

ENGINEERING DESIGN AND CONSTRUCTION STANDARDS

TABLE OF CONTENTS

SECTION 1

GENERAL CONSIDERATIONS

| <u>SECTION</u> | <u>DESCRIPTION</u> | <u>PAGE</u> |
|----------------|--|-------------|
| 1-0 | STANDARDS..... | 1-1 |
| 1-1 | SCOPE | 1-1 |
| 1-2 | REFERENCES | 1-2 |
| 1-2.1 | Preliminary Engineering Report..... | 1-2 |
| 1-2.2 | Qualifications of Preparers of Engineering Reports | 1-2 |
| 1-3 | AS-BUILT DRAWINGS..... | 1-3 |
| 1-4 | CITY PERFORMED WORK..... | 1-3 |
| 1-5 | CONTROL OF NOISE..... | 1-3 |
| 1-6 | GUARANTEES..... | 1-4 |
| 1-6.1 | Performance | 1-4 |
| 1-6.2 | Warranty..... | 1-4 |
| 1-7 | PERMITS..... | 1-5 |
| 1-8 | LEGAL RELATIONS AND RESPONSIBILITIES | 1-5 |
| 1-9 | MODIFICATIONS OF STANDARDS..... | 1-5 |
| 1-10 | PLAN REVIEW AND REQUIREMENTS | 1-5 |
| 1-10.1 | Format And Required Data..... | 1-6 |
| 1-10.2 | Required Drawings | 1-7 |
| 1-10.3 | Scale Of Drawings | 1-8 |
| 1-10.4 | Size Of Drawings..... | 1-8 |
| 1-10.5 | Typical Notes..... | 1-8 |
| 1-11 | PROTECTION OF PROPERTY AND UTILITIES..... | 1-8 |
| 1-11.1 | Property..... | 1-8 |
| 1-11.2 | Utilities..... | 1-8 |
| 1-12 | SITE MAINTENANCE..... | 1-9 |
| 1-13 | TRAFFIC CONTROL | 1-9 |
| 1-13.1 | General..... | 1-9 |
| 1-13.2 | Detours And Road Closures..... | 1-10 |
| 1-13.3 | Flagger(s), Barricades And Signs | 1-10 |
| 13.4.1 | Construction Truck Routes | 1-10 |
| 1-14 | CONTROL AND INSPECTION..... | 1-10 |
| 1-14.1 | General..... | 1-10 |
| 1-14.2 | Materials, Sampling And Testing | 1-10 |
| 1-14.2(1) | Developments..... | 1-10 |
| 1-14.2(2) | City Forces And City Contractors..... | 1-11 |
| 1-14.2(3) | Notification Of Inspection..... | 1-11 |
| 1-15 | ASBESTOS CONTROL..... | 1-11 |
| 1-16 | LANDSCAPING | 1-11 |

**DESIGN AND CONSTRUCTION STANDARDS
AND
SPECIFICATIONS**

SECTION 1

GENERAL CONSIDERATIONS

1-0 STANDARDS

These City of Snohomish Design and Construction Standards and Specifications, hereinafter referred to as the "Standards", shall apply whenever any public or private work is performed within the street rights-of-way of the City of Snohomish including work performed by private parties at their own expense under authority granted by ordinance of the City Council or permit process. Except where these Standards provide otherwise, design, construction and materials shall conform to the appropriate standards of the current edition of the following publications produced separately by the Washington State Department of Transportation (WSDOT) or jointly by WSDOT and the Washington State Chapter of the American Public Workers Association (APWA).

- A. WSDOT/APWA Standard Specifications for Road, Bridge and Municipal Construction, hereinafter referred to as the "WSDOT/APWA Standard Specifications".
- B. WSDOT/APWA Standard Plans for Road, Bridge and Municipal Construction, hereinafter referred to as "WSDOT/APWA Standard Plans".
- C. WSDOT Design Manual
- D. WSDOT Construction Manual

1-1 SCOPE

These public works design and construction standards are intended to apply to all public improvements in City rights-of-ways and City easements and private improvements that impact the public system (see section 5.2 for City position on easements). Examples of this latter group include parking lots, on-site storm water control facilities and side sewers and water services from the meter to the user. Not included are such things as sidewalks and building projects not in the ROW (they may however still be controlled by the Uniform Building Code).

The content of each chapter is generally organized in an alphabetical manner except where it was helpful to group similar topics.

Prior to the awarding of any construction contract, the City Engineer may request a copy of the project bid documents for the purpose of determining if the bid specifications and project scope meet City Standards. The contract must contain a bid proposal form and special conditions section giving any information not found in the City Standards. Prior to any construction, the City Engineer may request a copy of the executed construction contract.

1-2 REFERENCES

These Standards are intended to be consistent with the most currently adopted provisions of the following:

- A. Snohomish Municipal Code (SMC)
- B. City of Snohomish Land Use Code (Title 14)
- C. State of Washington Shoreline Management Act
- D. State and National Environmental Policy Acts
- E. City Design Standards-Washington State
- F. International Building Code
- G. International Electrical Code
- H. Uniform Plumbing Code
- I. International Mechanical Code
- J. International Fire Code
- K. WSDOT Design Manual
- L. WSDOT Traffic Manual
- M. WSDOT Utilities Manual
- N. WSDOT Construction Manual
- O. AWWA Standards
- P. Manual on Uniform Traffic Control Devices (MUTCD)
- Q. Washington State DOE Storm Water Management Manual (1992 version)
- R. Washington State DOE Criteria for Sewage Design
- S. Washington State Department of Health, Group A water systems

1-2.1 PRELIMINARY ENGINEERING REPORT

On large or complex projects, a preliminary engineering report and plan may be required by the City Engineer prior to preparation of final construction drawings. Generally a preliminary engineering report will be required when the proposed development is submitted to the City as a part of the requirement for pre application review (PAR) and demands a level of service higher than the current City infrastructure can provide. The report must identify and explain all potential complications with the proposed project and possible alternatives. Approval of these preliminary submittals shall constitute only a conceptual approval and shall not be construed as approval of specific design details.

1-2.2 QUALIFICATIONS OF PREPARERS OF ENGINEERING REPORTS, PLANS AND SPECIFICATIONS

Unless specified otherwise, all engineering plans and specifications prepared for the City or prepared for City approval shall be prepared by or under the direct supervision of a Professional Engineer registered and licensed to practice engineering in the State of Washington. All plans, specifications, and calculations must indicate this by being signed by the licensed engineer along with his or her registration number, seal, and expiration date.

1-3 AS-BUILT DRAWINGS

Prior to the acceptance of the work, the developer/contractor shall furnish the City Engineer one neatly and legibly marked set of reproducible, mylar drawings of significant permanent items showing any and all changes in the final locations of all items of work including, but not limited to finish elevations of building areas, curb and gutter, storm drain lines, water lines, sewer lines, catch basins, manholes, fire hydrants, valves, new and existing utilities and all other miscellaneous items included in the work. Marking of the drawings shall represent all changes, vertical and horizontal, and be done at the time the material and equipment is installed and inspected. These drawings shall be "wet stamped" and generated by the Project Engineer.

The City would require a computer file of the as-builts submitted in conjunction with the mylar. The computer file should be capable of being imported to AutoCAD™. Please refer to Section 1-10.1 of these Standards for information on plan format.

As-built drawings shall be required whether for private or public construction in accordance with the following:

Private Development

- A. Plats - Final plat approval shall be withheld until after the as-builts have been submitted and approved.
- B. Commercial - Final approval and installation of water meters will be withheld until the as-builts have been submitted and approved.

Public Construction

As-built drawings shall be considered an item on the contractor's punch list. Until all items on the punch list are completed, the project will not be sent to the City Council for approval. Final acceptance will be withheld until the as-built drawings are submitted and approved.

1-4 CITY PERFORMED WORK

When work is to be performed by the City for the developer, the city will provide all the material required for the said work. The cost for the material and the work performed shall be at the developer's expense. Any requests for City work should be scheduled at least one week in advance.

1-5 CONTROL OF NOISE

The city has established regulations for control of noise. For the purpose of regulating potentially disruptive or annoying noise, City of Snohomish Municipal Code Section 8.16.010 shall apply.

Under the City's Noise Ordinance, construction related noise has limitations during the hours before 7 a.m. and after 10 p.m. on weekdays and before 9 a.m. and after 10 p.m. on weekends and state recognized holidays. Due to citizen concerns about construction noise in neighborhoods, and given the city's intent to limit the occurrence of public disturbance noise, construction sites will be monitored and violators are subject to fines.

Construction contractors are responsible for notifying subcontractors of the City's noise regulations.

1-6 GUARANTEES

Performance and warranty guarantees will be required for all public works improvements, unless waived by the City Engineer. Work to be performed by any state agency or unit of local government shall be exempt from providing guarantees based on Chapter 35A.21.250 R.C.W.

Acceptable methods of guarantees will be as follows:

- A. Bond
- B. Assignment of Funds (Performance)
- C. Set-aside Letter (Warranty)
- D. Cash Deposit

Standard documents as approved by the city for the above items are available from the Public Works Department.

1-6.1 PERFORMANCE

Performance guarantees will be required for all improvements located in the public rights-of-way and as required by City ordinance as detailed on the approved plans and as noted in the following summary:

| <u>Street/Alley</u> | <u>Drainage (private)</u> | <u>Utilities (public)</u> |
|--|--|--|
| Estimated cost plus 50%; construct improvements prior to building permit issuance; for a plat construct all improvements prior to final plat approval. | For properties one acre or more with drainage abatement facilities, estimated cost plus 50%. | Estimated cost plus 50%; construct improvements prior to occupancy; for a plat construct prior to final plat approval. |

The initial guarantee and subsequent extensions as approved will be limited to one year increments. If time extensions are approved, the guarantee amount shall be revised to reflect inflation and/or other cost impacts.

The developer shall provide an estimate, prepared by a licensed engineer, of the improvements based on the approved plans. The estimate shall be itemized by description, quantities, and costs. The submitted data will be reviewed by public works for adequacy of quantities and comprehensiveness of estimates. The estimate shall be reviewed to reflect the City's cost to complete the improvements.

1-6.2 WARRANTY

Warranty guarantees shall be required at the time of final acceptance of the public improvements and/or improvements required by City ordinance. The guarantee amount will be 15% of the documented final cost of the improvements in accordance with SMC 14.215.080. The warranty guarantee is required prior to release of the performance guarantee. Methods of posting warranty guarantee shall be the same as for performance guarantee and shall be for the lengths of time as listed below:

Street/Alley

Drainage (private)

Utilities (public)

One Year

One Year
(will be extended for
one year if City elects to assume maintenance)

One Year

1-7 PERMITS

A Right-of-Way Disturbance permit is required for all work within the public right-of-way and City utility easements, and for all sewer, water, and drainage improvements, including fill and excavation, parking lot construction, and/or paving on private property.

The approved applicant’s copy of the public works permit, together with a set of plans approved by the City Engineer shall be available on the job site whenever work is being done on any portion of the project.

Any questions regarding information about permits and the approved prices should be directed to the Permitting Coordinator’s Office at City Hall at 116 Union Avenue in Snohomish, WA 98290.

1-8 LEGAL RELATIONS AND RESPONSIBILITIES

The contractor, at all times, shall comply with all Federal and State laws, local laws and ordinances, and any regulations which in any manner affect the project.

The contractor shall release, indemnify and promise to defend and save harmless the City, its officers, employees, and agents from and against any and all liability, loss, damage, expense, actions and claims, including costs and reasonable attorneys fees incurred by the City in defense thereof, asserting or arising directly or indirectly on account of any violation of laws, ordinances, or regulations whether such violations are by the contractor, his subcontractors, his employees, or his agents. A Contractor’s Bill of Sale (release of interest) shall be signed, notarized, and submitted to the City prior to the acceptance of all utilities and infrastructure to be dedicated to the City of Snohomish.

1-9 MODIFICATIONS OF STANDARDS

Modifications from these Standards may be granted by the City Engineer upon evidence that such modifications 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 modifications must be applied for by Deviations from Standards form submittal and approved prior to construction.

1-10 PLAN REVIEW AND REQUIREMENTS

The Public Works Department has established basic standards for improvement plans so plan checking can be processed efficiently. See each section for specific requirements over and above the following standards. Plans must meet these standards before they will be accepted. Requirements for plans will be divided into two general categories.

| | | |
|-----|--|------|
| 3. | Asphalt Concrete Pavement (Alley) | S.Y. |
| 4. | Cement Concrete Pavement (Alley) | S.Y. |
| 5. | Cement Concrete Curb and Gutter-Type "A-1" | L.F. |
| 6. | Cement Concrete Sidewalk | S.F. |
| 7. | Cement Concrete Driveway Approaches | S.F. |
| 8. | Ductile Iron Water Main (Size) | L.F. |
| 9. | Gate Valves (Size) | EA. |
| 10. | Butterfly Valves (Size) | EA. |
| 11. | Concrete or PVC Sewer Main (Size) | L.F. |
| 12. | Concrete or PVC Side Sewer (Size) | L.F. |
| 13. | Sewer Manholes (Type) | EA. |
| 14. | Concrete Storm Drain Pipe (Size) | L.F. |
| 15. | Catch Basins (Type) | EA. |
| 16. | Traffic Regulatory Signs (Type) | EA. |
| 17. | Street Name Signs | EA. |
| 18. | Fire Hydrant Assemblies | EA. |
| 19. | Water Main Blow-Offs | EA. |
| 20. | Borrow Backfill | CY. |

I. A "Driveway Schedule" which lists all of the driveways, both residential and commercial, being constructed and shall include the following information pertaining to each driveway, in tabular form:

1. Location of driveway
2. Surface type
3. Width
4. Profile grade (may require separate sketch)
5. Length

1-10.2 REQUIRED DRAWINGS

The following plans for public works improvements and utilities shall be prepared:

- A. Erosion Control and Grading Plan
- B. Street Improvements*
- C. Storm Drain or Drainage Plan (Drainage and Street Plans may be combined together)
- D. Sanitary Sewer Plan
- E. Water System Plan
- F. Landscaping Plan

* A separate cross section plan sheet is required for all street construction. Distance between stations shall be determined by the City Engineer based on site topography. Generally, cross sections shall be shown at 25 foot intervals for reconstruction and 50 foot intervals for new construction. Cross sections shall show the entire right of way width, with existing grade and features as well as improvements shown. For reconstruction and pavement widening, crown slopes shall be as directed by the City Engineer. In no case shall crown slopes be less than one percent nor more than four percent. The designed centerline shall be approved by the City Engineer.

For most minor projects, all of the above required sheets may be condensed into one plan sheet. If an extension or either a sewer main, water main, or storm drain main is required, a separate sheet will be required for that work.

1-10.3 SCALE OF DRAWINGS

All plans are to be drawn utilizing an engineer's scale.

The acceptable scale for public works improvement plans shall be 1"=40' for plan view (horizontal) and 1"=5' for profile view (vertical). A larger scale of 1"=20' for the plan view may be used on smaller projects and street improvements within the right-of-way when greater clarity can be attained.

1-10.4 SIZE OF DRAWINGS

- A. Minor Projects: Plans must be drawn or printed on paper that is relatively heavy, such as blueprint quality or standard drafting paper. Plans drawn on tissue paper, poster board or cardboard will not be accepted. The minimum acceptable size is to be 8-1/2"x11", with the maximum acceptable size being 24"x36".
- B. Major Projects: Plans must be drawn on polyester drafting film. Plans shall 24"x36" and shall be done in permanent ink.

1-10.5.1 TYPICAL NOTES

All construction drawing sets shall have a set of City of Snohomish standard construction notes as applicable to the project included on the appropriate sheets. These notes are available from the Engineering Division in various formats. See drawing plate 102 as an example of specifics.

1-11 PROTECTION OF PROPERTY AND UTILITIES

1-11.1 PROPERTY

The contractor shall protect and preserve from damage, interference, and destruction all private and public property on or in the vicinity of the work. If such property is damaged or destroyed or its use interfered with by the contractor or his agents, it shall be restored immediately to its former condition by the contractor at his expense and such interference terminated.

1-11.2 UTILITIES

The contractor shall protect from damage private and public utilities, including telephone and telegraph lines, power lines, sewer and water lines, railroad tracks and appurtenances, highway lighting and signal systems, and similar facilities. Before beginning any excavation, the contractor shall provide notice of commencement to all owners of underground facilities through the one number locator service, phone number 1-800-424-5555, if available; if not, he shall give notice to all individual utility owners. Such notice shall be not less than two or more than ten business days before the scheduled date of excavation.

1-12 SITE MAINTENANCE

The developer and contractor shall schedule and control his work so as to prevent all hazards to public safety, health, and welfare.

Streets shall be kept free of dirt and debris on a continuous basis.

Pedestrian facilities shall be kept free of obstruction, and continuity shall be maintained at all times unless otherwise approved by the Public Works Department.

On existing streets, two-way traffic shall be maintained at all times unless detour plans have been approved in advance by the City Traffic Engineer.

Pedestrian and vehicular access to occupied buildings shall be maintained at all times except where approval from the building owner has been obtained.

Stop Work Orders shall be posted where maintenance issues are neglected or ignored. Such orders will be left in place until the site is brought up to above standards.

1-13 TRAFFIC CONTROL

1-13.1 GENERAL Standard drawings for this section should be attached to this section

Traffic control for all projects shall comply with Chapter 6 of Manual on Uniform Traffic Control Devices (MUTCD). The contractor shall be responsible to furnish and maintain all required labor and materials as needed to the satisfaction of the City Engineer.

The contractor shall conduct his operations as to offer the least possible obstruction and inconvenience to the public, and he shall have under construction no greater length or amount of work than he can prosecute properly with regard to the rights of the public. He shall not open up sections of the work and leave them unfinished, but he shall finish the work as he goes insofar as practicable.

Unless otherwise approved in writing by the City Engineer, all public traffic shall be permitted to pass through the work with as little inconvenience and delay as possible. The contractor shall keep existing roads and streets adjacent to or within the limits of the project open to and maintained in a good and safe condition for traffic at all times. The contractor shall remove any deposits or debris and shall repair any damage resulting from his operations. Construction shall be conducted so as to cause as little inconvenience as possible to abutting property owners. Convenient access to driveways, houses, and buildings along the line of work shall be maintained.

1-13.2 DETOURS AND ROAD CLOSURES

Approval must be received from the City Traffic Engineer for all detours and road closures. A formal traffic control plan complying with the MUTCD shall be submitted to public works for review and approval by the traffic engineer prior to any work proceeding. A 72-hour notice shall be given to all emergency services and transportation agencies prior to closure.

1-13.3 FLAGGERS, BARRICADES, AND SIGNS

Flagger(s), barricades, and signs shall conform to the Standards established in the latest edition of the MUTCD. Standard Plan Numbers 103a through 103c show typical traffic control conditions. Standard Plan Number 104 shows typical traffic control devices. The contractor shall submit a traffic control plan prepared by a certified traffic Engineer showing the necessary construction signing, barricades, and flagger(s) required for the project to the public works for approval by the City Engineer 72 hours in advance of the time the signing and barricades will be required. All equipment and materials required for traffic control shall be furnished, installed, and maintained by the contractor to the satisfaction of the City Engineer.

1-13.4.1 CONSTRUCTION TRUCK ROUTES

The applicant shall submit a proposed route for review and approval by the City Engineer for all heavy hauling associated with any proposed construction activity. Routes shall consist of City of Snohomish arterials and adhere to City Truck Route SMC 12.12.170 to the greatest extent possible.

1-14 CONTROL AND INSPECTION

1-14.1 GENERAL

Work performed in construction or improvements within the City, whether by a private developer, a City contractor or City forces, shall be done in accordance with the approved plans and specifications and to the satisfaction of the City Engineer.

No work may be started until such plans are approved. Any revision to such plans shall be approved by the City Engineer prior to performance of the work.

The City Engineer will have authority to enforce these Standards as well as other referenced or pertinent specifications and will appoint project engineers, assistants, and inspectors as necessary to inspect the work for compliance.

1-14.2 MATERIALS SAMPLING & TESTING

1-14.2(1) DEVELOPMENTS

It shall be the responsibility of the developer to provide test reports certified by a professional engineer licensed in the State of Washington to verify compliance of materials used in the project (per WSDOT Standards). Sampling and/or testing shall be at a frequency and magnitude determined by the City Engineer in accordance with the WSDOT Construction Manual. Copies of all test reports shall be furnished to the City Engineer. All costs incurred for testing or sampling, as required, shall be the responsibility of the developer.

1-14.2(2) CITY FORCES & CITY CONTRACTORS

Construction work performed by City forces and City contractors shall be inspected by City inspectors. Sampling and testing shall be performed by City inspectors or by a professional laboratory.

1-14.2(3) NOTIFICATION OF INSPECTION

The developer shall notify the city of inspection needs in a timely manner. In general, a minimum of 24-hours advance notice will be required. Failure to notify in time may oblige the City to arrange appropriate sampling and testing after-the-fact, with certification by a qualified private testing laboratory. Costs of such testing and certification shall be borne by the developer.

1-15 ASBESTOS CONTROL

Asbestos containing material (ACM) may be encountered during a construction project in the form of asbestos cement pipe, pipe insulation, or as insulation in a structure that is being demolished. It can be found in pipe for water and sewer mains, electrical conduits, drainage pipe, and vent pipes, etc. Normal breakage and crushing of the material can cause an asbestos fiber release which presents a serious respiratory hazard. It is imperative that asbestos fiber release be controlled. Citations, by regulatory agencies, for an asbestos fiber release carry substantial fines.

Only employees certified by the State of Washington as a Certified Asbestos Worker may work on ACM during construction, demolition, repair, maintenance, renovation, salvage, or disposal of ACM.

The contractor shall have all asbestos removed from the site and property disposed of by a State licensed asbestos contractor in accordance with the practices specified by the State of Washington Department of Ecology, the Snohomish County Solid Waste Division, and all other pertinent State and Federal Regulations. See WAC 296-62-077.

1-16 LANDSCAPING

The development of landscaping and erosion control is to conform to the basic concepts and principles set forth in the City of Snohomish Land Use Code. Landscaping shall be required on all projects to provide visual orientation for traffic safety; to create physical delineation of parking areas and to furnish definition and scale of the entire complex by interval plantings and to insure the preservation of land values by creating an environmental quality which compliments the objectives of the respective land uses in any zone. A copy of the Land Use Code is available for review at the Permit Coordinator's office in City Hall, 116 Union Avenue in Snohomish, WA 98290.

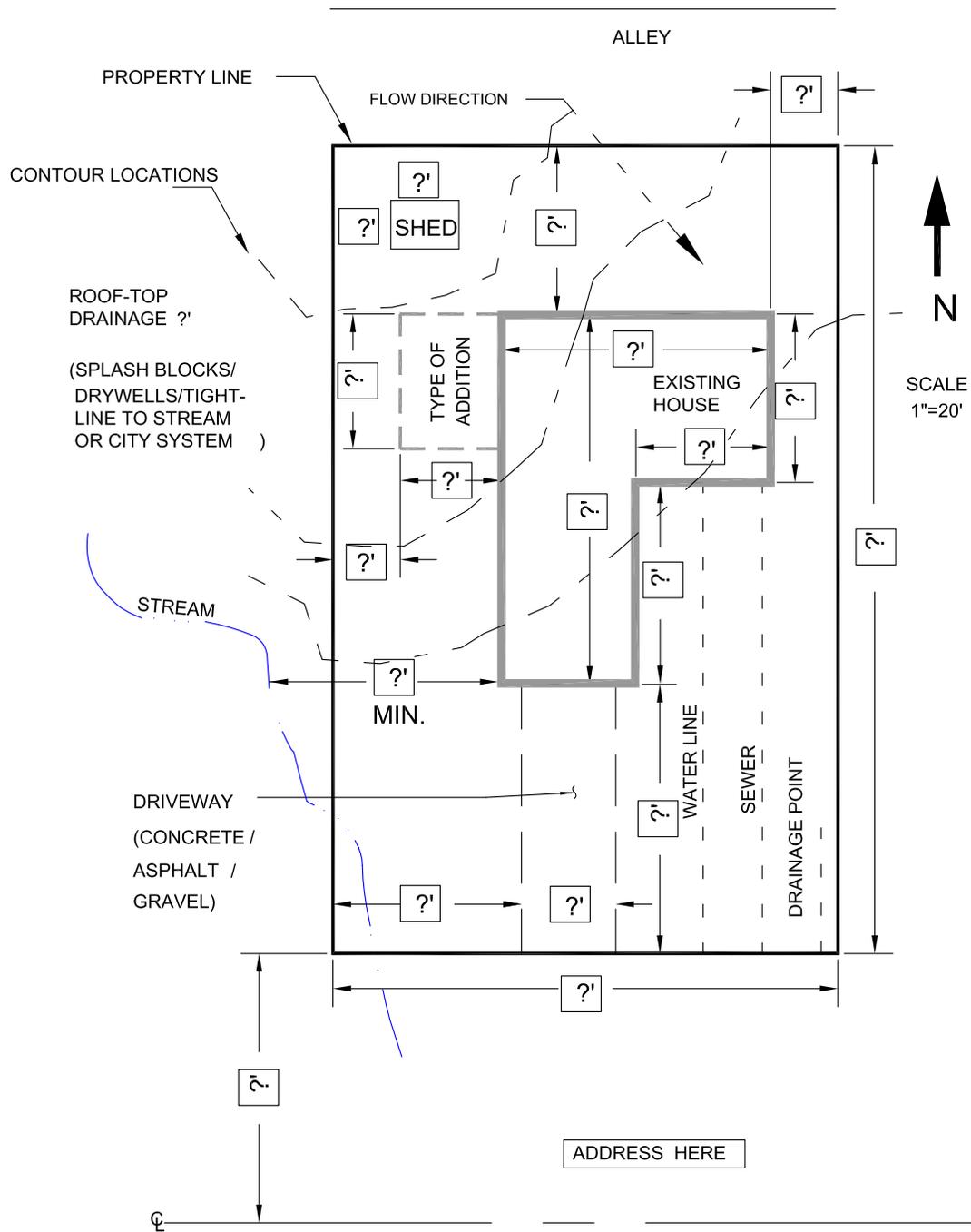
DRAWING INDEX

GENERAL CONSIDERATIONS

Last Revision Date

| | | |
|------|---|---------|
| 101 | Sample Site Plan..... | 4-01-04 |
| 102 | Typical Construction Notes..... | 4-01-04 |
| 103a | Traffic Control Plan - 2 lanes, one lane closed..... | 4-01-04 |
| 103b | Traffic Control Plan - 2 lane, partial lane closure..... | 4-01-04 |
| 103c | Traffic Control Plan - 2 way left turn lane closure | 4-01-04 |
| 104 | Traffic Control Devices | 4-01-04 |

PROVIDE LEGAL DESCRIPTION
AND TAX ID NUMBER



LOT SIZE: SQ. FT. ?'

?' SUPPLY INFORMATION



SAMPLE SITE PLAN

Approved By:
[Signature]
City Engineer
Date: May 30, 2004

101
Number

City of Snohomish Public Works Department

T.E.S.C. NOTES

1. THE TEMPORARY EROSION CONTROL SYSTEM SHALL BE INSTALLED PRIOR TO ALL OTHER CONSTRUCTION.
2. WHERE POSSIBLE NATURAL VEGETATION WILL BE MAINTAINED FOR SILT CONTROL.
3. AS CONSTRUCTION PROGRESSES AND SEASONAL CONDITIONS DICTATE, THE EROSION CONTROL FACILITIES SHALL BE MAINTAINED AND/OR ALTERED AS REQUIRED BY THE CITY ENGINEER TO ENSURE CONTINUING EROSION/ SEDIMENTATION CONTROL.
4. TEMPORARY SILTATION PONDS AND ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CONSTRUCTION IS COMPLETED. PERMANENT DRAINAGE FACILITIES ARE OPERATIONAL, VEGETATION HAS BEEN ESTABLISHED, AND THE POTENTIAL FOR EROSION HAS PASSED.
5. ALL DISTURBED LAND AREAS THAT WILL BE LEFT FOR 30 DAYS OR MORE DURING THE PERIODS OF MARCH 1 TO MAY 15 AND AUGUST 15 TO OCTOBER 1 SHALL BE IMMEDIATELY SEEDED WITH A MIX AND BY A METHOD APPROVED BY THE CITY OF SNOHOMISH PUBLIC WORKS DIRECTOR AND MAINTAINED UNTIL SEED GERMINATION IS ASSURED. IN ADDITION TO SEEDING, SLOPES OF 25% OR GREATER WILL BE MULCHED WITH 2.0 TONS OF STRAW PER ACRE, OR WITH AN APPROVED EQUAL. STOCKPILED MATERIALS SHALL BE COVERED WITH AN IMPERMEABLE MEMBRANE AND SECURED TO HOLD IT IN PLACE. DURING THE REST OF THE YEAR, TEMPORARY SOIL STABILIZATION MUST BE APPLIED IMMEDIATELY TO DISTURBED AREAS THAT WILL BE EXPOSED FOR 7 DAYS OR MORE, AND IMMEDIATELY TO SLOPES GREATER THAN 25% THAT WILL BE LEFT EXPOSED FOR 3 DAYS OR MORE.
6. THE PUBLIC RIGHT-OF-WAY SHALL BE KEPT CLEAN. TRACKING OF MUD AND DEBRIS FROM THE SITE WILL NOT BE ALLOWED. FAILURE TO COMPLY WITH THIS CONDITION WILL RESULT IN ALL WORK ON THE SITE BEING STOPPED.
7. PROVIDE AND MAINTAIN TEMPORARY SEDIMENTATION COLLECTION FACILITIES TO ENSURE SEDIMENT OR OTHER HAZARDOUS MATERIALS DO NOT ENTER THE STORM DRAINAGE SYSTEM. AS CONSTRUCTION PROGRESSES AND UNEXPECTED SEASONAL CONDITIONS DICTATE, MORE EROSION CONTROL FACILITIES MAY BE REQUIRED TO ENSURE COMPLETE SILTATION CONTROL ON THE PROJECT. DURING THE COURSE OF CONSTRUCTION, IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE PERMITTEE OR CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES, OVER AND ABOVE MINIMUM REQUIREMENTS, AS MAY BE NEEDED TO ENSURE COMPLIANCE.

CONSTRUCTION SEQUENCE

1. ATTEND PRE-CONSTRUCTION MEETING WITH THE CITY OF SNOHOMISH.
2. CALL 1-800-424-5555 FOR UNDERGROUND LOCATES
3. INSTALL T.E.S.C. MEASURES, FLAG OR FENCE CLEARING LIMITS T.E.S.C. MEASURES SHALL BE MAINTAINED UNTIL FINAL GRADING, PAVING AND HYDROSEEDING
4. DEMO EXISTING PAVEMENT AND PERFORM ROUGH GRADING AS SHOWN ON THE PLANS, INCLUDING OFFSITE DITCH IMPROVEMENTS. STABILIZE EXPOSED GROUND WITH SUITABLE GROUND COVER, PLACE ROCK CHECK DAMS IN DITCH.
5. INSTALL UTILITIES, INCLUDING STORM DRAINAGE, SANITARY SEWER, WATER, POWER, GAS, ETC.
6. PERFORM FINAL GRADING, PAVING AND SURFACING IMPROVEMENTS.
7. HYDROSEED AND MULCH ALL EXPOSED AREAS.
8. SWEEP AND CLEAN ALL PAVED AREAS, THEN CLEAN THE STORM SYSTEM.
9. REMOVE ALL CLEARING LIMITS AND TEMPORARY EROSION/SEDIMENTATION CONTROL FACILITIES ONLY AFTER EXPOSED AREAS ON SITE ARE STABILIZED.
10. CALL FOR FINAL INSPECTION OF FACILITIES.

GENERAL NOTES

1. ALL SITE GRADE WORK MUST COMPLY WITH CHAPTER 33 OF THE UNIFORM BUILDING CODE (1997 EDITION), CITY OF SNOHOMISH PUBLIC WORKS DESIGN AND CONSTRUCTION STANDARDS, AND/OR WSDOT/APWA STANDARDS AS SPECIFICATIONS APPLY.
2. IF CUT OR FILL SLOPES EXCEED A MAXIMUM OF TWO FEET HORIZONTAL TO ONE FOOT VERTICAL, A ROCK OR CONCRETE RETAINING WALL MAY BE REQUIRED. ALL ROCK RETAINING WALLS GREATER THAN FOUR (4) FEET IN HEIGHT ARE TO FOLLOW CITY SPECIFICATIONS AND TO BE DESIGNED AND CERTIFIED BY A CIVIL ENGINEER EXPERIENCED IN SOILS MECHANICS.
3. PUBLIC STREETS ARE TO BE KEPT CLEAR OF DIRT AND DEBRIS DURING EXCAVATIONS AND FILL OPERATIONS.
4. THE SITE SOILS ARE GENERALLY CONSIDERED MODERATELY SENSITIVE AND AS SUCH ARE SUSCEPTIBLE TO DISTURBANCE BY CONSTRUCTION EQUIPMENT. PARTICULARLY DURING PERIODS OF WET WEATHER, THE GRADING CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO LIMIT SURFACE DISTURBANCE AND PROTECT THE SITE GRADING AREA FROM EXCESSIVE RUNOFF EROSION.
5. AREAS TO RECEIVE FILL SHALL BE CLEARED OF ALL VEGETATION AND DELETERIOUS MATTER.
6. AREAS TO RECEIVE FILL SHALL BE PROOFROLLED. ALL LOOSE AND SOFT AREAS SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL. FILLS PLACED ON SLOPES SHALL BE BENCHED OR KEYS INTO THE EXISTING GROUND.
7. ALL FILL MATERIALS USED SHALL BE FREE OF VEGETATION AND DELETERIOUS MATTER AND SHALL NOT CONTAIN ROCKS GREATER THAN SIX INCHES IN DIAMETER.
8. STRUCTURAL FILLS SHALL BE PLACED IN MAXIMUM 8" TO 10" THICK LOOSE HORIZONTAL LIFTS AND SPREAD UNIFORMLY.
9. THE SURFACE OF ALL SLOPES SHALL BE COMPACTED BY THE END OF EACH WORK DAY.
10. STOCKPILES ARE TO BE LOCATED IN SAFE AREAS AND ADEQUATELY PROTECTED BY TEMPORARY SEEDING AND MULCHING. HYDROSEEDING IS PREFERRED.
11. PRIOR TO ANY SITE CONSTRUCTION TO INCLUDE CLEARING, LOGGING OR GRADING THE SITELOT CLEARING LIMITS SHALL BE LOCATED AND FIELD IDENTIFIED BY THE PROJECT SURVEYOR/ENGINEER AS REQUIRED BY THESE PLANS. THE PROJECT SURVEYOR/ENGINEER'S NAME AND TELEPHONE NUMBER ARE SHOWN ON THE PLANS.
12. THE TEMPORARY EROSION/SEDIMENTATION CONTROL FACILITY SHALL BE CONSTRUCTED PRIOR TO ANY GRADING OR EXTENSIVE LAND CLEARING IN ACCORDANCE WITH THE APPROVED TEMPORARY EROSION/SEDIMENTATION CONTROL PLAN. THESE FACILITIES MUST BE SATISFACTORILY MAINTAINED UNTIL CONSTRUCTION AND LANDSCAPING IS COMPLETED AND THE POTENTIAL FOR ON-SITE EROSION HAS PASSED.
13. IMMEDIATELY FOLLOWING FINISH GRADING, PERMANENT VEGETATION (CONSISTING OF RAPID, PERSISTENT AND LEGUME) WILL BE APPLIED (MINIMUM 80# PER ACRE). THIS IS TO INCLUDE THE FOLLOWING: 20% ANNUAL, PERENNIAL OR HYBRID RYE GRASS, 40% CREEPING RED FESCUE, 40% WHITE CLOVER.
14. FERTILIZER SHALL BE APPLIED AT 400# PER ACRE OF 10-20-20 (10# PER 1000 SQUARE FEET) OR EQUIVALENT.
15. A COPY OF THE APPROVED PLANS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. IT SHALL BE THE RESPONSIBILITY OF THE PERMITTEE TO OBTAIN ANY OTHER RELATED OR REQUIRED PERMITS PRIOR TO BEGINNING OF CONSTRUCTION.
16. SUBMITTAL OF REPRODUCIBLE AS-BUILT PLANS IS REQUIRED PRIOR TO APPROVAL OF ANY CERTIFICATE OF OCCUPANCY, OR ACCEPTANCE OF CONSTRUCTION IMPROVEMENTS.
17. ALL LOCATIONS OF EXISTING UTILITIES SHOWN HEREON SHOULD BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN, AND TO FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN.
18. THE CITY OF SNOHOMISH ENGINEERING DIVISION MUST BE NOTIFIED AT LEAST 24 HOURS PRIOR TO COMMENCING CONSTRUCTION.

SANITARY SEWER NOTES:

1. SANITARY SEWER PIPE TO BE PVC CONFORMING WITH ASTM D-3034, SDR 35. PIPE BEDDING TO BE CLASS B WITH ONE FOOT OF SAND OR PEA GRAVEL ABOVE PIPE.
2. 18" VERTICAL SEPARATION BETWEEN STANDARD WATER AND SEWER LINES IS REQUIRED. WHENEVER SEPARATION IS FROM 12" TO 17", C-900 PVC OR CL. 52 DUCTILE IRON SEWER PIPE MUST BE UTILIZED.
3. ALL SIDE SEWERS SHALL BE MINIMUM 6" DIAMETER PIPE AT A MINIMUM 2% SLOPE. SEWER STUBS SHALL BE EXTENDED 10 FEET INTO PROPERTY.
4. ALL SIDE SEWERS SHALL BE CAPPED WITH A WATERTIGHT PLUG AND SHALL BE MARKED FOR LOCATION WITH A 2"x4" BOARD, PAINTED WHITE, MARKED "SEWER" AND NOTING THE DEPTH OF THE STUB. 20 GAUGE LOCATOR WIRE SHALL BE USED AND EXTEND TO TOP OF MARKER BOARD.
5. ALL TESTING AND CONNECTIONS TO EXISTING MAINS SHALL BE DONE IN THE PRESENCE OF A REPRESENTATIVE FROM THE CITY OF SNOHOMISH.
6. ALL TRENCHES SHALL BE COMPACTED PRIOR TO TESTING SEWER LINES FOR ACCEPTANCE.
7. SIDE SEWERS SHALL BE PRESSURE TESTED AT THE SAME TIME THE MAIN LINE IS TESTED.
8. ALL SEWER MAIN EXTENSION WITHIN THE PUBLIC RIGHT-OF-WAY OR IN EASEMENTS MUST BE STAKED BY SURVEYOR FOR LINE AND GRADE PRIOR TO STARTING CONSTRUCTION.
9. THE CONTRACTOR SHALL MAINTAIN 10 FEET HORIZONTAL SEPARATION BETWEEN WATER LINE AND SEWER MAIN LINE.
10. MINIMUM COVER OVER SEWER LINES IS FIVE FEET UNLESS APPROVED BY CITY ENGINEER.
11. WHEN REQUIRED, THE PROJECT ENGINEER SHALL PREPARE A WSDOE "DECLARATION OF CONSTRUCTION" FOR SUBMITTAL TO THE DEPARTMENT OF ECOLOGY WHEN ALL CONSTRUCTION IS COMPLETE.
12. ALL SEWER PIPE SHALL BE PLACED ON STABLE EARTH, OR IF IN THE OPINION OF THE CITY INSPECTOR, THE EXISTING FOUNDATION IS UNSATISFACTORY, THEN IT SHALL BE EXCAVATED BELOW GRADE AND BACKFILLED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. PIPE SHALL NOT BE PLACED ON SOD, FROZEN EARTH OR LARGE BOLDERS OR ROCK. SEWER BEDDING SHALL BE CONSTRUCTED TO SMOOTH PROPER GRADE AND SHALL PROVIDE UNYIELDING CONTINUOUS SUPPORT FOR THE PIPE.

STORM DRAINAGE NOTES

1. ALL WORK SHALL CONFORM TO THE CURRENT EDITION OF THE CITY OF SNOHOMISH PUBLIC WORKS DESIGN AND CONSTRUCTION STANDARDS.
2. A COPY OF THE APPROVED PLANS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. IT SHALL BE THE RESPONSIBILITY OF THE PERMITTEE TO OBTAIN ANY OTHER RELATED OR REQUIRED PERMITS PRIOR TO BEGINNING OF CONSTRUCTION.
3. SUBMITTAL OF REPRODUCIBLE AS-BUILT PLANS IS REQUIRED PRIOR TO APPROVAL OF ANY CERTIFICATE OF OCCUPANCY, OR ACCEPTANCE OF CONSTRUCTION IMPROVEMENTS.
4. ALL STRUCTURE LADDERS SHALL BE FIRMLY ATTACHED AND EXTEND TO THE BOTTOM OF THE STRUCTURE.
5. BEDDING MATERIAL SHALL BE PEA GRAVEL OR AS OTHERWISE APPROVED BY THE CITY ENGINEER. BEDDING SHALL BE A MINIMUM OF TWELVE (12) INCHES THICKNESS SURROUNDING THE PIPE TO SPRING LINE.
6. TRENCH BACKFILL SHALL BE DEPOSITED EVENLY ON BOTH SIDES OF THE PIPE IN TAMPED LAYERS NOT EXCEEDING SIX (6) INCHES IN DEPTH UNTIL THE TOP OF THE PIPE. ALL TRENCH BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY PER ASTM D1557-70.
7. NO PART OF THE DRAINAGE SYSTEM SHALL BE COVERED, CONCEALED OR PUT INTO USE UNTIL IT HAS BEEN TESTED, INSPECTED, AND ACCEPTED BY THE CITY.
8. ALL STORM DRAIN WORK MUST BE STAKED BY A LICENSED SURVEYOR FOR "LINE AND GRADE" PRIOR TO STARTING CONSTRUCTION.
9. RIMS OF CATCH BASINS RECEIVING RUNOFF FROM GUTTERS SHALL BE FLUSH WITH GUTTERS.

WATER NOTES:

1. ALL FIRE HYDRANTS SHALL BE MUELLER CENTURION A-423 929. THE BODY IS PAINTED WITH TWO COATS OF FAR WEST YELLOW HYDRANT PAINT. INSTALL A BLUE REFLECTOR ONE FOOT OFF CENTERLINE TOWARDS HYDRANT. A MINIMUM CLEARANCE OF 3' SHALL BE MAINTAINED FROM ANY OBSTRUCTIONS. ALL FIRE HYDRANTS INSTALLED IN UNPAVED AREAS SHALL HAVE A 3'X3'x4" CONCRETE PAD PLACED AROUND THE BASE.
2. THE WATERMAIN SHALL BE INSTALLED ONLY AFTER THE ROADWAY SUBGRADE IS BACKFILLED, GRADED AND COMPACTED IN CUT AND FILL AREAS. THE ROAD CENTERLINE SHALL BE STAKED ALONG WITH THE PROPERTY LINES.
3. ALL WATER VALVES INSTALLED IN UNPAVED AREAS SHALL HAVE A 2' X 2' X 4" CONCRETE PAD PLACED AROUND THE VALVE BOX.
4. WHERE SHACKLE RESTRAINT IS REQUIRED, THE ROD SHALL BE 3/4" DIA. THE BOLT SHALL BE 3/4" STAR ANCHOR NATIONAL PRODUCTS. NO S117 OR EQUAL. RETAINER CLAMP ASSEMBLIES SHALL BE STAR NATIONAL PRODUCTS. NO S11 OR EQUAL. ALL PARTS ARE TO BE CAD-PLATED.
5. ALL FITTINGS SHALL BE BLOCKED UNLESS OTHERWISE SPECIFIED.
6. REFLECT THE WATERMAIN ABOVE OR BELOW EXISTING UTILITIES AS REQUIRED TO MAINTAIN 3 FT. MINIMUM COVER AND 18 IN. VERTICAL CLEARANCE BETWEEN UTILITIES UNLESS OTHERWISE SPECIFIED. THE WATERMAIN SHALL NOT BE JOINTED WITHIN 8' OF ALL CROSSINGS WITH LESS THAN 18" OF VERTICAL CLEARANCE. ALL CLEARANCES 8" AND LESS SHALL BE SEPARATED BY HDPE INERT FOAM BLOCKING OR APPROVED EQUAL.
7. AFTER DISINFECTING THE WATERMAIN, DISPOSE OF CHLORINATED WATER BY DISCHARGING TO THE NEAREST OPERATING SANITARY SEWER.
8. ALL PIPE AND FITTINGS NOT DISINFECTED IN PLACE SHALL BE SWABBED WITH 200 PPM CHLORINE SOLUTION PRIOR TO INSTALLATION.
9. IF THE INITIAL TAP OR EXTENSION REQUIRES SHUTTING DOWN AN EXISTING WATER MAIN, THE CITY MAY REQUIRE TWO WEEKS NOTIFICATION IN ORDER TO PLACE A PUBLIC NOTICE IN THE LOCAL PAPER. NO TAPS WILL BE ALLOWED ON MONDAY, FRIDAY, OR WEEKENDS. THE SNOHOMISH PUBLIC WORKS DEPARTMENT SHALL OPERATE ALL WATER VALVES IN RIGHT-OF-WAY.
10. CAST IRON FITTINGS SHALL BE USED IN ALL CASES WHERE THE DEFLECTION AT THE PIPE JOINTS EXCEEDS THREE DEGREES EXCEPT ON SWEEP RADII'S. THE INSPECTOR MAY ALLOW THE CONTRACTOR TO INSTALL NORMAL OR SHORT LENGTHS OF PIPE, PROVIDING THE MAXIMUM DEFLECTION PER JOINT SHALL NOT EXCEED THREE-FOURTHS THE MAXIMUM PERMISSIBLE DEFLECTION AS OUTLINED IN THE PIPE MANUFACTURER'S DATA. DEFLECTION OF JOINTS OF PVC PIPE IS NOT ALLOWED.
11. THE CONTRACTOR SHALL FLUSH, TEST, AND CHLORINATE THE LINES IN THE PRESENCE OF THE UTILITIES INSPECTOR. LINES SHALL BE PRESSURE TESTED AT 150 PSI PLUS EXISTING LINE PRESSURE (MIN 200 PSI) FOR 15 MINUTES. WATER SAMPLES WILL BE TAKEN BY THE PUBLIC WORKS DEPARTMENT. SERVICE WILL NOT BE AVAILABLE UNTIL THE TESTS ARE RETURNED SATISFACTORY.
12. WATER MAINS SHALL BE CLASS 52 DUCTILE IRON PIPE.
13. ALL FITTINGS AND MATERIALS REMOVED FROM EXISTING MAINS SHALL BE RETURNED TO THE UTILITIES DEPARTMENT.
14. FIRE HYDRANTS SHALL STAND PLUMB. BE SET TO THE ESTABLISHED GRADE WITH THE LOWEST OUTLET OF THE HYDRANT NO LESS THAN EIGHTEEN INCHES ABOVE GRADE.
15. ALL WET TAPS SHALL BE DONE BY AN APPROVED PRIVATE CONTRACTOR.
16. ALL GATE VALVES SHALL BE RESILIENT SEATED.
17. NO CONNECTION TO THE EXISTING MAINS WILL BE ALLOWED EXCEPT BY MEANS OF AN APPROVED BACKFLOW PREVENTION DEVICE PRIOR TO SATISFACTORY FLUSHING, TESTING, DISINFECTING, AND RECEIPT OF SATISFACTORY BACTERIOLOGICAL TEST RESULTS.
18. MAXIMUM DEPTH OF THE WATERLINE SHALL BE 5 FEET.

TRAFFIC CONTROL NOTES

1. CONSTRUCTION SIGNS AND DELINEATORS SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR.
2. ALL FLAGGERS ARE TO BE EQUIPPED WITH ORANGE SAFETY VESTS AND HEAD GEAR APPROPRIATE FOR FLAGGING TRAFFIC WITHIN THE PUBLIC RIGHT-OF-WAY RIGHT-OF-WAY AND SHALL HAVE VALID FLAGGING CARDS FROM THE DEPARTMENT OF LABOR AND INDUSTRIES.
3. AFTER WORK WITHIN THE TRAVELLED ROADWAY IS COMPLETED AT THE END OF EACH DAY, THE ROAD SHALL BE COMPLETELY OPEN TO TRAFFIC AND ALL EQUIPMENT SHALL BE OUT OF THE TRAVELLED ROADWAY. ANY EQUIPMENT OR CONSTRUCTION MATERIALS LEFT WITHIN THE PUBLIC RIGHT-OF-WAY SHALL HAVE LIGHTED TYPE II BARRICADES AROUND THEM. ALL NONAPPLICABLE SIGNS SHALL BE REMOVED, TURNED OR COVERED DAILY WHEN CONDITION NO LONGER EXISTS.
4. ACCESS BY EMERGENCY VEHICLES SHALL BE MAINTAINED AT ALL TIMES.
5. CONTRACTOR SHALL SUPPLY THE CITY OF SNOHOMISH WITH A TRAFFIC CONTROL PLAN FOR THEIR APPROVAL.

SIGNING NOTES

1. ALL SIGNING SHALL CONFORM TO THE MOST RECENT VERSION OF THE FEET MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. SIGNS WHICH ARE WIDER THAN 26 INCHES OR LARGER THAN 10 SQUARE SHOULD BE MOUNTED ON TWO POSTS.
3. WITHIN A CONSTRUCTION ZONE THERE MAY BE REGULATORY, WARNING, AND GUIDE SIGNS. WARNING SIGNS IN A CONSTRUCTION ZONE WILL BE ORANGE WITH BLACK CHARACTERS.
4. ALL SIGNS INTENDED FOR NIGHT USE SHOULD EITHER BE REFLECTORIZED OR ILLUMINATED. FOLLOWING IS A LIST OF SIGN NUMBERS AND MESSAGES. FOR A COMPLETE LIST OF SIGN MESSAGES AND NUMBERS REFER TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), PART IV. TRAFFIC CONTROLS FOR STREET AND HIGHWAY MAINTENANCE.



TYPICAL CONSTRUCTION NOTES (AS APPLIED BY PROJECT)

City of Snohomish Public Works Department

Approved By:

City Engineer

Date: May 30, 2004

102

Number



SEE NOTE 1

SEE NOTE 1

SEE NOTE 1



TABLE A

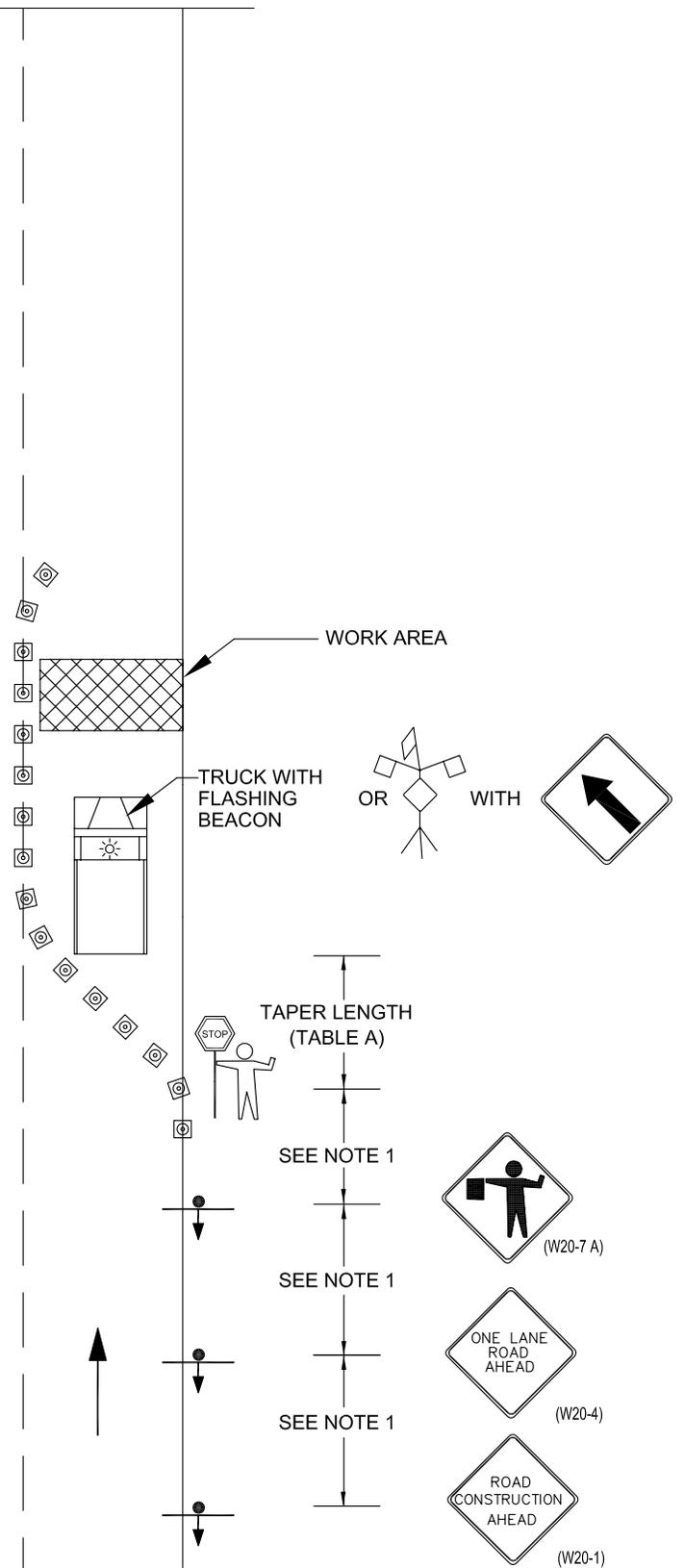
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|----------------|----------------------|-----|-------------------------------------|
| | OFFSET WIDTH | | |
| | 10' | 12' | |
| 25 | 105 | 125 | 25 |
| 30 | 150 | 180 | 30 |
| 35 | 205 | 245 | 35 |
| 40 | 270 | 320 | 40 |
| 45 | 450 | 540 | 45 |

NOTE:

1. DISTANCE BETWEEN SIGNS SHALL BE 100' FOR RESIDENTIAL STREETS (25 MPH), AND 200' FOR ARTERIAL ROADWAYS
2. FLASHING BEACON SHALL BE INSTALLED AT EACH SIGN FOR NIGHT-TIME USE.
3. DISTANCES MAY VARY AS APPROVED BY THE ENGINEER.
4. FLAGGERS REQUIRED TO CONTROL TRAFFIC WHENEVER THE CONTRACTOR MUST INTERRUPT TRAFFIC FLOW TO ACCESS THE WORK SITE WITH MATERIALS OR EQUIPMENT.
5. SIGN SIZE PER MUTCD.

LEGEND:

- ⊗ CONE OR CHANNELIZING DEVICE (SEE STANDARD DRAWING 104)



TRAFFIC CONTROL PLAN
2 LANE ROADWAY: ONE LANE CLOSED WITH
ALTERNATING ONE-WAY TRAFFIC AND FLAGGERS

Approved By:

City Engineer

Date: May 30, 2004

103a

Number

City of Snohomish Public Works Department



(W20-1)



(W5-1)

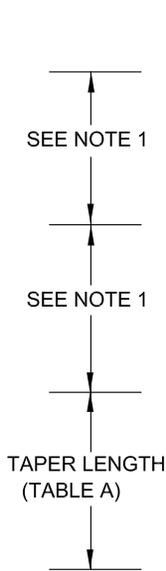


TABLE A

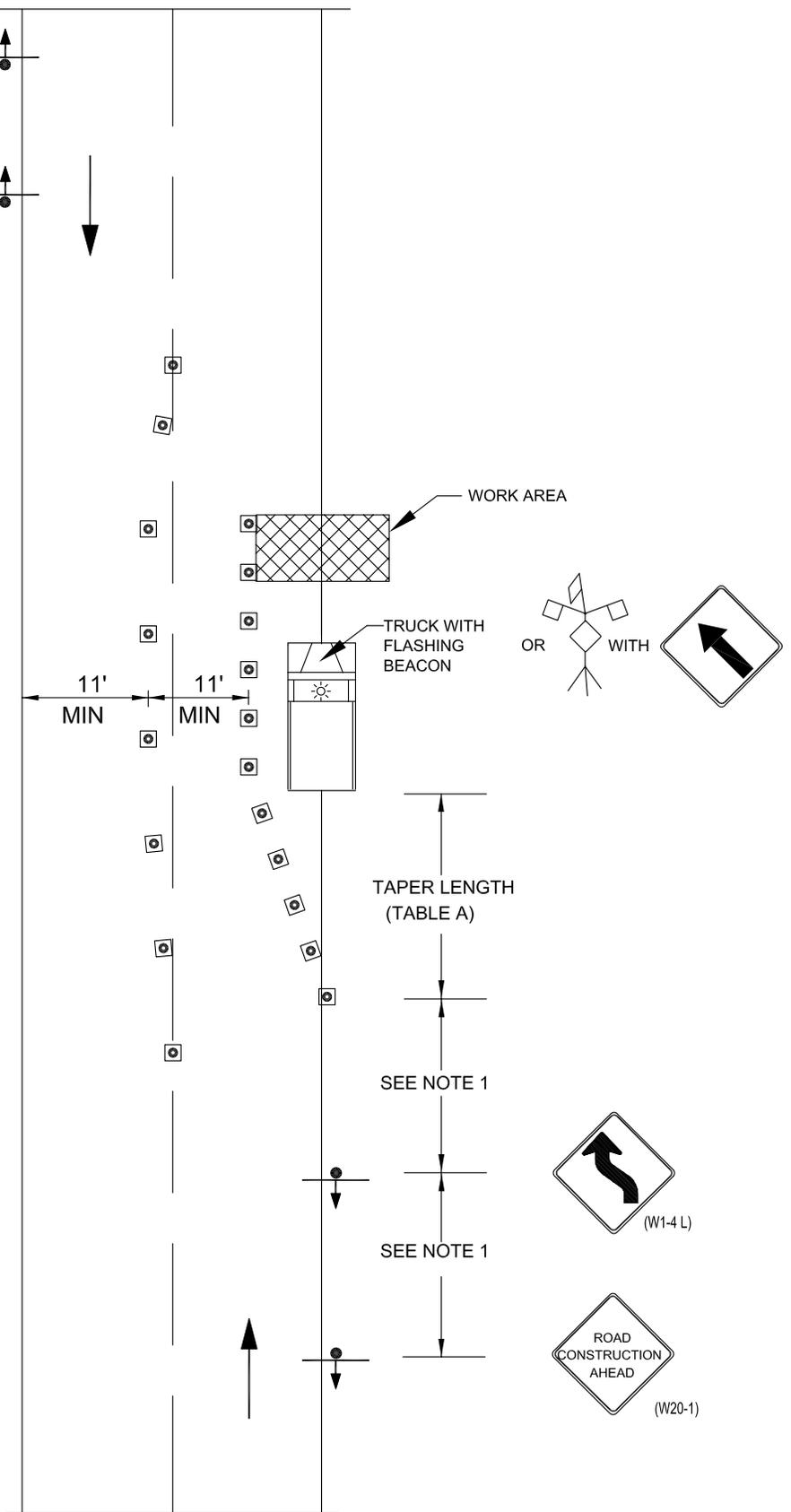
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|-------------|-------------------|-----|-------------------------------|
| | OFFSET WIDTH | | |
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5. SIGN SIZE PER MUTCD.

LEGEND:

- ◻ CONE OR CHANNELIZING DEVICE
(SEE STANDARD DRAWING 104)



TRAFFIC CONTROL PLAN

2 LANE ROADWAY: PARTIAL LANE CLOSURE

Approved By:

City Engineer

Date: May 30, 2004

103b

Number

City of Snohomish Public Works Department



(W 20-1)

WITH

WORK AREA

TRUCK WITH FLASHING BEACON

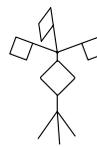
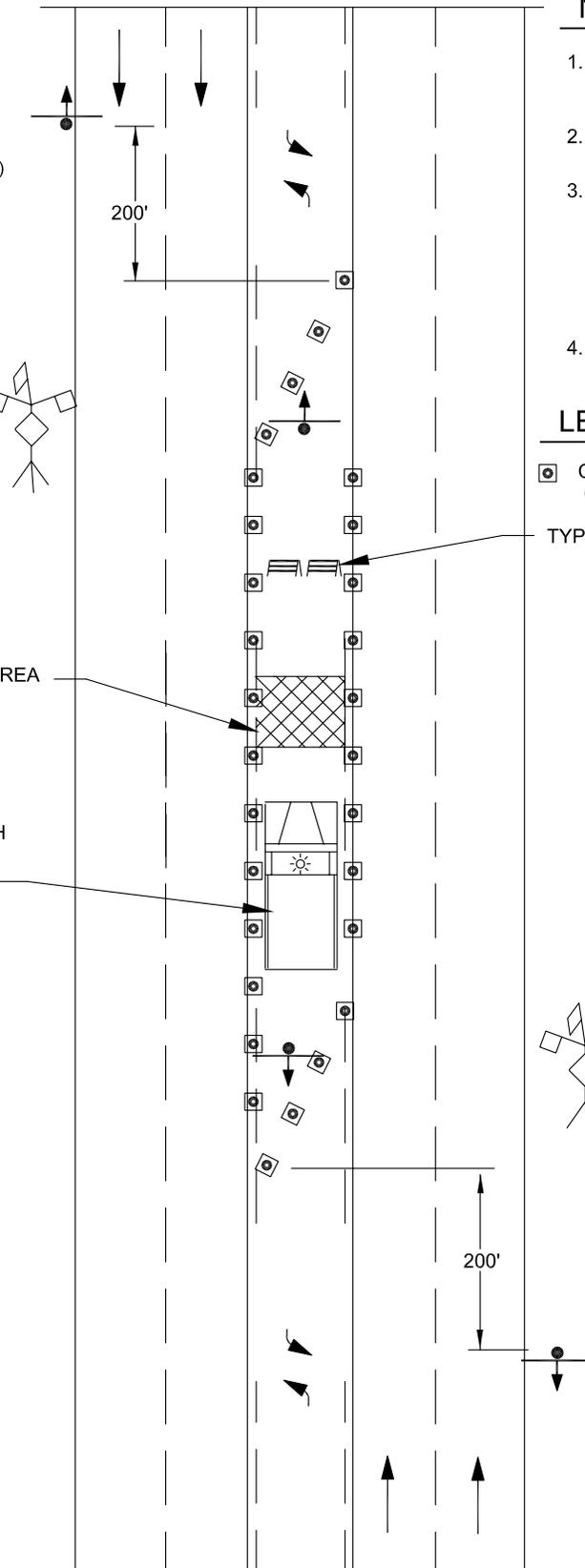
NOTE:

1. FLASHING BEACON SHALL BE INSTALLED AT EACH SIGN FOR NIGHT-TIME USE.
2. DISTANCES MAY VARY AS APPROVED BY THE ENGINEER.
3. FLAGGERS REQUIRED TO CONTROL TRAFFIC WHENEVER THE CONTRACTOR MUST INTERRUPT TRAFFIC FLOW TO ACCESS THE WORK SITE WITH MATERIALS OR EQUIPMENT.
4. SIGN SIZE PER MUTCD.

LEGEND:

☉ CONE OR CHANNELIZING DEVICE (SEE STANDARD DRAWING 104)

☐ TYPE 2 BARRICADES



WITH



(W 20-1)



TRAFFIC CONTROL PLAN TWO WAY LEFT TURN LANE CLOSURE

City of Snohomish Public Works Department

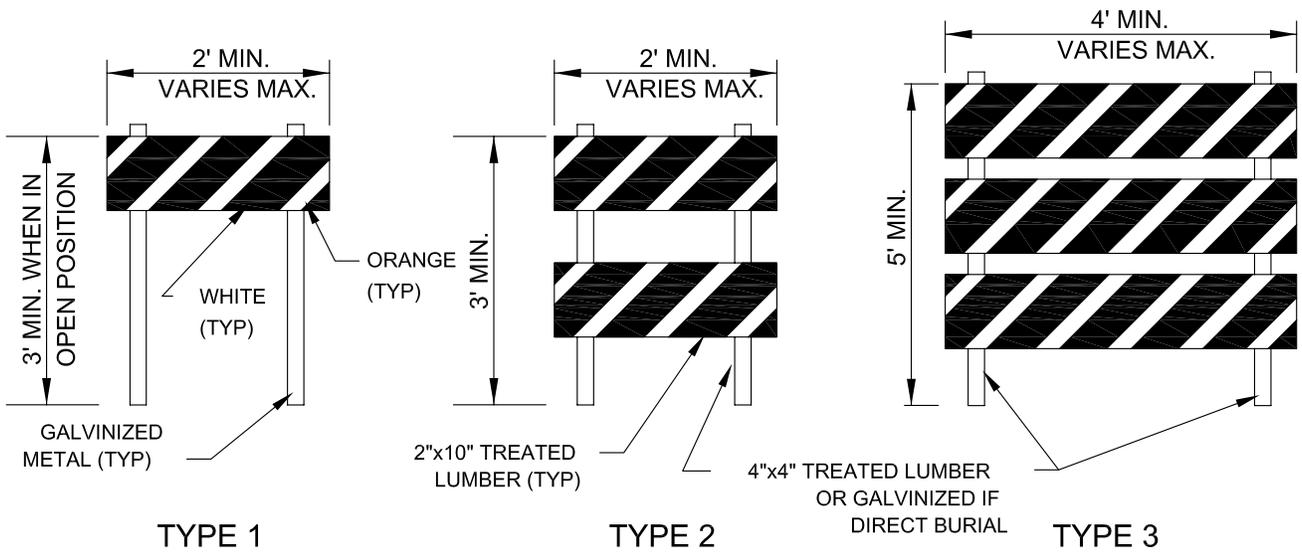
Approved By:

City Engineer

Date: May 30, 2004

103c

Number

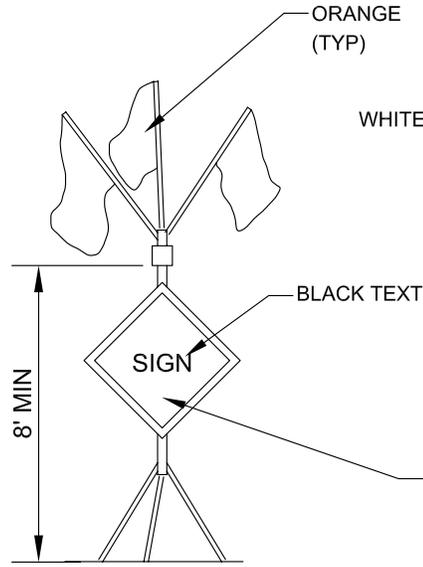


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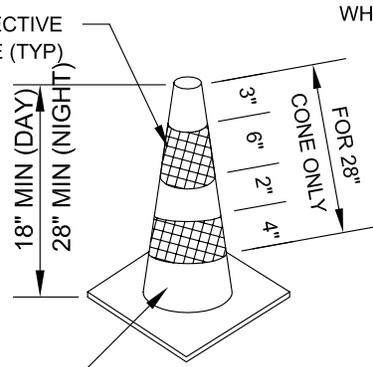
TYPE 2

TYPE 3

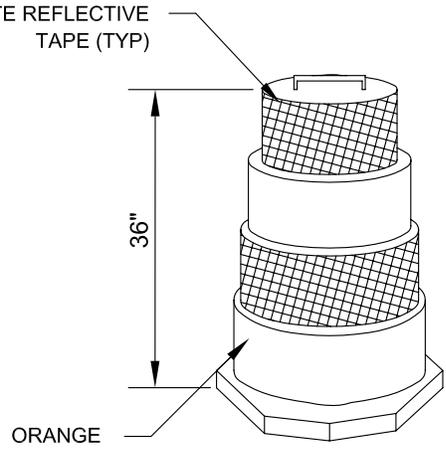
BARRICADE



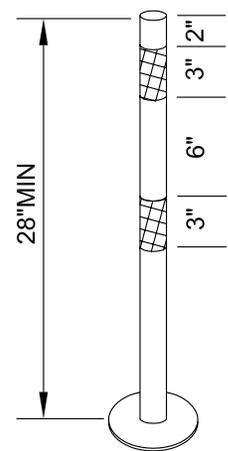
HIGH RISE WARNING



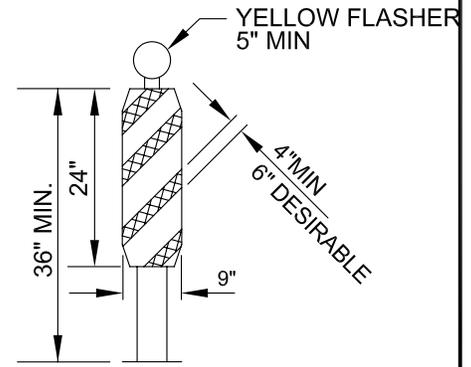
CONE



CHANNELIZING DRUM



GUIDE POST



VERTICAL PANEL



TRAFFIC CONTROL DEVICES

City of Snohomish Public Works Department

Approved By: *[Signature]*
 City Engineer
 Date: May 30, 2004

104
 Number