



City of Seattle
Department of Transportation
February 2006

**Street Improvement
Permit Process
Information Packet**

ENGINEER/DESIGNER INFORMATION

Street Improvement Permit Process Information Packets

How to Use This Packet

Throughout this text, you'll see icons in this left column, drawing your attention to important points, dates and critical tasks. They are listed below with short explanations.



Contact: This icon indicates that contact information, phone or email, will follow. For a copy of one of the packet sections, call (206) 684-5044 or visit our website at http://www.seattle.gov/transportation/stuse_sip.htm.



Document Reference: This icon tells you when to refer to another document for further information.

ABOUT THIS PACKET:

There are three packets that describe the Street Improvement Permit Process. Each packet can function independently or together, but each focuses on a different part of the development and permit process. Brief explanations of each packet are below. See the box at left for contact information.

- The **Applicant/Developer Packet** is one of three informational packets designed to help you understand and to meet the requirements that each applicant/developer must meet in the City of Seattle's street improvement permit process.
- The **Engineer/Designer Packet** explains the steps required of engineers/designers in the City of Seattle's street improvement permit process.
- The **Contractor Packet** explains the steps required of contractors in the City of Seattle's street improvement permit process.

Engineer/Designer Packet



Contact: For more information or to request a copy of either the Applicant/Developer Packet or the Contractor Packet, call (206) 684-5044.

The Seattle Transportation Street Improvement permit work is to be completed in concert with the Department of Planning and Development (DPD) permit work. Street Improvement permits often are separate from Seattle Public Utilities (SPU) watermain permit work. For information on SPU watermain permit requirements, refer to http://www.seattle.gov/util/Engineering/Obtain_Utility_Services.

This Engineer/Designer Packet is one of three informational packets designed to help you understand and meet the requirements of the Seattle Transportation Department's Street Improvement permitting process. The other two packets, the Applicant/Developer Packet and the Contractor Packet, are under separate cover.

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Introduction

Seattle Department of Transportation's Street Use Inspection Unit provides a variety of services to Applicants in the Street Improvement Permit process. Depending on the complexity and magnitude of the project, a number of design disciplines and stakeholders located in numerous departments can be involved. Involvement of the subject matter experts can include applicant assistance in determining permit/design requirements (Pre-Application / Application assistance), review of design submittals (Review / Corrections processes), and specialty inspections during construction (including Acceptance of Completed Project).

City Services for Street Improvement Permits

The Seattle Department of Transportation provides a variety of services to Applicants in the Street Improvement Permit process. Depending on the complexity and magnitude of the project, a number of design disciplines and stakeholders located in numerous departments can be involved. Involvement of the subject matter experts can include applicant assistance in determining permit/design requirements (Pre-Application / Application assistance) and review of design submittals (Review/Corrections processes) and specialty inspections during construction (including Acceptance of Completed Project).

PARTICIPANTS IN PERMIT PROCESS:

Various design and specialty subject matter experts could be involved in a Street Improvement Permit project. Participants depend on the impacts to the public infrastructure and can include:

Seattle Department of Transportation
(up to 10+)

Street Use, Neighborhood and Design Groups including Roadway, Signals, Lighting, Structures; Operational Groups, including Signals, Lighting, and Traffic

SPU
(up to 10+)

Drainage Design, Planning and Operations; Survey and Records, Water Design, Planning and Operations

Other City Departments
(up to 10)

Parks, Seattle City Light, Fire Department

External to City and Private Utilities
(up to 10)

Cable/phone utilities; King County/Metro; School District, etc.

CITY SERVICES PROVIDED:

Seattle Department of Transportation provides a variety of services, including an engineering review and coordination of the numerous public agencies and other stakeholders in the issuance of a Street Improvement Permit. The services provided include:

- 1. Pre-Application (discretionary/requested) Services**
(Working with Applicants to ensure that they and their designers understand City Engineering requirements.)
 - ✓ Pre-Application meeting(s), Engineering Review Meetings

- 2. Application Services**
(Ensure application/design is ready for review distribution.)
 - ✓ Site visits with inspector(s), intake meetings with application.

- 3. Review/Correction Services**
(Coordination and consolidation of design submittals reviews.)
 - ✓ Coordinate distribution of design submittals (internal to Seattle Department of Transportation, to SPU, to other City Departments and external agencies), conduct Seattle Department of Transportation review, consolidate review comments, resolve outstanding/conflicting comments, and ensure corrections are made.
- 4. Permit/Bonding Services**
(Final Permit Approval, Appropriate Surety Bond is in place.)
 - ✓ Prepare Project Inspection Book, coordinate pre-construction requirements, issue permit.
- 5. Pre-Construction Services**
(Schedule, conduct and follow-up Pre-Construction meeting, (SPU) Survey Services.)
 - ✓ Schedule and prepare for Pre-Construction, including coordination with required City subject matter experts, facilitate the meeting, identifying remaining action items prior to construction start.
 - ✓ (SPU) Survey services, follow-up on action items.
- 6. Construction/Inspection Services**
(Provide on-going, specialty/required inspections and final acceptance process.)
 - ✓ On-going inspections, specialty inspections, final acceptance process (Construction inspection costs, dependent on duration, type of work and inspection required.)
- 7. Completion Services**
(Provide as-built drawings, release of maintenance bond)
 - ✓ As-Built process, review/release of surety bond

COST OF CITY SERVICES:

Obviously, you can incur a variety of costs, based on the type, duration and construction required by a Street Improvement Permit. A *general* range of cost of City services is as follows:

- **Small Projects** (with minimal public infrastructure impacts, no surveying required) can range from \$2,000 to \$15,000.
- **Medium projects** (with moderate public infrastructure impacts) can range from \$10,000 to \$30,000.
- **Large/Complex Projects** (with significant public infrastructure impacts) can range from \$20,000 and above.

The Seattle Department of Transportation Department's Street Improvement Analyst will provide a cost estimate of City services. The estimate will be based on information provided by the Applicant during the application phase and will be reviewed and updated as the project progresses through review, issuance, pre-construction and construction.



Document Reference:
Please see the listed chapters of the Seattle Municipal Code.

Requirements

INFORMATION REQUIREMENTS:

There are several sources of requirement information, criteria and guidelines to support appropriate street improvements. The Seattle Municipal Code has several chapters describing the authorities and requirements associated with street improvements, including:

- **Title 1: Administration**
- **Title 15: Street and Sidewalk Use**
- **Title 21: Utilities**
- **Title 23: Land Use Code**

Additionally, the street improvement requirements are supported and guided by an adopted Joint Director's Rule between DPD (Director's Rule #22-2005) and Seattle Transportation (formerly the Seattle Engineering Department) (Director's Rule #2-05). This joint Director's Rule adopts chapters 3 and 4 of the Seattle Right-of-Way Improvements Manual as interpretation of the street improvement requirements of the Land Use Code.



Document Reference:
Please see the listed chapters of the Street Improvement Manual.

DESIGN REQUIREMENTS:

The Street Improvement Permit requirements depend on a great many variable factors:

- The scope of work being proposed
- The impacts to the public infrastructure
- The land use zone of the project
- Public infrastructure in the project area

The various reference documents cited above will guide both the definition of the requirements and the design criteria for fulfilling the requirements. Refer to [Figure 3-14](#) in the Right-of-Way Improvements Manual for a depiction of a standard street cross section.

Major design areas include:

- Roadway, width and material
- Curb and Sidewalk
- Planting Strip and Street Trees
- Lighting and Signalization
- Ingress/Egress
- Drainage

The references listed below may be useful in preparing a design for a Street Improvement Permit:

Seattle Department of Transportation

- Right-of-Way Improvements Manual, Chapter 2, Procedures, Permitting Process and Approvals for Right-of-Way Improvements; Chapter 3, Right-of-Way Improvement Requirements
- SDOT Client Assistance Memo 2200 - Street Improvement Permitting Process for Construction in Public Right of Way
- SDOT Client Assistance Memo 2201 - Plan Requirements for Construction in Public Right of Way
- SDOT Client Assistance Memo 2203 - Dedication Requirements for Construction in the Public Right of Way
- SDOT Client Assistance Memo 2102 - Certificate of Public Liability Property Damage Insurance

Seattle Public Utilities

- Design Guidelines for Public Storm Drain Facilities
- Stormwater, Grading and Drainage Control Code

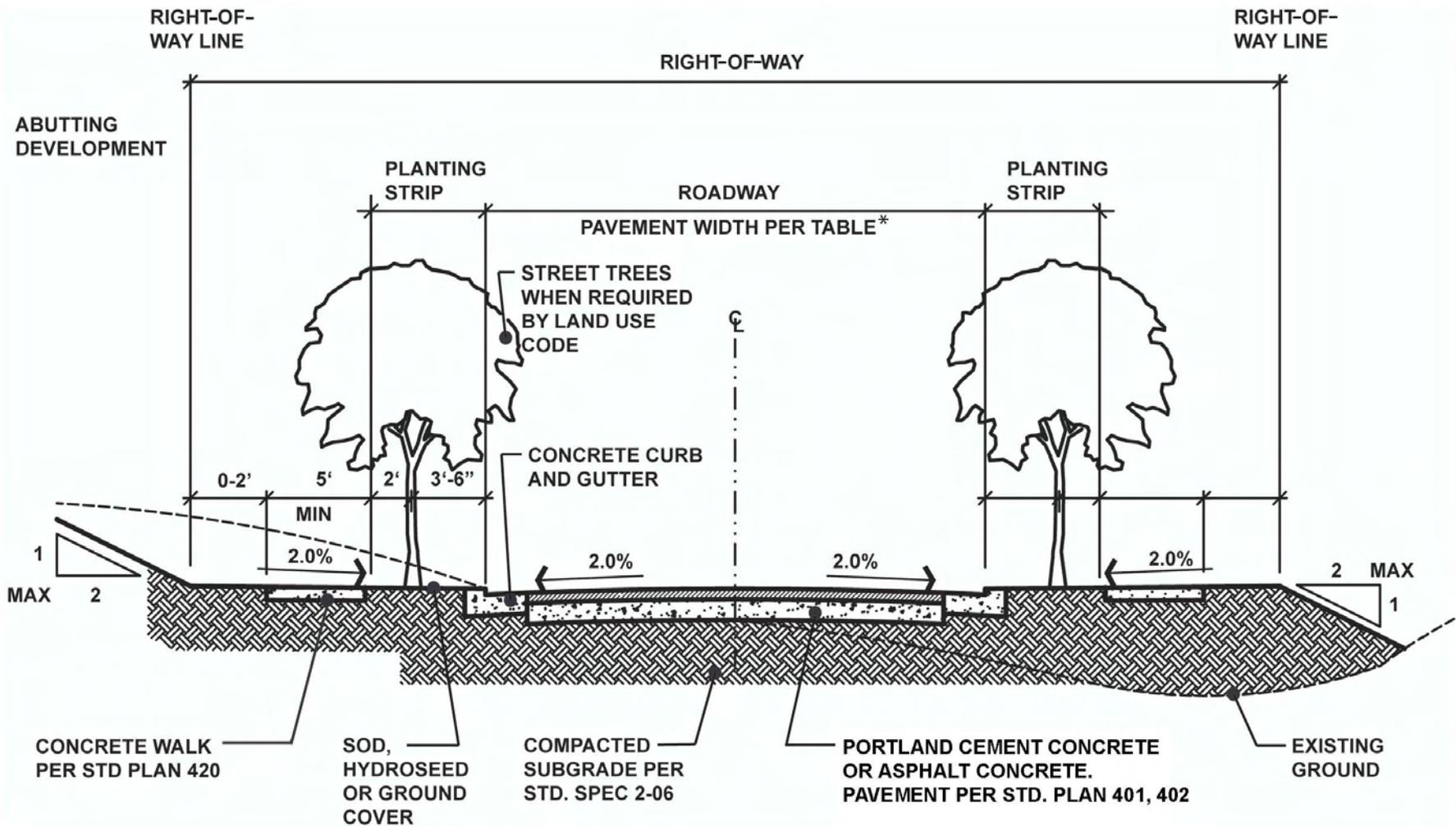


Figure 3-14 September 2005
 Full Improvements for Newly Dedicated Streets



* REFER TO CHAPTER 3: NEW STREETS WIDTH REQUIREMENTS

NOT TO SCALE

Seattle Public Utilities – Drainage Review/Requirements

Note: This information is provided for guidance only.

Seattle Public Utilities is responsible for establishing the requirements and review of Street Improvement projects to ensure adequate drainage design requirements.

The summary below outlines some of the considerations and issues that need to be addressed to ensure a project is designed with appropriate drainage considerations.

Drainage Review:

If over 750 square feet of land is disturbed and it is not part of maintenance, repair or utilities a Drainage review will be required by Seattle Public Utilities.

Discharge Considerations:

- To Sanitary Sewer—not allowed unless it is likely to carry significant pollutants and there are no feasible alternatives
- To Combined Sewer—if there is 2000 square feet or less of new/replaced impervious service, follow construction storm water rules; if more than 2000 square feet of new/replaced impervious surface, detention will be required
- To Designated Receiving Water—no detention required, check for treatment requirements
- To Storm Drain System—if there is 2000 square feet or less of new/replaced impervious service, no detention or treatment required; if more than 2000 square feet of new/replaced impervious surface, detention will be required

Detention Consideration:

Discharge to riparian corridor class A or B, detention required

- 0.2 cfs/acre, 25 yr. storm
- 0.15 cfs/acre, 2 yr. storm
- If more than 5000 sf of new/replaced impervious surface detention required:
 - 0.5 cfs/acre, 100 yr. storm
 - 0.2 cfs/acre, 25 yr. storm
 - 0.15 cfs/acre, 2 yr. storm

For Detention:

If design function cannot be met, prepare Integrated Drainage Plan – for SPU review.
If design function can be met, then follow construction stormwater control rules.

Is there adequate conveyance capacity?

- If yes, check treatment requirements
- If no, the detention or conveyance improvement required is:
Detention:
 - 0.2 cfs/acre, 25 yr. storm
 - 0.15 cfs/acre, 2 yr. storm

Treatment Review:

Is it greater than or equal to 5000 sf?

- If no, no treatment required, satisfied stormwater code
- If yes, then does project have 5000 sf or more of new impervious surface, or 1 acre of accumulated new and replaced impervious surface?
 - If yes, then Standard Stormwater Treatment required
 - If no, then is it greater than or equal to 1 acre?
 - If no, no treatment required—satisfied stormwater code
 - If Yes, does it have 1 acre or more of accumulative new/replaced vegetative cover or exposed soil?
 - If no, then no treatment required—satisfied stormwater code
 - If yes, then does site have a landscape management plan?
 - If yes, then no treatment required—satisfied stormwater code
 - If no, standard stormwater treatment required

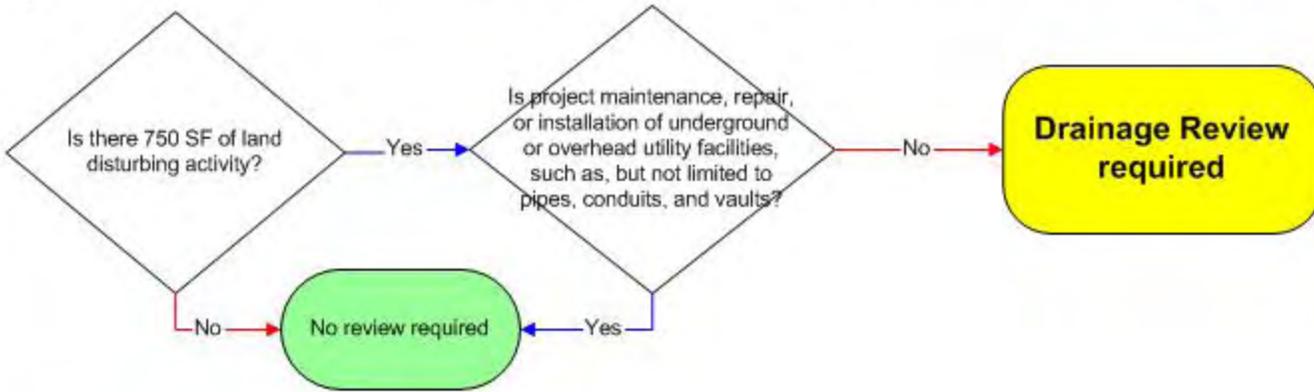
Does site meet definition for high use?

- If yes, stormwater treatment facility required (more than standard stormwater treatment)
- If no, no additional stormwater treatment required, standard treatment applies

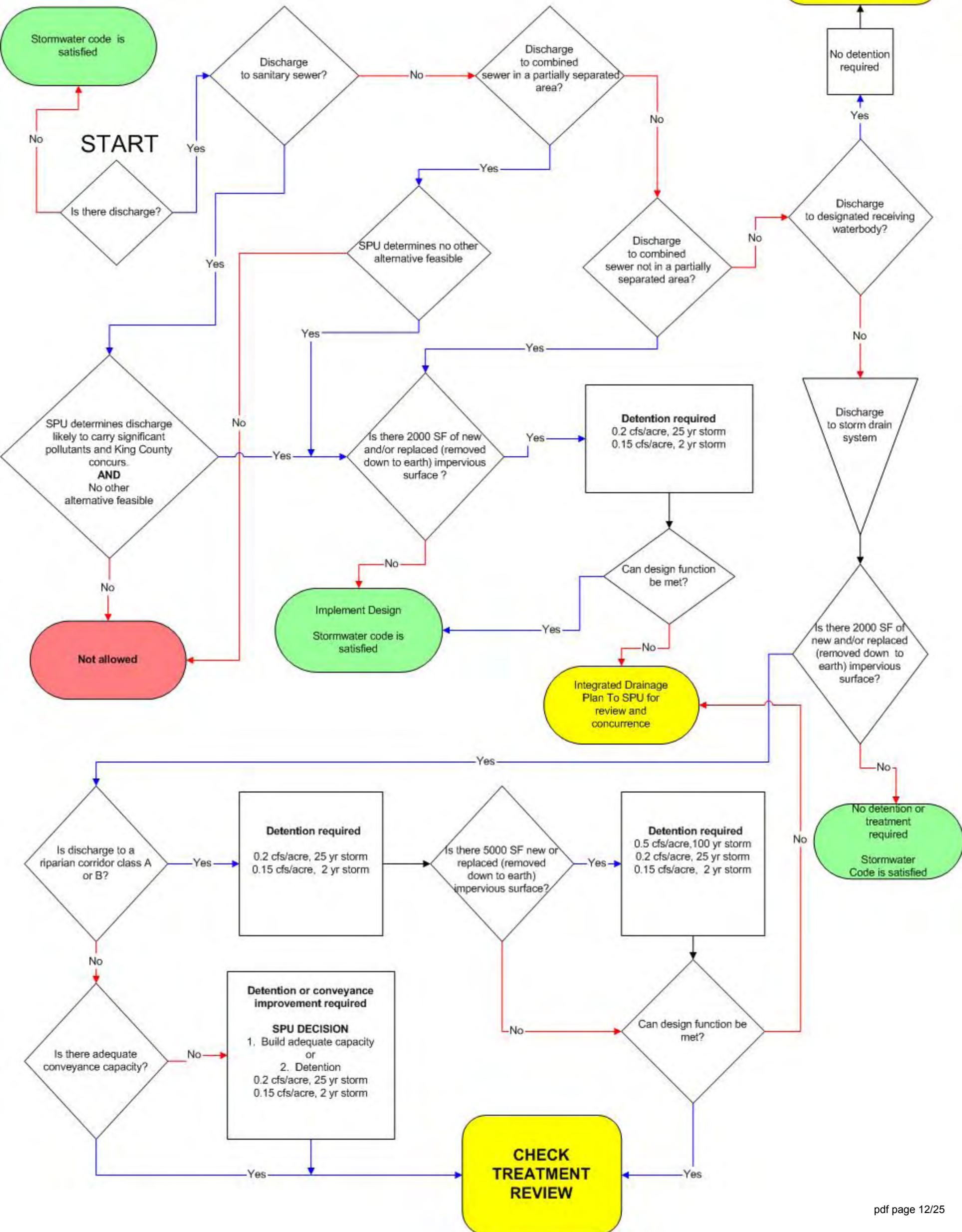
Seattle Public Utilities -- Stormwater Code Flow Chart -- For Guidance Only

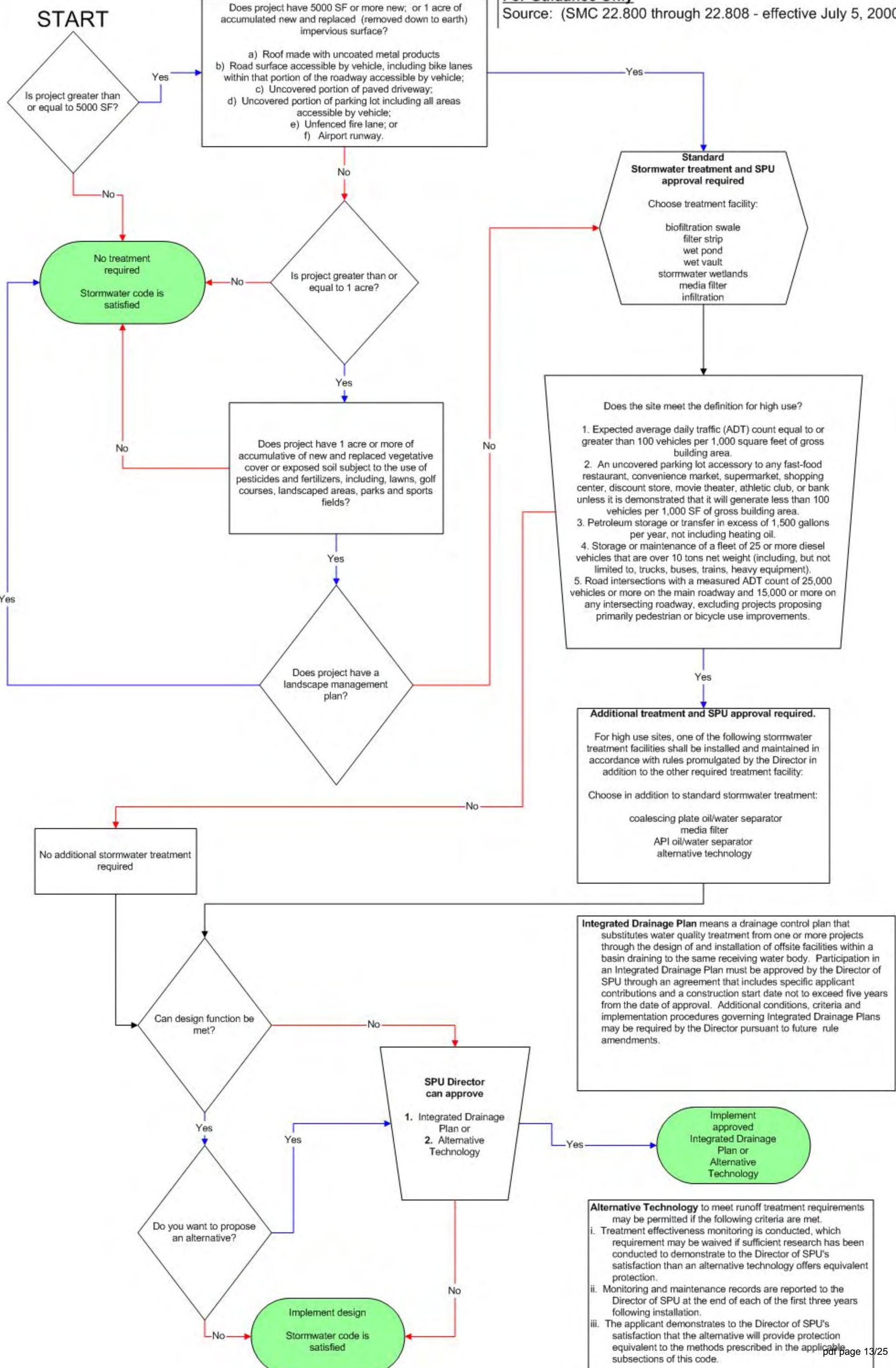
Source: (SMC 22.800 through 22.808 - effective July 5, 2000)

All projects shall follow construction stormwater control rules (Director's Rule 16-00)



DRAINAGE REVIEW





Integrated Drainage Plan means a drainage control plan that substitutes water quality treatment from one or more projects through the design of and installation of offsite facilities within a basin draining to the same receiving water body. Participation in an Integrated Drainage Plan must be approved by the Director of SPU through an agreement that includes specific applicant contributions and a construction start date not to exceed five years from the date of approval. Additional conditions, criteria and implementation procedures governing Integrated Drainage Plans may be required by the Director pursuant to future rule amendments.

Alternative Technology to meet runoff treatment requirements may be permitted if the following criteria are met.

- Treatment effectiveness monitoring is conducted, which requirement may be waived if sufficient research has been conducted to demonstrate to the Director of SPU's satisfaction that an alternative technology offers equivalent protection.
- Monitoring and maintenance records are reported to the Director of SPU at the end of each of the first three years following installation.
- The applicant demonstrates to the Director of SPU's satisfaction that the alternative will provide protection equivalent to the methods prescribed in the applicable subsections of this code.

Seattle Permits

— part of a multi-departmental City of Seattle series on getting a permit

Updated February 1, 2006

Plan Requirements for Construction in the Public Right of Way

Seattle Department of Transportation reviews and approves proposed construction work related to the public right of way. When this work is performed under a private contract rather than a contract with the City of Seattle, the project plans must meet the standards and requirements in this publication.

Drafting Standards

- 1. Plan sets for submittal** – Initial plan submittal may be done on 22"x34" sheets of paper (black ink print), Vellum, Mylar or Sepia, plus two additional paper copies. Final plans for permit issuance shall be on 22"x34" Mylar sheets. Use City of Seattle Department of Transportation title and border. An AutoCAD title block is available on our web site at http://www.seattle.gov/transportation/stuse_SIP.htm, under SIP Plan Preparation
- 2. Engineer's Seal** - Place the Professional Engineer's seal and original signature in the blocked area on the lower left portion of the sheet; include, the engineer's name, address and phone number.
- 3. Title Block** - Use the following format for the title block in the lower right portion of the sheet: "MAIN STREET, et al" (first line), "STORM DRAIN, etc." (second line). The third line is used to identify street names when multiple streets are involved or for the subject shown on a particular sheet. This means the project is principally located on Main Street and primarily consists of storm drain improvements. See attached sample.
- 4. Ink and Screening** - Draw in ink on Mylar, plot or print directly on Mylar or use permanent photo Mylar (no "sticky-back" or pasted pieces). Screen the base map which shows existing improvements.

- 5. Survey Datum** - Use NAVD88 shown as vertical datum with Benchmarks and NAD83(1991) shown as horizontal datum.
- 6. Dimensions** - For all existing and proposed improvements, locate and show dimensions to City of Seattle survey monuments, monument lines, or street centerlines. Dimensioning must be done by stationing and offsetting from these control lines.
- 7. Scale** - For scales, use Horizontal 1" = 20', Vertical 1" = 10'. For business districts, SDOT Street Use Section requires Horizontal 1" = 10'.
- 8. Compass Orientation** - Draw the plan so the north arrow points to the left or to the top of the sheet.
- 9. Vicinity Map** - Include a vicinity map on the cover of or first sheet of the plans with a scale no less than 1" = 200'. Include right of way around the perimeter of the project plus a half block beyond the area of work. Shade the vicinity map area of scope of work and use as an index of the sheets.
- 10. Lettering** - Use of a lettering guide is preferred but very neat, legible, free hand lettering is acceptable. The minimum letter size is 1/8 inch. This will ensure the plan is still legible after microfilming or reduction to half size.
- 11. Symbols** – Use the standard symbols given in Standard Plans 002 and 003, Standard Plans for Municipal Public Works construction, current edition (Available from the Seattle Public Utilities, Record Vault, Seattle Municipal Tower Suite 4700 or download: http://www.seattle.gov/util/Engineering/CAD_Resources/2000-002_CAD_Support_Files/index.asp)

www.seattle.gov/transportation



CADD Standards Guidelines

1. The current edition of the "Seattle Standard Specifications" and "City of Seattle Standard plans shall be adhered to.
2. The drawings shall be submitted as AUTOCAD release 14 (or later) .dwg files. All electronic files will be submitted for review.
3. The .dwg files should be created to plot a 22"x34" hard copy plan sheet.
4. Where the contract drawings indicate existing infrastructure or proposed improvements within the City's Right of Way, The current SDOT Layering methodology shall be adhered to.
5. Features on the drawings shall be shown and noted in accordance with standard abbreviations and symbols (Standard Plan No 002 and 003) and be created in accordance with the SPU/ Seattle Department of Transportation drafting standards.
6. All existing utilities, improvements and topography determined necessary in the project scope, shall be illustrated in the drawing.
7. Plans shall be prepared with such precision and in such detail as to permit the convenient layout in the field for construction and other purposes within a degree of accuracy acceptable to Seattle Department of Transportation.

Information Required

1. **Grades** – If the road or alley adjacent to your property is not improved, research any existing grade and topography data from Seattle Public Utilities at Engineering Records Vault, Seattle Municipal Tower 47th Floor, 700 Fifth Avenue, (206) 684-5132. If data is not available, the applicant shall conduct a topography survey of their project site as per attached drawing SURV-0001 for streets and SURV-0002 for alleys. If the street or alley adjacent to the proposed project is already improved to full street standards (concrete curbs, sidewalks, paving), the building grade shall be calculated by visiting the following website and using the web based tool <http://www.seattle.gov/transportation/gradesheetintro.htm> . The grades shown on the plan must agree with the building/ alley grade calculated using the web based tool, or be approved by the Seattle Department of Transportation.

All profiles and cross sections must show the proposed grade as well as the existing grade.

Show in the profile: centerline, top of curb, back of walk, access points along property, floor slab elevations, underground water mains, etc.

2. Existing Improvements and Topography -

Existing Improvements and Topography -Show all existing underground and surface improvements and topography in proximity to the proposed project. This information must be shown for the full width of the adjacent right of way, and at least 50 feet from the boundaries of the proposed project, to show possible impacts on neighboring properties.

Obtain information for existing surface and underground improvements at the Seattle Public Utilities Engineering Records Vault, Seattle Municipal Tower 47th Floor, 700 Fifth Avenue, (206) 684-5132. The "Vault" has information on public sewers, public storm drains, curbs, sidewalks, grading. For information on sanitary side sewers and service drains, see the Seattle Department of Transportation Street Use Counter, Key Tower Suite 3700, 700 Fifth Avenue, or call (206) 684-5283. Obtain City Light, telephone, cable TV, steam, natural gas, and other private and public utilities information at the same location. Also, the Seattle Department of Transportation's Traffic Counter, also located on the 37th floor of Seattle Municipal Tower, has traffic signal information.

3. **Sewer, Water, and Drainage** - Provide profiles of all proposed sewer, water, and drain lines. Show existing underground improvements where they cross or connect to the new improvements.

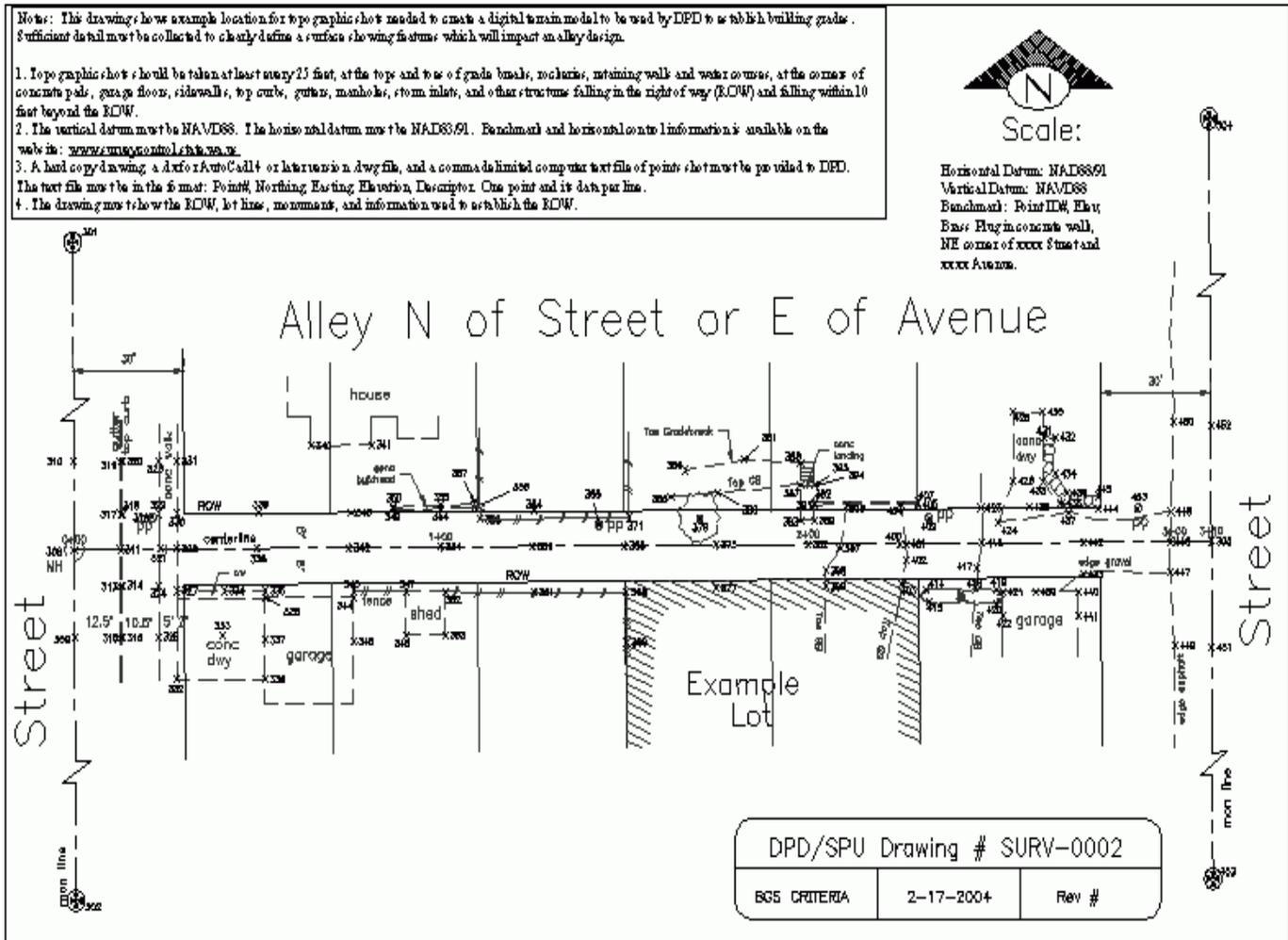
Show the storm water drainage discharge point to a public system or natural water course. Provide drainage system details whether or not detention of storm water is required.

Contact the Water Department to learn its requirements, 684-5976.

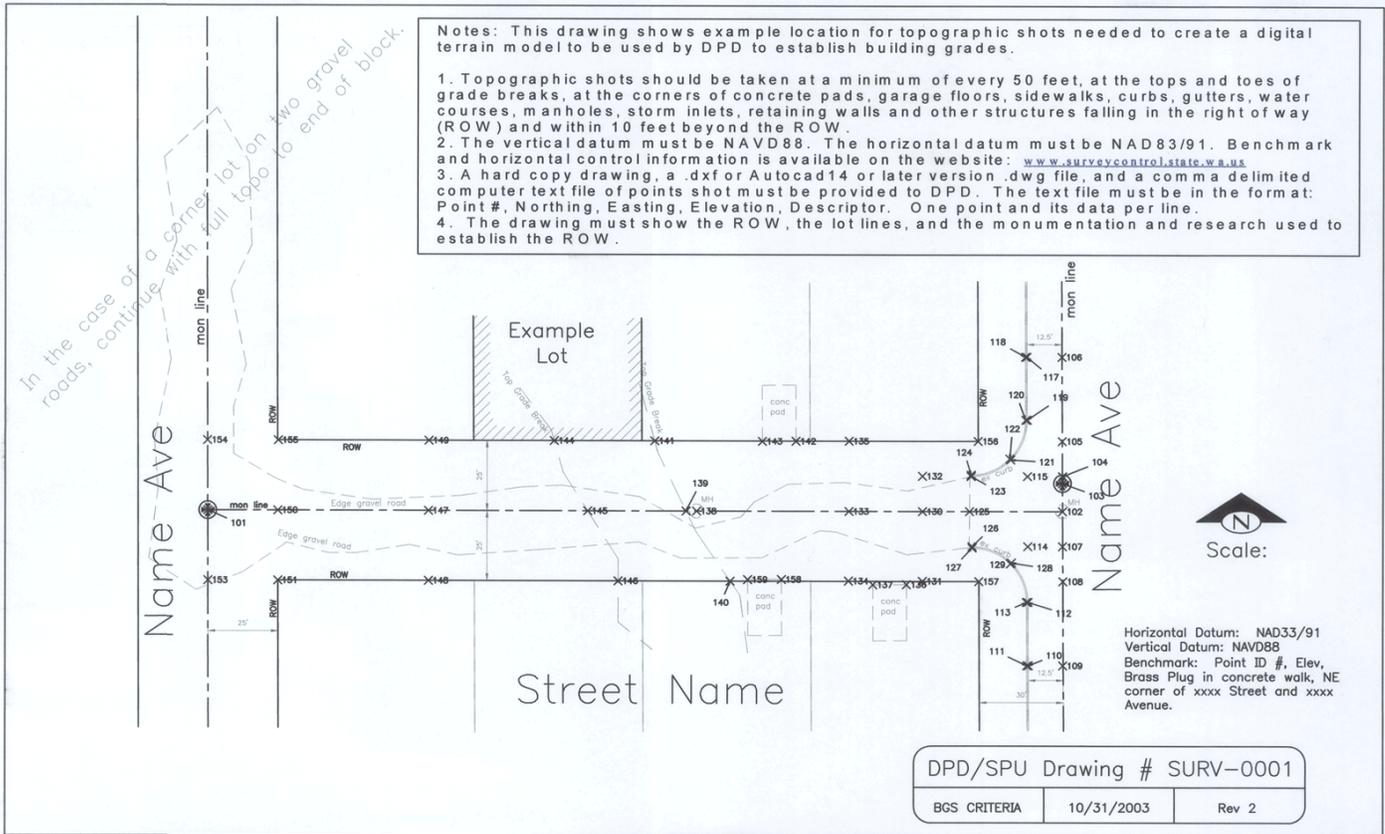
4. **Photos** (Optional) - Submit photographs of the project site if these will help the Seattle Department of Transportation review process.

For More Information: Contact SDOT “on-call” plan analyst at the DPD Permit Center Seattle Municipal Tower Suite 2000, 700 5th Avenue, or call 684-3679 for details about:

- building grade sheets,
- street design,
- sanitary sewer design,
- street trees and landscaping, and
- drainage design.



LEGAL DISCLAIMER: This Client Assistance Memo (CAM) should not be used as a substitute for codes and regulations. The applicant is responsible for compliance with all code and rule requirements, whether or not described in this CAM.



Drafting & Standards Checklist for Street Improvement (Private Contract) Plan Submittal

- Mylar, Sepia or Vellum Sheets 22" x 34" (or black line print for initial plan submittal) and two copies
- City of Seattle, Seattle Transportation, **Street Improvement Mylar** sheet.
- Title Block (CADD templates are available on the Street Use web site)
 - Left box - Engineer's seal with signature
 - Left box - Engineers name
 - Left box - Engineers address
 - Left box - Engineers phone number
- Right box - Plan Title (see sample Plan Title on next page): primary street name- 3/8" text (first line) FOURTH AVENUE NW, et al
- Right box - Plan Title: contents of plan- 1/4" text (second line) CC, CW, PSD, WM, PAVING, etc.
- Right box - Plan Title: optional - 1/4" text (third line). (Name of street or subject shown on specific sheet)
- Above Right box - 1/8" text project address, project name optional, and DPD project number
- Screen the base map that shows existing improvements — readable
- Survey Datum (NAVD 88 and NAD83 (1991))
 - Show and describe Survey Monuments
 - Monument lines with bearing and distance or radius and delta angle
 - Street Centerlines, right-of-way width and lines
 - Station Monuments
 - Dimension by stationing and offsetting from monument lines
 - Station all PC (Point of Curvature)
 - Station all PT (Point of Tangency)
 - Station Matchlines
- Scale Horizontal 1" = 20' (Business Districts 1" = 10')
- Scale Vertical 1" = 10'
- Compass Orientation - North Arrow to the left or top of sheet
- Vicinity Map on cover sheet 1" = 200' (to show reduced version of project perimeter)
 - Shade vicinity map for scope of work (work in ROW or Easements, not private property)
 - Indicate sheet numbers on vicinity map (see sample on back)
- Lettering minimum size 1/8 inch
- Lettering guide (legible, neat)
- Standard symbols from Standard Plan 002 and 003**
- Standard shading from Standard Plan 002 and 003**
- Typical Cross Section of Improvements
- Cross Sections (these may be on separate 8.5 x 11 sheets stationed)
 - Profile existing grade
 - Profile proposed grade (grade point is face of curb)
 - Stations at grade breaks and at beginning and end of vertical curves
 - Stations and elevation at VPI
 - Length of vertical curve
 - Station and elevation at high/low point, if any, of vertical curve
- Slope line on plan view
- Catch line on plan view
- Profile existing utilities (water main, PSS, PS, PSD)
- Profile new utilities

Sample Plan Title

3000 NE 130TH STREET

DPD PROJECT # 6070000

NE 130TH STREET
CURB, CW, LANDSCAPE, PAVING, ETC.
PLAN AND PROFILE

Above is a *sample* Plan Title for **Street Improvement Permitting** Plans. The Plan Title is part of the Title Block. The font (type and size) shown in the above sample is listed below, any similar font or lettering template is acceptable.

1. The first line is Universal font (size 36, ~ 3/8" high) centered and is the primary street name where the majority of the improvements are located. This is often the frontage street for the project. If the plans include more than one street or alley; then add "ET AL" after the street name. An example is N 130TH STREET ET AL could represent work on N 130th STREET from Greenwood Ave N to 1st Ave NW. A partial improvement along the 900 block of N 130th, would be titled NORTH 130TH STREET. The vicinity map is used to identify multiple streets.
2. The second line is Universal font (size 24, ~1/4" high) centered and is the abbreviated contents of the plan. This may include any or all of the following: WM., PSD, PSS, PS, C/W, DRAINAGE, CONC. CURB, LANDSCAPE, SIGNALIZATION, ALLEY PAVING, PAVING, ETC. These abbreviations are in the Standard Plans book.
3. The third line is Universal font (size 24, ~1/4" high) centered and is the used to identify the name of the street when multiple streets are involved or the subject shown on a specific sheet. Examples from previous plans: 30TH AVENUE NE, LAKE CITY WAY NE, COVER SHEET, PLAN AND PROFILE, DETAILS, CHANNELIZATION PLAN, TRAFFIC SIGNAL PLAN, SIGNALIZATION SCHEDULES & DETAILS, LIGHTING PLAN, LANDSCAPE PLAN..... This third line can be blank when the plan has only a couple of sheets.

Above the title box is Universal font (size 18, ~1/8" high) left justified as shown and this is where the address of the project is placed. Space permitting the name of the development may be placed here. On this same line use Universal font (size 18) over to the edge of the sheet. Type "DPD PROJECT #", followed by the project number assigned by DPD that required the street improvements shown on the plan. If these improvements are required as a condition of a short plat, use that DPD number. This is for cross reference purposes. If no DPD application or permit is associated with this work, leave this blank.

Street Improvement Survey Guidelines

VERTICAL DATUM AND BENCHMARKS

Datum

The following vertical datum are used by the City of Seattle:



Contact: For more information, call (206) 684-5044.



Document

Reference: You can verify NAVD-88 benchmarks, as well as survey procedures at the Web sites listed on this page.

1. **City of Seattle** Vertical Datum. This datum was used for all survey and construction work in the City of Seattle from 1892 to 1992. It was gradually phased out from 1993 to 2002 as the NAVD-88 datum was being phased in (See #2 below). This datum is currently used for reference purposes only. Descriptions and elevations of City of Seattle benchmarks may be obtained by consulting City of Seattle Survey field books, available to the public on the forty-seventh floor of Seattle Municipal Tower at 700 Fifth Avenue¹.
2. **NAVD-88** Vertical Datum (1988 North American Vertical Datum). Control reports of acceptable NAVD-88 city established benchmarks are available at www.surveycontrol.state.wa.us and at the Engineering Records Vault, on the 47th floor of the Seattle Municipal Tower, 700 5th Avenue. Other 3rd-Order NAVD-88 benchmarks that have been recorded as a public record would also be acceptable.

Mandatory Vertical Datum

All survey and construction work performed within City of Seattle right-of-way from March 2002 forward shall be on the NAVD-88 datum.

SURVEY PROCEDURE

Project site benchmarks shall be established by measurement from *two local benchmarks* that are listed at <http://www.surveycontrol.state.wa.us/>, meeting Third Order procedural requirements, as specified Geospatial Positioning Accuracy Standards by the Federal Geographic Data Committee at <http://www.fgdc.gov>. A record of this field work shall be provided to Seattle Public Utilities in the form of a survey field book or an electronic file in ASCII, Microsoft Word, or Excel.

When reference is made to records/plans created using the City of Seattle datum², a local conversion factor between the City of Seattle datum and the NAVD-88 datum shall be established by differential leveling between benchmarks in each of the respective datum. A record of this fieldwork shall be provided to Seattle Public Utilities in the form of a survey field book or an electronic file in ASCII, Microsoft Word, or Excel.

¹ Although 0.0 City of Seattle datum is *approximately* equal to 9.7 NAVD-88, this difference should not be used as a means of establishing one datum from the other. The difference could vary as much as a foot from one part of Seattle to another!

² These records could include plan drawings, survey field notes and other records.

Seattle Municipal Tower 700 5th Avenue, Suite 3900, PO Box 34996, Seattle WA 98124-4996
Tel: (206) 684-ROAD (684-7623) TTY/TDD: (206) 684-4009, Fax: (206) 684-5180
An equal opportunity employer. Accommodations for people with disabilities provided upon request.

BENCHMARK DESCRIPTIONS

All plan drawings, survey field notes, and electronic files shall state which datum is being used and describe the benchmarks that were used.

- NAVD-88 benchmarks should list their benchmark number, Point Name (Designation)³, elevation, and description.
- City of Seattle benchmarks should list City of Seattle field book number, page, elevation, and description.
- Local project benchmarks set by the consultant should list elevation and description.

SURVEY CONTENT OF CONSTRUCTION PLANS

The following is the minimum survey information required on any plans.

Horizontal Control

City of Seattle monuments shall be the basis of horizontal control. The plan shall show the monuments used, describing the type of monument (e.g., monument in case) and what it monuments (e.g., intersection with centerline of 4th Avenue). If a construction baseline is created, its positional relationship to the monuments must be clearly defined (i.e., dimensions or coordinates).

All improvements and rights-of-way shall be stationed and dimensioned from the monument lines or baselines as described above. Wherever possible, street stationing shall be the stationing established by the City of Seattle when the streets were originally surveyed. This stationing can generally be found in the City of Seattle survey field books, which are referenced on the City's Quarter Section maps, both of which are available to the public on the 47th floor of the Seattle Municipal Tower at 700 5th Avenue.

Monument Replacement

- Any monuments that will be disturbed by construction must be noted on the plan as requiring replacement. The City of Seattle (Seattle Public Utilities, Engineering Dept., Survey Section) must be notified in sufficient time to reference the monument before it is disturbed. The City of Seattle will set all street monuments, whether they are replacements or new. For further details, see the Standard Specifications for Road, Bridge and Municipal Construction, 2000 Edition, Vol. 2, Sections 8-13.
- All horizontal curves shall be dimensioned with sufficient curve data to define their geometry (e.g., radius, curve length, delta, and PI or PC/PT stationing).



Document

Reference: The City's Quarter Section maps are available in the Seattle Public Utilities Engineering Services Records Vault office on the 47th floor of Seattle Municipal Tower, 700 Fifth Avenue.



Document

Reference: Standard Specifications for Road, Bridge and Municipal Construction, 2000 Edition, Vol. 2, Sections 8-13.

³ When utilizing City of Seattle NAVD-88 benchmarks, reference the record by the "Point Name (Designation)" as listed on the data sheet (e.g., SNV-7508). For benchmarks from other sources, reference by the "Point ID (PID)" or equivalent.

Paving and Curbs

- Profiles shall be included for all street centerlines and curbs, including curb returns.
- Profiles shall show PVI station and elevation, length of vertical curve, and grade of tangents.

Storm Drain and Sewer

- Location for manholes shall be to the “control point” that defines the alignment of the pipe. If the center of the manhole is offset from this point, this should be dimensioned in a detail.
- Horizontal location of the control point for each manhole shall be shown in the plan view by station and out from the monument line (or baseline if that is used).
- Profiles shall show invert elevation and rim elevation for each manhole. Invert grades shall be shown for the control point. The profile distance along the pipe should match the distance between the control points.

CONSTRUCTION SURVEY DOCUMENTATION

The City of Seattle shall be provided with a record of construction points set. This record should include the following:

1. A sketch showing the relationship of the monuments, improvements and the offset points set. The sketch should show all relevant dimensions and stationing, following good survey note keeping practices.
2. A hard copy or electronic file in ASCII, Microsoft Word, or Excel showing the grades set for the improvement (i.e., “grade sheet”).

COMMON ERRORS TO AVOID

The following common errors are unacceptable on any plans submitted to the City of Seattle.

Paving Design

- The submitted plans have proposed new curbs, with a narrow strip of new paving between the new curb and a saw cut in the existing paving. The plan calls for a cross-slope of 2% and provides a profile, which appears acceptable. However, because of insufficient analysis of existing paving, unacceptable cross-slopes can result. The design must accommodate existing conditions.

Simple Math Errors

- Calculated distances between manholes (control points) are incorrect.
- Calculated grades between manholes (control points) are incorrect.

Inconsistencies

- Information in plan view is inconsistent with that in profile view.
- Information is inconsistent across match lines.

OBTAINING SURVEY SERVICES

Private surveyors may be hired to perform land survey services for preliminary engineering and engineering design. The survey process and product must meet the established guidelines found in the Street Improvement Survey Guidelines section of this document.

In addition, the engineer, developer, or contractor has the option of hiring private surveyors or City of Seattle surveyors to perform the construction staking and production of necessary grade sheets. Any survey work shall be done under the supervision of a licensed surveyor.

If the City of Seattle surveying unit is requested to perform the construction staking and grade, please coordinate the request through your Street Improvement Analyst to schedule the survey work.

Review & Corrections Process

The Street Improvement Permit review process is intended to provide coordination of a variety of city departments and design disciplines involved. Refer to SDOT Client Assistance Memo #2201 for more information.



Document Reference:
See the Sample
Transmittal Letter.

Seattle Department of Transportation will transmit review corrections in the format displayed on the attached sample transmittal letter. Ensuring that all documents are clear and that all comments can be tracked easily will expedite the review and corrections process.

