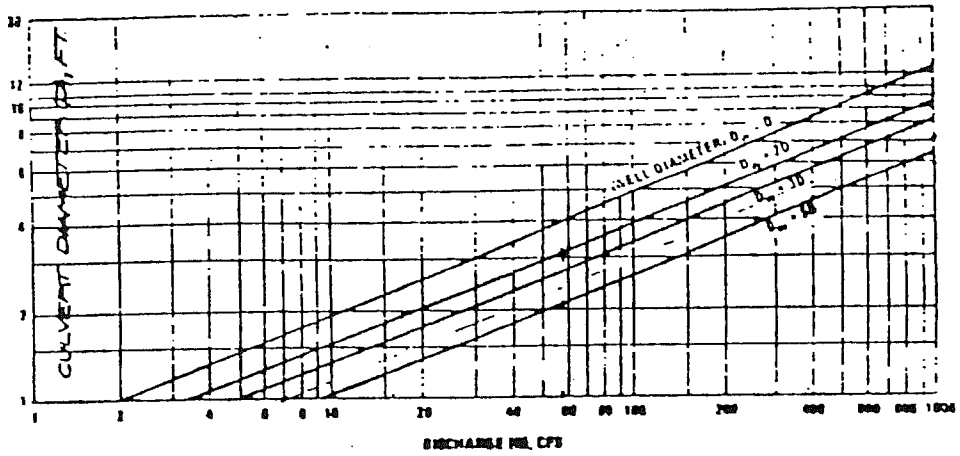


FIGURE 1. STILLING WELL DIAMETER (D_w)

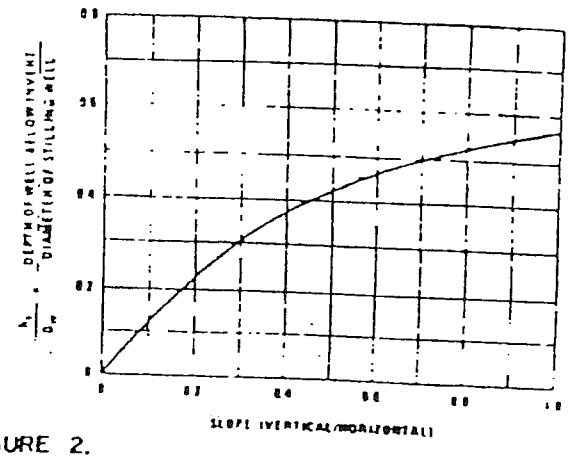


FIGURE 2.

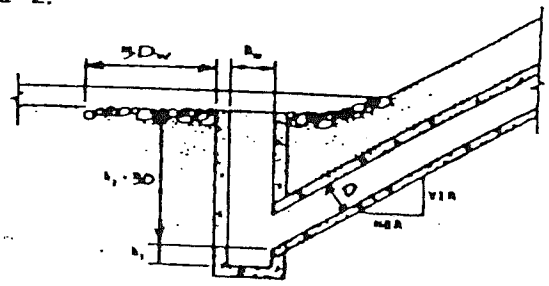


FIGURE 3. STILLING WELL HEIGHT

Example:

Given: 24" pipe on 2:1 slope carrying 15 cfs.

Find stilling well dimensions:

(1) D=2 feet Q=15 cfs.
(2) From Figure 1 D_w=1.5D D_w=3 feet - THIS IS A MINIMUM VALUE
(3) Slope = Vertical/Horizontal = 1/2 = 0.5 From Figure 2 h_1/D_w = .42
(4) h_1 = .42(3.0) = 1.26 feet say 1.3 feet - THIS IS A MINIMUM VALUE
(5) h_2 = 3(D) = 3(2) = 6 feet
(6) Total Height of Structure = $h_1 + h_2$ = 1.3 feet + 6 feet = 7.3 feet

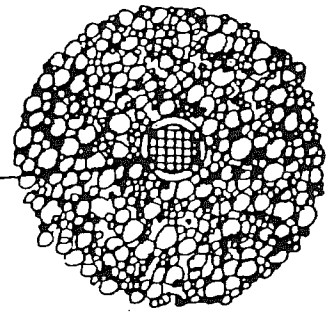
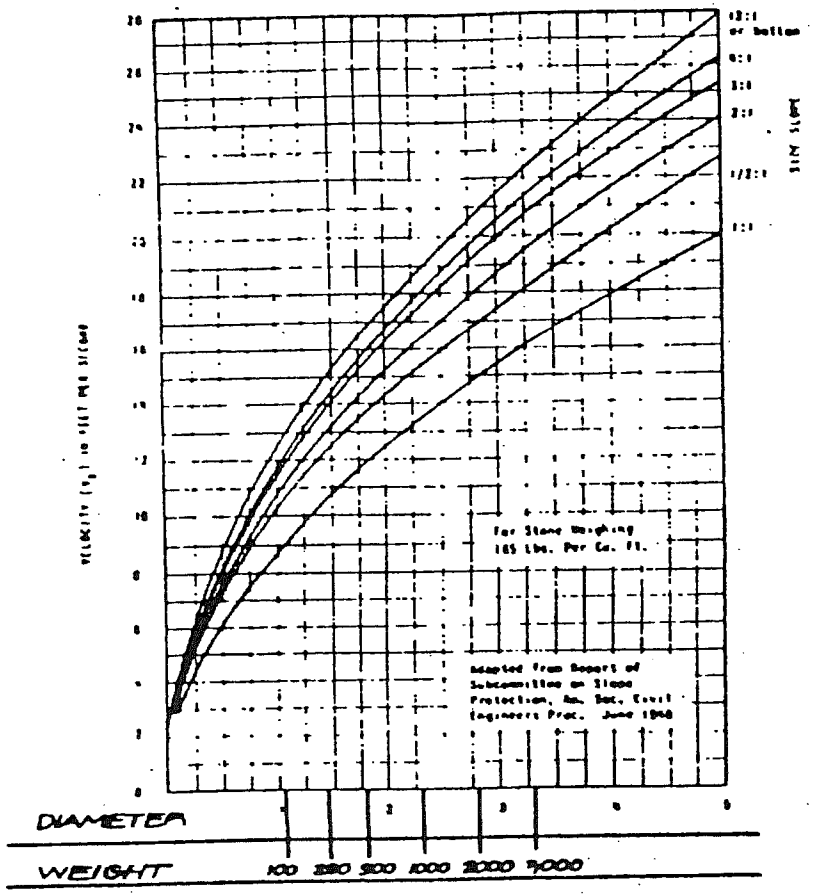


FIGURE 4. STILLING WELL PLAN VIEW



STONE SIZE FOR RIPRAPPING

MAXIMUM WEIGHT OF STONE REQUIRED	MINIMUM & MAXIMUM RANGE IN WEIGHT OF STONES	WEIGHT RANGE OF 75% OF STONES
(LBS.)	(LBS)	(LBS)
150	25 - 150	50 - 150
200	25 - 200	50 - 200
250	25 - 250	50 - 250
400	25 - 400	100 - 400
600	25 - 600	150 - 600
800	25 - 800	200 - 800
1,000	50 - 1,000	250 - 1,000
1,300	50 - 1,300	325 - 1,300
1,600	50 - 1,600	400 - 1,600
2,000	75 - 2,000	600 - 2,000
2,700	100 - 2,700	800 - 2,700

CREDIT: W.S.D.O.T. HYDRAULICS MANUAL AND KING COUNTY DRAINAGE MANUAL

ESTIMATION OF STONE SIZE AND DIMENSIONS FOR CULVERT APRONS

Step i) Estimate flow velocity V_o at culvert or paved channel outlet.

Step ii) For pipe culverts D_o is diameter.

For pipe arch, arch. and box culverts, and paved channel outlets, $D_o = A_o$, where A_o = cross sectional area of flow at outlet.

For multiple culverts, use $D_o = 1.25 \times D_o$ of single culvert.

Step iii) For apron grades of 10% or steeper, use recommendations for next high zone (zones 1 through 6).

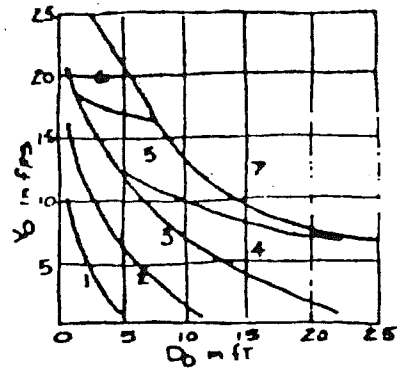


figure 1
ZONES FOR SELECTED VELOCITIES AND PIPE DIAMETERS

Zone	Apron Material	Length of Apron: To Protect Culvert L_1	Length of Apron: To Prevent Scour Hole L_2
1	Stone Filling (Fine)	$3 \times D_o$	$4 \times D_o$
2	Stone Filling (Light)	$3 \times D_o$	$6 \times D_o$
3	Stone Filling (Medium)	$4 \times D_o$	$8 \times D_o$
4	Stone Filling (Heavy)	$4 \times D_o$	$8 \times D_o$
5	Stone Filling (Heavy)	$5 \times D_o$	$10 \times D_o$
6	Stone Filling (Heavy)	$6 \times D_o$	$12 \times D_o$
7	Special study required (energy dissipators, stilling basin, or larger size stone).		

figure 2
APRON LENGTH & CONSTITUTION

Credit: "Bank and Channel Lining Procedures". New York Dept. of Transportation. Division of Design and Construction. 1971

A P P E N D I X D E T A I L

1. RUN-OFF FACTORS (C-FACTORS)
2. AVERAGE VELOCITIES FOR ESTIMATING TRAVEL TIME FOR OVERLAND FLOW
3. RETENTION/DETENTION BASIN EQUATIONS
4. RAINFALL INTENSITY-DURATION-FREQUENCY
5. SILTATION FENCE DETAIL
6. STILLING WELL DESIGN
7. STONE SIZE FOR RIPRAPPING
8. ESTIMATION OF STONE SIZE AND DIMENSIONS FOR CULVERT APRONS.

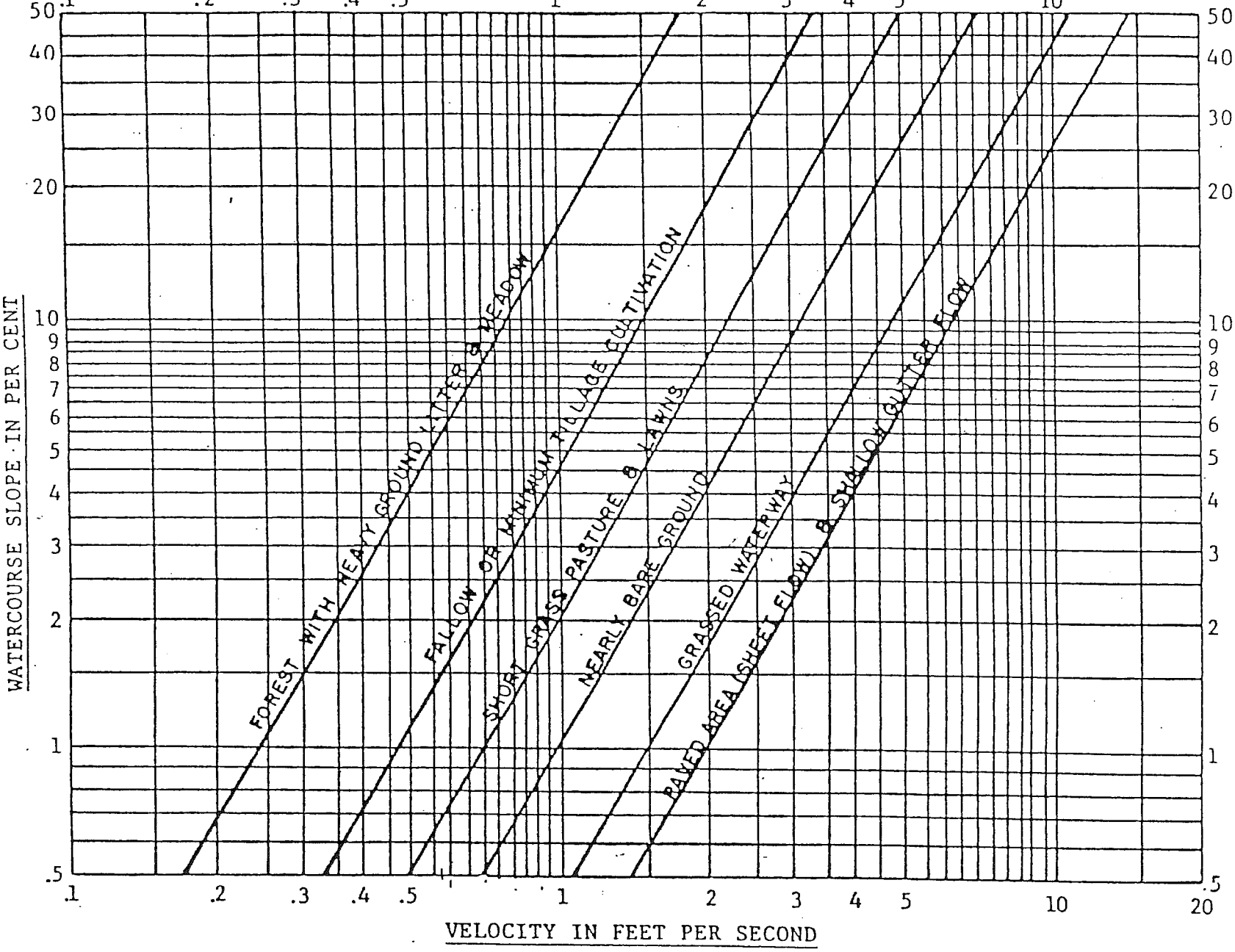
RUNOFF FACTORS (C FACTORS)

	FLAT 0 - 5%	ROLLING > 5%
UNDEVELOPED LAND		
Wood & Forest	0.05	0.10
Sparse Trees, Ground Cover	0.10	0.15
Light Grass to Bare Ground	0.15	0.20
DEVELOPED AREA		
Pavement & Roofs	0.90	0.90
Gravel Roads & Parking Lots	0.75	0.80
City Business	0.85	0.90
Apartment Dwelling Areas	0.80	0.85
Industrial Areas (Heavy)	0.70	0.80
Industrial Areas (Light)	0.60	0.70
Earth Shoulder	0.50	0.50
Playground	0.25	0.30
Lawns, Meadows & Pastures	0.20	0.25
Parks & Cemetery	0.15	0.20

SINGLE FAMILY RESIDENTIAL
(Dwelling Unit/Gross Acre)

1.0-1.5 DU/GA	0.30
1.5-3.0 DU/GA	0.35
3.0-3.5 DU/GA	0.40
3.5-4.0 DU/GA	0.45
4.0-6.0 DU/GA	0.50
6.0-9.0 DU/GA	0.60
9.0-15.0 DU/GA	0.70

APPENDIX DETAIL # 2



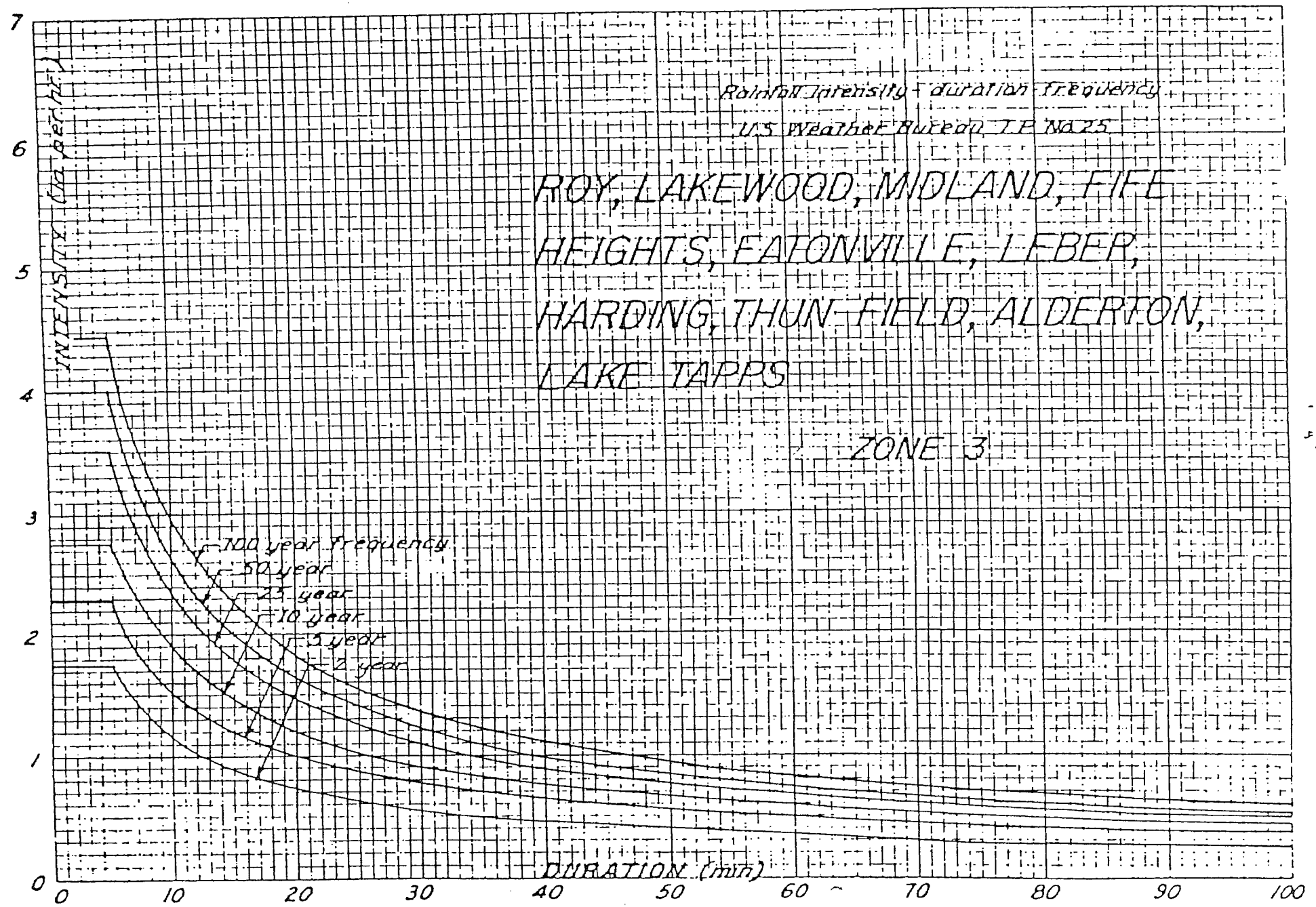
AVERAGE VELOCITIES FOR ESTIMATING TRAVEL TIME FOR OVERLAND FLOW

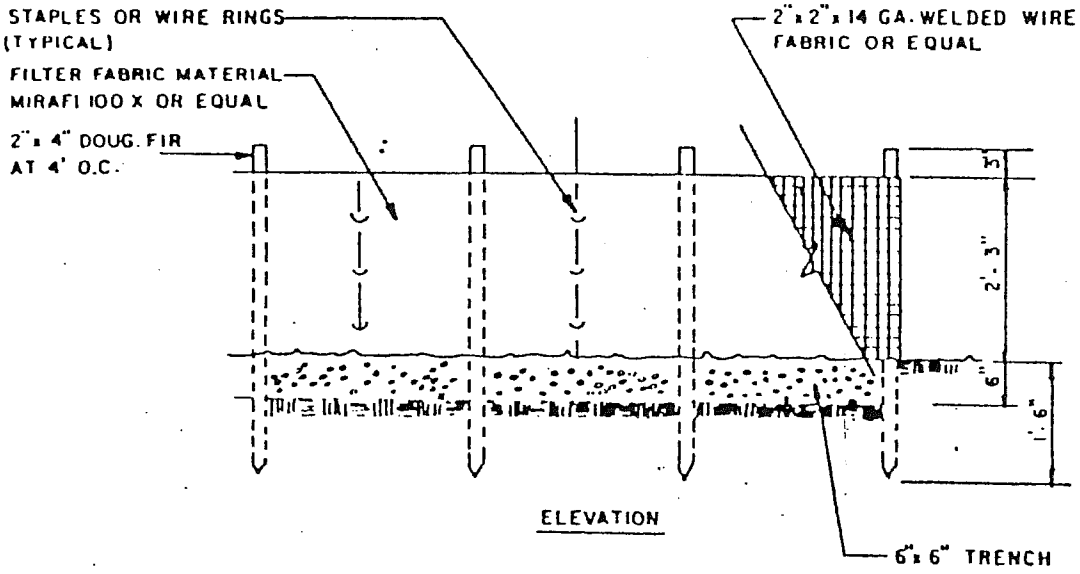
CREDIT:
SOIL CONSERVATION SERVICE

RETENTION/DETENTION BASIN EQUATIONS

APPENDIX DETAIL #3

AREA (ZONE)	TYPE OF OUTLET	25-YEAR DESIGN STORM		100-YEAR DESIGN STORM	
		PEAK STORAGE TIME (MINUTES)	MAX. STORAGE VOLUME (FT^3/AC)	PEAK STORAGE TIME (MINUTES)	MAX. STORAGE VOLUME (FT^3/AC)
EATONVILLE	ORIFICE WITH HEAD	$T = -25 + \sqrt{\frac{2194}{Q_o}}$	$V_s = \frac{3510\,T}{T+25} - 40\,Q_o T$	$T = -25 + \sqrt{\frac{2850}{Q_o}}$	$V_s = \frac{4560\,T}{T+25} - 40\,Q_o T$
	CONSTANT FLOW	$T = -25 + \sqrt{\frac{1462}{Q_o}}$	$V_s = \frac{3510\,T}{T+25} - 60\,Q_o T$	$T = -25 + \sqrt{\frac{1900}{Q_o}}$	$V_s = \frac{4560\,T}{T+25} - 60\,Q_o T$

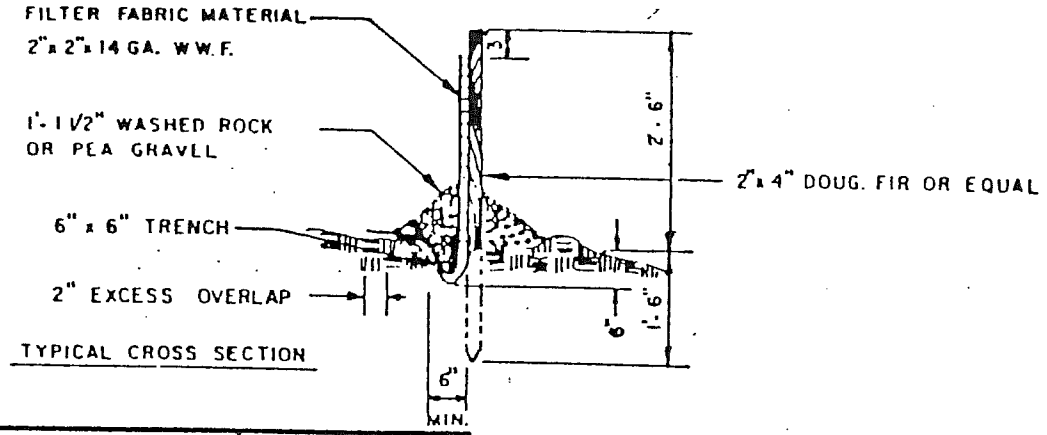

Rainfall Intensity - duration frequency
U.S Weather Bureau TP No 25
ROY, LAKEWOOD, MIDLAND, FIFE HEIGHTS, EATONVILLE, LEBER, HARDING, THUN FIELD, ALDERTON, LAKE TAPPS
ZONE 3
INTENSITY (inches per hr.)
DURATION (min)
100 year frequency
50 year
25 year
10 year
5 year
2 year
0
1
2
3
4
5
6
7
0
10
20
30
40
50
60
70
80
90
100



ELEVATION

NOTES:

1. PLACE 1' OF 3/4"—1-1/2" WASHED ROCK OR PEA GRAVEL ON BOTH SIDES OF FENCE TO CREATE A BEVEL SHAPE
2. FABRIC SHALL COVER BOTTOM OF 6" x 6" TRENCH AND EXTEND BEYOND THE LIMITS OF THE GRAVEL IN ORDER TO MAINTAIN AN EXCESS OVERLAP OF 2" MINIMUM AS SHOWN IN TYPICAL CROSS-SECTION.



TYPICAL CROSS SECTION

3/26/84	ORIGINAL DRAWING		C W I
DATE	REVISIONS	APPROVED	DRAWN

SILTATION FENCE DETAIL

APPENDIX DETAIL # 6

STILLING WELL DESIGN

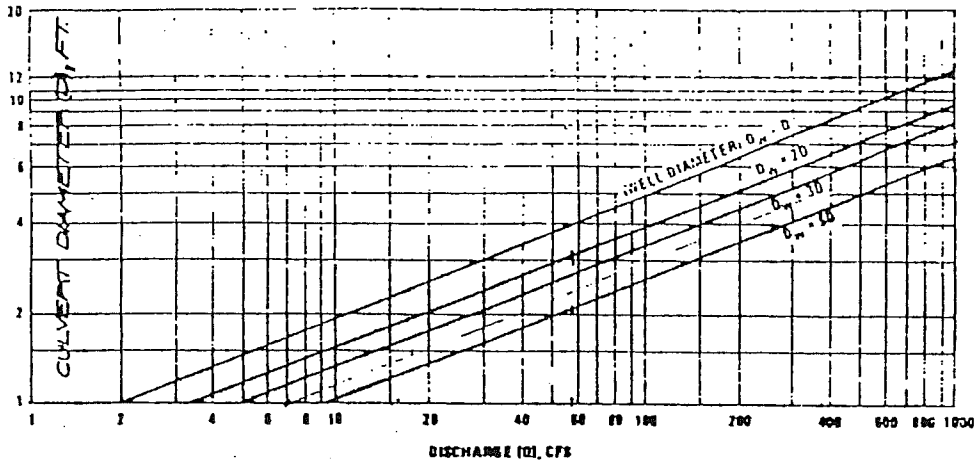


FIGURE 1. STILLING WELL DIAMETER (D_w)

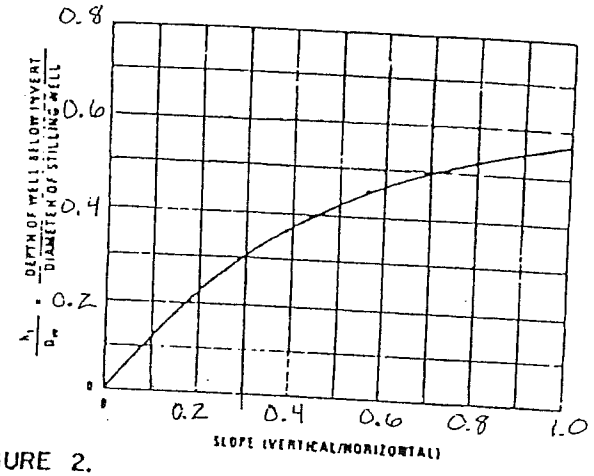


FIGURE 2.

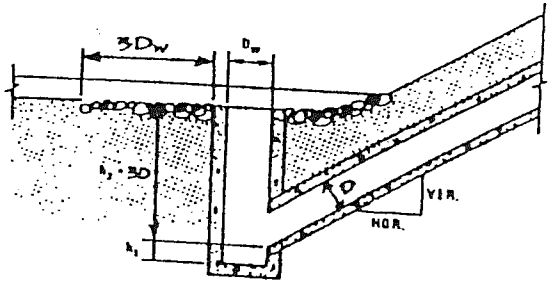


FIGURE 3. STILLING WELL HEIGHT

Example:

Given: 24" pipe on 2:1 slope carrying 15 cfs.

Find stilling well dimensions:

(1) D=2 feet Q=15 cfs.
(2) From Figure 1 D_w=1.5D D_w=3 feet - THIS IS A MINIMUM VALUE
(3) Slope = Vertical/Horizontal = 1/2 = 0.5 From Figure 2 h_1/D_w = .42
(4) h_1 = .42(3.0) = 1.26 feet say 1.3 feet - THIS IS A MINIMUM VALUE
(5) h_2 = 3(D) = 3(2) = 6 feet
(6) Total Height of Structure = $h_1 + h_2$ = 1.3 feet + 6 feet = 7.3 feet

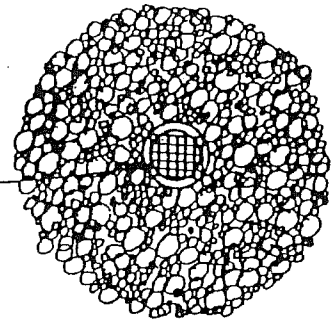
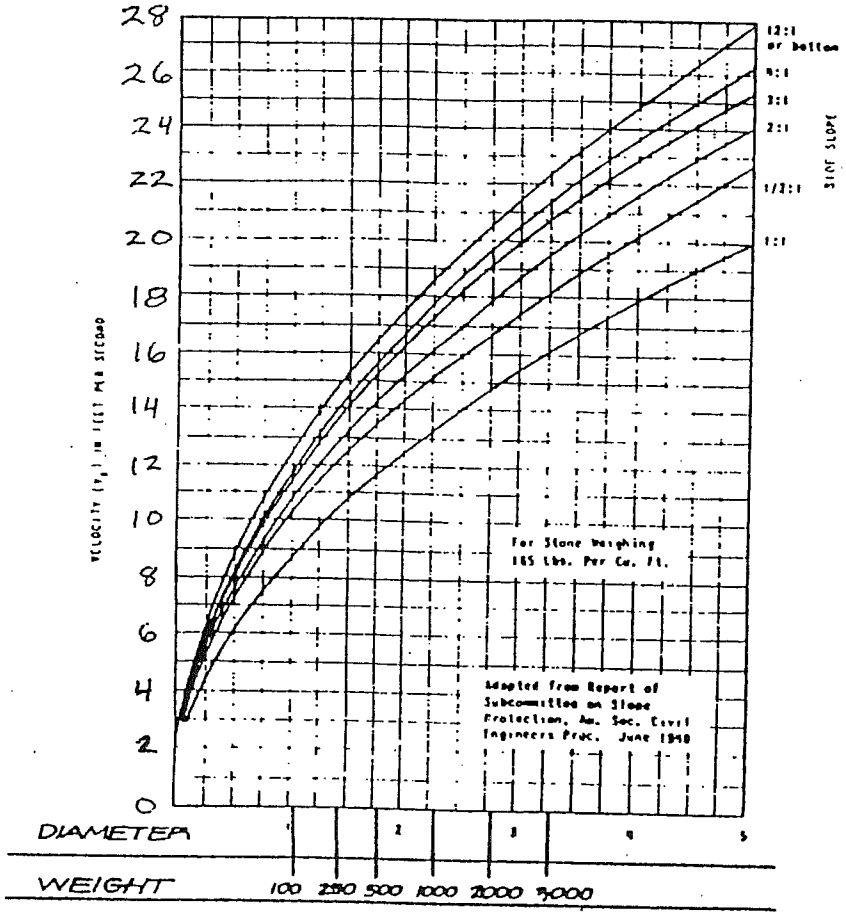


FIGURE 4. STILLING WELL PLAN VIEW



STONE SIZE FOR RIPRAPPING

MAXIMUM WEIGHT OF STONE REQUIRED	MINIMUM & MAXIMUM RANGE IN WEIGHT OF STONES	WEIGHT RANGE OF 75% OF STONES
(LBS.)	(LBS.)	(LBS.)
150	25 - 150	50 - 150
200	25 - 200	50 - 200
250	25 - 250	50 - 250
400	25 - 400	100 - 400
600	25 - 600	150 - 600
800	25 - 800	200 - 800
1,000	50 - 1,000	250 - 1,000
1,300	50 - 1,300	325 - 1,300
1,600	50 - 1,600	400 - 1,600
2,000	75 - 2,000	600 - 2,000
2,700	100 - 2,700	800 - 2,700

CREDIT: W.S.D.O.T. HYDRAULICS MANUAL AND KING COUNTY DRAINAGE MANUAL

ESTIMATION OF STONE SIZE AND DIMENSIONS FOR CULVERT APRONS

Step i) Estimate flow velocity V_o at culvert or paved channel outlet.

Step ii) For pipe culverts D_o is diameter.

For pipe arch, arch. and box culverts, and paved channel outlets, $D_o = A_o$, where A_o = cross sectional area of flow at outlet.

For multiple culverts, use $D_o = 1.25 \times D_o$ of single culvert.

Step iii) For apron grades of 10% or steeper, use recommendations for next high zone (zones 1 through 6).

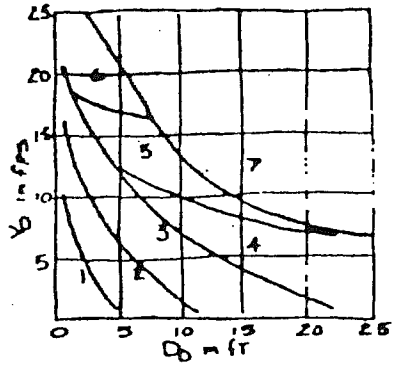


figure 1
ZONES FOR SELECTED VELOCITIES AND PIPE DIAMETERS

Zone	Apron Material	Length of Apron: To Protect Culvert L_1	Length of Apron: To Prevent Scour Hole L_2
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6	Stone Filling (Heavy)	$6 \times D_o$	$12 \times D_o$
7	Special study required (energy dissipators, stilling basin, or larger size stone).		

figure 2
APRON LENGTH & CONSTITUTION

Credit: "Bank and Channel Lining Procedures". New York Dept. of Transportation. Division of Design and Construction. 1971

Town of Eatonville Water Distribution and Wastewater Collection Specifications

1----- Water mains shall be constructed of the following materials.
PVC-C 900 or Ductile Iron (gasket)
2----- Wastewater collection mains shall be constructed of gasket PVC
3----- Saddle taps shall not be closer than 12 inches and not in line.
4----- Wastewater Cleanouts will be placed at the property line (Minimum 6 inch), and 2 feet out from the house.
5-----Wastewater cleanouts will be brought up to finish grade and caped.
6----- Both water and wastewater mains will be bedded with sand at a Minimum of 6 inches under the pipe and 12 inches above.
7----- The proper warning tape will be placed between 12 inches and 18 inches above the pipe.
8-----Locate wire will be either taped to the main or wrapped around the main.
9-----Water main valve boxes will be turned to indicate the direction of flow that the valve shuts off.
10----Water services shall be made of 1 inch polypipe (200psi) from the corporation valve on the main to the meter setter with NO splices.
11----Meters shall read in U.S. Gallons.
12----Meters shall be Master Meters (Brand)
13----Meter setters shall have check valves on them.
14----When at all possible, the meter will be installed at the property line.
15----The Town of Eatonville is only responsible to the meter for repairs.
16----Water service line from the meter setter to the house will be of ¾ inch polypipe (200psi)
17----All services lines with sprinkler systems will have a double check and be tested annually.
18-----All service lines with a sprinkler system may have a 1 inch supply and 1 inch meter. (costs more for the 1 inch)
19-----Meter splitters may be use in new developments.
20-----Meter boxes will be set to finish grade with the meter 6 inches below top of the box lid.
21-----Driveway meter boxes will be used if in a traffic area.
22-----Fire hydrants will be made by Mueller.
23-----Fire hydrant burial will be not more or less than 6 inches from the

break away part.

24----Fire hydrants will have Storts adapters included. (4 X 4 NIST)

25----Fire hydrants will be installed not more than 400 ft. apart.

26----Wastewater manholes will be located 300 to 500 ft apart.

27----Wastewater collection mains that end without a main hole will have a cleanout brought up to finish grade and capped.

28----Fire hydrant shut off valves will be not closer than 3 feet from the hydrant.

29----No water service line shall be tapped from the main between the hydrant and its shut off valve.

30----Water mains shall be buried at a depth of 3.5 to 4 feet.

31----Service lines shall be buried at a depth of 18 to 24 inches.

32----Service lines with longer than 50 ft runs will have curb stop valves installed.

Chapter 17B.30

ROADS AND BRIDGES

Sections:

17B.30.010 Public Roads.

A. **County Roads.** All work within existing and proposed County right-of-way shall be in accordance with Chapter 17B.10 PCC.

B. **Dedicated, But Unopened, County Road Right-of-Way.**
   1. No development, except a single-family residential building, shall be allowed which proposes to use a dedicated, but unopened, County right-of-way.
   2. If right-of-way exists and/or right-of-way can be deeded to provide right-of-way widths in accordance with PCC 12.24.040, the development will be required to construct roads within the unopened right-of-way adjacent to the development boundaries and for distances necessary to provide access to the development.

C. **Extending County Roads.** Proposed new County roads must be connected directly with existing County roads.

D. **Striping or Marking on County Roads.** All proposed roadway striping, buttoning, marking or delineation placed on a public road shall receive the approval of the County Engineer prior to commencing the proposed work. Before any work takes place, the Engineer shall contact the County Engineer and arrange for an on-site meeting to review the proposed work and anticipated method of construction. At the discretion of the County Engineer, the County may choose to do any or all proposed striping and/or marking work on a reimbursable basis for actual costs incurred by the County when said work does not exceed $7,000.00. Reimbursement to the County shall be made before the County accepts the overall project, related to the proposed striping and/or marking work, for dedication or maintenance and before the County releases any financial guarantee related to the overall project. The County Engineer will make the determination relative to reimbursement at the conclusion of the on-site meeting. If the County Engineer elects to have the work performed by the County, a financial guarantee shall be submitted to the County in an amount established by the County before the proposed work is commenced.

(Ord. 99-24S § 6 (part), 1999)

17B.30.020 Private Roads.

A. **Applicability.** With the exception of one lot subdivisions in unincorporated Pierce County submitted pursuant to Chapter 58.17 RCW or Title 16 of PCC after the effective date of this Title, proposed private roads and easements which serve as accesses to and within all proposed divisions of land, including short subdivisions and large lot divisions

shall meet this Section and the requirements of Title 17B. All existing private roads and easements which serve as accesses within all proposed divisions of land, including short subdivisions and large lot divisions, shall be reconstructed, as necessary to meet this Section and the requirements of Title 17B. All existing offsite private roads and easements which serve as accesses to all proposed divisions of land, including short subdivisions and large lot divisions shall meet the minimum requirements contained in PCC Section 17B.30.060. Existing offsite private roads and easements that do not meet Section 17B.30.060 must be improved/ reconstructed to meet the requirements of PCC Section 17B.30.060. In the event that multiple existing offsite private roads or easements are available to provide access to a proposed division of land, only the existing offsite private road or easement which will carry the majority of the project's traffic will need to meet PCC 17B.30.060 unless a second connection to a public road is necessary. All proposed lots must have access to the existing offsite private road(s) or easement(s) that meet PCC 17B.30.060.

B. **Private Roads.** All private roads shall:
   1. Be constructed using public road standards contained in Chapter 17B.10 PCC, and storm drainage standards contained in Title 17A PCC.
   2. Be constructed in accordance with the procedures outlined in PCC Chapter 17A.10, and the Pierce County Stormwater Management and Site Development Manual.
   3. Have an unobstructed vertical clearance of not less than 13 feet 6 inches. The County, after conferring with the local fire chief, may allow a reduction in the vertical clearance, provided such reduction does not impair access by emergency vehicles, and approved signs are installed and maintained indicating the established vertical clearance.
   4. Design all bridges and structures, including drainage structures, capable of carrying a minimum design load of HS-25 per "Standard Specifications for Highway Bridges," as published by the American Association of State Highway and Transportation Officials. The design and record drawings for all bridges shall be certified by a licensed structural engineer.
   5. Provide all appropriate utility easements on the proposed project or recorded with the Pierce County Auditor if utilities are placed outside the private road easement. All above ground and below ground utilities located within the private road easement shall be placed and constructed in conformance to the provisions contained in Chapter 17B.10 PCC.

C. **Private Road Easements.**
   1. All private roads must have easement widths which conform to the public road right-of-way requirements outlined in Chapter 12.24 PCC.

D. **Private Road Maintenance.**
   1. All private roads providing access to or within a proposed division of land, including short subdivisions or large lot divisions, shall have a road maintenance covenant recorded with the Pierce County Auditor's Office prior to or concurrent with the recording of the subdivision or plat.
   2. Maintenance of the private road shall include but not be limited to road surfacing, shoulders, gates, signs, storm drainage facilities, and vegetation control.

E. **Owners Organization Required to Guarantee Maintenance.**
1. All private roads shall be maintained by the owners of the property served by them and kept in good repair at all times. In order to insure the continued good repair, a declaration of covenant requiring maintenance of the private road shall be recorded with the Pierce County Auditor's office concurrent with the recording of the plat, short plat or large lot division.
2. The declaration of covenants, shall include the following terms:
   a. The agreement for maintenance shall be enforceable by any property owner served by the road.
   b. A means shall be established for assessing maintenance costs equitably to property owners served by the private road.
   c. The declaration of covenants shall run with the land.
   d. "Maintenance" shall include, but not be limited to, road surfacing, shoulders, gates, signs, storm drainage facilities, and vegetation control.

F. **Gates.**
1. A building permit issued by the County is required when gates are installed over private roads. In order for the County to issue the building permit, the following requirements must be met:
   a. Gates which serve ten or more dwelling units shall have an Opticom activation system or an equivalent and compatible system that is approved by the Pierce County Fire Marshal.
   b. Gates shall have rapid-entry key capabilities compatible with the local fire district per the Uniform Fire Code.
   c. All electrically-activated gates shall have default capabilities to the unlocked position.
   d. The minimum clear width of a gate shall be compatible with the road required width. Gate posts, keypads and other gate appurtenances shall be located outside of the traveled way, shoulder area, sidewalk, or paved walkway.
   e. Gates that might be obstructed by the accumulation of snow shall not be installed.
   f. A vehicular turn-around sufficient to allow a car to maneuver must be provided in front of the gate.
2. The County shall provide notice to the appropriate Fire District of the existence of the new gate.

G. **Obstructions In/Adjacent to Easements.**
1. Obstructions normally found located on private property, including but not limited to fences, landscaping retaining walls, basketball hoops, or yard fixtures, shall not be permitted within the private road easement.
2. Obstructions normally found within a public right-of-way, including but not limited to, street lighting poles, power poles, utility boxes, telephone boxes, street trees, and/or landscaping material shall not be allowed in a manner or location that will interfere with the traveled surface, pedestrian area, and shoulder area.
3. Sight-obscuring objects must be located to provide sight distances as required in the road standards contained in PCC Chapter 17B.10.

H. **Traffic Signs.**
1. Road Signs and Road Names. All private roads shall have private road name signs installed and maintained by the property owners in accordance with requirements outlined in PCC 17B.10.060, at the time of final inspection. All private roads shall be named and/or numbered in accordance with Chapter 10.44 PCC.
2. Stop Signs. All private road approaches to county arterial roads shall have a STOP sign installed and maintained by the property owners, in accordance with requirements outlined in PCC Section 17B.10.060, at the time of the Engineer's final inspection.

(Ord. 99-24S § 6 (part), 1999)

17B.30.030 Private to Public Road Dedication.

A. Pierce County has no obligation to accept any private road or storm drainage facilities into the County road system for dedication or maintenance. It shall be the responsibility of the owner(s) of the private road to submit a preliminary site plan showing the road(s) proposed for dedication to the County.
B. If re-construction of the private road is necessary to bring the existing private road into conformance with County standards, then road construction plans, prepared in accordance with Chapter 17A.10 PCC, shall be submitted for review and must be approved by the County Engineer before road construction activity commences.
C. All construction work must be completed to Pierce County standards before Pierce County will accept the road for dedication and maintenance.
D. The owner(s) of the private road must submit all necessary deeds, easements, etc., to the County Engineer for acceptance and recording by the Pierce County Auditor's Office.
E. Once the road has been dedicated to the County and accepted for maintenance, the road shall remain open for public use and may not be closed except by the County, as provided by RCW 47.48.010, 47.48.020 and 47.48.031.
F. Right-of-way widths must conform to the requirements outlined in PCC 12.24.040.

(Ord. 99-24S § 6 (part), 1999)

17B.30.040 Development Standards Within Urban Growth Areas

A. The provisions of this Section shall apply to all urban growth areas located in Pierce County.
B. The following urban development standards shall be required for all urban developments and shall apply to all new development in urban growth areas, except for one-lot subdivisions, and except as provided in 17B.30.040 C PCC.
1. Public and Private Roads. Public and private roads constructed through the development process shall be required to include curbs, gutters, and sidewalks on both sides of the newly constructed road.
2. Street Lighting. Street lighting shall be required at traffic signalized intersections created as a result of the new subdivision. Street lighting within the boundary of a new subdivision, including each intersection which is abutting the boundary of the new subdivision and used to access the new subdivision, shall be provided at all intersections controlled by a traffic signal, "Stop" sign, or "Yield" sign; at all uncontrolled intersections; and at the end of cul-de-sacs. Installation and maintenance of street lighting in subdivisions shall be the responsibility of the developer or homeowner's association unless the local jurisdiction assumes

responsibility. When ownership of the street lighting has not been assumed by the local jurisdiction, the structure upon which street lighting is mounted shall be located on private property.

C. Deviation from Urban Development Standards. Deviations to these urban development standards on public roads may be granted pursuant to PCC 17B.10.090, for those limited circumstances necessary to allow for recognition of community plans and goals, recognized historic character, or special physical or engineering circumstances, as long as such deviation is otherwise consistent with these standards.

(Ord. 99-24S § 6 (part), 1999)

17B.30.050 Inspections, Right of Entry, Access.

A. **Authority.** The County Engineer is authorized to make such inspections and take such actions as may be required to enforce the provisions of this Title.

B. **Right of Entry.** Whenever necessary to make an inspection to enforce any of the provisions of this Title, or whenever the County Engineer has reasonable cause to believe that violations of this Title are present or operating on a subject property or portion thereof, the County Engineer may enter such premises at all reasonable times to inspect the same or perform any duty imposed upon the County Engineer by this Title; provided that, if such premises or portion thereof is occupied, the County Engineer shall first make a reasonable effort to locate the owner or other person having charge or control of the premises or portion thereof and demand entry.

C. **Access.** Proper ingress and egress shall be provided to the County Engineer to inspect or perform any duty imposed upon the County Engineer by this Title. The County Engineer shall notify the responsible party in writing of a failure to provide access. If the responsible party fails to respond within seven days from the receipt of notification, the County Engineer may order the work required completed or otherwise address the cause of improper access. The obligation for the payment of all cost that may be incurred or expended by the County in causing such work to be done shall be imposed on the person holding title to the subject property.

D. **Inspections.**

1. On all private road, shared access facilities, and alleyway construction, on all road construction proposed to be dedicated to public roads, and on all proposed improvements within an existing County right-of-way, the applicant will be responsible for retaining an Engineer to conduct inspections. Unless otherwise instructed by the County, inspections will be made as follows:
   a. Inspection No. 1: Clearing and grubbing, embankment and excavation, underground drainage, at that state where trenching and placing of pipe are complete but prior to backfilling, and temporary water detention/retention and siltation control in accordance with the approved plans.
   b. Inspection No. 2: General roadway/shared access facility/alleyway, at that state where the drainage system, underground utilities, and roadway/shared access facility/alleyway grading to suitable subgrade is complete, including gravel ballast if required. This inspection shall include proof rolling and/or compaction testing to verify that the sub-grade has been properly prepared.
   c. Inspection No. 3: General roadway/shared access facility/alleyway, at that state where the crushed gravel surfacing has been placed.

d. Inspection No. 4: General roadway/shared access facility/alleyway, while the paving is in progress.
e. Inspection No. 5: Overall roadway/shared access facility/alleyway, after paving, cleaning of drainage system and all necessary clean-up, striping, buttoning, monumentation, and all roadway delineation work.

2. The Engineer shall perform inspections and document their findings per Appendix N, Engineer's Inspection Report Form, Pierce County Stormwater Management and Site Development Manual.
3. The County may perform inspections in addition to the inspections performed by the Engineer. The contractor must contact the County inspector prior to beginning construction to coordinate any County inspections.
4. If adequate inspection is not called for before completion of the roadway/shared access facility/alleyway construction the Engineer or the County may require core drilling and testing to be performed to assure acceptable roadway quality.
5. Certification.
   a. Upon completion of construction, the Engineer must provide a stamped certification to the County. By the act of providing the certification the Engineer will be verifying:
      (1) That the public road, private road, shared access facility, and/or alleyway has been constructed in accordance with the Engineer's design and the standards established by this Title.
      (2) That the road signs are in place (private roads, shared access facilities and alleyways only).
      (3) The gate (if applicable) has been installed in conformance with the requirements of this title.
      (4) Existing and new bridge structures, if any, comply with this Title.
   b. The certification shall be stamped, signed, and dated by the Engineer and shall be submitted as part of Appendix N, Engineer's Inspection Report Form, of the Pierce County Stormwater Management and Site Development Manual.
6. The County may perform additional inspections prior to acceptance of the letter of certification and the County reserves the right to reject the letter of certification and construction when deficiencies are noted.

E. **Materials Acceptance List.** It shall be the Engineer's responsibility to provide the County with a materials acceptance list for all materials used on the project when required by the County. The materials acceptance list shall confirm by supplier's verification, materials testing reports or reports stamped and signed by the Engineer that the particular item(s) meet County and/or State specifications.
F. **Substitutions.** When substituting existing material for Gravel Base Class "B," the County may require a report from a materials testing laboratory verifying the quality of the material.
G. All reports, materials verifications, or other documents submitted to the County for acceptance shall be stamped and signed by the Engineer.

(Ord. 99-24S § 6 (part), 1999)

17B.30.060 Minimum Existing Offsite Private Road Requirements.

A. The provisions of this Section shall apply to all existing offsite private roads and easements which serve as accesses to all proposed divisions of land, including short subdivisions and large lot divisions.

B. Existing offsite private roads and easements must meet the following minimum standards:

1. Minimum Geometric Criteria - See Tables 17B.30-1 and -2.

Table 17B.30-1. Minimum Existing Offsite Private Road Geometric Criteria by Average Daily Traffic

ADT(4)	Traveled Surface Width	Surfacing	Shoulder(3)
<40	25 ft	gravel(1)	not required
41-100	30 ft	gravel(1)	not required
101-300	22 ft	paved(2)	5 ft wide each side
301-1000	24 ft	paved(2)	5 ft wide each side
>1000	24 ft	paved(2)	6 ft wide each side

(1) "Gravel surface" is defined as two inches minimum of crushed surfacing top course over suitable gravel base per Washington State Department of Transportation specifications. Must be able to support the imposed loads of fire apparatus and must provide all-weather driving capabilities.

(2) "Paved surface" is defined as two inches of "class B" asphalt concrete pavement over suitable gravel base or six inches of Portland cement concrete over suitable gravel base per Washington State Department of Transportation specifications.

(3) "Shoulder" must consist of two inches minimum of crushed surfacing top course over suitable gravel base per Washington Department of Transportation specifications, or native materials. Must be able to support the imposed loads of fire apparatus and must provide all-weather driving capabilities.

(4) "Average daily traffic or A.D.T." for the purposes of this Table is equivalent to 10 vehicle trips per day for each dwelling unit or each existing or proposed lot that accesses onto the private road or access easement. Traffic generation for other uses (commercial, non-residential, etc.) will be in accordance with the latest publication of "Trip Generation", by the Institute of Traffic Engineers or other County approved sources. The A.D.T. figure shall include the existing A.D.T., the A.D.T. from the proposed development, as well as the A.D.T. from other proposed projects. Other proposed projects will only be included in the A.D.T. figure if they submitted a complete application prior to the proposed development being reviewed. A.D.T. can vary along certain segments for any given roadway. For purposes of the above table, the highest A.D.T. for any given segment on a private road shall be utilized as the basis for determining the necessary improvements for the entire roadway. There shall be no fluctuation in improvement requirements along the entire roadway due to changes in A.D.T. along the roadway.

Table 17B.30-2. Minimum Existing Offsite Private Road Geometric Criteria by Design Speed

Posted/Design Speed	Horizontal and Vertical Curves	Minimum Stopping Sight Distance (SSD)(1)	Minimum Entering Sight Distance (ESD)(2)	Maximum Grade
< 25 mph	sufficient to provide necessary minimum ESD and SSD	150	160	15%
30 mph	sufficient to provide necessary minimum ESD and SSD	200	210	15%
35 mph	sufficient to provide necessary minimum ESD and SSD	225	260	5%
40 mph	sufficient to provide necessary minimum ESD and SSD	275	310	15%
45 mph	sufficient to provide necessary minimum ESD and SSD	325	360	15%
50 mph	sufficient to provide necessary minimum ESD and SSD	400	415	15%

(1) "Stopping Sight Distance" or "SSD" is based on an object height of 0.5 feet and a driver's eye height of 3.5 feet.
(2) "Entering Sight Distance" or "ESD" is based on an eye height of 3.5 feet for the driver of an entering vehicle and an approaching vehicle height of 4.25 feet. Entering sight distance is measured from a point in the driveway 10 feet back from the edge of the traveled way.

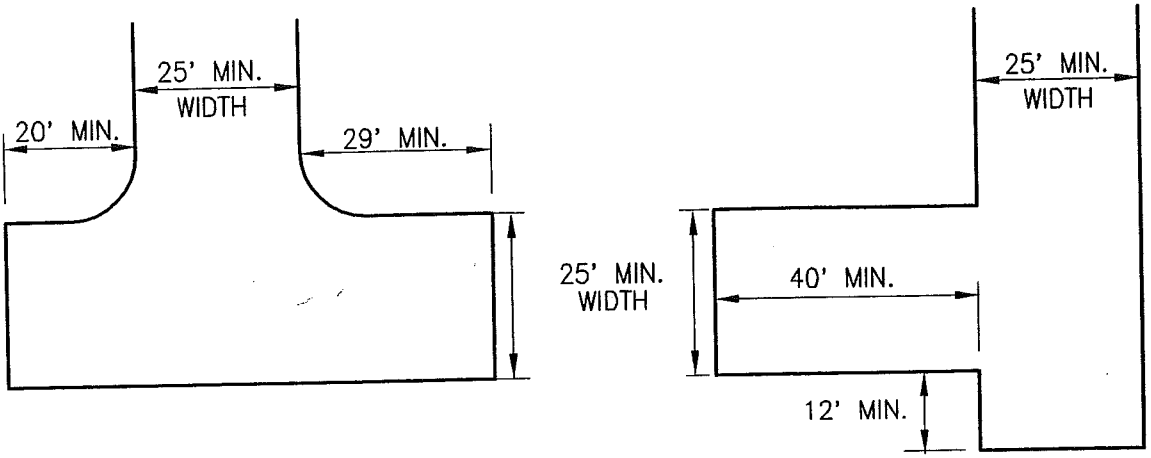
2. Vertical Clearance. The private road or easement must have an unobstructed vertical clearance of not less than 13 feet 6 inches. The County, after conferring with the local fire chief, may allow a reduction in the vertical clearance, provided such reduction does not impair access by emergency vehicles, and approved signs are installed and maintained indicating the established vertical clearance.
3. Bridges and Structures. All bridges and structures, including drainage structures must be capable of carrying a minimum design load of HS-25 per "Standard Specifications for Highway Bridges," as published by the American Association of State Highway and Transportation Officials. The County may require that the capacity of bridges and structures be certified by a licensed structural engineer.
4. Gates. A building permit issued by the County is required when gates are installed across private roads. Gates must meet the following requirements:
   a. Gates which will serve 10 or more dwelling units shall have an Opticom activation system or an equivalent and compatible system that is approved by the Pierce County Fire Marshall.
   b. Gates shall have rapid-entry capabilities compatible with the local fire district per the Uniform Fire Code.

c. All electronically-activated gates shall have default capabilities to the unlocked position.
d. The minimum clear width of the gate shall be compatible with the road required width. Gate posts, keypads, and other gate appurtenances shall be located outside of the traveled way or shoulder area.
e. A vehicular turnaround sufficient to allow a car to maneuver must be provided in front of the gate.

5. Easements or Tracts. Private road easements or tracts must be of sufficient width so as to completely contain the minimum required traveled way, minimum shoulder and any associated drainage features. The County may require survey information to verify that the traveled way, shoulder area and associated drainage features are located within the documented easement or tract.
6. Obstructions. Obstructions, including but not limited to street lighting, poles, power poles, utility boxes, telephone boxes, street trees, retaining walls, fire hydrants, and/or landscaping material, shall not be located within the required minimum traveled way or minimum shoulder area. Sight obscuring objects must be removed or relocated to provide sight distance as required in Table 17B.30-2.
7. Traffic Signs.
   a. Road Signs and Road Names. All private roads must have private road name signs that meet the requirements outlined in PCC 17B.10.060. All private roads shall be named and/or numbered in accordance with Chapter 10.44 PCC.
   b. Stop Signs. All private road approaches to County arterial roads shall have a stop sign installed and maintained by the property owners, in accordance with the requirements outlined in PCC 17B.10.060.
   c. Speed Limit Signs. Speed limit signs are required and must be maintained by the property owners. Speed limit signs must meet, and must be installed according to the engineer's recommendation. The posted speed limit must be consistent with the available entering sight distance and stopping sight distance.
8. Grades. Road grades in excess of 12 percent must have a paved surface meeting the requirements of Table 17B.30-1.
9. Medians. A road separated by a median shall have a minimum traveled surface width of 20 feet on each side of the median. Fire hydrants must be located on both sides of the median or accessible from both sides.
10. Turnarounds. Cul-de-sacs or intersections are required at a minimum of 1,500 feet measured along the road centerline from intersection/cul-de-sac to intersection/cul-de-sac.

C. The County may require the applicant's engineer to inspect/analyze existing offsite private road accesses to a proposed division of land to verify that the requirements of this Section have been met. Field survey information must be provided if requested by the County.

(Ord. 99-24S § 6 (part), 1999)



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from Gary Armstrong

HAMMERHEAD TURNAROUNDS
W/ FIRE ACCESS

DWN	CKD	DATE	DWG
ER/DLS	AJM	09/16/04	2-16

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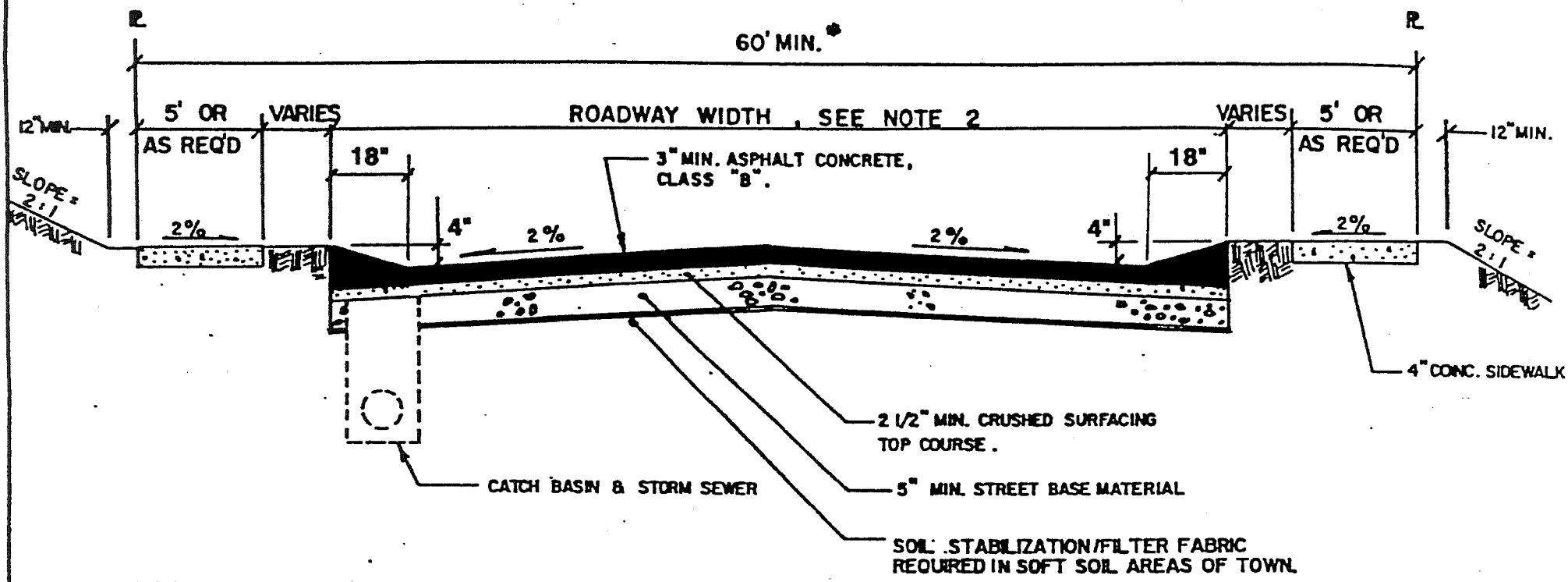


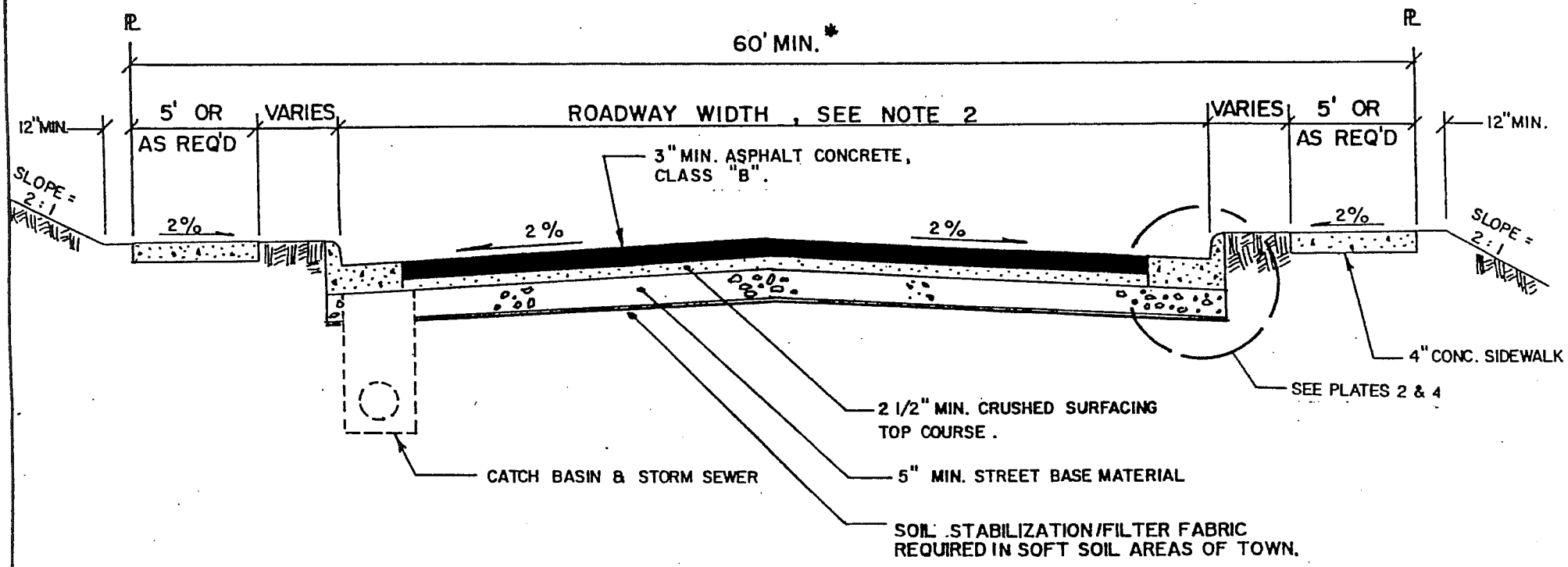
NOTES

1. ALL DEPTHS INDICATED ARE MINIMUM COMPACTED REQUIREMENTS. PAVEMENT SECTION DESIGN CALCULATIONS SHALL BE SUBMITTED.
2. MINIMUM WIDTH MEASURED FROM FACE TO FACE OF THE CURB:
   - A. RESIDENTIAL - 35 FEET
   - B. COLLECTOR OR HIGH DENSITY AREA - 45 FEET
   - C. ARTERIAL AND HIGH VOLUME STREETS - WIDTH SHALL BE DETERMINED BY THE PUBLIC WORKS DIRECTOR.

* 3. CUL DE SAC 44' MIN. R/W.

THICKENED EDGE TYPE ROADWAY

TOWN OF EATONVILLE, WA. DWG. NO. 1.1



NOTES

1. ALL DEPTHS INDICATED ARE MINIMUM COMPACTED REQUIREMENTS. PAVEMENT SECTION DESIGN CALCULATIONS SHALL BE SUBMITTED.
2. MINIMUM WIDTH MEASURED FROM FACE TO FACE OF THE CURB:
   A. RESIDENTIAL - 34 FEET
   B. COLLECTOR OR HIGH DENSITY AREA - 44 FEET
   C. ARTERIAL AND HIGH VOLUME STREETS - WIDTH SHALL BE DETERMINED BY THE PUBLIC WORKS DIRECTOR.

* 3. CUL DE SAC 44' MIN. R/W.

VERTICAL CURB TYPE ROADWAY

TOWN OF EATONVILLE, WA.

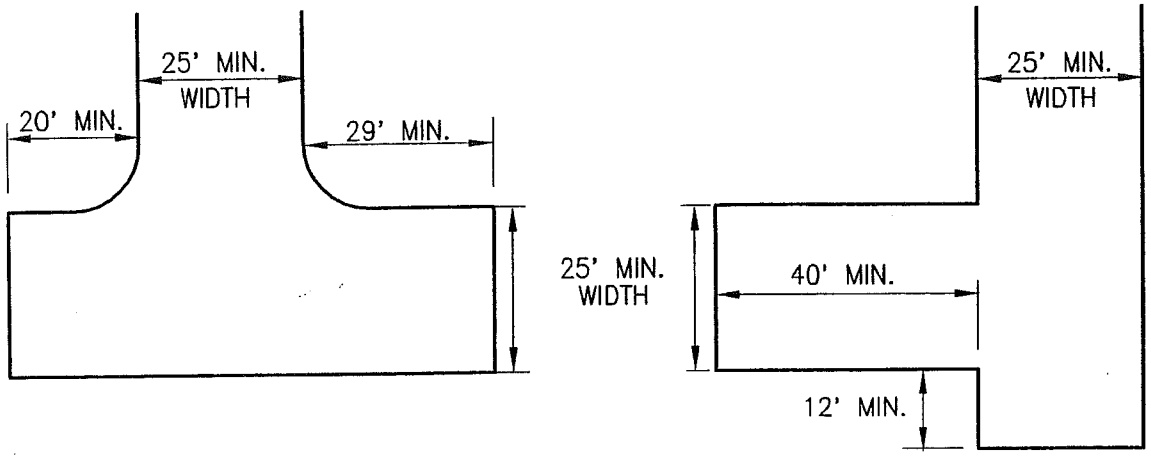
DWG. NO. 1

STREET NAME / STOP SIGN POST:

14 - FOOT LENGTHS –

SQUARE STEEL ADJUSTABLE METAL POST.

ZUMAR SIGNS
253-536-7740



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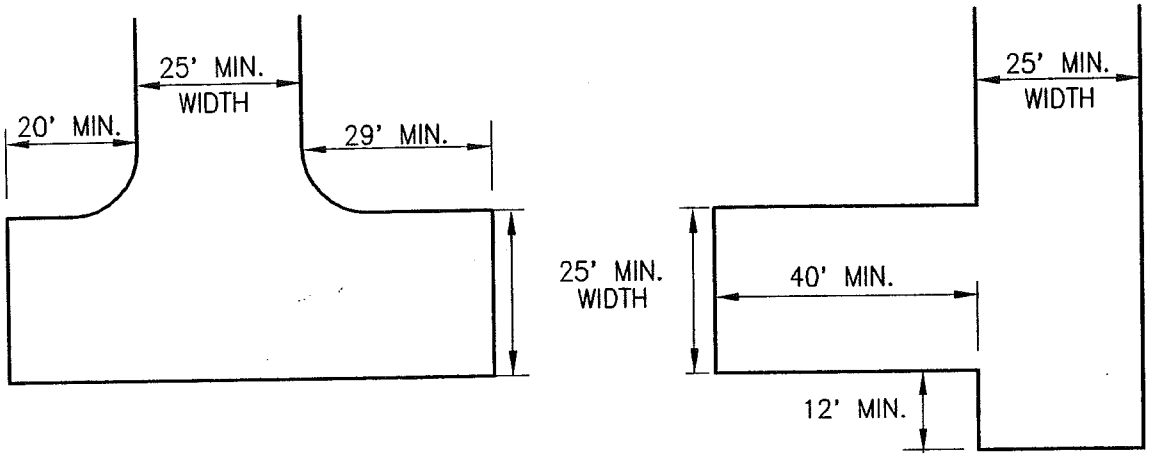

From Gary Armstrong

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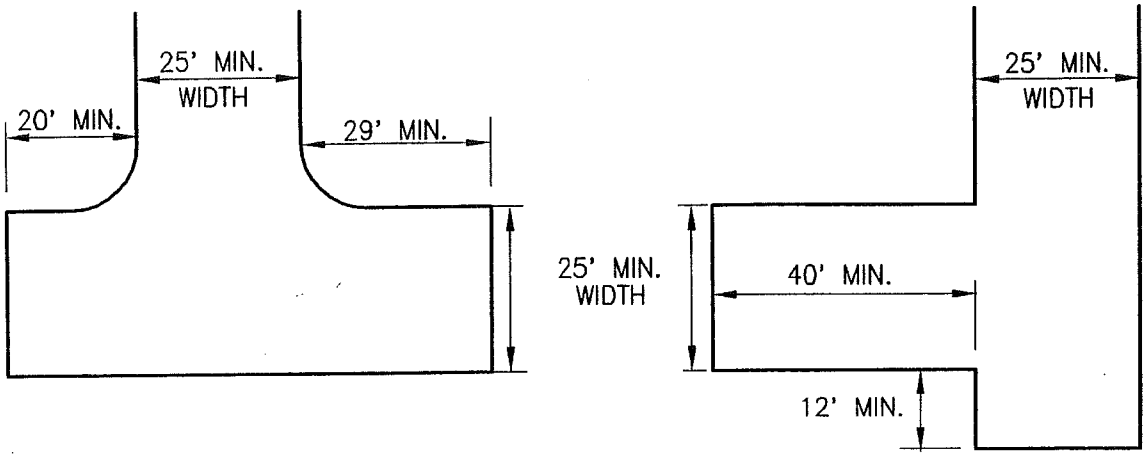

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Town Of Eatonville

Public Works Department

Standard For Residential Sidewalks, Roadways, Curbs, and Driveways

EV-2000

Scope

This standard describes the requirements for residential sidewalks and the roadway where the sidewalk will interconnect. For commercial or industrial sidewalks refer to EV-2200.

All sidewalks, curbs and driveways and roadways shall be constructed in accordance with this standard, which is a summary of the standards plans and specifications adopted by the town (EMC 12.04.120.A), and as existing in Town of Eatonville Public Works Development and Construction Standards (PWDCS).

The proposed sidewalk shall be constructed and installed in accordance with the plans and specifications prepared at the Applicant's expense by State of Washington Registered Engineer and approved by the Public Works Director (PWDCS Form B.3.).

In This Standard

The following table lists the location of different parts of this standard:

Town Of Eatonville

Public Works Department

Standard For Residential Sidewalks, Roadways, Curbs, and Driveways

EV-2000

Definitions

These are the definitions of terms and abbreviations used in this standard:

Term or Abbreviation	Definition
Applicant	The person, party, firm or corporation who proposes to do the improvement work
Public Works Director/Town Engineer	Authorized representative of the Town of Eatonville
Engineer	A professional engineer licensed by the State of Washington, retained by the Applicant, and acting in their behalf.
Land Surveyor	A professional land surveyor licensed by the State of Washington
PWDCS	Town of Eatonville Public Works Development and Construction Standards

Notes.

1. It is the responsibility of the Developer and their Contractor to familiarize themselves with the Town of Eatonville Public Works Development and Construction Standards (PWDCS, Extension by Developers 11.).

2. An environmental checklist shall be submitted to the Town for the sidewalk extension construction plans submitted to the Public Works Director for review and approval. A declaration of non-significant impact or a final environmental impact statement must be issued for the work before the project plans are given final approval by the Public Works Director (PWDCS 1.06).

3. Plans and specifications for proposed sidewalks shall be prepared by State of Washington Registered Engineer and approved by Public Works Director (Checklist PWDCS B.7.).

4. Placement of a sidewalk along the street frontage (except alleyways) is required as a condition to issuing a building permit (EMC 12.04.180.A).

5. After the removal of the sidewalk construction forms, the sidewalk shall be backfilled and the right-of-way restored to the satisfaction of the Town (PWDCS 6.11.C).

6. Sidewalks, curbs, and driveways shall be set to such grades and alignment as the town shall direct (EMC 12.04.120.B).

7. Sidewalk slope, that area beginning a minimum of 12 inches beyond the outer sidewalk edge, shall not exceed a slope of 2:1. (Town Standard for Vertical Curb). Any slope greater than 2:1 shall require retaining wall and hand rail.

8. All sidewalks shall be completed and accepted by the town prior to issuance of a certificate of occupancy (EMC 12.04.180.C).

9. Variances from these Standards may be granted by the Public Works Director upon evidence that such variances are in the public interest, that they are based upon sound engineering judgement, and that requirements for safety, function, appearance, and maintainability are sully met. Desired variances must be approved prior to construction. A variance to this ordinance shall be authorized by the Public Works Director upon submittal of additional information, plans and/or design data by a professional engineer retained by the Applicant showing that the requested variance is safe and can be economically maintained by Town work forces (PWDCS 1.05).

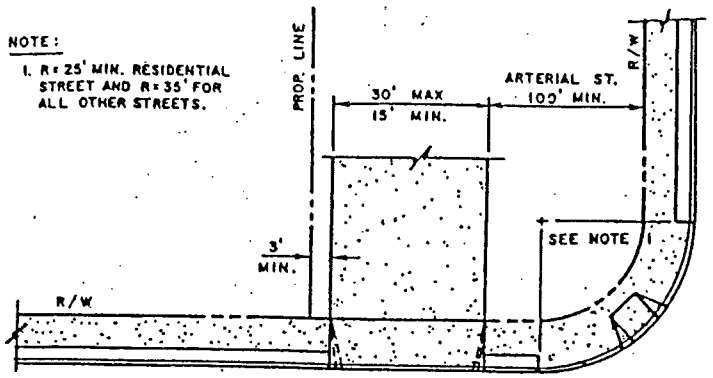
10. Any person aggrieved by any act or decision of the Public Works Director under this ordinance may appeal to the Eatonville Town Council (PWDCS 1.12).

11. The town council has authority to waive this requirement for hardship upon applicant filing an application setting forth the basis of the request for the waiver a filing fee of $125.00. If the request for a waiver is filed, no building permit shall be issued until the town council determines whether or not to grant the waiver request (EMC 12.04.180).

Permit Requirements

General Permit. This permit is to be used any time work is being done in the Town right-of-way. The permit is to be completed and approved by the Public

Figure #5 Driveway Location Plan



Acceptance (PWDCS Extension by Developers 11.)

The project will be accepted when the following is completed by the Applicant:

1. Final written approval by the Public Works Director of completed construction.
2. Record drawings and documents are accepted by the Public Works Director.
3. Submission of a Bill of Sale to the Town
4. All recorded or right-of-way dedications required by the Town.
5. Resolution by Town Council accepting title to sidewalk, curbs gutter, and right-of-ways (PWDCS Checklist E.6.).

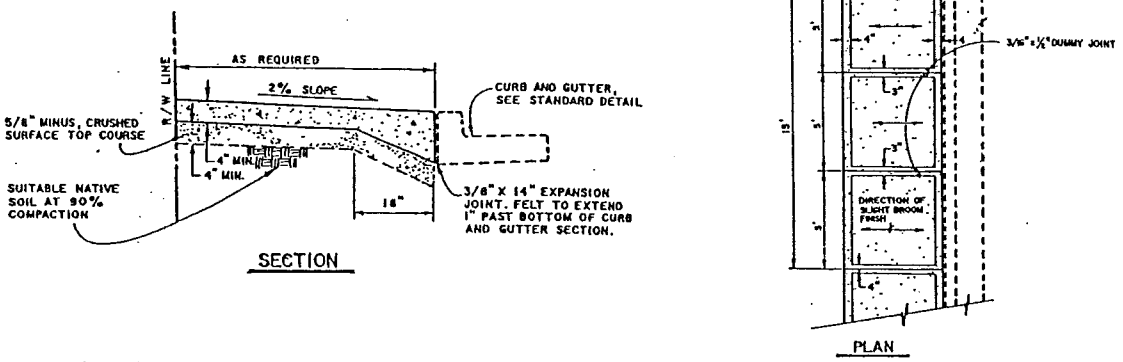
Revisions: None

Works Director before work commences. A financial guarantee may be required before the permit is issued (PWDCS 1.11.C.1.).

Driveway Permit. This permit is to be used when constructing a driveway or doing other minor work items in the Town right-of-way. The permit is to be completed and approved by the Public Works Director before work commences. A financial guarantee may be required before the permit is issued.

The Public Works Director reserves the right to require complete construction plans which comply with these Standards for the proposed work before issuance of a permit (PWDCS 1.11.C.2.).

Figure #1 Sidewalk



Notes

1. Minimum residential sidewalk width is 5 feet.
2. Joints thru and dummy joints shall be as shown. Thru joints shall also be placed in the sidewalk section at driveway and alley returns. All joints shall be clean and edged with an edger having a ¼" radius. Joints shall be flush with the finished surface.
3. All utility poles, meter boxes, etc., in sidewalk area shall have 3/8" joint material (full depth) placed around them before placing concrete.
4. Premolded joint filler shall be 3/8" x 2" asphalt saturated felt or paper.
5. Concrete shall be Class 3000.
6. See Figure # 3, Curb Detail

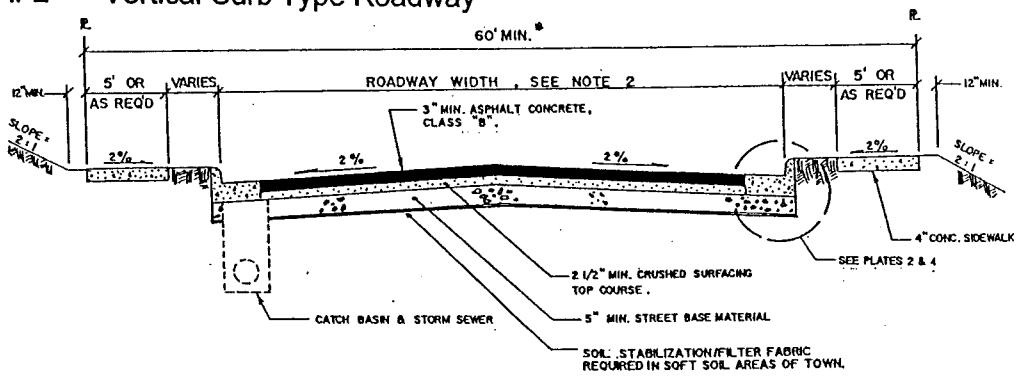
Town Of Eatonville

Public Works Department

Standard For Residential Sidewalks, Roadways, Curbs, and Driveways

EV-2000

Figure # 2 Vertical Curb Type Roadway



Notes
1. Minimum residential sidewalk width is 5 feet.
2. See Figure # 3, Curb Detail.

Figure # 3 Curb Detail

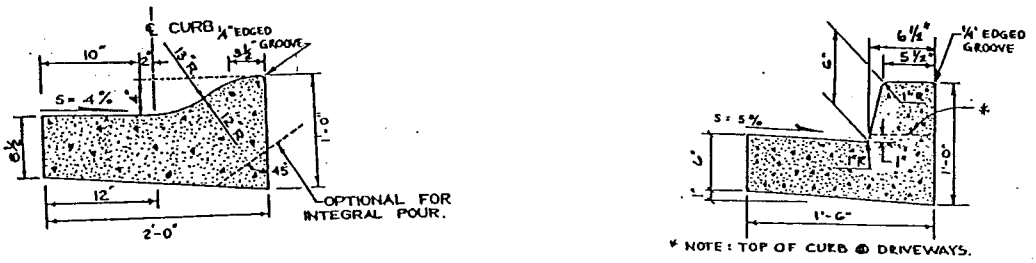
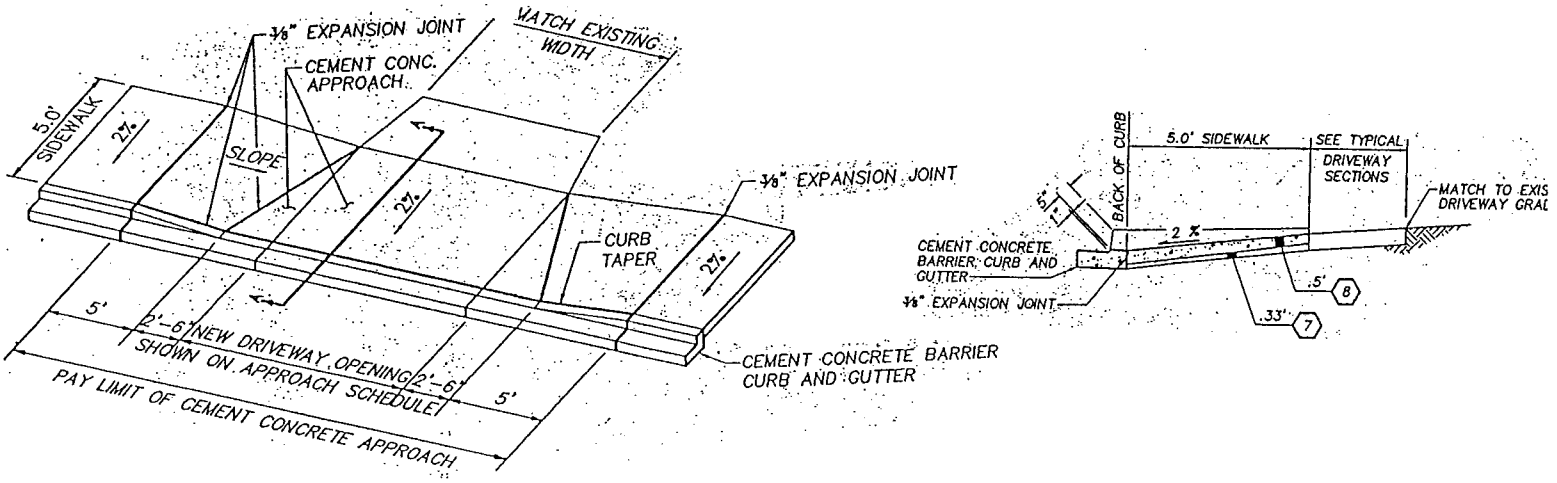


Figure # 4 Driveway Approach



CHAPTER 2

2.000 STREETS

TABLE OF CONTENTS

CHAPTER 2

2.000 STREETS

2A GENERAL CONSIDERATIONS

The overall goal of this chapter is to provide a foundation for the development of an integrated, fully accessible transportation system that addresses the goals and vision of the Snoqualmie Ridge II community and the City as a whole. This chapter includes street standards for Snoqualmie Ridge II. Specific requirements for the Snoqualmie Parkway are not included in these Development Standards since it was designed and processed as an independent development proposal separate from the Mixed Use Plan.

The tendency of many communities to equate wider streets with better streets and to design traffic and parking lanes as though the street were a "microfreeway" is a highly questionable practice. Certainly the provision of two 11- or 12-foot clear traffic lanes is an open invitation to increased traffic speeds.

Residential Streets, American Society of Civil Engineers, National Association of Home Builders, Urban Land Institute; 1990

Excessive street width requirements, based on outdated design concepts for local streets, add significantly to the cost of housing. While neighborhood streets are not intended to function as major thoroughfares, they should provide convenient access to homes and enhance neighborhood appearance and pedestrian safety.

Land Development
December, 1988

Approved: AB#04-172 11/8/04 Attest: Jodi Warren/CMC City Clerk

These new neighborhoods of Snoqualmie parallel the historic city not only in architecture. The small town, low key atmosphere you find in the existing city is a model for Snoqualmie Ridge II. The new neighborhoods will be pedestrian friendly, where people can walk or bike comfortably along narrow, low-speed streets and interconnecting sidewalks.

Snoqualmie Ridge II will have roadways that may be narrower than those normally seen in subdivisions. Alleys in some areas will provide access to rear garages, making for an uncluttered streetscape at the front of the house. Sufficient room will be provided for safe, slow driving and on-street parking. Sidewalks and planting strips will create a comfortable separation between moving cars and people.

Some normally recognized development standards for street width have been modified to achieve these objectives. For example, the 1994 *Uniform Fire Code*, which provides standards for fire department access, is based on providing wider streets to accommodate fire trucks at all times. Snoqualmie Ridge recognizes the need for fire department access and strives to create a balance between fully unobstructed access (wide streets) and more comfortable, pedestrian friendly, low-speed, narrow streets. As such, care should always be taken to provide fire department access and plans will be reviewed with this in mind.

2B STREET CLASSIFICATIONS

2B.010 General

The functional classification of streets allows specific standards to be applied based on access needs, volumes, development type, and other street functions. There are two functional street classifications for Snoqualmie Ridge II. In general, the higher classification streets (neighborhood collectors and neighborhood connectors) are intended to provide more through traffic movement between neighborhoods and the Snoqualmie Parkway and less local access while the lower classification streets (local and minor access streets and alleys) are intended to provide more local access while discouraging through traffic movements.

Transitions between street types should be at intersections or a physical break in the street section should be provided on both sides of the street in order to provide a visual transition between the two road sections (see Street Classification Plans – Figures 2-01 and 2-02).

A general description of each classification is given in the following sections. Following each description are the typical design parameters that should be used for roadways within Snoqualmie Ridge II. These parameters are those used to establish the typical roadway sections found at the end of this chapter (Figures 2-03 through 2-07).

Approved: AB#04-172 11/8/04 Attest: Jodi Warren/CMC City Clerk

2B.020 **Major Arterial (Snoqualmie Parkway)** will carry the majority of trips between major activity centers – in this case, I-90 and downtown Snoqualmie – as well as most traffic passing activity centers. Direct access to major arterials is limited to reduce traffic conflicts and to accommodate smooth through travel. Specific requirements for the Snoqualmie Parkway are not included in these Street Standards since it was designed and processed as an independent development proposal separate from the Mixed Use Plan.

2B.030 **Neighborhood Collectors** provide both land use access and traffic circulation within residential and commercial areas. Neighborhood collectors distribute trips from the principal and collector arterials to their ultimate destination, and collect traffic from local streets in neighborhoods and channel it into the larger arterial system.

From Figure 2-03

- 60-foot minimum right-of-way. The 60-foot right of way may be increased at intersections with the Snoqualmie Parkway to accommodate additional turning lanes.
- 28-34 feet of pavement, consisting of two 10-foot travel lanes, one 8-foot parking lane if parking on one side or two 7-foot parking lanes if parking on both sides, to be determined by the City during preliminary review.
- Parking is allowed on one or both sides
- 8-foot planter strips on each side if parking on one side only
- 6-foot planter strips on each side if parking on both sides
- 7-foot sidewalks on each side if parking on one side only
- 6 foot sidewalks on each side if parking on both sides

2B.040 **Neighborhood Connectors** provide added circulation, connectivity, and public safety by connecting parcels otherwise separated by sensitive areas or natural topography. The traffic is two-way with no parking allowed. Sidewalk is required on one side; however, the City may alternatively approve a paved or soft-surface trail connection to provide pedestrian circulation. The pedestrian connection shall be located either within the road right-of-way or within an easement in close proximity to the right-of-way. The planter strip between the sidewalk and the roadway may be eliminated, if necessary to minimize sensitive areas impacts.

From Figure 2-07

- 18-foot pavement width
- Two-way traffic with no parking
- Curb and Sidewalk one side only or, alternately; 2-foot hardened shoulder of gravel or pervious surface on each side if curb & sidewalk are eliminated.
- 32-foot right-of-way width with planter strip and sidewalk, 27-foot right-of-way width without planter strip, 22-foot right-of-way width without planter strip or sidewalk.

Approved: AB#04-172 11/8/04 Attest: Jodi Warren/CMC City Clerk

Figures 2-01 and 2-02 show the approximate locations and classifications for the collector and connector streets currently anticipated in the Mixed Use Final Plan. The locations and classifications of those streets internal to each specific parcel (i.e. local and minor access streets and alleys) will be defined during the platting and/or development process associated with each parcel.

2B.050 Local Access Streets

2B.051 **Residential Local Access** (See Figure 2-04). Primary function is to provide for direct access to individual lots and connections to the larger roadway system. Local access streets offer the lowest levels of mobility.

- 50-foot right-of-way
- 2 travel lanes, 28-foot total pavement width
- 8-foot on-street parking allowed on one side only
- 5-foot sidewalks and planter strips on both sides (see Sections 2C.060 and 2C.090 for exceptions)

2B.052 **Minor Access** streets are a sub-classification under local access streets. Their primary function is to provide direct access to individual lots and connection to local access streets. Minor Access streets typically create a circular traffic pattern around a traffic island/green space or small park. The traffic is two-way with no parking allowed. Sidewalk is required on one side (the lot side of the street). A 5-foot wide planter strip is required between the sidewalk and street. Parking on one side only can be provided by adding an 8-foot parking bay where appropriate, or a 20-foot deep parking bay for perpendicular parking where additional right-of-way is provided, as approved by the City.

From Figure 2-05

- Two 10-foot travel lanes
- 8-foot parking lane optional
- Two-way traffic with no parking except as noted
- 32-foot right-of-way width
- 40-foot right-of-way with parking bay
- 5-foot planter strip required.
- 5 –foot sidewalk required.

2B.053 **Alleys** are a sub-classification under local access streets. Alleys provide very low speed access between land uses and local streets or collectors. The geometry of alleys discourages through traffic movements and usually restricts travel to only those land uses directly abutting the alley. Alleys can allow driveways, garages and utilities to be removed from the front of houses, thus creating a

Approved: AB#04-172 11/8/04 Attest: Jodi Warren/CMC City Clerk

less cluttered landscape. Removing driveways can allow for more on-street parking. For efficient access for all residences on an alley, alleys shall connect to streets at both ends. Franchised utilities shall be placed in alleys when practical. See Development Standard Chapters 3 (Storm Drainage), 4 (Water) and 5 (Sanitary Sewer) for other information. In general, dead-end alleys should only be used where appropriate to site houses to take advantage of public open spaces or to address other site constraints and shall provide a turnaround where the dead end distance exceeds 150 feet.

From Figure 2-06

- 11-foot pavement width for residential alleys
- 2-foot planter strips both sides for residential alleys
- 18-foot right of way width
- 3-foot thickened edge asphalt curb on one side for drainage control

Where alleys meet any other street classification, the following signage and demarcation features shall be installed to enhance sight distance and improve safety (See Figure 2-21).

- Install 8" wide white extruded MMA or thermoplastic rumble strip demarcations per detail at a distance 15 feet behind sidewalk (or intersecting street if no sidewalk)
- Paint curbs on intersecting street for a distance of 20 feet in both directions from the alley intersection. Use high visibility industrial enamel safety yellow.
- Limit the height of fences and vegetation on the corner lots of the alley per SR II Residential Design Guidelines to enhance sight distance.

TABLE 2-1
STREET STANDARDS

Design Standard	Neighborhood Connector	Neighborhood Collector	Residential Local Access	Minor Access	Alleys
Figure No.	2-07	2-03	2-04	2-05	2-06
Access considerations[1]	no residential	some limited access	driveway access allowed	driveway access allowed	driveway access
Connectivity (See Section 2C.030)		yes	yes	n/a	n/a
Cul-de-sacs (See Section 2C.050)	n/a	no (see text)	700 feet max. length 40 feet radius[10, 11]	no	no
Curb (See Section 2C.060)	optional	vertical concrete curb and gutter:	vertical concrete curb And gutter:	vertical concrete curb & gutter: see 2C.050[11]	none[11]
Design Speed	25 mph	30 mph	See Note 8 below	See Note 8 below	n/a
Driveway Widths[9] (See Section 2C.080)	n/a	Residential: up to 10 feet for single bay garages; up to 16 feet for double or triple bay garages.	Residential: up to 10 feet for single bay garages; up to 16 feet for double or triple bay garages.	Residential: up to 10 feet for single bay garages; up to 16 feet for double or triple bay garages.	n/a
Grades[2]	0.5%-15%	0.5%-15%	0.5%-15%	0.5%-15%	0.5%-15%
Intersection curb radii[11]	20 feet	30 feet	20 feet	20 feet	20 feet
Intersection spacing[4]	n/a	250 feet	125 feet[6]	125 feet	n/a
Laneage	2 travel lanes	2 travel lanes	2 travel lanes (includes parking)	2 travel lanes	1 travel lane
Lane width (travel)	9 feet	10 feet	shared lanes; see Total Pavement Width	10 feet	11feet
Lane width parking (See Section 2C.160)	no parking	7-8 feet	included in travel lane width	no parking (unless approved by City)	no parking
Total pavement width (See Section 2C.140)	18 feet (See Fig. 2-7)	28-34 feet	28 feet for 2 lane street w/ parking on one side	20 feet	14 feet
On-Street Parking	Not allowed	allowed on both sides (see 2B.030)	allowed on one side, see pavement width	optional 1 side (see 2B.052)	no parking
Medians (see 2B.030 & .070)	n/a	No	where appropriate at entry points	no	no
Planter strips	5 feet on one side [12]	6-8 feet on both sides	5 feet on both sides	5 feet on lot side	2 feet on both sides
ADT Capacity	n/a	8000-10,000	8000- 10,000	50-200	50-200
Right-of-way	22 to 32 feet [12]	60 feet (min)	50 feet (min.)[6]	32 feet	18 feet
Sidewalks	5 feet one side[12]	6-7 feet both sides	5 feet both sides[5]	5 feet on lot side	no
2 Lane width (travel)	18'	Varies	shared lanes; see Total Pavement Width	18'	na

Footnotes to Table 2-1

1. Access, including right-of-way width and cul-de-sac length, may be varied at the discretion of the City Engineer.
2. The maximum grade shown may be exceeded for short distances of 300 feet or less, upon showing that no practical alternative exists.
3. Bulb outs are required at all neighborhood collector intersections, unless the City Engineer determines that bus and emergency vehicle turn movements require a bulb out to be eliminated or reduced in width. The bulb outs shall extend from the planter the width indicated above and shall be 60 feet long as measured from the curb of the intersecting street, if extended, to the transition point of the bulb out back to the full pavement width. (See Figure 2-20).
4. Intersections with alleys may occur more frequently subject to approval by the New Construction Committee and the City Engineer.
5. Local access streets in low density residential neighborhoods (1-2 du/acre) are expected to have low pedestrian volumes. Some local access streets encircle "island" miniparks that do not border residential lots. These streets may be constructed with sidewalks on one side only.
6. Right-of-way width may be reduced to 45 feet in low density residential neighborhoods if sidewalk is constructed on one side only. See Note 5 above.
7. Where lots front on neighborhood collectors, but are served by alleys, garage setbacks shall be a minimum of 27 ft. from centerline of alley to provide for additional off-street parking (See Section 11A.030 (C)). As an alternative, a clustered parking arrangement off of the alley may be provided.
8. Refer to Section 2.10 of the King County Road Standards (1993) for horizontal geometrics of Intersections and Low Speed Curves for streets classified as local access and below. Curb radii shall be in accordance with Table 2.1 of these Development Standards.
9. Driveway widths at the street for side-loaded single, double or triple bay garages may be up to 10 feet.
10. In situations where a portion of the property can only be served by a single access, the cul-de-sac may exceed 700 feet as determined by the City.
11. The curb radii at bulb-outs shall be increased to accommodate bus and emergency vehicle turning movements where necessary.
12. Planter strip and/or sidewalk may be eliminated with City approval when to do so would lessen impacts to sensitive areas. Sidewalk may also be eliminated when an alternative trail scheme is provided.

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2C STREET CLASSIFICATION STANDARDS

2C.010 General

Street design and layout should be based on the function of the street, the loadings on the street, the general terrain, the type of development being served, and the goals and vision of Snoqualmie Ridge II and the City. As such, street construction plan submittals to the City should include the following information.

- Street classifications
- Design speed
- Cross section
- Pavement section
- Street plantings/street side facilities
- Traffic control and street name plan
- Number of lots to be served by the street
- Average lot width to be served by the street
- Proposed lot loading (from street or alley)
- Forecasted travel demand volumes (vehicular and non-motorized)
- Emergency vehicle access plan
- Parking prohibitions or limitations
- Sidewalk/trail plan
- Other pertinent information

At the discretion of the City Engineer, some of the above information may not be required to be shown on street construction plans if it was included as part of the review process for an approved preliminary plat or other development proposal (i.e. number of lots to be served, average lot width, forecasted travel demand volumes, etc.).

The standards listed in this chapter by street classification are shown in Table 2-1. These standards may include a range of allowable values. The actual design values used must fall within these ranges and be supported by an evaluation of the above features. This requires design and engineering study for each street. Additional design criteria relevant to all streets are included in Section 2D of this chapter.

2C.020 Access Considerations – Access will be limited based on the street classification in accordance with the Mixed Use Final Plan. Access is prohibited on the neighborhood connector streets. Access is less restricted on neighborhood collectors and is least restricted on local and minor access streets and alleys. On neighborhood collector streets, access to homes should be provided by alleys or intersecting local access streets rather than driveways off the collector.

Along neighborhood collectors, no driveway access will be allowed within 150 feet of the nearest right-of-way of an intersecting street.
Access may be varied at the discretion of the City Engineer.

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2C.030 **Connectivity** – Street layout and plat design shall create efficient well-connected streets and alleys. The alignment of neighborhood collectors and connectors shall conform as nearly as possible with that shown in the Mixed Use Final Plan. The alignment of local access streets should provide for the connection of these streets within and between adjoining parcels within Snoqualmie Ridge II, with four-way intersections encouraged. The alignment of neighborhood collectors should provide for their continuation into other existing, proposed or potential adjoining parcels. Alleys shall connect to streets on both ends.

2C.040 **Alleys** – Alley-accessed lots provide for a better street-front pedestrian environment than streets with front-load driveways, because with alleys driveways do not cut across the sidewalk. The use of alleys is encouraged in higher density single family detached and attached housing (i.e. 6 units/acre net and greater). In evaluating the extent to which alleys can be provided, the following factors shall be considered:

- pedestrian and vehicular circulation
- logical layout of street system
- the creation of a cohesive sense of neighborhood
- topography
- location of sensitive areas
- anticipated traffic volumes on frontage roads

2C.050 **Cul-de-sacs** – In most neighborhoods, cul-de-sacs will be allowed only for physical constraints such as wetlands, excessive natural grade differential between parcels, emergency vehicle access needs, or to efficiently serve difficult-to-access areas of land that could not otherwise be served by a connected street.

Where cul-de-sacs are used, they should be the shortest possible length to adequately address the constraint within the neighborhood. Cul-de-sacs will have a maximum length of 700 feet unless a secondary Emergency Vehicle Access (EVA) is provided. In situations where a portion of the property can only be served by a single access, the cul-de-sac may exceed 700 feet, as determined by the City.

The bulb radius shall be 40 feet for a residential cul-de-sac and 40-45 feet for commercial cul-de-sacs. Larger radii create large expanses of pavement which may be unsightly and increase impermeable area. The use of an island may be considered, but adequate room should be left for maneuvering. (See Total Pavement Width Standard (2C.130) for one-way streets).

Cul-de-sac bulbs should not exceed 6% cross-slope grades. Temporary cul-de-sacs may be allowed on neighborhood collectors and local access streets when future extensions of streets are anticipated (See Figure 2-18). A cul-de-sac is considered a vehicle turnaround, which differs from a parking court. Parking courts may be allowed in multi-family lots.

To promote pedestrian connectivity, walkways are encouraged from cul-de-sac bulbs to adjacent streets, trails, cul-de-sacs, or undeveloped parcels. The exact location and design of the walkways will be determined during the preliminary plat or binding site plan approval process.

2C.060 **Curb** – Vertical face cement concrete curb and gutter is required except as follows: Alleys, local access streets in residential neighborhoods with gross densities under 3.5 homes per acre, and road may have thickened edge asphalt curb as a substitute for the vertical curb requirement. (See Figure 2-19.) Curb cuts for access should be constructed to avoid grade changes on sidewalks when sidewalks are set back from street.

Curbs shall be constructed per the curb standard drawing at the end of this chapter (Figure 2-08). At driveway locations, refer to the driveway curb standard drawing at the end of this chapter (Figures 2-09 and 2-10).

2C.070 **Design Speeds** are given in Table 2-1. Design speed is a function of classification, terrain and development. Design speeds affect actual traffic speeds, roadway curvature, capacity and safety. Lower design speeds should be used in areas where steeper grades and/or curvilinear roadways are expected, in areas where pedestrian activity is greater, and in areas of higher density development.

Design speeds shall be used to determine the various design features of a street, such as horizontal and vertical curvature. Geometric design for streets classified as local access and below shall be based on Section 2.10 (Intersection and Low Speed Curves) of the King County Road Standards (1993) except for curb radius which shall be per Table 2-1 of these Development Standards.

2C.080 **Driveways** reduce street frontage available for parking and planter strip landscaping. Street frontage affected by driveways may be reduced by sharing driveways and reducing driveway width. Driveway locations should also be reviewed for sight distance and general operations before approval.

Residential driveway widths are based on the number and orientation of garage bays. For front-loaded garages, residential driveways may be up to 10 feet wide for single bay garage, and up to 16 feet wide for double and triple bay garages. To minimize disruption of the sidewalk, these maximum widths should be reduced where due to lot width, lot depth, house location, building type, and/or topography a reduced driveway width would allow vehicles to easily and safely maneuver from the garage to the street. Driveway widths at the street for single, double and triple bay garages that are side-loaded and for garages at the rear of the lot may be up to 10 feet wide. Shared driveways between adjoining lots are highly encouraged, particularly on cul-de-sacs and other locations where lot frontage is narrower than standard lots in a plat, but should not be used to create lots with no street frontage. Hollywood Driveways are encouraged. Commercial

driveways shall not exceed a width of 30 feet. No commercial driveway will be approved where backing onto the sidewalk or street will occur.

2C.090 **Grades** – To ensure adequate drainage, a minimum road grade of 0.50% should be maintained, unless a lesser grade is approved by the City Engineer. Maximum grades shown in Table 2-1 should be used only if necessary due to terrain. Maximum grades shown in Table 2-1 may be exceeded for short distances of 300 feet or less, upon showing that no practical alternative exists. For steeper grades where no other access is permitted, fire department regulations may require residences to have sprinkler systems. Grade transitions shall be constructed as smooth vertical curves except at intersections where the difference in grade is one percent or less. For grade changes, vertical curves consistent with guidelines in "A Policy on Geometric Design of Highways and Streets," 1990 (AASHTO) should be used.

2C.100 **Intersection curb radii** – Curb radii are given in Table 2.1 for different street classifications. Generally, when pedestrians and slow speeds are more desirable, smaller radii should be used, and when higher traffic flow is more desirable, larger radii should be used. At intersections with streets of different classifications, the curb radii of the street with the higher classification shall be used.

Larger curb radii may be required to accommodate fire apparatus needs, particularly at the intersection of alleys and narrow streets. Alternatively, smaller curb radii may be allowed and still accommodate fire apparatus needs by providing sufficient parking restrictions adjacent to intersections. A typical parking restriction would prohibit parking within a distance of 30 feet from the extended curb line of the intersecting street. Before smaller curb radii are approved, other design factors that affect available turning radius for fire apparatus needs such as roadway width, intersection angle and parking allowed must be considered.

2C.110 **Intersection Spacing** – Minimum distances between intersections is needed to allow for adequate queuing and access control. Distances shown in Table 2-1 are between centerlines of adjoining intersections. All intersection locations should also be reviewed for sight distance and general operations before approval.

2C.120 **Lane configurations** are primarily determined by traffic volumes, parking needs and street classification. Neighborhood collectors may share their two travel lanes with parking. Turn lanes may also be allowed. Local and minor access streets are two lanes. Residential local access may share their travel lanes with parking. Alleys are one lane only.

2C.130 **Lane widths** are associated with roadway classification, parking needs, travel demand and development type.
Wider lanes are appropriate when parking is allowed, when higher travel volumes are anticipated, or when office or commercial land use predominates.

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Narrower lanes are more appropriate when it is important to reduce speeds, reduce accident severity, reduce noise, reduce storm water runoff and create a village-scaled streetscape.

See Table 2-1 and Figures 2-03 through 2-07.

2C.140 **Total Pavement Width** depends upon the number of lanes, parking requirements and street classification.

Local access streets share travel lanes and parking lanes. Local access street pavement width for a two-lane street is 28 feet.

Total pavement width for a minor access street is 20 feet.

Total pavement width is measure from face of curb to face of curb for minor arterials, collectors and local access streets with vertical curbing and between edges of asphalt on streets with thickened edge asphalt (see Section 2C.050).

2C.150 **Medians** may be included where appropriate for entry points and as shown for specific street sections. (See Figures at the end of this chapter). The entry point medians would be for decorative purposes only but could concurrently be used to help channelize traffic flow. Medians are not allowed in alleys.

2C.160 **On-Street Parking** – On-street parking is allowed as provided in the descriptions for the individual street sections (See Section 2B). The sides of the streets on which parking will occur shall be shown on the roadway design plans.

2C.170 **Planter Strips** are 5 to 8 feet wide (see section 2B.), except in residential alleys where they are 2 feet wide. Wider planter strips may be used on neighborhood collectors to promote pedestrian orientation and safety (See Figure 2-03). Planter strips are required on minor access street adjacent to lots that front the street (see Figure 2-05). Street trees will be located in planter strips of five or more feet (see Landscape Standards – Chapter 8).

2C.180 **Recommended Average Daily Traffic (ADT)** – Recommended average daily traffic volumes can be used as guidelines, but should not be the primary consideration of street classification. For local streets with lower travel speeds, resident's expectations, driveway access, pedestrian activity, land use, and travel speeds are the primary street classification considerations. It is reasonable that while some streets may not fall within their ADT range, they may still satisfy the classification based on their function.

2C.190 **Right-of-Way** is generally located as shown on Figures 2-03 through 2-06. For commercial alleys, right-of-way is located at the back of roadway pavement and for residential alleys it is located at the back of the planter strip. Street right-of-ways may contain sidewalks, planter strips, utilities and signage.

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2C.200 **Sidewalks** are a minimum of 5 feet wide for local, minor access streets, and from 6 to 8 feet on neighborhood collectors depending on whether parking is provided on one or both sides of the street. Sidewalks are a minimum of 5 feet wide on neighborhood connector roads unless the City approves a separated trail in lieu of a sidewalk within the right-of-way. The City shall receive an access easement for any sidewalks located outside dedicated public rights-of-way.

2C.210 **Solar Orientation** should be considered in designing local access street layouts. Within the limitations of traffic circulation, topography and efficient land planning, local access streets with an east-west orientation should be emphasized over north-south orientations to allow individual homes to benefit from southern exposure.

2D GENERAL DESIGN CRITERIA

2D.010 **General**
In addition to the street classification standards, other general design criteria apply to all streets and transportation facilities, regardless of classification.

2D.020 **Bollards** may be used when necessary to deny motor vehicle access to an easement, tract or trail. Spacing should not exceed 50" on centers and should be constructed to be removable and locking to allow passage of maintenance and emergency vehicles. They may be constructed per the standard drawing at the end of this chapter (Figure 2-13) or may use an alternative design if approved by the New Construction Committee

2D.030 **Construction Activities** – A pre-construction meeting shall be held with the City and any designated representatives of the New Construction Committee. This meeting will identify construction inspections, construction coordination needs and construction testing requirements. All required testing will be done, at the developer's or contractor's expense, in accordance with the latest English edition of the *Standard Specifications for Road and Bridge Construction of the Washington State Department of Transportation (WSDOT)* or the *American Public Works Association (APWA) Standard Specifications.*

2D.040 **Construction Specifications** - Construction shall meet the latest English edition of the *Standard Specifications for Road and Bridge Construction of the Washington State Department of Transportation (WSDOT)* or the *American Public Works Association (APWA) Standard Specifications.*

2D.050 **Engineering and Surveying** - Street plans shall be prepared and signed by a licensed civil engineer registered in the State of Washington. All street grading shall be staked by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work shall be licensed by the State of Washington.

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2D.060 **Handicap Ramps** must be provided in accordance with the standards of state and federal law. Handicap ramps shall be constructed per the handicap ramp standard drawings at the end of this chapter.

2D.070 **Horizontal Curvature** should be based in accordance with the design speed for the roadway. Minimum horizontal curve radii must conform to: "A Policy on Geometric Design of Highways & Streets, 1990 AASHTO" except for roads classified as local access and below. These streets shall be designed in accordance with Section 2.10 (Intersections and Low Speed Curves) of the King County Road Standards (1993). Super elevation is not recommended for use on roads with design speeds of 30 mph or less. Refer to section 2C.090 and Table 2-1 for allowable intersection curb radii.

2D.080 **Lateral Clearance** between edge of street (i.e. face of curb) and any fixed object (excluding traffic control signs and break away supports) shall be 3 feet except for local and minor access streets where the clearance shall be 2 feet.

2D.090 **Mailboxes**

A. During construction, existing mailboxes shall be accessible for the delivery of mail or, if necessary, moved to a temporary location. Temporary relocation shall be coordinated with the U.S. Postal Service. The mailboxes shall be reinstalled at the original location, or if construction has made it impossible, to a location as outlined below and approved by the U.S. Postal Service.

B. Location shall be as follows unless otherwise specified by U.S. Postal Service regulations:
   1. Bottom or base of box shall be 36 inches to 42 inches above the road surface.
   2. Front of mailbox 18 inches behind vertical curb face or outside edge of pavement
   3. Mail boxes should be placed on the same side of the street with "no parking" signs wherever possible.

C. Mailboxes shall be set on posts strong enough to give firm support but not to exceed 4 x 4 inch wood or one 1-1/2 inch diameter pipe, or material and design with comparable breakaway characteristics.

2D.100 **Private Streets** – Private streets may be allowed for road classifications of local access and below if approved by the New Construction Committee and the City of Snoqualmie. Such streets shall be permanently established by right-of-way, tract or easement providing legal access to each affected lot, dwelling unit, or business and sufficient to accommodate required improvements, to include provision for future use by adjacent property owners when applicable. The street sections shall be built in accordance with these Development Standards and accessible at all times for emergency and public service vehicle use. Easements shall be provided

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to the City of Snoqualmie and/or other agencies for the purpose of maintenance of any public utilities within the private street.

Private streets shall be clearly described on the face of the plat, short plat, or other development authorization and clearly signed at street location as a private street. The City of Snoqualmie is not responsible for maintenance of any private street. Such streets shall be maintained by a capable and legally responsible owner or homeowner's association or other legal entity made up of all benefited property owners.

2D.110 **Side Slopes** shall generally be constructed no steeper than 2:1 on both fill slopes and cut slopes. Steeper slopes may be approved by the City Engineer upon showing that the steeper slopes, based on soils analyses, will be stable. Side slopes shall be stabilized by grass sod or seeding, or by other planting or surfacing materials acceptable to the New Construction Committee and the City.

2D.120 **Sight Distance** must be considered for vertical curvature and intersection design. Sight distance must be adequate to satisfy the requirements of: "A Policy on Geometric Design of Highways & Streets," 1990 (AASHTO). Refer to Chapters III and IX in AASHTO for more information. This requirement applies to all physical structures, plantings or ground-lines located adjacent to intersections.

2D.130 **Street Names** – All streets shall be named and not numbered. Names should be determined at the time of preliminary plat approval. All street names are subject to review by the City and the New Construction Committee. In general, streets and courts should run east/west, avenues and places should run north/south, and loops are small loop type streets which carry the name of the street from which they originate. Street signs shall be placed at all intersections (except alleys).

2D.140 **Street Section** (pavement design and subgrade depth) – The minimum paved section, with alternative combinations of materials, for local and minor access streets and alleys shall be as indicated below. These sections are acceptable only on visually good, well-drained, stable compacted subgrade. Any proposed exception to these materials will be subject to soils strength testing and traffic loading analysis and subject to review and approval by the City Engineer as outlined in Section 2D.142 below.

2D.150 **Local and Minor Access Streets and Alleys**
Alternative I: Asphalt Concrete (AC) – 2" Asphalt Treated Base (ATB) – 4"
Alternative II: Asphalt Concrete (AC) – 2"
Crushed Surfacing Top Course (CSTC) – 1-1/2"
Crushed Surfacing Base Course (CSBC) – 5"

Note: All depths are minimum compacted depths

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2D.160 Requirements for Local and Minor Access Street and Alleys on Poor Subgrade

The minimum material thicknesses indicated in Section 2D.141 are not acceptable if there is any evidence of instability in the subgrade. This includes free water, swamp conditions, fine-grained or organic soil, slides or uneven settlement. If there are any of these characteristics, the soil shall be sampled and tested sufficiently to establish a pavement design that will support the proposed construction. Any deficiencies, including an R value of less than 55 or a CBR of less than 20, shall be fully considered in the design. Remedial measures may include, but are not limited to a stronger paved section, a strengthening of subgrade by adding or substituting fractured aggregate, asphalt treated base, installing a geotextile, more extensive drainage or a combination of such measures. Both the soils test report and the resulting pavement design will be subject to review and approval by the City Engineer.

2D.170 **Neighborhood Collectors** – Any pavement for neighborhood collector streets shall be designed using currently accepted methodology that considers the load bearing capacity of the soils and the traffic-carrying requirements of the roadway. Plans shall be accompanied by a pavement thickness design based on soil strength parameters reflecting actual field tests and traffic loading analyses. The analysis shall include the traffic volume and axle loading, the type and thickness of roadway materials and the recommended method of placement.

2D.180 **Structural Design** procedures shall conform to accepted engineering practices approved by a registered professional engineer.

2D.190 **Traffic Calming** is a planning approach that, in general, integrates traffic mobility with a pedestrian-friendly environment. Traffic calming techniques, such as narrow traffic lanes, interrupted sight lines, neck-downs, and protected parking bays are encouraged.

Speed bumps and speed humps are prohibited in public rights-of-way and may be used in other areas only with approval of the New Construction Committee.

2D.200 **Traffic Control** is needed to insure street safety by providing for the orderly and predictable movement of traffic, both motorized and unmotorized. It is also used to provide guidance and information. The Manual on Uniform Traffic Control Devices (MUTCD) as modified by the Washington State Transportation Commission shall be followed in providing required signage, pavement markings and other traffic control. The MUTCD should also be followed for any traffic control needed for construction activities.

The following information in this section supplements the MUTCD. Consideration should be given to providing additional traffic control such as stop signs, yield signs or traffic circles on local access streets to clarify rights-of-way for drivers and pedestrians.

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The length of left turn tapers when used should be at least equal to the width of the left turn lane multiplied by the posted speed divided by three. For tapers channelized with pavement marking, either a reverse curve or straight configuration may be used.

Crosswalks should be marked when there is substantial conflict between vehicle and pedestrian movements but should not be used indiscriminately.

All long line markings (center line, edge line, lane line, etc.) shall be reflectorized hot or cold applied paint either extruded or sprayed. All other pavement markings (crosswalk, stop line, turn lane, traffic arrow, traffic letter, railroad markings, etc.) shall be reflectorized Type A – Liquid Hot Applied Thermoplastic. All markings shall include glass beads that provide and maintain reflectance as the material wears.

Center lines and lane channelization are required for (although not necessarily limited to) arterial streets only.

2D.210 **Utility Easements** may extend beyond the street right-of-way.

2D.220 **Vertical Clearance** above the paved roadway surface shall be a minimum of 15 feet. Vertical clearance of structures above a walkway surface should be a minimum of 8 feet.

2D.230 **Top Lift Timing** - Before the final lift of asphalt concrete pavement (wearing course) can be placed; all utilities, crossings, adjustments, etc shall be performed. Developer/builder shall inspect curb and gutter and ATB or base material with City's field representatives prior to paving and perform all repairs to damage of those improvements before wearing course placement. It is strongly recommended that developers/builders delay placement of wearing course as long as possible to finish lot grading, home-building, and planter strip construction activities where damage to curb & gutter and wearing course is most likely.

2D.240 **Overlay Requirements** - If roads are open cut or if damage to asphalt concrete pavement wearing course occurs as a result of Developer/builder activities, then grinding and overlaying of the entire street width within 25 feet of either side of the damaged section, as determined by the City, may be required. Continuous grinding and overlay beyond 25 feet of either side of the damaged section may be required depending on the extent and number of damages to avoid conditions such as, checkerboarding of the road surface, uneven driving conditions, or similar conditions. This section shall not be interpreted to mean that patching is not allowed nor that damage to pavement requires overlay, as determined by the City.

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LIST OF STANDARD DRAWINGS

CHAPTER 2 – STREETS

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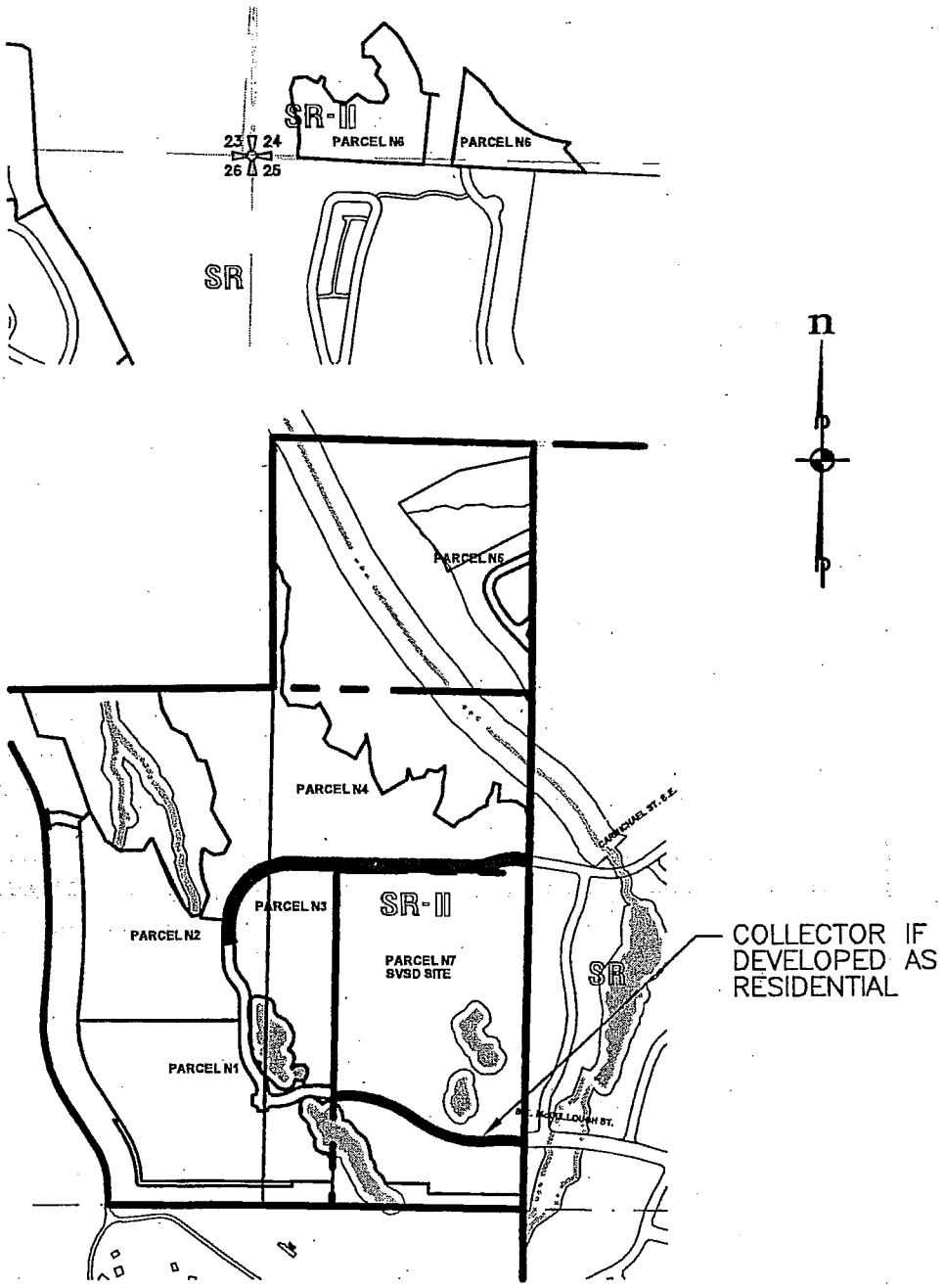

STREET CLASSIFICATION PLAN, NORTH

NO SCALE

LEGEND

NEIGHBORHOOD COLLECTOR

SNOQUALMIE RIDGE II			
STREET CLASSIFICATION PLAN NORTH			
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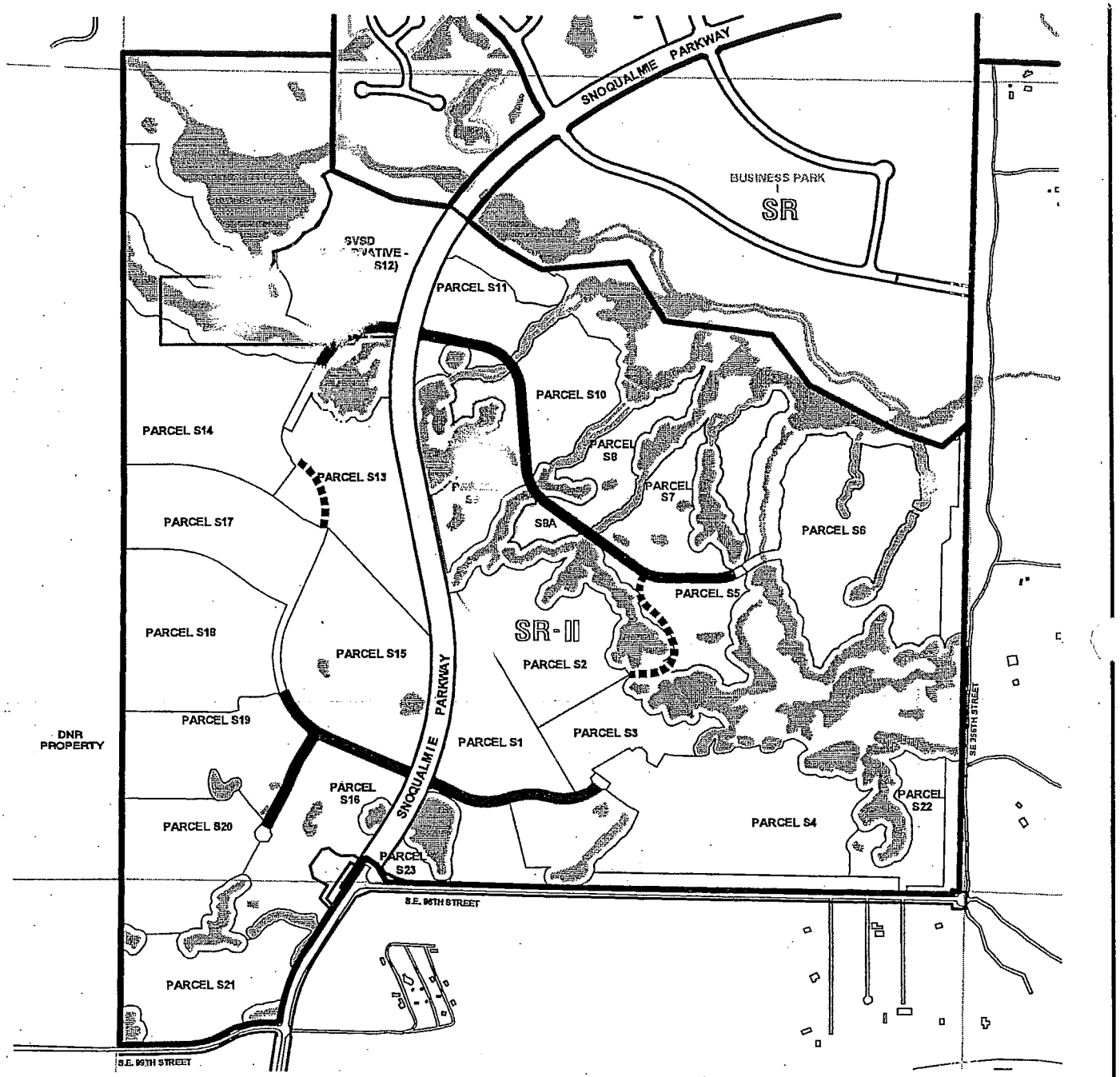

STREET CLASSIFICATION PLAN, SOUTH

NO SCALE

LEGEND

NEIGHBORHOOD COLLECTOR

NEIGHBORHOOD ACCESS CONNECTORS

SNOQUALMIE RIDGE II

STREET CLASSIFICATION PLAN SOUTH

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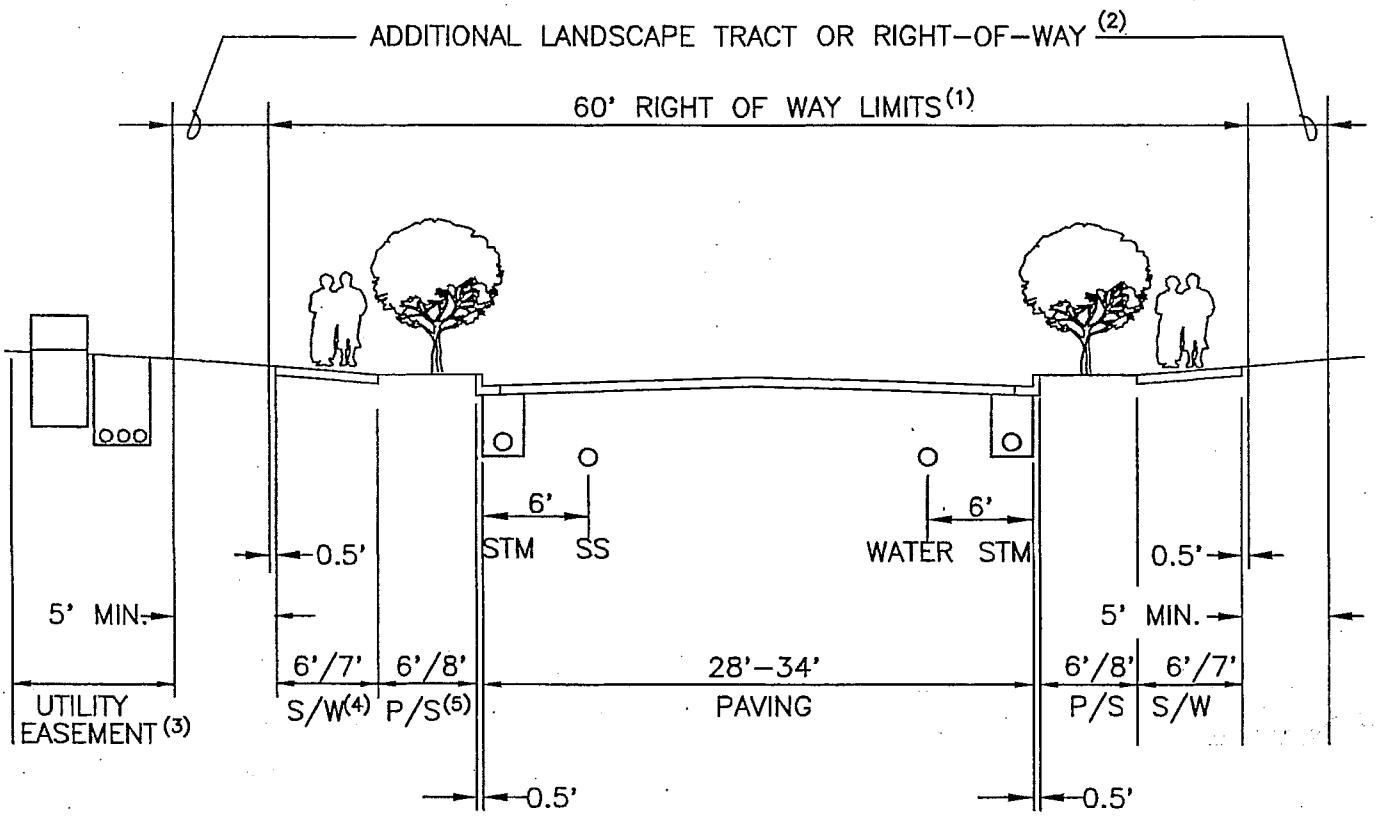
Attest: _____ Jodi Warren/CMC City Clerk



1. THE 60-FOOT RIGHT OF WAY MAY BE INCREASED AT INTERSECTIONS WITH THE SNOQUALMIE PARKWAY TO ACCOMMODATE ADDITIONAL TURNING LANES.
2. WHERE REAR OF LOTS/HOMES FACE COLLECTORS, A SIGNIFICANT LANDSCAPE TRACT NOT LESS THAN 15 FEET DEEP BETWEEN PUBLIC RIGHT-OF-WAY AND LOT LINES, PLANTED WITH TYPE II LANDSCAPING, SHALL BE PROVIDED.
3. WATER, GAS, PHONE, CATV, POWER MAY BE ON EITHER SIDE OF THE STREET. PUBLIC UTILITY SERVICES AND APPURTENANCES WILL TAKE PRECEDENT OVER PRIVATE UTILITIES.
4. 6 FOOT SIDEWALKS ON EACH SIDE IF PARKING ON BOTH SIDES, 7 FOOT SIDEWALKS ON EACH SIDE IF PARKING ON ONE SIDE ONLY.
5. 6 FOOT PLANTER STRIPS ON EACH SIDE IF PARKING ON BOTH SIDES, 8 FOOT PLANTER STRIPS ON EACH SIDE IF PARKING ON ONE SIDE ONLY.

NEIGHBORHOOD COLLECTOR

NO SCALE

SNOQUALMIE RIDGE II			
NEIGHBORHOOD COLLECTOR			
DWN	CKD	DATE	DWG
ER/DLS	AJM	11/01/04	2-03

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Approved AB#04-172 11/8/04
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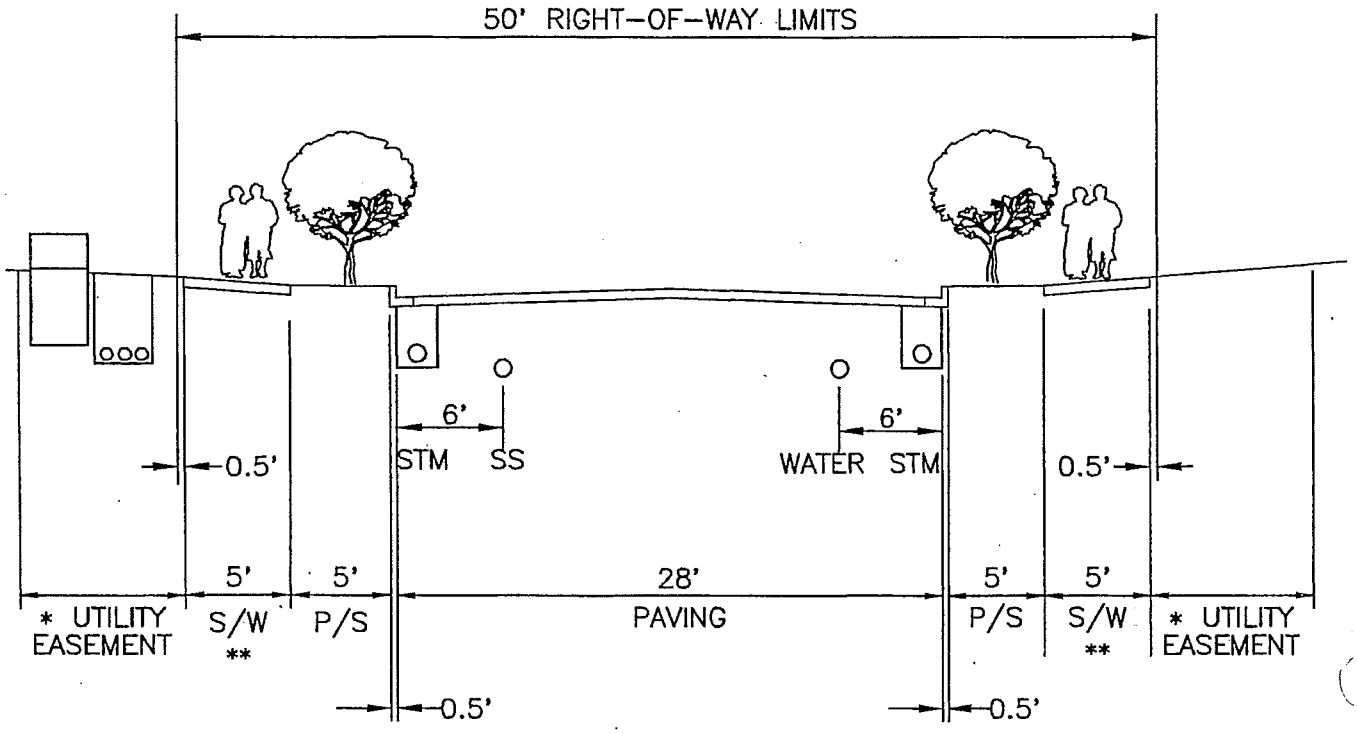

* GAS, PHONE, CATV, POWER MAY BE ON EITHER SIDE OF STREET. PUBLIC UTILITY CONNECTIONS AND APPURTENANCES WILL TAKE PRECEDENT OVER PRIVATE UTILITIES. PARKING IS ALLOWED ON ONE SIDE ONLY.

** SIDEWALK MAY BE CONSTRUCTED ON ONE SIDE ONLY IN LOW DENSITY RESIDENTIAL DEVELOPMENTS, AND LOCAL ACCESS STREETS THAT ENCIRCLE "ISLAND" MINIPARKS THAT DO NOT BORDER RESIDENTIAL LOTS. (SEE TABLE 2.1 AND SECTION 2C.190)

SNOQUALMIE RIDGE II			
RESIDENTIAL LOCAL ACCESS STREET			
I:\library\DETAILS\Sr II\Chapter 02 – Streets\2-04.DWG	DWN ER/DLS	CKD AJM	DATE 11/01/04	DWG 2-04

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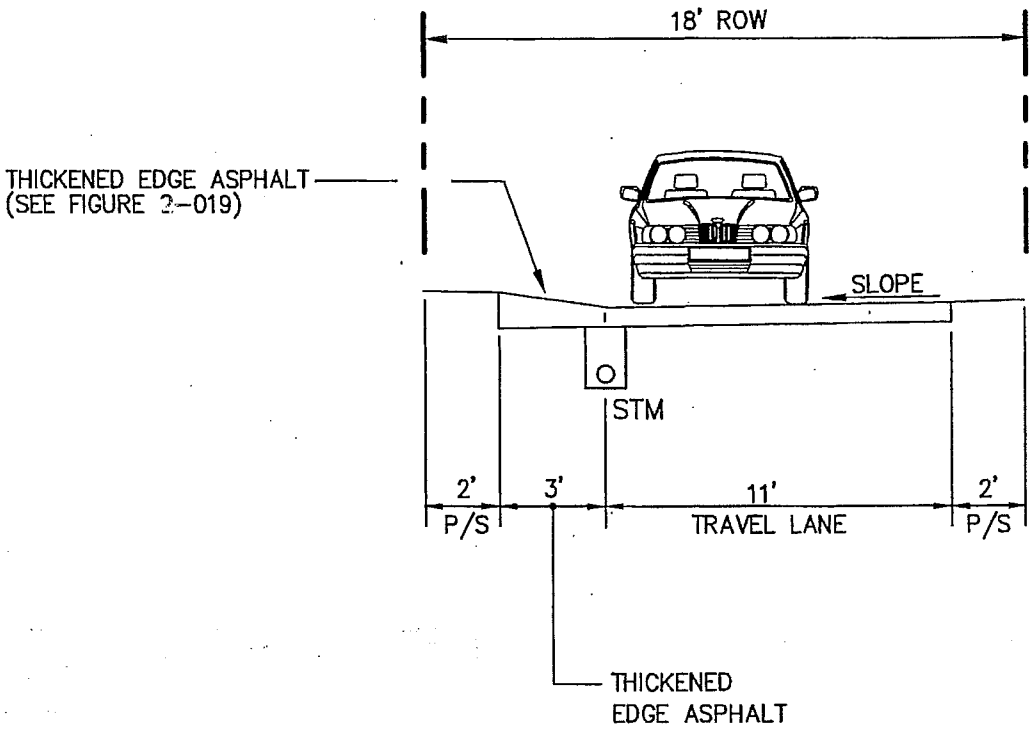

SNOQUALMIE RIDGE II

ALLEY

I:\library\DETAILS\Sr II\Chapter 02 - Streets\2-06.DWG	DWN	CKD	DATE	DWG
	ER/DLS	AJM	10/29/04	2-06

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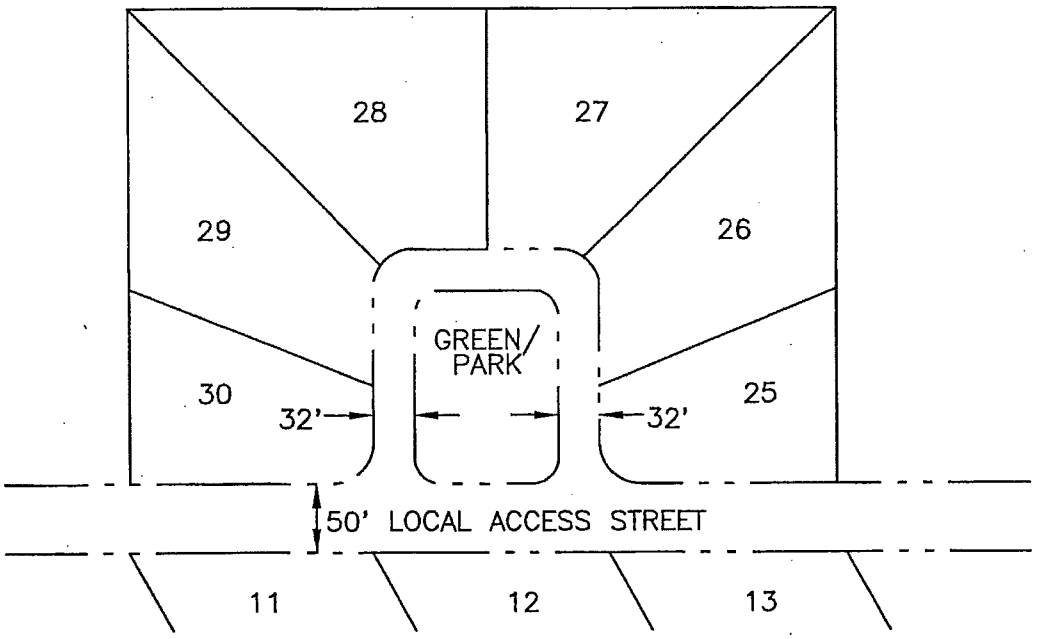
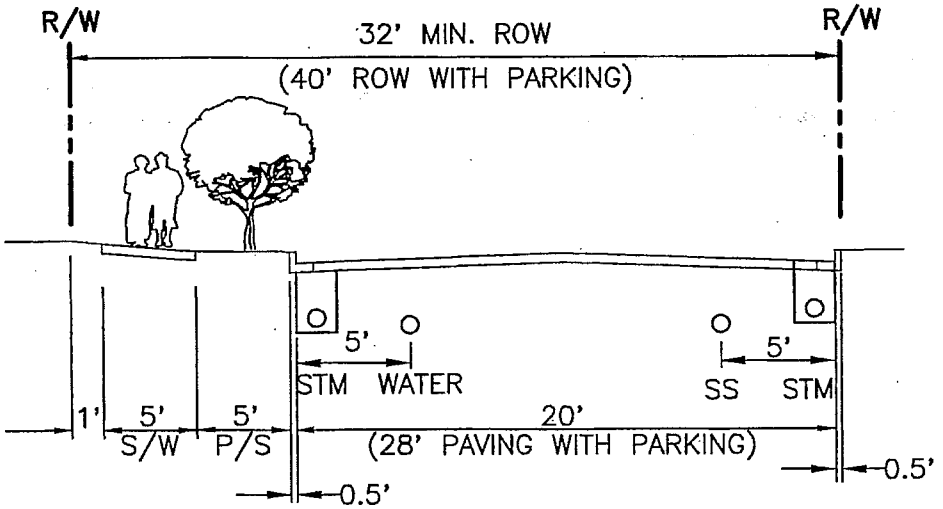
Attest: Jodi Warren/CMC City Clerk



MINOR ACCESS STREET

PLAN VIEW EXAMPLE

NO SCALE



MINOR ACCESS

NO SCALE

SNOQUALMIE RIDGE II			
MINOR ACCESS STREET			
DWN	CKD	DATE	DWG
ER/DLS	AJM	11/01/04	2-05

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Approved AB#04-172 11/8/04
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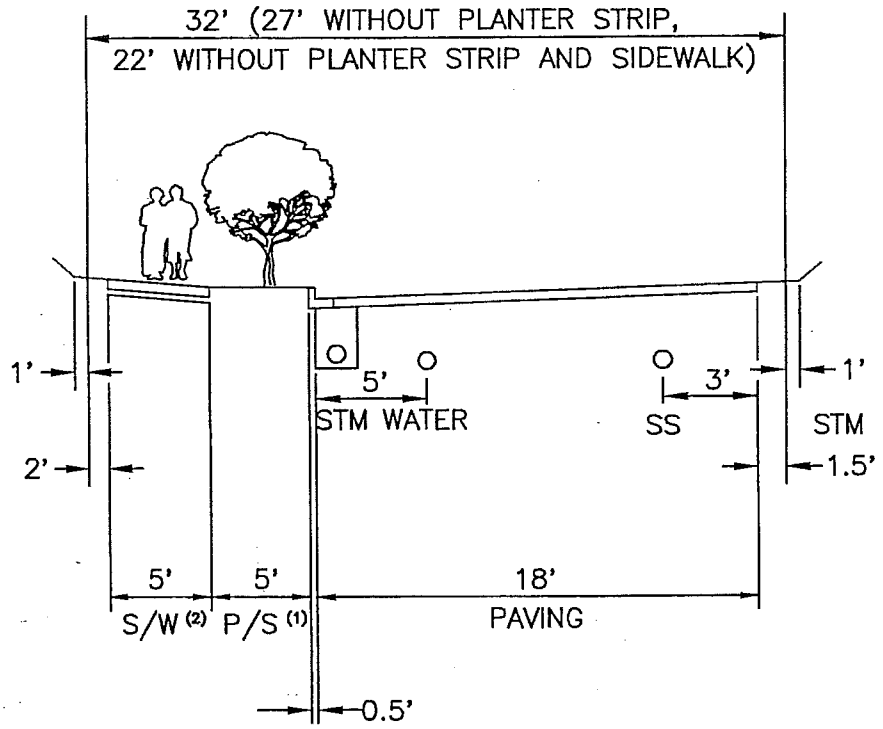

1. THE PLANTER STRIP AND SIDEWALK MAY BE ELIMINATED TO MINIMIZE SENSITIVE AREA IMPACTS.
2. THE SIDEWALK MAY BE REPLACED BY A HARD OR SOFT SURFACE TRAIL, OR ELIMINATED IF A TRAIL IS IN CLOSE PROXIMITY.
3. ROADWAY MAY HAVE A SUPERELEVATION OF UP TO 4.00%
4. IF SIDEWALK AND CURB ARE ELIMINATED, 2' GRAVEL SHOULDER IS REQUIRED ON BOTH SIDES.

SNOQUALMIE RIDGE II			
NEIGHBORHOOD CONNECTOR			
DWN	CKD	DATE	DWG
BRB	AJM	11/01/04	2-07

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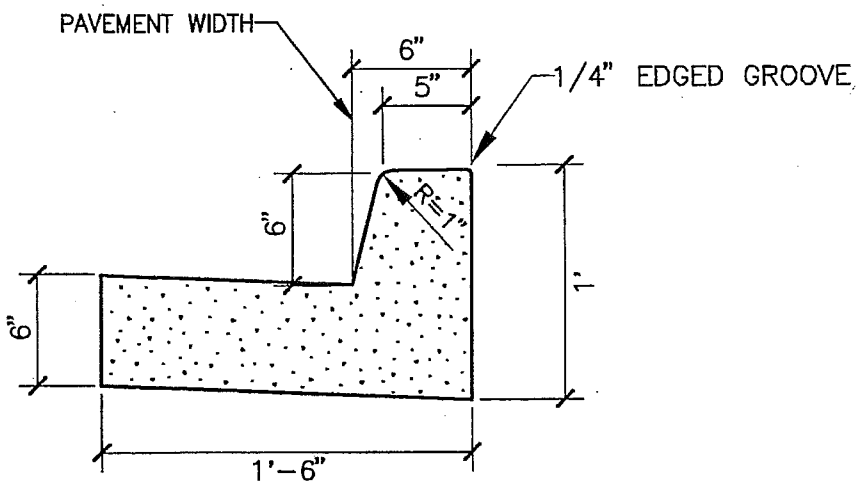


NOTES:

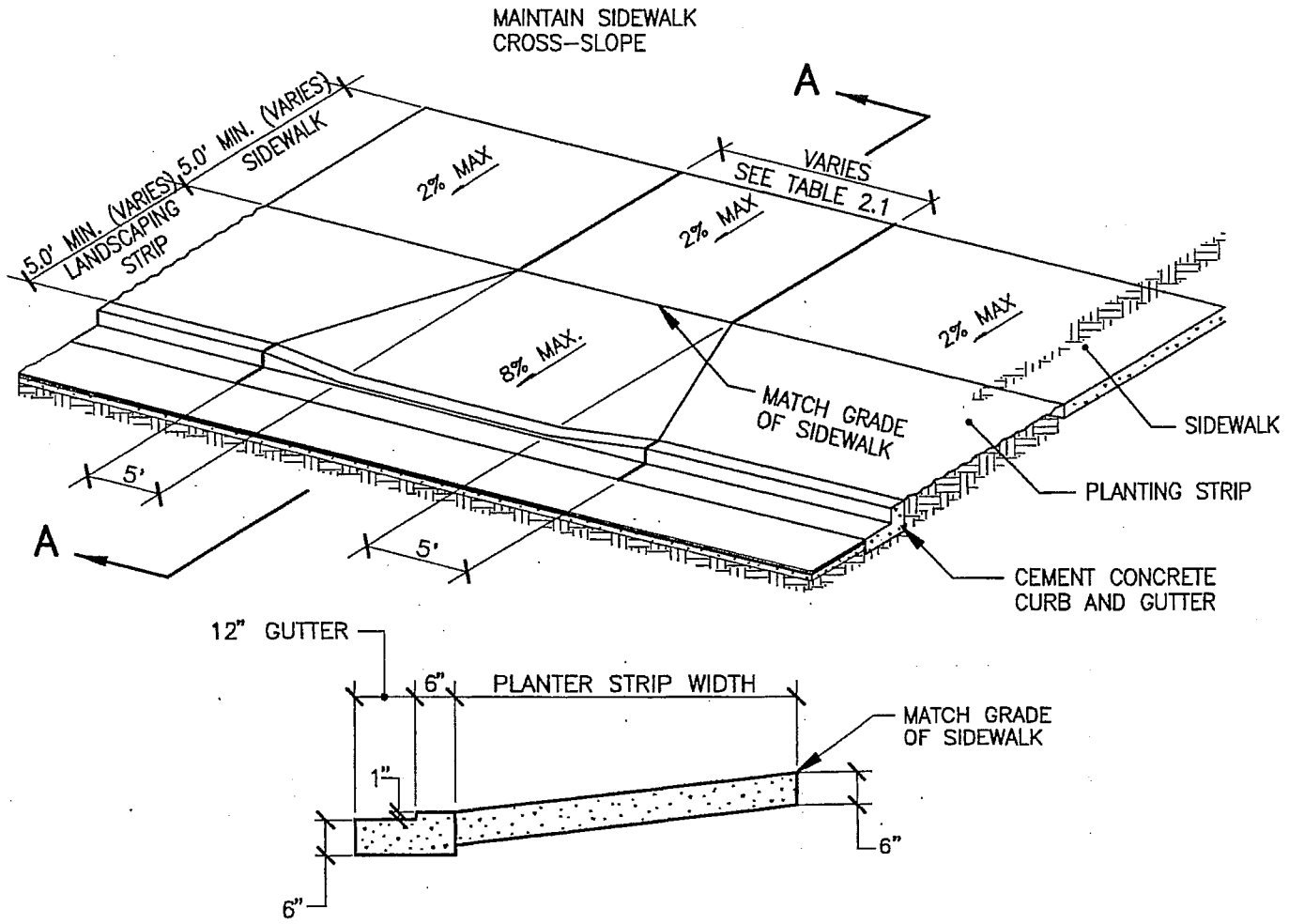
1. CONSTRUCTION OF CURB DETAILS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION AS PUBLISHED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOCIATION. (WSDOT/APWA SPECIFICATIONS) UNLESS OTHERWISE MODIFIED BELOW.
2. ALL CONCRETE SHALL BE AIR ENTRAINED CONCRETE CLASS 3000.
3. FORMS SHALL BE TRUE TO LINE AND GRADE AND SECURELY STAKED. STEEL FORMS ONLY SHALL BE USED ON TANGENT SECTIONS. WOOD FORMS MAY BE USED ON CURVED SECTIONS. AS AN ALTERNATIVE EXTRUDED CEMENT CONCRETE CURB AND GUTTER MAY BE USED PER WSDOT SECTION 8-04.3(1)A.
4. FULL DEPTH EXPANSION JOINTS CONSISTING OF 3/8" INCH MINIMUM PRE-MOLDED JOINT MATERIAL SHALL BE PLACED ADJACENT TO CATCH BASINS, INLETS AND AT POINTS OF TANGENCY ON STREETS AND DRIVEWAY RETURNS. MAXIMUM SPACING SHALL BE 15 FEET.
5. CONTRACTION JOINTS (DUMMY JOINTS) CONSISTING OF 3/8" INCH MINIMUM x 2" OF PRE-MOLDED JOINT MATERIAL SHALL BE CONSTRUCTED AT INTERVALS OF 15 FEET.
6. ALL JOINTS SHALL BE CLEAN AND EDGED.
7. FINISH SHALL BE A LIGHT BROOM FINISH.
8. FINISHED CURBS AND GUTTERS SHALL BE SPRAYED WITH A CLEAR CURING COMPOUND.
9. MINIMUM REPLACEMENT SECTION LENGTH FOR DAMAGED CURB BEING REMOVED AND REPLACED SHALL BE 5 FEET.

SNOQUALMIE RIDGE II

CEMENT CONCRETE CURB AND GUTTER

I:\library\DETAILS\Sr II\Chapter 02 - Streets\2-08.DWG	DWN	CKD	DATE	DWG
	ER/DLS	AJM	10/08/04	2-08

Approved AB#04-172 11/8/04
Attest: _____ Jodi Warren/CMC City Clerk



SECTION A–A

NOTES:

1. FULL DEPTH EXPANSION JOINT, 3/8" MINIMUM THICKNESS.
2. DRIVEWAY IS TO BE SURFACED WITH ASPHALT OR CONCRETE.
3. DRIVEWAY CEMENT CONCRETE SHALL BE A MINIMUM OF 6" THICK AND PLACED ON COMPACTED GRADE. DEPENDING ON VEHICLE LOADING, A STRUCTURAL DESIGN OF THE DRIVEWAY MAY BE REQUIRED BY THE ENGINEER.
4. CONCRETE SHALL BE AIR ENTRAINED CLASS 3000.
5. CLEAN AND EDGE ALL JOINTS.

SNOQUALMIE RIDGE II			
DRIVEWAY CURB AND GUTTER SECTION			
DWN	CKD	DATE	DWG
ER/DLS	AJM	09/30/04	2–09

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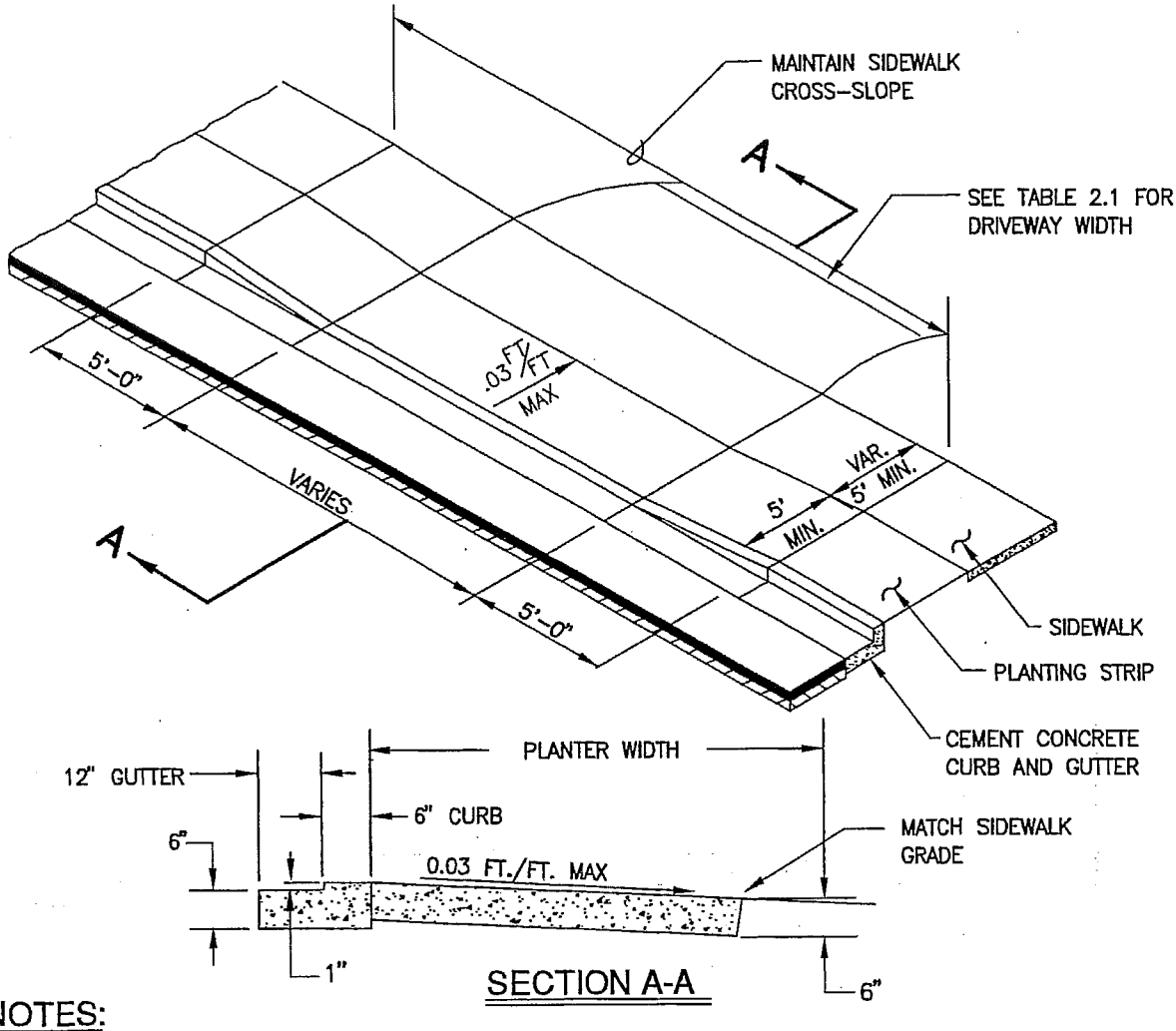


SECTION A-A

NOTES:

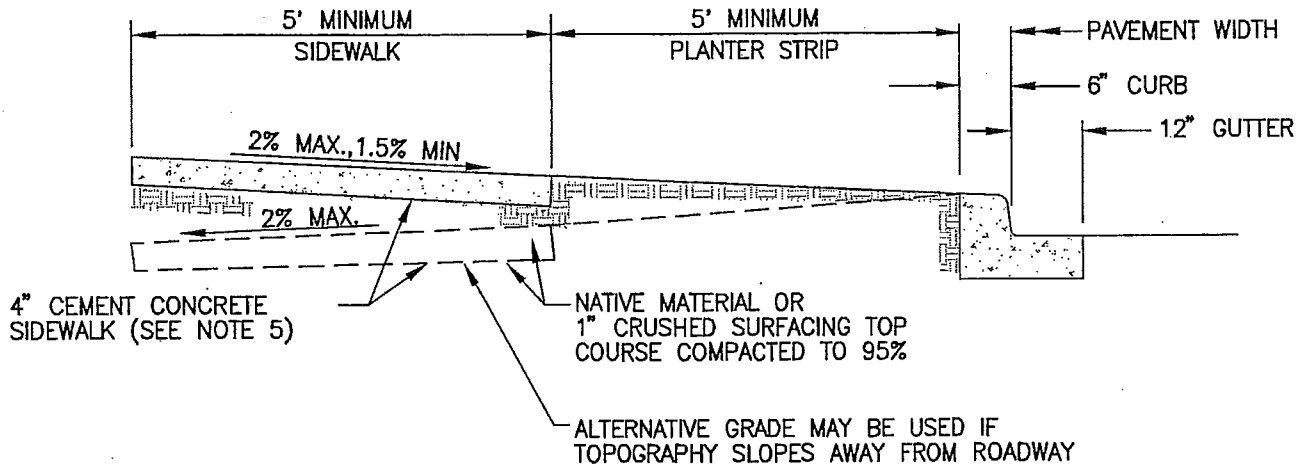
1. FULL DEPTH EXPANSION JOINT, 3/8" MINIMUM THICKNESS.
2. DRIVEWAY IS TO BE SURFACED WITH ASPHALT OR CONCRETE.
3. DRIVEWAY CEMENT CONCRETE SHALL BE A MINIMUM OF 6" THICK AND PLACED ON COMPACTED GRADE. DEPENDING ON VEHICLE LOADING, A STRUCTURAL DESIGN OF THE DRIVEWAY MAY BE REQUIRED BY THE ENGINEER.
4. CONCRETE SHALL BE AIR ENTRAINED CLASS 3000.
5. CLEAN AND EDGE ALL JOINTS.

SNOQUALMIE RIDGE II

REVERSE SLOPE DRIVEWAY

I:\library\DETAILS\Sr II\Chapter 02 - Streets\2-10.DWG	DWN	CKD	DATE	DWG
	ER/DLS	AJM	10/18/04	2-10

Approved AB#04-172 11/8/04
Attest: _____ Jodi Warren/CMC City Clerk



NOTES:

1. CONSTRUCTION OF SIDEWALKS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AS PUBLISHED BY THE WASHINGTON STATE DEPARTMENT OR TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOCIATION. (WSDOT/APWA SPECIFICATIONS) UNLESS OTHERWISE MODIFIED BELOW.
2. ALL CONCRETE SHALL BE AIR ENTRAINED CONCRETE CLASS 3000.
3. FORMS SHALL BE TRUE TO LINE AND GRADE AND SECURELY STAKED. STEEL FORMS ONLY SHALL BE USED ON TANGENT SECTIONS. WOOD FORMS MAY BE USED ON CURVED SECTIONS.
4. ALL JOINTS SHALL BE CLEAN AND EDGED.
5. CEMENT CONCRETE SIDEWALKS SHALL BE A MINIMUM OF 4 INCHES THICK EXCEPT IN DRIVEWAY AREAS WHERE A MINIMUM OF 6" IS REQUIRED.
6. ADDITIONAL WIDTH TO MAINTAIN A MINIMUM OF 5 FEET OF CLEAR SIDEWALK SHALL BE PROVIDED WHEN OBSTRUCTIONS SUCH AS UTILITIES EXIST.
7. FINISH SHALL BE A LIGHT BROOM FINISH.

SNOQUALMIE RIDGE II			
SIDEWALK			
DWN	CKD	DATE	DWG
ER/DLS	AJM	10/01/04	2-11

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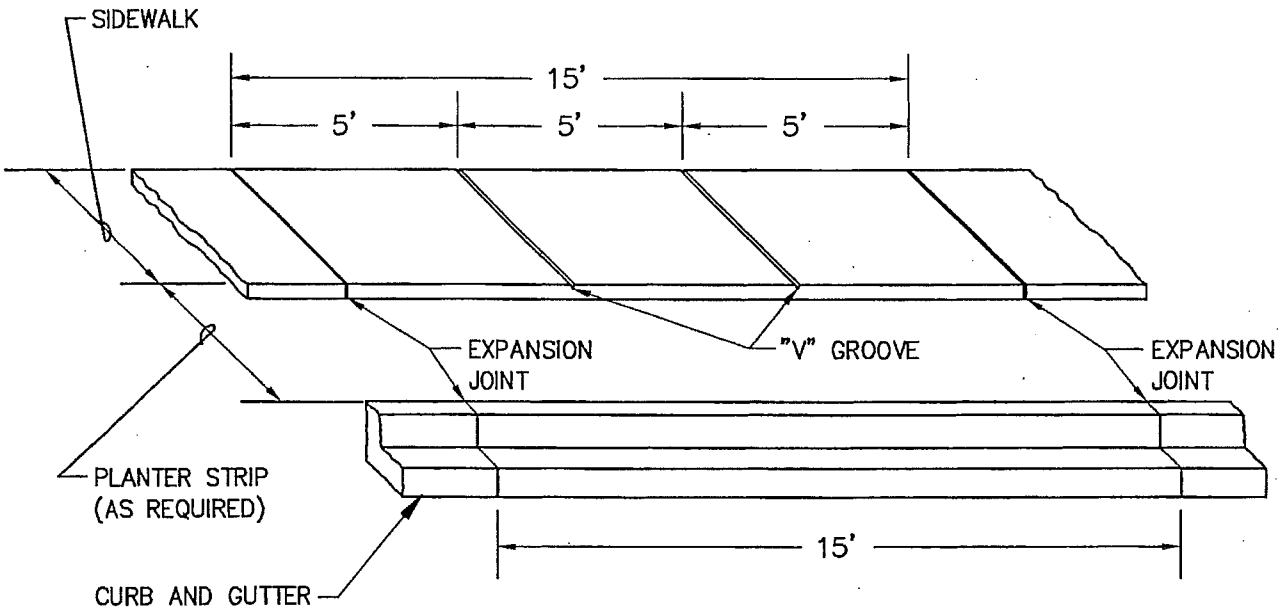


NOTES:

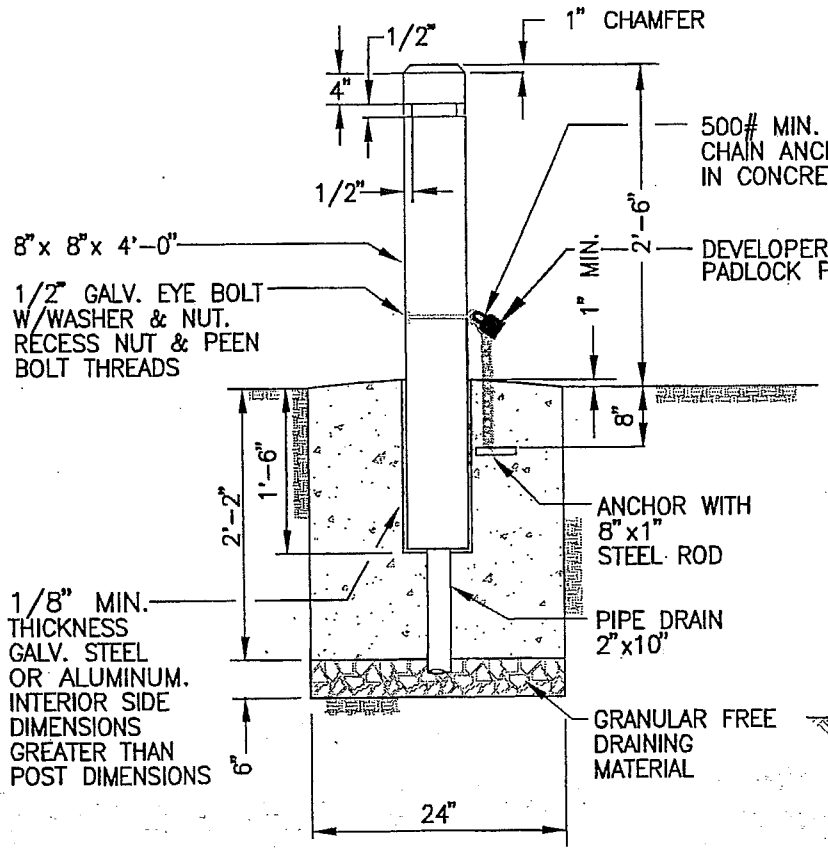
1. EXPANSION JOINTS CONSISTING OF 3/8" FULL DEPTH PREMOLDED JOINT MATERIAL SHALL BE PLACED AROUND FIRE HYDRANTS, POLES, METER BOXES AND OTHER OBSTRUCTIONS AND ALONG WALLS OR STRUCTURES IN PAVED AREAS. EXPANSION JOINTS SHALL ALSO BE PLACED AT THE BEGINNING AND THE END OF EACH CURVE, ON EACH SIDE OF STRUCTURES, DRIVEWAYS AND CURB RAMPS, BETWEEN SIDEWALK AND BACK OF CURB AND AT OTHER LOCATIONS AS DIRECTED BY THE CITY ENGINEER. FULL EXPANSION JOINTS SHALL GENERALLY BE PLACED TO MATCH THOSE PLACED IN ADJACENT CURB WITH A MAXIMUM SPACING OF 15 FEET.

2. CONTRACTION JOINTS (DUMMY JOINTS) CONSISTING OF 3/8" x 2" OF PREMOLDED JOINT MATERIAL SHALL BE CONSTRUCTED AT INTERVALS NOT TO EXCEED 10 FEET. WHEN SIDEWALKS ARE PLACED BY SLIP-FORMING, A PREMOLDED STRIP OF 3/8" THICK AND UP TO FULL DEPTH MAY BE USED. CONTRACTOR JOINTS (DUMMY JOINTS) IN SIDEWALKS SHALL BE LOCATED SO AS TO MATCH THE JOINTS IN THE CURB WHETHER SIDEWALK IS ADJACENT TO CURB OR SEPARATED BY A PLANTING STRIP. JOINT SEALANTS FOR SAWED CONSTRUCTION JOINTS SHALL MEET THE REQUIREMENTS OF SECTION 9-04.2 OF THE WSDOT/APWA SPECIFICATIONS.

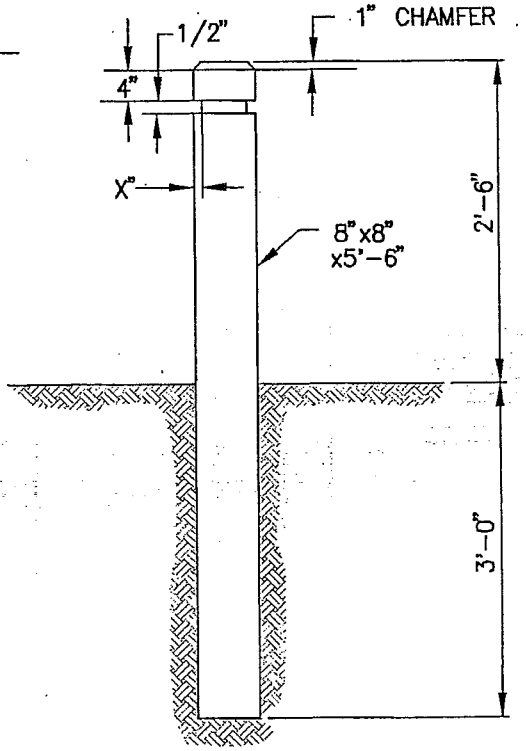
3. SCORE MARKS, 1/4" DEEP, ARE TO BE PLACED ON 5 FOOT CENTERS, AND TO CORRES-POND TO THE MARKINGS IN EXISTING SIDEWALKS AND CURB AND GUTTER.

SNOQUALMIE RIDGE II			
SIDEWALK SPACING			
I:\library\DETAILS\Sr II\Chapter 02 - Streets\2-12.DWG	DWN ER/DLS	CKD AJM	DATE 10/18/04	DWG 2-12

Approved AB#04-172 11/8/04
Attest: jw Jodi Warren/CMC City Clerk



REMOVABLE BOLLARD



FIXED BOLLARD

NOTES:

1. ALL WOOD SHALL BE PRESSURE TREATED.
2. STEEL TUBE SHALL CONFORM TO ASTM A53 OR ASTM A53 GRADE A.
3. NUTS, BOLTS & WASHERS SHALL CONFORM TO ASTM A307.
4. ALL STEEL PARTS SHALL BE GALVANIZED.
5. CONCRETE SHALL BE CLASS 3000 WITH AIR-ENTRAINMENT.
6. ALTERNATE DESIGNS MAY BE APPROVED BY THE CITY ENGINEER.

SNOQUALMIE RIDGE II

BOLLARD DETAIL

DWN	CKD	DATE	DWG
ER/DLS	AJM	10/08/04	2-13

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Approved AB#04-172 11/8/04
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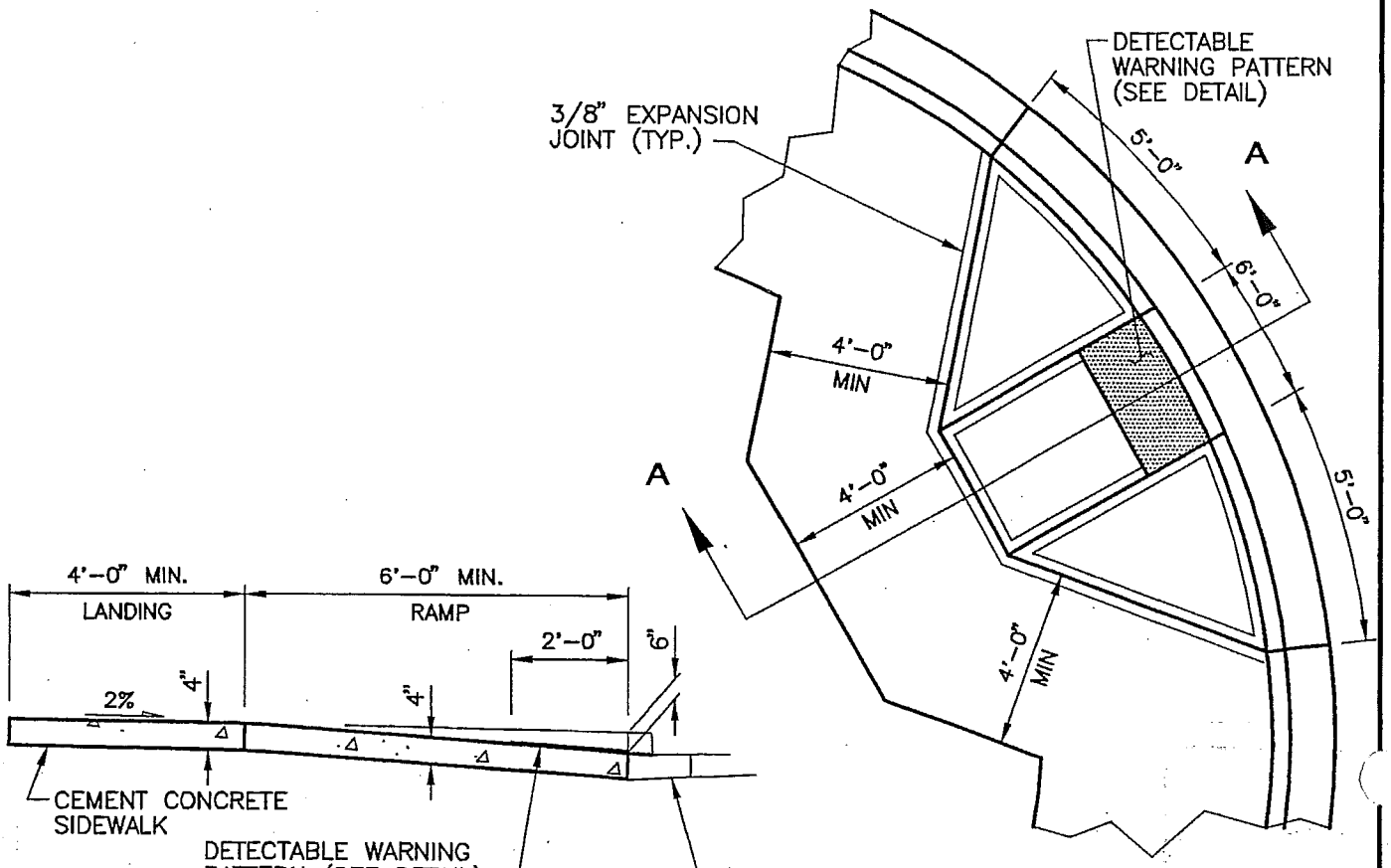


SECTION A-A

NOTES:

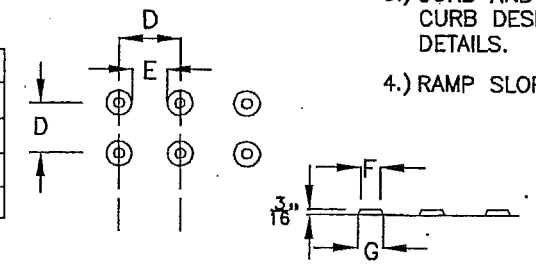
1.) AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

2.) DETECTABLE WARNING PATTERNS CREATED FROM YELLOW PRE-FORMED POLYMER PER DIMENSIONS AND SPACING SHOWN.

3.) CURB AND GUTTER SHOWN, SEE THE CONTRACT PLANS FOR THE CURB DESIGN SPECIFIED. SEE STD. DWG. 2-08 FOR CURB DETAILS.

4.) RAMP SLOPES SHALL NOT BE STEEPER THAN 12H:1V.

	MIN.	MAX.
D	1 5/8"	2 3/8"
E	5/8"	1 1/2"
F	7/16"	3/4"
G	7/8"	1 7/16"



RAMP TEXTURE DETAIL

NOT TO SCALE

ELEVATION

SNOQUALMIE RIDGE II

CURB RAMP

I:\library\DETAILS\Sr II\Chapter 02 - Streets\2-14.DWG	DWN	CKD	DATE	DWG
	ER/DLS	AJM	10/18/04	2-14

Approved AB#04-172 11/8/04
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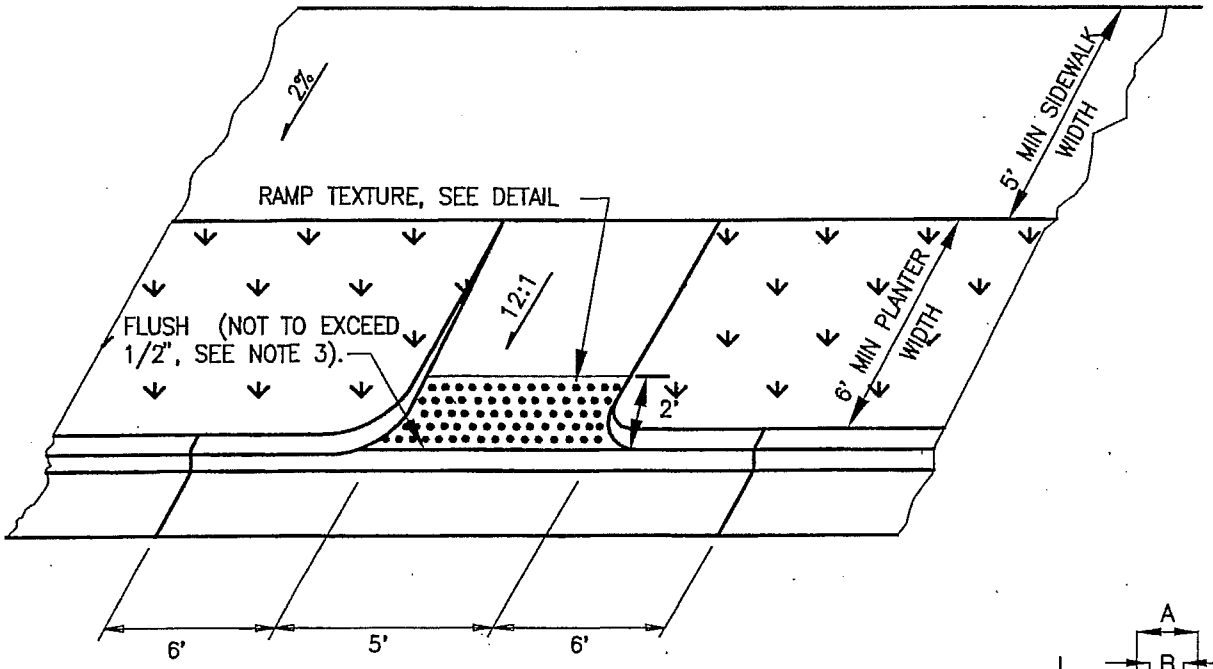
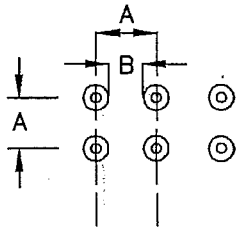
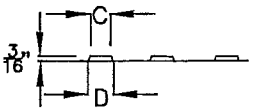




	MIN.	MAX.
A	1 5/8"	2 3/8"
B	5/8"	1 1/2"
C	7/16"	3/4"
D	7/8"	1 7/16"



ELEVATION

NOTES:

1.) AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

2.) DETECTABLE WARNING PATTERNS CREATED FROM YELLOW PRE-FORMED POLYMER PER DIMENSIONS AND SPACING SHOWN.

3.) CURB AND GUTTER SHOWN, SEE THE CONTRACT PLANS FOR THE CURB DESIGN SPECIFIED. SEE STD. DWG. 2-08 FOR CURB DETAILS.

4.) RAMP SLOPES SHALL NOT BE STEEPER THAN 12H:1V.

RAMP TEXTURE DETAIL

SNOQUALMIE RIDGE II

MIDBLOCK CURB RAMP (ALTERNATE CURB RAMP)

DWN	CKD	DATE	DWG
CMH	AJM	10/18/04	2-15

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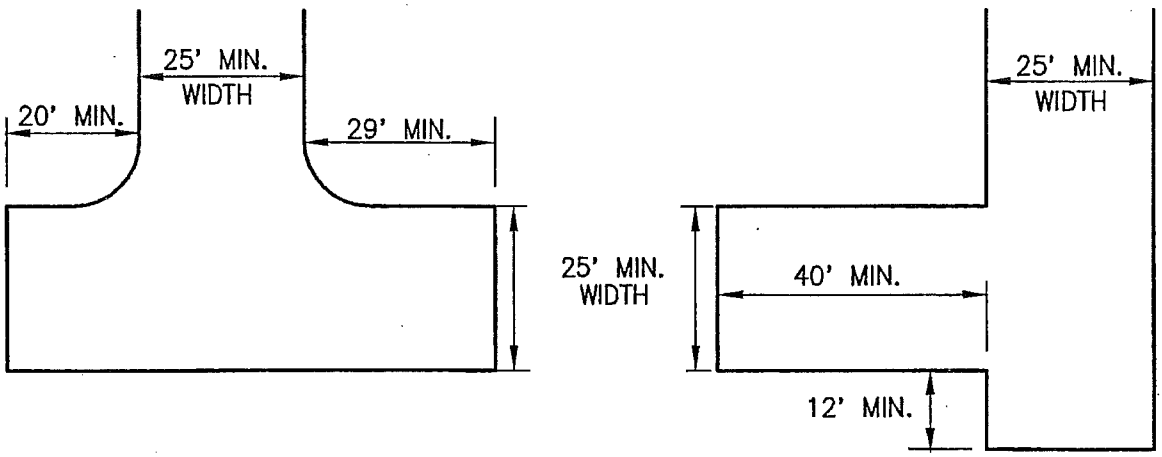

SNOQUALMIE RIDGE II

HAMMERHEAD TURNAROUNDS W/ FIRE ACCESS

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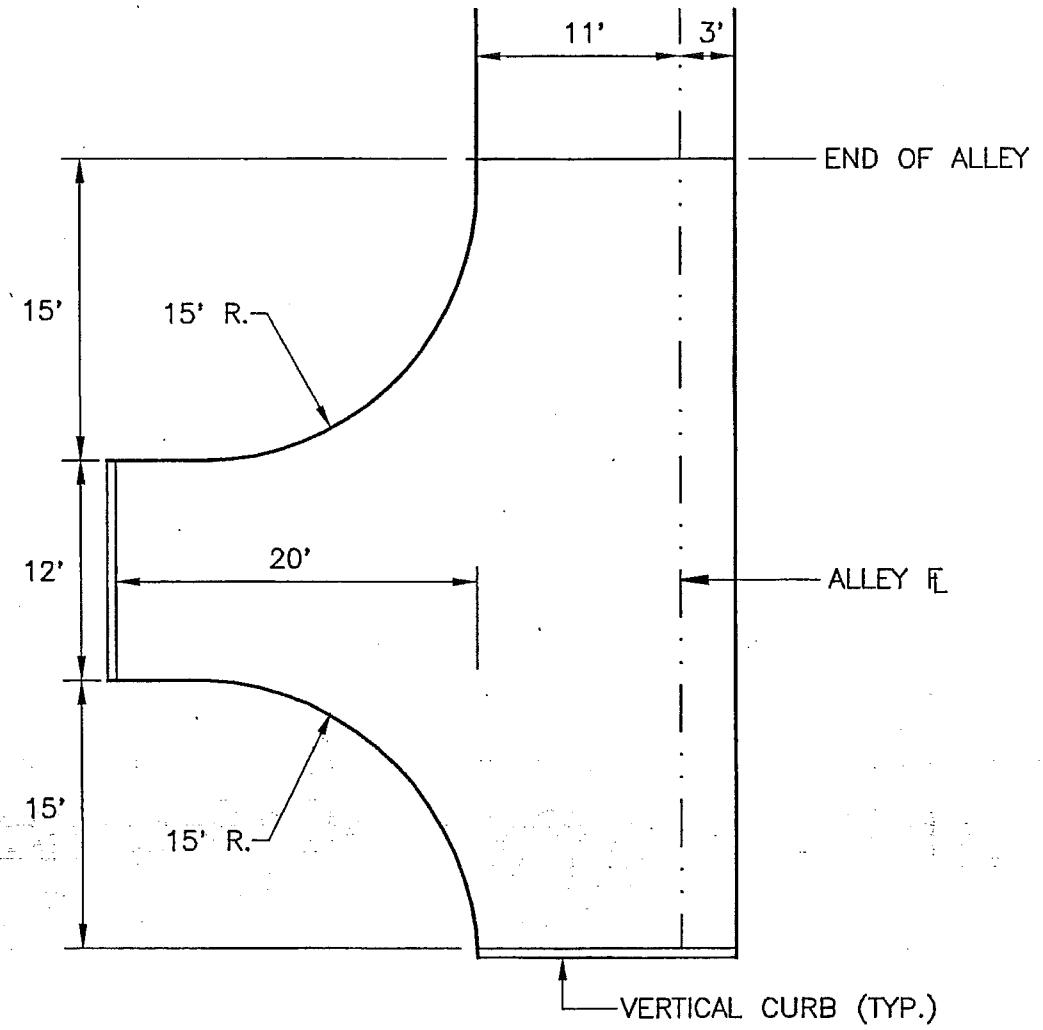
	ER/DLS	AJM	09/16/04	2-16

Approved AB#04-172 11/8/04
Attest: _____ Jodi Warren/CMC City Clerk



NOTE:
SLOPE TO PREVENT ANY WATER FROM LEAVING ASPHALT TO SOIL.

ALLEY TURNAROUND WITHOUT FIRE ACCESS

NO SCALE

SNOQUALMIE RIDGE II			
HAMMERHEAD TURNAROUNDS WITHOUT FIRE ACCESS			
DWN	CKD	DATE	DWG
ER/DLS	AJM	10/18/04	2-17

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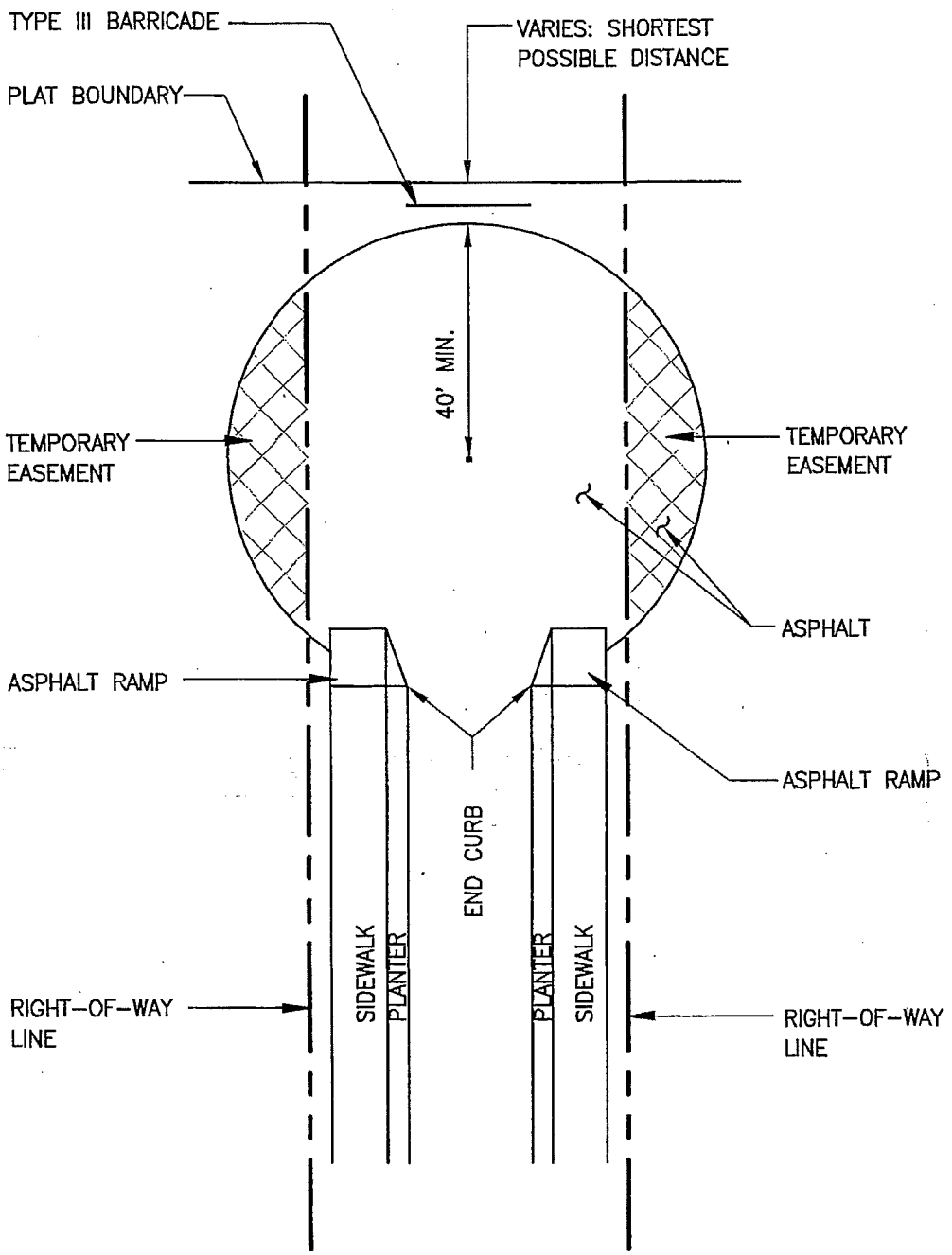
Attest: Jodi Warren/CMC City Clerk



SNOQUALMIE RIDGE II

TEMPORARY CUL-DE-SAC

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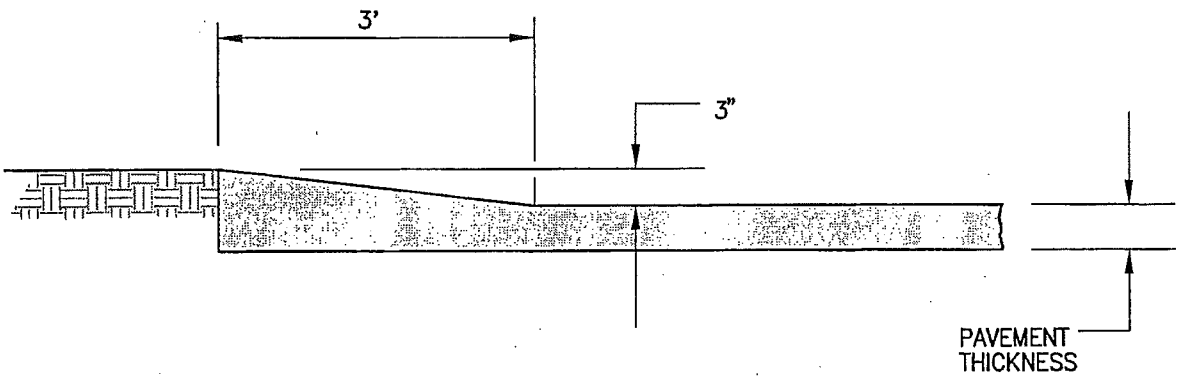
	ER/DLS	AJM	09/16/04	2-18

Approved AB#04-172 11/8/04
Attest: Jodi Warren/CMC City Clerk



SNOQUALMIE RIDGE II

THICKENED EDGE ASPHALT CURB

DWN	CKD	DATE	DWG
ER/DLS	AJM	09/16/04	2-19

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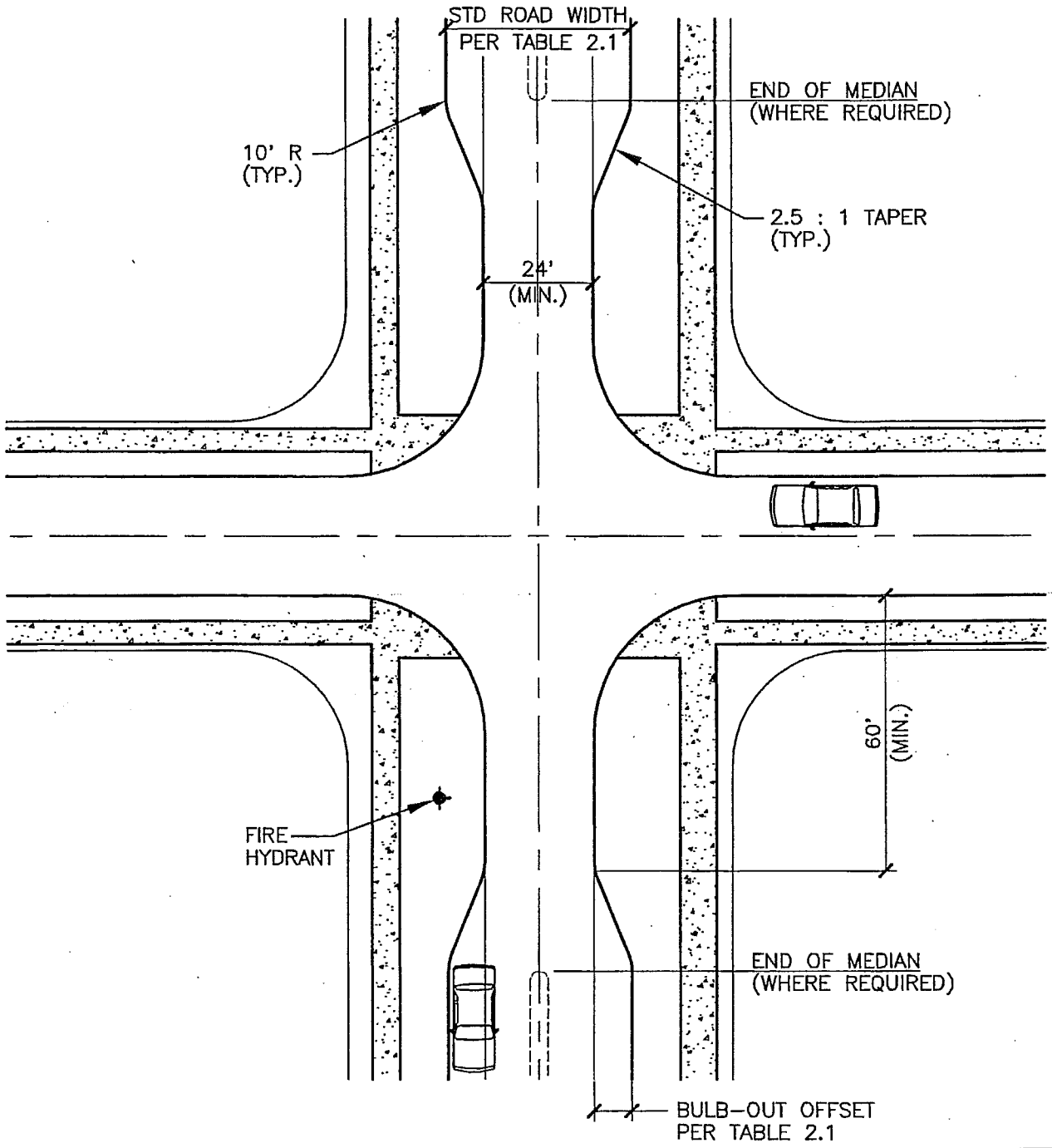
Approved AB#04-172 11/8/04
Attest: Jodi Warren/CMC City Clerk



SNOQUALMIE RIDGE II

TYPICAL BULB-OUT INTERSECTION

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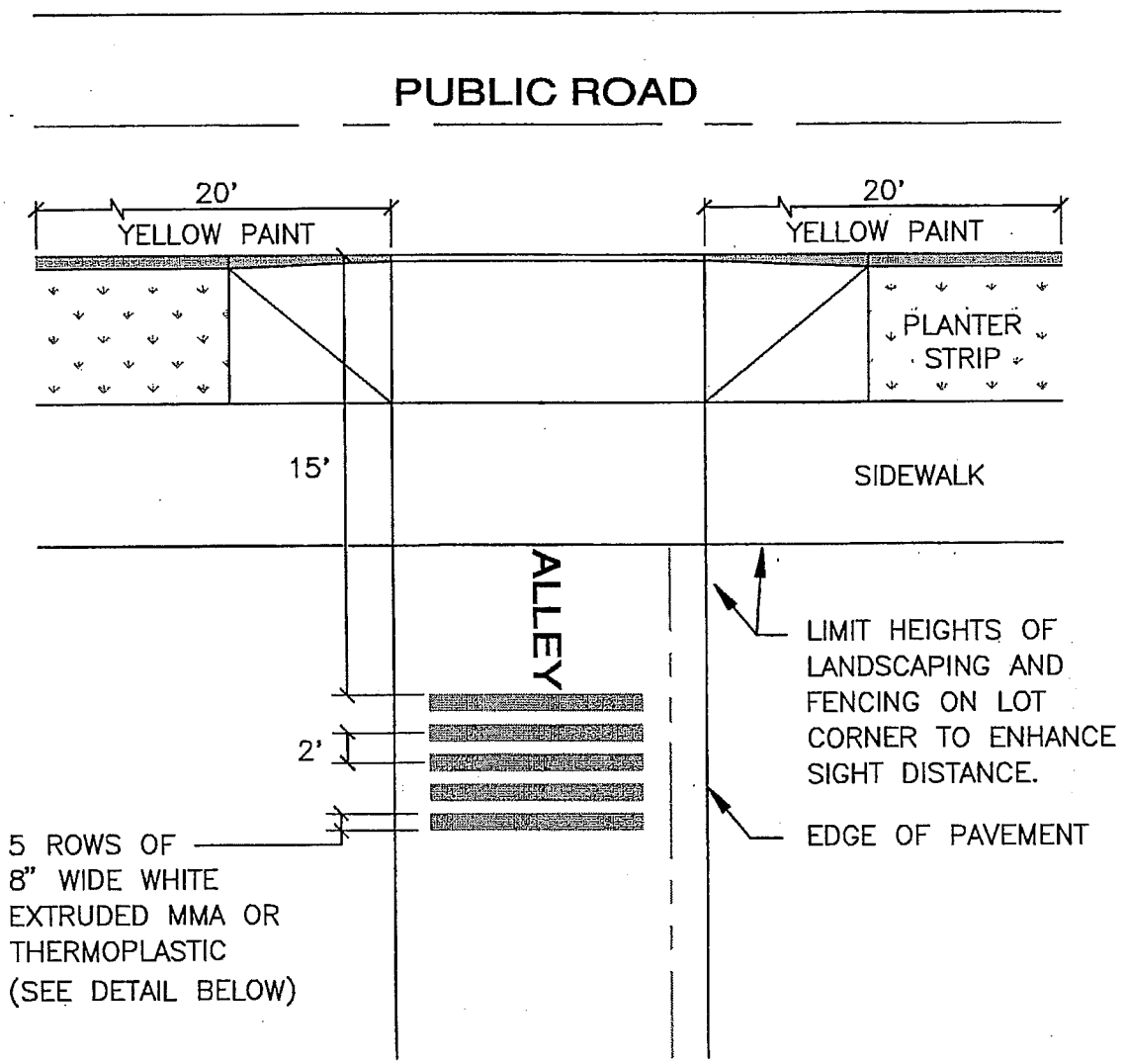
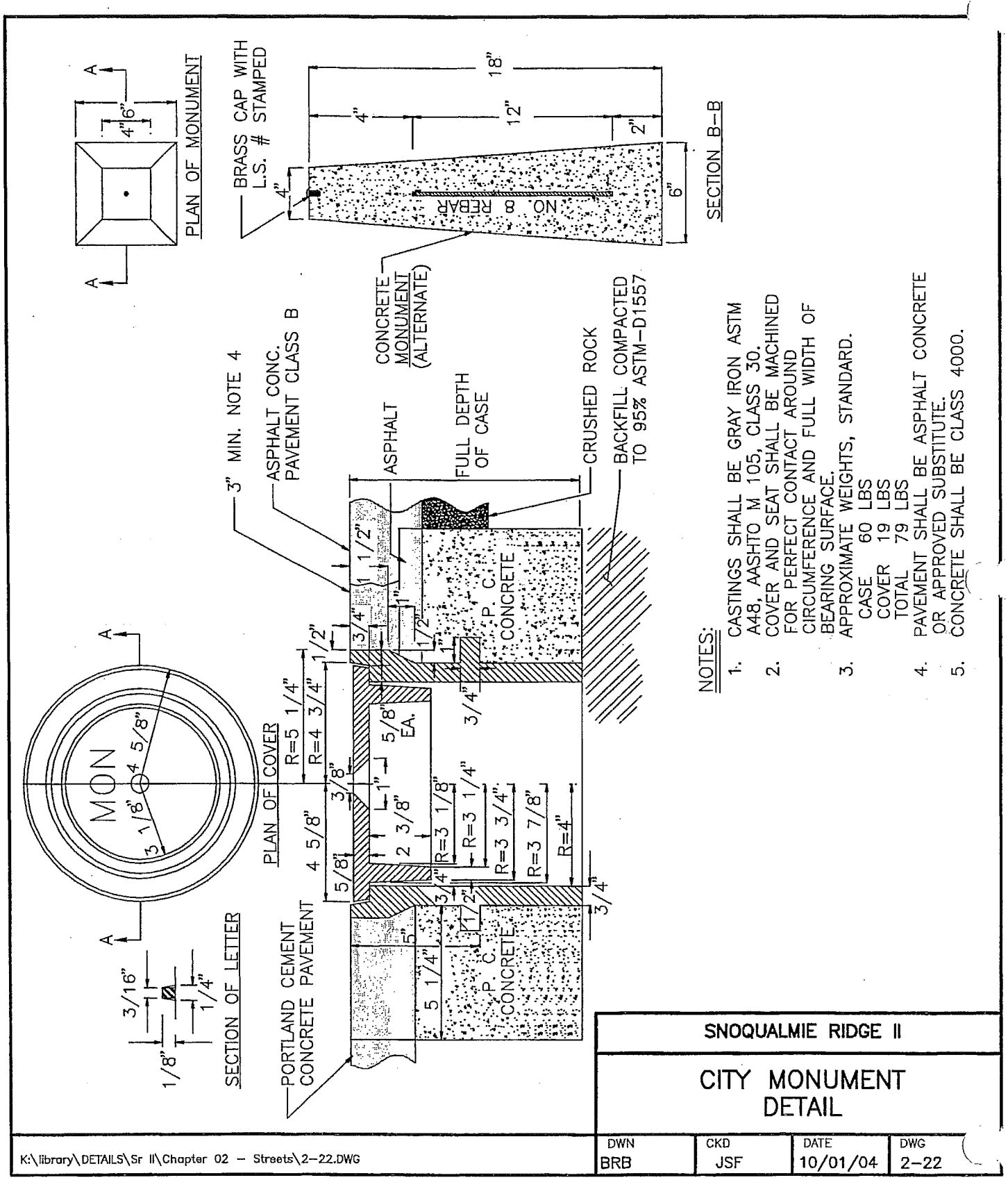
	ER/DLS	AJM	09/30/04	2-20

Approved AB#04-172 11/8/04
Attest: Jodi Warren/CMC City Clerk



SNOQUALMIE RIDGE II			
ALLEY EXIT RESTRICTIONS			
K:\library\DETAILS\Sr II\Chapter 02 – Streets\2-21.DWG	DWN BRB	CKD JSF	DATE 09/30/04	DWG 2-21

Approved AB#04-172 11/8/04
Attest: Jodi Warren/CMC City Clerk



NOTES:

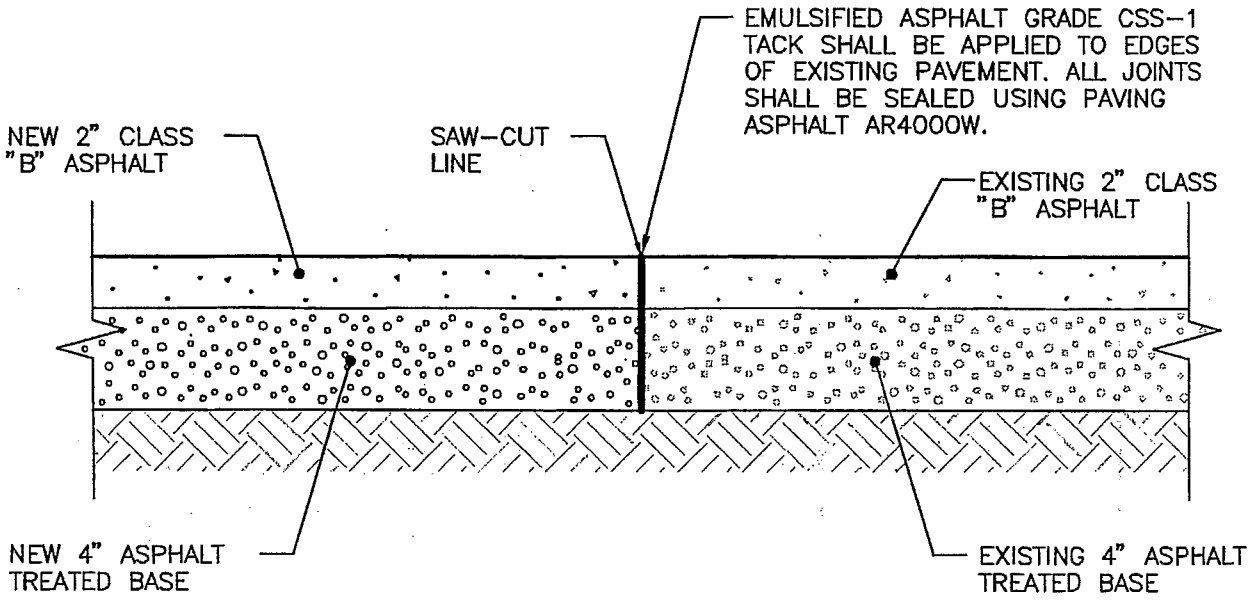
1. CASTINGS SHALL BE GRAY IRON ASTM A48, AASHTO M 105, CLASS 30.
2. COVER AND SEAT SHALL BE MACHINED FOR PERFECT CONTACT AROUND CIRCUMFERENCE AND FULL WIDTH OF BEARING SURFACE.
3. APPROXIMATE WEIGHTS, STANDARD.
   CASE 60 LBS
   COVER 19 LBS
   TOTAL 79 LBS
4. PAVEMENT SHALL BE ASPHALT CONCRETE OR APPROVED SUBSTITUTE.
5. CONCRETE SHALL BE CLASS 4000.

SNOQUALMIE RIDGE II

CITY MONUMENT DETAIL

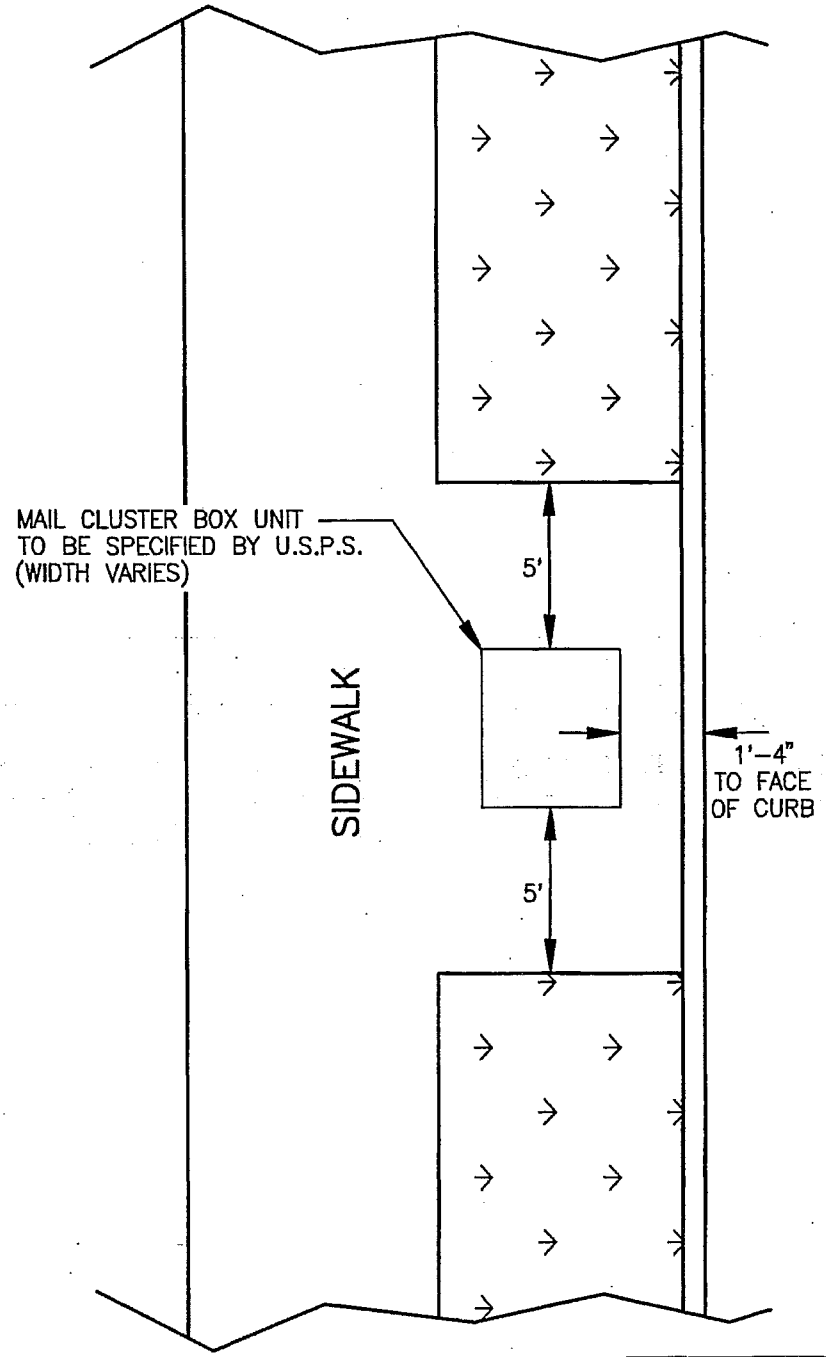
K:\library\DETAILS\Sr II\Chapter 02 – Streets\2–22.DWG	DWN	CKD	DATE	DWG
	BRB	JSF	10/01/04	2–22

Approved AB#04-172 11/8/04
Attest: Jodi Warren/CMC City Clerk



SNOQUALMIE RIDGE II				
ASPHALT PATCH DETAIL				
K:\library\DETAILS\Sr II\Chapter 02 – Streets\2-23.DWG	DWN BRB	CKD JSF	DATE 09/30/04	DWG 2-23

Approved AB#04-172 11/8/04
Attest: Jodi Warren/CMC City Clerk

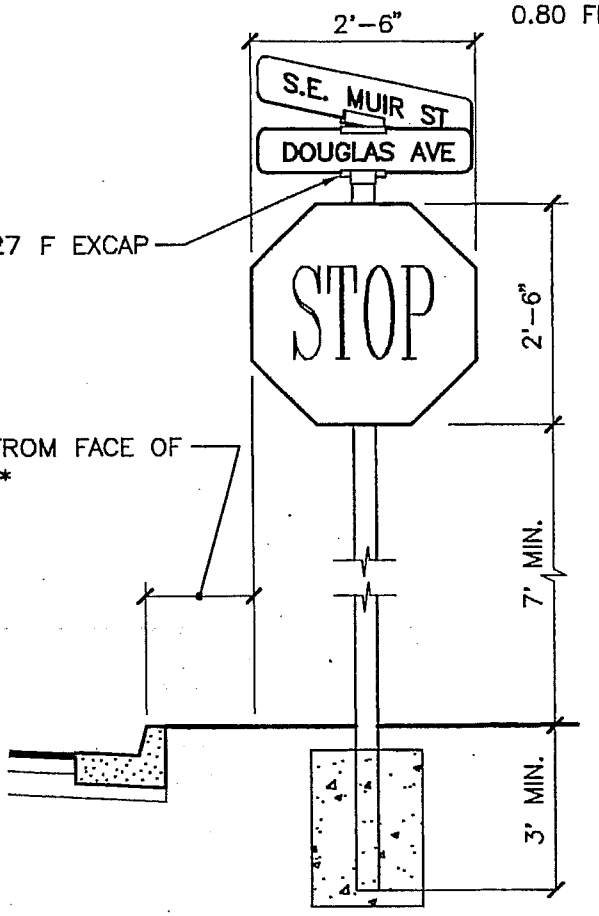


SNOQUALMIE RIDGE II

MAILBOX PAD DETAIL

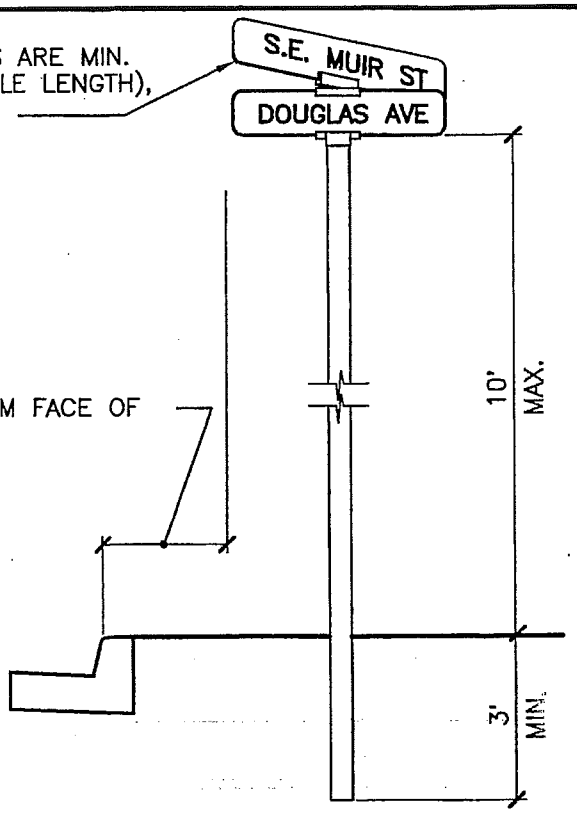
K:\library\DETAILS\Sr II\Chapter 02 – Streets\2-24.DWG	DWN	CKD	DATE	DWG
	CMH	JSF	10/04/04	2-24

Approved AB#04-172 11/8/04
Attest: _____ Jodi Warren/CMC City Clerk



VEHICULAR CONTROL SIGNS

NOT TO SCALE



TYPICAL STREET NAME SIGN

NOT TO SCALE

NOTES:

1. ALL SHEETING REQUIREMENTS FOR STOPS, STREET SIGNS, NO PARKING SIGNS ARE ENGINEER GRADE.
2. POST: 4"x4" PRESSURE TREATED WOOD
3. PANELS TO BE STANDARD ALUMINUM WITH REFLECTIVE LETTERS COLOR TO BE DETERMINED BY REGULATORY INFORMATION
4. ALL VEHICULAR CONTROL SIGNS SHALL MEET THE CITY REQUIREMENTS OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.)
5. STOP SIGN MOUNTING: 2" GALVANIZED BOLTS SCREWS WITH NYLON WASHERS.
6. STREET SIGN MOUNTING: 827 EXCAP, 827 F PLATE 90 DEGREE OR CROSS PLATE
7. STREET SIGN COLORS, DIMENSIONS, FONT SIZE AND TYPE AS DETERMINED (AND PREVIOUSLY USED) BY THE PUBLIC WORKS AND PLANNING DEPARTMENT.

* SETBACKS FOR NO PARKING SIGNS OF ANY TYPE ARE 18" FROM FACE OF CURB TO EDGE OF SIGN.

SNOQUALMIE RIDGE II

STREET SIGN DETAIL

K:\library\DETAILS\Sr II\Chapter 02 – Streets\2-25.DWG	DWN	CKD	DATE	DWG
	CMH	JSF	10/18/04	2-25

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Attest: Jodi Warren/CMC City Clerk