

SPOKANE COUNTY STANDARDS

For Road and Sewer Construction

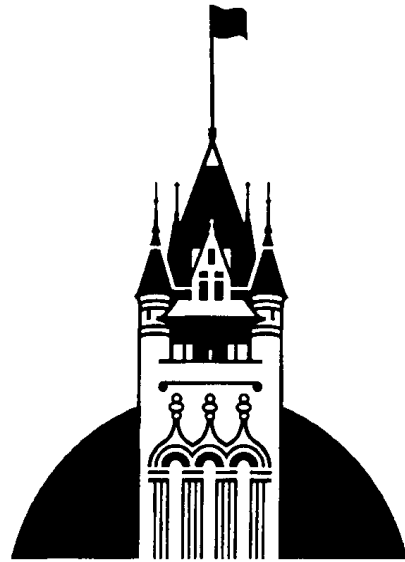


SPOKANE COUNTY

DEPARTMENT OF PUBLIC WORKS

SPOKANE COUNTY STANDARDS

For Road and Sewer Construction



SPOKANE COUNTY

THE DEPARTMENT OF PUBLIC WORKS

SPOKANE COUNTY ROAD STANDARDS

INTRODUCTION

The purpose of this publication of Road Standards is to provide minimum standards for road and storm drainage design elements. The standards provide for consistency in design and construction of road projects. They meet the minimum requirements of the motoring, bicycling and pedestrian public. These requirements include safety, convenience, pleasant appearance, and economical maintenance. The standards also provide guidelines for utility location and installation within the public road right-of-way.

This publication cannot provide for all situations. It is intended to help but not to substitute for competent work by design professionals. Engineers and surveyors should bring the best of skills from their respective disciplines to each project.

The Road Standards do not unreasonably limit any innovative or creative effort that could result in better quality, cost savings, or both. The County Engineer will judge designs that depart from the Road Standards on the likelihood that such designs will produce compensating or comparable results.

This manual of design standards was authorized by the Board of County Commissioners per Resolution No. 95-0498 on May 2, 1995 and later revised per Resolution No. 99-0265 on April 6, 1999, Resolution No. 01-0298 on April 3, 2001 and Resolution No. 3-0770 on August 19, 2003.



Ross E. Kelley, P.E.
County Engineer

TABLE OF CONTENTS

INTRODUCTION	
1.00	GENERAL CONSIDERATIONS..... 1-1
1.01	APPLICABILITY 1-1
1.02	DEFINITIONS 1-1
1.03	RESPONSIBILITY TO PROVIDE..... 1-5
1.04	REFERENCES. 1-6
1.06	STATE SPECIFICATIONS AND PLANS.. 1-7
1.07	NON-CONFORMING PRIVATE ROAD. 1-7
1.08	DEVIATIONS AND REVIEW OF DECISION. 1-7
1.10	COMPLIANCE REVIEW..... 1-8
1.11	ROADWAY TYPES. 1-8
1.12	ROADWAY CLASSIFICATIONS..... 1-8
1.13	HALF-STREET 1-10
1.14	PRIMITIVE ROADS 1-10
1.16	ROAD NAMES..... 1-10
1.20	LEVELS OF SERVICE 1-11
1.30	TRAFFIC IMPACT STUDY..... 1-11
1.40	SEVERABILITY 1-11
2.00	ROAD TYPES & GEOMETRIC FEATURES. 2-1
3.00	NEW CONSTRUCTION DESIGN STANDARDS. 3-1
3.01	COUNTY ARTERIAL STREETS..... 3-1
3.02	COUNTY ACCESS STREETS..... 3-1
3.03	TYPICAL ROADWAY SECTION..... 3-1
3.04	INTERSECTIONS 3-1
3.05	BORDER EASEMENTS..... 3-2
3.07	SLOPES..... 3-3
3.08	RIGHT-OF-WAY..... 3-3
3.09	CONNECTIONS OF STATE HIGHWAYS AND NEW COUNTY ROADS. 3-10
3.11	RAILROAD GRADE CROSSING..... 3-10
3.12	STANDARD ROAD AND TRAFFIC CONTROL SIGNING..... 3-10
3.14	TRAFFIC BARRIER..... 3-10
3.15	CLEAR ZONE..... 3-11
3.16	ROAD SURFACING REQUIREMENTS..... 3-11
3.17	CUL-DE-SACS..... 3-16
3.18	CURBS, SIDEWALKS, AND PATHWAYS..... 3-16
3.20	CURB RAMPS..... 3-17
3.22	PRIVATE ROADS..... 3-17
3.23	PRIVATE ALLEYS..... 3-18
3.24	DRIVEWAY APPROACHES. 3-19
4.00	3R DESIGN STANDARDS 4-1

5.00	PROJECT APPLICATION AND CLARIFICATION.	5-1
5.01	APPLICATION PROCEDURE.....	5-1
5.02	GENERAL FORMATTING.....	5-3
5.03	DRAFTING STANDARDS.	5-4
5.04	PLAN.....	5-4
5.06	PROFILE ELEMENTS.....	5-6
5.08	TYPICAL CROSS SECTION.....	5-7
5.10	DRAINAGE PLAN.....	5-7
6.00	LAND SURVEY STANDARDS.....	6-1
6.01	REGULATIONS.....	6-1
6.02	MONUMENTATION.....	6-1
6.03	HORIZONTAL CONTROL NET.	6-2
6.04	TEMPORARY BENCH MARK.....	6-2
7.00	BRIDGES AND OTHER STRUCTURES.....	7-1
7.01	PRINCIPAL REFERENCE FOR BRIDGES.....	7-1
7.03	OTHER BRIDGE DESIGN CRITERIA.....	7-1
7.04	RETAINING WALLS AND OTHER STRUCTURES.....	7-1
8.00	UTILITIES.....	8-1
8.01	FRANCHISING POLICY.....	8-1
8.02	STANDARD UTILITIES LOCATIONS.....	8-1
8.04	SCHEDULING OF UTILITIES INSTALLATION, RELOCATION AND INSPECTION.....	8-2
9.00	PERMITS AND INSPECTION.....	9-1
9.01	APPLICATION.....	9-1
9.02	BASIS FOR CONTROL OF THE WORK.....	9-2
9.04	ROAD CONSTRUCTION INSPECTIONS.....	9-2
9.06	CONSTRUCTION INSPECTION NOTIFICATIONS AND RECORDS.....	9-3
9.09	COUNTY FORCES & COUNTY CONTRACT ROAD INSPECTION.....	9-4
9.10	RECORD DRAWINGS.....	9-4
10.00	BONDING.....	10-1
10.01	PERFORMANCE SURETY.....	10-1
10.02	WARRANTY SURETY.....	10-7
10.03	PERMIT SURETY.....	10-7
	TECHNICAL REFERENCE A.....	A-1
	TECHNICAL REFERENCE B.....	B-1
	TECHNICAL REFERENCE C.....	C-1
	TECHNICAL REFERENCE D.....	D-1
	TECHNICAL REFERENCE E.....	E-1
	TECHNICAL REFERENCE F.....	F-1

TABLES AND FIGURES

3.01	ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS.....	3-4
3.02	ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS - WIDTHS	3-6
3.03	ACCESS STREET DESIGN ELEMENTS.....	3-8
3.15	CLEAR ZONE DISTANCES – SHOULDERED ROADS	3-13
3.15A	HORIZONTAL CURVE ADJUSTMENT.	3-14
3.16	STRUCTURAL ROAD SECTIONS FOR RESIDENTIAL STREETS PAVEMENT DESIGN ALTERNATE.....	3-15

GENERAL PROVISIONS

Table of Contents.....	111
------------------------	-----

STANDARD PLAN DRAWINGS

Table of Contents.....	120
------------------------	-----

1.00 GENERAL CONSIDERATIONS

1.01 APPLICABILITY

These Standards shall apply to all new construction of public and private roads in Spokane County and as far as practicable and feasible to reconstruction, resurfacing, restoration, and rehabilitation of old roads comprising the Spokane County Road System. The Standards are applicable to both public and private work on roads within Spokane County. In case of any ambiguity or dispute over interpretation of the provisions of these Road Standards, the decision of the County Engineer shall be final but subject to the review process described in 1.08 "Deviations and Review of Decision". Prior to the issuance of a building permit, a lot, parcel, or tract of land shall have access by a driveway, private road, or public road.

1.02 DEFINITIONS

1. "3-R" shall mean a construction activity that involves the resurfacing, restoration, or rehabilitation of an existing road.
2. "All-weather road" shall mean a gravel or paved road described under Section 1.07 "Non-Conforming Private Roads" of these Standards and Title 3.05.050 of the Spokane County Code. The traveled way shall have a two-percent crown and, be surfaced with a minimum of four inches of Crushed Surfacing Top or Base Course.
3. "Border" shall mean the portion of a street between the edge of pavement and the right-of-way line or the area between the edge of shoulder and the right of way line. This area is used for curbing, planting areas, sidewalk, utilities, etc.
4. "Border easement" shall mean the areas on curbed roads, between the right of way line and the back of sidewalk dedicated as an easement.
5. "Change of Use" shall conform to the provisions of the Uniform Building Code.
6. "Clear Zone" is used to designate the unobstructed area provided beyond the edge of the traveled way for the recovery of errant vehicles.
7. "County Engineer" is the Spokane County Engineer, having authorities specified in RCW 36.75.050 and 36.80, or an authorized representative.
8. "Cul-de-sac" is a short street having one end open to traffic and ending with a vehicle turnaround, either permanent or temporary.
9. "Curb Ramp" shall mean a short, depressed section of curb and sidewalk, normally placed at street intersections, designed to facilitate travel of physically disadvantaged persons.
10. "Design Deviation Review Panel" shall mean an advisory review panel selected by the County Engineer to review deviation request denials. The panel consists of

three professional engineers, two from public service and one from the private sector.

11. "Driveway" shall mean private driveways that provide primary vehicular access from a public or private road to up to three lots.
12. "Driveway Approach" shall mean any area, construction or facility between the roadway of a street and private property to provide access for vehicles from the roadway of a street to serve up to three lots, tracts or parcels, except as provided herein.
13. "Engineer" shall mean a Professional Engineer licensed by the State of Washington.
14. "Established County Road" shall mean a road that has been accepted by Spokane County for maintenance with public funds.
15. "Established Grade" shall mean the profile and cross-sections approved by the County Engineer.
16. "Final Approval" shall mean the signature of the County Engineer on the final plat map, short plat, binding site plan, or commercial building permit release, or the County Engineer's concurrence for approval of a certificate of occupancy.
17. "Half-street" is an access street completely constructed on one side of the centerline plus the twelve-foot lane on the opposite side of the centerline. .
18. "Hazard" shall mean a side slope steeper than 3:1 (horizontal/vertical), a fixed object, or water which, when struck, would apply unacceptable impact forces on the vehicle occupants or place the occupants in a hazardous position. It may be natural or manmade.
19. "Level of Service" (LOS) is a qualitative measure of traffic flow. Six levels are defined as "A" through "F" with "A" being the best operating conditions and "F" being the worst. (See Highway Capacity Manual)
20. "Private Road" shall mean privately owned vehicular access route serving more than three lots, parcels, or tracts which do not have frontage on a public road right-of-way. Spokane County does not maintain private roads.
21. "New Construction" shall mean the construction of a new roadway or structure on a new alignment. It also means the upgrading of an existing roadway or structure by the addition of one or more continuous traffic lanes.
22. "Planting Strip" shall mean the space between the edge of the pavement or the back of the curb and the sidewalk.
23. "Project" shall mean the design and construction of infrastructure associated with land development activities.

24. "Project Agreement" shall mean a written agreement between Spokane County and the Sponsor, in a form acceptable to the Spokane County Prosecuting Attorney, stipulating obligations of the Sponsor and Spokane County regarding the project (a model agreement is shown in Technical Reference C of these Standards).
25. "Public Road" where used in these standards, shall mean an established County road.
26. "Reconstruction" shall mean major construction of an existing road greater than 3-R. Reconstruction includes significant changes in cross section and/or shifts in vertical or horizontal alignment. A project is considered reconstruction if 50% or more of the project length involves significant vertical or horizontal alignment change.
27. "Record Drawings" shall mean the plan set, which is certified to contain a true and accurate representation of the actual field, conditions for the project during construction, or upon completion of construction.
28. "Resurfacing" shall mean the addition of a layer or layers of paving material to provide additional structural integrity or improved profile and serviceability. This includes paving existing gravel roads if the improvement is not reconstruction as defined in paragraph 26 of this section.
29. "Restoration" shall mean work done on pavement or bridge decks to prepare them for an additional stage of construction. This may include supplementing the existing roadway by increasing surfacing and paving courses to provide structural capability, widening up to a total of 10 feet, and installing localized safety improvements. Restoration will generally be done within the existing right of way.
30. "Rehabilitation" shall mean work similar to restoration except the work may include but is not limited to the following:
 - A. Reworking or strengthening the base or subbase
 - B. Recycling or reworking existing materials to improve their structural integrity
 - C. Adding underdrains
 - D. Replacing or restoring malfunctioning joints
 - E. Substantial pavement undersealing when essential for stabilization
 - F. Grinding of pavements to restore smoothness, providing adequate structural thickness remains
 - G. Removing and replacing deteriorated materials
 - H. Crack and joint sealing but only when required shape factor is established by routing or sawing
 - I. Improving or widening shoulders
31. "Road" and "Street" will be considered interchangeable terms in these Standards.

32. "Roadway" shall mean the portions of a street, including shoulders but excepting concrete gutters, designed or ordinarily used for vehicular travel.
33. "Rural" shall mean a location outside of the current Urban Growth Boundary as adopted by The Board of County Commissioners.
34. "Sponsor" shall mean the party identified as the proponent of a development action. The Sponsor is responsible for preparing plans and for constructing of infrastructure to support the proposed action or project as required by the Standards.
35. "Sponsor's Engineer" shall mean:

Design phase - the Design Engineer who directly prepared plans and calculations, or who directly supervises the preparation of project plans and calculations. The Design Engineer seals, signs and dates the plans and calculations, certifies that they meet the required standards, and approves the plans for construction. Also known as the "Engineer of Record", the Design Engineer may also act in capacity of the Construction Engineer.

Construction phase - the Construction Engineer who directly inspects, or who directly supervises the inspection of the construction of a project to ensure compliance to the plans and standard specifications. The Construction Engineer maintains and certifies the Record Drawings. The Construction Engineer may have also acted in the capacity of the Design Engineer.
36. "Standards" shall mean the requirements contained in the "Spokane County Standards for Road and Sewer Construction"
37. "Street" is intended to include any avenue, street, court, alley, or other public passageway within the Spokane County.
38. "Substantial Completion" shall mean that (1) Spokane County and/or any applicable homeowner association must have full and unrestricted use and benefit of the facilities, both from an operational and a safety standpoint; (2) The facilities must conform to the Conditions of Approval and the Standards; (3) and only minor, incidental repair work, replacement of temporary substitute facilities remains to reach physical completion of the work.
39. "Surety" shall mean a financial guarantee by the Sponsor, naming Spokane County as beneficiary, that infrastructure required for a project will be constructed and certified according to the plans and specifications and all applicable Standards. The financial guarantee may be in the form of a cash savings assignment, letter of credit, or bonding company instrument. The language of the surety document must be acceptable to the Spokane County Prosecuting Attorney's Office.
40. "Surveyor" shall mean a Professional Land Surveyor licensed by the State of Washington.

41. "Traffic Barrier" shall mean a barrier oriented parallel or nearly parallel to the roadway. The purpose of these devices is to contain or redirect errant vehicles from hazards within the clear zone.
42. "Traffic Impact Study" shall mean a report that documents a study of traffic conditions before and after construction of a proposed development. It addresses any deficiencies in the transportation system, either current or after development, and proposes recommended mitigation to correct those deficiencies. (See Technical Reference A)
43. "Traveled way" is comprised of the through traffic lanes. It is the portion of a street designed or ordinarily used for vehicular travel excluding shoulders, medians, bicycle lanes, or exclusive turn lanes.
44. "Urban" shall mean a location within the current Urban Growth Boundary as adopted by the Board of County Commissioners.

1.03 RESPONSIBILITY TO PROVIDE

All development shall include provision for construction or improvement of the road according to these Standards. The Sponsor's Engineer shall consider the following guidelines in planning transportation systems.

1. Adequate vehicular and pedestrian access should be provided to all parcels of land.
2. Local access streets should be designed to minimize through traffic movements and excessive speeds.
3. Street patterns and names should be logical, consistent and understandable to satisfy the needs of emergency and delivery vehicles.
4. Vehicular and pedestrian-vehicular conflict points should be minimized. The Sponsor's Engineer should use Tee intersections on local access systems. Four-way intersections should be minimized on local access roads.
5. Traffic generators within the project should be considered and the street system designed appropriately.
6. The Sponsor's Engineer should consider bordering arterial routes and should provide design continuity.
7. No direct residential lot access should be allowed to urban principal and minor arterials.
8. When a subdivision has the cumulative effect of creating a total number of lots, parcels, or tracts served by an access road equal to or greater than the number of units shown in the following table, the Sponsor shall provide an additional access road into the development to serve fire district vehicles. The location of the additional access road shall have the concurrence of the fire district. If the location and layout of a development, in the opinion of the fire district authorities, causes a

concern for safety, an additional access road may be required regardless of the values shown in the following table.

Setting	Units
Apartments/Attached Housing*	100
(2u/a - 11 u/a	50
(0.25 u/a - 1.99 u/a	30
0 u/a - 0.25 u/a	20

* Privately owned access roads may be closed with a gate. No locking gates will be allowed without approval of the fire district.

9. The Sponsor's Engineer shall consider ease of maintenance when designing public roads.

1.04 REFERENCES

These Standards are intended to be consistent with the following references, as amended:

1. City and County Design Standards for the Construction of Urban and Rural Arterial and Collectors adopted February 10, 1994 per RCW 35.78.030 and RCW 43.32.020.
2. Spokane County Subdivision Ordinance Resolution No. 80-0424, dated March 24, 1980.
3. Washington State Local Agency Guidelines.
4. "A Policy on Geometric Design of Highways and Streets" published by the American Association of Highway and Transportation Officials (AASHTO).
5. "Highway Capacity Manual" (Special Report 209) published by the Transportation Research Board, National Research Council.
6. "Roadside Design Guide" published by the American Association of Highway and Transportation Officials (AASHTO).
7. Spokane County Comprehensive Plan including the Arterial Road Plan.
8. Spokane County Zoning Code.

1.05 NOT USED

1.06 STATE SPECIFICATIONS AND PLANS

Except where stated in these Standards, design and construction shall conform to the current editions of the following Washington State Department of Transportation publications, as adopted by Spokane County:

1. Standard Specifications for Road and Bridge Construction. It will be referred to as the "Standard Specifications."
2. Standard Plans for Road and Bridge Construction.

1.07 NON-CONFORMING PRIVATE ROAD

A non-conforming private road is an access easement (1) recorded with the Spokane County Auditor (Record-of-Survey, easement document, other) and (2) approved by Spokane County (Certificate-of-Exemption issued prior to May 15, 1995, building permit, other) as a private road.

Private roads will not be required to comply with the provisions of these standards if all of the following conditions exist:

1. The roads are located within easements recorded prior to May 15, 1995.
2. The roads have all-weather surfaces and comply or can be made to comply with the provisions described in Section 3.05.050 of Title 3 of the Spokane County Code, as amended.

Private roads constructed according to Spokane County Standards on or after May 15, 1995 and before the effective date of this ordinance shall be deemed as non-conforming and shall not be required to comply with the provisions of these Standards.

1.08 DEVIATIONS AND REVIEW OF DECISION

1. Deviations from these Standards may be granted by the County Engineer in writing upon written evidence from the Project Sponsor that the proposed deviation does not conflict with or modify a condition of approval, and
2. deviations are based upon sound engineering principles, and
3. deviations meet requirements for safety, function, appearance, and maintainability.

Desired deviations must be approved before road plans are accepted for residential development. Deviations must be approved before commercial building permits are issued. The County Engineer may apply conditions to the approval of design deviations. The conditions may not have been required in the preliminary plat approval. In case of a denial of a deviation request, the Developer may request a review and reconsideration of the denial. The Design Deviation Review Panel will review the deviation request and

make a recommendation to the County Engineer. The County Engineer will then consider the recommendation of the Design Deviation Review Panel and render a final decision on the deviation request.

1.09 NOT USED

1.10 COMPLIANCE REVIEW

In the event an Engineer or Surveyor submits plans, calculations, or record drawings that are not in compliance with these Standards, the County Engineer may refer the case to the Director of Public Works for consideration.

Decisions of the Director of Public Works may be appealed to the Board of County Commissioners. Failure to comply with these Standards will be cause for withholding or withdrawing approval of permits, plats, forfeiture of bond, and/or other penalties as provided by law.

1.11 ROADWAY TYPES

The types and widths of County streets are shown in Tables 3.01, 3.02, and 3.03. Standard Plan sheets entitled "Roadway Section-Curbed" and "Roadway Section-Shouldered" show typical roadway cross-sections. Curbed streets shall be constructed on roads within an urban land use classification. The County Engineer may also require curbs in other land use classifications near schools or commercial establishments.

1.12 ROADWAY CLASSIFICATIONS

1. RURAL ARTERIAL SYSTEM

- A. Major Collector Arterial - These routes (1) serve County seats on arterial routes, larger towns not directly served by the higher systems, and other important traffic generators, such as consolidated schools, shipping points, County parks, and important mining and agricultural areas; (2) link these places with nearby larger towns or cities, or with routes of higher classification; and (3) serve the more important intracounty travel corridors.
- B. Minor Collector Arterial - These routes should (1) be spaced at intervals consistent with population density to accumulate traffic from local routes and bring all developed areas within reasonable distance of collector roads, (2) provide service to remaining smaller communities, and (3) link the locally important traffic generators with their rural hinterland.

2. URBAN ARTERIAL SYSTEM

- A. Principal Arterial Street - The urban principal arterial system serves the major centers of activity of urbanized areas. They are the highest traffic volume corridors and have the longest trip desires. Principal arterials carry a high proportion of the total urban area travel on a minimum of mileage. Access to principal arterials may be controlled or uncontrolled. The system should be integrated internally and between major rural connections. The principal arterial system carries most of the trips entering and leaving the urban area, and most of the through movements bypassing the central city. This class of facility serves significant intra-area travel. This includes travel between central business districts and outlying residential areas, between major inner-city communities, and between major suburban centers.

Frequently, the principal arterial system carries important intra-urban and inter-city bus routes. Finally, in urbanized areas, this system provides continuity for all rural arterials that intercept the urban boundary. (AASHTO, 1990, page 13).

- B. Minor Arterial Street - The minor arterial street system interconnects with and augments the principal arterial system. It provides trips of moderate length at a lower level of travel mobility than principal arterials do. This system distributes travel to geographic areas smaller than those identified with the higher system. The minor arterial street system includes all arterials not classified as principal. Minor arterials system place more emphasis on land access than the higher system does and offers lower traffic mobility. Such a facility may carry local bus routes and provide intra community continuity but ideally does not penetrate identifiable neighborhoods. Minor arterials include urban connections to rural collector roads where such connections have not been classified as principal arterials for internal reasons. (AASHTO, 1990, page 14).

3. COLLECTOR SYSTEM

The collector street system provides both land access service and traffic circulation within residential neighborhoods and commercial and industrial areas. It differs from the principal and minor arterial systems in that facilities on the collector system may penetrate residential neighborhoods, distributing trips from the arterials through the area to their ultimate destinations. Conversely, the collector street also collects traffic from local streets in residential neighborhoods and channels it into the arterial system. The collector street system may also carry local bus routes. (AASHTO, 1990, page 15).

4. ACCESS ROADS

Access roads allow direct access to abutting lands and connections to the higher order systems. They offer the lowest level of mobility and usually contain no bus routes. Access roads should be designed to discourage service to through-traffic movement.

1. Industrial/Commercial - Industrial local access streets abut manufacturing facilities, processing plants, or warehousing facilities, stores, dense multiple family dwellings, commercial sources, office and professional buildings.
2. Residential Access - Through streets, loop streets and cul-de-sac streets that provide access to homes connecting to a collector arterial or other residential access streets. These roads do not support through traffic.

1.13 HALF-STREET

A half-street is permitted as an interim facility. Half-streets may be used pending construction of the entire street by the owner on the opposite side of the road. On roads thirty feet in width or less, the entire width of the road, except the outer six feet of pavement, curb, and sidewalk on one side, shall constitute a "half-street". A two-foot gravel shoulder shall be constructed next to the pavement on the interim side for roads with a permanent width of twenty-eight feet or less.

1.14 PRIMITIVE ROADS (SUMMER ROADS)

Primitive roads are existing, rural, low-volume, unpaved, access roads and are designated as such by a sign at all places where the primitive road portion begins or connects with a highway or road other than a primitive road. These roads are not fully maintained roads. Maintenance occurs as needed, on an irregular basis within system-wide priorities, only during the summer months. Snow removal is not performed on these roads. Primitive roads are usually not constructed to proper design standards and do not have warning nor regulatory traffic signs.

1.15 NOT USED

1.16 ROAD NAMES

The Sponsor may suggest road names within a development. Road Names will be reviewed by the County Engineer and modified as necessary to conform to regulations. Road name designations shall be as follows:

1. All streets located outside the metropolitan area shall be called Roads.
2. All North-South streets shall be called Streets.
3. All East-West streets shall be called Avenues.
4. Streets in large subdivisions that do not have a definite directional course shall be called Drives.
5. A dead-end street or cul-de-sac when not an extension of an existing street or a continuation of any future street shall be called a Court.

6. A street that lies diagonally to the east-west, north-south grid system and is an arterial or collector street shall be called a Boulevard.
7. A street that has its ingress and egress on the same street shall be called a Circle.
8. A private road shall be called a Lane.

1.17 – 1.19 NOT USED

1.20 LEVELS OF SERVICE

The County Engineer has established acceptable Levels of Service (LOS) for traffic at Spokane County intersections. Levels Of Service are used in determining the impacts on the road system by land development proposals. The minimum acceptable LOS are:

1. signalized-"D"
2. unsignalized-"E"

1.21 - 1.29 NOT USED

1.30 TRAFFIC IMPACT STUDY

Prior to a land use action, the Sponsor shall perform a traffic impact study when the project meets the criteria of one or more of the items listed below. A specific scoping by the County Engineer may range from an in-depth analysis of site generated levels-of-service to a cursory review of safety issues. The County Engineer shall determine the specific project scope. The Sponsor shall submit a traffic report signed by a Professional Engineer, licensed in the State of Washington. The traffic impact study shall be performed in accordance with Technical Reference A of these Standards.

1. The County Engineer determines that the proposed development will generate enough peak hour trips to lower or aggravate the minimum acceptable LOS.
2. The County Engineer determines that driveways from the land development proposal have the potential to generate traffic safety problems on the adjacent public roadway.
3. The County Engineer determines that an existing route with a history of traffic accidents will be further impacted by an increase in traffic from the proposal.

1.31 - 1.39 NOT USED

1.40 SEVERABILITY

If any part of the Spokane County Guidelines for Road and Sewer Construction as established by ordinance shall be found invalid, all other parts shall remain in effect.

2.00 ROAD TYPES & GEOMETRIC FEATURES

1. County roads are classified functionally as shown in subsections 1.12. Based on these classifications the criteria for right of way, road width, and other geometric features shall be as stated. Function is the controlling element for classification. Access, spacing, ADT¹ and DHV² are merely typical.
2. Terrain is a basis for further classification of geometric requirements.
 - A. Flat terrain is that condition where roadway sight distances, as governed by both horizontal and vertical restrictions, are generally long or could be made to be so without construction difficulty or major expense. The slope of the existing terrain is from 0% to and including 5%.
 - B. Rolling terrain is that condition where the natural slopes rise above and fall below the roadway grade line consistently. Normal roadway alignment is restricted some by occasional steep slopes. The slope of the existing terrain is from 5% to and including 15%.
 - C. Mountainous terrain is that condition where longitudinal and transverse changes in the elevation of the ground with respect to a roadway are abrupt and where the roadbed is obtained by frequent benching or side hill excavation. The slope of the existing terrain exceeds 15%.

Terrain classification pertains to the general character of the specific route corridor. Roads in valleys or passes of mountainous areas that have all the characteristics of roads traversing flat or rolling terrain should be classified as flat or rolling. In rolling terrain, trucks reduce their speeds below those of passenger cars on some sections of roadway. Mountainous terrain is responsible for some truck operation at crawl speeds. In cases where the terrain classification is in question, the County Engineer shall make the final decision.

The terrain classification will be determined at the pre-submittal meeting, as described in Section 5.01.

-
1. Average Daily Traffic
 2. Design Hourly Volume

3.00 NEW CONSTRUCTION DESIGN STANDARDS

3.01 COUNTY ARTERIAL AND COLLECTOR STREETS

Standards for construction of new arterial roads and reconstruction of existing arterial roads within Spokane County shall follow the criteria shown on Tables 3.01 Arterial and Collector Street Design Elements and Table 3.02 Arterial and Collector Street Design Elements - Minimum Widths. "A Policy on Geometric Design of Highways and Streets" (AASHTO) shall govern all design elements not shown in these standards.

3.02 COUNTY ACCESS STREETS

Standards for construction of new access roads and reconstruction of existing access roads within Spokane County shall follow the criteria shown on Table 3.03 Access Street Design Elements. "A Policy on Geometric Design of Highways and Streets" (AASHTO) shall govern all design elements not shown in these standards.

3.03 TYPICAL ROADWAY SECTION

The County Engineer shall for each application designate typical roadway sections using the widths shown in Tables 3.01, 3.02, and 3.03 of these Standards. In selecting the roadway section to be applied, the County Engineer will review and give consideration to certain factors in connection with the proposal, including but not necessarily limited to the functional classification of the roadway, traffic volume, the terrain, density of the proposed or existing development, the proposed or existing zoning, the existing roads in the immediate area, the cost relationship of the proposed improvements, the surrounding developments, and other such factors as are deemed significant of the proposal being reviewed in light of public health, safety and welfare.

3.04 INTERSECTIONS

The minimum curb-return radius at intersections on an arterial road shall be thirty feet. Private curbed roads 24 feet or narrower shall have return radii of 30 feet. The minimum curb return radius at all other intersections shall be twenty feet. Larger radii may be required where truck traffic is a significant factor. Where trucks are a significant factor, the County Engineer shall decide the size of the return radii.

The right of way at curb returns on arterial streets shall allow space for future signal foundations.

All intersections shall be designed at right angles to the intersecting road, where possible. If a right angle is not possible, the skew angle shall not vary more than 15 degrees from a right angle. At four legged intersections, opposite legs shall lie on a straight alignment where possible. The minimum distance between intersections on a County road shall be:

300 feet for any road intersecting with a principal or minor arterial.
 150 feet for any road intersecting with a local access or collector arterial .

Distances are measured from the centerline of the intersecting road to the centerline of the next intersecting road.

The cross slope of the higher priority roadway shall be extended through the intersections. The grade of the crossroad shall be adjusted to meet the cross slope of the higher priority roadway.

The road approach area is where vehicles store while waiting to enter an intersection, and shall be designed with a nearly flat grade. For public or private roads, the road approach area at a stop-controlled intersection (e.g. stop sign, yield sign, or traffic signal) shall have a downgrade approaching the intersection of no greater than 2.0 percent. An upgrade approaching the intersection shall be no steeper than 4%. The minimum length of the road approach area, measured from the edge of curb face, or traveled way where curbs are not present, is to be in accordance with Table 3.04. For any road classification not listed in Table 3.04, the County Engineer may require a traffic analysis to determine the road approach length.

Average Daily Traffic (ADT) of Higher Priority Road	Minimum Road Approach Length (2% Maximum Downgrade and 4% maximum upgrade)	
	Local Access Streets & Private Roads ⁽¹⁾	Collector Arterials ⁽²⁾
ADT < 1000	25 ft.	50 ft.
1000 < ADT < 5,000	50 ft.	75 ft.
5,000 < ADT < 7,000	75 ft.	100 ft.
7,000 < ADT < 9,000	75 ft.	analysis required

Notes:

- (1) Using a threshold of 70 peak hr left turns
- (2) Using a threshold of 110 peak hr left turns

Table 3.04

3.05 BORDER EASEMENTS

On curbed roads, with separated sidewalks, border easements shall be granted to Spokane County and shall be described in the plat dedication. Border easements shall include the area from the right-of-way line to the back of sidewalk and shall run the total length of the road on both sides. The abutting property owner shall maintain sidewalks, driveways, and landscaping within the border easements. Spokane County will maintain drainage inlets, grates, pipes, and drywells used for disposal of public road drainage.

Fences shall not be constructed inside the easement. The border easement area shall be kept clear of other objects that would obstruct a driver's view. The sidewalk shall be open for use of pedestrian traffic at all times. The easement shall be available for use by utility companies.

3.06 NOT USED

3.07 SLOPES

The steepest slope for embankment or excavation shall normally be 2:1 (horizontal/vertical). Approval of steeper slopes will require a report signed by a licensed engineer qualified in soils testing and analysis.

The Sponsor's Engineer shall provide a space between the catch point of the slope and the right of way line on shouldered roads side slope of 3:1 or steeper. This space provides for utility poles, fences, sloped rounding, etc. The minimum distance of this space shall be five feet.

Embankment slopes constructed with native soil or imported soil shall not be steeper than an inclination of 2:1 for slopes that are 10 feet or greater in height measured vertically from the slope toe to the crest. Embankment slopes less than 10 feet high may be constructed at inclinations not steeper than 1.5:1, provided proper fill placement and compaction criteria, and erosion control are called for in the contract documents. Steeper embankment slopes for any embankment height, including mechanically stabilized earth slopes, may be permitted by the County provided the Sponsor's Engineer can demonstrate that the factor of safety against slope instability (global and internal) is not less than 1.3, and that erosion potential of the slopes will be properly mitigated during construction.

Cut slopes in competent native soils shall not be steeper than an inclination of 1.5:1 unless a qualified geotechnical engineer provides approval for slopes of steeper inclination. Erosion mitigation shall be included in the contract documents.

The terrain or design features of a road may require slope, wall or drainage easements beyond the right of way line. The County Engineer shall require easements or acquisition of right of way.

3.08 RIGHT-OF-WAY

The road right of way width shall be determined by summing the total of widths of all required roadway elements from Tables 3.02 and 3.03 and applying sums to the Standard Plans entitled "Roadway Sections-Curbed" or "Roadway Sections-Shouldered", as applicable.

Minimum Design Elements ¹	Type	Urban Arterial System				Urban Collector System	Rural Arterial System			
		Classification	Principal (Controlled Access)	Principal (Uncontrolled)	Minor	Collector	Minor or Major Collector			
	Construction	Curb	Shoulder	All	All	All	Shoulder ⁵			
	ADT	All	All	All	All	All	Below 400	400-2000	Over 2000	
Design Speed (mph)	Flat Rolling Mountainous	55 50 40	55 50 40	40 40 35	40 35 30	30 30 30	50 40 30	50 40 30	55 50 40	
Horizontal Curve Radius ² (ft)	Flat Rolling Mountainous	1190 955 500	1190 955 500	575 500 350	500 350 230	275 275 230	765 470 255	765 470 255	960 765 470	
Superelevation (%)	Maximum	4	4	4	4		8	8	8	
Grade (%) ³	Maximum Minimum	6 0.5	6 0.5	6 0.5	8 0.5	8 0.5	8 0.5	6 0.5	6 0.5	
Stopping Sight Distance (ft)	Flat Rolling Mountainous	450 400 275	450 400 275	275 275 225	275 225 200	200 200 200	400 275 200	400 275 200	450 400 275	
Intersection Sight Distance(ft)		AASHTO Chapter IX "Sight Distance" pages 739-766								
Crest Vertical Curves ^{4,6,7} (K)	Flat Rolling Mountainous	150 110 60	150 110 60	60 60 40	60 40 30	60 40 30	110 60 30	110 60 30	150 110 60	
Sag Vertical Curves ^{4,6,7} (K)	Flat Rolling Mountainous	100 90 60	100 90 60	60 60 50	60 50 40	60 50 40	90 60 40	90 60 40	100 90 60	

See next page for footnotes.

**TABLE 3.01
ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS¹**

1. In addition, geometric design shall be consistent with "A Policy on Geometric Design of Highways and Street, 1990, AASHTO".
2. Minimum horizontal curves reflect maximum superelevation rates. Flatter rates require longer radius curves.
3. Maximum grades may be exceeded for short distances subject to approval by the County Engineer "(+ 2%)".
4. Length in feet per percent of algebraic grade difference. (K value). $L = K \times \text{Algebraic difference in grade}$. Sponsor's Engineer may use method shown in AASHTO pgs. 281 through 295
5. Curbed Rural Collectors shall be designed using Urban Minor standards.
6. Grade differences less than 1% do not require a vertical curve.
7. Minimum length vertical curve shall be 100 feet.

**TABLE 3.01
ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS**

Type	Urban Arterial System			Urban Collector System	Rural Arterial System			
Classification	Principal		Minor	Collector	Major and Minor Collector			
Construction	Curb	Shoulder	Curb	Curb				
ADT	All	All	All	All	Below 400	400-2000	Over 2000	
Painted Center/Left-turn Lanes ⁴	12'	12'	12'	12'	-	-	-	
Inside lanes	12'	12'	12'	12'				
Intermediate lanes	12'	12'	12'	12'				
Outside lanes ¹	16'	12'	16'	16'	12'	12'	12'	
Shoulder		8'			3'	6'	8'	
Border w/ Swale	18'	15'	18'	18'	10'	10'	15'	
Border w/o Swale	15'	8'	15'	15'	6'	8'	8'	
Roadway Width W) ²	2 lanes	--	--	44' ³	37' ³	30'	36'	40'
	3 lanes	46'	--	46'	--	--	--	--
	4 lanes	56'	64'	56'	--	--	--	64'
	5 lanes	70'	78'	70'	--	--	--	--
	6 lanes	80'	102'	--	--	--	--	--
	7 lanes	94'	--	--	--	--	--	--
Right of Way width	See Section 3.08							

See next page for footnotes.

**TABLE 3.02
ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS
MINIMUM WIDTHS**

1. Traveled lanes of a two-lane road are shown as outside lanes.
2. Distance *W* is shown on Standard Plan sheet A-1
3. Parking lanes included.
4. Where raised median islands are required, the center lane or left-turn lane shall be fourteen feet in width.

TABLE 3.02
ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS
MINIMUM WIDTHS

Minimum Design Elements ¹	Classification	Industrial/Commercial		Residential				Private Roads ¹⁰
	ADT	All		200 and Above		Below 200		All
	Construction	Curbed	Shoulder	Curbed	Shoulder ⁵	Curbed	Shoulder	All
Design Speed (mph)	Flat	35	35	30	30	25	30	20
	Rolling	30	30	30	30	25	30	20
	Mountainous	25	25	25	25	20	20	20
Minimum Horizontal Curve Radius ^{2, 6} (ft)	Flat	415	345	275	215	100	215	100
	Rolling	275	230	275	215	100	215	100
	Mountainous	165	145	165	135	100	75	100
Superelevation Rate (%)	Maximum	--	4	--	6	--	6	--
Grade (%) ³	Maximum	8	8	8	8	8	8	12
	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Stopping Sight Distance (ft)	Flat	225	225	200	200	150	150	125
	Rolling	200	200	200	200	150	150	125
	Mountainous	150	150	150	150	125	125	125
Intersection Sight Distance (ft)	AASHTO Chapter IX Sight Distance pages 739-766							
Crest Vertical Curves ⁴ (K)	Flat	40	40	30	30	20	30	10
	Rolling	30	30	30	30	20	30	10
	Mountainous	20	20	20	20	10	10	10
Sag Vertical Curves ⁴ (K)	Flat	50	50	40	40	30	40	20
	Rolling	40	40	40	40	30	40	20
	Mountainous	30	30	30	30	20	20	20
Roadway Width (ft) ^{7,8}	Minimum	40	40	30	30	28	28	20 ⁹
Intersection return radii (ft)	Minimum	30	30	20	20	20	20	30
Right of Way Width (ft)	See Section 3.08							

See next page for footnotes.

**TABLE 3.03
ACCESS STREET DESIGN ELEMENTS**

1. In addition, geometric design shall be consistent with "A Policy on Geometric Design of Highways and Street, 1990, AASHTO".
2. Where superelevation rate is shown, minimum horizontal curves reflect maximum superelevation rates. Curves with lower rates require longer radius curves.
3. Maximum grades may be exceeded for short distances subject to approval by the County Engineer (+2%).
4. Length in feet per percent of algebraic grade difference (K value). $L = K \times \text{Algebraic difference in grade}$. Sponsor's Engineer may use method shown in AASHTO pgs. 281 through 295. Grade differences less than 1% do not require a vertical curve. The minimum length vertical curve shall be 50 feet.
5. Rural access roads with higher speed limits shall be designed for no less than the speed limit.
6. Minimum radius curves for curbed roads shall be consistent with AASHTO, low speed urban streets standards.
7. Paved roadway width does not include curb and/or gutter section.
8. Includes shared access.
9. Private road width based on number of lots served: 3 to 6 lots = 20 ft.; 7 to 20 lots = 24 ft; 21+ lots = 28 ft. A minimum 10' maintenance and utility easement shall be provided on each side of the private roadway. Private roads within mandated non-attainment areas for suspended particulate shall be paved. Private roads in all other areas shall provide an all-weather driving surface.
10. Median islands noses shall be no closer than 20 feet to the public road curb line.

**TABLE 3.03
ACCESS STREET DESIGN**

3.09 CONNECTIONS OF STATE HIGHWAYS AND NEW COUNTY ROADS

The Sponsor shall prepare and submit to the County Engineer a design proposal, acceptable to the Washington State Department of Transportation (W.S.D.O.T.), of the proposed state highway - county road intersection. W.S.D.O.T. approval of the proposed design must be received before the filing of the final plat. Improvements to the state highway are the responsibility of the Sponsor. The Sponsor may either construct the improvements or furnish to the County Engineer a bond to cover the cost of such improvements. The County Engineer and W.S.D.O.T. will decide the amount of the bond.

3.10 NOT USED

3.11 RAILROAD GRADE CROSSING

Standard signs and markings shall be installed at all railroad-road grade crossings. All railroad grade crossing signs and markings shall comply with the Manual of Uniform Traffic Control Devices and all other applicable State and Federal regulations.

The Sponsor shall install flashing light signals and gates, showing the approach or presence of trains, at those railroad-road crossings where studies by the County Engineer show the need of warning beyond that provided by standard signs and markings.

3.12 STANDARD ROAD AND TRAFFIC CONTROL SIGNING

The Sponsor shall be responsible for the installation of all permanent traffic control devices, such as, signs, striping and marking. He/she shall submit a signing and striping plan for approval. The plan shall show the types and locations of all traffic control devices, such as, signs, stripes, marking and delineators to be installed on public rights-of-way. Traffic control devices shall conform with the Manual on Uniform Traffic Control Devices. If the permanent traffic control devices are not installed in a timely manner the Sponsor shall be given a 30 day notice after which time the County will furnish and install all traffic control devices on the projects. The County will bill the Sponsor for the work based on the actual cost for labor, equipment rental, and materials. If the absence of critical safety devices such as stop signs is causing a present endangerment to the traveling public, the County will immediately furnish and install the devices and bill the Sponsor for the work.

3.13 NOT USED

3.14 TRAFFIC BARRIER

Traffic barriers shall be provided as specified in the Washington State Department of Highways Design Manual. A roadway cross section shall be submitted to assure proper barrier location. The barrier shall conform to Washington State Department of Transportation Standard Plans for guardrail and concrete barrier.

3.15 CLEAR ZONE

The term "clear zone" is used to designate the unobstructed area provided beyond the edge of the traveled way on a public road for the recovery of errant vehicles.

1. On shouldered roads, rigid objects shall be placed no closer to the traveled way than the clear zone distance derived by using Tables 3.15 and 3.15A. The methods described in the current edition of the Roadside Design Guide, AASHTO, may be used. Within the clear zone, all hazards shall be protected by traffic barrier. In lieu of barrier, hazards may be constructed flush with the surface.
2. On curbed roads with:
 - A. Sidewalk contiguous with curb - Rigid objects shall be placed behind the sidewalk.
 - B. Separated sidewalk - Rigid objects shall be no closer than two feet from the back of the curb.
 - C. No sidewalk - Rigid objects shall be no closer than two feet from the back of the curb.
 - D. Speed limit 40 mph or less- The clear zone distance is two feet behind the face of the curb.
 - E. Speed limit greater than 40 m.p.h. - The Sponsor's Engineer shall use the clear zone requirements for a shouldered road.

3.16 ROAD SURFACING REQUIREMENTS

All public roads in Spokane County shall be paved. A pavement surfacing design procedure must be performed for all public and private roads. Table 3.16 may be used in place of performing a pavement design for residential access roads. The design life for all roads shall be 20 years. The design procedure used must be approved by the County Engineer and must consider the following:

1. Traffic Loading - an estimate of the number and types of loadings the roadway will carry for the design life. This estimate of loading must be established by a procedure accepted by the County Engineer and be expressed in 18-Kip Equivalent Single Axle Loads (ESALs).
2. Subgrade Support - a representative value for the stiffness of the native material on which the road will be built. This value will be established by a procedure accepted by the County Engineer and be expressed as resilient modulus (M_R). When determining M_R , soil sampling is to include:

- A. obtaining a sufficient number of soil samples which adequately represents the subgrade M_R , and where significant changes in M_R occur;
 - B. constructing a soil log to a minimum of five foot depth below proposed subgrade and classify the soil per USC; and
 - C. recording the location of where the samples were obtained, normally by station and offset.
3. Analysis - a procedure for establishing the surfacing depth requirements for a given traffic loading and subgrade resilient modulus. This procedure must be approved by the County Engineer. The following procedure is pre-approved: *Guide for Design of Pavement Structures*, 1993, by the American Association of State Highway and Transportation Officials (AASHTO).

Structural pavement design and reporting is to be done in accordance with Technical Reference B.

Minimum Thickness:

Regardless of the thickness computed by the design procedure, the minimum thickness of road structural section shall be as follows:

- | | |
|---------------|--|
| Local Access: | 2" Asphalt Concrete Pavement Class A or B
6" Crushed Surfacing Base Course |
| Arterial: | 2" Asphalt Concrete Pavement Class A
2" Asphalt Concrete Pavement Class E
6" Crushed Surfacing Base Course |

Rural roads with a traffic volume less than 200 A.D.T. may be paved by means of a light bituminous surface treatment (L.B.S.T.). The L.B.S.T. shall consist of no less than two applications of oil. The gravel thickness shall be designed according to good engineering practices considering the quality of the underlying soil. The design method shall be subject to approval by the County Engineer. In no case shall the gravel thickness be less than six inches. The Sponsor shall provide funding for an additional application of oil to be placed as a seal coat approximately one year after initial construction.

Design Speed	Design ADT	Fill Slopes			Cut Slopes		
		6:1 or flatter	5:1 to 4:1	3:1	3:1	4:1 to 5:1	6:1 or flatter
Posted Speed 35 mph or less		10	10	10	10	10	10
40 mph or less	Under 750	10	10	**	10	10	10
	1500-750	12	14	**	12	12	12
	1500-6000	14	16	**	14	14	14
	Over 6000	16	18	**	16	16	16
45 – 50 mph	Under 750	12	14	**	10	10	12
	1500-750	14	20	**	12	14	16
	1500-6000	18	26	**	14	16	18
	Over 6000	20	28	**	16	20	22
	Under 750	14	18	**	10	12	12
55 mph	1500-750	18	24	**	12	16	18
	1500-6000	22	30	**	16	18	22
	Over 6000	24	32*	**	18	20	24
60 mph	Under 750	18	24	**	12	14	16
	1500-750	24	32*	**	14	18	22
	1500-6000	30	40*	**	18	22	26
	Over 6000	32*	44*	**	22	26	28
60 – 70 mph	Under 750	20	26	**	12	16	16
	1500-750	26	36*	**	16	20	22
	1500-6000	21	42*	**	20	24	28
	Over 6000	34*	46*	**	24	30	30

* May be limited to 30 feet for practicality unless a site investigation indicates a probability of accidents. This will be determined by the County Engineer.

** Must be calculated using the Recovery Area Formula, Figure 3.15A

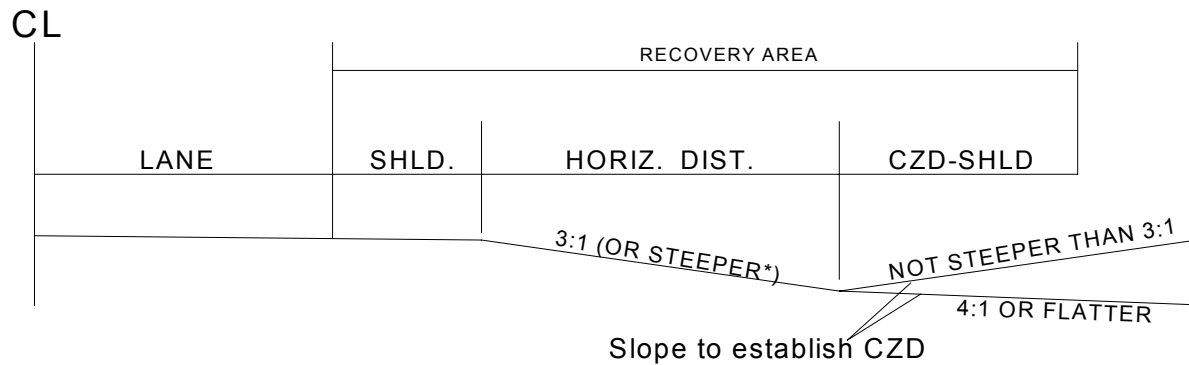
**TABLE 3.15
CLEAR ZONE DISTANCES
SHOULDERED ROADS
(In feet from edge of driving lane)**

K_{Cz} (Curve Correction Factor)¹

Degree of curve	DESIGN SPEED			
	40	45	50	55
2.0	1.08	1.10	1.12	1.15
2.5	1.10	1.12	1.15	1.19
3.0	1.11	1.05	1.18	1.23
3.5	1.13	1.17	1.22	1.26
4.0	1.15	1.19	1.25	1.30
4.5	1.17	1.22	1.28	1.34
5.0	1.19	1.24	1.31	1.37
6.0	1.23	1.29	1.36	1.45
7.0	1.26	1.34	1.42	1.52
8.0	1.30	1.38	1.48	
9.0	1.34	1.43	1.53	
10.0	1.37	1.47		
*Slopes Greater than 10	1.54			

¹ $Cz_c = L_c \times K_{Cz}$, where Cz_c = clear zone on outside of curvature, ft.

Recovery Area Formula



$$RA = SHLD + (3:1 \text{ slope dist.}) + (CZD - SHLD)$$

CZD = CLEAR ZONE DISTANCE: Use distance for a 3:1 cut slope (Table 3.15)

RA = RECOVERY AREA

* FOR SLOPES STEEPER THAN 3:1, THE EMBANKMENT HEIGHT MUST BE 10 FEET OR LESS

FIGURE 3.15A
HORIZONTAL CURVE ADJUSTMENT

Soil Type Per Unified Soil Classification System (USC)	Residential Streets	
	Private Roads	Local Access Streets
GW	2 inches/6 inches	2 inches/6 inches
GP	2 inches/6 inches	2 inches/7 inches
GM	2 inches/6 inches	2 inches/8 inches
GC	2 inches/7 inches	3 inches/6 inches
SW	2 inches/6 inches	2 inches/7 inches
SP	2 inches/6 inches	2 inches/8 inches
SM	2 inches/7 inches	3 inches/6 inches
SC	Pavement Design Needed	
ML	3 inches/6 inches	4 inches/6 inches
CL	Pavement Design Needed	
OL	4 inches/7 inches	5 inches/8 inches
MH, OH, Pt	Pavement Design Needed	

Notes:

- a) Values listed denote asphalt over crushed rock (minimum compacted thickness) {e.g. "2 inches/6 inches" denotes 2 inches of asphalt pavement over 6 inches of crushed rock}
- b) Values were calculated using the flexible pavement design method by AASHTO, 1993; and assuming traffic loads for residential-type neighborhoods. A 20-yr-design life was used.
- c) A minimum of 2 inches/6 inches structural pavement section was used in the table.
- d) When multiple soil classifications are encountered below the planned road subgrade, if the higher-strength soil is at least 2 ft. in depth and is above the lower-strength soil, then the structural pavement section applicable to the higher strength soil can be used only for soil types GW through SM.
- e) For soil types GW through SM, the upper two feet of roadway subgrade shall be compacted to 95 percent of the maximum dry density, based on the AASHTO T-180 test procedure.
- f) To use this table the Engineer shall acquire soil samples at the project site and classify the soils encountered, in accordance with sampling requirements listed in Technical Reference B.

**STRUCTURAL ROAD SECTIONS
FOR RESIDENTIAL STREETS
PAVEMENT DESIGN ALTERNATE
TABLE 3.16**

3.17 CUL-DE-SACS

Dead-end public roads shall have a cul-de-sac constructed at the end. Cul-de-sacs are shown on the Standard Plan sheet entitled "Cul-de-Sac Public Roads". In areas not served by fire hydrants, cul-de-sacs shall have a radius of 50 feet. On paved rural roads, a paved cul-de-sac with a 45-foot radius and a 5-foot gravel shoulder may be used.

At the end of private roads, the developer shall construct an area for vehicles to turn around. This turn-around area shall be constructed as shown on the Standard Plan sheet entitled "Cul-de-Sac Private Roads".

3.18 CURBS, SIDEWALKS, AND PATHWAYS

1. Requirement for all public roads within urban, commercial, and industrial land use zones:

A. Concrete curb, gutter, and sidewalk shall be constructed on both sides of the road. Sidewalk will not be required on cul-de-sac roads less than 400 feet in length measured from the centerline of the intersecting street to the radius point of the cul-de-sac.

This requirement applies to all new roads, roads to be reconstructed, or where there is a change of use of a commercial property.

The County Engineer may require sidewalk and /or curb and gutter on one or both sides of the road in rural areas where pedestrian traffic can be expected to occur, including but not limited to arterial roads, commercial uses, industrial uses, schools, parks, churches or shopping areas.

B. If roads abutting commercial property have concrete curb and gutter and/or sidewalks for which the following actions are requested:

1. A building permit for a new building, or
2. Change in use of an existing building.

The owner shall replace broken or off-grade curb and gutter and/or sidewalks. The project Sponsor shall remove or replace all driveways not conforming to this chapter as directed by the County Engineer.

C. Where new concrete curb is to be placed to form a wider road than the existing paved road, the area between the existing edge of the pavement and the new curb shall be paved as directed by the County Engineer. Where the existing curb is removed and replaced at a new grade, the Sponsor shall pave the road next to the gutter to match the new grade of the gutter.

D. Standard: See Standard Plans entitled “Curbs and Gutters” and “Urban Driveways - Separated Sidewalks”.

2. On shouldered public roads, pedestrian walkways may be incorporated into the shoulder of the road. This is done by constructing shoulders wider than those shown on Tables 3.01, 3.02, and 3.03. The Sponsor’s Engineer shall use the structural section of the shoulder for the walkway area.

3.19 NOT USED

3.20 CURB RAMPS

The Sponsor shall construct ramps to provide passage of disabled persons. The ramp shall be constructed in curb and sidewalk at all corners of intersections. Ramps shall be constructed at other crosswalk locations. Ramps shall be constructed as shown on the Standard Plan entitled “Curb Ramp”.

3.21 NOT USED

3.22 PRIVATE ROADS

A private road is a privately owned vehicular access route serving more than three lots, parcels or tracts which do not have frontage on a public road right of way.

Private roads within mandated non-attainment areas for suspended particulate shall be paved. Private roads in all other areas shall provide an all-weather driving surface. The traveled way of a private road shall be designated as a fire lane under the Uniform Fire Code, as amended. Spokane County will not perform an in-depth review of private road plans, inspect the construction of private roads, or maintain private roads.

Private roads may be permitted when:

1. The roads are within a subdivision approved pursuant to 58.17 RCW and the Spokane County Subdivision Ordinance.
2. A title notice has been approved and recorded with the County that provides for maintenance of the private roads and associated parking areas by owners in the development, and
 - A. A ten (10) foot easement shall be provided for on each side of the roadway for roadway maintenance and utilities, and
 - B. Provision is made for the roads to be open for emergency and public service vehicle use, and

- C. The title notice shall include language indicating that the county is not responsible for maintenance of the private road, and
- D. The private roads will not obstruct public road circulation.

Private road design plans, drainage studies, drainage plans and appropriate calculations shall be submitted by the Sponsor to the County Engineer prior to construction of the road. All submittals shall bear a certification by the Sponsor's Design Engineer that they were prepared in conformance with and meet the requirements of these Design Standards and all other applicable laws and regulations. Prior to private road construction, the Sponsor must acquire acceptance for any private development drainage plan that impacts the public road rights-of-way. Submittal requirements and procedures shall be according to Section 5.01.

The Sponsor shall submit record drawings of private road and drainage improvement construction to the County Engineer. All record drawing submittals shall bear certification by the Sponsor's Construction Engineer that construction was performed in conformance with these standards, the provisions for Section 9.10 and the Guidelines for Stormwater Management.

Spokane County does not furnish, install, or maintain signs for private roads including stop signs or street name signs for private roadways intersecting public roads. The owner may install their own signs in accordance with the MUTCD, but must have approval from the County Engineer when installing signs at intersections with public roads. Prior to installing signs at the private road intersecting with a public road, an approach permit shall be obtained.

3.23 PRIVATE ALLEYS

Privately owned alleys may be constructed to provide secondary access to urban, residential lots. An alley must be sixteen feet wide, paved, and must be located within a minimum twenty-six foot wide easement or private right-of-way. The alley shall connect to a public or private road at each end. The intersection of an alley with a public road shall conform to the Standard Drawing entitled "Cement Concrete Approaches". Prior to final plat approval, the developer must provide an agreement for the maintenance of private alleys.

Alley design shall conform to the design standards for a private road shown on Table 3.03. Private alleys are designated fire lanes as described in the current edition of the Uniform Fire Code.

3.24 DRIVEWAY APPROACHES

1. GENERAL

- A. Private driveways provide primary vehicular access from a roadway to up to three lots. Private driveways shall comply with Section 3.0-5.050 of Title 3 of the Spokane County Code, as amended.
- B. Every driveway approach must provide access to an off road parking area located on private property. The driveway shall be of sufficient length so a vehicle in the driveway does not project into the road right of way, sidewalk, or pathway.
- C. Public or private driveways in industrial, commercial, multiple family, church, or any like use shall be constructed to allow vehicles to exit without backing out onto an arterial road.
- D. Driveway approaches shall be constructed to avoid interference with existing drainage inlets, culverts, road lighting standards, utility poles, traffic regulating devices, fire hydrants or other public facilities. The applicant shall bear the cost of relocating any such public facility. The agency holding authority for the particular structure shall decide how the facility will be relocated.
- E. The total width of all driveway approaches on a road for any ownership shall not exceed 50% of the frontage of that ownership along the road and shall not be more than two in number except as allowed under Section 3.24 1.G.1. Refer to the Standard Plan entitled "Cement Concrete Approaches" for approach dimensions.
- F. The owner of a driveway approach that has been abandoned, or for any reason has become unnecessary, shall replace it with a standard curb and sidewalk that is constructed according to the Standard Specifications and Standard Plans. This construction work shall take place in case of actions listed under 3.24 1.G.1. through 3.
- G. In single ownerships, if the total width of existing driveway approaches on a road is over 50% of the frontage of the ownership on that road, or any driveway approaches are wider than 40 feet, such existing driveways shall be made to conform to this chapter's provisions in the following events:
 - 1. Any alteration, widening, relocation, or repair of existing driveways in the ownership.
 - 2. Any construction of additional approaches in the ownership.

3. Where a single ownership is developed into more than one parcel, requirements for driveways may apply to each separate parcel rather than to the entire ownership, if:
 - a. Each parcel shall meet the requirements of off road parking and/or loading as required by the Zoning Ordinance.
 - b. The safety of pedestrians or vehicular traffic is not endangered,
 - c. There is necessity for separate access to the road.
4. In instances where the County Engineer deems, due to either existing or anticipated conditions, that the requirements of the Spokane County Standards for Road and Sewer Construction, will not provide the proper control of access or egress for traffic or safely provide for the traffic using the street, he/she may make additional requirements to insure public safety.

2. NON-RESIDENTIAL DRIVEWAY APPROACHES

- A. Where existing curb and/or sidewalk is not continuous along the road frontages of ownerships, the Project Sponsor shall construct curb and gutter and/or sidewalk to form a continuous curb and/or sidewalk. The Sponsor shall install any necessary storm drainage improvements directed by the County Engineer. Where a single ownership is developed into more than one parcel, requirements for curbs and gutter and sidewalks may apply to each separate parcel instead of the entire ownership.
- B. If construction of driveways, curbs and gutters is waived, driveway approaches shall be properly delineated by the permit holder by wooden posts or other means as directed by the County Engineer. The driveway approaches shall be of asphalt concrete pavement from the existing roadway surface to the property line.
- C. Driveway approaches shall not restrict or impound drainage flow in the road gutter line. For shouldered roads with ditches, storm drainage shall be passed under a driveway by a culvert pipe. A suitable warning marker shall be placed at each end of the culvert. The size of the culvert shall be as specified by the County Engineer. A diameter of twelve inches (12") shall be the minimum size culvert allowed.

2. DRIVEWAY APPROACH DESIGN

- A. Driveways shall be constructed to define the access and egress openings in accordance with the Spokane County Standards for Road and Sewer Construction and Standard Plan sheets entitled "Cement Concrete Approaches" and "Rural Road Approaches".
- B. Driveway approach grades within right of way shall not exceed 8% (a rise or descent of 8 feet in 100 feet) in the urban area, or 2% (a rate of rise or descent of 2 feet in 100 feet) in rural areas. Driveway grades shall not exceed ten percent within ten feet of a county road right-of-way.

Drainage from private driveways that connect to a public graveled road shall be controlled to prevent runoff water from entering onto the public roadway.

- C. No driveway approach in the curb line shall be constructed, reconstructed or altered to be within five feet of a street crosswalk or on the curb arc between two intersection curb lines at a street intersection.
- D. The spacing between driveway approaches in the curb line of ownerships or leaseholds shall not be less than ten feet for commercial uses nor less than fifteen feet for industrial uses measured parallel with the frontage.
- E. No driveway approach shall be located closer than seven and one-half feet from an interior lot or property line.
- F. Driveway approaches in commercial zones may not be located closer than thirty feet from the point of curvature of a curb return. Driveways in residential zones may not be located closer than five feet from the point of curvature of a curb return.

4.00 3-R DESIGN STANDARDS

1. GENERAL

A publicly-funded road project becomes 3-R when the proposed improvement consists of resurfacing, restoration, and rehabilitation of the existing pavement. The purpose of these projects is to preserve and extend the service life of the roadway. They also result in enhancing the safety of the traveling public.

Projects, classified as 3-R, involve work on an existing roadway surface and/or subsurface. Their purpose includes extending the service life, providing additional pavement strength, paving existing gravel roads, increasing skid resistance, improving the ride of the roadway, and enhancing it's safety. A project may be considered 3-R if no more than 50 percent of the project length involves vertical or horizontal alignment changes. To be considered 3-R, the road cannot be widened more than one traffic lane. All projects that are not qualified as a 3-R project must meet design standards for new construction.

Normally, project sponsors make 3-R improvements within the existing right of way. The Sponsor should consider acquiring right of way and/or easements, if practical.

Survey monuments shall be perpetuated in accordance with the "Land Survey Standards" sections of the manual.

2. DESIGN STANDARDS:

It is desirable that 3-R projects be designed to meet the standards for new construction. However, if for reasons such as environmental concerns, social impact, or cost, it is inadvisable or impossible to meet new construction standards, the Project Sponsor should make a careful analysis of the alternatives. The analysis should consider adjacent roadway sections, future improvements, and existing conditions. If meeting the new construction standards is unreasonable, improvements in roadway widths should still be considered.

- A. Design Speed - The County Engineer will set the design speed for 3-R projects.
- B. Super elevation - To provide for the same degree of safety and comfort on 3-R projects as on any other, super elevation, including transitions, should be provided on projects with a design speed greater than 35 mph.
- C. Roadway Width - The minimum roadway surfaced width (W) for 3-R projects is 24 feet for a shouldered road and 32 feet on a curbed road.
- D. Ditches - Fill slopes and slope ditches shall not be steeper than 3:1. Flatter slopes are desirable.

- E. Alignment - Alignment improvements should be undertaken where the number of accidents is high, and where previously installed warning signs, markings, or other devices have not proven effective. If existing horizontal and vertical alignments are to be retained, a careful analysis should be undertaken to provide adequate signing and marking.
- F. Clear Zone - For safety, it is desirable to provide a roadside recovery area that is as wide as practical. The designer must give particular attention to the clear zone at identified high roadside accident locations. An adequate clear zone at horizontal curves at the end of a downgrade, should be provided if practicable. The clear zone distance can be determined using Figure 3.16. The Sponsor should relocate utility poles, luminaries, and sign supports or make to break away, if necessary, to provide for safety.
- G. Bridge - A bridge to be replaced on a 3-R project shall be designed to new construction standards.
- H. Curb ramps - Curb ramps shall be provided on 3-R projects where curbs and sidewalks are provided.

5.00 PROJECT APPLICATION AND CERTIFICATIONS

5.01 APPLICATION PROCEDURE

Submittal requirements and procedures shall be as prescribed by the County Engineer. The application and certification procedure for public and private road construction shall be as prescribed by the County Engineer and shall generally include, in sequence, the following items:

1. Conduct a Pre-Design Meeting with the County Engineer to reach concurrence on the design parameters and drainage concept,
2. If needed, conduct a joint site visit by the Sponsor's Design Engineer and the County Engineer,
3. Submit and receive approval of any design deviations,
4. Submittal, certification and approval of the plans and calculations by the Sponsor's Design Engineer,
5. Conduct a pre-submittal meeting to determine that all the information necessary to evaluate the submittal is present, until the submittal meets basic requirements,
6. Cursory check of the submittal and acceptance of the plans and calculations by the County Engineer,
7. Construction and inspection by the Sponsor's Construction Engineer,
8. Final inspection by the Sponsor's Construction Engineer and the County Engineer,
9. Submittal of certification and record drawings by the Sponsor's Construction Engineer.

The Sponsor's Engineer shall schedule a pre-design meeting with the County Engineer. The purpose of the Pre-Design meeting is to identify the major design parameters prior to design, review the general design concepts proposed by the Sponsor's Engineer, and reach concurrence on design concepts and design parameters. As part of the Pre-Design meeting, applicants shall receive a checklist from the County Engineer's Office, which demonstrates the items required by Spokane County Standards minimally necessary for plan review. The meeting minutes and the checklist shall be signed by the Sponsor (or his Engineer), as well as by a representative of the Spokane County Engineer. Additional pre-design meetings may be needed as determined by the County Engineer. A joint site visit may be required to reach agreement on drainage basin limits prior to design concurrence.

Proposed design deviations shall be applied for and approved prior to submittal of final road and drainage plans. The design deviation application shall be submitted in a format prescribed by the County Engineer.

The Sponsor's Engineer and a representative of the Development Services Section of the Spokane County Division of Engineering must conduct a pre-submittal meeting before the County Engineer accepts the design documents for review. The submittal will be checked along with the pre-submittal checklist to ensure that the basic information necessary to review the submittal for compliance with the project requirements is provided.

Submittals that do not contain the basic information necessary to review the submittal for compliance with the project requirements will be returned to the submitter for revision. When the design documents are revised, additional pre-submittal meetings are required until the Spokane County Division of Engineering accepts the submittal for review. The pre-submittal checklist, which includes the minimum requirements checklist from the Pre-Design meeting, will be reviewed at these meetings. If the design submittal is still incomplete, the meeting minutes and any revised checklist will be signed by the Sponsor or his Engineer, as well as by a representative of the Spokane County Engineer.

If the design submittal contains all the basic information necessary to review the submittal for compliance with the project requirements, the Division of Engineering will accept the submittal for review.

The Sponsor, the County Engineer, and the County Utilities Director shall execute a Project Agreement prior to road, drainage, or sewer plan approval and/or acceptance by Spokane County for the project. The Project Agreement shall be in a form acceptable to the Spokane County Prosecuting Attorney. A sample agreement is provided in these Standards as Technical Reference C.

The Sponsor shall obtain acceptance of the plans and calculations from the County Engineer before the start of construction and before recording the plat. The County Engineer may require that a Temporary Erosion/Sedimentation Control Plan be implemented.

The Sponsor's Surveyor shall comply with procedures for perpetuation of survey monuments in accordance with the "Land Survey Standards" section of this manual.

The County Engineer relies upon the certification and approval of the road and drainage plans and calculations by the Sponsor's Engineer for approval of the plat. The County Engineer's acceptance of the plans shall not relieve the Sponsor or the Sponsor's Design Engineer from any liability related to portions of the design which are not in conformance with these Standards or do not follow good engineering practice.

The plans, basin maps and calculations shall be signed, sealed, and dated by the Sponsor's Design Engineer. The cover sheet of the plan set and the cover sheet of all the calculations shall bear the certification, which reads:

“The design improvements shown in this set of plans and calculations conform to the applicable editions of the Spokane County Standards for Road and Sewer Construction and the Spokane County Guidelines for Storm Water Management. The Spokane County Engineer has approved all design deviations. I approve these plans for construction.”

The Sponsor shall reimburse the County for all costs incurred for pre-submittal meetings, submittal reviews, site-visits, and any other work associated with a developer's project. Costs shall be assessed as outlined on the latest fee schedule adopted by the Board of County Commissioners, and in accordance with the Fee Agreement signed by the Sponsor.

For each construction phase, the Project Sponsor's Engineer shall provide construction inspection, which complies with the requirements of Section 9.04, and upon completing the construction inspection shall provide "Record Drawing" which comply with the requirements of Section 9.10 of these Standards.

5.02 GENERAL FORMATTING

The general format, number of copies, and application processes shall be as follows:

1. PRIVATE DESIGN:

Original sheets shall be good quality reproducible, ink on mylar. The designer may submit the original sheets on vellum paper if computer-drawing files are also submitted. Computer files shall be in AutoCAD .DWG or .DXF format.

- A. All plan sheets shall be in size 24 inches x 36 inches.
- B. First and subsequent applications shall contain two sets of prints of road plans, typical cross sections, profiles, and detail sheets. A drainage plan and drainage calculation shall also be submitted as required in Section 2 of the Drainage Guidelines.
A print of the proposed final plat map shall be submitted before plan approval where street layout and lot numbering have been changed from the preliminary plat map. Upon the return of plans for correction, the Sponsor's Engineer shall show any changes on a revised print in color. The engineer shall show the date of these changes. The colors of red and yellow are reserved for County comments.
- C. The first application shall contain a letter signed and sealed by the Sponsor's Surveyor that a thorough search has been made for survey monuments. He/she shall indicate that all found monuments are properly referenced in accordance with current applicable state laws. A copy of references shall be filed in the County Engineer's Office.

- D. The final application shall contain the original and two sets of blue line prints of corrected road plans, profiles, typical cross sections, detail sheets, and drainage plans and calculations. If the Sponsor or his engineer desires the County to return an accepted set of reproducible plans, the Sponsor should also submit a set of sepia plans. Upon the County Engineer's acceptance of the final application, the County Engineer will retain the original, using it to make copies for public inspection and distribution as required. The acceptance of construction plans shall expire two years from the acceptance date shown on the plans. It may be extended for an additional two years at the option of the County Engineer. Before the extension of acceptance, the Sponsor's Engineer shall revise the plans to reflect current standards.

2. COUNTY DESIGN:

Procedures for county design shall be as required for coordination and for approval by funding authorities. Survey monuments shall be perpetuated in accordance with the "Land Survey Standards" sections of this manual.

5.03 DRAFTING STANDARDS

1. Fonts- Lettering shall be legible to be easily read and understood by the reviewer. The lettering shall be of sufficient size and scale to produce clear, readable images when scanned digitally by an optical scanner. Submitted plans not meeting these criteria will be returned to the Sponsor for correction.
2. Lines and Symbols- Standard drafting lines and symbols are shown on the Standard Plans entitled Spokane City/County Drafting Standards. Both the City of Spokane and Spokane County have adopted these conventions. All drawings submitted for review shall use these Standards. Symbols and line types for plan features not available in the Standards shall be described in a legend on each plan sheet. Electronic copies of the Standard lines and symbols in AutoCAD Release 12, 13, and 14 DOS/Windows format are available by downloading from the Division's Internet site.

5.04 PLAN

Plans may be comprised of more than one set of project drawings each depicting separate items of work. Plans shall include the following:

1. The first sheet of the plans shall include a project title, vicinity map, an index of plan sheets, the engineer's certification statement, and signature block containing approval signatures of both the Project Sponsor and his Engineer.
2. Road alignments with 100' stationing, reading from left to right, and stationing at points of curve, tangent, and intersections, with appropriate ties to existing road surveys and stationing, section corners, quarter corners, and the horizontal

control net established by the County Engineer. Stations shall increase from west to east and from south to north.

3. Section, township, and range.
4. Bearings on the road centerline, keyed to an associated plat map.
5. Curve data including radius, delta, arc length, and semi-tangent length, on all road centerlines and curb returns.
6. Right of way lines, width for proposed road, intersecting roads, and existing road improvements with dimensions.
7. All topographic features within right of way limits or future right of way limits and sufficient area beyond to resolve questions of setback, slope, drainage, access onto abutting property, and road continuations.
8. All existing utilities.
9. All proposed water and sewer utilities that will be designed and constructed.
10. Identification of all roads and adjoining subdivisions.
11. A Traffic Control Signing Plan. (See Section 3.12)
12. Existing and proposed drainage features, showing direction of flow, size, and kind of each drainage channel, pipe, and structure and other requirements as specified in the Guidelines for Storm water Management.
13. Minimum Scale: 1" = 50'. However, 1" = 100' shall be optional for development of lots one acre or larger. Details for clarification may be shown on a convenient scale. A scale of 1" = 20' may be required for urban arterial streets where detail is sufficiently dense to cause a "cluttered" drawing at a smaller scale.
14. A north arrow.
15. As a minimum, one new control monument shall be set at each end of a new road and intermediate monuments as required under 6.02.
16. Project beginning and ending designation with stations.
17. A title block to include:
 - A. The project name
 - B. County Project Number
 - C. Sheet number

- D. Road names
 - E. Road limits
18. All found and referenced survey monuments.
 19. Section and lot lines
 20. Standard symbols as shown on Standard Plan entitled Symbols.
 21. Beginning, middle, and ending elevations of curb returns.
 22. Other data necessary for the specific project.

5.05 NOT USED

5.06 PROFILE ELEMENTS

Profile elements shall include the following:

1. Original ground line at 100' stations and at significant ground breaks and topographic features based on field measurement accurate within 0.1' on unpaved surface and 0.01' on paved surface.
2. A final road and storm drain profile. The stationing shall be the same as the horizontal plan, reading from left to right. It shall include stationing of points of curve, tangent, length, and point of intersection of vertical curves, with elevations to 0.01'.
3. Profiles for curbed roads shall show the tops of both curbs and the centerline clearly labeled. Profiles for shouldered roads shall show the centerline only.
4. On a grid of numbered lines, a continuous profile shall be shown for both existing and proposed improvements.
5. Grade and vertical curve data, all profiles.
6. The datum used and all benchmarks, which must refer to established control when available. (See Section 6.02)

5.07 NOT USED

5.08 TYPICAL CROSS SECTION

Typical cross sections shall include the following:

1. The dimensions of traffic lanes, shoulders, gutters, sidewalks, swales, depths, planting strips, easements, and right of way, etc.
2. The cross slope of all elements, such as, the pavement, ditches, swales, gutters, sidewalks, planting trips, etc.
3. Type of curb.
4. Dimensions of structural section material layers.
5. Retaining walls where required.
6. A separate full width roadway typical section for each street or portion of the street that differs significantly. Station limits shall be shown.
7. All other data necessary for a specific project.

5.09 NOT USED

5.10 DRAINAGE PLAN

A drainage plan is required by Spokane County Guidelines for Storm Water Management. A private developer may submit the drainage plan integrally with the road plan and profile, if space permits. Otherwise, he/she shall submit it on separate plan and data sheets.

6.00 LAND SURVEY STANDARDS

6.01 REGULATIONS

1. Surveys shall conform to all applicable state and local regulations.
2. Prior to any construction within County rights-of-way, a surveyor shall conduct a thorough search for all survey monuments. Any found monuments shall be referenced in accordance with current applicable state laws. A copy of the references shall be filed in the office of the County Engineer.

6.02 MONUMENTATION

1. The responsible surveyor shall set permanent monuments with his/her registration number as follows:
 - A. For placing new or replacement of section corners, quarter corners, closing corners, witness corners, and meander points that have been disturbed or destroyed, the minimum acceptable monument is a 3/4 inch inside diameter iron pipe or a #4 steel reinforcing rod, 24 inches in length. The monument shall be marked in conformance with state laws and regulations. Any of these corners in paved roads shall be covered by a Spokane County standard cast iron monument case. Monument cases are shown on the Spokane County Standard Plan sheet entitled "Monument Case and Cover".
 - B. For placing new or replacement of disturbed road centerline angle points, curve points, and road intersection points, the minimum acceptable monument is a 1/2 inch inside diameter iron pipe or a #4 steel reinforcing rod, 18 inches in length. On principal arterials, monument cases and covers shall be set to protect the monuments. All monuments in other paved roads shall be set flush with the road surface.
 - C. For placing new or replacement of all permanent monuments not covered above, the minimum acceptable monument is a 1/2 inch inside diameter iron pipe or a #4 steel reinforcing rod, 18 inches in length
 - D. If it is impossible to set the above monuments, the County Engineer may approve an alternative monument.
2. Each monument set according to 6.02 1A through 6.02 1D shall have at least three reference points. The reference points may consist of, in order of preference, cross on curbs, bearing trees, property corners or alternate approved by County Engineer.

6.03 HORIZONTAL CONTROL NET

A horizontal control net established by the Spokane County Engineer shall be the mapping base for all surveys lying within its boundaries. All surveys done within this net shall conform to the degree of accuracy required under applicable state laws with adequate supplemental information as required by the County Engineer to ensure accuracy.

6.04 TEMPORARY BENCH MARK

The surveyor shall provide a temporary benchmark along the roadway every one thousand feet. These temporary bench marks shall be based on a datum plane approved by the County Engineer. The surveyor shall submit field notes or sealed statement insuring work according to third order accuracy. Please refer to Washington State Department of Transportation Standards.

7.00 BRIDGES AND OTHER STRUCTURES

7.01 PRINCIPAL REFERENCE FOR BRIDGES

Except as specified below, Spokane County bridges on public roads shall be designed and constructed according to the latest edition of "Standard Specifications for Highway Bridges", adopted by American Association of State Highway and Transportation Officials (AASHTO) including all interim addenda. Plans and structural computations shall be submitted for approval of the County Engineer before construction begins. All new bridges shall be designed to carry an AASHTO HS 25-44 live load or greater.

1. The bridge roadway shall comprise the full width of the road being served. This includes the traveled way, the curb, the sidewalk, the walkway, bike lanes, equestrian lanes, and/or shoulders. Requirements of utilities shall be duly considered.
2. Where typical speed is 35 MPH or higher and significant pedestrian, bike and/or horseback traffic can be expected. The Engineer may require that the lane for the secondary modes be separated from motor vehicle traffic by use of a bridge traffic barrier and further protected by a pedestrian rail at the outer edge.
3. The width of a bridge shall be the greater of the design roadway width or the existing roadway width but not narrower than 28 feet.
4. Traffic and pedestrian railings or combination traffic-pedestrian railings shall meet AASHTO specifications.
5. Overhead vertical clearances on bridges serving arterial roads shall be no less than 16.5'. Other roads may have a minimum vertical clearance of 15 feet.

7.02 NOT USED

7.03 OTHER BRIDGE DESIGN CRITERIA

Criteria under other recognized road and bridge classifications, such as those of the Federal-Aid Rural Area Design Standards, may be applied under conditions deemed appropriate by the Engineer.

7.04 RETAINING WALLS AND OTHER STRUCTURES

Analysis and design of retaining walls and other structures constructed within County right-of-way and/or maintained by Spokane County shall conform to the requirements of the current edition of the "Standard Specifications for Highway Bridges", AASHTO. Plans and structural computations shall be submitted for approval of the County Engineer before construction begins.

Mortarless concrete block retaining walls shall be designed and constructed in accordance with the National Concrete Masonry Association Technical Report 127 (NCMA TR127).

8.00 UTILITIES

8.01 FRANCHISING POLICY

Utilities to be located within the County road right-of-way shall be constructed according to current franchise and permit procedure and according to these standards. In their use of the right of way, utilities shall be given consideration only after the requirements of the road are met. These requirements are to provide safe, efficient and convenient passage for motor vehicles, pedestrians, and other traffic. Aesthetics shall be a consideration. As a matter of policy, Spokane County strongly encourages utility companies to place electric lines underground, particularly in urban development.

8.02 STANDARD UTILITIES LOCATIONS

Utilities within the right of way on new roads shall be located as shown on Standard Plan entitled Utility Locations. The locations shown on the standard plan shall be used on existing roadways where topography, utilities, or storm drains do not conflict. Where existing utilities or storm drains are in place, new utilities shall conform to these Standards as nearly as practical and yet be compatible with the existing installations.

Exceptions may be approved when necessary to meet the special requirement of overhead utilities when right of way space is limited in planned unit developments, manufactured home parks, multifamily developments and commercial developments.

1. Notwithstanding other provisions, underground systems shall be placed at least five feet away from road centerline and where they will not otherwise disturb existing survey monuments.
2. Underground utilities that can use a joint trench shall have the option of occupying any other utility company's standard location if that company is a participant in the joint trench installation.
3. Any utility company may use another utility company's standard location provided they obtain approval from that company. A copy of the approval shall be furnished to the County Engineer.

8.03 NOT USED

8.04 SCHEDULING OF UTILITIES INSTALLATION, RELOCATION AND INSPECTION

When possible, utilities, including service crossings, shall be installed or relocated before the start of road construction. If planned road cuts and fills are large or if the location of road elements cannot be clearly shown in advance, the utility company will coordinate the relocation of utilities with the contractor before construction. Otherwise, such utilities and connections shall be installed or relocated after the subgrade has been completed but before surfacing has been placed.

As a matter of policy, Spokane County discourages utility trenching or transverse cuts in County roads. Cutting or trenching roads that have been reconstructed within the previous five years will not be permitted unless it can be shown that alternatives are not feasible. Possible alternatives are boring, jacking, relocating outside the paved area, or installing the utility just before reconstruction or overlay of the road.

In instances where trenching or cutting is permitted, pavement patching shall include:

1. cutting the existing pavement
2. removal of existing pavement
3. preparation and compaction of subgrade
4. placement and compaction of aggregate base material
5. application of tack coat and construction of the asphaltic concrete pavement "patch"

This work shall conform to the applicable sections of the Washington State Department of Transportation Standard Specifications. On arterial roads, the utility company may be required to backfill the trench in paved roads with Portland cement concrete to within 0.10 feet of finish grade. This requirement may be applied on all paved roads during cool or inclement weather.

Monumentation: The contractor, according to the "Land Survey Standards" section of these standards, shall protect existing survey monumentation.

9.00 PERMITS AND INSPECTION

9.01 APPLICATION

Any party desiring to construct on county right-of-way, including connecting a road or driveway to a county road, shall first obtain a permit by filing a written application with the County Engineer. Such application shall be made on a Spokane County form provided for that purpose, and shall include:

1. The name and address of the applicant.
2. The name and address of the owner of the property abutting the road and where the work is proposed.
3. The exact location of the proposed work, giving the road address or legal description of the property involved.
4. A detailed plan accurately showing:
 - A. The dimensions of the abutting property.
 - B. The dimensions and locations of existing or proposed driveways.
 - C. Utility poles.
 - D. Hydrants.
 - E. Road light standards.
 - F. Trees within the limits of the frontage of said property.
 - G. Other pertinent features.
5. The plan shall also show the location of buildings, loading platforms and off-road parking facilities being served or to be served by such driveways.
6. The County Engineer may require, at his discretion, the filing of any other information when he feels such information is necessary to properly enforce the provisions of this section.
7. The County Engineer will not approve a plan nor issue a permit where it appears that the proposed work conflicts with the provision of this standard or any other ordinance or resolution of Spokane County; nor shall issuance of a permit be construed as a waiver of the Zoning Ordinance or other ordinance requirements concerning the plan.

9.02 BASIS FOR CONTROL OF THE WORK

Work shall be done to the satisfaction of the County Engineer and according to approved plans (Section 5.00). This includes work done in the existing, proposed, or future public right of way. It applies to work by a private project sponsor, by county forces, or by a county contractor. It is emphasized that no work may be started until such plans are approved. The County Engineer shall approve any revision to the plans before the proposed revision is constructed.

The County Engineer shall have authority to enforce the Standards just as other referenced or pertinent specifications. He/she will appoint engineers, assistants, and inspectors as necessary to control and inspect the work and they will exercise such authority as the County Engineer may delegate.

1. PERMIT REQUIRED

No person, firm or corporation shall commence work or permit any other person, firm, or corporation to commence work on the construction, alteration, repair, removal, cutting and/or paving of any road, alley or other public place in Spokane County without first obtaining a written permit and approved plans from the County Engineer.

The Sponsor shall be responsible for the County costs incurred for inspection. The costs shall be assessed as outlined on the latest fee schedule adopted pursuant to Board of County Commissioner's Resolution No. 80-1592 or as the same may be amended.

2. TRAFFIC CONTROL DURING CONSTRUCTION

Before commencing work on the project, the Sponsor shall prepare and submit a signing plan to the County Engineer for review and approval. As work progresses, the Sponsor shall revise the signing plan to conform to changing conditions. The Sponsor shall provide flagmen to control traffic during the project. He/she shall also provide the flagman's protective apparel, barricades, lights, standard signs, cones, and other devices for the protection of the public and maintenance of traffic through the project.

9.03 NOT USED

9.04 ROAD CONSTRUCTION INSPECTIONS

The Sponsor's Engineer or a designated representative shall perform inspections on all road construction generated by a land use action.

The County Engineer may elect to perform the construction inspection on public road improvements generated by a building permit.

9.05 NOT USED

9.06 CONSTRUCTION INSPECTION NOTIFICATIONS AND RECORDS

The Sponsor's Engineer shall be responsible to ensure that construction of roads and appurtenances is according to county accepted project plans, County General Provisions, the Standard Specifications, and applicable portions of the WSDOT Construction Manual. County forces may make random visits to public road construction sites, as deemed necessary. Random visits are to ensure a quality construction inspection process and do not express or imply approval or disapproval of the contractor's work. The County Engineer shall have access to all construction inspection records and reports.

The Sponsor's Engineer shall submit all construction change orders that propose changes to the accepted plans or specifications to the County Engineer for his review and approval. The County Engineer will use a fast-track system for change order approvals when the progress of construction makes it infeasible to wait for formal approval.

If, in the opinion of the County Engineer, the Sponsor's Engineer fails to satisfactorily perform the proper inspection, testing, and record-keeping duties, the County may take action as provided for in Section 1.10 "Compliance Review".

Prior to scheduling a final inspection with Spokane County, the Sponsor's Engineer shall:

1. Submit all construction records to the County Engineer. This shall include but not be limited to, Daily Inspector's Reports, correspondence, manufacturer's certifications, material test reports, and Record Drawings as required in Section 9.10.
2. Ensure that all previously identified project deficiencies have been corrected.

The Sponsor's Engineer shall schedule a final inspection meeting between the Sponsor's Engineer and the County Engineer prior to establishment of the roads by Spokane County. Deficiencies found shall be corrected by the Sponsor prior to road acceptance. At the time of establishment of the roads by the Board of County Commissioners, the County will assume responsibility for road maintenance and operation. The County will then release the Sponsor's Engineer from responsibility with regard to construction inspection.

9.07- 9.08 NOT USED

9.09 COUNTY FORCES AND COUNTY CONTRACT ROAD INSPECTION

Representatives of the County Engineer will inspect road construction done by county forces or by county contract.

9.10 RECORD DRAWINGS

During construction, the Sponsor's Surveyor and/or Construction Engineer shall record any changes to the plans.

All substantive differences shall be noted on the approved final road and drainage plans and shall be labeled Record Drawings. The following statement shall be lettered on the Record Drawings and stamped and signed by the Sponsor's Surveyor and/or Construction Engineer certifying the Record Drawings: "I have reviewed the construction and to my knowledge find it to be in substantial conformance with the approved certified plans and Standard Specifications except as noted."

When changes to the design are necessary, the Sponsor shall be responsible for obtaining approval of plan changes from the Sponsor's Design Engineer. The Sponsor shall forward a copy of the approved plan changes, and any related calculations, to the County Engineer.

10.00 SURETY

10.01 PERFORMANCE SURETY

1. Road and Drainage Improvements

The Surety will generally address the construction and installation of all public road, private alley, and private road improvements, including but not limited to the roadway, drainage improvements, utility work within County right-of-way, monumentation, construction inspection, and other costs. For commercial building permits, the guarantee shall apply to improvements in the public right-of-way, and drainage improvements, located in tracts or easements on the project site, which serve the public right-of-way. In any case, the Surety shall be in an amount equal to at least 110% of the County Engineer's estimate.

In order to obtain Final Approval of a Project (either a Land Use Action such as a Plat, Short Plat, or Binding Site Plan, or a Certificate of Occupancy for a Commercial Project), a private Sponsor must select one of these options: (1) Post a Surety prior to construction; or (2) Partially construct the Project and provide a Surety; or (3) Complete construction of the Project, certify the construction, obtain the County Engineer's acceptance of the Project Certification Package, and post a warranty Surety prior to final approval of the Project.

The Sponsor is not required to post a Surety prior to Final Approval. However, the County Engineer will only recommend Final Approval if either the required improvements have been constructed and certified by the Sponsor, and accepted by the County Engineer, or a Surety acceptable to the County Engineer has been posted.

The Sponsor may select one of three methods to provide the surety. (1) Post a surety prior to construction; or (2) Partially construct the Project and provide a surety instrument; or (3) Complete construction of the Project and receive County Engineer acceptance of the Project Certification Package and post a warranty bond prior to final approval of the Project. The Surety that is posted with the Spokane County Engineer for compliance with this section shall conform to the following conditions:

- a. The surety shall be of a form approved by the Prosecuting Attorney's Office and acceptable to the County Engineer. The surety amount shall be in United States currency.
- b. Acceptable surety instruments are:
 - Cash Savings Assignment, held by a duly chartered Financial Institution;
 - Letter of Credit issued by a duly chartered Financial Institution; or
 - Surety Instrument ("Bond") issued by a duly chartered Bonding Company.

- c. The term of the surety shall be for two years from the date of the County Engineer's Plan acceptance. The surety may be extended for an additional two years at the option of the County Engineer. The County Engineer will then calculate a new surety amount.
- d. At the discretion of the County Engineer, a cash surety (either a Cash Savings Assignment or a Letter of Credit) may be reduced with satisfactory progress on the project. The surety shall not be reduced below \$20,000, or 20% of the original surety amount, whichever is greater.
- e. A performance surety will not be required if the improvements are constructed and certified according to these standards prior to final development approval.

A. Performance Surety Prior to Construction

The Sponsor may choose to post a surety for the entire estimated construction and inspection cost in order to obtain Final Approval. The County Engineer shall estimate the amount of the surety. The surety shall be structured in two parts as follows:

1. A Performance Retainer of at least \$7,500.00 or 10% of the surety amount, whichever is greater, naming Spokane County as beneficiary. The Performance Retainer shall be in the form of a Cash Savings Assignment or a Letter of Credit.
2. A Performance Guarantee shall be a separate surety instrument comprising the remainder of the guarantee amount naming Spokane County as beneficiary. The Performance Guarantee shall be in the form of a Cash Savings Assignment, Letter of Credit, or Surety Instrument.

Under this option, Final Approval will not occur until the Design Documents have been accepted by the County Engineer's Office, and an acceptable surety has been posted.

B. Partial Construction Before Final Approval

The Sponsor may choose to construct a portion of the required road and drainage improvements in order to obtain Final Approval. Under this option, The County Engineer will accept only a Cash Savings Assignment as surety for the portion of the Project that has not yet been constructed at the time Final Approval is requested. The amount will be recalculated from the original surety estimate, to account for such elements as changed quantities, revised unit prices, construction of the remaining work through Public Works contracting procedures, project inspection and certification, etc.

Under this option, Final Approval will not occur until:

1. The Sponsor's Engineer has submitted Certified Record Drawings and associated Inspection Reports for the Project (the "Certification

Package”) to the Spokane County Engineer for the constructed improvements constructed to date;

2. The Spokane County Engineer has provisionally accepted the Certification Package; and
3. The Sponsor has posted a Cash Savings Assignment or Letter of Credit for any remaining road and drainage improvements (public or private), in accordance with the edition of the Spokane County Standards for Road and Sewer Construction (the “Standards”) applicable to the Project, and the accepted plans on file at the Spokane County Engineer’s Office. As a minimum, the Sponsor shall post the Performance Retainer, based on the original quantities shown on the approved and accepted plans on file at the County Engineer’s Office, as amended.

Note: The surety for this option shall be in the form of a Cash Savings Assignment in an amount as estimated by the County Engineer. The surety shall include a date (“date certain”) for the completion of the remaining work. The “date certain” must occur prior to the original expiration date of the plan acceptance. The surety shall include a provision that failure to obtain the County Engineer’s acceptance of the remaining work by the “date certain” shall constitute a material breach, and shall be grounds for immediate demand by the Spokane County Engineer for full payment of the entire amount of all surety instruments relevant to this Project. The proceeds of the surety shall be used by the County Engineer to complete the remaining work. Any surplus shall be refunded to the Sponsor upon the County Engineer’s acceptance of the completed work. The Sponsor shall reimburse the County Engineer’s Office for any costs in excess of the amount of the total amount of the surety incurred by the County, including but not limited to construction, inspection, administration, collection agency fees, and legal expenses incurred in securing the surety and completing the work.

C. Complete and certify construction before Final Approval

The Sponsor may choose to construct all of the required road and drainage improvements prior to obtaining Final Approval. Under this option, Final Approval will not occur until such time as:

1. All required improvements for the Project are constructed in accordance with the accepted plans on file at the Spokane County Engineer’s Office; and
2. The Sponsor’s Engineer has submitted complete Certified Record Drawings and associated Inspection Reports for the Project (the “Certification Package”) to the Spokane County Engineer; and

3. The Spokane County Engineer has accepted the Certification Package; and
4. The Sponsor has posted a Cash Savings Assignment, Letter of Credit, or Surety Instrument to warranty the construction and materials for any required public road and drainage improvements, in accordance with the current edition of the Spokane County Standards for Road and Sewer Construction (the "Standards"). The term of the warranty surety shall be as described in Section 10.02.

D. Reductions in Surety; Surety Release

1. General

Any reductions in the surety described in Paragraphs 1 and 2, if allowed by Spokane County, will not apply to the Performance Retainer. Reductions in the surety amount will only be applied on Cash Savings Assignments or on Letters of Credit. In no case will the aggregate amount of surety reduction exceed the amount given by the formula:

$$\text{Total aggregated reduction} = 90\% \times (\text{Total Surety} - \text{Retainer})$$

Examples of the surety computations are shown in Technical Reference D. Reductions in Cash Savings Assignments or Letters of Credit will only be made if:

- a. The Sponsor's Engineer has submitted Certified Record Drawings and associated inspection reports for the project (the "Certification Package") to the Spokane County Engineer for the improvements constructed to date; and
- b. The Spokane County Engineer has provisionally accepted said Certification Package; and
- c. The reductions do not exceed the aforementioned percentage threshold; and
- d. Only for projects, which in the professional opinion of the County Engineer, are making steady progress, and for which plan acceptance has not expired.

2. Substantial Completion

The County Engineer may, at his discretion, may further reduce a Cash Savings Assignment or Letter of Credit prior to Final Acceptance of the improvements and Final Plat Approval. This will only occur when the County Engineer determines that the improvements have reached substantial completion.

If the work is substantially complete, and a Cash Savings Assignment or Letter of Credit has been posted for the project improvements, then the surety may be further reduced to an amount equal to twice the estimated cost for Spokane County to complete the remaining work if a "date certain" is established. Weather impacts shall be considered in defining the "date certain". The amount of the Cost Estimate shall be determined by the County Engineer.

Once the Substantial Completion Surety has been posted, the County Engineer may, at his sole discretion, recommend Final Approval to the Board of County Commissioners. The Board of County Commissioners is not legally bound by the County Engineer's recommendation. The County Engineer's recommendation is not to be construed as a guarantee or warranty of any sort that the Board of County Commissioners will, in fact, grant Final Plat Approval.

This option will not be available to the Developer if:

- a. The current amount of the Cash Savings Assignment (in excess of the Performance Retainer) is less than twice the estimated cost of completion.
- b. A Surety Instrument ("Bond") has been posted.
- c. An initial construction surety has not been posted for the project (Paragraphs 10.01(2) and 10.01(3)).
- d. The Sponsor has existing projects that have not been completed prior to the expiration date of the plan acceptance for the current phase.

3. Surety Release

The County Engineer will release the performance surety in full only when all of the following conditions have been met:

- a. The Sponsor's Construction Engineer submits the required certification that the project has been constructed in substantial conformance with the certified construction plans and specifications.
- b. The Sponsor submits certified "Record Drawings" and project records of all road and drainage improvements constructed for the project.
- c. The Sponsor has paid all costs incurred by the County in full.
- d. All monuments have been reset and referenced by a surveyor.
- e. (Public Roads only) The County has received a warranty surety or cash security as specified in Section 10.02 of these standards.

- f. (Public roads only) The roads have been established by resolution of the Board of County Commissioners.

2. Sureties for Sanitary Sewer Improvements

A. Plats

For Plats, Short Plats, or other land use actions requiring public sewer collection system final approval will only be recommended if either the required improvements have been constructed by the Developer, accepted by the Utilities Division (to include Record Drawings), and secured at the warranty amount, or if a surety acceptable to the Utilities Director has been posted.

If Public off-site Sewer Extension is not required:

The Sponsor shall post a surety equal to the amount estimated by the Utilities Department for the on-site sewer improvements, prior to Final Approval.

If Public off-site Sewer Extension is required:

The Sponsor shall post separate sureties equal to the amount estimated by the Utilities Division for the on-site sewer improvements and for the off-site extension, prior to Final Approval.

When the construction has passed the air test and mandrel test, the guarantee may be reduced to 50% of the initial amount.

When the Utilities Division has accepted the sewer construction for operation and maintenance, and Record Drawings have been approved, the guarantee may be reduced to 25% of the initial amount. This 25% will be held as security for the duration of a warranty period. If either of the initial guarantee amounts exceed \$100,000, then the security will be 20% of the respective initial amount.

B. For Commercial Projects:

Private Sewer System:

No surety is required for private sewer systems. Plans must be submitted to the Utilities Division and accepted for construction prior to issuance of a Sewer Connection Permit. Inspection of sewer construction must also be scheduled through the Utilities Division.

Public Sewer Extension required:

A surety, acceptable to the County Utilities Director, must be posted prior to sewer construction plans being accepted by the Utilities Division. Sewer connection permits will be issued only when the Utilities Division has accepted the sewer extension construction for operation and maintenance (subject to a one year warranty period) and record drawings have been approved.

10.02 WARRANTY SURETY

The sponsor of a private development shall post a warranty surety for improvements within or serving County rights-of-way with the County Engineer before:

1. The acceptance of construction by the County Engineer; and
2. The establishment of any public road(s) by the Board of County Commissioners;
and
3. The release of the performance surety.

The Warranty Surety shall conform to the following:

- A. The surety for improvements within public rights-of-way shall remain in effect for two years from the date of establishment of the road(s) by the Board of County Commissioners.
- B. The warranty surety shall be for an amount equal to 20% of the County Engineer's estimate of the construction costs or \$10,000, whichever amount is greater. The County Engineer, at his/her discretion, may reduce the warranty surety amount for projects valued at less than \$20,000. For approved, non-standard facilities, the County Engineer may require additional surety up to 100% of the estimated replacement cost of the non-standard facility.
- C. The Warranty Surety shall guarantee against defects in road construction, utility work performed within the County right-of-way, and/or drainage facilities as determined by the County Engineer.
- D. The release of the Warranty Surety for improvements within public rights-of-way shall take place two years from the date of the establishment of the roads by the Board of County Commissioners. Thirty days prior to expiration of the warranty surety, the Sponsor shall retain a professional engineer to inspect the improvements. Any deficiencies noted must be repaired prior to the surety release. If the inspection is not conducted and the deficiencies are not repaired, the warranty surety shall be renewed by the Project Sponsor until the inspection is conducted and needed repair work is completed.

10.03 PERMIT SURETIES

A surety, commensurate with the extent of work to be done, shall be posted with the County Engineer before the issuance of a permit to work within public roads.

TECHNICAL REFERENCE A

Traffic Studies and Review Standards

Introduction

Traffic studies or site impact studies are required by the Spokane County Engineer to examine the demands that development may or may not have on the surrounding transportation system. The need for a traffic study shall be determined on a case by case basis. A list of general guidelines and decision criteria are available in §1.30, Traffic Impact Study, of the *Spokane County Standards for Road and Sewer Construction*.

This handout has been prepared to provide engineers, planners, and developers with information regarding traffic impact study requirements within Spokane County. It is not intended to be a textbook or all inclusive of the possible scenarios or requirements that may be encountered during a study. It is believed that by following the guidelines and recommendations made within this handout, the time spent during the application and review process may be reduced.

Scoping

A scoping meeting should be scheduled with Spokane County prior to starting the field work for the study. During the scoping meeting, the general requirements of the study will be discussed. It shall be the responsibility of the developer/consultant to initiate and coordinate the scoping meeting. Although not required, Spokane County recommends that a joint scoping meeting with all reviewing agencies be coordinated through the project's traffic consultant. The following is a list of items that shall be discussed during the scoping meeting and recorded on the Traffic Study Scope Worksheet found at the end of this appendix.

1. Project description
 - A. proposed land uses (if known)
 - B. trip generation
 - C. pass-by & diverted trips
2. Project phasing and horizon year
3. Anticipated directional distribution of project traffic.
4. Background projects
5. Background growth rate (non site specific)
6. Affected intersections for study

Public Participation

Two public meetings shall be held within the project study area. A public scoping meeting shall be conducted by the developer/consultant to allow public input to the scope of the project and following study. It is anticipated that with the public scoping meetings, additional neighborhood issues will be brought forward and addressed and/or resolved prior to the public hearing.

TECHNICAL REFERENCE A

Traffic Studies and Review Procedures

The second public meeting shall be after the traffic study work is complete and is intended to brief the surrounding neighborhood on the traffic study results. All costs associated with the public meetings (signs, room rental, notification mailing, etc.) shall be the responsibility of the developer/consultant.

Public Notification

Notice of date, time, place and purpose of the public meetings shall be provided by the following means.

1. One publication in Spokane County's official newspaper at least fifteen (15) days prior to the meeting.
2. Adjacent residents, property owners, neighborhood groups and/or organizations within a four hundred (400) foot radius of the project boundaries shall be notified by a mailing not less than fifteen (15) days prior to the public meeting.
3. Additionally, a sign with dimensions no less than four (4) feet in width and four (4) feet in height and lettering three (3) inches in size shall be erected on the subject property fronting and adjacent to the most heavily traveled public street. The sign must be easily read by the traveling public from the right of way at least fifteen (15) days prior to the meetings. This sign shall announce the date, time and place of the traffic meetings and brief description of the project.

Proper notification and all associated costs shall be the responsibility of the developer/consultant. Notification shall be considered satisfied upon receipt of an affidavit provided by the developer/consultant to Spokane County stating the above requirements have been completed.

Traffic Study Report

The means by which the work of the traffic study is conveyed to others is through the traffic study report. The traffic study report should stand on its own merits. There should be sufficient information and detail to allow the reader to follow the study step by step and draw the same conclusions as the author. The report should be factually based, written from an impartial viewpoint and report all aspects of the traffic study work that was undertaken. In addition, the report should be written such that the lay person, someone not familiar with traffic studies (e.g., political decision-makers and citizens), will be able to understand and follow the process, findings and recommendations.

TECHNICAL REFERENCE A

Traffic Studies and Review Procedures

As a general rule, the traffic study report shall include, but not be limited to, the following.

- I. Title Page
 - A. Name of Project
 - B. Project Sponsor's Name and Address
 - C. Study Preparer's Name, Address and Phone Number
 - D. Date of Study Preparation
 - E. Responsible Engineer's Seal, Signature and Date

- II. Table of Contents
 - A. Major Sections
 - B. List of Figures
 - C. List of Tables

- III. Executive Summary
 - A. Site Location and Study Area
 - B. Development Description
 - C. Principal Findings
 - D. Conclusions
 - E. Recommendations

- IV. Introduction
 - A. Purpose of Report and Study Objectives
 - B. Project Description
 - C. Scope of the Report
 - D. Assumptions
 - E. Methodology

- V. Existing Conditions
 - A. Transportation Network Description
 - B. Existing Zoning
 - C. Existing Traffic Volumes
 - D. Accident History

- VI. Proposed Other Development (Background Projects)
 - A. Background Project Description
 1. Vicinity Map
 2. Trip Generation
 3. Trip Distribution
 4. Trip Assignment
 - B. Planned Roadway Improvements
 1. Project Name
 2. Description of Improvements

TECHNICAL REFERENCE A

Traffic Studies and Review Standards

VII. Proposed Project

- A. Project Description
 - 1. Site Plan
 - 2. Trip Generation
 - 3. Trip Distribution
 - 4. Trip Assignment
- B. Project Phasing and Timing

VIII. Traffic Analysis

- A. Existing Volumes and LOS
- B. Future Volumes and LOS without Project at Each Phase
- C. Future Volumes and LOS with Project at Each Phase
- D. Future LOS with Proposed Improvements at Each Phase
- E. Future Volumes and LOS without Project at Complete Build-out
- F. Future Volumes and LOS with Project at Complete Build-out

IX. Other Analysis

- A. Sight Distance
- B. Queuing
- C. Safety
 - 1. Vehicle
 - 2. Pedestrian
- D. Noise
- E. Air Quality
- F. Analysis of Improvement Alternatives

X. Conclusions

- A. Traffic Impacts
- B. Needed Improvements

XI. Recommendations

- A. Proposed Mitigation
- B. Proportionate Share Recommendations
- C. Other Recommendations

XII. Appendix

- A. Raw Turn Movement Counts
- B. LOS Calculation Sheets
- C. Other Information Provided

TECHNICAL REFERENCE A

Traffic Studies and Review Standards

The above outline provides the minimum criteria for a detailed traffic study report. Where the size/scope of the project or work to be performed would not warrant inclusion of all of the topics above, a shorter report format may be used. In this case, the topics to be included in the report would be discussed during the scoping process.

Additional Information

Background Growth Rate (non-site specific) - The annual percentage rate of traffic growth that cannot be assigned to a specific project. This rate is to be applied to the existing turn movement volumes prior to the addition of the background project traffic or site generated traffic volumes.

Background Project Traffic - The total site generated traffic volumes for approved background projects shall be used in the build-out analyses of the proposed project irrespective of each projects anticipated completion date. This is required to ensure that capacity that was available when the background project was approved is still available at the completion of the proposed project. Quicker developed projects will not be allowed to deplete the capacity needs of longer-term development.

Level of Service (LOS) - Levels of Service shall be determined in accordance with the methods reported in the latest edition/update of the *Highway Capacity Manual*, Special Report 209.

Pass-by Trips - Pass-by trip reductions, if used, shall be shown and calculated on separate figures. The pass-by rates must be established during the scoping process. Rates and procedures shown in the latest edition of the *ITE Trip Generation* manual may be used. For those land uses without pass-by trip rates, sufficient documentation supporting the proposed rates shall be provided to and accepted by Spokane County.

Peak Hour Factors (PHF) - Peak hour factors shall be determined from the recorded turn movement volumes and used throughout the study. For cases where a peak hour factor was not calculated or was unable to be calculated, the default values contained in the latest edition/update of the *Highway Capacity Manual* shall be used.

Responsible Engineer - The engineer that is responsible for the work of the study and report shall affix his/her seal on the cover page of the report. The responsible engineer shall be licensed in the State of Washington and have experience in traffic/transportation engineering.

Right Turns on Red (RTOR) - RTOR movements, if they are to be used as reductions in the study, shall be recorded in the field and submitted with the turn movement counts. The number of vehicles that can take advantage of this maneuver greatly varies by intersection and area.

TECHNICAL REFERENCE A

Traffic Studies and Review Procedures

As v/c ratios increase, fewer gaps will be available to allow RTOR movements and a methodology for use in future year scenarios shall be provided and accepted by Spokane County prior to submission of the traffic study report.

Trip Generation - Trip generation shall be based on local trip generation rates for similar facilities provided there has been sufficient study to provide good statistical significance. Where local rates are not available, the rates contained in the latest edition of the ITE *Trip Generation* manual shall be used.

Turn Movement Counts - As a general rule, traffic counts should be recorded less than one year prior to submitting a traffic study. Older counts may be used provided they are adequately factored to represent current volumes and the methods used in determining and applying the factors are discussed in the report. Counts older than two years shall not be used.

Updated Studies - Occasionally traffic impact studies will need to be updated and/or revised. Should this be necessary, all information and procedures shall be brought into conformance with these standards. For example, new turn movement counts may need to be gathered depending on the age of counts or change in traffic patterns, phasing and/or build-out year may need adjusted, etc. Where the revisions to a study are minor and would not warrant the submission of a new report, errata sheets shall be provided along with a notice to affected parties to make the necessary additions, deletions and/or changes.

References

Guidelines for Traffic Impact Reports/Studies, State Highway Administration, Maryland Department of Transportation.

Highway Capacity Manual, Special Report 209, Third Edition. Washington D. C.: Transportation Research Board, 1985, Updated 1994.

Site Impact Traffic Evaluation (SITE) Handbook. Washington D. C.: Federal Highway Administration, 1985.

Traffic Access and Impact Studies for Site Development. Washington D. C.: Institute of Transportation Engineers, 1991.

Trip Generation, Fifth Edition. Washington D. C.: Institute of Transportation Engineers, 1991.

Traffic Study Scope Worksheet

Transportation Engineering

Name of Project _____
Planning File Number _____ S-T-R _____ Lead Planner _____
Date of Scoping Meeting _____
Attended By _____

Description of Project _____
Land Uses (if known) _____
Project Phasing _____ Build Out Year _____
Public Scoping Meeting: Date _____ Time _____ Place _____

Scope of Study

Environmental Impact Statement Full Traffic Study Other Study/Review

Intersections to Study _____

Background Development Projects _____

Background Growth Rate _____ Pass-by Traffic Rate _____

Site Distance Analysis _____

Area Transportation Improvement Projects (Planned/Scheduled) _____

Anticipated Directional Distribution of Project Traffic _____

Other Comments _____

* Final scope will be established after the first public meeting and upon receipt of a distribution letter and map from the project's traffic engineer.
* This scoping document fulfills the requirements set forth by Spokane County Engineering. Additional analysis may be required by other reviewing agencies.

04/99

TECHNICAL REFERENCE B

Structural Pavement Design of Flexible Pavements

Pavement Design Criteria

The pavement design criteria is summarized in Sec. 3.16 of the Spokane County Standards for Road & Sewer Construction, which references the AASHTO *Guide for Design of Pavement Structures*, 1993.

The structural pavement calculations, soil sample locations, lab results, design criteria and recommendations are to be included in a report prepared by the Sponsor's Engineer. All design factors used are to be listed in the report, including traffic loads projected to occur over the life of the pavement. The report is to be stamped by an engineer, licensed in the State of Washington.

The following parameters are to be used in the design of flexible pavements, unless technical justification can be provided which demonstrates that certain other parameters and constants are applicable.

1. The County standard pavement design life is 20 years for new construction, 15 years for pavement overlays.
2. Truck Factors will be determined for each vehicle type or the following factors may be used in the absence of other information available:

Vehicle Type	Factor (ESAL/Vehicle)
School Bus	2.87
STA Bus	2.57
Refuse Truck	1.03
All Other Trucks averaged	0.42

3. The Level of Reliability, R is to be as follows:
Local Access, R = 75% All other Public Road Classifications, R = 90%
4. The overall Standard of Deviation (S) is to be as follows:
New Construction, S = 0.45 Overlay, S = 0.49
5. The Initial and Terminal Serviceability Indexes (PSI) are to be as follows:

Road Class.	PSI (initial)	PSI (terminal)
Local Access	4.2	2.00
Minor Arterials & Collectors	4.2	2.25
Principal Arterials	4.2	2.50

TECHNICAL REFERENCE B

Structural Pavement Design of Flexible Pavements

6. The Structural Layer Coefficients (a_j) and Drainage Coefficients (m_j) for new material is to be in accordance with Table 2.4 and Appendix DD of the AASHTO *Guide for Design of Pavement Structures*, 1993. In the absence of following the more rigorous design approach outlined in these two references, the following factors can be used:

Material	Structural Coeff.	Drainage Coeff.
ACP Class A	0.42	1.00
ACP Class E	0.42	1.00
Crushed Surfacing Top Course	0.14	0.95
Crushed Surfacing Base Course	0.14	0.95

Soil Sampling Procedure

The Engineer shall obtain soil samples which sufficiently represents the subgrade, and identifies where significant changes in subgrade strength occurs. Normally, the following procedure needs to be followed:

1. Obtain a minimum of 3 samples per job per SCS soil type. Larger projects will require more frequent sampling;
2. Conduct soil borings/test pits to a minimum of 5 ft. depth below proposed subgrade, classify the soil per the USC method;
3. Provide written soil logs; and
4. Record the station, offset and elevation of the samples, stationing is to correspond with the road plans.

Subgrade Modulus

For structural pavement design of roadways that are not within residential neighborhoods, or not subject to residential type traffic loading, an analysis of the resilient modulus and traffic loading is necessary. The resilient modulus can be acquired using the following methods:

1. Contract with a private firm/laboratory to perform the M_R testing. Soil samples need to be obtained, and sent to the private lab for testing.
2. Obtain soil samples and have a WSDOT lab perform the test work. WSDOT will not perform the work directly for private developers or consulting engineers; however, they will perform the work for Spokane County. This work can be requested through Spokane County if the work will be for public road construction. Once Spokane County receives the soil samples, the County will deliver them to a WSDOT lab.

TECHNICAL REFERENCE B

Structural Pavement Design of Flexible Pavements

3. Conduct in-situ testing of the subgrade using a non-destructive deflection test method. The results are to be reported by road stationing. The Sponsor shall acquire concurrence with the County Engineer on the type of non-destructive deflection test method proposed, prior to conducting the tests.
4. Index testing of soils. For certain USC soil classifications, Indexed values can be used to estimate the resilient modulus (M_R), in lieu of conducting resilient modulus testing. The Index values are listed in the table below. Soil sampling to classify the soil and record it's location, shall be done in accordance with the Soil Sampling Procedure listed in this Technical Reference.

Soil Type per Unified Soil Classification System (USC)	Resilient Modulus Values (M_R) psi low-high range ⁽¹⁾
GW	15,000
	18,000
GP or GM	10,000
	12,000
SW	8,000
	10,000
SP or SM	5,000
	10,000

Note (1) The gradation and fines content needs to be considered when selecting an appropriate M_R value. An M_R value near the low end of the specified range for SP or SM is appropriate for predominately fine sands or silty sand with a fines content exceeding approximately 25%. An M_R value near the high end of the specified range for SP or SM soils is appropriate for predominately medium to course sands or silty sands with less than 25% fines. Fines content is the soil which passes a #200 sieve.

For the non-destructive deflection test method a statistical analysis is needed, and is to include a graph of the tested resilient modulus values -vs- road stationing (i.e. location). The graph shall be included in the design report prepared and submitted by the Sponsor's Engineer.

In certain limited cases, the of non-destructive deflection test equipment which is owned and operated by Spokane County is available for privately sponsored road construction projects. The equipment needs a driveable surface over the proposed subgrade. County road projects always take priority. But, if there is an interest in paying for the use of the equipment, please call the Spokane County Engineer's Office to check on availability and make the necessary arrangements.

TECHNICAL REFERENCE C
Sample Project Agreement

SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS
 ENGINEERING AND ROADS DIVISION
 1026 W. Broadway Ave.
 Spokane, WA 99260

PROJECT AGREEMENT
Plats –Short Plats– Binding Site Plans – Building Permits

1. Preliminary Plat/Permit Number and Name:	2. AGREEMENT Number
3. Sponsor's Name and Address:	4. Site Location/Section-Range-Township:

This AGREEMENT is made and entered into this _____ day of _____, 20____, by and between Spokane County, a political subdivision of the State of Washington, having offices for the transaction of business at 1116 West Broadway, Spokane Washington, 99260, hereinafter referred to the COUNTY, and _____, having offices for the transaction of business at _____, hereinafter referred to as the SPONSOR, and jointly referred to as the PARTIES. All references in this AGREEMENT to the SPONSOR shall include the SPONSOR and its heirs, successors and assigns. All references in this AGREEMENT to the COUNTY shall include Spokane County and its successor political jurisdictions.

WITNESSETH

WHEREAS, SPONSOR's Preliminary Plat/ Short Plat No. _____ (hereinafter referred to as the "PROJECT"), containing various conditions of approval imposed pursuant to RCW 58.17 and the Spokane County Subdivision Ordinance, was approved on _____; and

WHEREAS, the SPONSOR seeks to have the road and drainage plans required for the PROJECT approved by the SPONSOR's Engineer and accepted by the Spokane County Engineer; and

WHEREAS, the Spokane County Engineer will accept the road and drainage plans for the PROJECT upon the SPONSOR's successful compliance with this Agreement and all conditions of approval, Spokane County Code, other Codes and regulations, and other conditions of any Design Deviation Request Approval as deemed necessary by the Spokane County Engineer, applicable to the PROJECT; and

TECHNICAL REFERENCE C

Sample Project Agreement

WHEREAS, the Spokane County Engineer is authorized under the provisions of Spokane County Code Section 9.14.040 to require the posting of a surety or bond to (a) guarantee the performance of conditions imposed on various Land Use Actions, and (b) to warranty the quality of workmanship and materials in all road, approach, and drainage facility construction required by said Section 9.14; and

WHEREAS, this AGREEMENT is intended to clarify various elements of policies of the Spokane County Division of Engineering, and to bring to the attention of the PARTIES various requirements of Spokane County Code and other regulations applicable to the PROJECT; and

WHEREAS, pursuant to Resolution No. _____, the Spokane County Board of County Commissioners have authorized the Spokane County Engineer and the Spokane County Utilities Director to enter into Agreements with Project Sponsors, in which various elements of policies of the Spokane County Division of Engineering, and various requirements of Spokane County Code and other regulations applicable to various Development Projects are clarified.

NOW THEREFORE, the SPONSOR hereby agrees and binds itself and its legal representatives, successors, and assigns, as follows:

TERMS OF THE AGREEMENT:

1. This AGREEMENT is not to be construed in any manner whatsoever as a waiver of any Conditions of Preliminary Plat (or Short Plat) Approval, Spokane County Code, other Codes, statutes or regulations applicable to the PROJECT. Such provisions will continue to apply with full force and effect, in addition to the terms of this AGREEMENT.
2. The SPONSOR shall fulfill all conditions of approval of the PROJECT, and all other requirements of Spokane County Code, other Codes and regulations, and other conditions of Design Deviation Request Approval as deemed necessary by the Spokane County Engineer, applicable to the project, even if these requirements are not set forth in this AGREEMENT.
3. The SPONSOR hereby designates _____, whose address is _____ and whose telephone number is _____ or _____, as the PROJECT REPRESENTATIVE for this project, who shall be empowered to act within the scope of his or her responsibilities as defined herein, for the undersigned SPONSOR.

It shall be the PROJECT REPRESENTATIVE'S responsibility to ensure that the Developer's project timeline is met, through communicating and coordinating between the Developer, the Design Engineer, and the County, to ensure that all Design Standards and submittal requirements are clearly understood and met. The PROJECT REPRESENTATIVE is the primary contact person between Spokane County and all other parties who may need to provide services toward the successful completion of this Project. The PROJECT REPRESENTATIVE's responsibilities shall include, but not be limited to: a) Project coordination & communication to ensure that the project moves forward in a timely manner, from Project Application through Construction Completion; b) Objectively informing the Developer of the project status, and potential problems, and working with the applicable parties to anticipate and resolve problems;

TECHNICAL REFERENCE C

Sample Project Agreement

- c) Ensuring that the Developer's Engineer coordinates construction plan changes for approval through the Spokane County Division of Engineering, prior to implementing the change in the field as much as possible; d) Coordinating inspection report submittals, construction close-out, bonding issues, construction payments, and certification, up to and including acceptance of Record Drawings through Final Warranty Surety Release; e) Coordinating responses to project-related questions or information requests from the Spokane County Division of Engineering; f) ensuring that the Traffic Control Plan is being followed by the Contractor; g) coordinating neighborhood notifications, and h) resolving construction complaints .
4. Prior to beginning design, a pre-design conference shall be held between the COUNTY, the SPONSOR, the SPONSOR's Project Representative, and the SPONSOR's Engineer. If the PROJECT is located in a City/County Joint Planning Area, a representative of the Spokane City Engineer may also attend. This conference is an opportunity for the SPONSOR to raise any questions about the County's Design Standards, Conditions of Approval, or administrative items. The SPONSOR is encouraged to submit questions in writing prior to the conference for consideration at the conference.
 5. Prior to submittal of any design documents, a pre-submittal meeting must be held between the Developer, the Design Engineer, and the Spokane County Division of Engineering, to ensure that Design Documents conform to the applicable County Standards and the Conditions of Approval. Incomplete Design Documents should not be approved by the SPONSOR'S Engineer and should not be submitted to Spokane County for Acceptance. If the Design Standards are clearly understood and met, and if all submittal items necessary to form a complete and approved submittal are included, then it is possible for a given project to obtain Construction Plan or Record Drawing acceptance from the County with a minimum of resubmittals.
 6. Prior to beginning construction, a pre-construction conference shall be held between the SPONSOR, the SPONSOR's Project Representative, the SPONSOR'S Contractor(s) and the SPONSOR's Construction Engineer. A copy of the conference minutes shall be provided to the Spokane County Division of Engineering as part of the construction documents.
 7. The SPONSOR must submit to the Spokane County Engineer, and the Spokane County Engineer must approve in writing, any major changes from the approved plans proposed by the SPONSOR, prior to beginning such work in the field. Minor plan changes are to be documented in the Project Inspection Daily Reports and Project Summary Reports, which are to be submitted on a weekly basis to the County Engineer. The County Engineer will utilize a "fast-track" system to process changes when time does not allow for processing plan changes in the standard fashion.
 8. The SPONSOR shall be responsible for costs of any corrective work (construction or warranty) on or off the site to the extent that such corrective measures are associated with work performed and/or not completed pursuant to Spokane County Code Sections 9.14.030, .040, .050, .200, .250, and others as may be applicable.
 9. The SPONSOR shall implement all necessary erosion-sedimentation measures/facilities to ensure sediment-laden water does not enter natural or human-made drainage facilities and

TECHNICAL REFERENCE C

Sample Project Agreement

will maintain them until such time as erosion potential has passed pursuant to Spokane County Board of County Commissioners Resolution No. 98-0201, as amended. In the event erosion and sedimentation is observed and upon written notice by Spokane County, the SPONSOR shall immediately take corrective actions to prevent erosion on or off the site pursuant to said Resolution 98-0201, as amended.

10. Prior to a recommendation of Final Plat Approval by the County Engineer, the SPONSOR may, at the County Engineer's discretion, post a financial surety to guarantee construction, inspection, and certification of the road and drainage improvements required for the PROJECT. The financial surety or guarantee shall be in a form approved by the Spokane County Prosecuting Attorney and in an amount acceptable to the County Engineer. The financial surety or guarantee shall remain in full force and effect unless and until specifically released in writing, or otherwise modified by the Spokane County Engineer. All financial sureties or guarantees must include a provision that they may not be cancelled or otherwise impaired unless the Spokane County Engineer has provided expressed written consent to the proposed cancellation or other impairment at least 30 calendar days prior to the desired date of cancellation. All financial sureties or guarantees must also include a provision that a notice of cancellation or other impairment, or a failure to maintain a financial surety or guarantee as agreed upon herein, shall constitute a material breach and shall be grounds for immediate demand by the Spokane County Engineer for full payment of the entire amount of all financial surety and/or guarantee instruments relevant to this PROJECT, subject thereafter to revision or refund as may be determined appropriate by the Spokane County Engineer.
11. Prior to a recommendation of Final Plat Approval by the County Utilities Director, the SPONSOR may, at the discretion of the County Utilities Director, post a financial surety to guarantee construction, inspection, and certification of the sanitary sewer improvements required for the PROJECT. The financial surety or guarantee shall be in a form approved by the Spokane County Prosecuting Attorney and in an amount acceptable to County Utilities Director. The financial surety shall remain in full force and effect unless and until specifically released in writing, or otherwise modified by the Spokane County Utilities Director. All financial sureties or guarantees must include a provision that they may not be cancelled or otherwise impaired unless the Spokane Utilities Director has provided expressed written consent to the proposed cancellation or other impairment at least 30 calendar days prior to the desired date of cancellation. All financial sureties and/or guarantees must also include a provision that a notice of cancellation or other impairment, or a failure to maintain a financial surety or guarantee as agreed upon herein shall constitute a material breach and shall be grounds for immediate demand by the Spokane County Utilities Director, for full payment of the entire amount of all financial surety or guarantee instruments relevant to this PROJECT, subject thereafter to revision or refund as may be determined appropriate by the Spokane County Utilities Director.
12. The SPONSOR hereby grants the COUNTY and its officials, employees, and agents the right to enter and inspect the project site, and, in the event of any failure to perform terms of this AGREEMENT, to implement such corrective measures as the COUNTY deems necessary.

TECHNICAL REFERENCE C

Sample Project Agreement

13. The SPONSOR agrees not to begin construction of any of the road or drainage improvements for the PROJECT, or otherwise disturb the PROJECT site, until the construction plans for same have been accepted by the Spokane County Engineer for construction, and a permit has been issued for said construction by the Spokane County Engineer, pursuant to Spokane County Code Sections 9.14.080, .110, .230, and other sections as may be applicable.
14. The SPONSOR agrees and covenants that all of the road and drainage construction for the PROJECT shall be completed no later than two (2) years from the date of the Spokane County Engineer's plan acceptance. If construction is not complete on the said date of completion, the SPONSOR will be in default. If SPONSOR is in default, Spokane County is authorized to call upon the financial guarantee in accordance with the terms and conditions of the financial guarantee to complete the improvements that are covered by said financial guarantee. Any failure on the part of the SPONSOR to proceed with due diligence and in good faith in the construction, maintenance, and/or monitoring work provided herein shall, upon written notice by the Spokane County Engineer, constitute a default of the terms of this AGREEMENT. If any extension of time is granted to the plans, an addendum to this agreement must be executed with revised bonds being submitted which reflect the most current construction costs that are indexed to the revised completion deadline.
15. The SPONSOR shall be responsible for the proper performance, safe conduct and adequate policing and supervision of the project. This responsibility shall not be lessened or otherwise affected by the COUNTY's review of plans, specifications, or work, or by the presence at the work site of the COUNTY's representative(s), or by the compliance by the SPONSOR with any written or verbal requests made by said representative(s) (e.g., "punchlists", memoranda, or other communications).
16. This AGREEMENT shall remain in effect and any applicable associated financial guarantee (Warranty Surety) shall not be released until the applicable warranty period has expired.
17. The SPONSOR shall indemnify and hold the COUNTY and its agents, employees and/or officers harmless from and shall process and defend at its own expense all claims, damages, suits at law or equity, actions, penalties, losses, or costs of whatsoever kind or nature, brought against the COUNTY arising out of, in connection with, or incident to the execution of this AGREEMENT and/or the SPONSOR's performance or failure to perform any aspect of the AGREEMENT. Provided, however, that nothing herein shall require the SPONSOR to hold harmless or defend the COUNTY from any claim arising from the sole negligence of the COUNTY's agents, employees and/or officers.
18. In the event that any PARTY to this AGREEMENT deems it necessary to institute legal action or proceedings to enforce any right or obligation under this AGREEMENT, the PARTIES hereto agree that any such action or proceeding shall be brought in a court of competent jurisdiction situated in Spokane County, Washington.
19. In the event that any portion of this AGREEMENT may be held to be invalid by a court of competent jurisdiction, all other portions of this AGREEMENT not held to be invalid shall remain in full force and effect, and the AGREEMENT shall be modified accordingly to the mutual satisfaction of the PARTIES.

TECHNICAL REFERENCE C
Sample Project Agreement

IN WITNESS THEREOF, the parties hereto have executed this AGREEMENT as of the day and year first above written.

(Select the signature block(s) as appropriate)

SPONSOR:

(1) For an acknowledgement in an individual capacity

(NAME)

State of Washington)
)ss
County of Spokane)

I certify that I know or have satisfactory evidence that (name of person) is the person who appeared before me, and said person acknowledged that (he/she) signed this instrument and acknowledged it to be (his/her) free and voluntary act for the uses and purposes mentioned in the instrument.

Dated _____

Notary Public in and
for the State of Washington.
My Appointment Expires: _____

(2) For an acknowledgment in a representative capacity:

CORPORATION NAME

A Washington Corporation

By: (NAME)
Its: (TITLE)

State of Washington)
)ss
County of Spokane)

I certify that I know or have satisfactory evidence that (name of person) is the person who appeared before me, and said person acknowledged that (he/she) signed this instrument, on oath stated that (he/she) was authorized to execute the instrument and acknowledged it as the (type of authority, e.g., officer, trustee, etc.) of (name of party on behalf of whom instrument was executed) to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

TECHNICAL REFERENCE C
Sample Project Agreement

Dated _____

Notary Public in and
for the State of Washington.
My Appointment Expires: _____

SPOKANE COUNTY DIVISION OF ENGINEERING

By
Title: Spokane County Engineer
Date: _____

SPOKANE COUNTY DIVISION OF UTILITIES

By
Title: Spokane County Utilities Director
Date: _____

TECHNICAL REFERENCE D

Performance Surety Reduction

Surety Reduction Examples:

$$\text{Total aggregated reduction} = 90\% \times (\text{Total Surety} - \text{Retainer})$$

Example #1: Total Surety = \$100,000.
Retainer = 10 % x \$100,000
= \$10,000 as cash savings assignment or Letter
of Credit;
\$90,000 as cash savings assignment, Letter
of Credit or Bond from a Bonding Company .

Total of reductions = 90% x (100,000 – 10,000)
= 90% x (90,000)
= \$81,000

(The remaining \$19,000 is less than the \$20,000 (or 20%) minimum noted in Section 10)

At least \$20,000 (\$10,000 retainer + \$10,000 other instrument) will be held until the County Engineer accepts the construction certification

Example #2: Total Surety = \$50,000.
Retainer = \$7500 (which is greater than 10 % x
\$50,000)
= \$7500 as cash savings assignment or Letter
of Credit;
\$42,500 as cash savings assignment, Letter
of Credit or Bond from a Bonding Company.

Total of reductions = 90% x (50,000 – 7500)
= 90% x (42,500)
= \$38,250.

(The remaining \$11,750 is more than the 20% minimum, but less than the \$20,000 minimum)

At least \$20,000 (\$7500 retainer + \$12,500 other instrument) will be held until the County Engineer accepts the construction certification

Note: Partial reductions on Bonding Company Surety Instruments will not be allowed. Reductions in cash security will be considered only for projects which, in the County Engineer's opinion, are making steady progress, and for which the plan acceptance has not expired.

PROJECT CONSTRUCTION CERTIFICATION PROCEDURES

for

SPOKANE COUNTY
ROAD, DRAINAGE, AND SEWER PROJECTS

APRIL, 2002

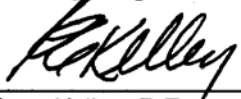
PREPARED BY

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS

in association with

AMERICAN COUNCIL OF ENGINEERING COMPANIES OF WASHINGTON
SPOKANE COUNTY CONSTRUCTION CERTIFICATION COMMITTEE

County Engineer



Ross Kelley, P.E.

4/11/02

Date

Utilities Director



N. Bruce Rawls, P.E.

4/18/2002

Date

TECHNICAL REFERENCE E

Performance Surety Reduction

INTRODUCTION

The Construction Certification Committee is comprised of representatives of the Spokane County Public Works Department and the local chapter of the American Council of Engineering Companies of Washington (ACEC). The Committee has been working over the past three years to address issues of concern regarding the construction certification procedures for projects within Spokane County. There has been a major focus by this Committee on the development of guidelines to insure a consistent approach to the technical and administrative procedures during the construction phases of projects.

The initial meeting of the Committee was held on February 12, 1999. Meetings were initially held twice a month and then changed to once monthly. Meeting minutes were kept and distributed to Committee members and to the ACEC membership as a whole as the work progressed.

The committee's first interim report was completed and made available to interested parties (local developers, contractors, and engineers) in June of 2000. Workshops were scheduled and held with the development/contracting community on June 15, 2000, and subsequently on March 21, 2001 to present the interim work products of the Committee and to receive comments on the committee's findings and recommendations.

The procedures developed by the Committee and presented herein are intended to foster consistent high quality products for the developer, and to facilitate the subsequent transfer of ownership of the finished products to Spokane County. The procedures have been derived from the committee's interim report documents, with consideration of comments received and concerns expressed by the development/contracting community, and have been adopted by the Division of Engineering and Roads, and by the Division of Utilities.

These procedures provide the needed framework for effective interaction between the sponsor, the Sponsor's Engineer, and the Department of Public Works. Additionally, the procedures promote adherence to the County's adopted Standards for Road and Sewer Construction. Note that these procedures apply to public and private road and sewer projects. It is anticipated that specific separate procedures will be developed for and adopted by the County for commercial and industrial development projects.

TECHNICAL REFERENCE E

Performance Surety Reduction

GUIDELINES and PROCEDURES

- Authority of County** Prior to the start of construction, the County will determine the specific reporting needs for a project, and the sponsor will identify the Sponsor's Engineer and the Project Coordinator. The County will identify areas of particular technical concern and historical problem areas to the Sponsor's Engineer. The County has defined the general structure for objective measurements and/or determination methods for construction acceptability (See Attachment 3). The Sponsor's Engineer is responsible for the reasonable application of those methods to the specific project. County inspectors will make site visits intermittently during the construction of the project to verify progress and will periodically discuss inspection activities with the Project Coordinator.
- Sponsor's Engineer** The Sponsor's Engineer shall be a licensed Professional Engineer in the State of Washington. Inspections are to be performed by that engineer, or by his/her representative. An outline of Construction Phase Services is presented in Attachment 1 to this document.
- Project Coordinator** The project sponsor shall designate a Project Coordinator for each project. The Project Coordinator shall be responsible for managing the day-to-day operations of the project including traffic control, citizen concerns, and overall coordination. The Project Coordinator shall be the contact for the County personnel. The Project Coordinator's responsibilities are separate from construction inspection and certification duties of the Sponsor's Engineer. The Sponsor's Engineer need not be the Project Coordinator, although he/she can be if the developer so designates.
- Inspection Bonding** The inspection and construction bonds/securities will not be released until the project is certified and the project is accepted by the County and written authorization for release is received from the Sponsor's Engineer. In some cases, partial releases of certain types of construction securities may be allowed by the County Engineer or the Utilities Director.
- Pay Requests** The sponsor should include review of the construction pay requests for percent complete and/or items complete as a part of the engineering services contract. This is related to the County's requirements for security reductions. The percent complete or items completed will need to be signed off by the Sponsor's Engineer and certified before a financial security reduction is allowed.

TECHNICAL REFERENCE E

Performance Surety Reduction

Record Keeping	At a minimum, there will be weekly project summary reports submitted to the County by the Sponsor's Engineer, even if no work was performed. Specific reporting requirements will be discussed at the pre-design meeting and established prior to construction. For some projects, the County will require daily reports to be submitted.
Reporting Forms	All lab and field-testing reports need to be included in the final certification package. Test reports that show failing tests need to have follow-up test reports that show passing tests for the area of failure. On-site samples need to be used for testing. The use of test reports from other projects to certify work on the project being certified is not allowed. Any nonconforming issues shall be fully documented with subsequent documents on how the issue was corrected.
Traffic Control	The Project Coordinator for the project needs to make sure that the requirements for traffic control on a project are being properly handled.
Construction Complaints	Complaints from citizens regarding the project need to be documented by the Project Coordinator and resolved. Spokane County personnel need to be involved in the process when the County's authority needs to be used to resolve an issue.
Drainage Swale Inspections	The Sponsor's Engineer will verify that the volume of each finished drainage swale equals or exceeds the design volume of the swale at a six-inch depth. Additionally, the Sponsor's Engineer will verify that there is adequate and continuous grade from the road to the swale for the effective conveyance of runoff. The Sponsor's Engineer and the County will monitor the performance of swales during the construction and warranty period for proper percolation. Swales that do not percolate properly will require corrective work or measures.
Utility Inspections	<p>A sewer inspection policy has been developed by the Division of Utilities and adopted by the Board of County Commissioners (See Attachment 4, Resolution No. 98-0771).</p> <p>In addition, the Division of Utilities has developed a protocol for the scheduling and review of television inspections, which is Attachment 5 to this document.</p> <p>Whenever pipe installation or pipe zone material placement and compaction is underway, the Sponsor's construction engineer, or his/her representative, shall observe the work on a continual basis.</p>

TECHNICAL REFERENCE E

Performance Surety Reduction

Changes During Construction Changes during construction that affect the scope of the project and/or the accepted individual lot plans must be submitted for review by the County. Minor changes do not need to be reviewed by the County, but must be documented in the daily and weekly inspection reports.

Acceptance vs. Approval The County uses these terms in the following ways:

Acceptance: Pertains to construction plans, calculations, and details. Spokane County has not prepared them, and relies upon the responsible engineer's stamp.

Approval: Related to design and/or construction deviation from the County Standard. County approval is required for all deviations from Standards.

Project Acceptance After Construction Completion 1) The Sponsor's Engineer performs an inspection with the contractor and as necessary issues a punch list to be completed.

2) The "walk through" with the County is scheduled as soon as possible after the Sponsor's Engineer is satisfied that all punch list items are completed.

3) The "walk through" with Spokane County is performed and any remaining deficiency items are noted to a punch list. If no deficiency items are noted, this is considered the "final walk through". The Sponsor's Engineer may then submit certified Record Drawings and Project Certification documents to the County requesting acceptance of the project.

4) The sponsor should consider taking verification photographs immediately following the "final walk through". The sponsor continues to be responsible for correction of all deficiencies until the Board of County Commissioners (the Board) accepts of the project. Verification photographs can be helpful in resolving cases of damage by third parties (e.g. utility companies, builders, landscapers, etc.)

5) The Sponsor's Engineer shall compile and submit a certification package to the County. The package shall include all related construction documents, one set of mylar record drawings, and a stamped and signed certification statement from the Sponsor's Engineer. See Attachment 3 for an example checklist presenting the minimum certification requirements.

6) If the engineer's submittal is not received within two weeks of the walk through, or if deficiencies are noted during the walk through, another walk through inspection with the County inspector may be required. NO NEW ITEMS WILL BE ADDED TO THE LIST AT THIS

TECHNICAL REFERENCE E

Performance Surety Reduction

TIME, UNLESS NEW DAMAGE HAS OCCURRED SINCE THE PREVIOUS "WALK THROUGH".

7) If the certification package is incomplete, or otherwise unacceptable, the Sponsor's Engineer shall be required to provide the missing documents before the County will issue the Notice of Substantial Completion.

8) The County will review the certification documents within a two-week period and issue a Notice of Substantial Completion if appropriate. This Notice of Substantial Completion is conditioned upon no further deficiencies becoming evident before the Board has accepted the project.

9) If no acceptance by the Board is required (i.e. sewers, private roads etc,) the Notice of Substantial Completion shall be considered the point of acceptance by Spokane County for the project, and the start of the warranty period.

10) For projects requiring the Board's acceptance, the County staff will make reasonable efforts to bring the project before the Board for acceptance within a six-week period following the Notice of Substantial Completion. The sponsor will remain responsible for the condition of the project as documented during the final walk through until formal acceptance by the Board.

11) A flow chart of this procedure is included as Attachment 2.

Conflict Resolution

During the construction process, occasional differences may arise between the Sponsor's Engineer and County staff regarding the interpretation of policies, standards or guidance documents. When the Sponsor's Engineer does not agree with an interpretation made by County staff, the Sponsor's Engineer may appeal to the County Engineer or Utilities Director, as appropriate. The County Engineer or Utilities Director will review the circumstances and make a determination in support of the position of the Sponsor's Engineer or County staff. If the Sponsor's Engineer disputes the outcome of this review process, he/she may request that the issue be referred to an Engineering Review Panel with a structure similar to that of the panel identified in the County's Standards for Road and Sewer Construction for the resolution of design deviation issues.

TECHNICAL REFERENCE E

Performance Surety Reduction

Record Drawings

Changes from the originally accepted documents shall be clearly noted with “clouds.” Revised notes, elevations, grades or other text should be lined through. “Clean new sheets” are not desired. Any changes to easements need to be clearly shown on the Record Drawings. The Record Drawings should be marked “Record Drawings.”

General Guidance: If a change represents a change from the design intent or system performance in the judgment of the engineer, then it should be clearly shown. Record Drawings are to reflect the correct location of that which is in the field. Spot elevations (on swales, curb, gutter, etc.) to depict the final grades should be taken and compared with the final design, and differences noted on the Record Drawings. Elements of the plans that were not built need to have a design change acceptance from Spokane County prior to final inspection and submittal of Record Drawings.

The County will provide examples of acceptable Record Drawings at the request of the Sponsor’s Engineer.

Warranty Period and Damage by Third Parties

The start date and the extent of the warranty period shall be as stipulated in the County Standards for Road and Sewer Construction. The County will hold the sponsor responsible for any damage until final acceptance by the Board has occurred. Once the project has been accepted by the Board, the County will hold the property owner, utility company, builder, etc., responsible for damages that may occur that are not warranty items.

ATTACHMENTS

- Attachment 1 – Construction Phase Services Outline
- Attachment 2 – Flow Chart – Project Acceptance
- Attachment 3 – Final Certification Checklist - Sample
- Attachment 4 – Interim Policy Regarding Sewer Construction Inspections
- Attachment 5 – Spokane County TV Inspection Protocol

TECHNICAL REFERENCE E

Performance Surety Reduction

ATTACHMENT 1 – CONSTRUCTION PHASE SERVICES

AMERICAN COUNCIL OF ENGINEERING COMPANIES OF WASHINGTON SPOKANE COUNTY PUBLIC WORKS CONSTRUCTION CERTIFICATION SUBCOMMITTEE

Required Items to be completed by the Sponsor's Engineer:

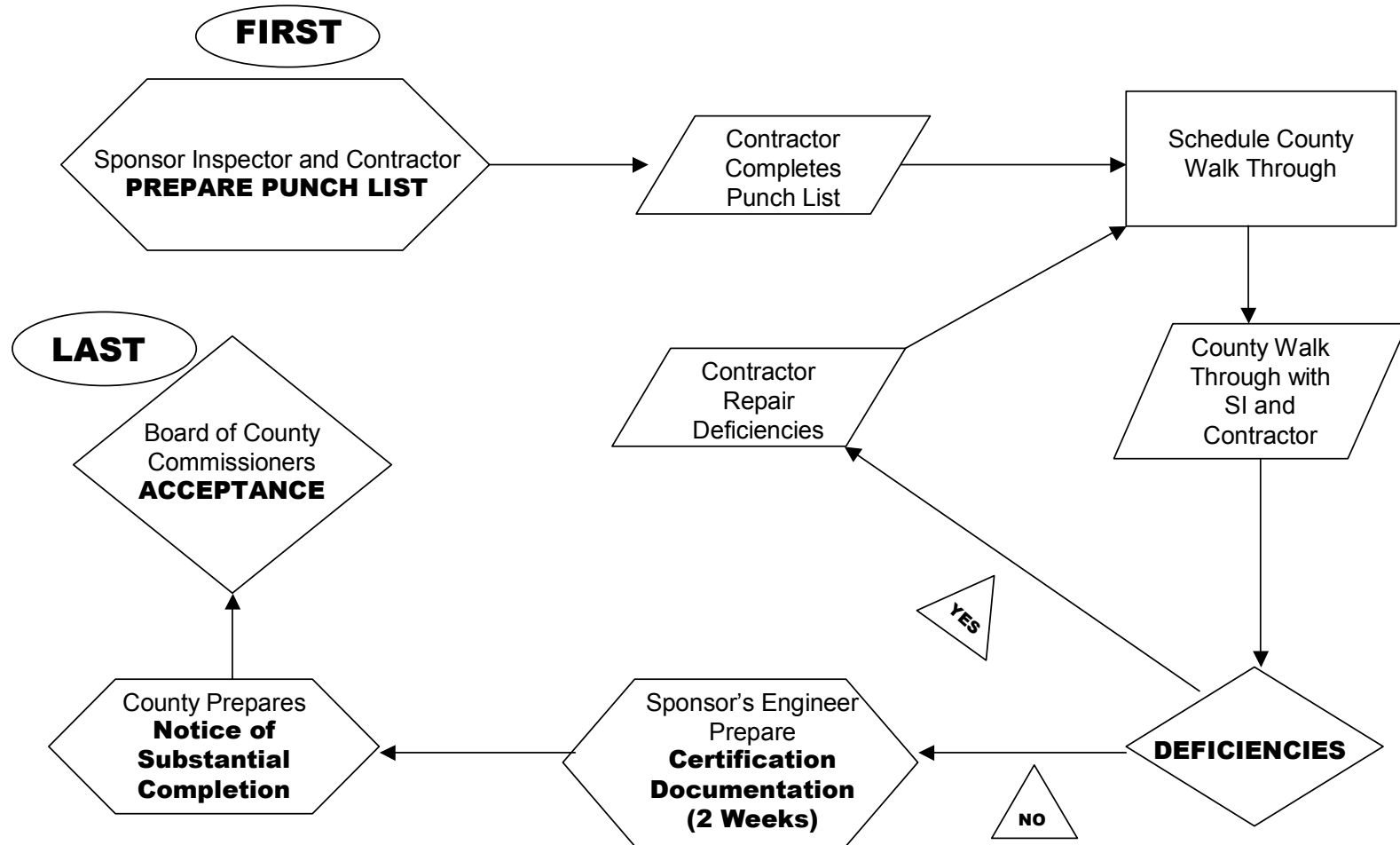
- I. Specific Certification Inspections
 - A. Roads
 - Erosion Control.
 - Drainage Improvements/Testing.
 - Embankment Placement/Density Control.
 - Trenching Backfill/Density Control.
 - Subgrade Line and Grade/Density Control.
 - Surfacing Line and Grade/Density Control.
 - Curbs and Sidewalks/Material Quality.
 - B. Sewer
 - Full time inspection and testing during pipe installation and pipe zone material placement.
- II. Review and approval of changes to approved plans including approval through the County if necessary.
- III. Record keeping and weekly reporting to the County.
- IV. Contractor pay requests/bond reduction assistance.
- V. Project acceptance of construction (See interim report flow chart).
- VI. As built survey/record drawings and side sewer (stub) reports.
- VII. Certification report.

Required Items that may be completed by designated Project Coordinator or Sponsor's Engineer:

- I. Pre-Construction meeting.
- II. Construction staking.
- III. General project administration, coordination, and schedule monitoring.
- IV. Traffic and dust control.
- V. Response to construction complaints and resolution of complaints.
- VI. Monumentation

ATTACHMENT 2 FLOW CHART

PROJECT ACCEPTANCE AFTER CONSTRUCTION COMPLETION



TECHNICAL REFERENCE E

Performance Surety Reduction

ATTACHMENT 3 – FINAL CERTIFICATION CHECKLIST (SAMPLE)

Project: _____

Certificate Head Letter: _____

Statement of intent to certify the project.
PE Stamp and Signature.

Record Drawings Mylar Drawings: _____

PE Stamp and Signature
Lettered certification statement (9.10 Spokane County Standards)

Project Documents: _____

Daily Inspection Reports: _____

Field Reports: _____

Inspection of Asphalt Paving:
100% On site inspection during paving. _____

Compaction Reports:
Sewer trench lifts. _____
Water trench lifts. _____
Utility trench lifts. _____
Crushed Rock Lifts. _____

Material Documents: Field and Laboratory Tests: _____

	Field Test	Lab Test
Concrete:	_____ (Slump, Air Content, Temp.)	_____ (Break Test)
Sub-Grade:	_____ (Compaction)	_____ (Gradation, Proctor)
Crushed Rock:	_____ (Compaction, Depth)	_____ (Gradation, Proctor)
Asphalt:	_____ (Compaction, Thickness)	_____ (Rice, Gradation, Oil Content)

On Site Inspections Of Drainage Items: _____

Drywells: _____
Gutter Inlets: _____
Culverts: _____
Sidewalk Vaults: _____
Drainage Ditches: _____
Other: _____

Incoming / Outgoing Correspondence: _____

(This is a guideline of required documents, but not limited to, for final certification.)

TECHNICAL REFERENCE E

Performance Surety Reduction

ATTACHMENT 4

INTERIM POLICY REGARDING SEWER CONSTRUCTION INSPECTIONS, RECORD DRAWINGS & ENGINEER'S STATEMENT

Inspection Requirements

These requirements apply to all public and private sewer lines eight inches and larger in diameter, and to sewer service stubs extended from those lines to the property lines of individual parcels. Note that all sewer service lines six inches and smaller in diameter, other than those service stubs noted above, will be inspected by Spokane County Division of Utilities.

On all sewer construction for development, inspections will be performed by the Sponsor's Engineer or his/her designated representative. At the request of the sponsor, the County may provide the sewer inspection services, provided that the sponsor agrees to pay all costs associated with the County inspections and provided that the County determines that staff is available to perform the inspections.

The inspection of sewers shall include the items listed below. However, the listing provided below is not intended to be all inclusive. It will be the responsibility of the Sponsor's Engineer to determine additional inspection activities that may be needed for a specific project in order to report substantial conformance of the project with the County's standards.

1. Conformance of all construction materials with County standards shall be verified prior to installation.
2. The sewer trench shall be inspected for proper dimensions and pipe zone clearances prior to placement of pipe.
3. The placement and compaction of the pipe zone material and bedding shall be inspected.
4. The pipe joints shall be inspected visually for proper insertion.
5. Horizontal alignment and grade of the pipe shall be checked for conformance to the standards prior to backfilling of the trench.
6. Sewer service tees and stubs shall be inspected for correct installation prior to backfilling of the trench.
7. Accurate measurements shall be made and recorded to facilitate the reestablishment of sewer service tee locations and stub end locations. The placement of the required stub markers shall be verified.
8. Manholes shall be inspected for proper materials, location, assembly, and installation.
9. Trench backfilling operations shall be observed and compaction tests shall be performed. Minimum requirements for backfilling shall be as set forth in the accepted plans and/or specifications for the project.
10. Mandrel testing, hydrostatic and/or air pressure testing, and manhole testing shall be performed following completion of trench backfilling operations. The testing shall be observed until passing results are obtained. Manhole testing shall be performed on ten percent of the manholes in the project, in accordance with Department of Ecology's "Criteria for Sewage Works Design".

TECHNICAL REFERENCE E

Performance Surety Reduction

11. The Sponsor's Engineer shall schedule television inspection of the sewer lines through the Division of Utilities once the other testing has been satisfactorily completed. The Division of Utilities will then perform the television inspection and review the tapes for deficiencies requiring correction or repair.

Adopted Via Resolution 98-0771

9/22/98

12. Daily inspection reports shall be prepared, summarizing construction activities, contractor work force and work period, testing results, problems encountered, and other pertinent information.

The project sponsor or the sponsor's Construction Engineer shall notify the Division of Utilities 48 hours in advance of the start of construction of the sewer system, and shall provide a generalized schedule for the progress of the work. County inspection personnel will make occasional site visits to inspect the work and do materials testing as deemed necessary. County inspection personnel will address concerns and questions to the Engineer of Record. The cost of these occasional site visits will be charged to the Construction Permit for the work.

The sponsor will bear the cost of all inspections and materials testing. The Division of Utilities shall have access to all construction inspection records and reports. Before the County accepts the sewer system, the Sponsor's Engineer shall submit all construction records to the Division of Utilities. This shall include but not be limited to Daily Inspection Reports, correspondence, manufacturers' certifications, and material test reports.

When changes to the design are necessary, the sponsor shall be responsible for coordinating the proposed design changes with the sponsor's Design Engineer. The sponsor's Design Engineer shall forward two copies of the proposed plan changes, together with related calculations, to the Division of Utilities for review and acceptance prior to construction.

The Sponsor's Engineer shall schedule a final inspection meeting between the Sponsor's Engineer, the sponsor, and the Division of Utilities at the completion of construction and testing of the sewer system. Deficiencies found shall be corrected by the sponsor prior to the County's acceptance of the sewer.

Record Drawings & Engineer's Statement

During construction the sponsor's Surveyor and/or Construction Engineer shall record any changes to the accepted plans. All substantive changes shall be indicated and noted on the accepted final sewer plans and the plans shall be annotated as "Record Drawings". In those cases where the County provides the inspection services, the County will produce the Record Drawings.

Side sewer stub sketches shall also be prepared on the County's standard form. As-built elevations, locations, pipe lengths, and pipe slopes must be verified on the Record Drawings. The following statement shall be lettered on the Record Drawings and stamped and signed by the sponsor's Construction Engineer on the Record Drawings: "I have reviewed the construction of this sewer system and to my knowledge find it to be in substantial conformance with the accepted plans and Spokane County Standards except as noted."

TECHNICAL REFERENCE E

Performance Surety Reduction

ATTACHMENT 5

SPOKANE COUNTY DIVISION OF UTILITIES PROTOCOL FOR TELEVISION INSPECTION OF SEWERS

In the interest of developing a consistent methodology for the coordination and review of television inspections, the following steps have been established:

1. PRE-PAVING TELEVISION INSPECTION

- a) At least two weeks prior to the desired pre-paving television inspection, the Contractor requests the television inspection through the Sponsor's Engineer. The Engineer submits the request (on standard form) to the Division of Utilities Sewer Design Section. (Utility contacts are B. Urhausen and G. Repp).
- b) Sewer Design Section schedules television inspection with the Wastewater Operations Section.
- c) In order for the inspection to take place, sewer mains will need to be high-pressure cleaned, mandrel tested, and pressure tested. In addition, manholes will need to be accessible by the TV van. Backfill must be in place around the cone sections of the manholes. If the contractor has placed temporary steel plates on top of the manholes, then the contractor will need to provide manpower and equipment to remove and replace the plates to facilitate the television inspection.
- d) Detailed television inspection is undertaken, noting tee locations/stations, irregularities, defects, etc.
- e) The Contractor shall pay the cost of the pre-paving television inspection.

2. REVIEW OF PRE-PAVING TELEVISION INSPECTION

- a) When the Sewer Design Section receives the VHS tapes and fault log from the Operations Section, the fault log will be reviewed for noted defects. The tapes and log will then be forwarded to Engineer for review.
- b) Engineer reviews tapes and log, and makes determination of any repairs that need to be undertaken.
- c) Engineer coordinates with Sewer Design Section Manager for concurrence on repairs that are needed. In some cases, this may necessitate joint review of the tapes.
- d) After concurrence between the Engineer and the Sewer Design Section Manager, the Engineer will stipulate the required repairs to the Contractor.

3. ACCEPTANCE STANDARDS FOR GRADE DEVIATIONS

- a) The Standard Specifications stipulate that reverse grades are not acceptable. In the review of television inspection tapes, the Engineer and the Sewer Design Section Manager will consider the combined effects of pipe joints, allowed variations in pipe diameter, and grade on any entrapped water appearing on the inspection tapes.

4. POST-PAVING TELEVISION INSPECTION

- a) After the roadway is substantially complete above the sewer, a post-paving television inspection will be scheduled, in the same manner as the pre-paving television inspection.
- b) This television inspection will be less detailed than the first, and will be undertaken to check for pipe cleanliness, and to identify any structural defects that may have occurred/presented since the initial television inspection.
- c) The review of the tapes and concurrence on needed repairs will proceed in the same fashion as identified for the pre-paving television inspection.

TECHNICAL REFERENCE E

Performance Surety Reduction

- d) The cost of the first post-paving television inspection shall not be charged to the Contractor. The cost of any subsequent television inspections performed to confirm the adequacy of repairs will be charged to the Contractor.

5. REMEDY PROVISIONS

- a) In the case of a pipeline swale, or other defect, that is identified during the post-paving television inspection, the Engineer and the Sewer Design Section Manager shall determine the need for repair work to correct the defect.
- b) In certain cases, in lieu of undertaking the repair, the Contractor may be required to pay the estimated cost of making the repair to the County. Such payment will then be deposited in the County's sewer repair and replacement fund.

6. MANHOLE INSPECTIONS

- a) The Engineer shall inspect the sewer manholes for conformance with Spokane County Standards. Observations regarding the condition of manholes made by the television inspection crew are to be considered as supplementary information, and are not intended to replace the Engineer's inspection.

7. MAKING CONNECTIONS TO NEW SEWER LINES

No connections to the new sewer lines will be allowed until the County has accepted the sewer lines for operation and maintenance. Before acceptance can occur, the Engineer must provide acceptable record drawings for the project to the Division of Utilities, together with the required Engineer's Statement. Additionally, the warranty period security must be provided by the developer as stipulated in the development agreement.



REGIONAL PAVEMENT CUT POLICY

Spokane County Road Standards – Technical Reference F

May 18, 2005

INTRODUCTION

The local governmental entities within Spokane County are faced with the same challenges as many other municipalities throughout the country. Pavement cuts are a necessary operation and cannot be avoided. Utilities need to serve new customers and repair existing facilities. There is a common good for all utilities to be placed in the Public Right of Way. All parties shall strive to reduce the burden to the taxpayer/ratepayer, and damage to the roadways.

Studies conducted by multiple groups and organizations have determined that poorly restored pavement cuts cause permanent structural and functional damage increasing maintenance costs, future rehabilitation costs, and produce a rough ride. If realized, the increased costs and rough ride are a burden for the taxpayer/ratepayer.

As Exhibit A on page eight shows, the pavement beyond the trench may be weakened by sagging which results from loss of lateral support. Heavy construction traffic also weakens the area adjacent to the trench. Studies (see attached bibliography) have shown that the pavement life may be reduced by pavement cuts. Poorly constructed patches tend not to last through the life of the existing road and fail prematurely when there is a lack of good construction techniques used when backfilling and compacting. This causes an additional burden to maintenance departments and taxpayers/ratepayers. A poorly constructed pavement cut usually requires repair before the road needs to be resurfaced; problems typically appear in the first two years. Studies also reveal that patch areas probably require thicker overlays compared to the rest of the pavement in the area. This also results in higher costs to the taxpayer/ratepayer.

EXECUTIVE SUMMARY

This document outlines Spokane County and the City of Spokane's joint regional policy regarding pavement cuts. It addresses excavation problems, construction requirements, warranties and other related aspects. In addition, it modifies the five year new pavement cut moratorium, creating a new regional three-year cut moratorium as outlined in this agreement and exhibit B tier chart. Any road will remain available to be cut if there is no other means to take care of an emergency situation (broken water, sewer or gas lines or as approved by the Agency Engineer). The utility shall attempt to use other innovative ideas for servicing customers other than cutting into the public Right of Way while not diminishing safety standards.

DEFINITIONS

Permittees: The utility company or contractor who submits an application for a permit to obstruct and/or conduct construction operations in the public right-of-way. Local agencies and their contractors shall be considered permittees for application of this policy even though the respective agencies and/or their contractors may not take out permits.

Local Agency: The governing entity having jurisdiction of the area that the permittee has submitted an application to obstruct or conduct construction operations.

Agency Engineer: City or County Engineer, his/her designee (Engineers, Inspectors, Project Managers, Field Personnel) representing a Local Agency.

Standard Specifications: Current version of the WSDOT Standard Specifications for Road, Bridge, and Municipal Construction, Supplemental Specifications and/or Drawings as attached by local agencies.

Project Completion: Date when the following has occurred: final permanent restoration of roadway is complete and approved by the inspector, and all as-built documentation has been submitted to the local agency. A fax transmittal confirmation ticket of 'as built' shall be considered confirmation.

New Roadway: Any roadway that has had a designed rehabilitation in the permitted excavation location that is less than or equal to three years.

Length of Patch: For this document the length of all patches is the patch dimension parallel to the roadway.

Width of Patch: For this document the width of all patches is the patch dimension perpendicular to the roadway.

Assignee: The contractor who is taking out the permit.

Patch: Cut in the pavement as part of the current permitted job.

CONSTRUCTION REQUIREMENTS

1. A pavement cut moratorium will be in effect for a period of three years for all new roadways (see Exhibit B).
2. No patching material will be allowed within an existing patch if the new patch exceeds seventy percent or more of the existing patch. In this case, the entire existing patch must be replaced.
3. All patching materials and construction requirements not addressed in this document shall conform to each Local Agency's Standards, copies available from local agencies. Longitudinal cuts that extend through multiple tier classifications will require discussion with the local agency to determine appropriate patching approach. In principle, each road section will be patched according to the tier in which it is ranked.

4. All existing traffic control markings will be replaced as soon as possible after permanent paving is completed. Temporary markings for lane lines and stop lines shall be in place prior to the roadway opening for traffic. All remaining temporary striping will be completed within seven days of new pavement completion and shall be maintained by permittee until permanently restored. All traffic markings will be replaced per normal work practices.
5. Full depth full lane pavement removal and replacement shall be constructed beyond the nominal completed trench edge longitudinally, and transversely per tier chart and notes. The goal is that the tee section will not arbitrarily force patch into adjacent lanes, dependent on quality and care of trenching. The minimum length of the patch parallel to the road shall be six feet. If any part of the excavation, patch or damaged area intrudes into an adjacent lane, that lane shall also be replaced per the tiered chart. For new patches adjacent to any existing patch, all attempts will be made to install the utility at the existing patch line. When this is not feasible, no gap of 4 feet or less shall exist.
6. The permittee shall be allowed to make emergency repairs provided a more reasonable alternative does not exist. Every reasonable effort will be made to restore the roadway quickly. (Note: an emergency will not allow permittee to coordinate and plan with asphalt company). (See “Repairs of Pavement Cuts”).
7. Only saw cutting or approved grinding device will be allowed. Only parallel and perpendicular pavement cuts will be allowed. No jagged, broken or undermined edges.
8. Bicycle/pedestrian/parking/travel lanes to be repaired per tier chart and attached drawings.
9. Each Local Agency shall have the prerogative to encourage the permittee to contribute permittee’s normal patching costs to local agencies to accomplish paving or full depth replacement of the roadway. (This does not apply to work done within larger projects, i.e. sewer projects). The Local Agency should be notified of existing problems with the adjacent roadway to a proposed patch. Every effort will be made to leverage both utility and agency dollars for street improvements.
10. When 2 or more patches are created within a given job that measure 15 feet or less longitudinally or transversely they will be incorporated into a single patch. Anytime five or more patches are required within a 350-foot longitudinal area, the utility will notify the agency to determine if cost sharing is an option to expand the pavement repair/replacement area.
11. Potholing to find utilities shall be allowed. The use of innovative technologies is encouraged (Keyhole etc.). To be exempt from the gap and patching policy, cuts shall be a maximum of two square feet with no longitudinal joints in the wheel path and shall be backfilled with controlled density or other approved fill from six inches above the utility to six inches below bottom of asphalt. Round vs. square cuts are preferred.
12. Chip sealed roads shall be rehabilitated according to construction requirements for asphalt roads as outlined in this document.

13. All temporary traffic control for the work zone shall conform to the MUTCD and Washington State modifications to the MUTCD. All traffic control is subject to the approval of the Agency Engineer or his/her designee (See temporary patching section).
14. All existing pavement types shall be constructed at the existing depth of asphalt and crushed surfacing, in accordance with applicable Local Agency Standards (including any fabric or membranes); however, the replacement section of asphalt and crushed rock shall not be less than the minimum section specified in Local Agency's Design Standards.
15. All concrete road cuts shall be pre-approved before beginning work (except in the case of an emergency situation). Concrete roads shall require full panel replacement unless approved otherwise by local agency. All concrete joints shall require an approved tie bar and dowel retrofit. Depth of concrete replacement shall match the existing thickness, or as per Local Agency's Standards. Care shall be made not to undermine the existing panels. If the adjacent panels are disturbed or damaged, they also shall be replaced at the discretion of the Local Agency. All joints shall be sealed with an approved material.
16. Asphalt over concrete road cuts – if known - shall be pre-approved before beginning work (except in the case of an emergency situation). Saw cutting or other approved practice for removal of the concrete shall be allowed at the discretion of Local Agency. The asphalt portion of the cut shall be constructed according to the pavement cut policy.
17. All areas outside of the roadway that are affected by the work shall be restored to their original condition. All shoulders shall be restored to their original condition.
18. Valve and manhole repairs shall be exempt from the patching requirements of this policy. Valve and manhole patching requirements shall be per each Local Agency's Standards. All warranty and construction requirements shall be met. No longitudinal construction joints shall be allowed in the wheel path.
19. The permittee shall provide a detailed "As-built" record of the pavement cut after construction is completed. The permittee shall provide details indicating existing pavement section, new pavement section and any unusual conditions at the location of the constructed utility. The location shall include the name of the road the work is being performed on and the name of the closest intersections in each direction. Distance measurements shall be from intersecting streets. This information will be provided to the Local Agency's Permit department for a permanent record. This information shall be returned no later than seven days after the completion of the permitted project by mail, fax, or other electronic means by either permittee or patching contractor. The intent of this process is to record small patching details. Larger projects shall be reviewed and approved prior to construction.

20. The moratorium policy will be explained both as to costs and to construction practices by the Local Agencies as part of the permitting/zoning process for new construction or major remodeling projects. Individual permittees/utilities will not be responsible for this function. Individual permittees/utilities will be responsible for doing the work and the costs associated with the moratorium policy as they open roadways for work. Cost recovery from developers will be calculated and coordinated by permittee/utility.

SURFACE SMOOTHNESS REQUIREMENTS

The completed surface of all courses shall be of uniform texture; smooth, uniform as to crown and grade and free from defects. The completed surface of the wearing course shall not vary more than 1/4 inch from the lower edge of a ten foot straightedge placed parallel to the centerline. Recognition and consideration will be made for existing roadway conditions. The Agency Engineer must approve corrective measures.

WARRANTY REQUIREMENTS

Pavement cuts on roadways ten years old or less will have a warranty period of five years. The patch in the roadway shall be repaired as necessary until the warranty has passed.

All other roadways shall require a minimum three-year warranty period. All warranties shall become void if rehabilitation work is performed to the road within the patching limits.

For road cuts performed by a Utility using its internal capability, that Utility or assignee will be responsible for repairs required during the warranty period.

All curb, sidewalks and structures that are affected by the excavation shall be included in this policy and have a warranty for five years.

WARRANTY PROVISIONS

- 1) Sunken pavement patches greater than or equal to one-quarter inch (Measured by a ten-foot straight edge).
- 2) Visual rating of patch = to medium or high (Per Agency's rating procedure).
- 3) Visual rating of construction joint = to medium or high (Per Agency's rating procedure).
- 4) Poor workmanship (To be determined by each Agency's Engineer).
- 5) Compaction requirement per Agency standard.
- 6) Sunken or damaged curb and sidewalks in excavation work area (To be determined by each Agency's Engineer).
- 7) Sunken or damaged drywells and catch basins in excavation work area (To be determined by each Agency's Engineer).

REPAIRS OF PAVEMENT CUTS

If emergency repairs are needed due to safety concerns, the permittee shall have twenty-four hours in which to make such repairs from time of verbal notice by the Local Agency. For non-emergency repairs on arterial roads the permittee shall have forty-eight hours to make such temporary repairs. Residential streets, the permittee shall have up to seven days to make such temporary repairs. If these repairs are not accomplished within the specified timeframe, the work shall be privately contracted by the Local Agency or the Local Agency's maintenance crew shall perform the needed repairs.

The permittee will be assessed all costs associated with the repairs. The costs shall be based on the average bid items for comparable projects for the year preceding plus ten percent overhead fees. If repairs are made other than seam sealing to the warranted patch a new warranty will be implemented for the new patch.

The permittee shall have two days to notify their asphalt company of the needed permanent repairs. If the work is not done in a timely manner and following notification the work shall be privately contracted or Local Agency maintenance crews will perform the needed repairs. The permittee shall be assessed the associated fees for the repairs. All utility cut construction shall follow the construction and warranty requirements per local agencies standards.

TEMPORARY PATCHING

During winter asphalt concrete paving plant closures or outside of temperature specifications (see section 5-04 of the standard specifications) the permittee shall install and maintain a temporary patch until it can construct a permanent patch. A temporary patch will be required if the road must be opened to traffic before a permanent patch can be made.

The temporary patch shall consist of two inches of crushed surfacing and two inches of cold-mix asphalt pavement and/or steel plates, or upon approval of the Agency Engineer, crushed surfacing top coarse may be used. On arterials, when a temporary patch is required for more than two months, Portland Cement Concrete shall be used to construct the temporary patch (Contact Local Agency for mix design requirements). The permittee shall maintain the temporary patch until the patch has been permanently restored.

PERMITS

All work in the 'Public Right-of Way' requires a permit. Permittee shall take out all permits and perform all work.

The permittee shall fax or send a letter to the appropriate Local Agency permit center designating their assignees. The permittee will be required to submit a construction and traffic control plan (traffic control for arterial work and roadways above 30 M.P.H.) when applying for a permit. If the Agency Engineer determines that abuse of obligations are prevalent, future construction permits shall not be issued until the permittee has fulfilled all obligations to existing permits. Written notification by Local Agency will be sent prior to this action.

RESPONSIBLE PARTY

The permittee shall be responsible for all construction and warranty requirements of this policy. Utilities will provide identity of excavator/permittee as known to local agencies. Local agencies will attempt to get permittee to correct warranty defects. If permittee is a subcontractor for utilities, the utilities will assume responsibility if permittee can not/will not make repairs.

WAIVERS AND EXEMPTIONS

It is understood that field conditions may warrant a waiver or an exemption from these regulations. Permittee may file for a waiver, and such waivers shall be at the discretion of the Agency Engineer or his/her designee.

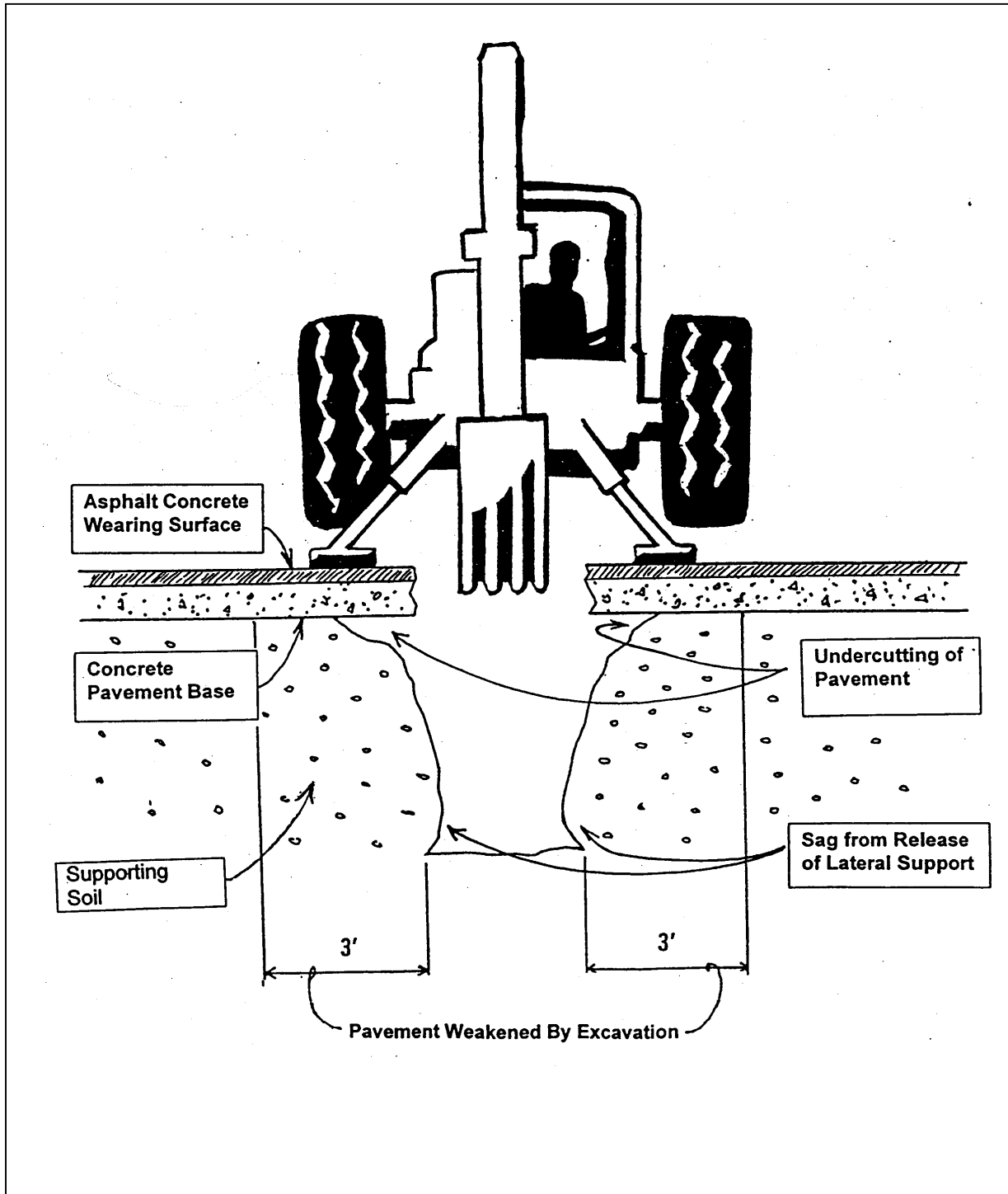
POLICY REVIEW

The local agencies will host a meeting with each other and other interested stakeholders at the end of each construction season for the purpose of reviewing the effectiveness of the policy for the completed construction season and suggested improvements for future construction seasons.

BIBLIOGRAPHY

- “Trench Restoration Requirements”. City of Bellevue
- “Utility Trench Cut Restoration Specifications”. Metropolitan Transportation Commission (January 1997)
- “Asphalted Pavement Warranties”. Wisconsin Department Of Transportation (June 2001)
- “Impact of Utility Cuts on Pavement Performance”. City of Seattle
- “Managing Utility Cuts” APWA (August 1997)
- “Gas Industry’s Use of Public Right-of-Way” A.G.A. White Paper (September 1998)
- “Pavement Cut and Repair Standards Manual” DPW&T City of Dallas (October 2003)

TYPICAL TRENCH EXCAVATION
EXHIBIT A



**PAVEMENT CUT POLICY
EXHIBIT B**

	Tier 1	Tier 2	Tier 3	Tier 4
Arterial Streets:	≤ 3 years	Years 4-5	Years 6-12	> 12 years
Principal	Moratorium Policy	Full Policy	Full Policy	Modified Policy
Minor	Moratorium Policy	Full Policy	Modified Policy	Trench Only
Neighborhood Collector	Moratorium Policy	Full Policy	Modified Policy	Trench Only
Local Access Streets:				
Industrial/Commercial	Moratorium Policy	Modified Policy	Modified Policy	Trench Only
Residential	Moratorium Policy	Modified policy	Modified Policy	Trench Only

Exhibit B Notes

Moratorium Policy = Half roadway or full roadway replacement for longitudinal cuts in new roadways. This policy requires prior approval from Agency having jurisdiction.

Full Policy = Policy w/paving to established/dedicated lane lines. Cut full depth 2 feet beyond excavation. No gaps ≤ 4' from curb or gutter.

Modified Policy = If no striping for lane line, lane is = to 12', can patch to middle of lane lines, cannot leave any gap ≤ 4' from curb or gutter. Cut 1' beyond excavation.

Trench Only = Cut 1' beyond excavation all locations. No longitudinal joints in the wheel path.

Note: It is the discretion of each jurisdiction to review the individual road segment ages to determine patch requirements on longitudinal installation over multiple roadway segments with variable ratings. In principle, each road section will be patched according to the tier in which it is ranked.

Note: Any deviation from the Tier Policy will require approval in advance by the local agency.

Note: Each agency will provide date of last major reconstruct either electronically or on each permit. Maintenance does not constitute a reconstruct for age determination.

Note: Moratorium policy will be reviewed as seam-sealing technology improves.

ASPHALT AND CONCRETE PAVEMENT REPAIR

Permittee Name: _____

Job Address: _____
(if no house number, please list hundred-block)

Coordinates : _____
(Example : 15N 24W)

- Street
 Alley

Project/Task #: _____

Date Cut: _____ Crew: _____

PO/Job #: _____ City/County Permit #: _____

Unusual Conditions/Special Instructions: _____

Tier#: 1 2 3 4
(Please circle)

Policy: Moritorium Full Modified Trench
(Please circle)

<u>Condition of Cut</u> <small>(Circle any that apply)</small>	<u>Type of Work</u>	<u>Type of Repair</u>	<u>Depth</u>	<u>Existing Road Condition</u>
6" Gravel (required)	Gas	Asphalt	_____	Depth of Asphalt _____
Cold Mix	Electric	Concrete	_____	Depth of Gravel _____
Winter Mix	Water			Sub Base Type _____
Sawcut	CATV			
Grind	Communications			
	Sewer			
	Other _____			

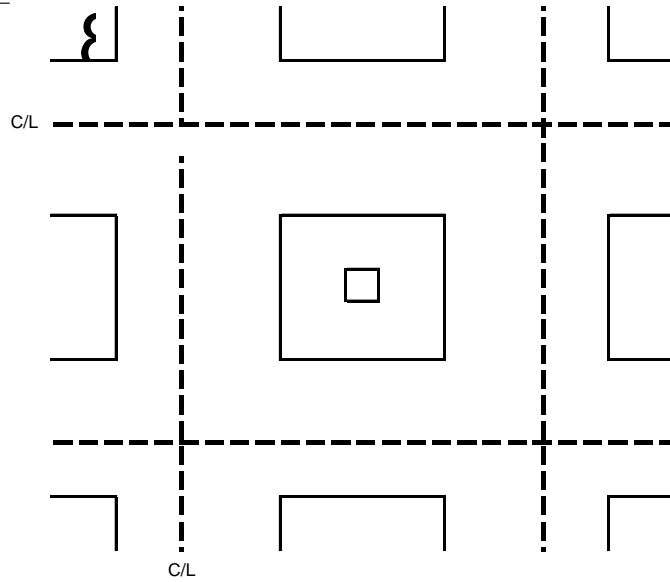
Asphalt

Width	Length
_____	_____
_____	_____
_____	_____
_____	_____

Concrete

Width	Length
_____	_____
_____	_____

striping (linear foot) _____



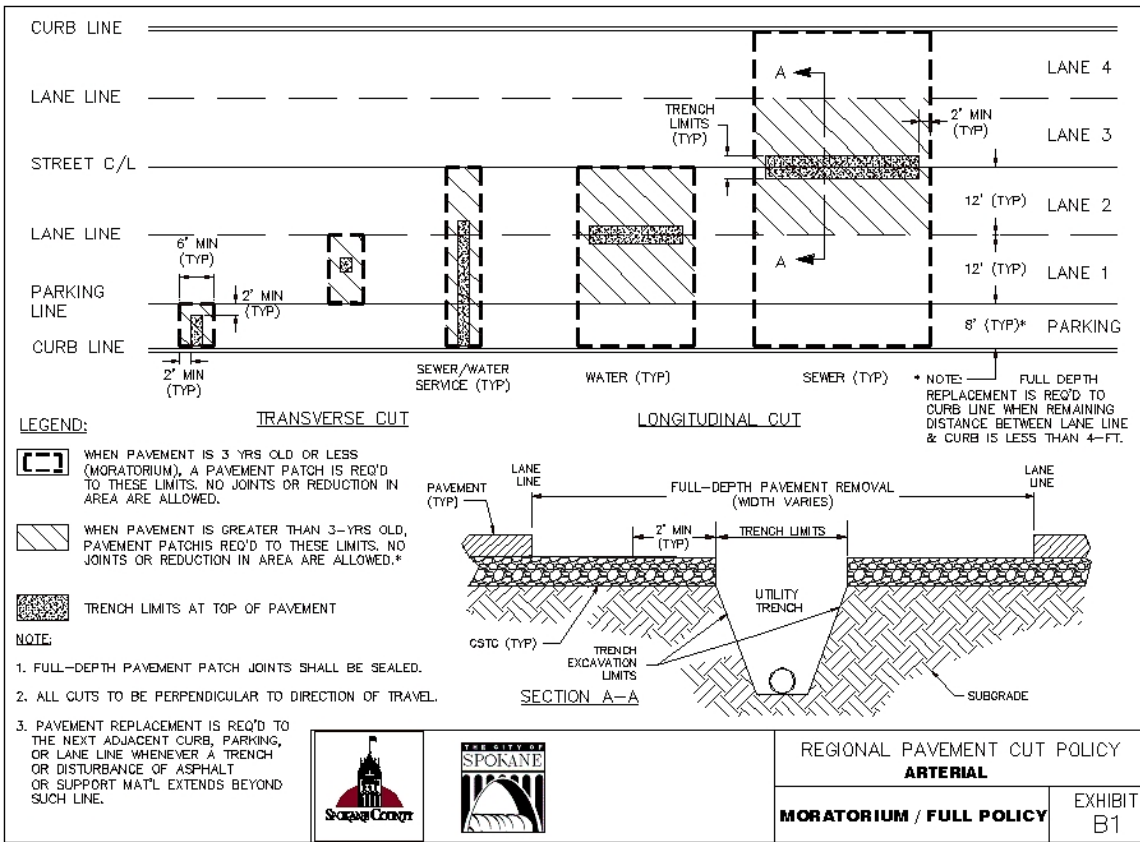
Date Sent for Repair: _____

Date Completed: _____

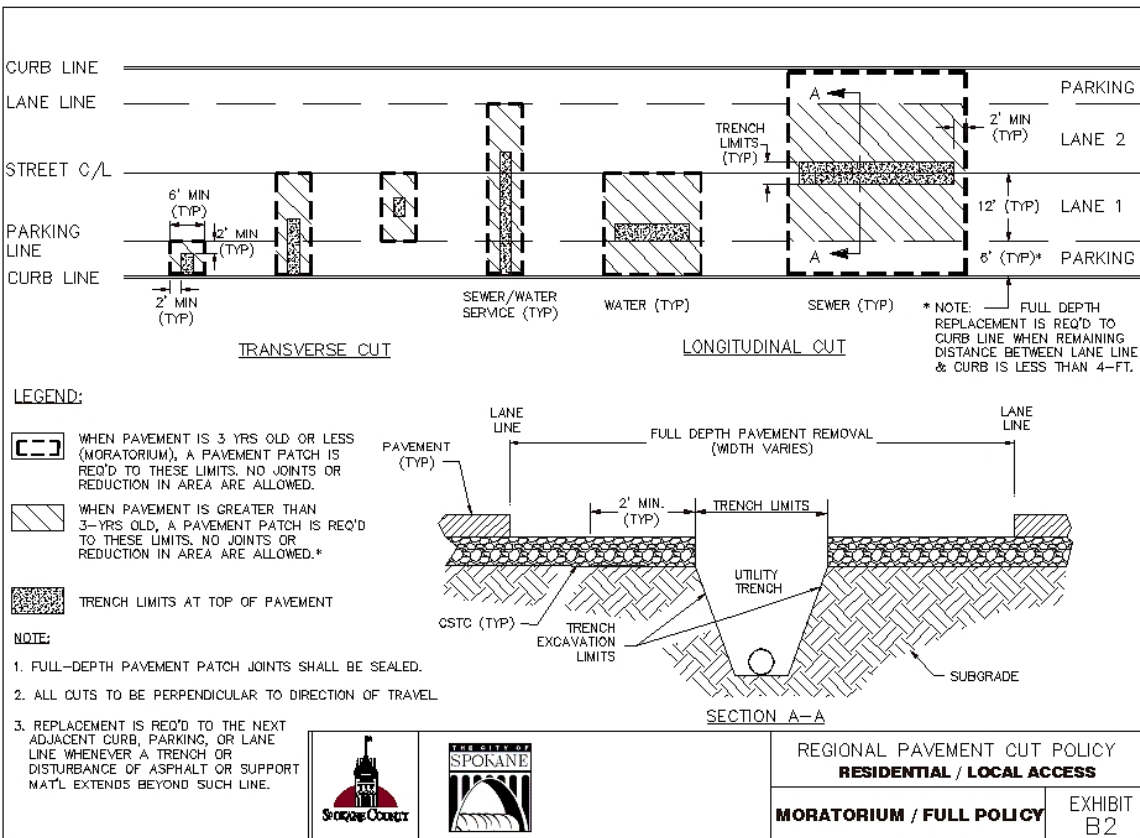
Patching Co. Signoff: _____
(patching company to fax to local agency at completion)

Fax Completed Form to: **Spokane County, Sylvia Lightfoot: 509/477-7198**
City of Spokane, Dan Eaton: 509/625-6124

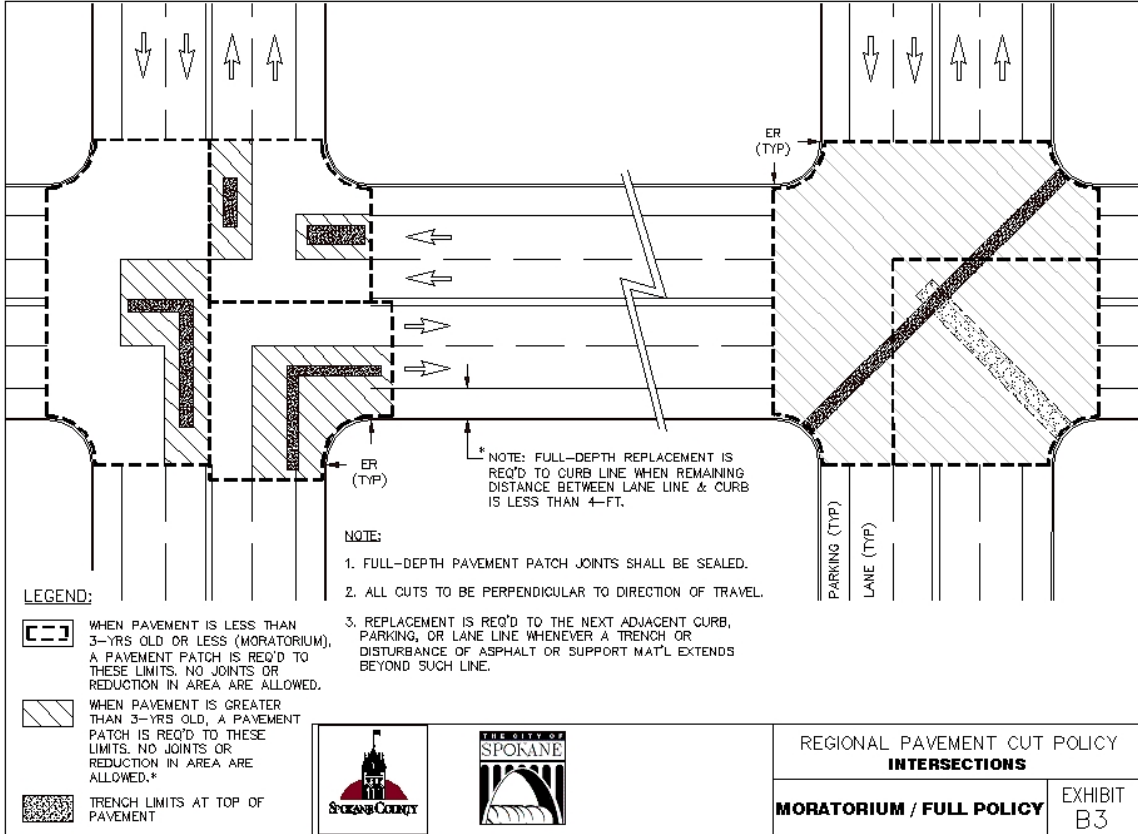
**EXHIBIT B1
MORATORIUM/FULL POLICY - ARTERIAL**



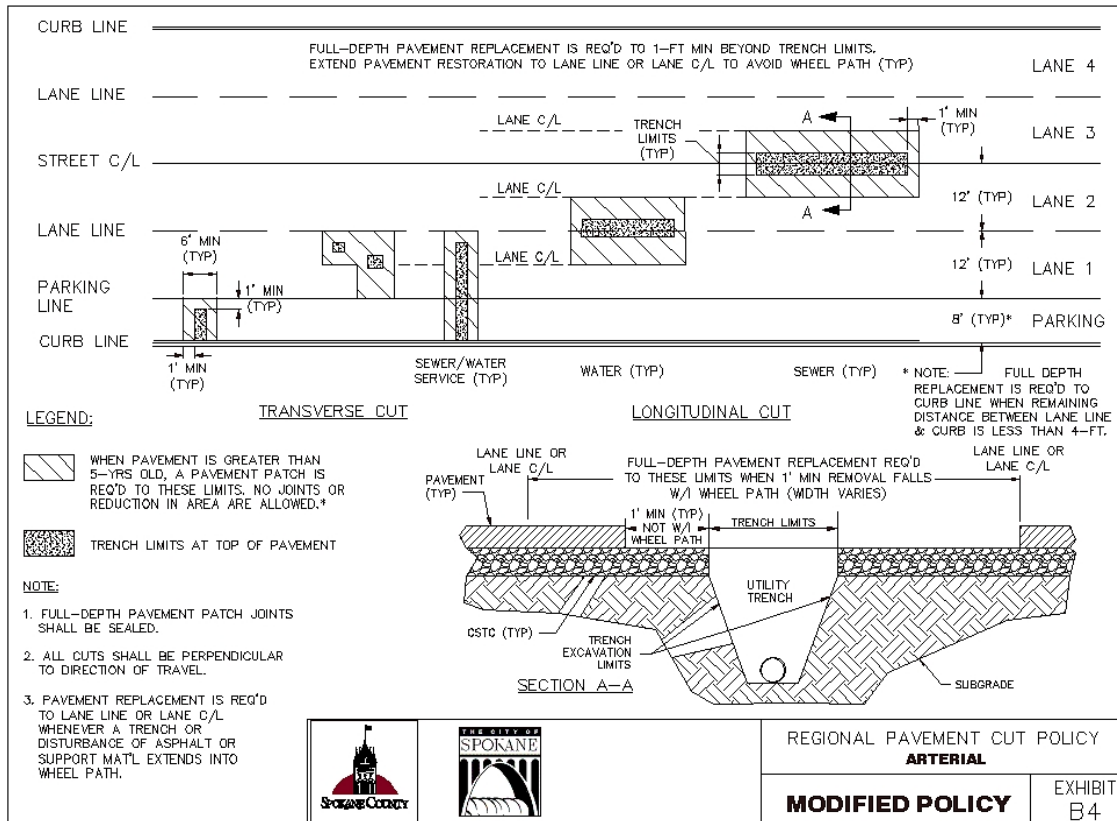
**EXHIBIT B2
MORATORIUM/FULL POLICY - RESIDENTIAL /LOCAL ACCESS**



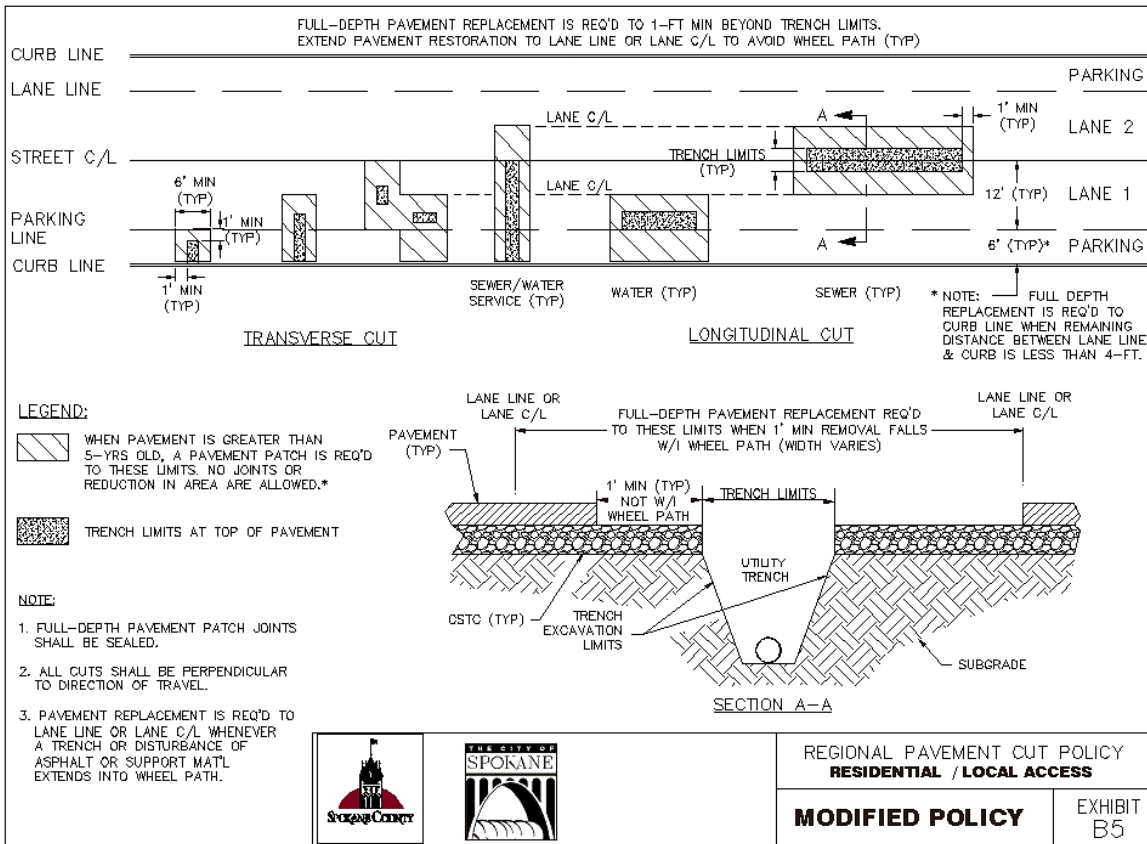
**EXHIBIT B3
MORATORIUM/FULL POLICY – INTERSECTIONS**



**EXHIBIT B4
MODIFIED POLICY - ARTERIAL**



**EXHIBIT B5
MODIFIED POLICY – RESIDENTIAL/LOCAL ACCESS**



GENERAL PROVISIONS

TABLE OF CONTENTS

DIVISION 1	1
DIVISION 2	1
DIVISION 3	3
DIVISION 4	3
DIVISION 5	4
DIVISION 6	6
DIVISION 7	7
DIVISION 8	8
DIVISION 9	9

GENERAL PROVISIONS

Besides the requirements contained in the Washington State Department of Transportation Standard Specifications, the following General Provisions will be used on all projects, private or public, constructed within Spokane County. These provisions represent additions and/or changes to the Standard Specifications and govern over the Standard Specifications.

DIVISION 1

1-01.3 DEFINITIONS

Section 1-01.3 shall be revised as follows:

State shall mean the County of Spokane, Washington a political subdivision, acting through its authorized representatives.

Commission or Washington State Transportation Commission shall mean the Board of County Commissioners of Spokane County, an elected body having authority over County matters as provided by law. All references to Commission in the Standard Specifications shall conform to this definition.

Department, or Department of Transportation shall mean the Spokane County Engineer or his authorized representative.

Secretary or Secretary of Transportation shall mean the Spokane County Engineer or his authorized representatives.

Engineer or Project Engineer shall mean the Spokane County Engineer or his/her authorized representative.

DIVISION 2

2-03.3(14)C COMPACTING EARTH EMBANKMENTS

Method B. Change 90 percent maximum density to 92 percent.

2-03.3(14)D COMPACTION AND MOISTURE CONTROL TESTS

Delete these provisions and substitute the following provision:

Maximum density and optimum moisture will be determined using the AASHTO T180-90, with Method A or D as appropriate; and AASHTO T-224-90, with the following modifications:

1. AASHTO T-180-90
 - a. Notice 8 (Method D). Rock will not be replaced with soil as part of the laboratory determination for maximum dry density and optimum moisture content.
 - b. Oven drying or direct heating will be the only acceptable methods of moisture content determination.
 - c. Oven drying to dry back saturated or very wet soils, at temperature above 140 degrees F. will be permitted only with frequent mixing.

2. AASHTO T-224-90
 - a. Specific gravity for rock will be determined in the laboratory. The fraction of 3/4 inch material in the backfill may be determined in the field by sieving the sample in a wet or moist condition.

In-place density will be determined utilizing AASHTO T-238-86.

In-place moisture content will be determined utilizing AASHTO T-239-90.

The Contractor shall provide a safe environment for the compaction control test to be performed. This may include temporarily stopping the backfill operation such as the conveyor belt, backhoe, roller, etc. long enough for the safe completion of the test.

DIVISION 3

DIVISION 4

4-04.3(5) SHAPING AND COMPACTION

The first sentence of the first paragraph in Section 4-04.3(5) is replaced by the following:

Immediately following spreading and final shaping, each layer of surfacing shall be compacted to at least 95 percent of the density determined using the AASHTO T180-90, with Method A or D as appropriate: and ASSHTO T-224-90 with the following modifications:

1. AASHTO T-180-90
 - a. Notice 8 (Method D). Rock will not be replaced with soil as part of the laboratory determination for maximum dry density and optimum moisture content.
 - b. Oven drying or direct heating will be the only acceptable methods of moisture content determination.
 - c. Oven drying to dry back saturated or very wet soils, at temperatures above 140 degrees F. will be permitted only with frequent mixing.
2. AASHTO T-224-90
 - a. Specific gravity for rock will be determined in laboratory. The fraction of $\frac{3}{4}$ inch material in the backfill may be determined in the field by sieving the sample in a wet or moist condition.

In-place density will be determined utilizing AASHTO T-238-86.

In-place moisture content will be determined utilizing AASHTO T-239-90.

The Contractor shall provide a safe environment for the compaction control test to be performed. This may include temporarily stopping the backfill operation such as the conveyor belt, backhoe, roller, etc. long enough for the safe completion of the test.

DIVISION 5

5-04.3111) JOINTS

Section 5-04.3(11) shall be supplemented as follows:

JOINING EXISTING PAVEMENT

Where new pavement joins existing pavement, this joint shall be trimmed to a vertical face and to a neat line. New pavement shall be feathered at transverse joints as required to conform to the requirements of Section 5-04.3(13) for surface smoothness.

FEATHERING ASPHALT CONCRETE PAVEMENT

Where designated by the Engineer, the Contractor shall feather the asphalt concrete pavement overlay in a manner to produce a smooth riding connection to the existing pavement.

Asphalt concrete pavement Class 'A', utilized in the construction of the feathered connections to existing pavement, shall be modified by eliminating the coarse aggregate from the mix at the Contractor's plant or the commercial source from which the Contractor obtains the mix or by raking the joint on the roadway, to the satisfaction of the Engineer.

SC5-04a ASPHALT CONCRETE PAVEMENT

January 1, 1994

TRENCH REPAIR

Disturbance of an existing asphalt concrete pavement due to trench excavation of less than six feet in width shall be repaired by the Contractor as follows:

1. **Pavement Cutting:** The contractor shall cut the existing pavement along the trench edges with equipment approved by the Engineer. Immediately before placement of a patch, the existing pavement shall be cut with a saw along rectangular lines as shown on the plans or as directed by the Engineer. The pavement shall be removed to provide a firm, neat, straight, vertical edge. The Contractor shall be responsible for maintaining the edge.

Additional cuts with a saw will be required to correct broken or damaged edges.

2. Pavement shall be removed in an approved manner.
3. Trench depth shall provide 24 inches minimum cover over facility to be placed in the trench.
3. A tack coat of Grade CSS-1 or RC250 Asphalt shall be uniformly applied to all edges to be joined and lapping 6 inches over the existing pavement. The lines from the new asphalt pavement shall be raked over the tack coat, feathered and rolled or tamped to seal the joint. The structural section of the patch shall be equal to the section of the existing pavement. The thickness of asphaltic concrete shall not be less than 2 inches. Asphaltic concrete may be substituted for aggregate base if compacted layers do not exceed .25 feet with adequate compaction. Asphaltic concrete used for patching shall be Class A or B. It shall be furnished, placed and compacted in conformance with the standard specifications.

In inclement weather or as determined by the Engineer, trenches located within the traveled way shall be backfilled with 0.10 feet of asphalt concrete pavement over 0.5 feet of cement concrete, over an approved backfill material. Cement concrete shall contain 7.5 sacks per cubic yard of Type III cement. Additives may be added as approved by the Engineer to ensure opening of the road to traffic within 2 hours.

Repair of a trench over ten feet in width shall be made according to the standard specifications applying to new road construction. Road structural section materials and dimensions shall be determined by the County Engineer.

DIVISION 6

SC6-03 STEEL STRUCTURES

February 24, 1995

Section 6-03.3(30) shall be replaced with:

JACKING AND BORING

Spokane County Construction shall be notified (509) 456-3600 at least 48 hours in advance of the start of work.

All jacked or bored crossing will require casing.

Casings shall be equipped with grout nipples at the springline on both sides and at the crown. Maximum spacing between each set of nipples shall be 10 feet. Void spaces outside the casing shall be filled with grout mixture of 1 part Portland cement and 3 parts sand (by volume). Grouting shall start at the springline at one end and progress along the casing, alternating sides as grout appears in the grout hole at the crown. The grouting shall then proceed to the grout hole at the crown. Grouting shall be accomplished each day at the end of work for that day.

Steel casing pipe shall conform to AWWA C 200. Yield strength of casing pipe material shall be 35,000 psi minimum. Minimum wall thickness shall be 5/8 inch. The Contractor shall be responsible for selecting the gauge consistent with the over-burden requirements, his operation, and requirements of the permitter. Ends of steel casing per sections shall be beveled for field butt-welded joints in accordance with the requirements of AW WA C 206.

Casing installation through soil shall have a hole diameter that shall not exceed the outside diameter of the casing by more than 1-inch. Where unstable soil condition are found to exist, boring or tunneling operations shall be conducted in such a manner as not to be detrimental to the adjacent structures. If excessive voids or too large a bored hole results, prompt remedial measures shall be taken by the Contractor, subject to approval by the Engineer.

A minimum 6-inch thick concrete plug shall be poured at the ends of the casing. The concrete shall be worked around the pipe so that the plug will provide a tight seal.

Special care shall be taken during the installation of the pipe to ensure that no settlement of adjacent areas occurs. Any such settlement caused by the placement of the pipe shall be the Contractor's responsibility. The Contractor shall repair all areas so affected, as directed by the Engineer, at the Contractor's own expense.

DIVISION 7

SC7-04 STORM SEWERS

JANUARY 1, 1994

7-04.2 MATERIALS

Section 7-05.2 shall be supplemented as follows:

Polyvinyl Chloride Pipe conforming to the minimum requirements for ASTM 3033 or ASTM 3034 may be used as an alternate for concrete or metal pipe when used as connector pipes between drywells and catch basins or inlets where the maximum diameter is 15" and cover is 3 feet measured to the finished grade or as directed by the Engineer.

SC7-05 MANHOLES. INLETS. AND CATCH BASINS
JANUARY 1, 1994

7-05.1 DESCRIPTION

Section 7-05.1 shall be supplemented by the following:

All specifications in this section applying to precast concrete manholes shall also apply to precast concrete drywells.

7-05.2 MATERIALS

Section 7-05.2 shall be supplemented as follows:

"Special Backfill for Drywells" shall meet the requirements of section SC9-03.12(4)A

7-05.3 CONSTRUCTION REQUIREMENTS

Section 7-05.3 shall be supplemented as follows:

METAL FRAMES AND GRATES

Cement concrete or clay brick adjustment blocks shall be placed on grouted to provide the proper alignment and grade for the frame and grate. Any existing frame and grate that is removed and not reused shall be placed within the right-of-way where directed by the Engineer and shall remain the property of the County.

Where "Metal Frame Type 2" are to be constructed in existing curbs, the existing curb shall be sawcut and removed. The curb shall then be repoured around the cast iron hood.

DIVISION 8

SCB-04 CURBS, UTTER, AND SPILLWAYS
JANUARY 1, 1994

8-04.3 CONSTRUCTION REQUIREMENTS

Section 8-04.3 shall be

Cement Concrete Cross Gutters shall be constructed at locations shown on the plans in accordance with the standard specifications, these special provisions, and the standard plans.

8-04.3(1) CEMENT CONCRETE CURBS, GUTTERS, AND SPILLWAYS

Section 8-04.3(1) shall be supplemented as follows:

The curb and gutter shall be water tested by the Contractor in the presence of the Engineer and any irregularities causing water to stand shall be corrected by the Contractor at his expense. All costs incurred for the gutter water test shall be incidental to and included in the unit contract price for "Cement Concrete Curb, Type B"

8-04.3 ,2) EXTRUDED ASPHALT CONCRETE CURBS. AND GUTTERS

Section 8-04.3(2) shall be supplemented as follows:

Asphalt Concrete Curb, Type C shall be monolithically placed with the asphalt concrete wearing surface.

DIVISION 9

9-03.12(4)A SPECIAL BACKFILL FOR DRYWELLS

Section 9-03.12(4) shall be supplemented as follows:

Special backfill for drywells shall consist of washed gravel conforming to the following gradation:

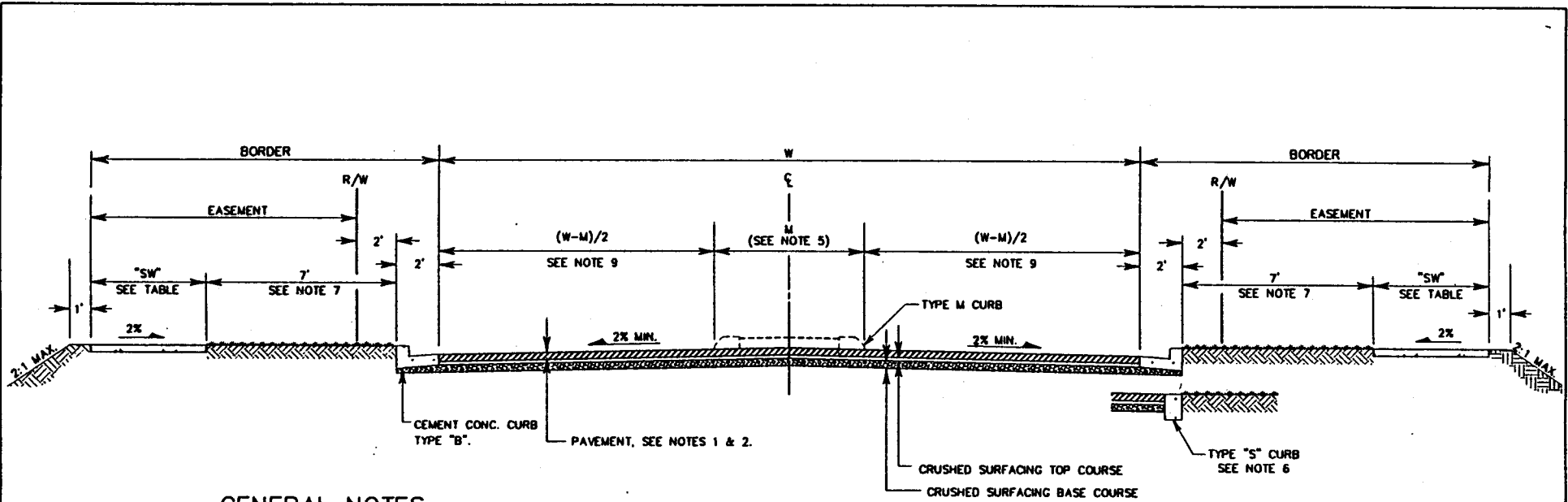
<u>Sieve</u>	<u>% Passing</u>
3"	100
1"	20
U.S. #200	5 max.

All percentages are by weight. A minimum of 90% of the aggregate, by weight, shall be unfractured, naturally occurring material.

STANDARD PLANS TABLE OF CONTENTS

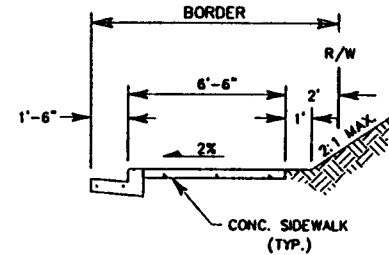
PLAN	TITLE	LAST DATE
A-1	Roadway Section - Curbed	11/1/00
A-2	Roadway Section - Shoulders	5/15/95
A-3	Curbs & Gutters	4/24/03
A-4	Urban Driveways - Separated Sidewalks	5/15/95
A-5	Curb Ramp	4/28/03
A-6	Traffic Island	4/24/03
A-7	Cement Concrete Approaches	4/24/03
A-8	Rural Road Approaches	4/22/98
A-8a	Rural Driveway Approaches	4/24/03
A-9	Bike Ways & Pedestrian Paths	5/29/98
A-10	Cul-de-sacs - Public Roads	5/8/98
A-10a	Cul-de-sacs - Private Roads	4/22/98
A-11	Sidewalk Retaining Wall	4/24/03
A-12	Retaining Wall	4/24/03
A-13	Entrance Steps to Abutting Properties	5/15/95
A-14	Monument Case & Cover	4/22/98
A-15	Utility Locations – Curbed Road	11/1/00
A-15a	Utility Locations – Shouldered Road	11/1/00
A-16	Street Name Signs	3/5/08
A-17	Symbols	5/15/95
A-17A	Drafting Standards	4/24/03
A-17B	Drafting Standards	4/24/03
A-17C	Drafting Standards	4/24/03
A-17D	Drafting Standards	4/24/03
A-18	Roadway Construction Payment Limits	4/24/03
B-1	Precast Drywells	4/24/03
B-1a	Precast Drywells Placed in Swales	4/24/03
B-2	Precast Drywell Details	5/15/95
B-3	Precast Drywell & Inlet Details	5/29/98
B-4	Catch Basin Type 1	4/24/03
B-5	Concrete Inlet Type 1	4/24/03
B-6	Concrete Inlet Type 2	4/24/03
B-7	Catch Basin & Inlet Installation	4/24/03
B-8	Curb Inlet Type 1	4/24/03
B-9	Curb Inlet Type 2	3/5/08
B-10	Metal Frame, Type 1	5/15/95
B-11	Metal Frame, Type 2	5/15/95
B-12	Metal Grate, Type 1	5/15/95
B-13	Metal Grate, Type 2	5/15/95
B-14	Metal Grate, Type 3	5/15/95
B-15	Metal Frame, Grate & Solid Cover - Type 4	4/22/98
B-16a	Concrete Slotted Cover w/Ring	4/22/98
B-17	Grate Guard	5/15/95
B-18	Concrete Gutters	4/24/03
B-18a	High Volume Driveway Approach	5/15/95
B-19	Inlet Installations	4/24/03
B-20	Swale with Modular Block Wall	4/22/98

PLAN	TITLE	LAST DATE
U-1	Manhole Types & Depths	11/15/99
U-2	Manhole Type I-48	5/23/06
U-3	Manhole Type I-60	5/23/06
U-4	Manhole Type II-72, II-96	5/23/06
U-5	Manhole Type III-48	5/23/06
U-6	Manhole Type III-60, III-72, III-96	5/23/06
U-7	Manhole Type IV	5/23/06
U-8	Reducing Slabs & Manhole Step	11/15/99
U-9	Manhole Placement in Signalized Intersection	11/15/99
U-10A	Sanitary Sewer Manhole Exterior Drop Connection	11/15/99
U-10B	Sanitary Sewer Manhole Interior Drop Connection	5/23/06
U-11	Typical Channel Detail	11/15/99
U-12	Interior Drop Channels	11/15/99
U-13	Main Line Sewer Clean-Out with Cast Iron Ring & Cover	11/15/99
U-14	Manhole Ring and Cover	11/15/99
U-15	Standard Service Connection	03/16/04
U-16	Side Service Connection Record Drawings	11/15/99
U-17	Typical Pipe Casing Detail	5/23/06
U-18	Typical Pipe Casing Detail (Concrete)	11/15/99
U-19	Pressure Service Stub from Gravity Sewer Main	5/23/06
U-20	Manhole Invert Elevation Detail	5/23/06
U-21	Pressure Service Stub from Force Main	5/23/06
U-22	Flushing Connection Low Pressure Sewer System	5/23/06
U-23	Pressure Service Stub Detail for Water Main Crossing	5/23/06



GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY TRAFFIC LOADS AND SOIL VALUES.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. "W" SHALL BE SHOWN ON CONSTRUCTION PLANS.
5. WHERE LEFT-TURN LANES ARE REQUIRED, M=12" WHEN MEDIAN IS PAINTED. WHEN RAISED MEDIAN WITH TYPE M CURB USED M=14" OTHERWISE M=0
6. SHALL BE USED ONLY WHERE APPROVED BY THE COUNTY ENGINEER.
7. IF PLANTING STRIPS ARE USED AS A BIOFILTRATION SWALE, THE WIDTH SHALL BE 10' MIN.
8. REFER TO CLEAR ZONE SECTION FOR LOCATION OF RIGID OBJECTS.
9. WHEN RAISED MEDIANS ARE CONTINUOUS BETWEEN INTERSECTIONS, (W-M)/2 SHALL NOT BE LESS THAN 18 1/2 FEET.



CONTIGUOUS SIDEWALK
SEE NOTE 6

SIDEWALK

WIDTH'S	
ROAD TYPE	"SW"
RESIDENTIAL ACCESS	5' MIN
OTHER	6' MIN

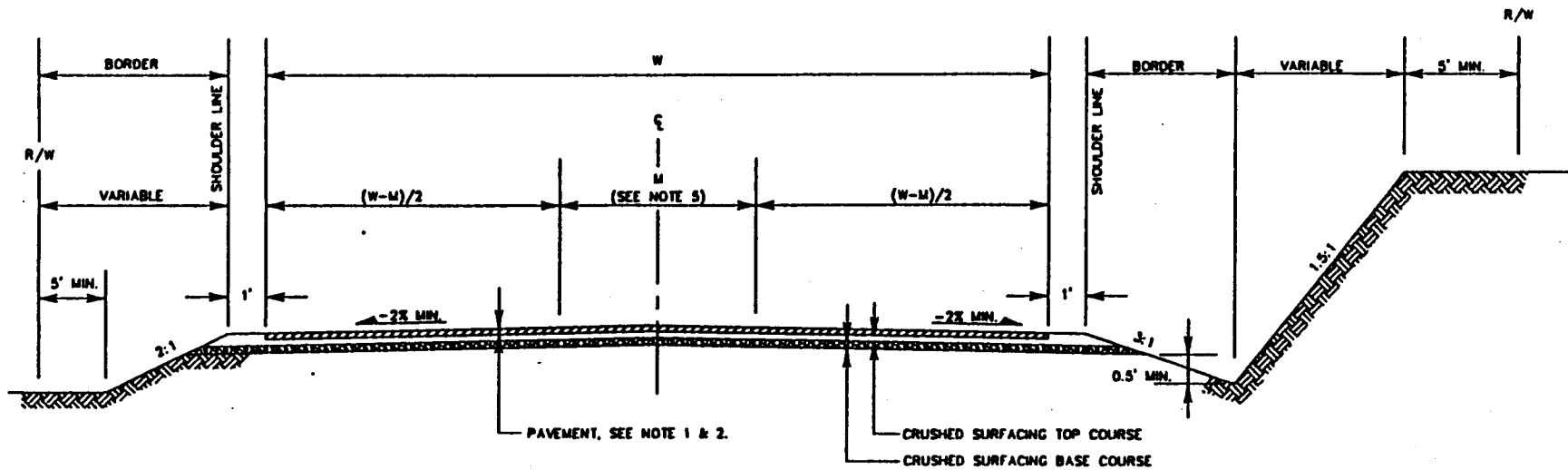
4	1/00	CP	JSH	WAJ	AMENDED NOTE 5, ADDED NOTE 9
3	5/98	CP	JSH	WAJ	ADDED SIDEWALK TABLE
2	12/94	JB	JSH	RCH	ADDED NOTES 7, 8 & 9 & CONTIGUOUS SIDEWALK DETAIL
1	5/94	JB	JSH	RCH	BORDER DIM & CHANGED NOTE 5 & EASEMENT WIDTH
NO. DATE BY CKD. APPR.					REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 456-3600

APPROVED: *[Signature]*
COUNTY ENGINEER
DATE: 11/20

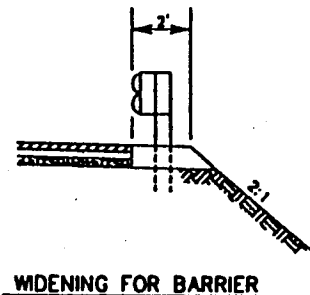


STANDARD
ROADWAY SECTION - CURBED



GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY TRAFFIC LOADS AND SOIL VALUES.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. "W" SHALL BE SHOWN ON CONSTRUCTION PLANS.
5. WHERE LEFT TURN LANES ARE REQUIRED $M=14'$, OTHERWISE $M=0$.



1	5/94	JH	RCH	BORDER DIMENSION CHANGED NOTE 3 GRAVEL SHOULDER REVISION
NO.	DATE	BY	CRD.	APPR.

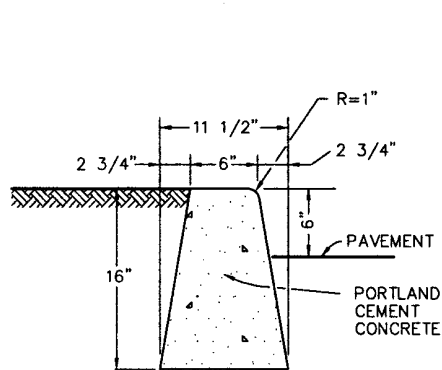
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99208 498-3600

APPROVED
COUNTY ENGINEER
DATE: 5/26/94



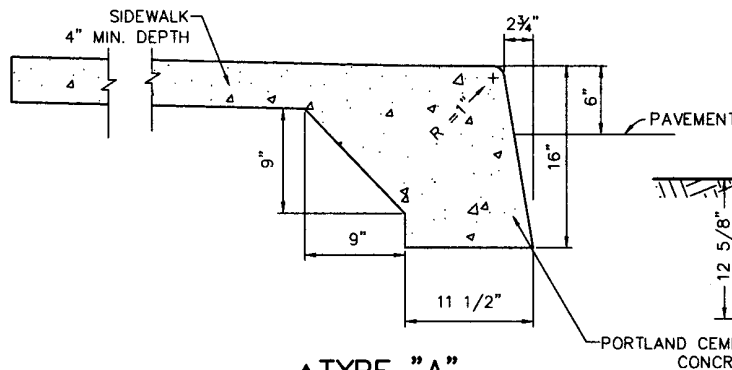
STANDARD
ROADWAY SECTION - SHOULDERS

979-10 000
SHEET
A-2

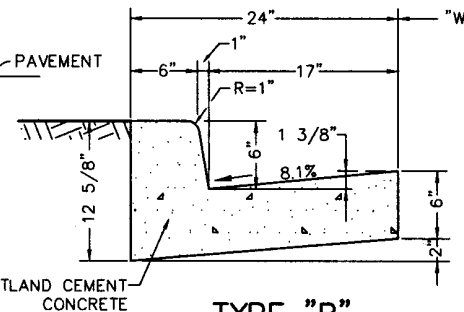


TYPE "A"

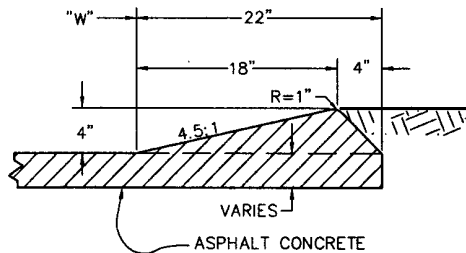
QUANTITY = 0.036025 C.Y. / L.F.
SEE NOTE 5



TYPE "A"
INTEGRAL POUR
QUANTITY = 0.0415 C.Y. / L.F.

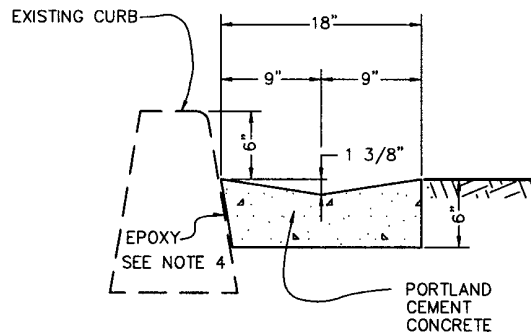


TYPE "B"
QUANTITY = 0.047657 C.Y. / L.F.

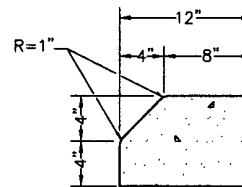


TYPE "C"

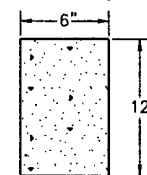
QUANTITY = 0.023123 TONS / L.F.
SEE NOTE 5



CONCRETE GUTTER
QUANTITY = 0.0244149 C.Y. / L.F.



TYPE "M"
QUANTITY = 0.022633 C.Y. / L.F.



TYPE "S"
QUANTITY = 0.018519 C.Y. / L.F.

GENERAL NOTES

1. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000 CONFORMING TO THE STANDARD SPECIFICATIONS.
2. WEAKENED PLANE JOINTS FOR PORTLAND CEMENT CONCRETE SHALL BE PLACED AT 2 TIMES SIDEWALK WIDTH OR 12' MAX. & SHALL MATCH SCORES IN SIDEWALK WHERE APPLICABLE.
3. 3/8" EXPANSION JOINTS IN PORTLAND CEMENT CONCRETE SHALL BE PLACED AT CURB RETURNS.
4. EPOXY CEMENT SHALL BE APPLIED AT A 10-15 MIL THICKNESS AND SHALL CONFORM TO THE REQUIREMENTS OF SECTION 9-26 OF THE STANDARD SPECIFICATIONS.
5. TO BE USED ONLY IN SPECIAL CASES WITH APPROVAL OF THE COUNTY ENGINEER.
6. 92% COMPACTION UNDER SIDEWALK AND 95% UNDER CURB.
7. EXPANSION JOINT SHALL BE PLACED TO ENSURE COMPLETE SEPARATION OF CONCRETE.

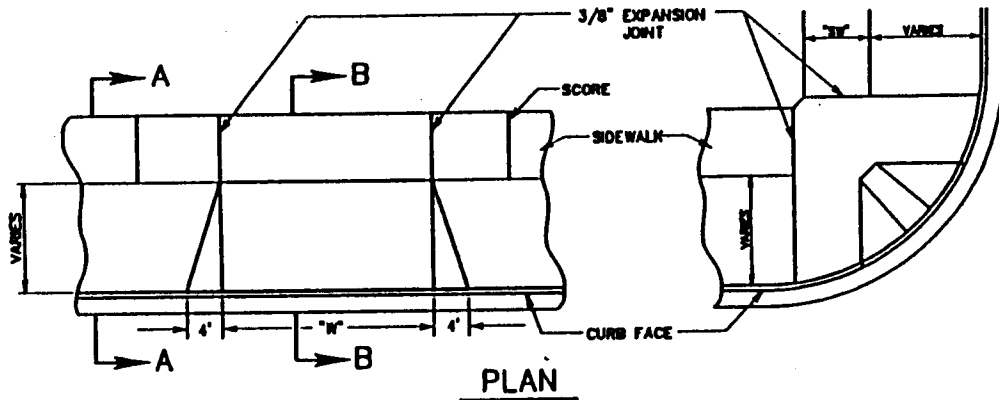
NO.	DATE	BY	CHKD.	APPR.	REVISION
3	3/03	BH	IBG	RK	REMOVED TYPE "R" CURB DETAIL & ADDED NOTE 6&7
4	3/03	BH	IBG	RK	NEW DETAIL FOR INTEGRAL CURB AND SIDEWALK
3	5/00	CP	JSH	SDS	NOTE 5 AMENDED TO REMOVE TRINITY WHITE CEMENT
2	12/94	JB	GSN	RCH	"W" DIMENSION ADDED TO CURB SECTIONS.
1	1/93	JB	GSN	RCH	DIMENSION CORRECTION - TYPE "R" CURB

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99280 (509) 477-3600

APPROVED:
COUNTY ENGINEER
DATE: 4/24/03

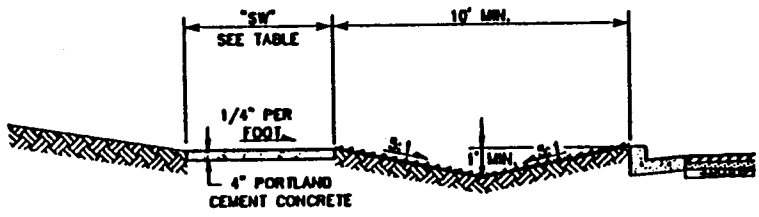
STANDARD
CURBS & GUTTERS

SHEET
A-3

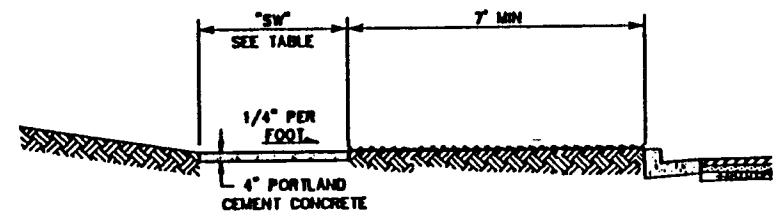


GENERAL NOTES

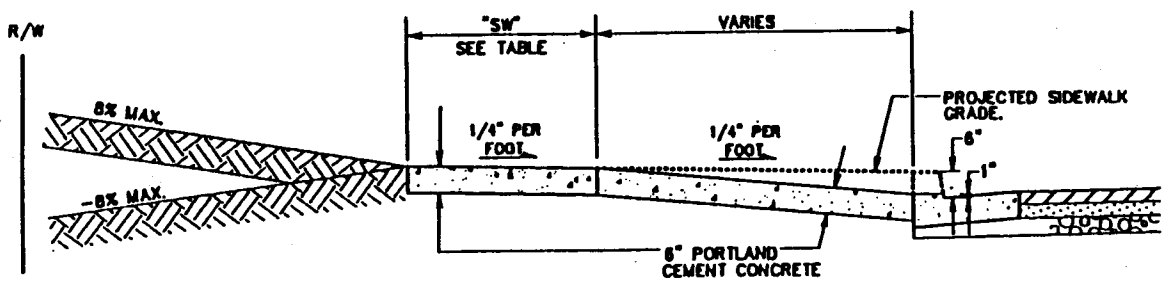
1. EXPANSION JOINT MATERIAL SHALL BE PLACED IN THE CENTER OF ALL DRIVEWAYS OVER 20' IN WIDTH.
2. EXPANSION JOINT REQUIRED IF POUR INCLUDES ADDITIONAL DRIVEWAY AREA.
3. CONCRETE FOR DRIVEWAYS SHALL BE CLASS 3000 AIR ENTRAINED.
4. ALL EXTERNAL EDGES TO BE TROWELLED WITH 1/4" RADIUS EDGER.
5. SIDEWALK TO BE SCORED EVERY 5'. 3/8" EXPANSION JOINT TO BE INSTALLED EACH SIDE OF A CURB RETURN AND AT LOCATIONS WHERE SIDEWALK INTERSECTS OTHER SIDEWALKS, DRIVEWAYS AND CURBS.
6. THE WIDTH OF COMMERCIAL DRIVEWAYS MAY BE WIDER THAN SHOWN, IF APPROVED BY THE COUNTY ENGINEER.
- ▲ 7. SEE SHEET A-3 (WHEEL CHAIR RAMPS)
- ▲ 8. SEE SHEET A-7 (CEMENT CONCRETE APPROACHES)



SECTION A-A
(DRAINAGE SWALE)



SECTION A-A
(PLANTER STRIP)



SECTION B-B

DIMENSION TABLE

TYPE	DISTANCES	
	MIN.	MAX.
COMM.	18'	40'
RES.	18'	30'

SIDEWALK

ROAD TYPE	WIDTH'S	
	"SW"	
RESIDENTIAL ACCESS	5' MIN	
OTHER	8' MIN	

NO.	DATE	BY	CHKD.	APPR.	REVISION
▲ 2/7/93		GLW	RCH		REVISED SECTION B-B / NOTES 7 & 8

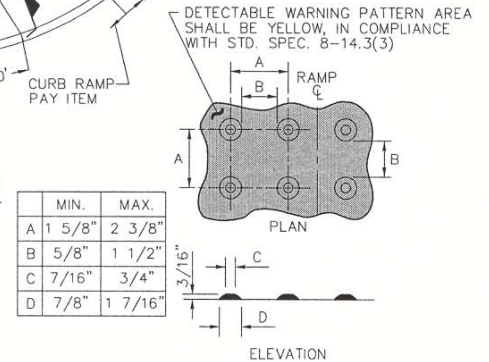
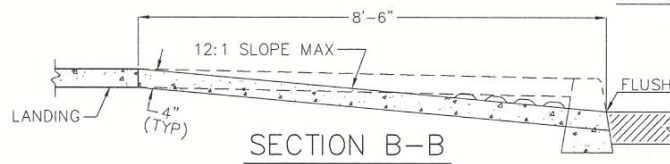
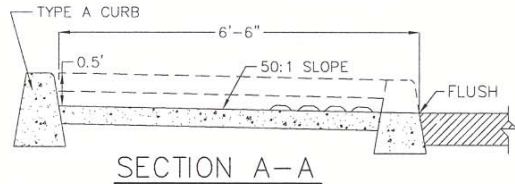
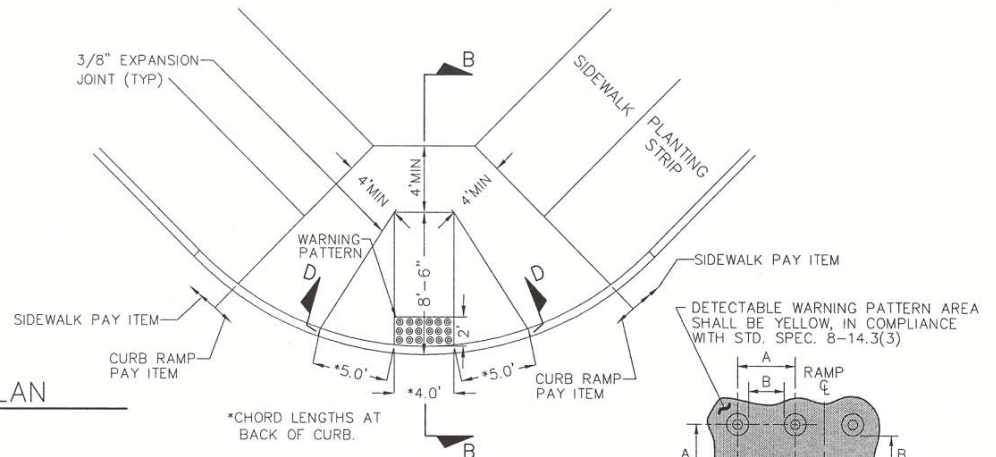
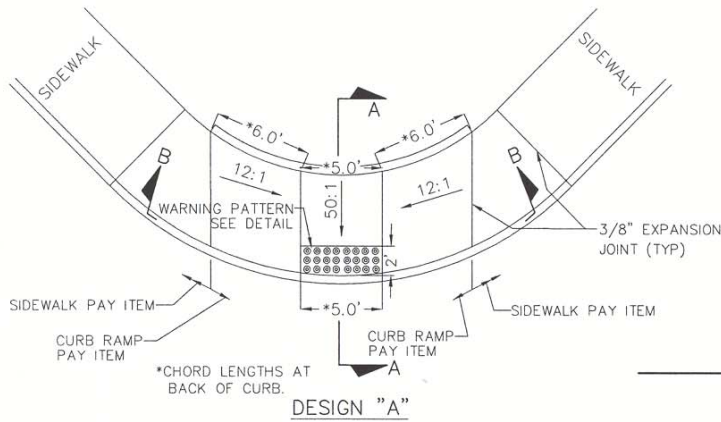
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99208 438-3600

APPROVED
COUNTY ENGINEER
DATE: 5-16-92



STANDARD
URBAN DRIVEWAYS - SEPARATED SIDEWALKS

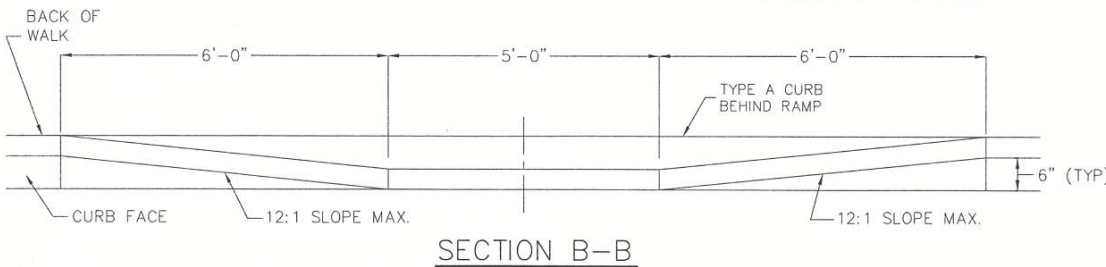
970-34 000
SHEET
A-4



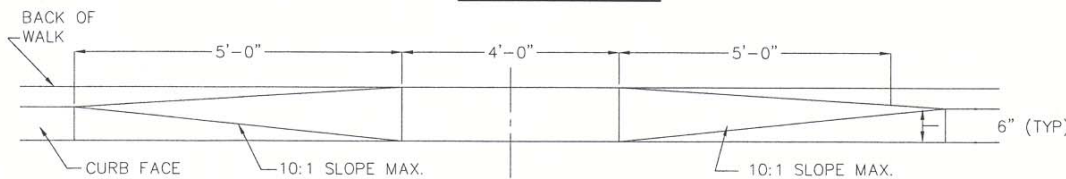
TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL
(SEE NOTE 2)

GENERAL NOTES

1. DRAINAGE INLETS SHALL BE OUTSIDE THE CURB RAMP.
2. DETECTABLE WARNING PATTERNS MAY BE CREATED BY ANY METHOD THAT WILL ACHIEVE THE TRUNCATED DOME DIMENSIONS AND SPACING SHOWN.
3. CURB RAMP DESIGN A OR B SHALL BE SPECIFIED IN THE CONTRACT PLANS OR SPECIAL PROVISIONS.
4. CURB RAMPS SHALL BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES, EXCEPT AT THE SIDE ADJACENT TO THE ROADWAY.
5. WHERE CONSTRUCTED ON STRAIGHT CURB, DESIGN "A" DIMENSIONS REMAIN THE SAME AS SHOWN.
6. TOP OF CURB ELEVATIONS SHOWN ON PLANS ARE PROJECTED TOP OF CURB ELEVATIONS THROUGH CURB RAMP AREA
7. TYPE "A" CURB AT BACK OF RAMP IS INCIDENTAL TO CURB RAMP PAY ITEM. CURB ADJACENT TO ROAD PAID PER L.F.



SECTION B-B



SECTION D-D

NO.	DATE	BY	CHKD.	APPR.	REVISION
4	03/03	BH	BJG	JAH	REVISED PAY LIMITS AND WARNING PATTERN
	03/03	BH	BJG	JAH	REVISED SEC B-B
3	3/98	CP	KGM	JAH	ADDED DIMENSION DESIGN A/SECTION C-C
2	3/98	CP	KGM	JAH	ADDED NOTE 7 AMENDED NOTES 3,4
1	1/94	JB	GLW	GSN	NEW WHEELCHAIR RAMP DESIGN A & B

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED:
COUNTY ENGINEER
DATE: 4/25/03



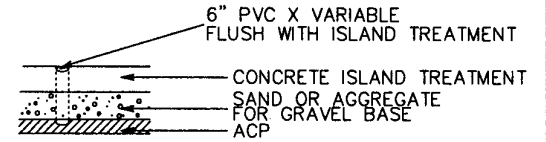
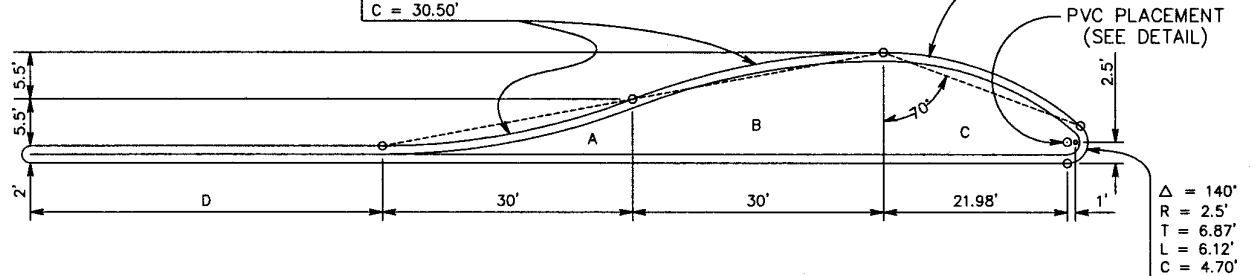
STANDARD
CURB RAMP

STD-AS.DWG
SHEET
A-5

$\Delta = 20'46''40''$
 $R = 84.57'$
 $T = 15.50'$
 $L = 30.67'$
 $C = 30.50'$

13' ISLAND
 11' POCKET WIDTH

$\Delta = 40'$
 $R = 36.69'$
 $T = 13.36'$
 $L = 25.62'$
 $C = 25.10'$



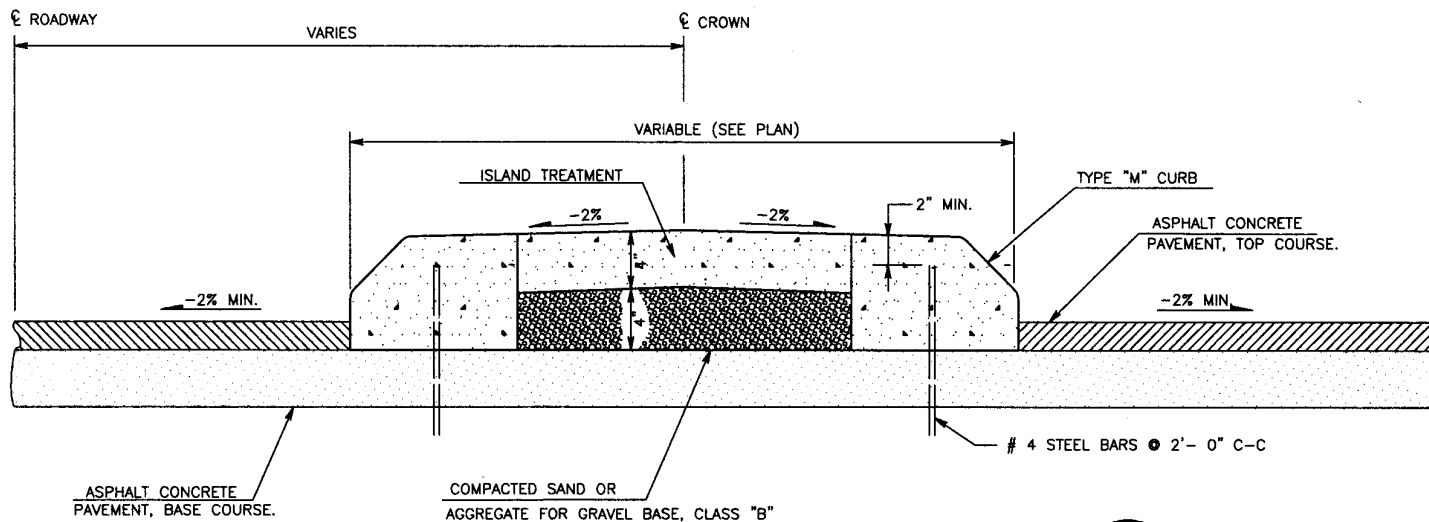
P.V.C. PLACEMENT DETAIL

AREA TABLE		A	B	C	TOTAL
TOTAL AREA	FT ²	114.27	335.74	244.73	694.74
CURB AREA	FT ²	58.71	62.63	52.14	173.48
TREATMENT AREA	FT ²	55.56	273.11	192.59	521.26
CURB(OUTER EDGE)	L.F.	60.67	60.67	53.72	175.06

$\Delta = 140'$
 $R = 2.5'$
 $T = 6.87'$
 $L = 6.12'$
 $C = 4.70'$

GENERAL NOTES

1. CONSTRUCTION OF ISLAND TREATMENT SHALL CONFORM TO SECTION 8-04 & 8-14 OF THE STANDARD SPECIFICATIONS
2. EXPOSED CURB SURFACES SHALL BE STEEL TROWELLED TO PROVIDE A DENSE, SMOOTH, REFLECTIVE FINISH. THE CONCRETE SLAB SHALL HAVE A BROOMED FINISH.
3. ISLAND NOSES SHALL BE DOWELED TO THE PAVEMENT IN AT LEAST TWO PLACES.
4. "D" SHALL BE SHOWN ON CONST. PLANS.
5. DEVIATION FROM THE STANDARD ISLAND DIMENSIONS MUST BE APPROVED BY THE TRAFFIC ENGINEER.



2	3/03	BH	BJG	JSH	AMENDED NOTE 1 & PVC PLACEMENT
1	3/98	CP	KGM	JSH	AMENDED NOTE 1
NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. 99260 (509) 477-3600

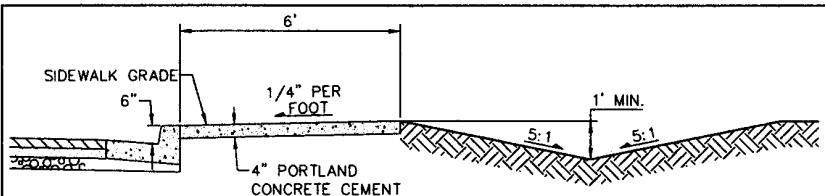
APPROVED
 COUNTY ENGINEER
 DATE: *4/2/09* Expires 3/31/2011

STANDARD
 TRAFFIC ISLAND

970-AMB.DWG
 SHEET
 A-6

▲ GENERAL NOTES

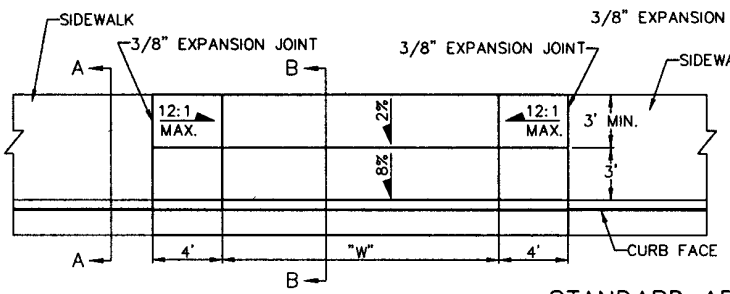
1. EXPANSION JOINT MATERIAL SHALL BE PLACED IN THE CENTER OF ALL DRIVEWAY APPROACHES OVER 20' IN WIDTH.
2. EXPANSION JOINT REQUIRED IF POUR INCLUDES ADDITIONAL DRIVEWAY AREA.
3. CONCRETE FOR DRIVEWAYS SHALL BE CLASS 3000 AIR ENTRAINED.
4. ALL EXTERNAL EDGES TO BE TROWELLED WITH 1/4" RADIUS EDGER.
5. SIDEWALK TO BE SCORED AT 6' 3/8" EXPANSION JOINT TO BE INSTALLED EACH SIDE OF A CURB RETURN AND AT LOCATIONS WHERE SIDEWALK INTERSECTS OTHER SIDEWALKS, DRIVEWAYS AND CURBS.
6. EXPANSION JOINT SHALL BE PLACED TO ENSURE COMPLETE SEPARATION OF CONCRETE.
7. THE COUNTY ENGINEER MAY REQUIRE A WIDER SIDEWALK THAN MINIMUM, WHERE PEDESTRIAN TRAFFIC VOLUMES INDICATE IT IS WARRANTED.
8. SEE SHEET A-5. (CURB RAMPS)
9. CEMENT CONCRETE APPROACHES SHALL BE CONSTRUCTED AT ALL CURB DROP LOCATIONS TO INSURE STORMWATER FLOW ALONG GUTTER LINE REGARDLESS OF SIDEWALK CONSTRUCTION.
10. 95% COMPACTION UNDER APPROACHES
92% COMPACTION UNDER SIDEWALKS



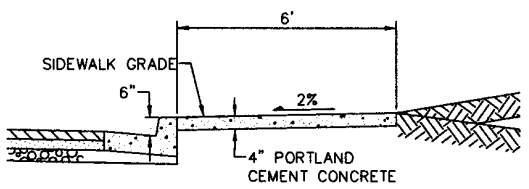
**SECTION A-A
(DRAINAGE SWALE)**

DIMENSION TABLE

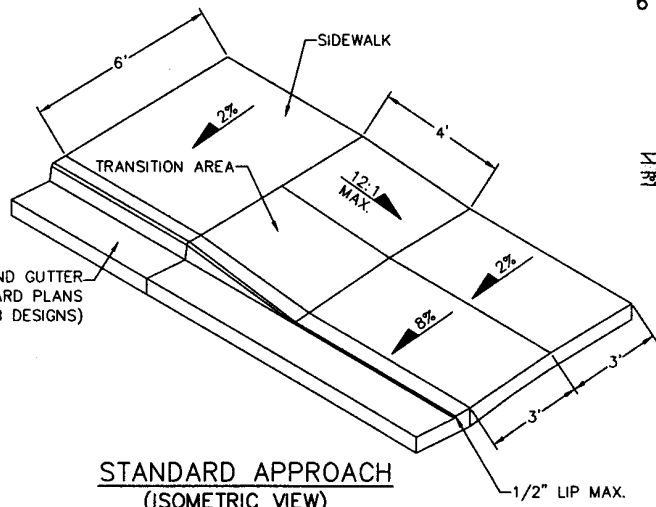
TYPE	DISTANCES	
	MIN.	MAX.
COMM.	16'	40'
RES.	16'	30'



**STANDARD APPROACH
6' SIDEWALK**

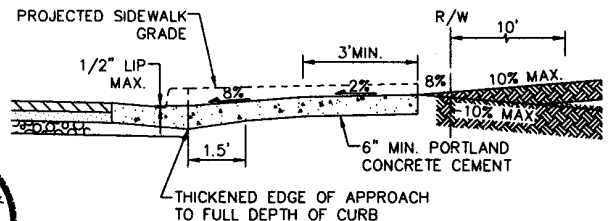


SECTION A-A



**STANDARD APPROACH
(ISOMETRIC VIEW)**

TYPE "B" CURB AND GUTTER SHOWN (SEE STANDARD PLANS FOR OTHER CURB DESIGNS)



SECTION B-B

NO SCALE



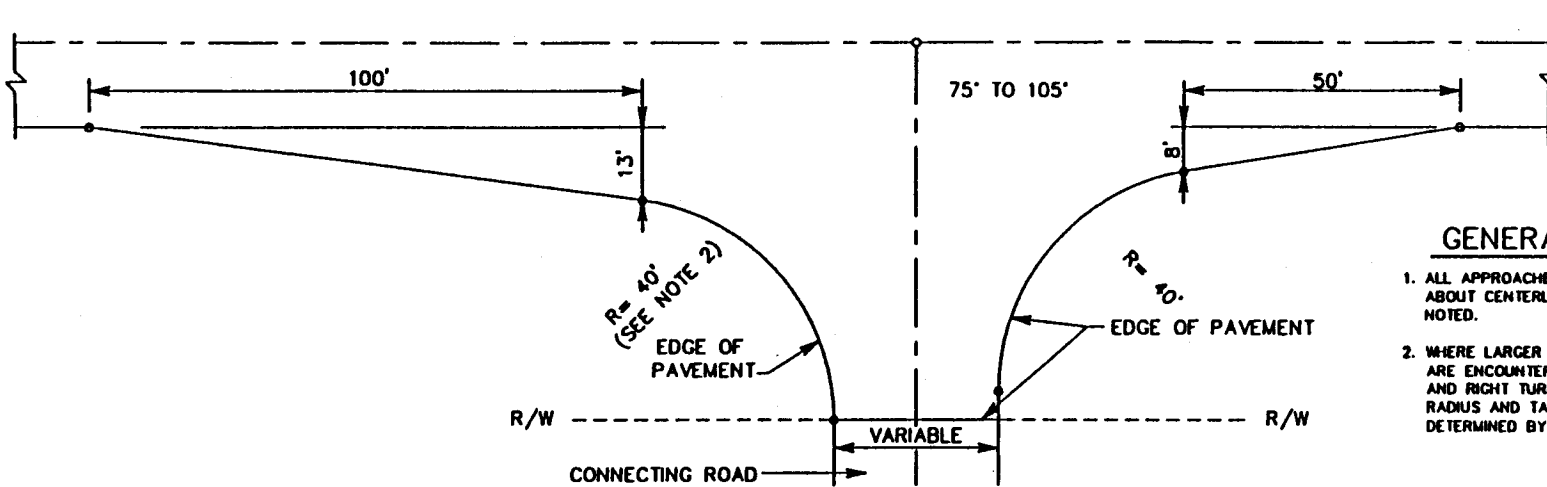
NO.	DATE	BY	CHKD.	APPR.	REVISION
4	3/03	BH			REVISED TO ADA STANDARD
3	10/04	FP	BC	RK	NEW DETAIL & AMENDED NOTES 5, 7 & 8
2	3/98	CP	KGM	JSH	AMENDED NOTE 1
1	12/93	JB	GLW	IRCH	REVISED SECTION B-B / NOTES 7 & 8

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

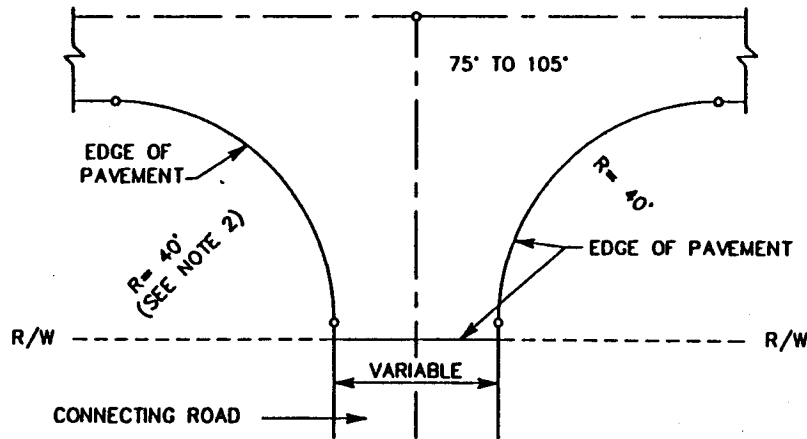
APPROVED
COUNTY ENGINEER
DATE: 1/24/03
EXPIRES 9/8/2004

STANDARD
CEMENT CONCRETE APPROACHES

SHEET
A-7



MAJOR COLLECTOR ARTERIAL



MINOR COLLECTOR & ACCESS ROADS

GENERAL NOTES

1. ALL APPROACHES ARE SYMMETRICAL ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. WHERE LARGER TRUCK TURNING MOVEMENTS ARE ENCOUNTERED LARGER RETURN RADII AND RIGHT TURN TAPERS MAY BE REQUIRED. RADIUS AND TAPERS SHALL BE DETERMINED BY THE COUNTY ENGINEER.

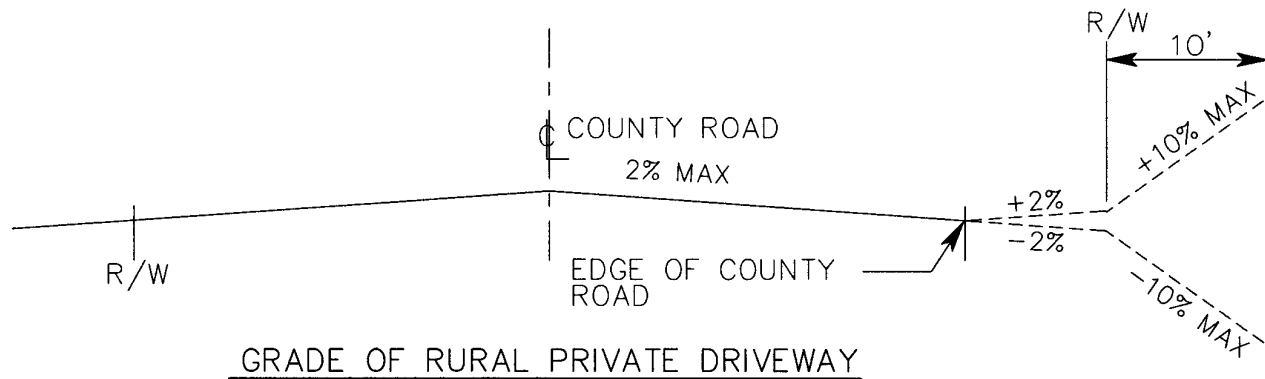
NO.	DATE	BY	CHKD.	APPR.	REVISION
1	3/98	CP	JSH	JSH	REMOVED RURAL DRIVEWAY AND NOTE

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA 99208 438-3800

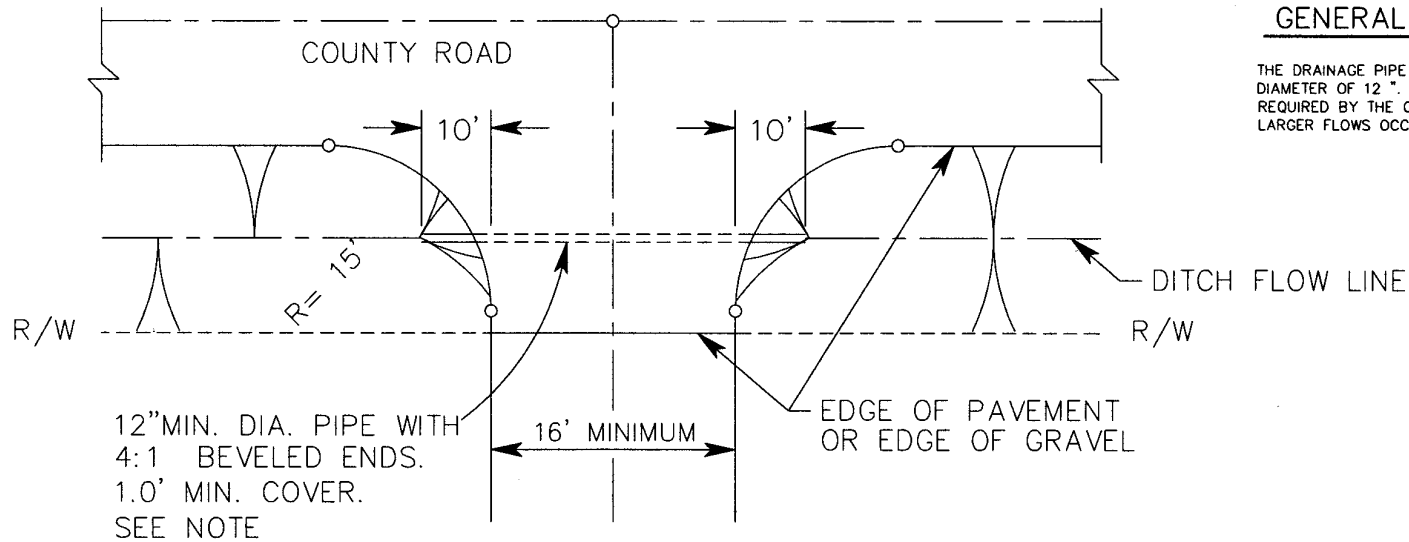
APPROVED: *[Signature]*
 COUNTY ENGINEER
 DATE: 7/27/98

STANDARD
 RURAL ROAD APPROACHES

SHEET
 A-8



GRADE OF RURAL PRIVATE DRIVEWAY



GENERAL NOTES

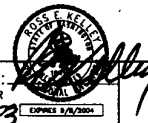
THE DRAINAGE PIPE SHALL HAVE A MINIMUM DIAMETER OF 12". LARGER PIPES MAY BE REQUIRED BY THE COUNTY ENGINEER WHERE LARGER FLOWS OCCUR

RURAL PRIVATE DRIVEWAY

NO.	DATE	BY	CHKD.	APPR.	REVISION
1	10/02/03	FP	BJG	???	REVISED SLOPES

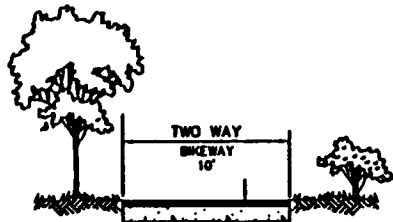
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99206 (509) 477-3600

APPROVED:
COUNTY ENGINEER
DATE: 4/10/03



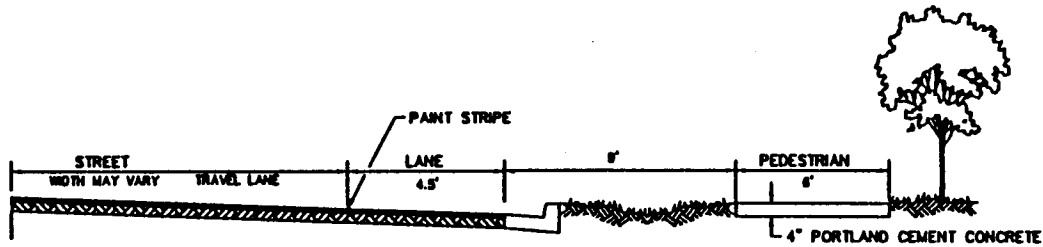
STANDARD
RURAL DRIVEWAY APPROACHES

97D-MSA.070
SHEET
A-8a
PLOT DATE: 04/23/03

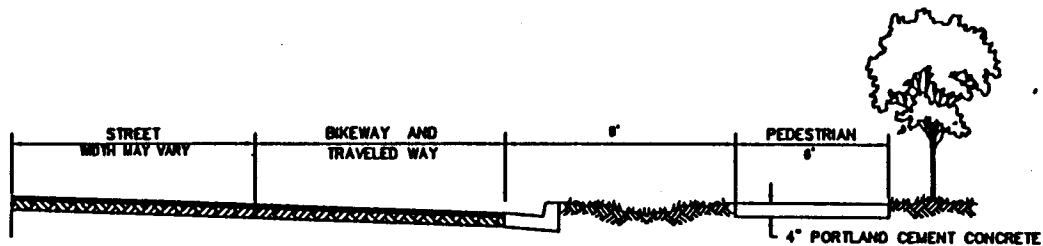


8" PCC OR 2" ACP
4" CSTC

SHARED USE PATHWAY



BIKE LANE



BIKE ROUTE

NOTE: SIGNING FOR BIKEWAYS SHALL BE CONSISTENT WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES

APPROVED: *John*
COUNTY ENGINEER
DATE: 5/27/18



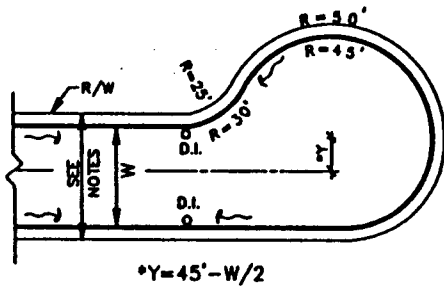
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99208 496-3600

STANDARD
BIKE WAYS & PEDESTRIAN PATHS

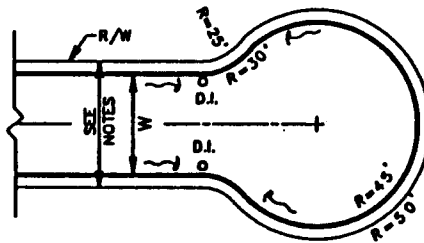
SHEET
A-9

2	7/29/18	CP	SOS	JSH
1	11/25/15	FP	GLW	IGSN
NO. DATE BY CKD JAPPR				

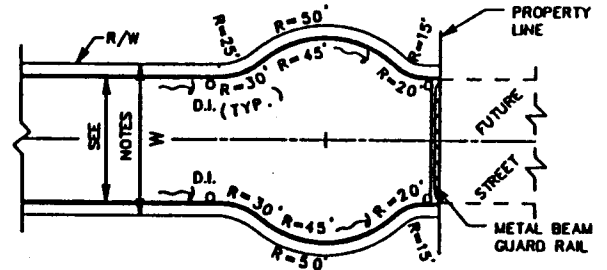
NOTE FOR SIGNING
SEPARATED PATHS
REVISION



OFFSET CUL-DE-SAC



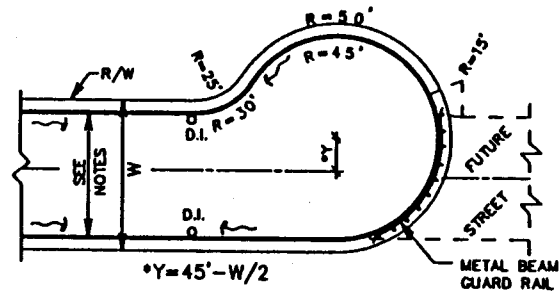
FULL CUL-DE-SAC



TEMPORARY FULL CUL-DE-SAC

GENERAL NOTES

1. THE DRAINAGE INLETS (D.I.) SHOWN ON THIS SHEET ARE REQUIRED ONLY WHEN THE STREET SLOPES TOWARD THE CUL-DE-SAC.
2. THE WIDTH OF RIGHT-OF-WAY AND THE CURB TO CURB STREET DIMENSIONS SHALL BE SPECIFIED BY THE COUNTY ENGINEERS OFFICE.
3. MINIMUM CURB GRADES ON CUL-DE-SACS SHALL BE 1%.
4. TEMPORARY CUL-DE-SAC WILL BE MARKED BY INSTALLATION OF GUARD RAIL OR OTHER PHYSICAL BARRIER AS APPROVED BY THE COUNTY ENGINEER WITH "END OF ROADWAY", SIGN W18-1.



TEMPORARY OFFSET CUL-DE-SAC

13/1/07	CP	JSH	WAJ	
NO.	DATE	BY	ICR	APPR.

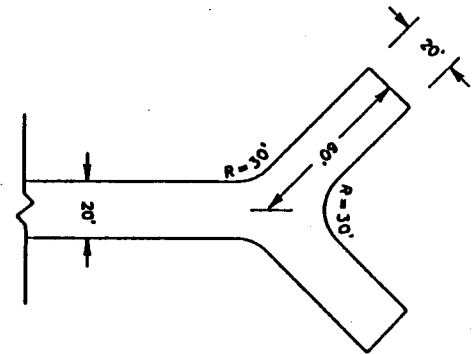
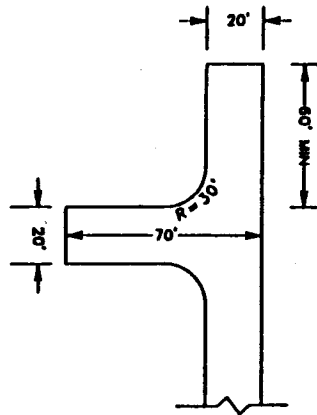
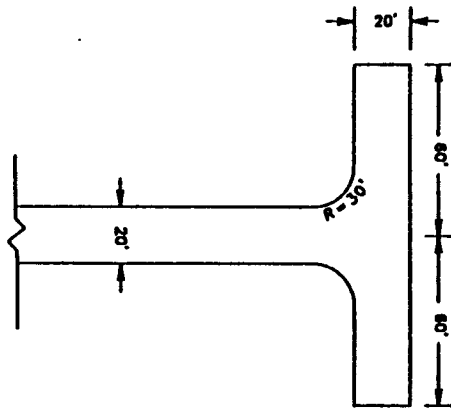
SPokane County
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA 99206 436-3600

APPROVED
 COUNTY ENGINEER
 DATE: 11/18/08



STANDARD
 CUL-DE-SACS-PUBLIC ROADS

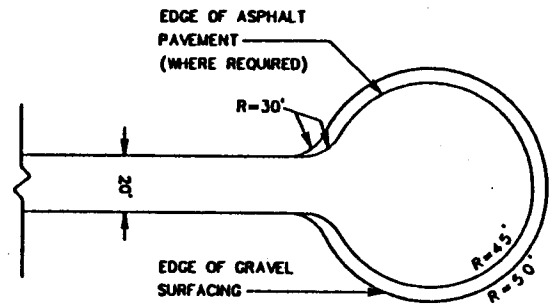
SHEET
 A-10



ALTERNATE TURN-AROUNDS

NOTE

ALTERNATE TURN-AROUNDS MAY BE USED WHEN THE TERRAIN PRECLUDES THE USE OF STANDARD CUL-DE-SAC



STANDARD CUL-DE-SAC

NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99208 456-3600

APPROVED:
COUNTY ENGINEER
DATE: 7/12/98

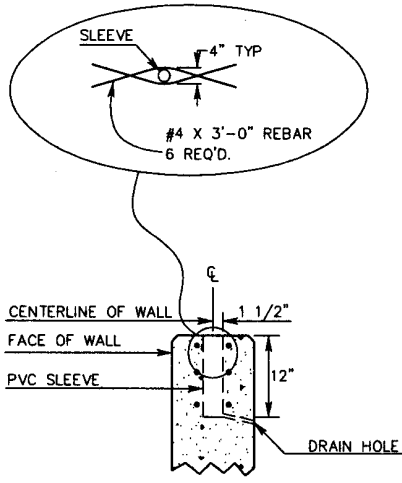
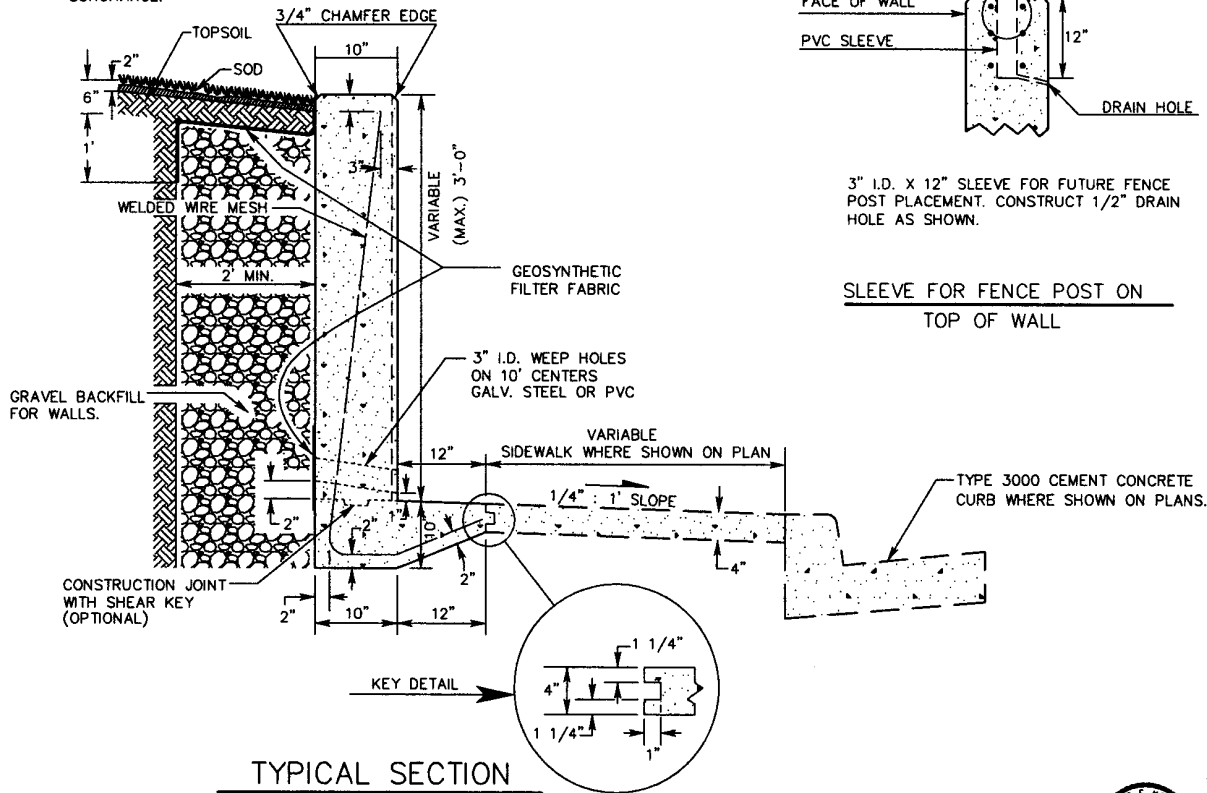


STANDARD
CUL-DE-SACS-PRIVATE ROADS

FR-JE-ARR
SHEET
A-10a

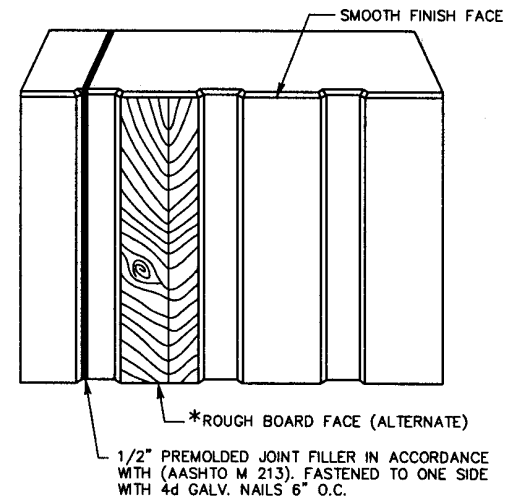
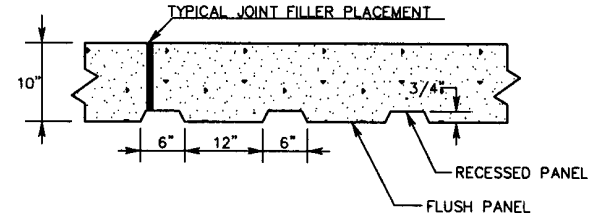
GENERAL NOTES

1. ALL CONCRETE SHALL BE CLASS 3000.
2. 1/2" PREMOLDED JOINT FILLER IN WALL AT MAXIMUM 25' CENTERS. JOINT SHALL OCCUR AT PANEL EDGE AND CONTINUE TRANSVERSELY THROUGH SIDEWALK.
3. REINFORCING SHALL BE A CURTAIN OF 4"x4" - W4/W4 WELDED WIRE MESH.
4. CLASS 1 SURFACE TREATMENT ON ALL EXPOSED WALL SURFACES.
5. ALL BACKFILL BEHIND WALL SHALL BE FREE DRAINING GRANULAR MATERIAL.
6. SLEEVES FOR FENCE POSTS SHALL BE CENTERED AS DIRECTED BY THE ENGINEER. WALLS 2'-6" OR TALLER REQUIRE A FENCE OR AS DIRECTED BY THE ENGINEER.
7. THIS WALL IS DESIGNED TO BE USED WITH A LEVEL BACKFILL AND NO SURCHARGE.



3" I.D. X 12" SLEEVE FOR FUTURE FENCE POST PLACEMENT. CONSTRUCT 1/2" DRAIN HOLE AS SHOWN.

SLEEVE FOR FENCE POST ON TOP OF WALL



ALTERNATE FACE TREATMENT TO BE CONSTRUCTED WHERE DESIGNATED IN SPECIAL PROVISIONS.

* ROUGH BOARD FORM-FINISHED SURFACE OF FLUSH PANEL IS TO SIMULATE THE GRAIN OF ROUGH BOARDS. USE FORM LINER.

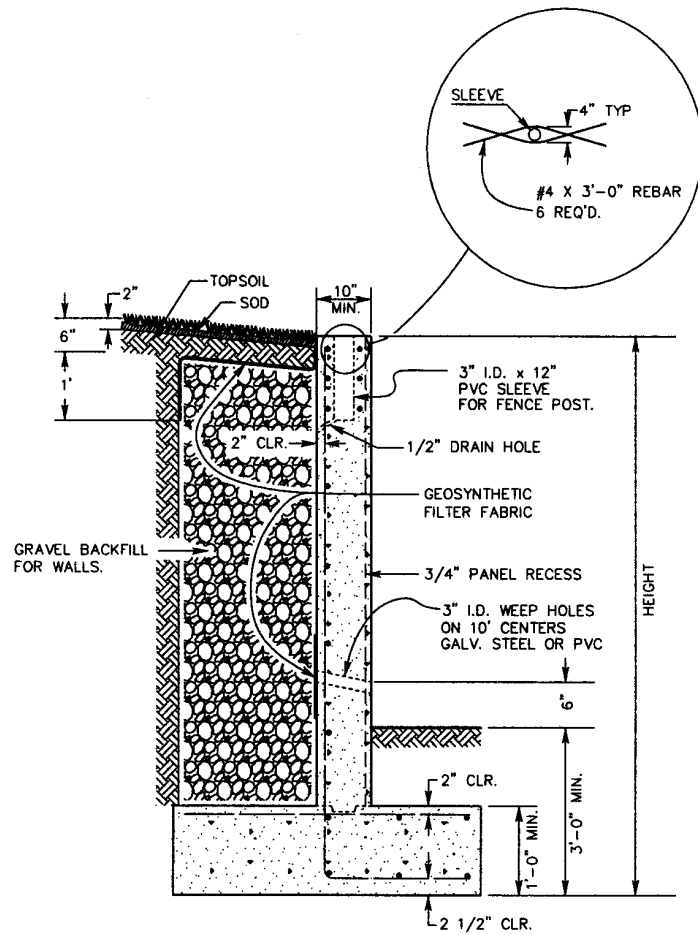
2	10/02	FP	BJG	RK	NOTE #6 WALLS 2'-6" ETC.
1	6/94	JB	GSN	RCH	NOTE #7, FILTER BLANKET & REBAR DETAIL
NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED: [Signature]
COUNTY ENGINEER
DATE: 4/24/03

STANDARD
SIDEWALK RETAINING WALL

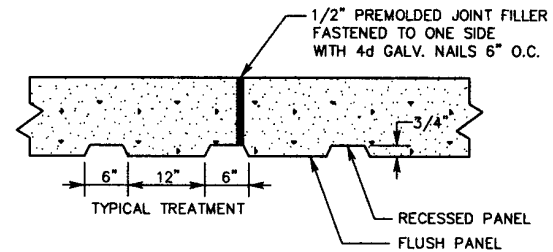
SHEET
A-11



TYPICAL SECTION

GENERAL NOTES

1. ALL CONCRETE CLASS 4000.
2. ALL EDGES TO BE 3/4" CHAMFER.
3. CONCRETE THICKNESS, STRUCTURAL DETAILS, SIZE AND NUMBER OF REINFORCEMENT SHALL BE DETERMINED BY ENGINEER.
4. 1/2" PREMOLDED JOINT FILLER IN WALL AT MAXIMUM 25' CENTERS. JOINT SHALL OCCUR AT PANEL EDGE AND CONTINUE TRANSVERSELY THROUGH SIDEWALK.
5. SLEEVES FOR FENCE POSTS SHALL BE CENTERED AS DIRECTED BY ENGINEER. WALLS 2'-6" OR TALLER REQUIRE A FENCE OR AS DIRECTED BY ENGINEER.



FACE TREATMENT ON WALL

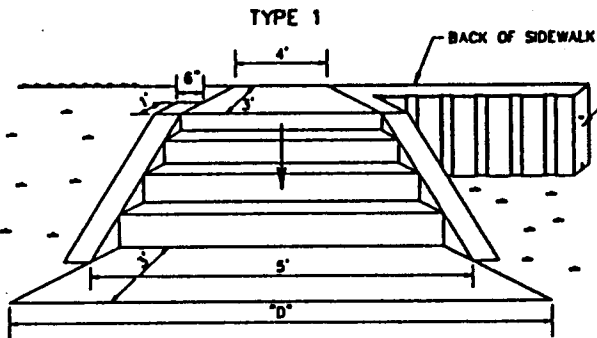
2	10/02	FP	BJG	GSN	ADDED NOTE #5.
1	6/94	JR	GSN	RCH	FILTER BALNKET & REBAR BENDING DETAIL
NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA 99260 (509) 477-3600

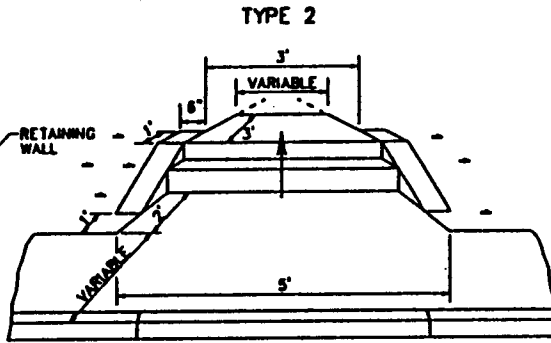
APPROVED
 COUNTY ENGINEER
 DATE: 4/24/03

== STANDARD ==
 RETAINING WALL

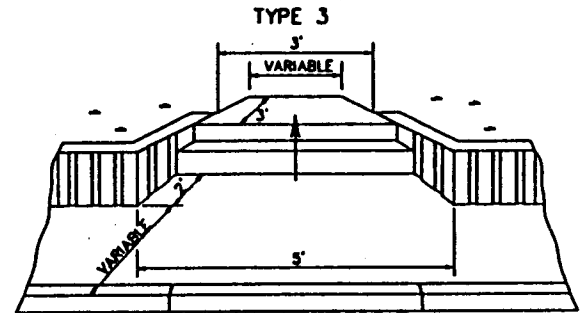
STD-A12.DWG
 SHEET
 A-12
 PLOT DATE 04/23/03



TYPE 1
ENTRANCE STEPS DOWN
WITH OR WITHOUT RETAINING WALL

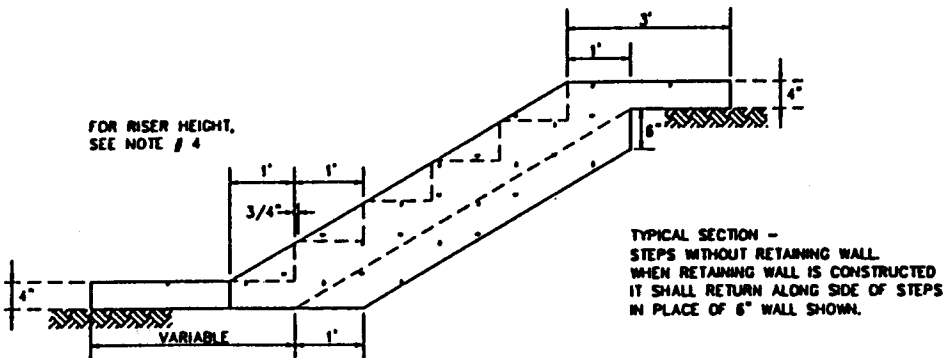


TYPE 2
ENTRANCE STEPS UP



TYPE 3
ENTRANCE STEPS UP
WITH RETAINING WALL

NOTE : WIDTH "D" THIS IS VARIABLE TO MEET THE WIDTH OF THE ENTRANCE WALK TO BE JOINED. IF NO WALK EXISTS THIS WIDTH IS TO BE 5 FEET.



TYPICAL SECTION -
 STEPS WITHOUT RETAINING WALL.
 WHEN RETAINING WALL IS CONSTRUCTED
 IT SHALL RETURN ALONG SIDE OF STEPS
 IN PLACE OF 6" WALL SHOWN.

GENERAL NOTES

1. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000 CONFORMING TO THE STANDARD SPECIFICATIONS.
2. ALL EXPOSED EDGES TO BE FINISHED WITH 3/4" RADIUS.
3. TREADS SHALL PITCH DOWN AND OUT 1/4" AND SHALL NOT TRAP WATER.
4. RISERS SHALL HAVE A MINIMUM 5" AND MAXIMUM 8" HEIGHT AND ALL SHALL BE EQUAL AT ANY ONE LOCATION.
5. NUMBER OF STEPS WILL VARY TO MEET THE GRADE OF PROPERTY BEING SERVED.
6. VARIATIONS IN DIMENSIONS MAY BE MADE ON SITE BY THE ENGINEER TO SATISFY PARTICULAR CONDITIONS.

NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. 99208 456-3800

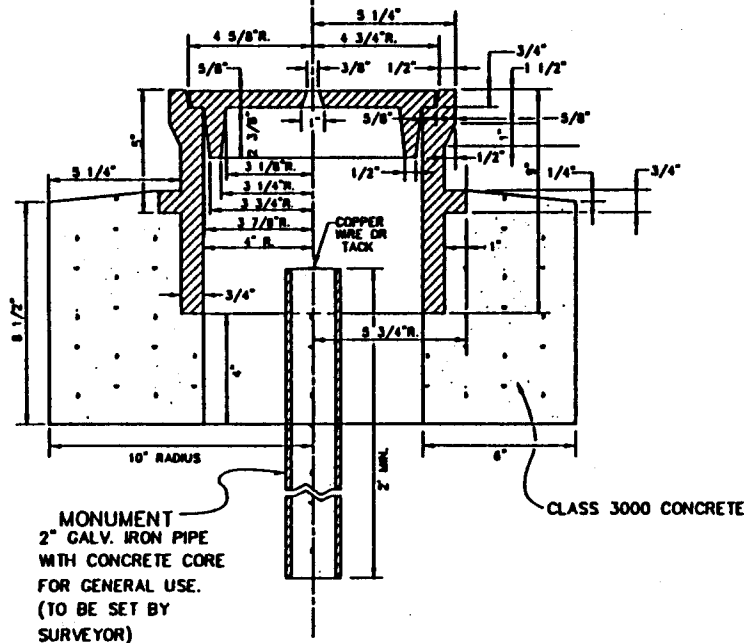
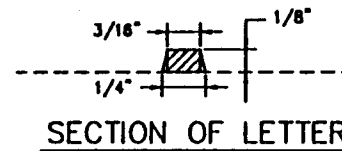
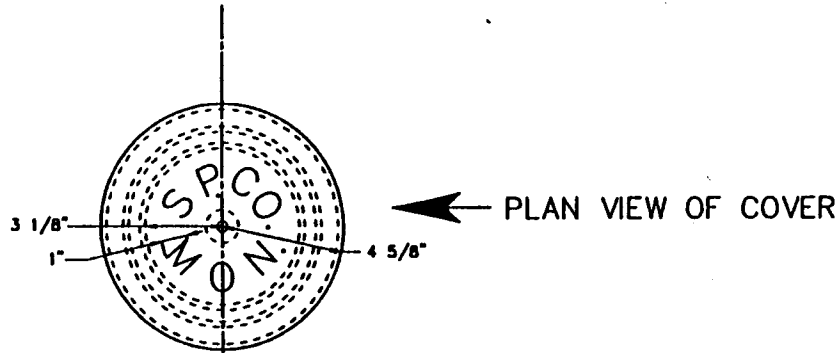
APPROVED: 
 COUNTY ENGINEER
 DATE: 5/16/88



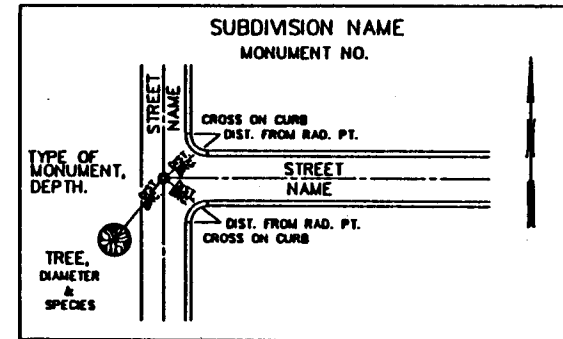
STANDARD
 ENTRANCE STEPS TO ABUTTING PROPERTIES

GENERAL NOTES

1. THE CASTINGS SHALL BE GREY IRON CASTINGS, AASHTO DESIGNATION M-105, CLASS 30B. THE COVER AND SEAT SHALL BE MACHINED SO AS TO HAVE CONTACT AROUND THE ENTIRE CIRCUMFERENCE AND FULL WIDTH OF BEARING SURFACE.
2. WHEN THE MONUMENT CASE AND COVER ARE PLACED IN CEMENT CONCRETE PAVEMENT THE CONCRETE BASE IS NOT NEEDED.
3. A RECORD OF REFERENCES TO SURVEY POINTS SHALL BE SUBMITTED TO THE COUNTY ENGINEERS OFFICE AS SHOWN ON SAMPLE.



SECTION



SAMPLE REFERENCE CARD

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99208 458-3600

APPROVED:
COUNTY ENGINEER
DATE: 11/27/98



STANDARD
MONUMENT CASE & COVER

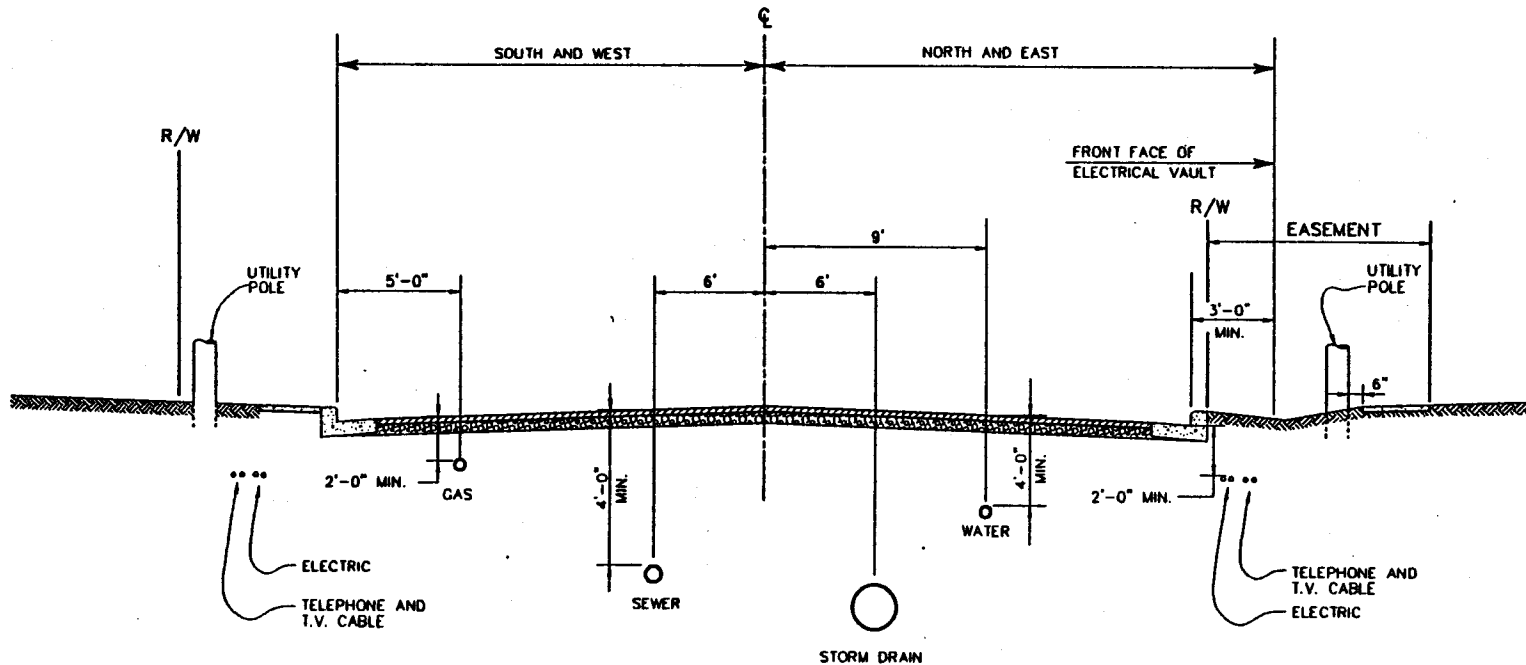
SHEET
A-14

1 3/98 CP/KGM JSH
NO DATE BY/CKD/JAPPR

AMENDED NOTE 1
REVISION

GENERAL NOTES

1. THIS PLAN SHOWS NORMAL LOCATIONS FOR ALL UTILITY INSTALLATIONS.
2. LOCATIONS OF EXISTING UTILITIES MUST BE FIELD LOCATED WITH THEIR RESPECTIVE OWNERS BEFORE MAKING NEW CONNECTIONS.
3. TELEPHONE PEDESTAL SHALL BE LOCATED JUST INSIDE R/W LINE.

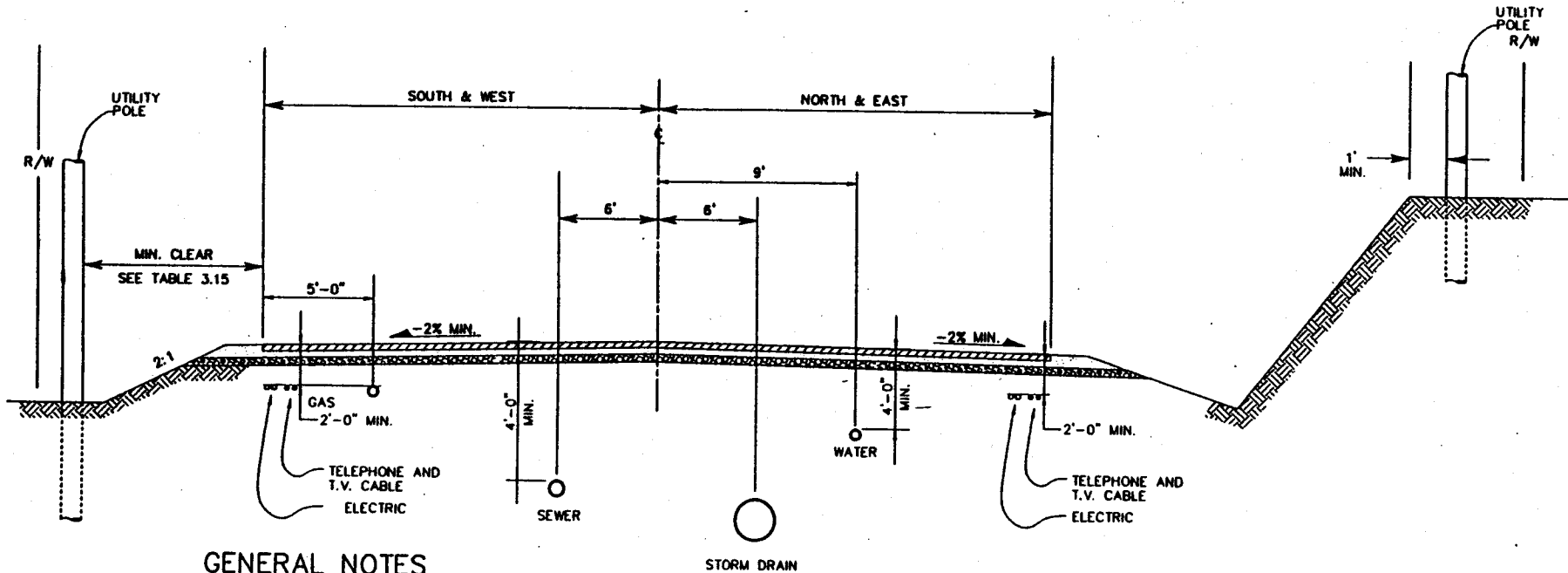


2	12/99	CP	JSH	WAJ	CHANGED TITLE TO CURBED ROAD
1	5/94	IR	JSH	RCH	R/W & UTILITY POLE LOCATION @ SWALE SIDE
					REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99280 477-3800

APPROVED: *[Signature]*
COUNTY ENGINEER
DATE: 11/1/20
SPK 2542/20

STANDARD
UTILITY LOCATIONS - CURBED ROAD



GENERAL NOTES

1. THIS PLAN SHOWS NORMAL LOCATIONS FOR ALL UTILITY INSTALLATIONS.
2. LOCATIONS OF EXISTING UTILITIES MUST BE FIELD LOCATED WITH THEIR RESPECTIVE OWNERS BEFORE MAKING NEW CONNECTIONS.
3. TELEPHONE PEDESTAL SHALL BE LOCATED JUST INSIDE R/W LINE.

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. 99260 456-3600

APPROVED
 COUNTY ENGINEER
 DATE: 11/1/00

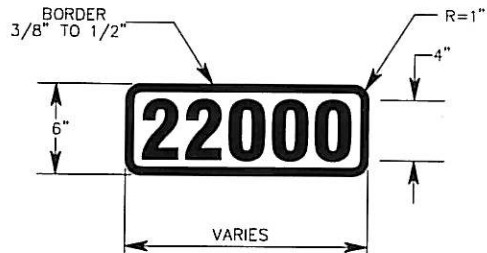


STANDARD
 UTILITY LOCATIONS - SHOULDERED ROAD

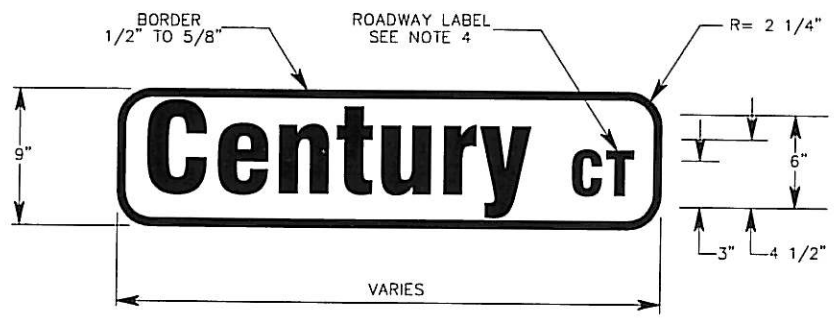
STD-456a.090

SHEET
 A-15c

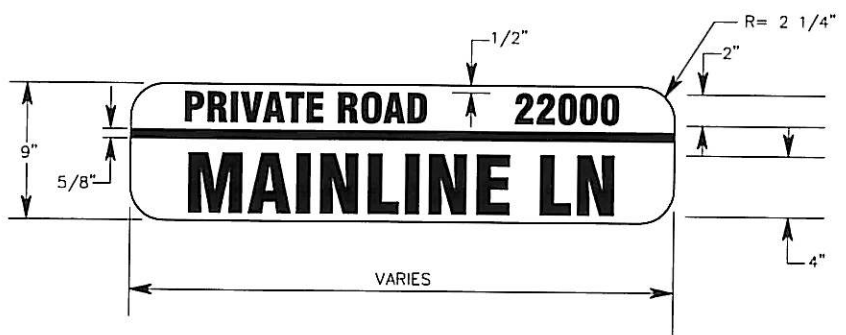
NO.	DATE	BY	CHKD.	APPR.	REVISION



PUBLIC ROADS



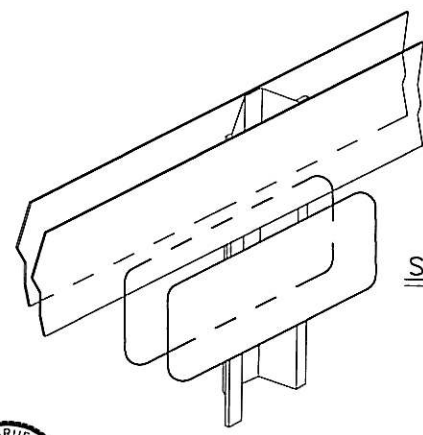
PUBLIC ROADS



PRIVATE ROADS

GENERAL NOTES

1. SIGNS SHALL MEET SPECIFICATIONS FOR FLAT PLATE ALUMINUM, 0.08" THICK, ALODINE 1200 OR EQUAL.
2. THE SIGN SURFACE SHALL BE WHITE LETTERS/DIGITS AND WHITE BORDER (NON-PRIVATE ROADS) ON A GREEN BACKGROUND. WHITE LETTERS/DIGITS, BORDER AND GREEN BACKGROUND SHALL MEET OR EXCEED ASTM D4956 TYPE III (HIGH INTENSITY) RETROREFLECTIVE SHEETING OR GREEN TRANSPARENT ELECTRONIC CUTTABLE (EC) FILM REVERSE WEDED ON WHITE TYPE III (HIGH INTENSITY) RETROREFLECTIVE SHEETING BACKGROUND.
3. LETTERS SHALL BE A BLOCK TYPE FONT.
4. THE ROADWAY LABEL MAY BE OMITTED FOR "STREET", "ROAD", AND "AVENUE". ALL OTHER ROADWAYS SHALL INCLUDE THE ABBREVIATED LABEL (I.E. - COURT - CT. DRIVE - DR. ETC.) ROADWAY LABEL SHALL BE UPPER CASE
5. SIGN INSTALLATION SHALL CONFORM TO THE CURRENT EDITION OF THE M.U.T.C.D.



TYPICAL SIGN INSTALLATION

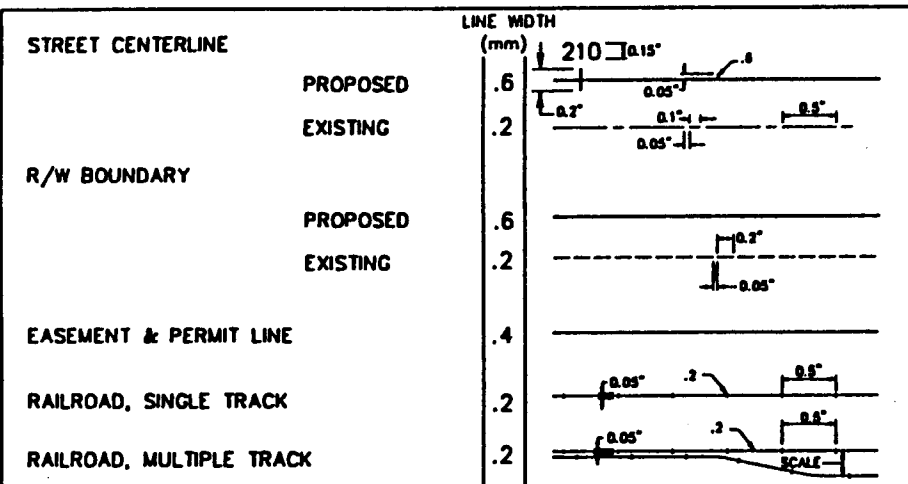
4	2/08	BG	BG	ADDED BORDER AND TYPE III SHEETING
3	3/98	CP	KGM	JSH REDESIGN SIGNS
2	3/98	CP	KGM	JSH ELIMINATE RURAL DESIGNATION
1	3/98	CP	KGM	JSH AMEND NOTES 2,3,4 ADD NOTE 5
NO.	DATE	BY	CHKD.	APPR.
				REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 477-3600

APPROVED
COUNTY ENGINEER
DATE: 3-5-08



STANDARD
STREET NAME SIGNS



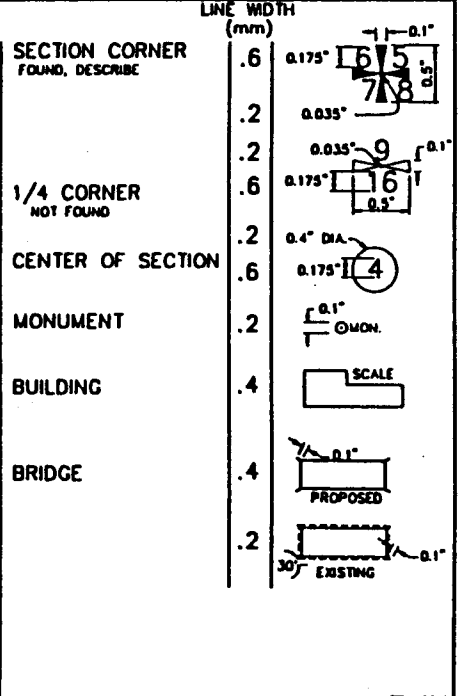
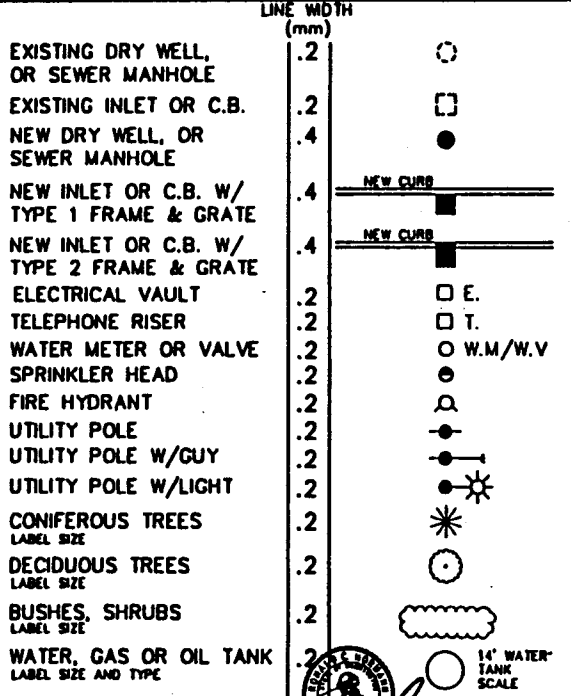
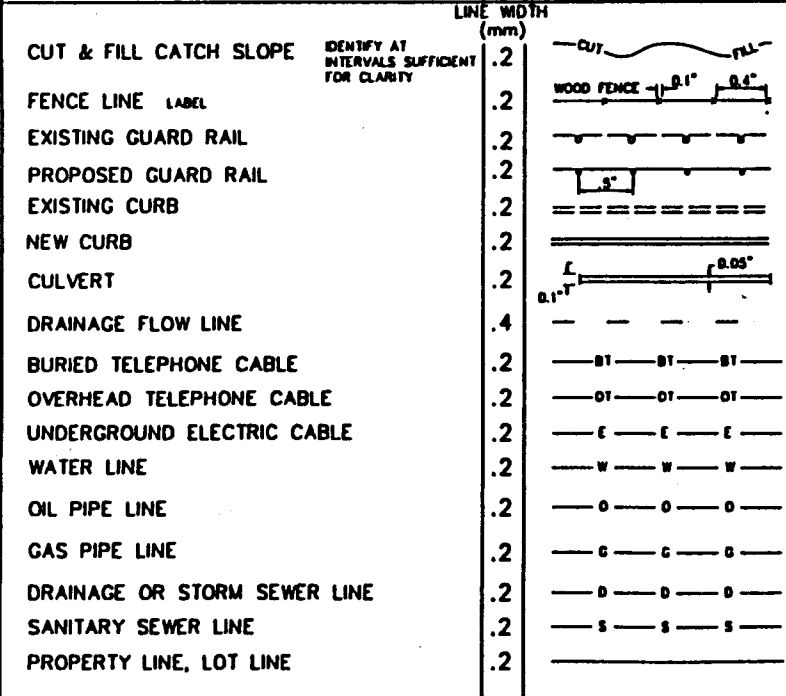
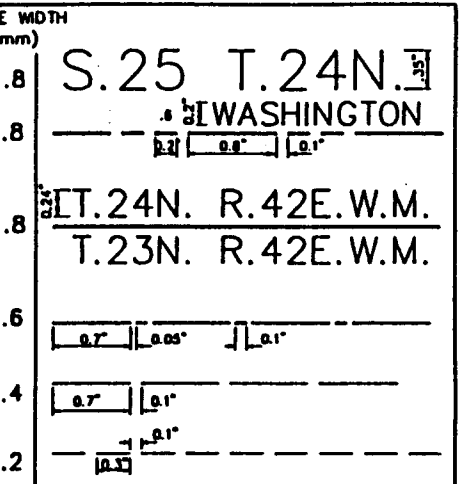
NOTE: THIS WILL BE REQUIRED AT THE TOP OF THE DRAWINGS ONLY WHEN TOWNSHIP OR RANGE LINES DO NOT APPEAR. STATE BOUNDARY, COUNTY LINE OR CORPORATE LIMIT, INDICATE AND NAME THE STATE, COUNTY OR CORPORATE UNIT.

TOWNSHIP OR RANGE LINE

SECTION LINE

1/4 SECTION LINE

1/16 SECTION LINE



NO.	DATE	BY	CHKD	APPR.	REVISION

SPokane County
DEPARTMENT OF PUBLIC WORKS
SPokane, WA 99208 456-3600

APPROVED: [Signature]
COUNTY ENGINEER
DATE: 5-16-25

STANDARD SYMBOLS

SHEET A-17

LINETYPES
LINETYPE

DESCRIPTION	LINE WIDTH EXST/PROP	LT NAME *SPEC. LT.	LAYER
CHANNELIZATION			
ROAD-EDGE OF STRIPE (EX)	1	CONTINUOUS	TF-CHRD-EXST-LIN
ROAD-EDGE OF STRIPE (PROP)	3	CONTINUOUS	TF-CHRD-PROP-LIN
PAINTED LINES/CHANNEL (EX)	1	CONTINUOUS	TF-CHAN-EXST-LIN
PAINTED LINES/CHANNEL (PROP)	3	CONTINUOUS	TF-CHAN-PROP-LIN
SHOULDER (EX)	1	CONTINUOUS	TF-CHSH-EXST-LIN
SHOULDER (PROP)	3	CONTINUOUS	TF-CHSH-PROP-LIN
SURFACE FEATURES:			
ALLEY-EDGE (EX)	1	XACP	SF-ALLY-EXST-LIN
ALLEY-EDGE (PROP)	3	CONTINUOUS	SF-ALLY-PROP-LIN
BUILDING LINE (EX)	3	CONTINUOUS	SF-BLDG-EXST-LIN
BUILDING LINE (PROP)	3	CONTINUOUS	SF-BLDG-PROP-LIN
ROADWAY CROWN	2	CRN	SF-CRWN-EXST-LIN
ROADWAY CROWN	3	CRN	SF-CRWN-PROP-LIN
ASPHALT-EDGE (EX)	1	XACP	SF-ASPH-EXST-LIN
ASPHALT-EDGE (PROP)	2 OR 3	CONTINUOUS	SF-ASPH-PROP-LIN
GRAVEL/DIRT-EDGE (EX)	1	DASH	SF-GRAV-EXST-LIN
GRAVEL/DIRT-EDGE (PROP)	2 OR 3	CONTINUOUS	SF-GRAV-PROP-LIN
CONCRETE-EDGE (EX)	1	DASH	SF-CONC-EXST-LIN
CONCRETE-EDGE (PROP)	2 OR 3	CONTINUOUS	SF-CONC-PROP-LIN
CURB/SIDEWALK (EX)	1	SDASH	SF-CURB-EXST-LIN
CURB/SIDEWALK (PROP)	1 OR 2	CONTINUOUS	SF-CURB-PROP-LIN
TRAIL (EX)	1	SDASH	SF-TRAL-EXST-LIN
CREEK/DITCH CENTERLINE (EX)	1	DITCH	SF-222A-EXST-LIN
CREEK/DITCH CENTERLINE (PROP)	2	DITCH	SF-222A-PROP-LIN 222A - USER CREEK/DTCH
RIVERBANK/ShORELINE	3	CONTINUOUS	SF-222B-EXST-LIN 222B - USE RVR/SHOR
FIELD LINE (EX)	1	SDASH	SF-FELD-EXST-LIN
FENCE (EX)	1	*XFEN	SF-FENC-EXST-LIN
FENCE (PROP)	2	*FEN	SF-FENC-PROP-LIN
GUARDRAIL (EX)	1	*EGRI	SF-GURD-EXST-LIN
GUARDRAIL (PROP)	3	*PGRI	SF-GURD-PROP-LIN
LAKE/POND	2	LAKE	SF-LAKE-EXST-LIN
SWAMP/WETLAND PERIMETER	2	MARSH	SF-WETL-EXST-LIN
RAILROAD	2	*RIRI	SF-RLRD-EXST-LIN
RETAINING WALL (EX)	1	*ERWI	SF-WALL-EXST-LIN
RETAINING WALL (PROP)	3	*PRWI	SF-WALL-PROP-LIN
TRAILER (EX)	1	CONTINUOUS	SF-TRLR-EXST-LIN
DECK LINE	1	CONTINUOUS	SF-DECK-EXST-LIN
DOCK (EX)	1	CONTINUOUS	SF-DOCK-EXST-LIN
MAIL BOX (LINE)	1	CONTINUOUS	SF-MAIL-EXST-LIN
PIPE/NOT DRAINAGE (EX)	1	SDASH	SF-PIPE-EXST-LIN
PIPE/NOT DRAINAGE (PROP)	2	CONTINUOUS	SF-PIPE-PROP-LIN
BRIDGE (EX)	1	EXBUILD	SF-BRDG-EXST-LIN
BRIDGE (PROP)	2	CONTINUOUS	SF-BRDG-PROP-LIN
GENERAL STRUCT. (EX)	3	CONTINUOUS	SF-MISC-EXST-LIN
GENERAL STRUCT. (PROP)	3	CONTINUOUS	SF-MISC-PROP-LIN
PARKING METER (LINE)	1	CONTINUOUS	SF-SIGN-EXST-LIN
TANK LINE (EX)	1	CONTINUOUS	SF-TANK-EXST-LIN
VAULT LINE (EX)	1	EXBUILD	SF-VALT-EXST-LIN
VEGETATION LINE/HEDGE	1	CONTINUOUS	SF-VEGE-EXST-LIN
CATCH LINE-CUT (PROP) **	1	*CONTINUOUS	SF-CTLC-EXST-LIN
CATCH LINE-FILL (PROP) **	1	*CONTINUOUS	SF-CTLF-EXST-LIN

LINETYPES
LINETYPE

DESCRIPTION	LINE WIDTH EXST/PROP	LT NAME *SPEC. LT.	LAYER
SURVEY:			
CENTERLINE (PROP) COUNTY	4	CONTINUOUS	SV-CNTL-PROP-LIN
CENTERLINE (PROP) CITY	3	CENTER	SV-CNTL-PROP-LIN
BREAKLINE (EX)	1	CONTINUOUS	SV-BRKL-EXST-LIN
CONTOUR (DEPRESSION)	1	*DECT	SV-CONT-DEPR-LIN
CONTOUR (EX)	1	CON	SV-CONT-EXST-LIN
CONTOUR (INDEX)	2	CON	SV-CONT-INDX-LIN
CONTOUR (PROPOSED)	2	CONTINUOUS	SV-CONT-PROP-LIN
DONATION LAND CLAIM (EX)	1	DLC	SV-DLCM-EXST-LIN
DONATION LAND CLAIM (PROP)	4	DLC	SV-DLCM-PROP-LIN
EASEMENT (PERMANENT)	3	CONTINUOUS	SV-ESMT-PERM-LIN
EASEMENT (TEMPORARY)	3	TEMPESMT	SV-ESMT-TEMP-LIN
MEANDER LINE	1	MEANDER	SV-MEAN-EXST-LIN
PROPERTY LINE (EX)	1	CONTINUOUS	SV-PROP-EXST-LIN
PROPERTY LINE (PROP)	4	CONTINUOUS	SV-PROP-PROP-LIN
RANGE/TOWNSHIP LINE	4	CONTINUOUS	SV-222C-EXST-LIN
RESERVATION/PARK/FOREST (EX)	2	PARK	SV-PARK-EXST-LIN
RESERVATION/PARK/FOREST (PRO)	4	PARK	SV-PARK-PROP-LIN
RIGHT-OF-WAY (EX)	2	EXROW	SV-ROFW-EXST-LIN
RIGHT-OF-WAY (PROP)	4	CONTINUOUS	SV-ROFW-PROP-LIN
RIGHT-OF-WAY (LIMITED ACCESS)	1	*ROWL1	SV-LROW-EXST-LIN
RIGHT-OF-WAY (LIMITED ACCESS)	3	*ROWL1	SV-LROW-PROP-LIN
SECTION LINE	3	SECT	SV-SECT-EXST-LIN
QUARTER SECTION LINE	2	QTRSECT	SV-QSCT-EXST-LIN
SIXTEENTH SECTION LINE	1	16THSECT	SV-16ST-EXST-LIN
STATE/COUNTY/CORPORATE LIMIT	2	STATE	SV-222D-EXST-LIN
STATE/COUNTY/CORPORATE LIMIT	4	STATE	SV-222D-PROP-LIN
		(PLINE .03"WIDE)	222C-USE RANG/TWNS
			222D-USE STAT/CNTY/CITY
SURVEY CENTERLINE	1	EXCNTL	SV-CLSV-EXST-LIN
PROPERTY OWNERSHIP	2	OWNDOT	SV-OWNS-EXST-LIN
RAILROAD RIGHT OF WAY	2	RRW	SV-RWRW-EXST-LIN
CONSTRUCTION PERMIT	3	CONTINUOUS	SV-CPMT-PROP-LIN

DESCRIPTOR

PROPOSED	EXISTING	UTILITIES :
ATV	---	CABLE TELEVISION (AERIAL)
TV	---	CABLE TELEVISION (BURIED)
ATF	---	TRAFFIC (AERIAL)
TF	---	TRAFFIC (BURIED)
FMB*STL	---	FORCE MAIN (LIST SIZE & TYPE)
G2*	---	GAS (LIST SIZE)
O4*	---	OIL (LIST SIZE)
AP	---	POWER (AERIAL)
P	---	POWER (BURIED)
S12"CNC	---	SANITARY SEWER (LIST SIZE & TYPE)
STE4*	---	STEAM (LIST SIZE)
DB*PVC	---	STORM DRAINAGE (LIST SIZE & TYPE)
AT	---	TELEPHONE (AERIAL)
T	---	TELEPHONE (BURIED)
W4*STL	---	WATER (LIST SIZE & TYPE)

PROPOSED FEATURE USE NUMBER	EXISTING FEATURE USE NUMBER	CONTINUOUS LINETYPE
4 PEN	1 PEN	
		TV-ALIN-3333-LIN
		TV-BLIN-3333-LIN
		TF-ALIN-3333-LIN
		TF-BLIN-3333-LIN
		SS-PLIN-3333-LIN
		GS-PLIN-3333-LIN
		OL-PLIN-3333-LIN
		PO-ALIN-3333-LIN
		PO-BLIN-3333-LIN
		SS-222F-3333-LIN
		ST-PLIN-3333-LIN
		SD-222F-3333-LIN
		TL-ALIN-3333-LIN
		TL-BLIN-3333-LIN
		WA-222F-3333-LIN
		USE GLIN/PLIN/ALIN/BLIN - 222F
		USE EXST/PROP - 3333
		ALIN - AERIAL LINE
		BLIN - BURIED CONDUIT
		GLIN - GRAVITY LINE
		PLIN - PRESSURE LINE

NOTE: ALL UTILITY SERVICES REQUIRE AN ALPHANUMERIC DESCRIPTOR STRING TO CLARIFY SPECIFIC TYPE OF SERVICE AS SHOWN ABOVE. AERIAL SERVICE DESCRIPTOR STRINGS MUST BEGIN WITH THE LETTER "A". ALL SERVICE DESCRIPTOR STRINGS BEGINNING WITHOUT THE LETTER "A" WILL BE ASSUMED BURIED. FOR INSTRUCTIONS ON CHANGING SIZE THROUGH MENU SEE CCS13A.DOC.

- * - SPECIAL LINETYPE-CREATED THROUGH LISP ROUTINE/IN LINETYPE
- ** - PLACE TEXT & BREAK LINE AT INTERVALS SUFFICIENT FOR CLARITY
- *** - INSERT ELEVATION AT 6" INTERVALS (TEXT 0.1" HIGH)

NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED:
COUNTY ENGINEER
DATE: 4/24/03



STANDARD
DRAFTING STANDARDS

SHEET
A-17A

FILE No. STD17-A,B,C,D.DWG

PLOT DATE: 03-11-96

CHANNELIZATION SYMBOLS

SYMBOL EXIST.	PROP.	DESCRIPTION	LINE WIDTH EXIST./PROP.	BLOCK	LAYER
		BIKE PATH		CB/CBP	TF-CHAN-3333-SYM
		HANDICAP SYMBOL		CHS/CHSP	TF-CHAN-3333-SYM
		H.O.V. LANE SYMBOL		CHOV/CHOVP	TF-CHAN-3333-SYM
		ONLY		CO/COP	TF-CHAN-3333-SYM
		RAILROAD CROSSING		CRR/CRRP	TF-CHAN-3333-SYM
		SCHOOL		CSC/CSCP	TF-CHAN-3333-SYM
		STOP		CS/CSP	TF-CHAN-3333-SYM
		LANE CONTROL ARROWS: STRAIGHT ARROW		CSA/CSAP	TF-CHAN-3333-SYM
		LT.RT.STR.ARROW		CLRS/CLRSP	TF-CHAN-3333-SYM
		LEFT-RIGHT ARROW		CLR/CLRP	TF-CHAN-3333-SYM
		2-WAY LEFT TURN		C2W/C2WP	TF-CHAN-3333-SYM
		LEFT TURN ARROW		CLT/CLTP	TF-CHAN-3333-SYM
		RIGHT TURN ARROW		CRT/CRTP	TF-CHAN-3333-SYM
		LEFT-STRAIGHT ARROW		CLS/CLSP	TF-CHAN-3333-SYM
		RIGHT-STRAIGHT ARROW		CRS/CRSP	TF-CHAN-3333-SYM
		RAISED MARKERS: LANE MARKERS TYPE I		CLM1/CLM1P	TF-CHAN-3333-SYM
		LANE MARKERS TYPE II		CLM2/CLM2P	TF-CHAN-3333-SYM
		CONCRETE BARRIER*		CBR/CBRP	TF-STCR-3333-SYM
		CONCRETE BARRIER TERMINAL END*		CBRT/CBRTP	TF-STCR-3333-SYM

EXISTING FEATURE USE WIDTH NUMBER 1
PROPOSED FEATURE USE WIDTH NUMBER 2

USE EXST/PROP - 3333

* - THESE FEATURES SHOWN AT 50% OF RECOMMENDED SCALE.
** - TO SCALE IF POSSIBLE

SIGNALIZATION SYMBOLS

SYMBOL EXIST.	PROP.	DESCRIPTION	LINE WIDTH EXIST./PROP.	BLOCK	LAYER
		AERIAL DISCONNECT		TAD/TADP	TF-SIGL-3333-SYM
		AERIAL TERMINAL COMPARTMENT		TATC/TATCP	TF-SIGL-3333-SYM
DETECTORS:					
		DETECTOR LOOP TYPE I		TDD/TDDP	TF-SIGL-3333-SYM
		DETECTOR LOOP TYPE II		TDD/TDDP	TF-SIGL-3333-SYM
		PEDESTRIAN DETECTOR		TPD/TPDP	TF-SIGL-3333-SYM
EMERGENCY VEHICLE INDICATOR LIGHTS:					
		FLASHING WARNING SYSTEM		TFWS/TFWSP	TF-SIGL-3333-SYM
		INDICATOR LIGHTS		TL/TILP	TF-SIGL-3333-SYM
		EVP SENSOR		TOS/TOSP	TF-SIGL-3333-SYM
		EVP SENSOR W/ INDICATOR LIGHTS		TOSL/TOSLP	TF-SIGL-3333-SYM
JUNCTION BOX/CONTROLLERS:					
		JUNCTION BOX (TYPE I, II, III)		TJB1/TJB1P TJB2/TJB2P TJB3/TJB3P	TF-SIGL-3333-SYM TF-SIGL-3333-SYM TF-SIGL-3333-SYM
		CONTROL CABINET		TSC/TSCP	TF-SIGL-3333-SYM
		SERVICE CABINET		TSLC/TSLCP	TF-SIGL-3333-SYM
NOTES:					
		POLE NOTE		TPN	TF-SIGL-3333-SYM
		WIRE NOTE		TWN	TF-SIGL-3333-SYM
		SIGN FLAG NOTE *		TFN/TFNP	TF-SIGL-3333-SYM
POLES:					
		PEDESTRIAN PUSHBUTTON (PB) POST W/ PUSHBUTTON		TPB/TPBP	TF-SIGL-3333-SYM
		SIGNAL POLE TYPE I *		TPOL/TPOLP	TF-SIGL-3333-SYM
		SIGNAL POLE TYPE II *		TSPDL/TSPDLP	TF-SIGL-3333-SYM
		SIGNAL POLE TYPE III *		TSPL/TSPLP	TF-SIGL-3333-SYM
		STREET LIGHT ASSEMBLY		TSLA/TSLAP	TF-SIGL-3333-SYM
RAILROAD CROSSING:					
		R/R CROSSING GATE		TRC/TRCP	TF-SIGL-3333-SYM
		R/R CROSSING SIGNAL		TRC/TRCP	TF-SIGL-3333-SYM
SIGNAL HEADS:					
		PEDESTRIAN SIGNAL HEAD		TPSH/TPSHP	TF-SIGL-3333-SYM
		VEHICLE SIGNAL HEAD		TVH/TVHP	TF-SIGL-3333-SYM
TRAFFIC SIGNS:					
		SIGN *		TFSN/TFSNP	TF-SIGN-3333-SYM
		BRIDGE		TSB/TSBP	TF-SIGN-3333-SYM
		CANTILEVERED		TSCL/TSCLP	TF-SIGN-3333-SYM
		DOUBLE POST		TSD/TSDP	TF-SIGN-3333-SYM
		SINGLE POST		TSS/TSSP	TF-SIGN-3333-SYM

EXISTING FEATURE USE WIDTH NUMBER 1
PROPOSED FEATURE USE WIDTH NUMBER 2

USE EXST/PROP - 3333

NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED:
COUNTY ENGINEER
DATE: 4/24/03



STANDARD
DRAFTING STANDARDS

SHEET
A-17B

FILE No. STD17-A,B,C,D.DWG

PLOT DATE: 03-11-96

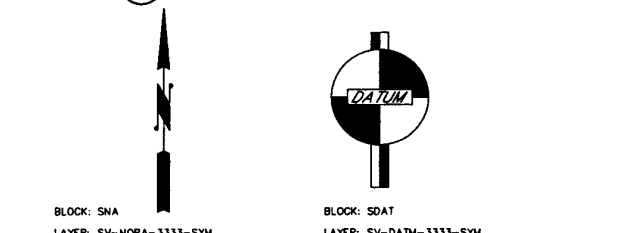
SURVEY SYMBOLS

SYMBOL THEOR./EXIST.	DESCRIPTION (ABBR) FOUND/PROP.	LINE WIDTH EXIST/PROP	BLOCK	LAYER
△A.P.#1	△A.P.#1 ANGLE POINT	(AP) 1/2	SAP/SAPP	SV-CTRL-3333-SYM
+	BENCH MARK	(BM) 1/2	SBM/SBMP	SV-CTRL-3333-SYM
○	BLOCK CORNER	(BC) 1/2	SBC/SBCP	SV-CTRL-3333-SYM
oIP	IRON PIPE	(IP) 1/2	SIP/SIPP	SV-CTRL-3333-SYM
⊙Mon.	MONUMENT (IN CASE)	(MIC) 1/2	SMIC/SMICP	SV-CTRL-3333-SYM
⊙Mon.	MONUMENT (SURFACE)	(MON) 1/2	SMON/SMONP	SV-CTRL-3333-SYM
—	OWNERSHIP TIE	(OT) 1	SOT	SV-LOTN-3333-SYM
SECTION DATA:				
④	SECTION CENTER	3	SSCT	SV-SECT-3333-SYM
14/13 23/24	SECTION CORNER	2/2	SSC/SSCP	SV-SECT-3333-SYM
12	QUARTER CORNER	2/2	SQC/SQCP	SV-QSCT-3333-SYM
13	SIXTEENTH CORNER	1/3	SSXC/SSXCP	SV-16ST-3333-SYM
14/13	CLOSING CORNER	2/2	SCC/SCCP	SV-222A-3333-SYM
MC	MEANDER CORNER	(MC) 1/2	SMC/SMCP	SV-222A-3333-SYM
WC	WITNESS CORNER	(WC) 1/2	SMC/SMCP	SV-SECT-3333-SYM
SB	SOIL BORING	(SB) 1/2	SSB/SSBP	SV-SOIL-3333-SYM
SE	SPOT ELEVATION	(SE) 1/2	SSE/SSEP	SV-CTRL-3333-SYM
X	TAX LOT / ASSESSOR NUMBER	3	STLN	SV-222B-3333-SYM

USE RANG/SECT/TWNS - 222A
 USE PRCL/LOTN - 222B
 USE EXST/PROP - 3333 OR FOUN/THED PROP

SEC. 15 T.25N. R.43 E.W.M. SECTION, TOWNSHIP, RANGE* 2 SSTR SV-NOTE-EXST-SYM

②5 RIGHT OF WAY PLAN PARC. No. 3 SRWN SV-RWNO-PROP-SYM



REFERENCE/GENERAL NOTATION SYMBOLS

SYMBOL EXIST.	DESCRIPTION (ABBR) CALL PROP.	LINE WIDTH EXIST/PROP	BLOCK	LAYER
456-8000	BEFORE YOU DIG ONE CALL NUMBER 48 HR. NOTICE REQUIRED	2	CALL	GN-CALL-PROP-SYM
→	BEGIN-END PROJECT ARROW	2	BEARW	GN-SCOP-PROP-SYM
←	ARROW	2	ARW	GN-222A-3333-SYM
○	INTERSECTION POINT	2	INTP	GN-222B-3333-SYM
○	STORM DRAIN *			USE FEATURE IS BEING DIMENSIONED - 222A USE CRVH - FOR - 222B PT, PC & PI OF HORIZONTAL CURVES USE CRVV - FOR - 222B VERTICAL CURVES USE SINT - FOR - 222B STREET INTERSECTIONS USE EXST/PROP - 3333 OR FOUN/THED

SANITARY/STORM SEWER SYMBOLS

SYMBOL EXIST.	DESCRIPTION (ABBR) PROP.	LINE WIDTH EXIST/PROP	BLOCK	LAYER
o.c.o.	SAN. SEWER CLEAN OUT	(CO) 1/2	SSCO/SSCOP	SS-STCR-3333-SYM
○MH	SAN. SEWER MANHOLE (SSMH)	1/2	SSMH/SSMHP	SS-STCR-3333-SYM
□C.B.	STORM DRAIN CATCH BASIN	(CB) 1/2	SDCB/SDCBP	SD-STCR-3333-SYM
≡≡≡	STORM DRAIN * CULVERT	(CULV) 1/3	SDC/SDCP	SD-GLIN-3333-SYM
⊙MH	STORM DRAIN MANHOLE (SDMH)	1/2	SDMH/SDMHP	SD-STCR-3333-SYM
⊙DW	STORM DRAIN DRYWELL (DW)	1/2	SDDW/SDDWP	SD-STCR-3333-SYM
⊙IN	STORM DRAIN INLET (IN)	1/2	SDIN/SDINP	SD-STCR-3333-SYM
①	MANHOLE NUMBER**	1/2	MHT/MHTP	SS-NOTE-3333-SYM
②	SEPTIC TANK	1	SEPT	SS-STCR-EXST-SYM
③	STORM DRAIN STRUCTURE NOTE NUMBER	3	SDDU	SD-NOTE-PROP-SYM

USE EXST/PROP - 3333

NOTES

- PRINT CCSDOC1A.DOC FOR MORE INFORMATION ON SYMBOL/LINETYPE INSERTION AND USE OF CCS MENU.
 - SYMBOLS AND/OR LINETYPES NOT SHOWN IN THESE STANDARDS SHALL BE PLACED ON A LEGEND ON THE PLAN SHEETS.
 - INSERT MON OR MON-IN-CASE SYMBOLS INTO CENTER OF MONUMENTED SECTION CORNERS.
 - USE WATER VALVE AND FITTING SYMBOLS FOR SEWER FORCEMAIN VALVES AND FITTINGS.
 - LINEWEIGHTS ARE BASED ON DISPOSABLE PLOTTER POINTS. LIQUID INK PLOTTER POINT SIZES: PEN No. 5 IS AVAILABLE IN REFILLABLE PLOTTER POINTS.
 - LINEWEIGHTS ARE BASED ON DISPOSABLE PLOTTER POINTS.
 - LINETYPES ARE LOADED FROM THE CCS.LIN LINETYPE FILE.
 - DITCH LINETYPE FLOW DIRECTION ARROW MUST BE INSERTED AT ENDS OF DASHED LINES AS SHOWN ABOVE (BLOCK NAME IS "FL").
 - COMPOSITE LINETYPES ARE DRAWN USING LISP ROUTINES IN CCS MENU. ALTERNATE METHOD IS TO INSERT BLOCKS ALONG CONTINUOUS LINES AS FOLLOWS:
- | LINETYPE | BLOCK | SPACING (INCHES) |
|-------------------------|-------|------------------|
| EXISTING FENCE | FP | 0.5 |
| PROPOSED FENCE | FPP | 0.5 |
| EXISTING GUARDRAIL | GR | 0.5 |
| PROPOSED GUARDRAIL | GRP | 0.5 |
| EXISTING RAILROAD | RR | 0.5 |
| EXISTING RETAINING WALL | EW | 0.25 |
| PROPOSED RETAINING WALL | PW | 0.25 |
| DEPRESSION CONTOUR | DEP | 0.1 |
| LIMITED ACCESS R.O.W. | LA | 0.1 |

* - TO SCALE IF POSSIBLE
 ** - COUNTY MANHOLE NUMBER IS NEEDED ON ALL PLANS SUBMITTED. THE NUMBER REPRESENTS THE LOCATION IN NUMBER OF "CITY" BLOCKS EAST/WEST OF DIVISION AND NORTH/SOUTH OF SPRAGUE.

NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. 99260 (509) 477-3600

APPROVED: COUNTY ENGINEER
 DATE: 4/24/03



FILE NO. STD17-A,B,C,D,DWG
 SHEET A-17C
 DRAFTING STANDARDS
 PLOT DATE: 03-11-96

WATER SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION (ABBR)	LINE BLOCK WIDTH EXIST/PROP	LAYER
		CAP/PLUG	WCAP	WA-FITT-3333-SYM
		COUPLING (CPL)	WC0UP/WC0UPP	WA-FITT-3333-SYM
		GUARD POST (GP)	WGP/WGPP	WA-FITT-3333-SYM
		REDUCER (RED)	WRED/WREDP	WA-FITT-3333-SYM
		THRUST BLOCK (TB)	WTB/WTBP	WA-FITT-3333-SYM
		SPRINKLER HEAD (SP)	WSPR/WSPRP	WA-FITT-3333-SYM
		WATER METER (WM)	WMET/WMETP	WA-METR-3333-SYM
FIRE HYDRANTS:				
		2-NOZZLE (FH)	WFH2/WFH2P	WA-FHYD-3333-SYM
		3-NOZZLE (FH)	WFH3/WFH3P	WA-FHYD-3333-SYM
JOINTS:				
		FLANGE/BLIND FL (F1)/(BL FL)	WFL/WFLP	WA-FITT-3333-SYM
		MECHANICAL (MJ)	WMJ/WMJP	WA-FITT-3333-SYM
		PUSH-ON/MJB	WHUB/WHUBP	WA-FITT-3333-SYM
		THREAD (THD)	WTH/WTHP	WA-FITT-3333-SYM
VALVES:				
		AIR RELIEF (AIR)	WARV/WARVP	WA-VALV-3333-SYM
		BLOW-OFF (BO)	WBOV/WBOVP	WA-VALV-3333-SYM
		BUTTERFLY (BF)	WBFV/WBFVP	WA-VALV-3333-SYM
		CHECK (CK)	WCKV/WCKVP	WA-VALV-3333-SYM
		GATE/GENERAL (GW)	WGV/WGVVP	WA-VALV-3333-SYM
		PLUG VALVE (PV)	WPV/WPVVP	WA-VALV-3333-SYM
		ADAPTER, FL. x M.J.	WAFM/SAME	WA-FITT-3333-SYM
BENDS:				
		90 DEGREE BEND, FL.	WB0F/SAME	WA-FITT-3333-SYM
		45 DEGREE BEND, FL.	W45F/SAME	WA-FITT-3333-SYM
		22.5 DEGREE BEND, FL.	W22F/SAME	WA-FITT-3333-SYM
		11.25 DEGREE BEND, FL.	W11F/SAME	WA-FITT-3333-SYM
		90 DEGREE BEND, M.J.	WB0M/SAME	WA-FITT-3333-SYM
		45 DEGREE BEND, M.J.	W45M/SAME	WA-FITT-3333-SYM
		22.5 DEGREE BEND, M.J.	W22M/SAME	WA-FITT-3333-SYM
		11.25 DEGREE BEND, M.J.	W11M/SAME	WA-FITT-3333-SYM
		VERTICAL BEND, FL.	WVTF/SAME	WA-FITT-3333-SYM
		VERTICAL BEND, M.J.	WVTM/SAME	WA-FITT-3333-SYM
REDUCERS:				
		REDUCER, FL.	WRF/WRFP	WA-FITT-3333-SYM
		REDUCER, M.J.	WRM/WRMP	WA-FITT-3333-SYM
		REDUCER, M.J. x FL.	WRMF/WRMFP	WA-FITT-3333-SYM
		REDUCER, M.J. x P.E.	WRMB/WRMBP	WA-FITT-3333-SYM
		REDUCER, P.E. x M.J./FL. x M.J.	WRBMP/WRBMP	WA-FITT-3333-SYM
TEES:				
		TAPPING TEE & VALVE, FL. x M.J.	WTTM/WTTMP	WA-VALV-3333-SYM
		TEE, FL.	WTF/SAME	WA-FITT-3333-SYM
		TEE, M.J.	WTM/SAME	WA-FITT-3333-SYM
		TEE, M.J. x FL.	WTMF/SAME	WA-FITT-3333-SYM
VALVES:				
		BUTTERFLY VALVE, FL. x M.J.	WBVFM/WBVFMP	WA-VALV-3333-SYM
		BUTTERFLY VALVE, M.J.	WBVM/WBVMVP	WA-VALV-3333-SYM
		GATE VALVE, FL. x M.J.	WGVFM/WGVFMP	WA-VALV-3333-SYM
		GATE VALVE, M.J.	WGVM/WGVMP	WA-VALV-3333-SYM

USE EXST/PROP - 3333

GAS/POWER/TELEPHONE/TV SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION (ABBR)	LINE BLOCK WIDTH EXIST/PROP	LAYER
		GAS METER (GM)	GME/GMETP	GS-METR-3333-SYM
		GAS VALVE (GV)	GV/GVP	GS-VALV-3333-SYM
		PAD MOUNTED TRANSFORMER (P TRAN)	PTRAN/PTRANP	PO-STCR-3333-SYM
		POWER VAULT (POW V)	PV/PVP	PO-STCR-3333-SYM
		TRANSMISSION TOWER (TRANS TWR)	PTWR/PTWRP	PO-STCR-EXST-SYM
		UTILITY POLE (PP, TP)	UP/UPP	11-STCR-3333-SYM
		UTILITY POLE ANCHOR (UPA)	UPA/UPAP	11-STCR-3333-SYM
		TELEPHONE RISER (TEL R)	TELR/TELRP	TL-STCR-3333-SYM
		TELEPHONE VAULT (TEL V)	TV/TVP	TL-STCR-3333-SYM
		MISCELLANEOUS UTILITY BOX (UB)	UBX/UBXP	11-STCR-3333-SYM
		MISCELLANEOUS UTILITY MANHOLE (UM)	UMH/UMHP	11-STCR-3333-SYM
		UNDERGROUND WARN. SIGN (UW)	UW*	11-SIGN-3333-SYM
		TELEPHONE BOOTH (TLB)	TLB/TLBP	TL-STCR-3333-SYM

USE PO/TL/TV - 11

USE EXST/PROP - 3333

* - CHANGE ATTRIBUTE TEXT STRING TO INDICATE UTILITY TYPE: GAS, TEL, FIBR., ETC.

SURFACE FEATURES/LANDSCAPING

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION	LINE BLOCK WIDTH EXIST/PROP	LAYER
		BUS STOP	1/3 SFBS/SFBSP	SF-BUSS-3333-SYM
		EMBANKMENT	1/2 SFB/SFBP	SF-EMBT-3333-SYM
		MAIL BOX	1/2 SFMB/SFMBP	SF-MAIL-3333-SYM
		RIP RAP	1/3 SFRR/SFRRP	SF-RIPR-3333-SYM
		ROCKERY	1/2 SFR/SFRP	SF-ROCK-3333-SYM
		SHRUB	1/3 SFS/SFSP	SF-VEGE-3333-SYM
		SIGN	1/2 SFSH/SFSNP	SF-SIGN-3333-SYM
		TREE (Conifer)	1/3 SFC/SFCP	SF-VEGE-3333-SYM
		TREE (Deciduous)	1/3 SFD/SFDP	SF-VEGE-3333-SYM
		YARD LIGHT	1/2 SFL/SFLP	SF-LITE-3333-SYM
		PARKING METER	1/1 SFPM/SFPMP	SF-STCR-3333-SYM

USE EXST/PROP - 3333

NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED:
COUNTY ENGINEER
DATE: 4/24/03

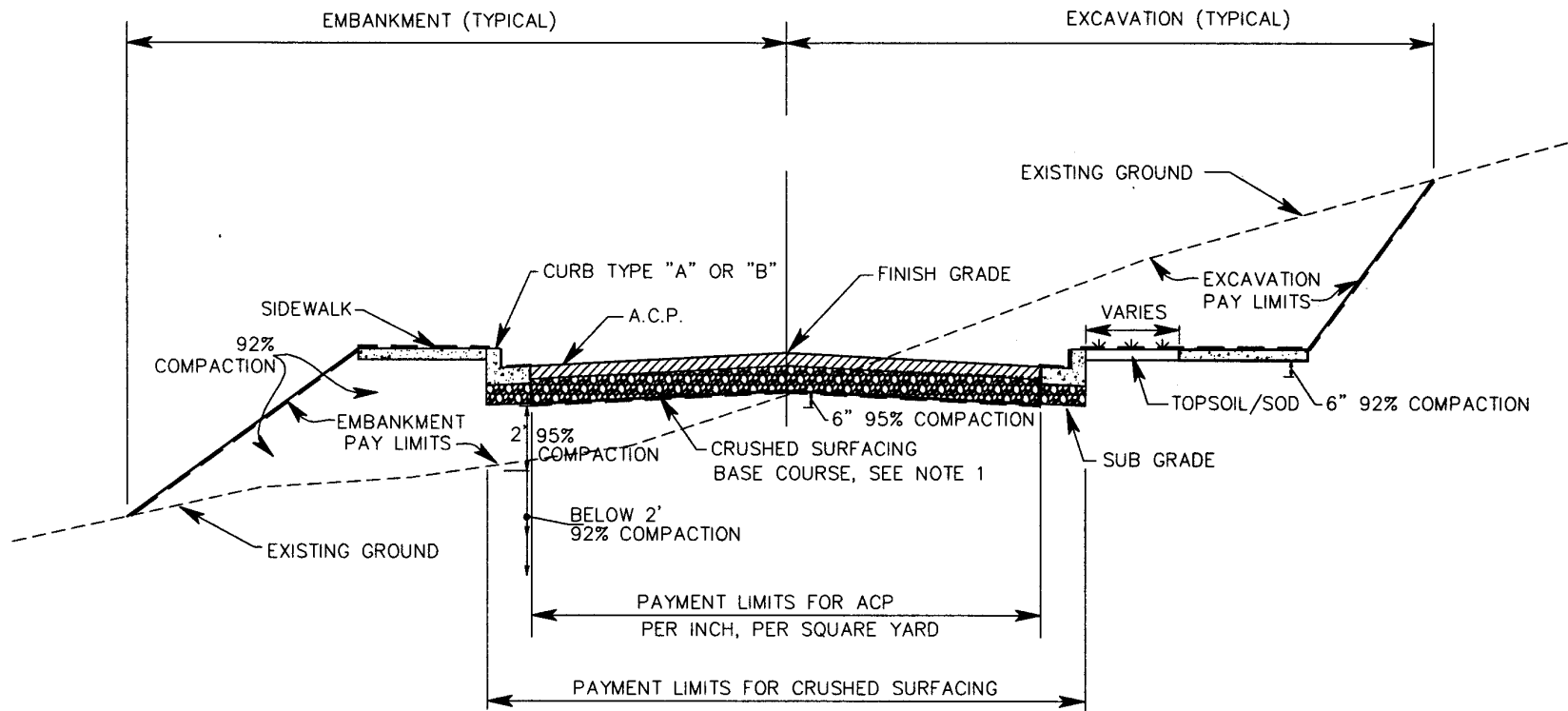


STANDARD
DRAFTING STANDARDS

SHEET
A-17D

FILE No. STD17-A,B,C,D.DWG

PLOT DATE: 03-11-96



STANDARD BID ITEMS:

- ASPHALT CONCRETE PAVEMENT CL. ___ - ___' DEPTH, PER SQ. YD.
- CRUSHED SURFACING BASE COURSE - PER CUBIC YD.
- CRUSHED SURFACING TOP COURSE - PER CUBIC YD.
- CEMENT CONCRETE SIDEWALK, PER SQ. YD.
- CEMENT CONCRETE CURB TYPE ___ , PER L.F.
- ROADWAY EXCAVATION INCL. HAUL , PER C.Y.
- EMBANKMENT COMPACTION , PER C.Y.
- TOPSOIL TYPE A, PER C.Y.
- SOD INSTALLATION , PER SQ. YD.

GENERAL NOTES

1. IF MEASURED BY C.Y., MEASUREMENT WILL BE COMPACTED IN PLACE AS PER TYPICAL SECTION.

1	3/03	BH	BJG	GSN	REVISED PAY LIMITS FOR CSBC ADDED COMPACTION
NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED
COUNTY ENGINEER
DATE: 4/24/03
EXPIRES 3/31/2004

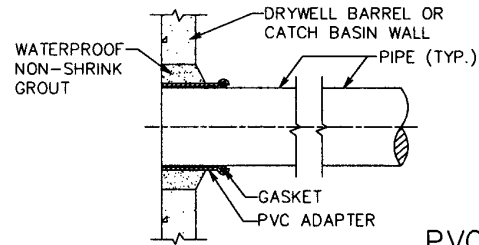


STANDARD
ROADWAY CONSTRUCTION PAYMENT LIMITS

STD-A18.DWG
SHEET
A-18

GENERAL NOTES

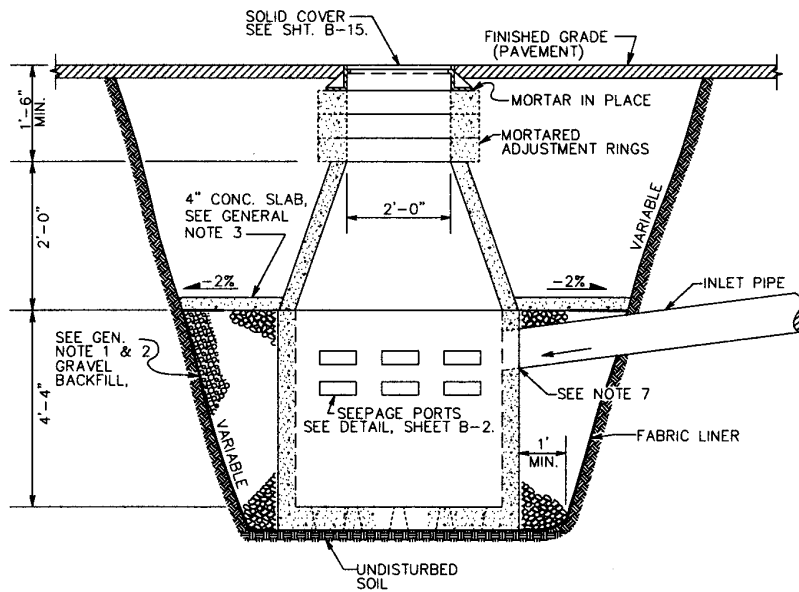
- △ 1. GRAVEL BACKFILL QUANTITY FOR DRYWELLS :
TYPE "A" - 30 CUBIC YARDS MINIMUM / 42 TONS.
TYPE "B" - 40 CUBIC YARDS MINIMUM / 56 TONS.
OR AS SPECIFIED ON ROAD PLANS.
- △ 2. SPECIAL BACKFILL MATERIAL FOR DRYWELLS SHALL CONSIST OF WASHED GRAVEL GRADED FROM 1" TO 3" WITH A MAXIMUM OF 5% PASSING THE U.S. No. 200 SCREEN, AS MEASURED BY WEIGHT. A MAXIMUM OF 10% OF THE AGGREGATE, AS MEASURED BY WEIGHT, MAY BE CRUSHED OR FRACTURED ROCK. THE REMAINING 90% SHALL BE NATURALLY OCCURRING UNFRACTURED MATERIAL.
3. CONCRETE SLAB SHALL BE CLASS 3000 CONCRETE.
4. SEE STANDARD PLANS SHEETS B-2 AND B-3 FOR PRECAST CONCRETE DETAILS.
5. ADJUSTMENT BLOCKS SHALL BE CEMENT CONCRETE.
6. PRECAST RISER MAY BE USED IN COMBINATION WITH OR IN LIEU OF ADJUSTING BLOCKS.
7. WHEN PVC PIPE IS USED A PVC ADAPTER SHALL BE INSTALLED.
8. PIPES SHALL BE GROUTED INTO DRYWELLS WITH NON-SHRINK GROUT.



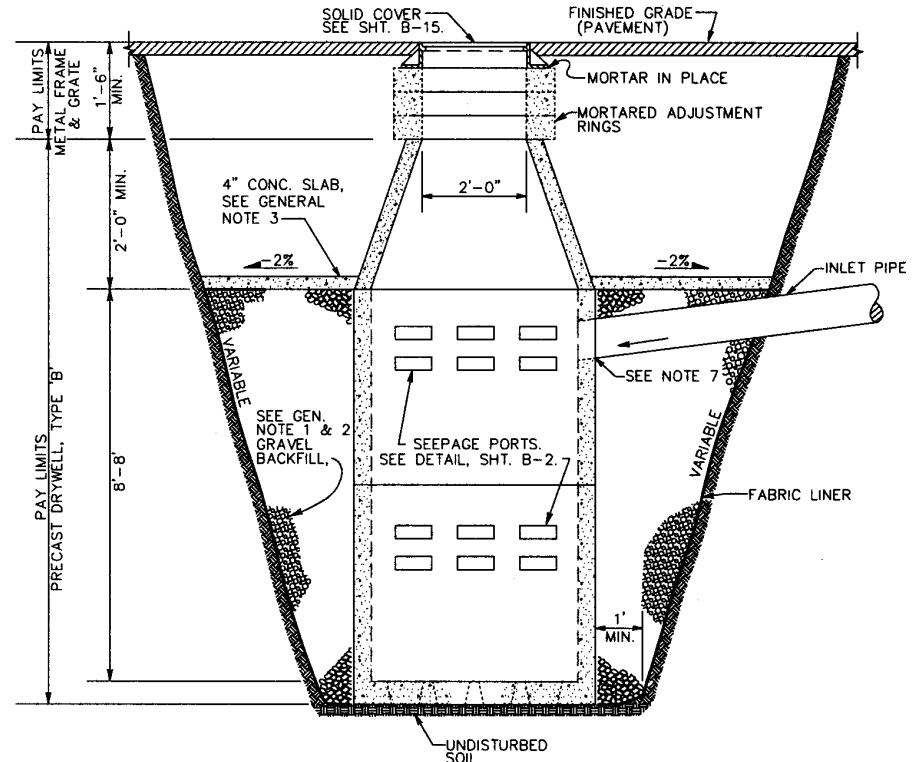
NOTE:

PVC PIPE ADAPTERS AND GASKET MAY VARY IN SHAPE AND SIZE AS ILLUSTRATED IN DETAIL BY ACCEPTABLE ALTERNATE IN ACCORDANCE WITH A.S.T.M.-C-428.

PVC ADAPTER (SAND COLLAR)



DRYWELL - TYPE 'A'

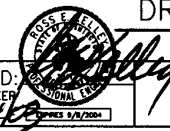


DRYWELL - TYPE 'B'

3	110/02	EP	BJG	GSN	REVISED NOTE # 8 & FABRIC LOCATION	REVISED
△	9/93	JR	GSN	RCH	SPECIAL BACKFILL NOTE ADDED	
△	15/93	JR	GSN	RCH	CHANGED GRAVEL BACKFILL QUANTITIES	
NO.	DATE	BY	CHKD.	APPR.	REVISION	

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED:
COUNTY ENGINEER
DATE: 4/21/03



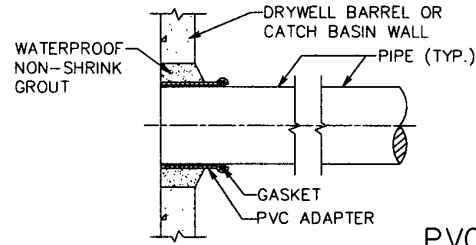
STANDARD
PRECAST DRYWELLS

STD-B.DWG
SHEET
B-1

PLOT DATE: 04/23/03

GENERAL NOTES

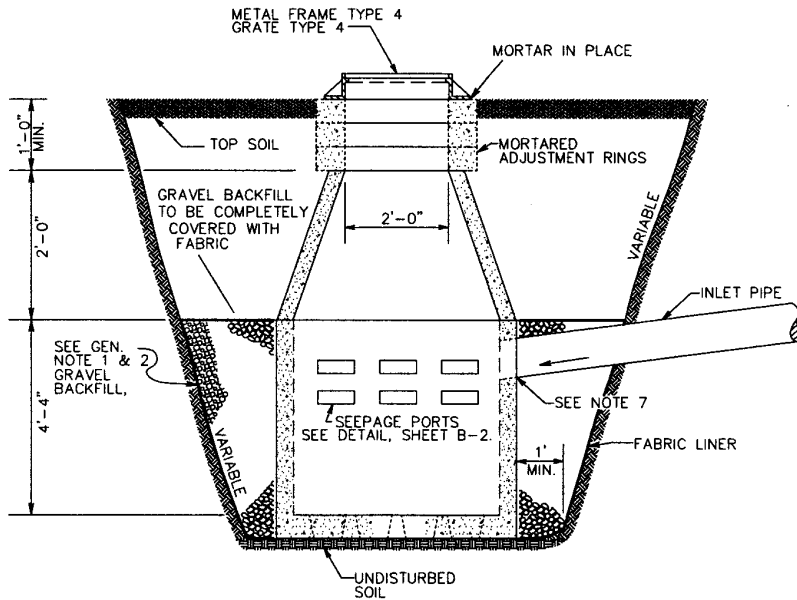
- GRAVEL BACKFILL QUANTITY FOR DRYWELLS :
TYPE "A" - 30 CUBIC YARDS MINIMUM / 42 TONS.
TYPE "B" - 40 CUBIC YARDS MINIMUM / 56 TONS.
OR AS SPECIFIED ON ROAD PLANS.
- SPECIAL BACKFILL MATERIAL FOR DRYWELLS SHALL CONSIST OF WASHED GRAVEL GRADED FROM 1" TO 3" WITH A MAXIMUM OF 5% PASSING THE U.S. No. 200 SCREEN, AS MEASURED BY WEIGHT. A MAXIMUM OF 10% OF THE AGGREGATE, AS MEASURED BY WEIGHT, MAY BE CRUSHED OR FRACTURED ROCK. THE REMAINING 90% SHALL BE NATURALLY OCCURRING UNFRACTURED MATERIAL.
- FABRIC SHALL BE MODERATE SURVIVABILITY AS OUTLINED IN STANDARD SPECIFICATIONS 9-33
- SEE STANDARD PLANS SHEETS B-2 AND B-3 FOR PRECAST CONCRETE DETAILS.
- ADJUSTMENT BLOCKS SHALL BE CEMENT CONCRETE.
- PRECAST RISER MAY BE USED IN COMBINATION WITH OR IN LIEU OF ADJUSTING BLOCKS.
- WHEN PVC PIPE IS USED A PVC ADAPTER SHALL BE INSTALLED.
- PIPES SHALL BE GROUTED INTO DRYWELLS WITH NON-SHRINK GROUT.



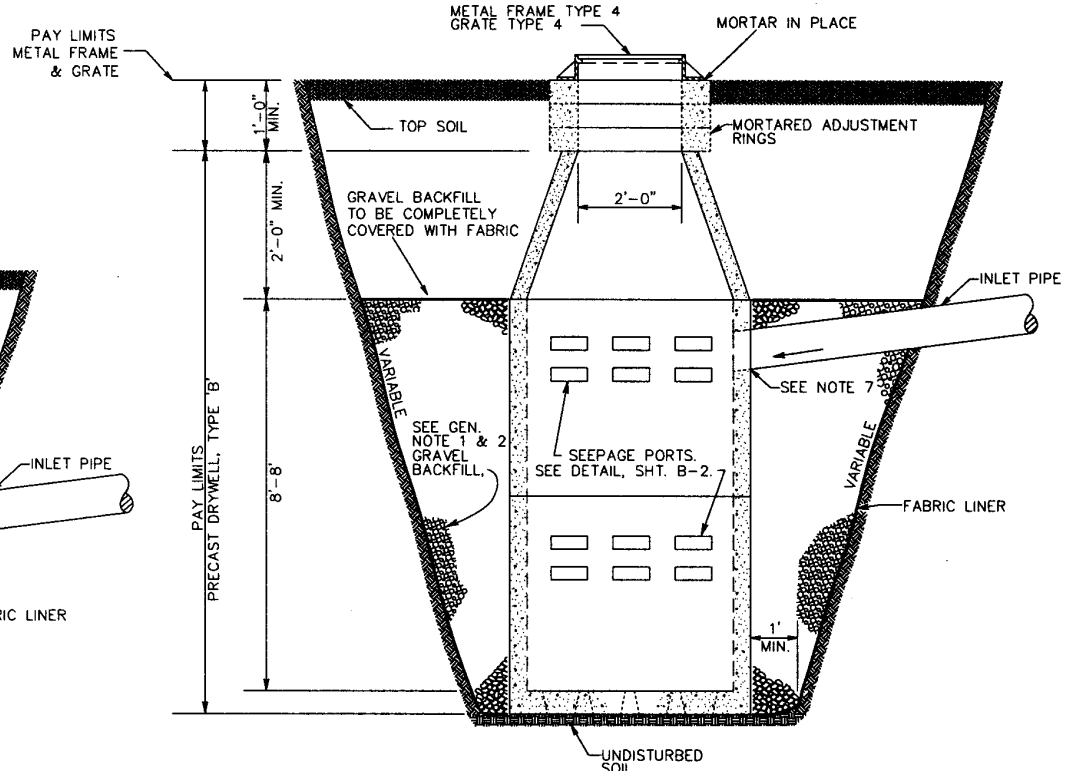
NOTE:

PVC PIPE ADAPTERS AND GASKET MAY VARY IN SHAPE AND SIZE AS ILLUSTRATED IN DETAIL BY ACCEPTABLE ALTERNATE IN ACCORDANCE WITH A.S.T.M.-C-428.

PVC ADAPTER (SAND COLLAR)



DRYWELL - TYPE 'A' SWALE



DRYWELL - TYPE 'B' SWALE

NO.	DATE	BY	CHKD.	APPR.	REVISION
1	10/02/04	FP	BJG	GSN	REVISED NOTE # 8 & FABRIC LOCATION

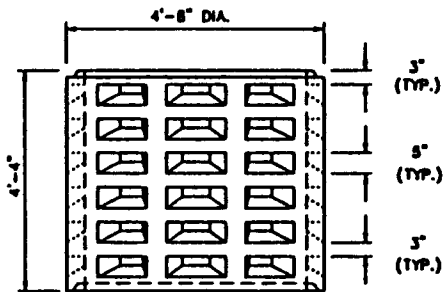
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED
COUNTY ENGINEER
DATE: 10/2/04

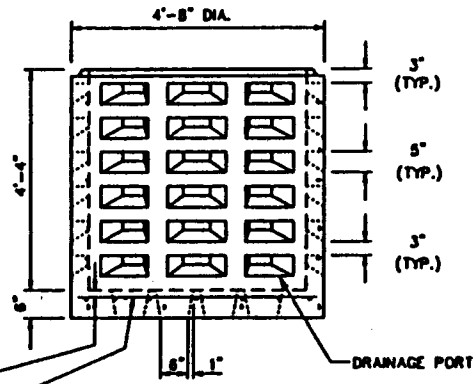


STANDARD
PRECAST DRYWELLS PLACED IN SWALES

STD-B-A-DRW
SHEET
B-1a
PLOT DATE: 04/23/05



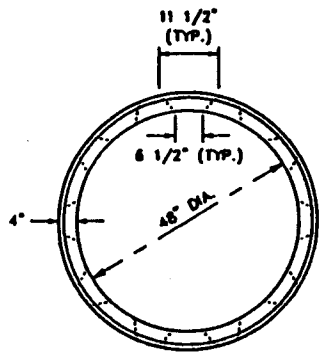
DRYWELL BARREL
(ELEVATION)



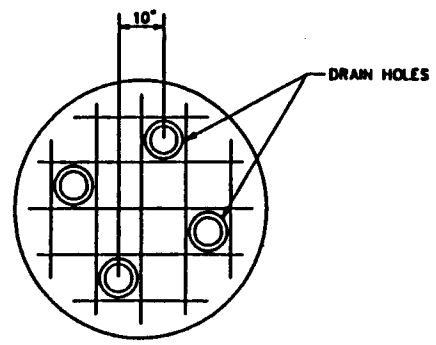
DRYWELL BASE
(ELEVATION)

GENERAL NOTES

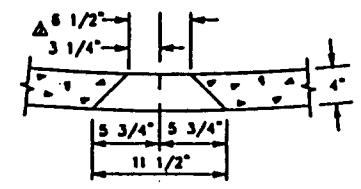
1. CONCRETE DRYWELL ITEMS SHALL BE CONSTRUCTED WITH THE BARRELS AND CONES REINFORCED WITH 0.12 SQ. IN. STEEL GRADE 40, PER LINEAL FOOT OF WALL.
2. TOLERANCE OF DIMENSIONS FOR DRAINAGE PORTS SHALL BE $\pm 1/2"$.
3. EACH BARREL SECTION SHALL A MINIMUM OF 8 ROWS OF DRAINAGE PORTS VERTICALLY AND A MINIMUM OF 10 DRAINAGE PORTS AROUND THE CIRCUMFERENCE OF THE BARREL.



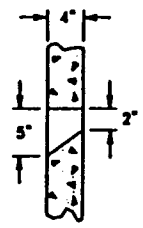
DRYWELL BARREL
(PLAN)



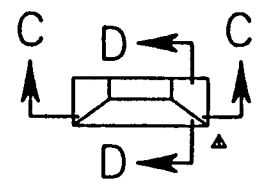
BASE DRAIN HOLE DETAIL
(PLAN)



SECTION C-C



SECTION D-D



DRAINAGE PORT

A	8-31	B	CSN	R	CH
A	8-31	B	CSW	R	CH
NO. DATE BY CKD J.A.P.P.R.					

DRAINAGE PORT DIMENSION UPDATE
 DRAINAGE PORT DETAIL ORIENTATION
 REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA 99208 436-3800

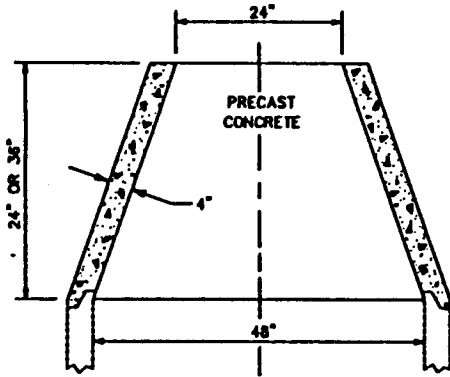
APPROVED:
 COUNTY ENGINEER
 DATE: 4-22-82



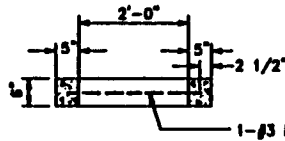
STANDARD
 PRECAST DRYWELL DETAILS

GENERAL NOTES

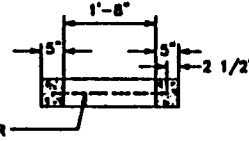
1. CONCRETE ITEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.



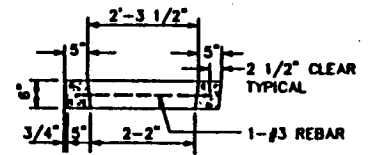
CONCENTRIC CONE



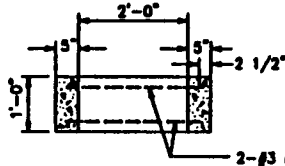
SECTION E-E



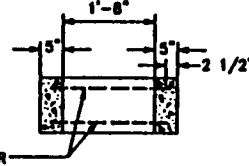
SECTION F-F



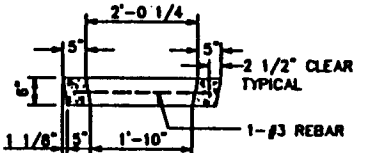
SECTION C-C



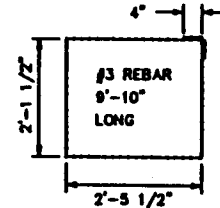
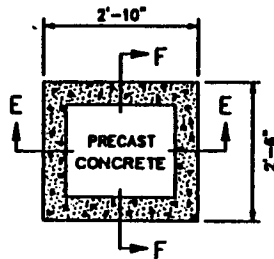
SECTION E-E



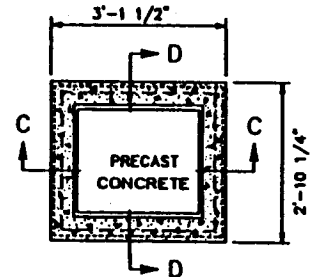
SECTION F-F



SECTION D-D



BENDING



RISER, TYPE 1

RISER, TYPE 2

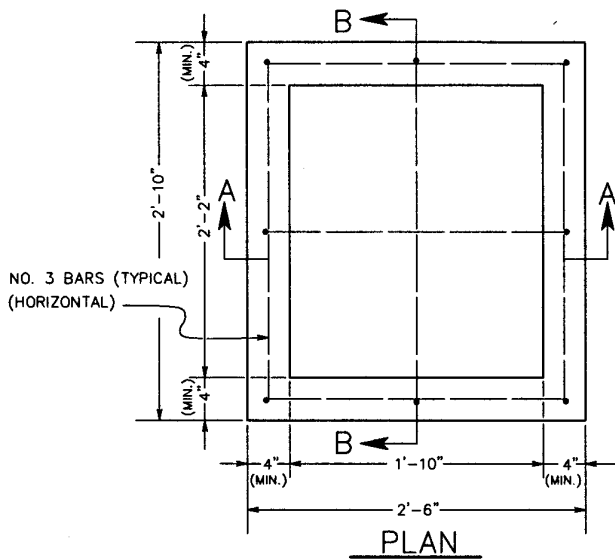
1	4/98	CP	RCM	JSH	ERASED SECTION LABEL ON RISER, TYPE 1
NO.	DATE	BY	CRD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99206 456-3600

APPROVED
COUNTY ENGINEER
DATE: 5/1/98

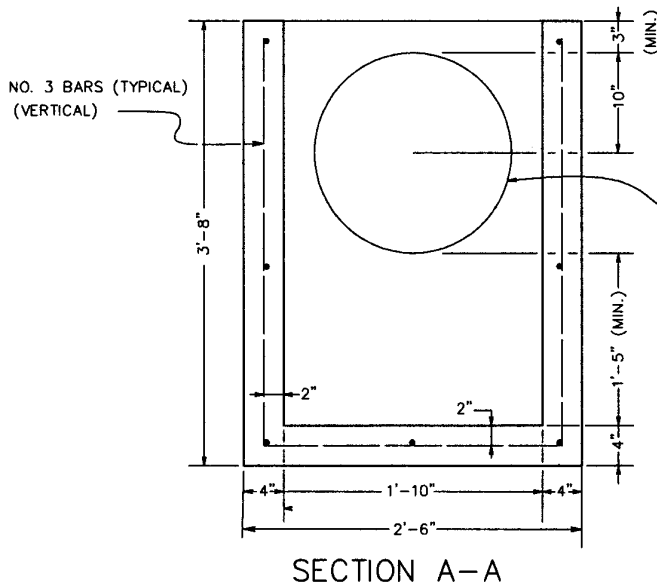


STANDARD
PRECAST DRYWELL & INLET DETAILS

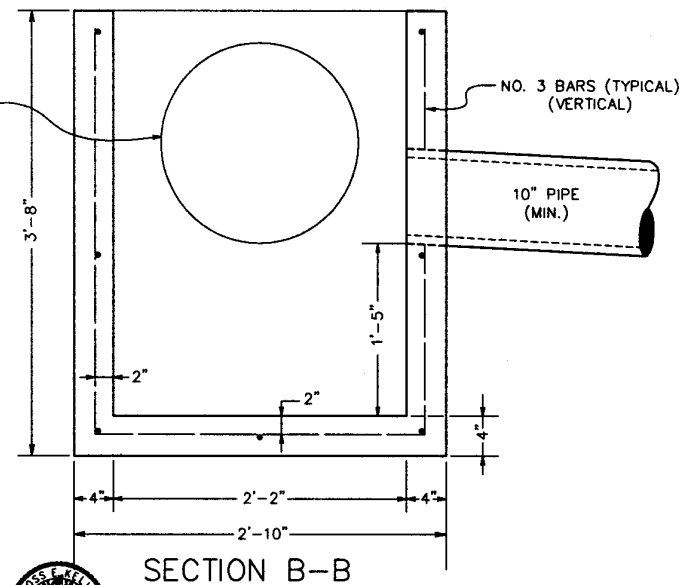


GENERAL NOTES

1. CATCH BASIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. 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.
3. PRECAST BASINS SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUTS SHALL BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 20". KNOCKOUTS SHALL BE ROUND. PIPE SHALL BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CATCH BASIN WALL THICKNESS.
6. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
7. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.
8. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT.
9. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
10. WHEN PVC PIPE IS USED, A PVC ADAPTER SHALL BE INSTALLED. SEE DETAIL ON SHT B-1.
11. PVC ADAPTER SHALL BE GROUTED INTO CATCH BASIN, WITH WATERPROOF NON-SHRINK GROUT.



KNOCKOUT



4	10/04	P.B.J.G.	GSN	REVISED NOTES # 10 & 11
3	3/98	C.P.I.K.G.M.	J.S.H.	10" DIMENSION FOR RADIUS OF OPENING
2	1/93	J.B.T.G.L.W.	R.C.H.	CHANGED TITLE TO CATCH BASIN TYPE 1
1	5/93	J.B.T.G.L.W.	R.C.H.	MAXIMUM DEPTH NOTE # 6
NO. DATE		BY: CKD.		APP: R.
REVISION				

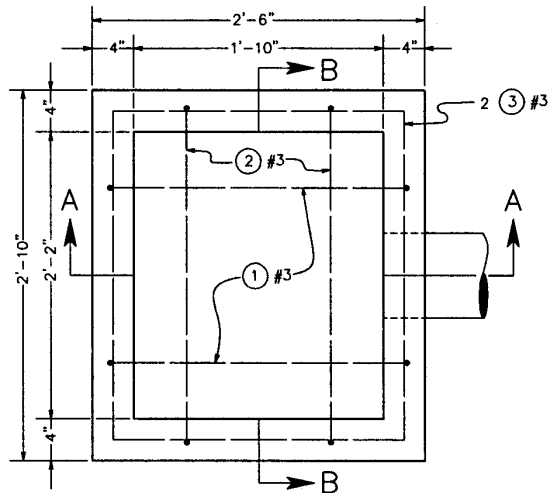
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED:
COUNTY ENGINEER
DATE: 11/1/03
CIPED: 9/3/2004

STANDARD
CATCH BASIN TYPE 1

STD-34.DWG
SHEET
B-4

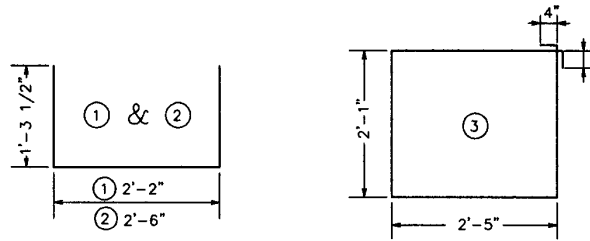
PLAT DATE 04/25/05



PLAN

MARK	LOCATION	NO.	SIZE	LENGTH
(1)	BOTTOM SLAB & SIDEWALLS	2	3	4'-9"
(2)	BOTTOM SLAB & SIDEWALLS	2	3	5'-1"
(3)	SIDEWALLS	2	3	9'-8"

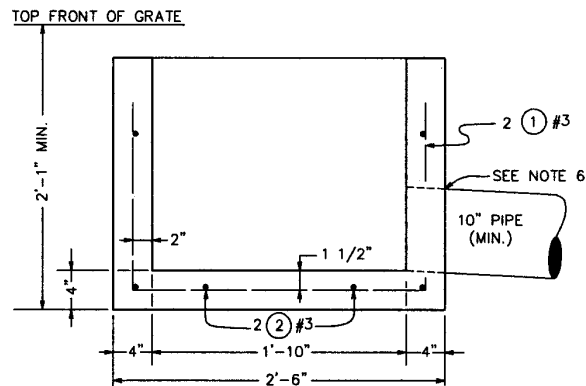
BAR LIST



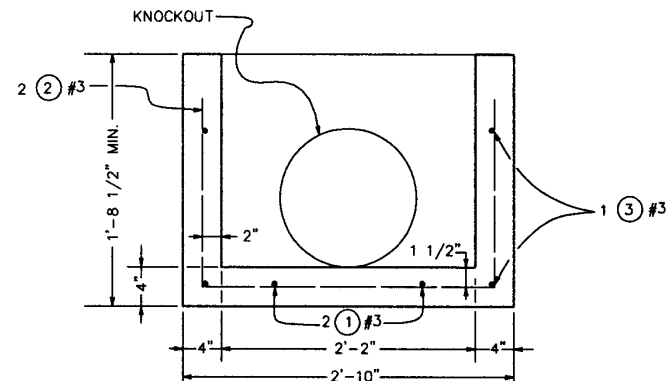
BENDING DIAGRAM

GENERAL NOTES

1. CONCRETE INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. REINFORCING STEEL SHALL BE GRADE 40 OR GRADE 60.
3. CONCRETE INLETS SHALL BE SET ON A COMPACTED OR UNDISTURBED LEVEL FOUNDATION.
4. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF .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.
5. WHEN PVC PIPE IS USED, A SAND COLLAR SHALL BE INSTALLED. SEE DETAIL SHT. B-1.
6. INLET PIPE SHALL BE GROUTED INTO CONCRETE INLET, WITH WATERPROOF NON-SHRINK GROUT.
7. KNOCKOUTS SHALL BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 17". KNOCKOUTS SHALL BE ROUND. PIPE SHALL BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS.



SECTION A-A



SECTION B-B

NO.	DATE	BY	CHKD.	APPR.	REVISION
3	13/03	BH			REVISED SECTION A-A
2	3/03	BH			REVISED SECTION B-B
1	12/03	BH	BGC	GSN	REVISED NOTES 5 & 6 & 7

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

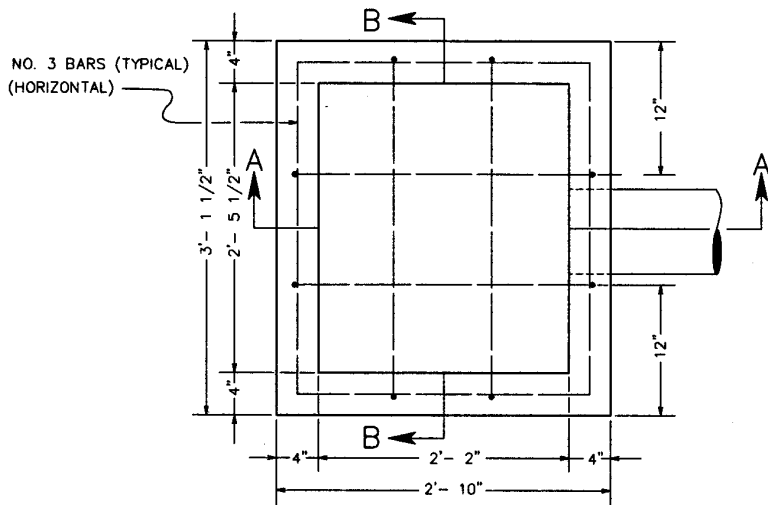
APPROVED: [Signature]
COUNTY ENGINEER
DATE: 4/2/03

STANDARD
CONCRETE INLET TYPE 1

97D-86.DWG

SHEET
B-5

PLAT DATE 04/23/03



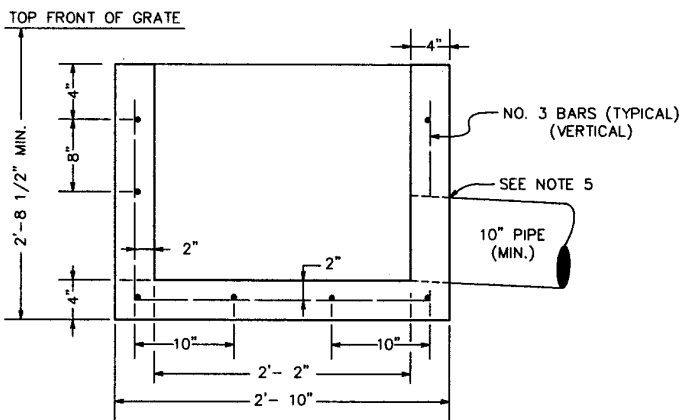
PLAN

TABLE

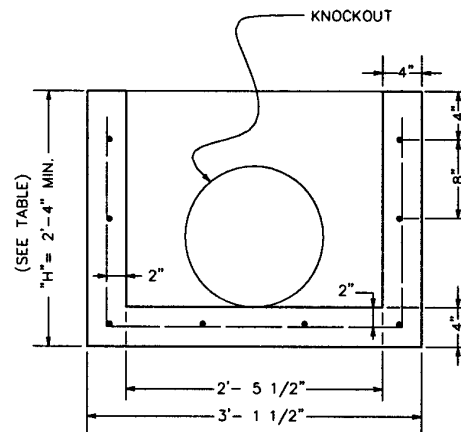
PIPE DIAMETER	"H"
10"	2'- 4"
12"	2'- 5 1/2"
15"	2'- 9"
18"	3'- 0"

GENERAL NOTES

1. CONCRETE INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. CONCRETE INLETS SHALL BE SET ON A LEVEL, COMPACTED FOUNDATION.
3. 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.
4. WHEN PVC PIPE IS USED, A SAND COLLAR SHALL BE INSTALLED. SEE DETAIL ON SHT B-1
5. INLET PIPE SHALL BE GROUTED INTO CONCRETE INLET, WITH WATERPROOF NON-SHRINK GROUT.



SECTION A-A



SECTION B-B

2	3/03	BH			REVISED SECTION A-A & TABLE
1	3/03	BH	BJC	GSN	REVISED NOTES
NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

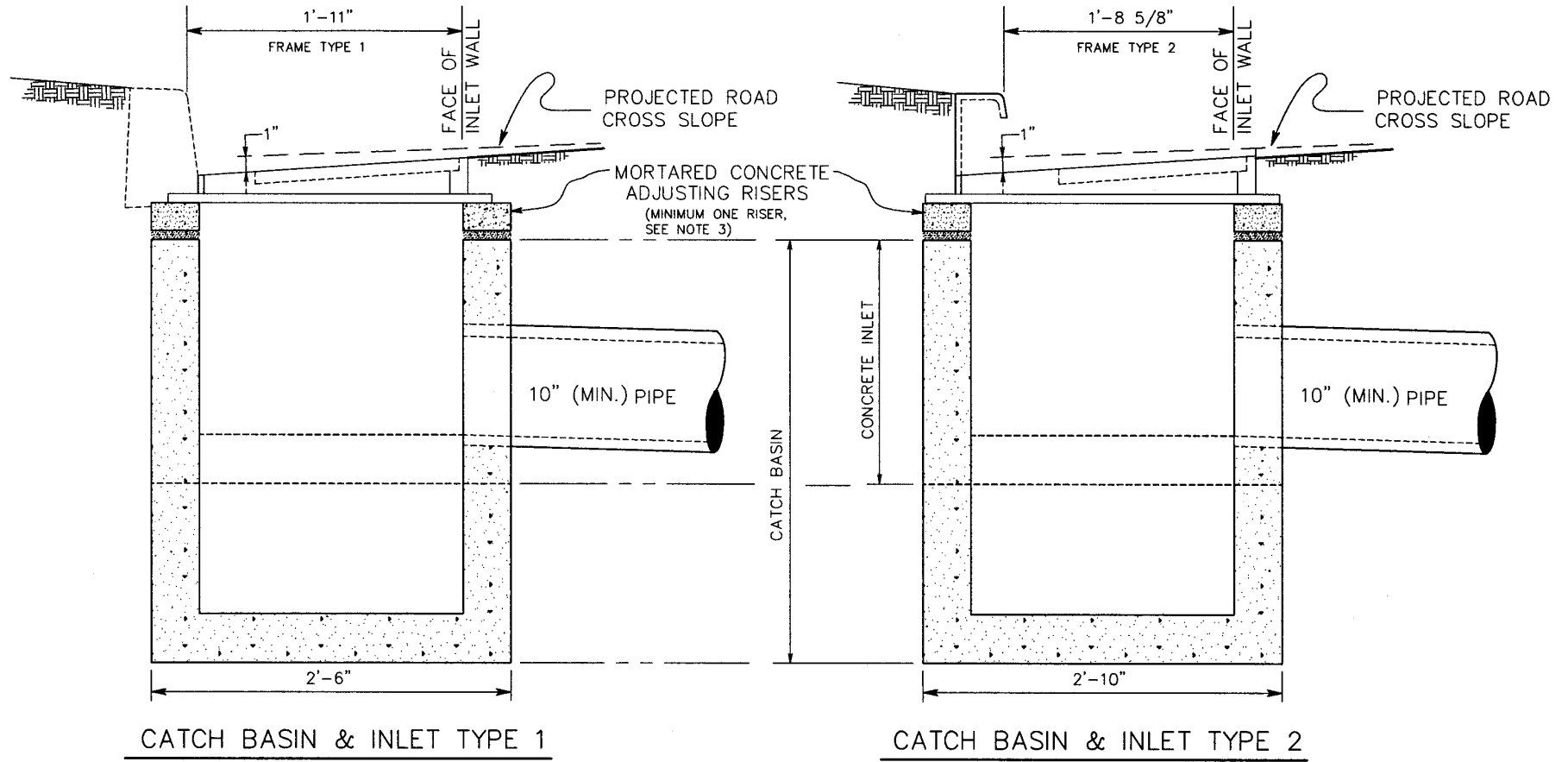
APPROVED: 
COUNTY ENGINEER
DATE: 4/24/03

STANDARD
CONCRETE INLET TYPE 2

STD-38.DWG
SHEET
B-6

GENERAL NOTES

1. THE TOP OF GRATE SHALL BE INSTALLED 1" LOWER THAN THE PROJECTED GUTTER GRADE. (ALSO SEE STD. PLAN B-18 GUTTER DEPRESSION DETAIL)
2. THE PRECAST CONCRETE INLET SHALL BE PLACED ON THE SAME GRADE AS THE CURB.
3. RISER TYPE 2 TO BE USED WITH CATCH BASIN.



CATCH BASIN & INLET TYPE 1

CATCH BASIN & INLET TYPE 2

1.	3/03	BH	BJG	GSN	REVISED NOTE NO. 1 & ADDED DIMENSIONS
					REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED:
COUNTY ENGINEER
DATE: 4/24/03



STANDARD
CATCH BASIN & INLET INSTALLATION

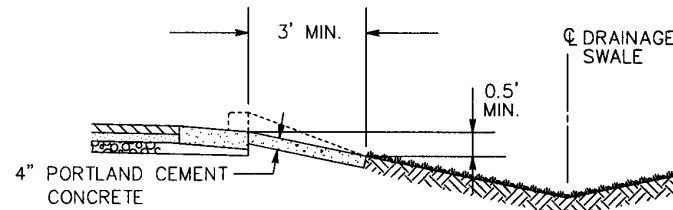
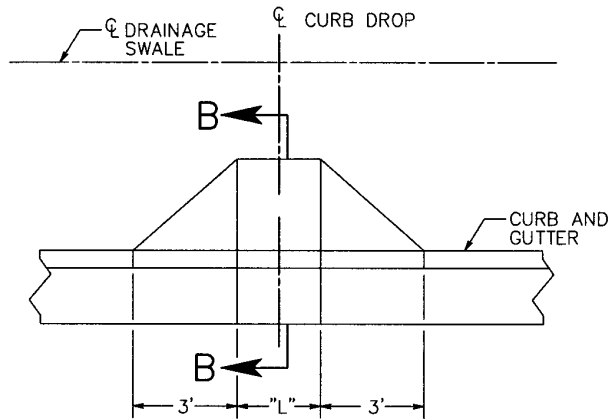
STD-87.DWG

SHEET
B-7

PLOT DATE: 04/23/03

GENERAL NOTES

1. CURB INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. TOP SURFACE TO BE BROOM FINISHED.
3. ALL EXTERNAL EDGES NOT LABELED SHALL BE TROWELLED WITH 1/4" RADIUS EDGER.
4. DIMENSION "L" SHALL BE SHOWN ON THE PLANS.



SECTION B-B

CURB INLET TYPE 1

NO.	DATE	BY	CHKD.	APPR.	REVISION
2	3/03	BH	BJG	IGSN	ADD DIM. TO SEC B-B
1	3/98	CP	IKGM	IJSH	ADD LINE FROM CURB TO SWALE

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99260 (509) 477-3600

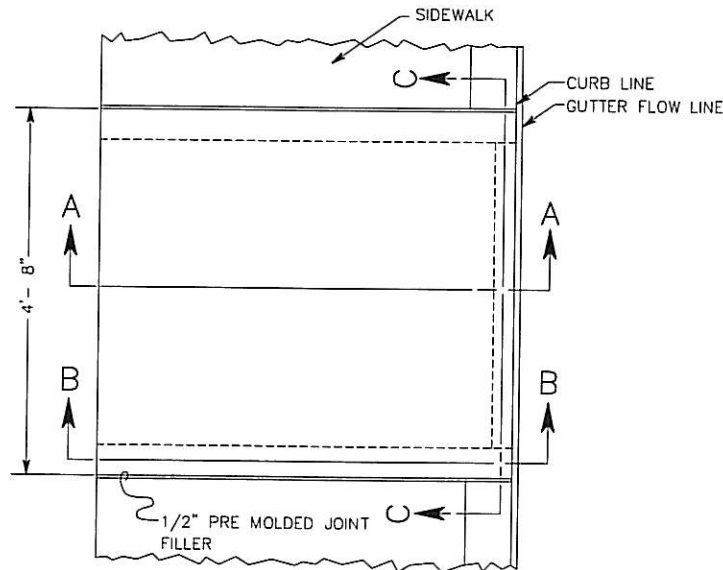
APPROVED
COUNTY ENGINEER
DATE: 4/24/03
EXPIRES 1/2/2004



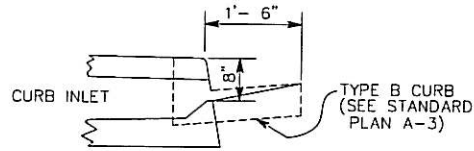
STANDARD
CURB INLET TYPE 1

STD-B13.DWG
SHEET
B-8

PLOT DATE: 04/25/03



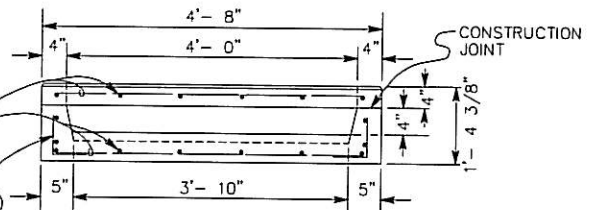
PLAN



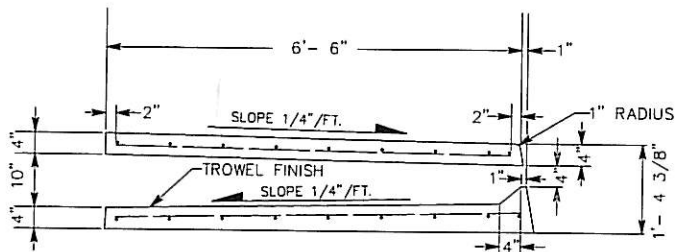
GENERAL NOTES

1. CURB INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. TOP SURFACE TO BE BROOM FINISHED.
3. ALL EXTERNAL EDGES NOT LABELED SHALL BE TROWELLED WITH 1/4" RADIUS EDGER.

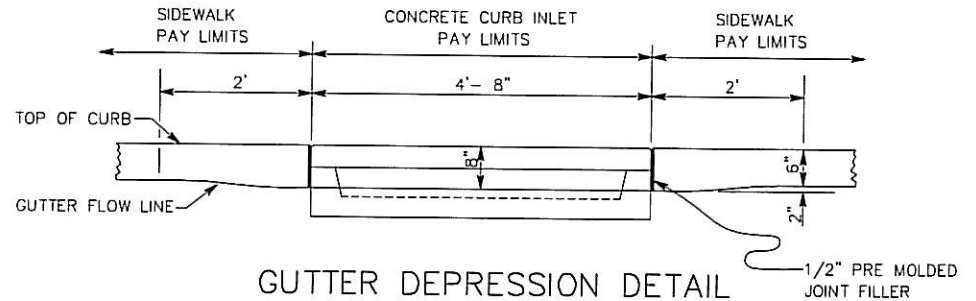
#4 REBAR @ 10" $\%$ E.W.
TYPICAL-TOP & BOTTOM
SEE SECTION B-B
TYPICAL - BOTH SIDES



SECTION C-C



SECTION A-A

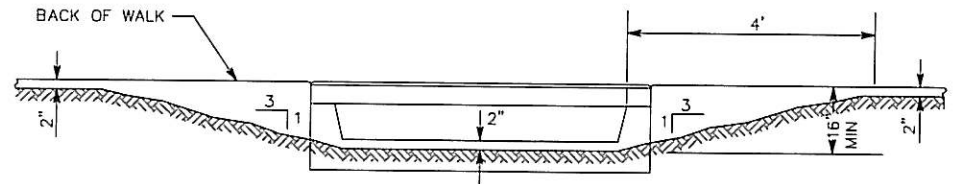


GUTTER DEPRESSION DETAIL



SECTION B-B
REBAR PLACEMENT

CURB INLET



OUTLET SWALE GRADING DETAIL

NO.	DATE	BY	CRD.	APPR.	REVISION
5	8/07	FP	GW	TS	DIMENSION REVISIONS
4	10/02	FP	BJG	GSN	TEXT REVISIONS
3	3/98	CP	KGM	JSH	AMEND TEXT BACK OF WALK
2	3/03	BH	KGM	JSH	DIMENSION MINIMUM DEPTH OF SWALE/WDTH OF SLOPE

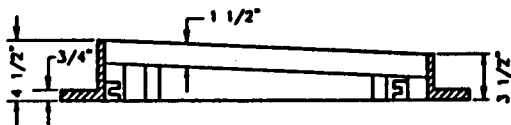
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED: COUNTY ENGINEER
DATE: 3-5-08

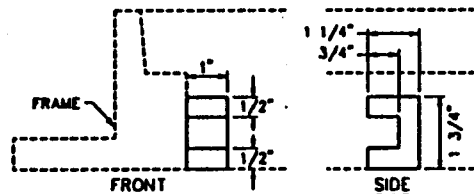


STANDARD CURB INLET TYPE 2

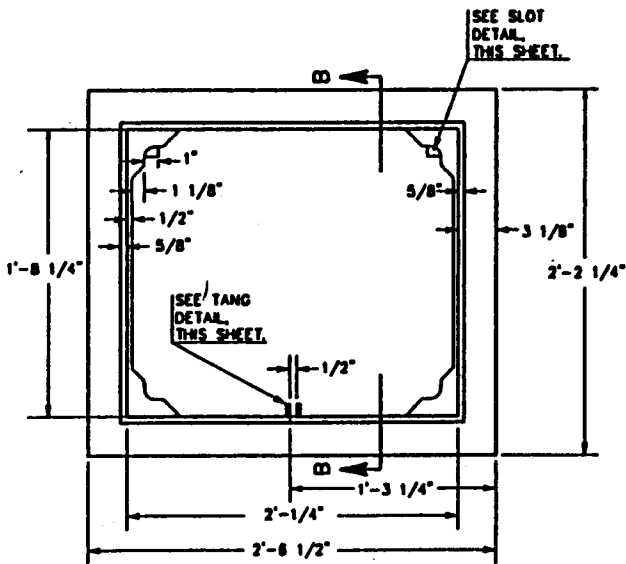
SHEET B-9



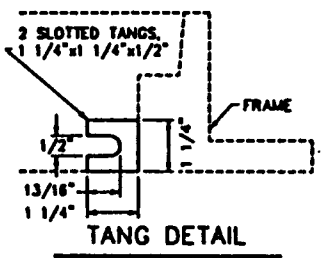
SECTION B-B



SLOT DETAIL



FRAME - TYPE 1



TANG DETAIL

GENERAL NOTES

1. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-80, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84, GRADE 80-55-DE.
2. USE WITH CATCH BASIN AND CONCRETE INLET TYPE 1, SEE STD. PLAN SHEETS B-4,5 & 7.
3. FIT TOLERANCE SHALL BE 1/8" ±.
4. WELDING IS NOT PERMITTED.
5. GRATE GUARD REQUIRED. SEE SHEET B-17.
6. FOR GRATE DETAIL SEE STD. PLAN, SHEET B-12.



1	12/24	GEN	IRCH	CORRECTED DIM. ON FRAME SECTION B-B
NO.	DATE	BY	CHKD.	APPR.
				REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99208 456-2600

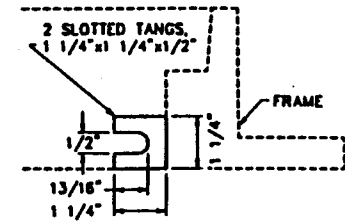
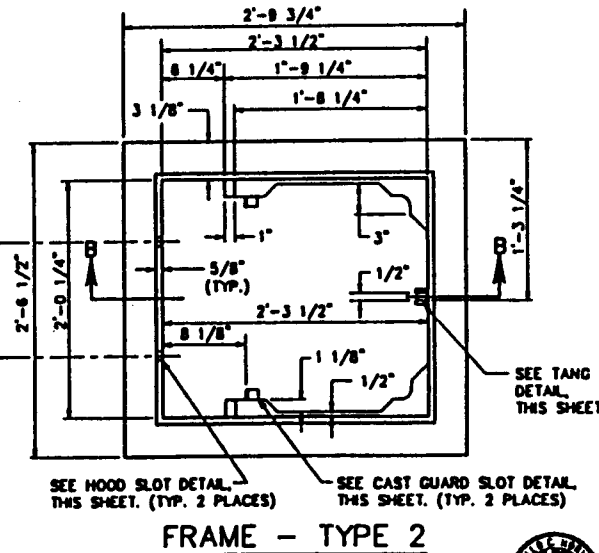
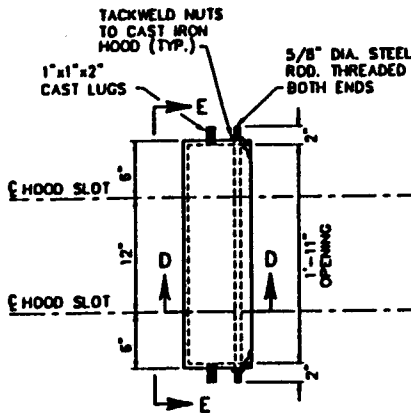
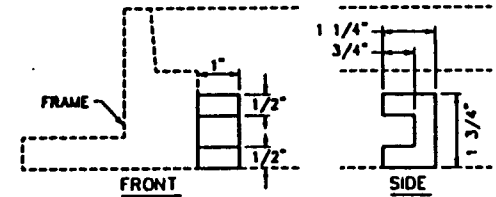
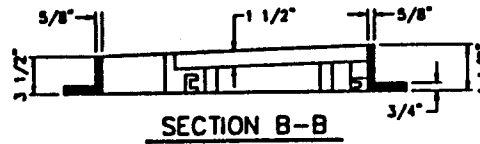
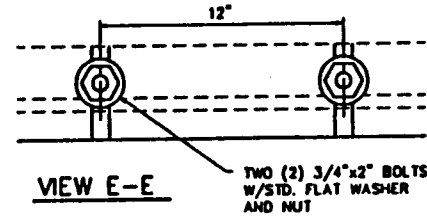
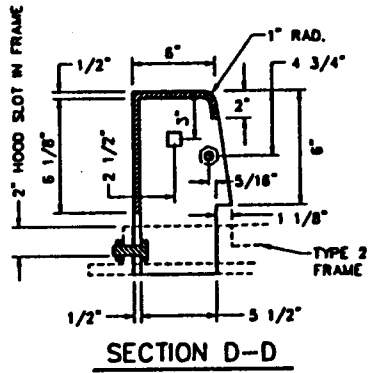
APPROVED
COUNTY ENGINEER
DATE: 5-25-95

STANDARD
METAL FRAME, TYPE 1

STD-018-010
SHEET
B-10

GENERAL NOTES

1. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-80, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84, GRADE 80-55-06.
2. BOLTS AND ROD SHALL CONFORM TO A.S.T.M. DESIGNATION A307, GRADE A.
3. USE WITH CATCH BASIN AND CONCRETE INLET TYPE 2, SEE STD. PLAN SHEETS B-4, 6 & 7.
4. FIT TOLERANCE SHALL BE $1/8" \pm$.
5. FOR GRATE DETAILS SEE STD. PLAN, SHEET B-13 OR B-14.
6. GRATE GUARD REQUIRED. SEE SHEET B-17.



TACKWELD NUTS TO CAST IRON HOOD (TYP.)

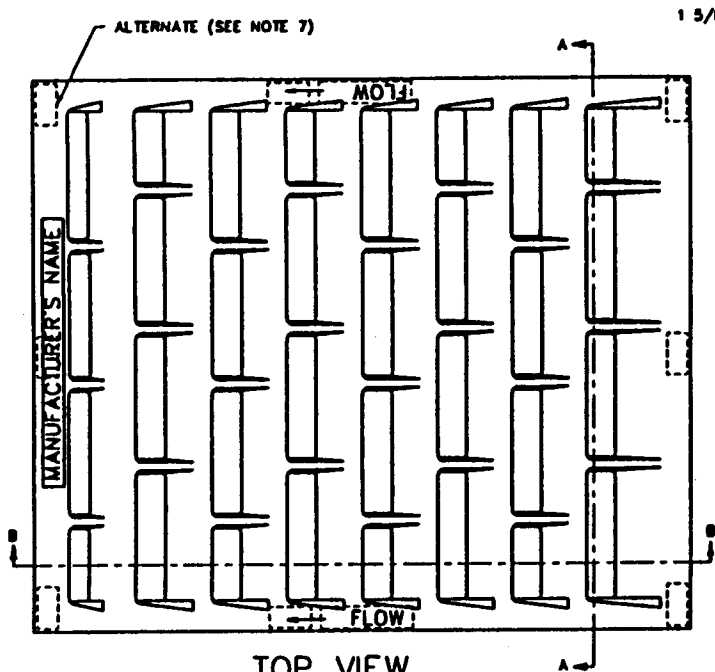
5/8" DIA. STEEL ROD, THREADED BOTH ENDS

1"x1"x2" CAST LUGS

SEE HOOD SLOT DETAIL - THIS SHEET. (TYP. 2 PLACES)

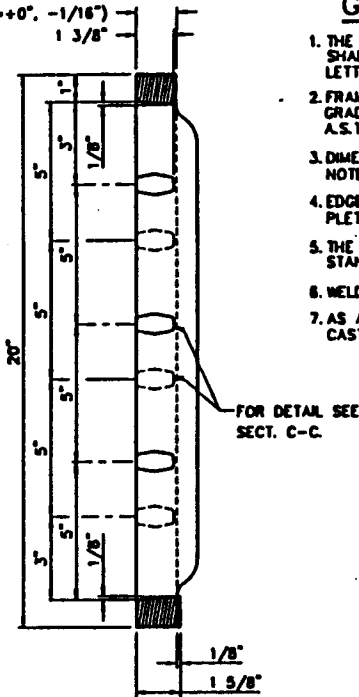
SEE CAST GUARD SLOT DETAIL - THIS SHEET. (TYP. 2 PLACES)

SEE TANG DETAIL - THIS SHEET



TOP VIEW

APPROXIMATE WEIGHT=101 LBS.

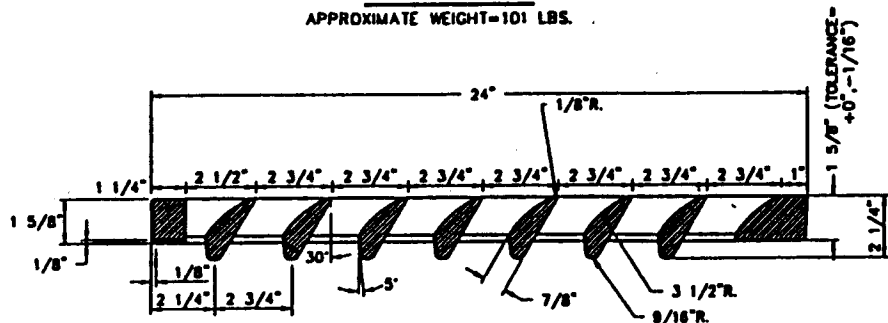


SECTION A-A

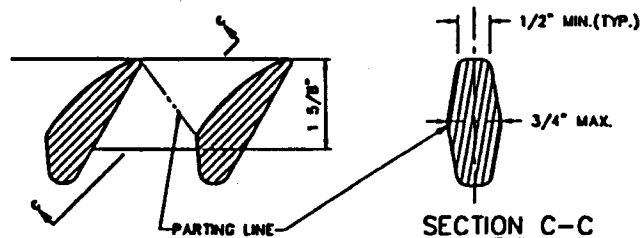
FOR DETAIL SEE
SECT. C-C.

GENERAL NOTES

1. THE NAME OF THE MANUFACTURER AND DIRECTION OF FLOW SHALL BE EMBOSSED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RECESSED 1/16\".
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-90, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84 GRADE 80-55-06.
3. DIMENSIONS SHALL HAVE ±1/16\" TOLERANCE, EXCEPT AS NOTED.
4. EDGES SHALL HAVE 1/8\" RADIUS, 1/8\" CHAMFER OR COMPLETE DEBURRING.
5. THE FRAME SHALL BE MANUFACTURED IN ACCORDANCE WITH STANDARD PLAN B-10.
6. WELDING IS NOT PERMITTED.
7. AS AN ALTERNATE, 8 PADS 1 1/2\" X 3/4\" X 1/8\", INTEGRALLY CAST WITH THE GRATE, MAY BE USED.



SECTION B-B



VANE DETAIL

NO.	DATE	BY	CHKD.	APPR.	REVISION

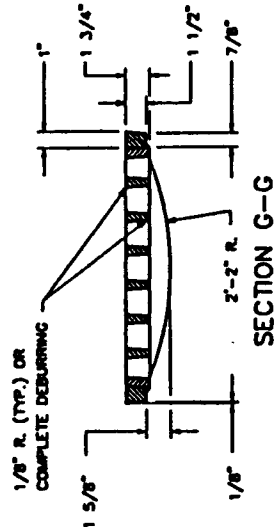
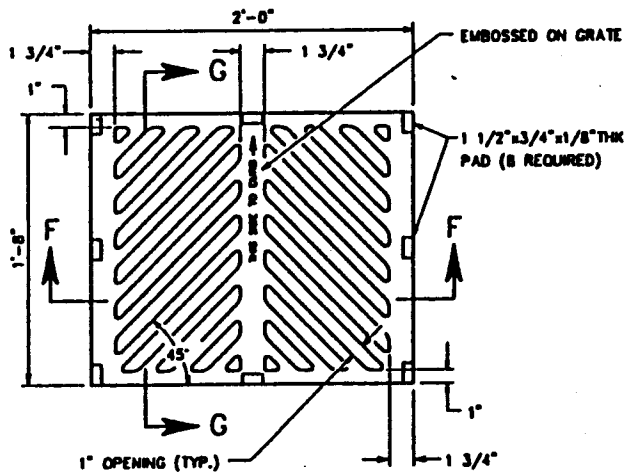
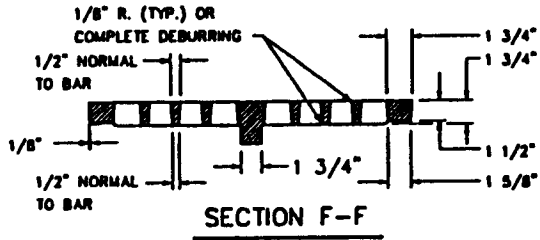
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99209 456-3600

APPROVED
COUNTY ENGINEER
DATE: 5/25/95
[Signature]



STANDARD
METAL GRATE TYPE 1

SHEET
B-12



GENERAL NOTES

1. THE WORDS "THIS SIDE TO CURB" SHALL BE EMBOSSED ON THE TOP OF THE GRATE, WITH AN ARROW INDICATING THE CURB SIDE OF THE GRATE.
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-80, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84, GRADE 80-55-06.
3. THE FRAME SHALL BE MANUFACTURED IN ACCORDANCE WITH STD. PLAN, B-11.
4. WELDING IS NOT PERMITTED.
5. AS AN ALTERNATE 8 PADS 1 1/2" x 3/4" x 1/8" INTEGRALLY CAST WITH THE GRATE MAY BE USED.

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA 99208 456-3600

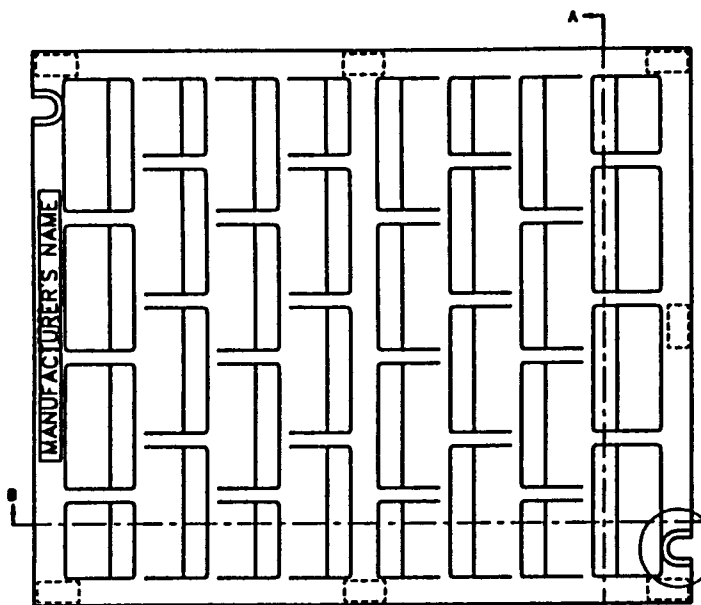
APPROVED
 COUNTY ENGINEER
 DATE: 5-21-88



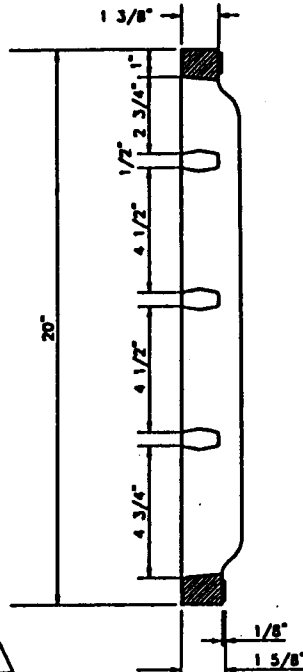
STANDARD
 METAL GRATE, TYPE 2

8-13

NO	DATE	BY	CHKD	APPR.	REVISION



TOP VIEW

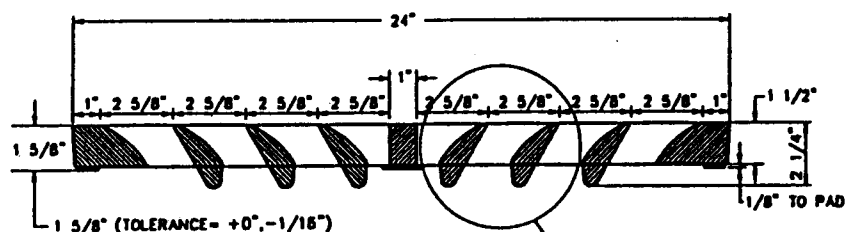


SECTION A-A

GENERAL NOTES

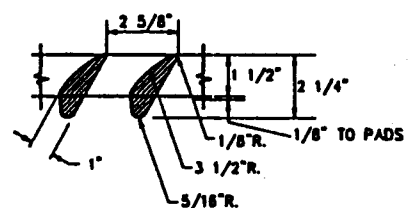
1. THE NAME OF THE MANUFACTURER AND THE DIRECTION OF FLOW SHALL BEEMBOSSED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RESESSED 1/16".
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-80, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-B4 GRADE 80-55-06.
3. DIMENSIONS SHALL HAVE ±1/16" TOLERANCE, EXCEPT AS NOTED.
4. EDGES SHALL HAVE 1/8" RADIUS, 1/8" CHAMFER OR COMPLETE DEBURRING.
5. THE FRAME SHALL BE MANUFACTURED IN ACCORDANCE WITH STANDARD PLAN B-11.
6. WELDING IS NOT PERMITTED.

SEE SLOT
DETAIL

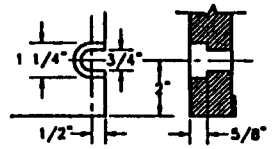


SECTION B-B

SEE VANE
DETAIL



VANE DETAIL



BOLT-DOWN
SLOT DETAIL



SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99200 456-3600

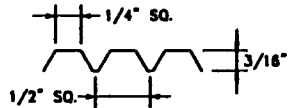
APPROVED
COUNTY ENGINEER
DATE: 5-23-85

STANDARD
METAL GRATE TYPE 3

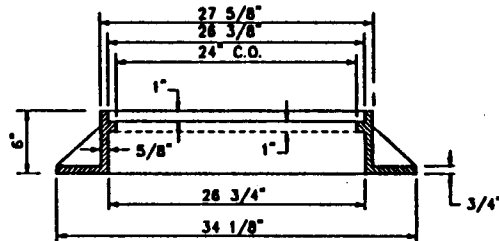
SHEET
B-14

NO DATE BY CKD APPR

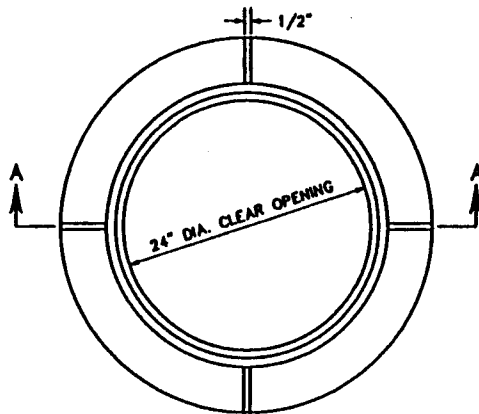
REVISION



COVER SKID DESIGN DETAIL

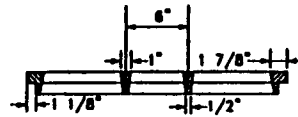


SECTION A-A

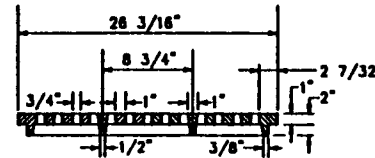


MIN. WEIGHT 168 LBS.

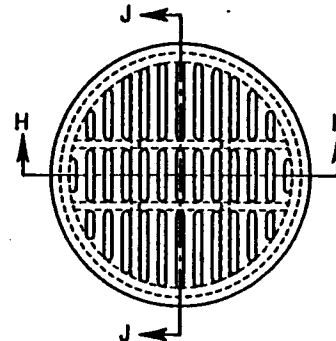
FRAME - TYPE 4



SECTION J-J



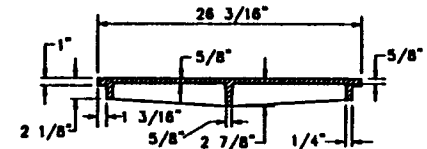
SECTION H-H



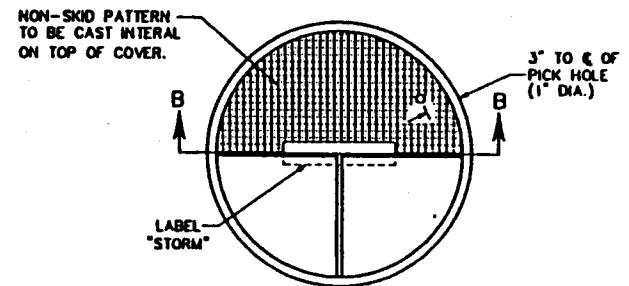
GRATE - TYPE 4

GENERAL NOTES

1. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-90, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A538-84, CLASS 80-55-06.
2. METAL FRAME AND GRATE TYPE 4 SHALL ONLY BE USED WHERE SHOWN ON THE CONSTRUCTION PLANS. IT SHALL NOT BE USED AT A CURB LINE.
3. DRAINAGE SLOTS SHALL BE PLACED PARALLEL TO THE DIRECTION OF FLOW.
5. FIT TOLERANCE SHALL BE $1/8" \pm$.
6. WELDING IS NOT PERMITTED.



SECTION B-B



SOLID COVER

MIN. WEIGHT 118 LBS.

NO.	DATE	BY	CRD.	APPR.	REVISION
3/98	CP	KCM	JSH		TYPE 4 FRAME AND GRATE

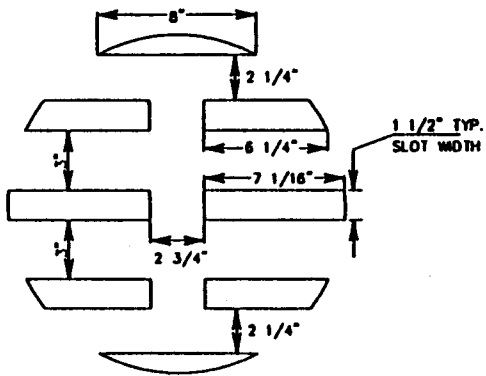
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99200 458-3600

APPROVED:
COUNTY ENGINEER
DATE: 1/2/98

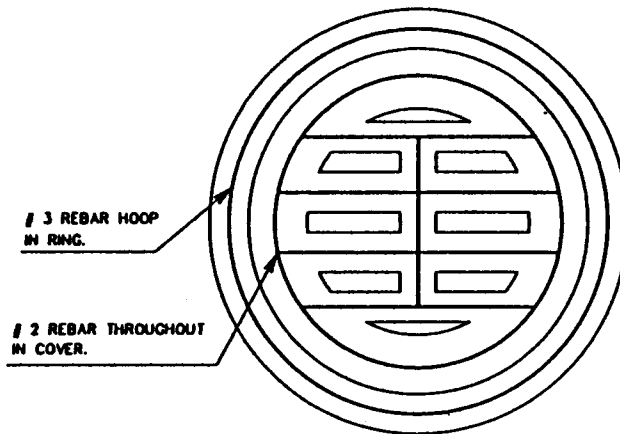


STANDARD
METAL FRAME, GRATE & SOLID COVER - TYPE 4

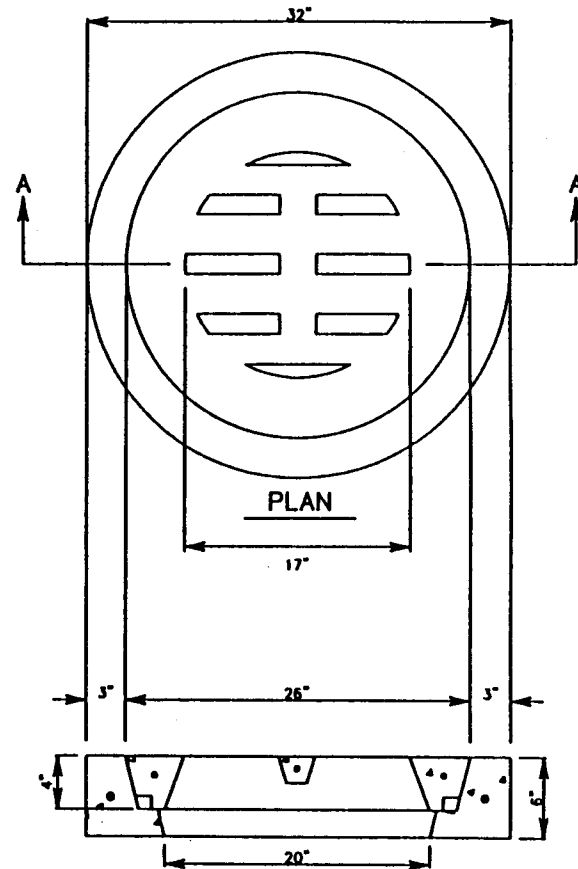
SHEET
B-15



SLOT SPACING



REBAR PLACEMENT



SECTION A-A

GENERAL NOTES

1. LID SHALL ONLY BE USED IN GRASSED PERCOLATION AREAS ON PRIVATE PROPERTY.
2. 4500 P.S.I. AIR ENTRAINED CONCRETE SHALL BE USED.

NO.	DATE	BY	CHKD.	APPR.
1	3/98	CP	RCM	JSH

AMENDED NOTES
REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99208 456-3600

APPROVED:
COUNTY ENGINEER
DATE: 11/2/98

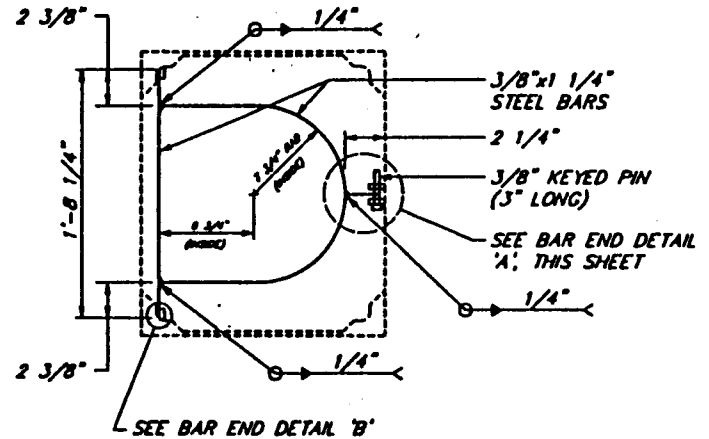
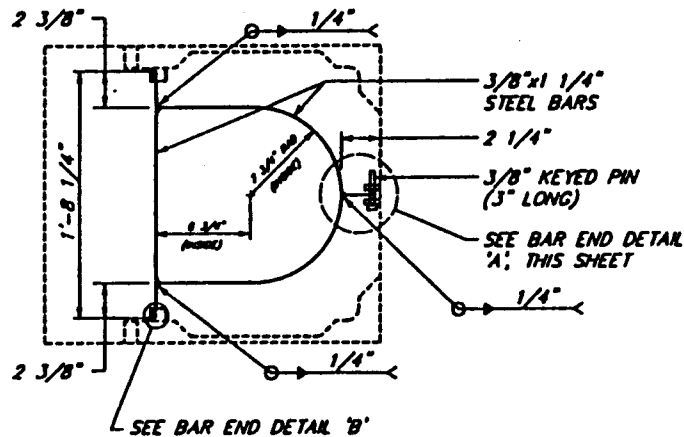
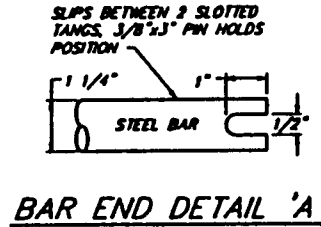
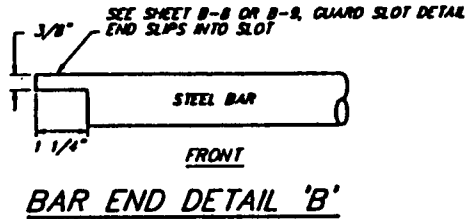


STANDARD
CONCRETE SLOTTED COVER W/RING

19-012 REV
SHEET
B-16a

GENERAL NOTES

1. GRATE GUARD SHALL BE USED ON ALL TYPE 1 AND TYPE 2 FRAMES.
2. WELDS ON GRATE GUARD SHALL BE CONTINUOUS WELDS.
3. STEEL IN GRATE GUARD SHALL CONFORM WITH AASHTO M 183.
4. WELDS, WELDING PROCEDURES, AND WELDING MATERIALS SHALL CONFORM TO STANDARD SPECIFICATIONS FOR WELDING ISSUED BY THE AMERICAN WELDING SOCIETY.



GRATE GUARD

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99200 436-3600

APPROVED
COUNTY ENGINEER
DATE: 5-12-72

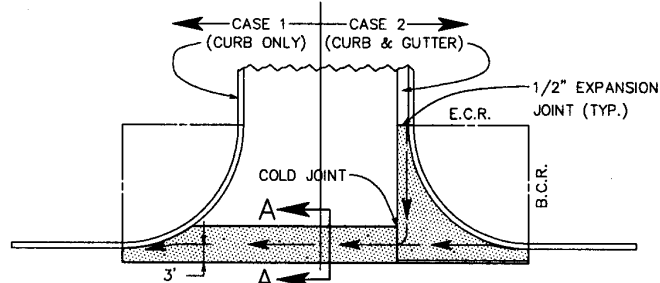
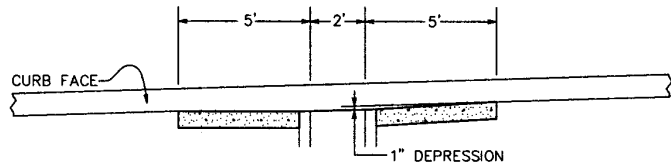
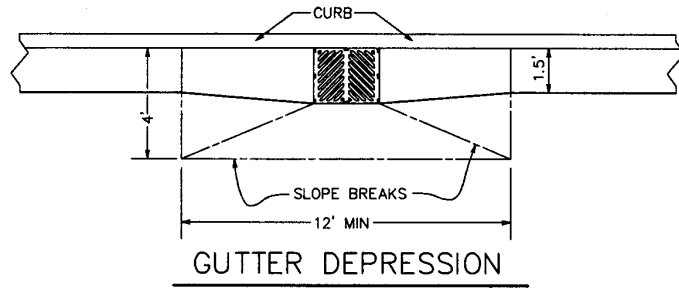


STANDARD
GRATE GUARD

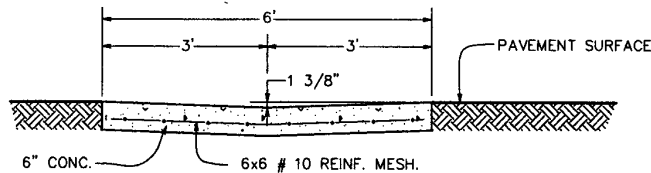
SHEET
B-17

NO. DATE BY CKD. APPR.

REVISION



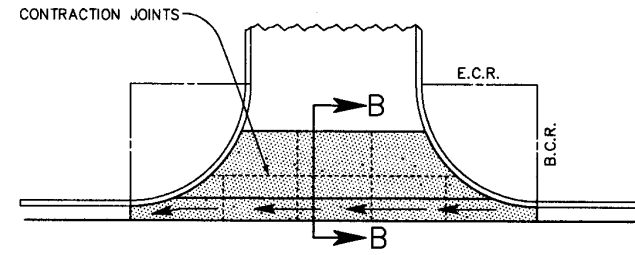
CROSS GUTTER TYPE 1



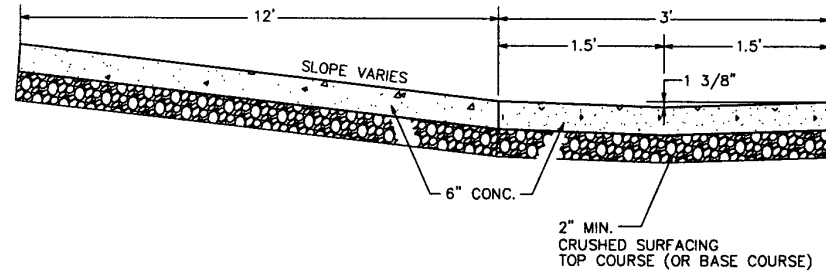
SECTION A-A

GENERAL NOTES

1. THE GUTTER DEPRESSION SHALL BE CONSTRUCTED OF ASPHALT CONCRETE WHERE NO CONCRETE GUTTER IS SPECIFIED. A.C. THICKNESS SHALL BE THE SAME AS SPECIFIED FOR THE ROAD.
2. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000.



CROSS GUTTER TYPE 2



SECTION B-B

2	3/03	BH	BJG	GSN	REVISED SECTION B-B
1	3/98	CP	KGM	JSH	SHOW APRON SECTION B-B
NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED: 
COUNTY ENGINEER
DATE: 4/2/03

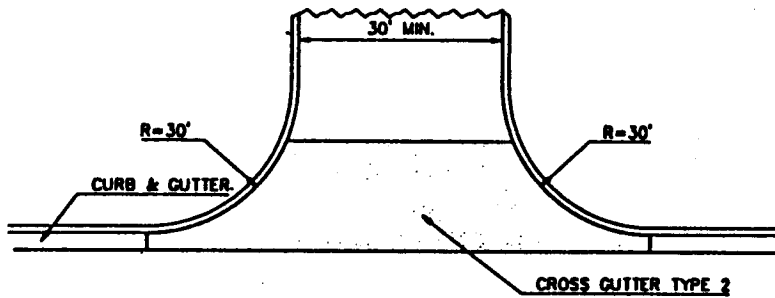
STANDARD
CONCRETE GUTTERS

STD-38A.DWG
SHEET
B-18

PLOT DATE: 04/25/03

GENERAL NOTES

1. THE GUTTER DEPRESSION SHALL BE CONSTRUCTED OF ASPHALT CONCRETE WHERE NO CONCRETE GUTTER IS SPECIFIED. A.C. THICKNESS SHALL BE THE SAME AS SPECIFIED FOR THE ROAD.
2. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000.



HIGH VOLUME DRIVEWAY APPROACH



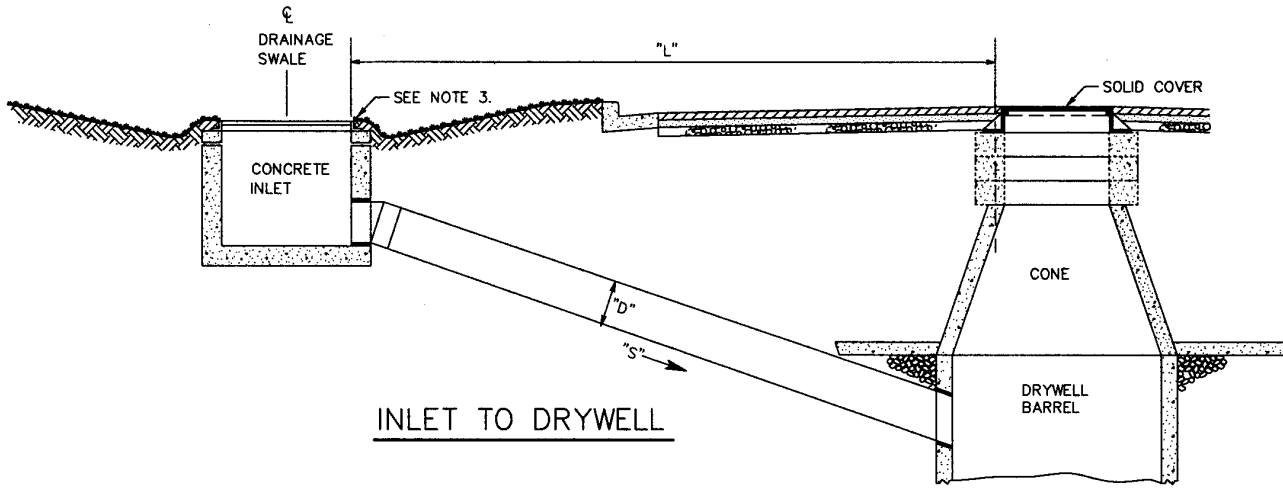
APPROVED
COUNTY ENGINEER
DATE: 5-15-78

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99200 456-3600

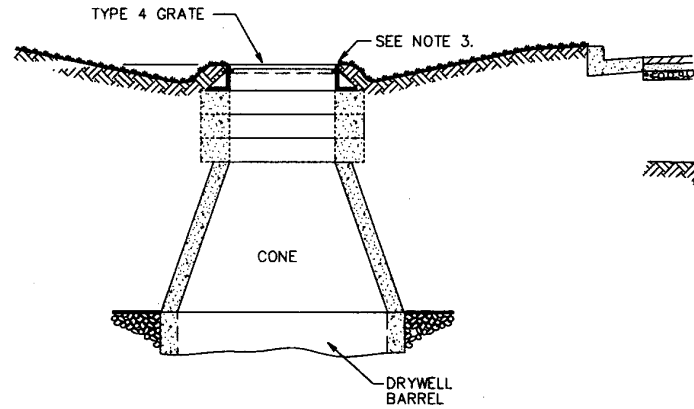
== STANDARD ==
HIGH VOLUME DRIVEWAY APPROACH

SHEET
B-18A

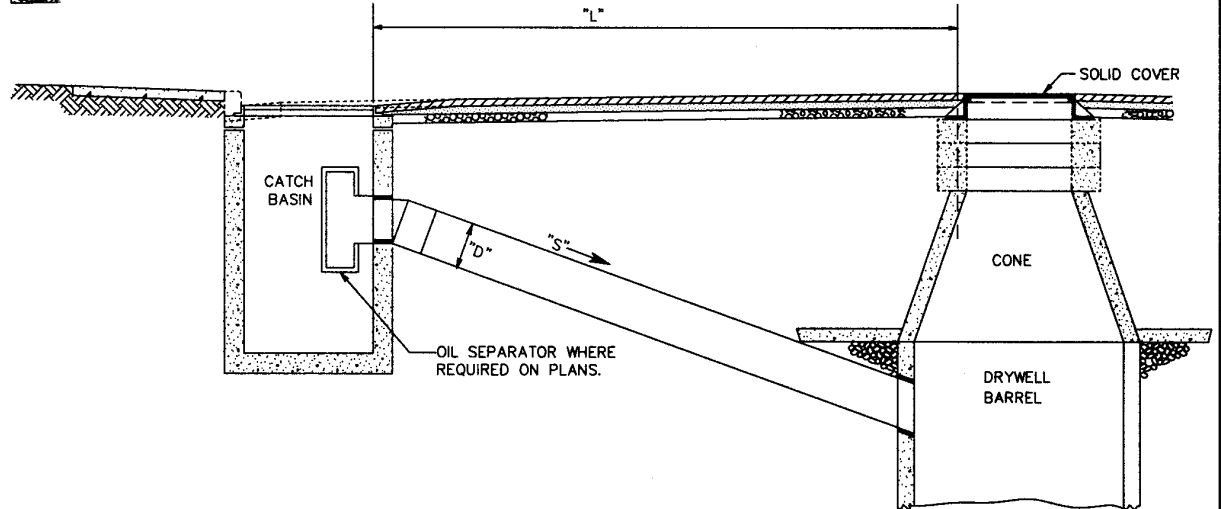
NO.	DATE	BY	CRD.	APPR.	REVISION



INLET TO DRYWELL



SWALE DRYWELL INSTALLATION



CATCH BASIN TO DRYWELL

GENERAL NOTES

1. WHERE SPECIFIED ON THE PLANS, A SOLID COVER SHALL BE USED IN LIEU OF A GRATE.
2. "D" SHALL BE A MINIMUM OF 10". "L", AND "D" SHALL BE SHOWN ON PLANS. "S" SHALL BE 2% MIN. UNLESS OTHERWISE ON THE PLANS
3. INLET SHALL BE RAISED 6" ABOVE THE FLOWLINE OF THE DRAINAGE SWALE UNLESS OTHERWISE SHOWN ON THE PLANS.
4. DRYWELLS PLACED IN ROADWAY SHALL BE PLACED IN CENTER ON TRAFFIC LANE, A MINIMUM OF 15' FROM CATCH BASIN OR INLET.
5. WHEN PVC PIPE IS USED, A PVC ADAPTER SHALL BE INSTALLED.
6. PVC ADAPTERS SHALL BE GROUTED INTO INLETS, CATCH BASINS & DRYWELLS.
7. PVC PIPE INSTALLED UNDER ROADWAY SHALL HAVE 2' MINIMUM COVER.
8. ELBOWS UP TO 45° MAY BE USED FOR CONNECTION AT CATCH BASINS & INLETS.

3	13/03	JBH		REVISED NOTE # 2
2	11/07/04	FP	BJG	GSN REVISED SWALE DRYWELL INSTALLATION DET.
1	3/98	CP	KGM	JSH AMENDED GRATE TYPE
NO.	DATE	BY	CHKD.	APPR.
				REVISION

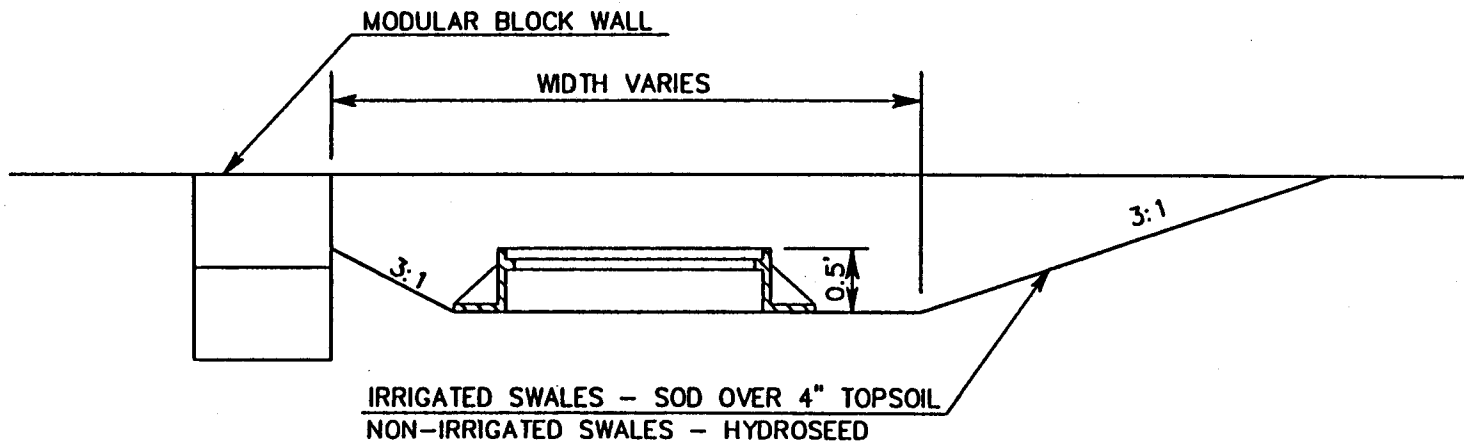
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 (509) 477-3600

APPROVED: 
COUNTY ENGINEER
DATE: 4/24/03
EXPIRES 3/31/2004

STANDARD
INLET INSTALLATIONS

970-288-890
SHEET
B-19

PLOT DATE: 04/23/03



SWALE SECTION WITH MODULAR BLOCK WALL

NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. 99208 438-3600

APPROVED:
 COUNTY ENGINEER
 DATE: 7/27/80



STANDARD
 SWALE WITH MODULAR BLOCK WALL

SHEET
 B-20

MANHOLE TYPE	MIN. DEPTH TO I.E.	MAX. DEPTH	STEPS	MAX. PIPE SIZE (I.D.)*	SHEET NO.
I-48	6'	25'	YES	21"	U-2
I-60	9'	25'	YES	36"	U-3
II-72	9'	25'	YES	42"	U-4
II-96	12'	25'	YES	60"	U-4
III-48**	4'	6'	NO	21"	U-5
III-60	6'	9'	YES	36"	U-6
III-72	7'	9'	YES	42"	U-6
III-96	8'	12'	YES	60"	U-6
IV	8'	25'	YES	42" MIN. PIPE SIZE	U-7

*MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.
 **MANHOLES LESS THAN 6' IN DEPTH MUST BE APPROVED BY SPOKANE COUNTY SEWER DESIGN MANAGER



STANDARD U-0

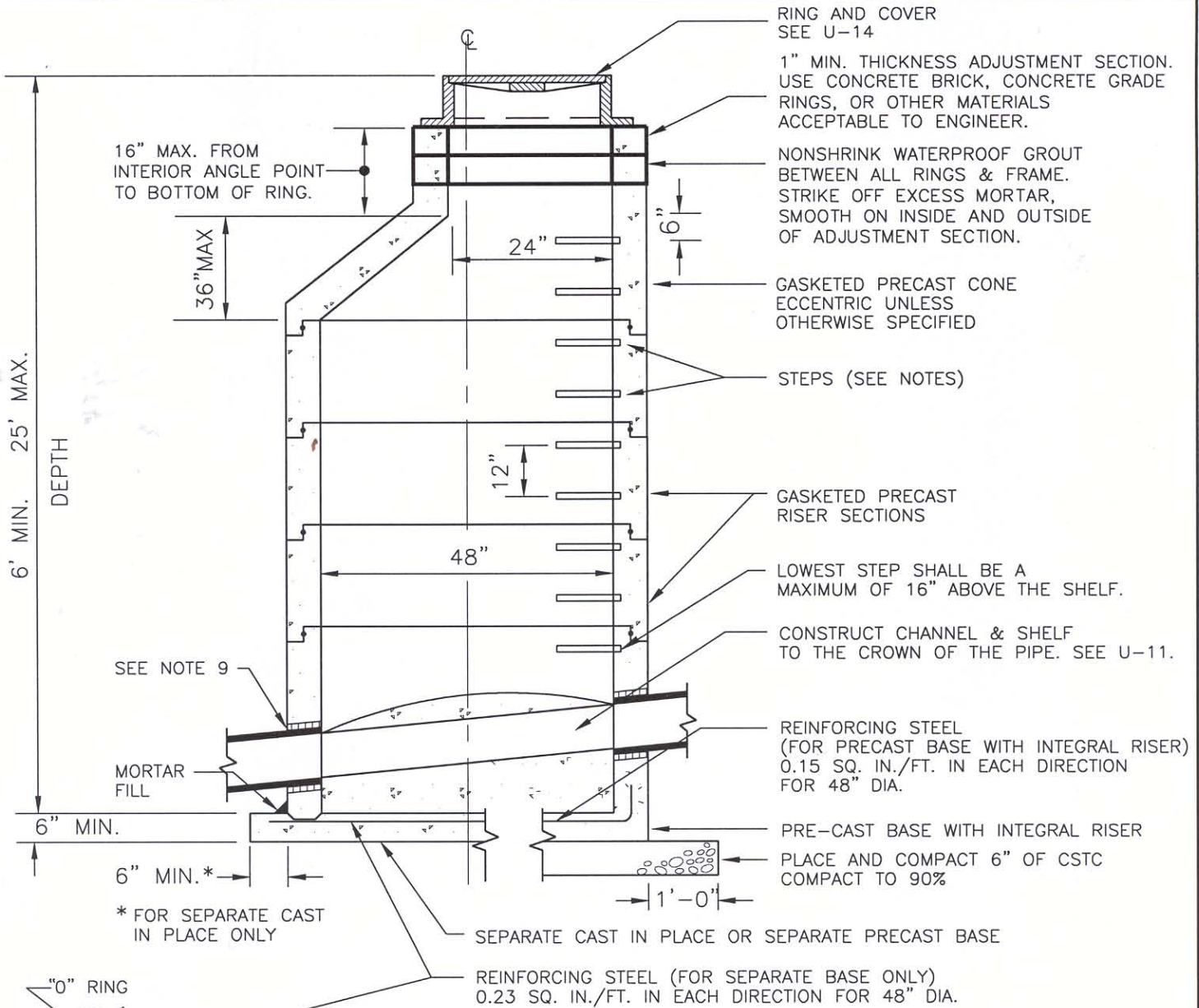
APPROVED: A. BR
 UTILITIES DIRECTOR
 DATE: 11/15/99

STANDARD
 MANHOLE TYPES & DEPTHS

SHEET
U-1

NO.	DATE	BY	CKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3804



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

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 21" FOR 48" MANHOLE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
6. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT SECTION.
7. ALL MANHOLES SHALL HAVE STEPS
8. THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
9. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURASEAL III, OR APPROVED EQUAL MANHOLE ADAPTORS.



EXPIRES 8/20/06

STANDARD U-02

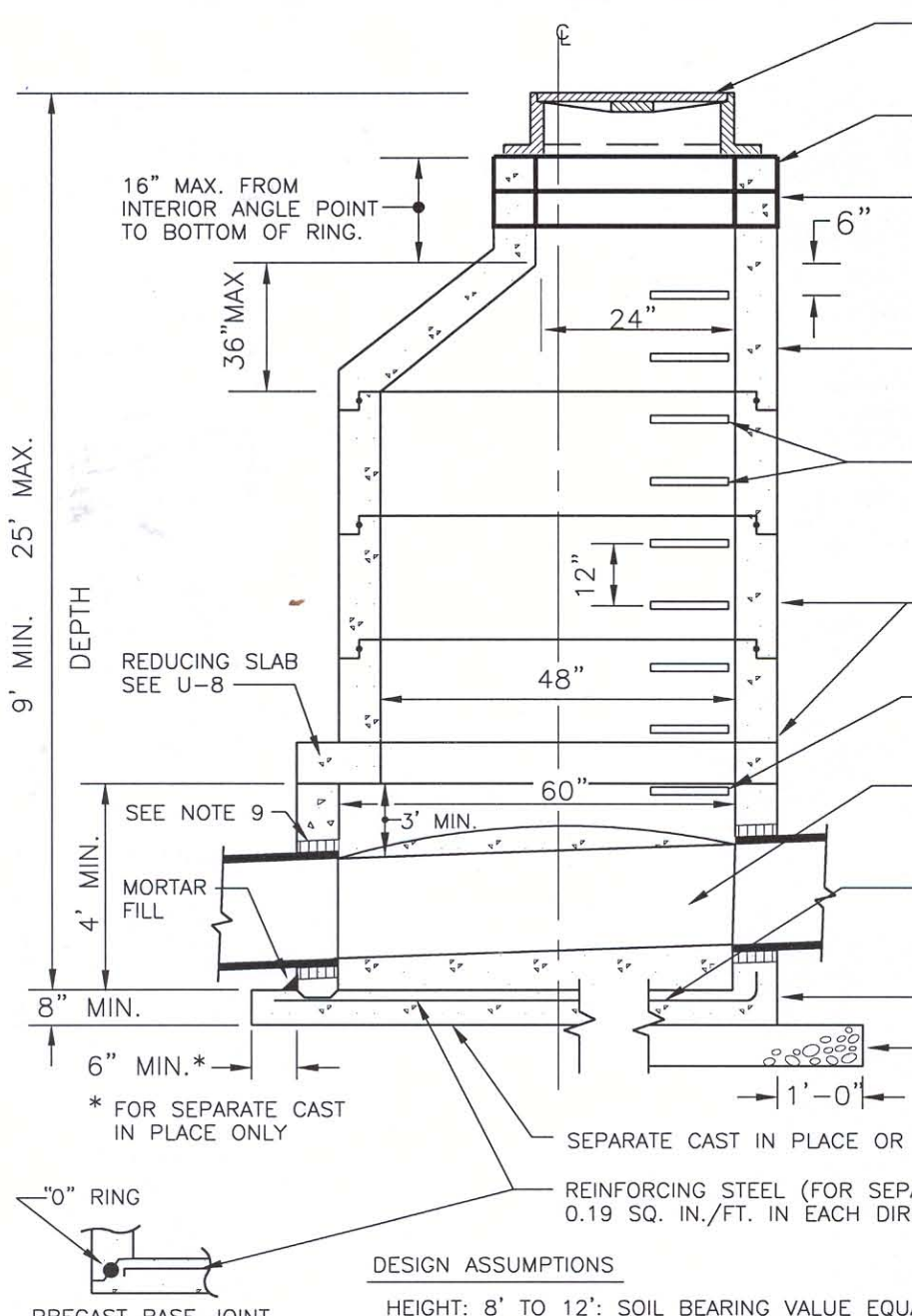
APPROVED: *Bruce Rawle*
 UTILITIES DIRECTOR
 DATE: 5/23/2006

STANDARD
 MANHOLE TYPE 1-48

SHEET
 U-2

NO.	DATE	BY	CKD.	APPR.	REVISION
1	4/06	GG	KC	NBR	CHANGE ADJUSTMENT SECTION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604



RING AND COVER
SEE U-14

1" MIN. THICKNESS ADJUSTMENT SECTION.
USE CONCRETE BRICK, CONCRETE GRADE
RINGS, OR OTHER MATERIALS
ACCEPTABLE TO ENGINEER.

NONSRRINK WATERPROOF GROUT
BETWEEN ALL RINGS & FRAME.
STRIKE OFF EXCESS MORTAR,
SMOOTH ON INSIDE AND OUTSIDE
OF ADJUSTMENT SECTION.

GASKETED PRECAST CONE
ECCENTRIC UNLESS
OTHERWISE SPECIFIED

STEPS (SEE NOTES)

GASKETED PRECAST
RISER SECTIONS

LOWEST STEP SHALL BE A
MAXIMUM OF 16" ABOVE THE SHELF.

CONSTRUCT CHANNEL & SHELF
TO THE CROWN OF THE PIPE. SEE U-11.

REINFORCING STEEL
(FOR PRECAST BASE WITH INTEGRAL RISER)
0.19 SQ. IN./FT. IN EACH DIRECTION
FOR 60" DIA.

PRE-CAST BASE WITH INTEGRAL RISER

PLACE AND COMPACT 6" CSTC
COMPACT TO 90%

SEPARATE CAST IN PLACE OR SEPARATE PRECAST BASE

REINFORCING STEEL (FOR SEPARATE BASE ONLY)
0.19 SQ. IN./FT. IN EACH DIRECTION FOR 60" DIA.

9' MIN. 25' MAX.
DEPTH

16" MAX. FROM
INTERIOR ANGLE POINT
TO BOTTOM OF RING.

36" MAX

24"

6"

12"

48"

60"

REDUCING SLAB
SEE U-8

SEE NOTE 9

MORTAR
FILL

4' MIN.

8" MIN.

6" MIN.*

* FOR SEPARATE CAST
IN PLACE ONLY

DESIGN ASSUMPTIONS

HEIGHT: 8' TO 12': SOIL BEARING VALUE EQUALS 3300 #/FT² (MIN)
HEIGHT: OVER 12' TO 25': SOIL BEARING VALUE EQUALS 3800 #/FT² (MIN.)

NOTES

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 36" FOR 60" MANHOLE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
6. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT SECTION.
7. ALL MANHOLES SHALL HAVE STEPS
8. THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
9. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL III, OR APPROVED EQUAL MANHOLE ADAPTOR



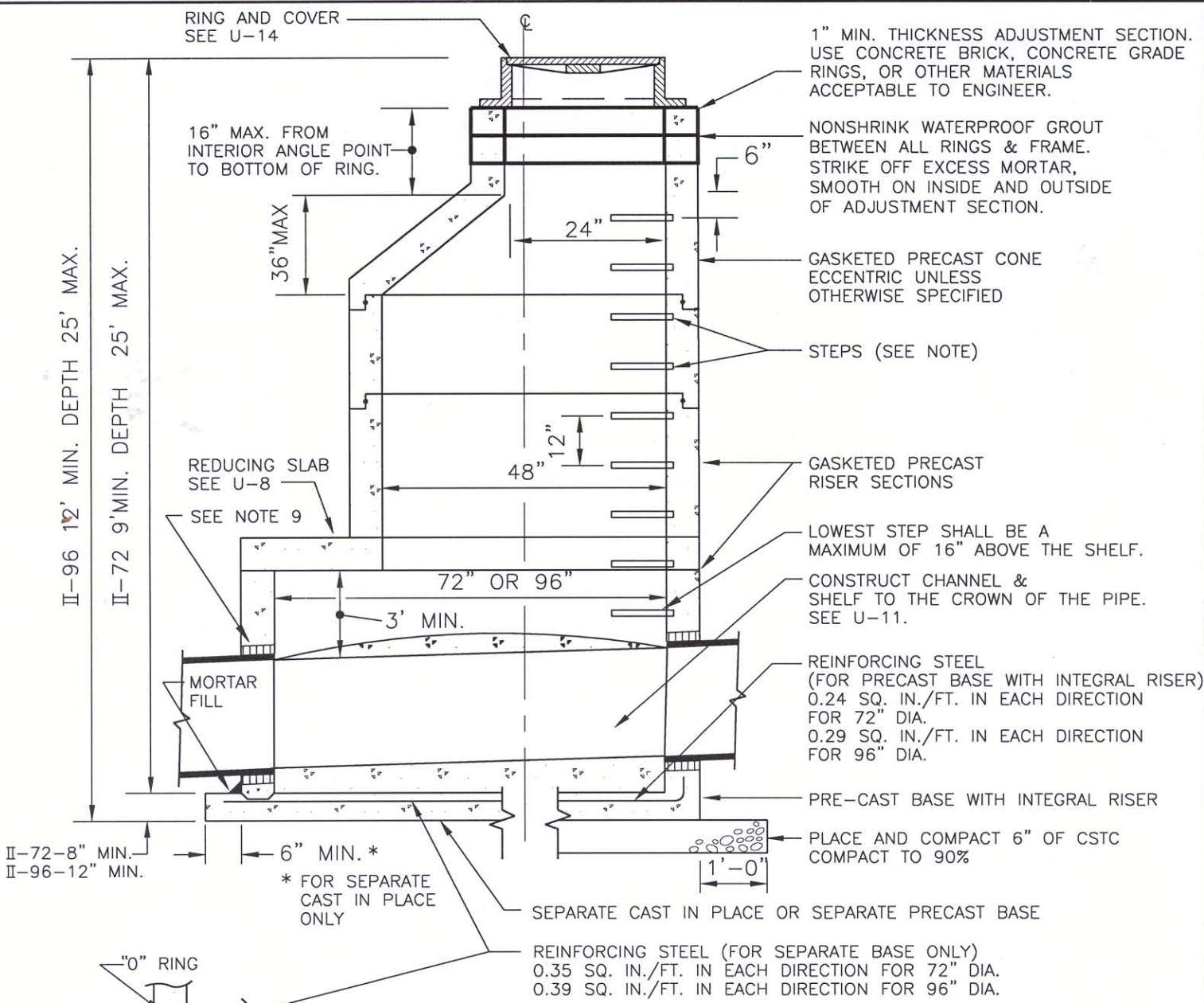
APPROVED: *Bruce Rawls*
UTILITIES DIRECTOR
DATE: 5/23/2006

STANDARD
MANHOLE TYPE 1-60

SHEET
U-3

NO.	DATE	BY	CKD.	APPR.	REVISION
1	4/06	GG	KRC	NBR	CHANGE ADJUSTMENT SECTION
1	4/06	GG	KRC	NBR	ADDED MIN. TOLERANCE ON BOTTOM BARREL

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604



- DESIGN ASSUMPTIONS**
- HEIGHT: 8' TO 12': SOIL BEARING VALUE EQUALS 3300 #/FT² (MIN.)
 - HEIGHT: OVER 12' TO 25': SOIL BEARING VALUE EQUALS 3800 #/FT² (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, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS.
 - ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 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 PIPE SIZE IS 42" FOR 72" MANHOLE, 60" FOR 96" MANHOLE.. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
 - ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
 - NO STEPS SHALL BE PLACED IN THE ADJUSTMENT SECTION.
 - ALL MANHOLES SHALL HAVE STEPS
 - THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
 - USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL III, OR APPROVED EQUAL MANHOLE ADAPTOR.

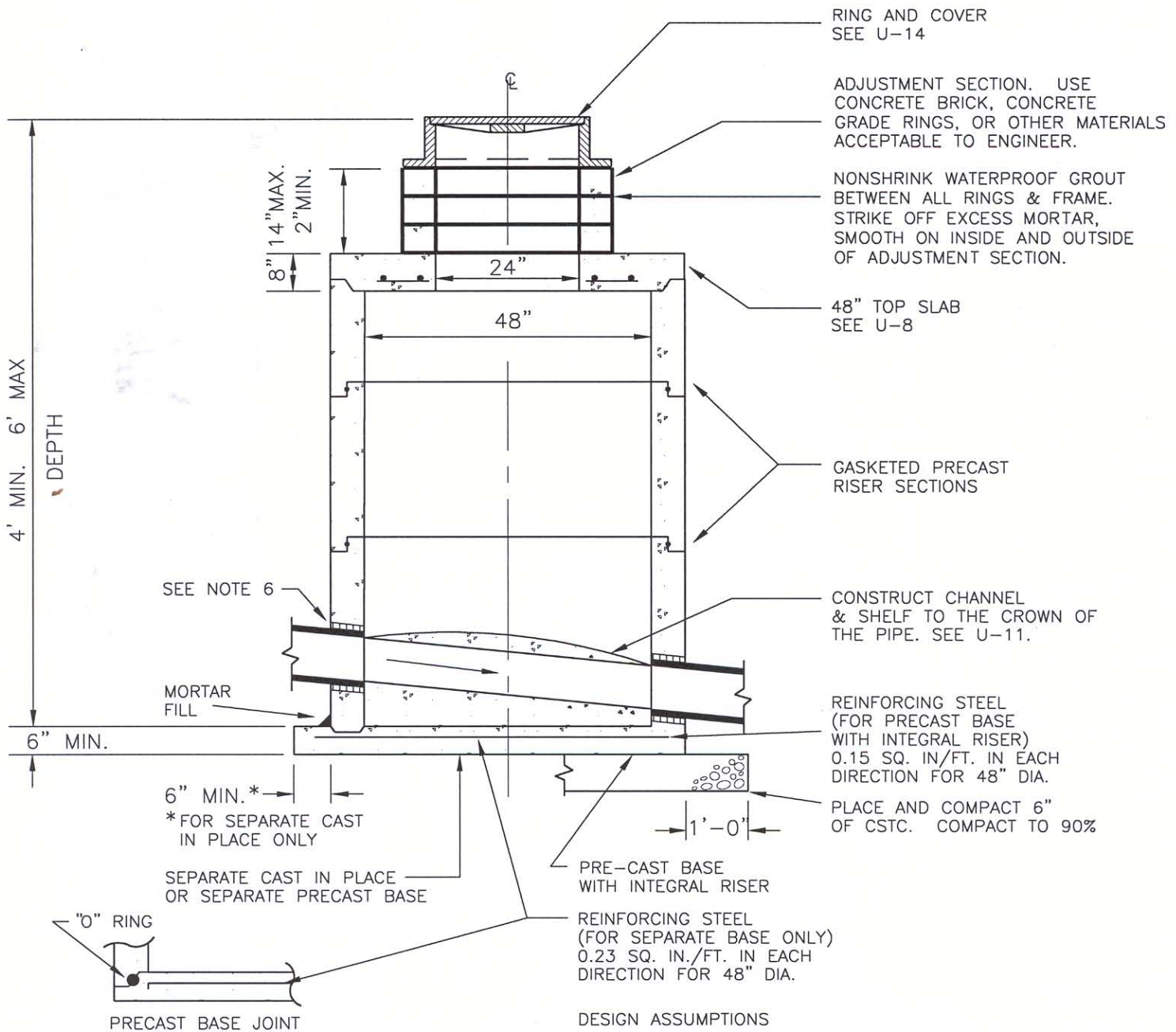


APPROVED: *Bruce Rawls*
 UTILITIES DIRECTOR
 DATE: 5/23/2006

STANDARD
 MANHOLE TYPE II-72, II-96
 SHEET U-4

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CKD.	APPR.	REVISION
1	4/06	GG	KRC	NBR	CHANGE ADJUSTMENT SECTION



NOTES

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS.
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 21" FOR 48" MANHOLE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
6. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL III, OR APPROVED EQUAL MANHOLE ADAPTOR.



EXPIRES 8/20/06

STANDARD U-05

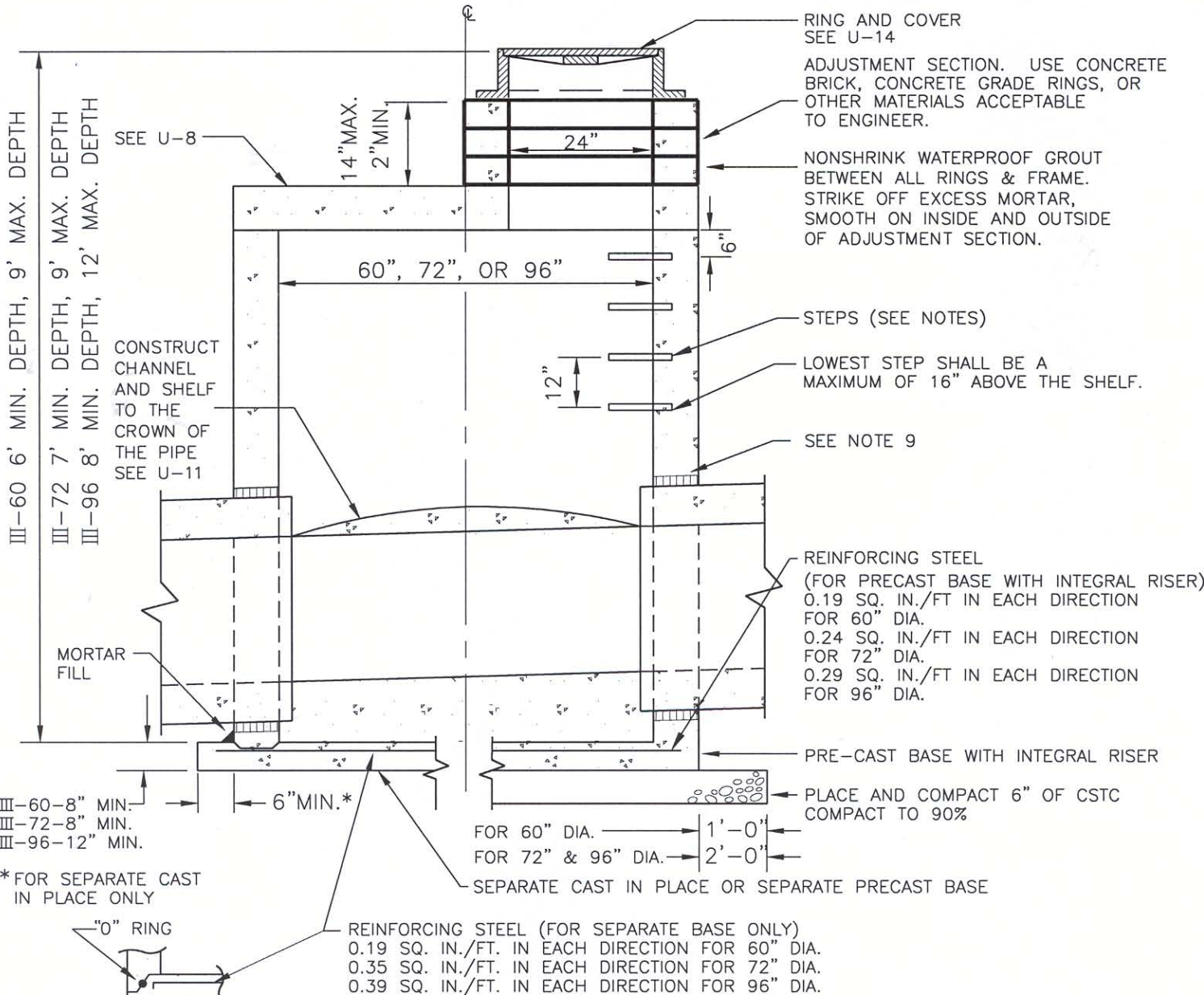
APPROVED: *Bruce Rawls*
UTILITIES DIRECTOR
DATE: 5/23/2006

STANDARD
MANHOLE TYPE III-48

SHEET
U-5

NO.	DATE	BY	CHKD.	APPR.	REVISION
1	4/06	GG	KRC	NBR	CHANGE ADJUSTMENT SECTION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604



RING AND COVER
SEE U-14

ADJUSTMENT SECTION. USE CONCRETE BRICK, CONCRETE GRADE RINGS, OR OTHER MATERIALS ACCEPTABLE TO ENGINEER.

NONSHRINK WATERPROOF GROUT BETWEEN ALL RINGS & FRAME. STRIKE OFF EXCESS MORTAR, SMOOTH ON INSIDE AND OUTSIDE OF ADJUSTMENT SECTION.

STEPS (SEE NOTES)

LOWEST STEP SHALL BE A MAXIMUM OF 16" ABOVE THE SHELF.

SEE NOTE 9

REINFORCING STEEL
(FOR PRECAST BASE WITH INTEGRAL RISER)
0.19 SQ. IN./FT IN EACH DIRECTION FOR 60" DIA.
0.24 SQ. IN./FT IN EACH DIRECTION FOR 72" DIA.
0.29 SQ. IN./FT IN EACH DIRECTION FOR 96" DIA.

PRE-CAST BASE WITH INTEGRAL RISER

PLACE AND COMPACT 6" OF CSTC COMPACT TO 90%

FOR 60" DIA. ——— 1'-0"
FOR 72" & 96" DIA. ——— 2'-0"

SEPARATE CAST IN PLACE OR SEPARATE PRECAST BASE

REINFORCING STEEL (FOR SEPARATE BASE ONLY)
0.19 SQ. IN./FT. IN EACH DIRECTION FOR 60" DIA.
0.35 SQ. IN./FT. IN EACH DIRECTION FOR 72" DIA.
0.39 SQ. IN./FT. IN EACH DIRECTION FOR 96" DIA.

III-60 6' MIN. DEPTH, 9' MAX. DEPTH
III-72 7' MIN. DEPTH, 9' MAX. DEPTH
III-96 8' MIN. DEPTH, 12' MAX. DEPTH

CONSTRUCT CHANNEL AND SHELF TO THE CROWN OF THE PIPE SEE U-11

MORTAR FILL

III-60-8" MIN.
III-72-8" MIN.
III-96-12" MIN.

* FOR SEPARATE CAST IN PLACE ONLY

DESIGN ASSUMPTIONS

HEIGHT: 8' TO 12'; SOIL BEARING VALUE EQUALS 3300 #/FT (MIN)

NOTES

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS.
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 36" FOR 60" MANHOLE, 42" FOR 72" MANHOLE, 60" FOR 96" MANHOLE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
6. ALL MANHOLES SHALL HAVE STEPS
7. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT RING
8. THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
9. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL, OR APPROVED EQUAL MANHOLE ADAPTOR.



EXPIRES 8/20/06 \STANDARD\U-06

APPROVED: *Bruce Rawls*
UTILITIES DIRECTOR
DATE: 5/23/2006

STANDARD
MANHOLE TYPE III-60, III-72, III-96

SHEET
U-6

NO.	DATE	BY	CKD.	APPR.	REVISION
1	4/06	GG	KRC	NBR	CHANGE ADJUSTMENT SECTION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

RING AND COVER
SEE U-14

1" MIN. THICKNESS ADJUSTMENT SECTION.
USE CONCRETE BRICK, CONCRETE GRADE
RINGS OR OTHER MATERIALS
ACCEPTABLE TO ENGINEER.

NONSHRINK WATERPROOF GROUT
BETWEEN ALL RINGS & FRAME.
STRIKE OFF EXCESS MORTAR,
SMOOTH ON INSIDE AND OUTSIDE
OF ADJUSTMENT SECTION.

GASKETED ECCENTRIC
CONCRETE PRECAST CONE

STEPS (SEE NOTES)

GASKETED PRECAST
RISER SECTIONS

WELD REINFORCING STEEL AT JOINTS

16" MAX. FROM
INTERIOR ANGLE POINT
TO BOTTOM OF RING.

36" MAX

6"

12"

48"

VARIES
(MIN. DIA 42")

MORTAR FILLET (TYP.)

SECTION A-A

48" DIA. RISER
SECTION GRAFTED
TO PIPE BY
FABRICATOR.

MORTAR FILLET
ALL AROUND

REINFORCED CONCRETE PIPE
42" MIN. DIA.

NOTES

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH WSDOT SEC 6-02.3.
2. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. ALL MANHOLES SHALL HAVE STEPS.
4. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT RING
5. AN ECCENTRIC CONE SHALL BE REQUIRED.



EXPIRES 8/20/06

STANDARD U-07

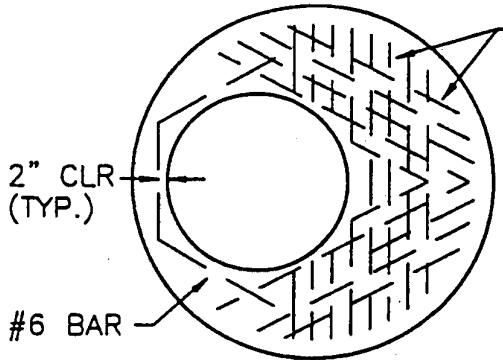
APPROVED: *Bruce Lawls*
UTILITIES DIRECTOR
DATE: 5/23/2006

STANDARD
MANHOLE TYPE IV

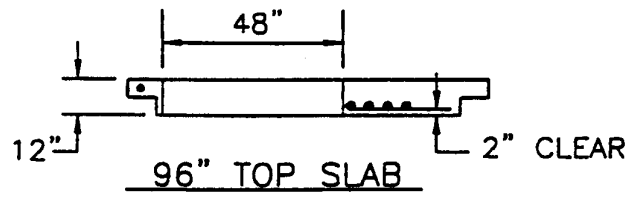
SHEET
U-7

NO.	DATE	BY	CHKD.	APPR.	REVISION
1	4/06	LCG	KRC	NBR	CHANGED ADJUSTMENT SECTION

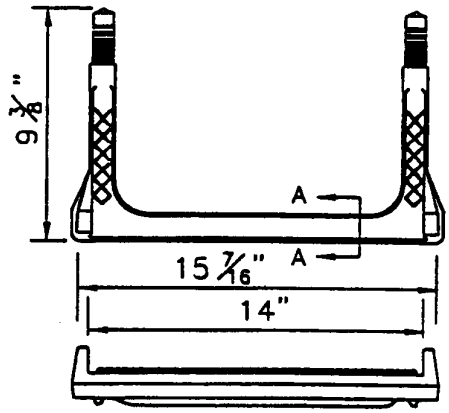
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604



#6 BARS
@ 7" CENTERS
BOTH DIRECTIONS
BOTTOM FACE



96" TOP SLAB

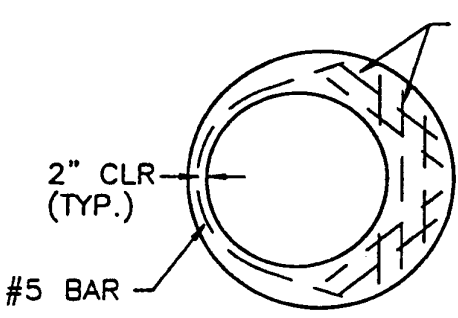


COPOLYMER POLYPROPYLENE PLASTIC
1/2 IN. GRADE 60 STEEL REINFORCEMENT

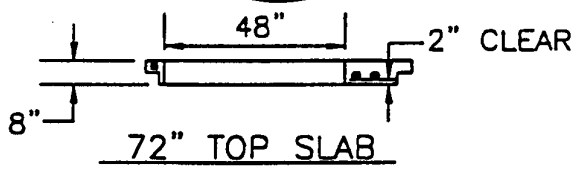


SECTION A

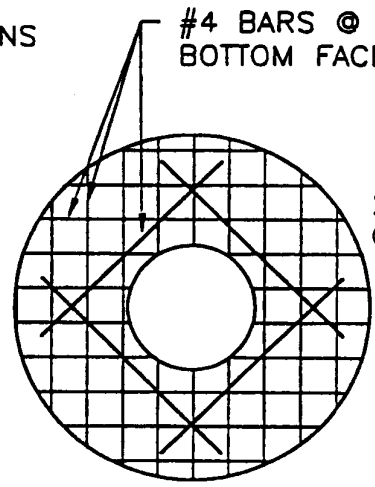
MANHOLE STEP



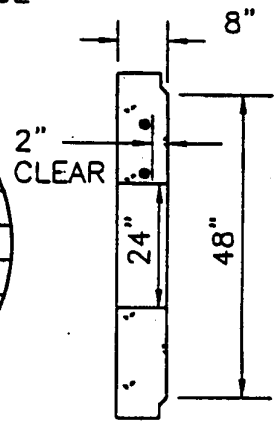
#5 BARS
@ 6" CENTERS
BOTH DIRECTIONS
BOTTOM FACE



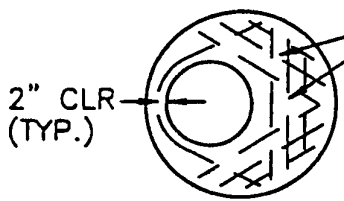
72" TOP SLAB



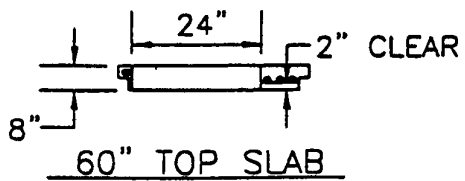
#4 BARS @ 6"CC (TYP.)
BOTTOM FACE



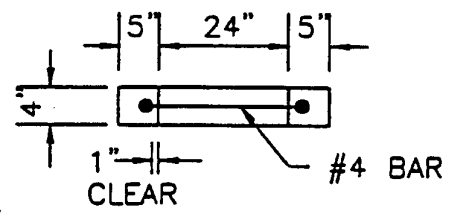
48" TOP SLAB



#4 BARS
@ 6" CENTERS
BOTTOM FACE



60" TOP SLAB



GRADE RING



EXPIRES 8/20/00

STANDARD U-08

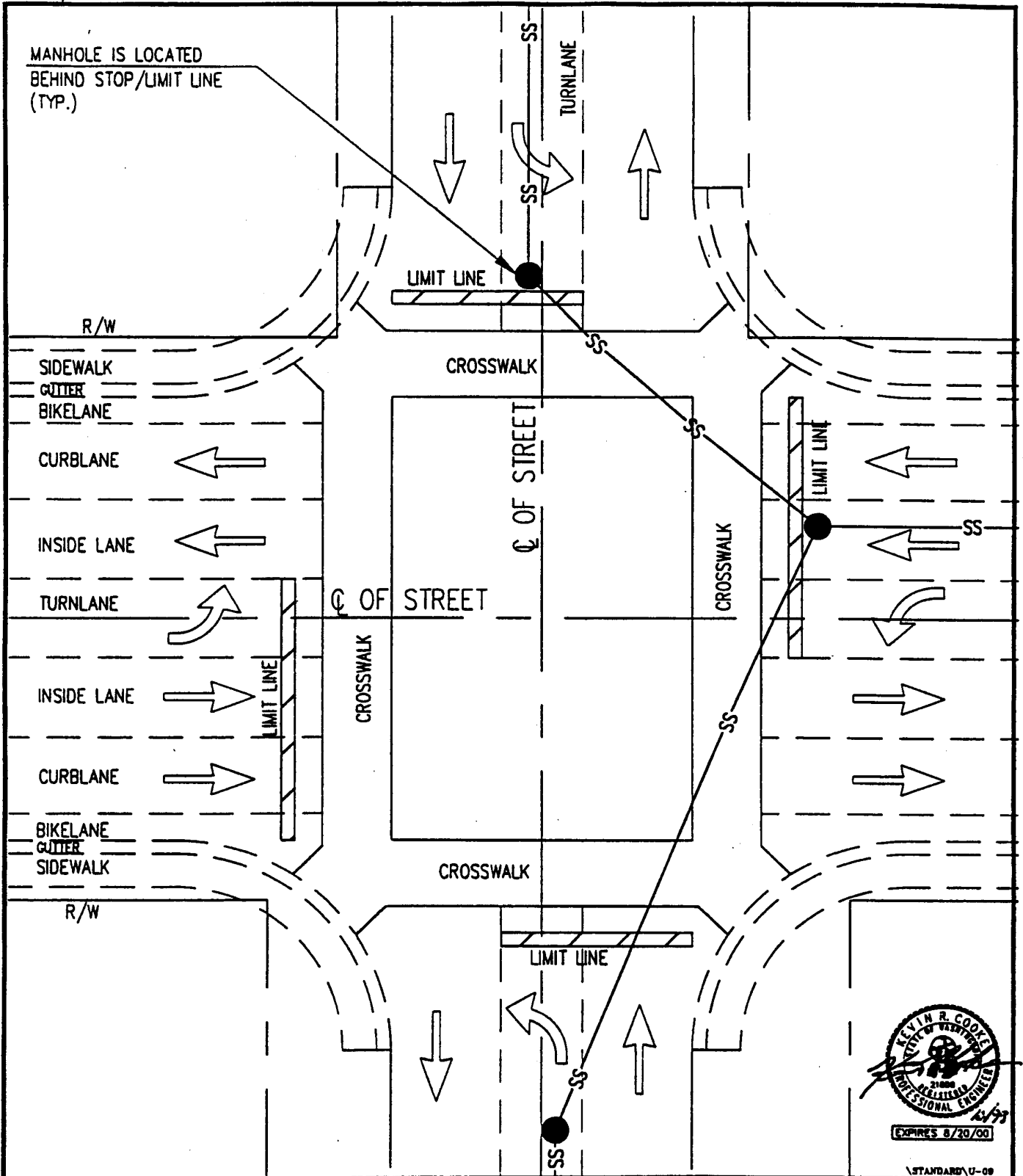
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

STANDARD
REDUCING SLABS &
MANHOLE STEP

SHEET
U-8

NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604



STANDARD U-09

APPROVED: NBR
 UTILITIES DIRECTOR
 DATE: 11/15/99

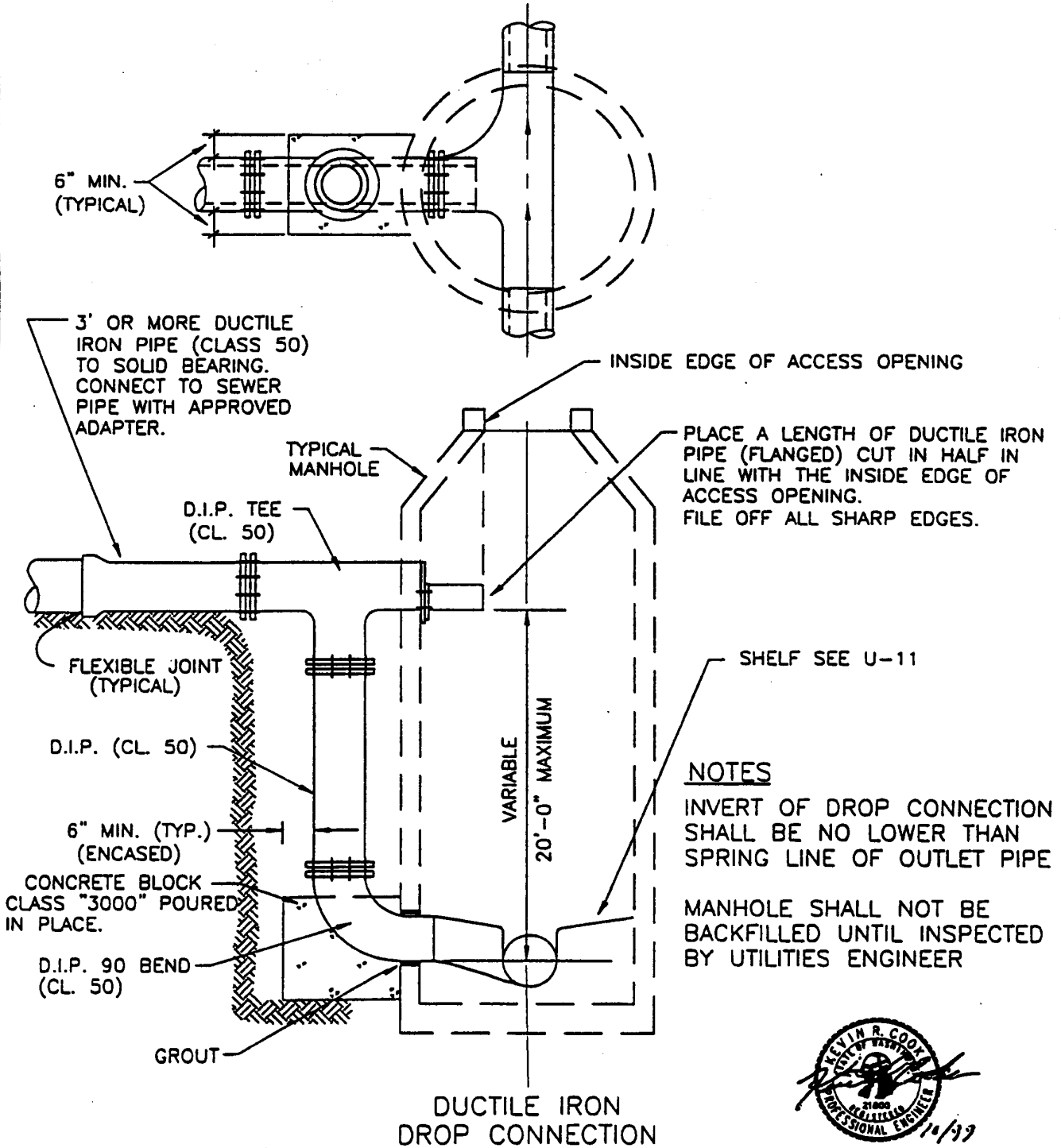
MANHOLE PLACEMENT IN SIGNALIZED INTERSECTION

SHEET
U-9

NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3804

NOTE: THIS MANHOLE MAY BE USED IN SPECIAL CIRCUMSTANCES UPON APPROVAL BY THE SPOKANE COUNTY SEWER DESIGN MANAGER



NOTES
 INVERT OF DROP CONNECTION SHALL BE NO LOWER THAN SPRING LINE OF OUTLET PIPE
 MANHOLE SHALL NOT BE BACKFILLED UNTIL INSPECTED BY UTILITIES ENGINEER



EXPIRES 8/20/00 STANDARD U-10

APPROVED: NBR
 UTILITIES DIRECTOR
 DATE: 11/15/99

STANDARD
 SANITARY SEWER MANHOLE
 EXTERIOR DROP CONNECTION

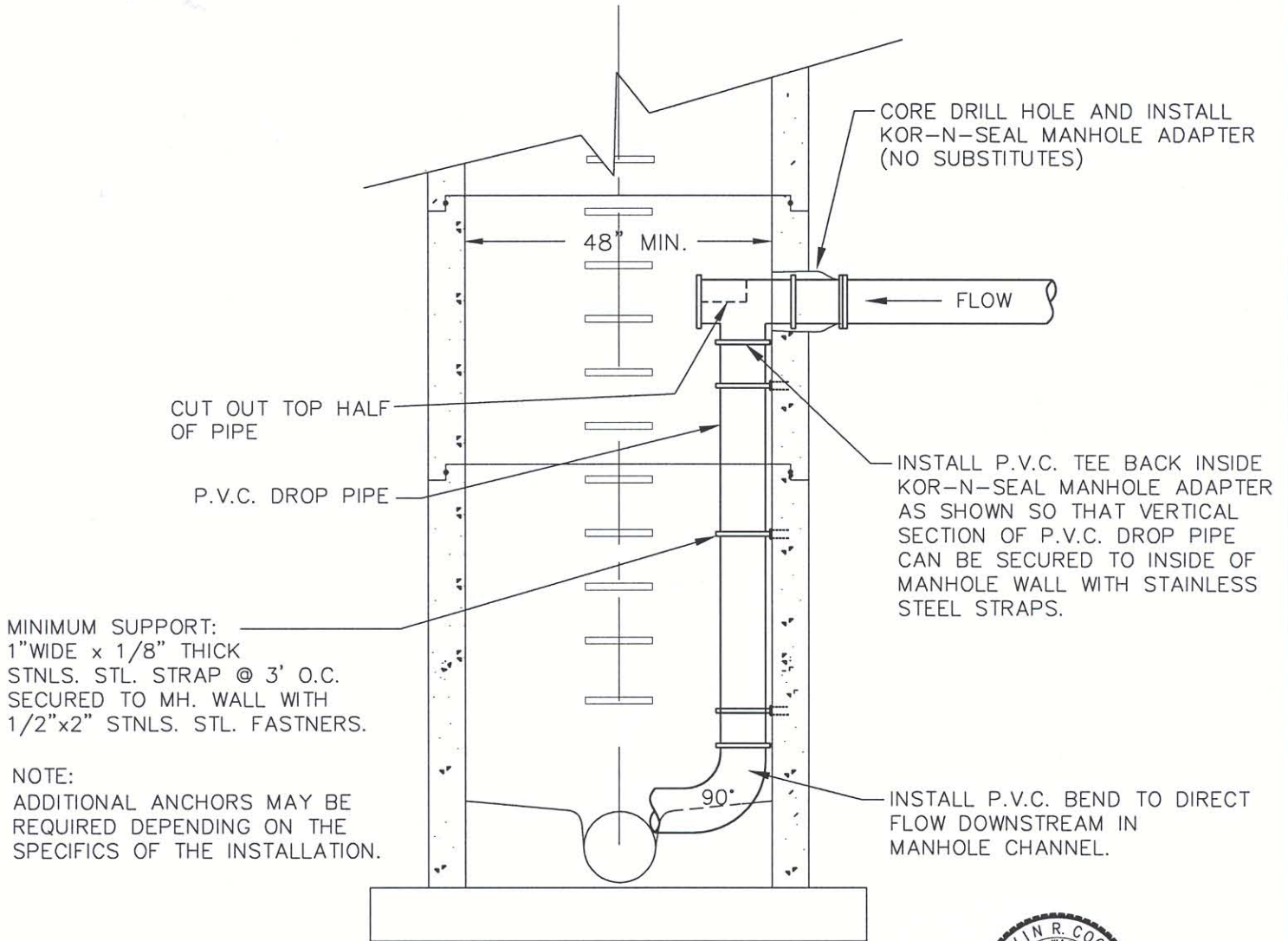
SHEET
U-10A

NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

NOTES

1. THIS DETAIL MAY BE USED IN SPECIAL CIRCUMSTANCES UPON APPROVAL BY THE SPOKANE COUNTY SEWER DESIGN MANAGER. MODIFICATIONS TO THIS DETAIL MAY BE REQUIRED, DEPENDING UPON THE SPECIFIC INSTALLATION.
2. ADDITIONAL ANCHORS MAY BE REQUIRED DEPENDING ON THE SPECIFICS OF THE INSTALLATION.
3. A DIVISION OF UTILITIES REPRESENTATIVE SHALL BE ON SITE DURING CORING OF MANHOLE. CALL 477-3604 24 HOURS IN ADVANCE TO SCHEDULE INSPECTION.



MINIMUM SUPPORT:
 1" WIDE x 1/8" THICK
 STNLS. STL. STRAP @ 3' O.C.
 SECURED TO MH. WALL WITH
 1/2"x2" STNLS. STL. FASTNERS.

NOTE:
 ADDITIONAL ANCHORS MAY BE
 REQUIRED DEPENDING ON THE
 SPECIFICS OF THE INSTALLATION.



EXPIRES 8/20/06 STANDARD U-10B

APPROVED: *Bruce Rawls*
 UTILITIES DIRECTOR
 DATE: 5/23/2006

STANDARD
 SANITARY SEWER MANHOLE
 INTERIOR DROP CONNECTION

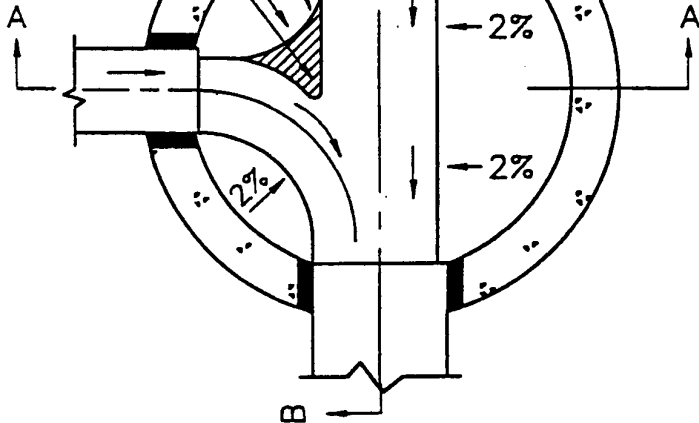
SHEET
 U-10B

NO.	DATE	BY	CKD.	APPR.	REVISION
1	4/06	GG	KRC	NBR	ADDED NOTES AND CLARIFIED ORIENTATION

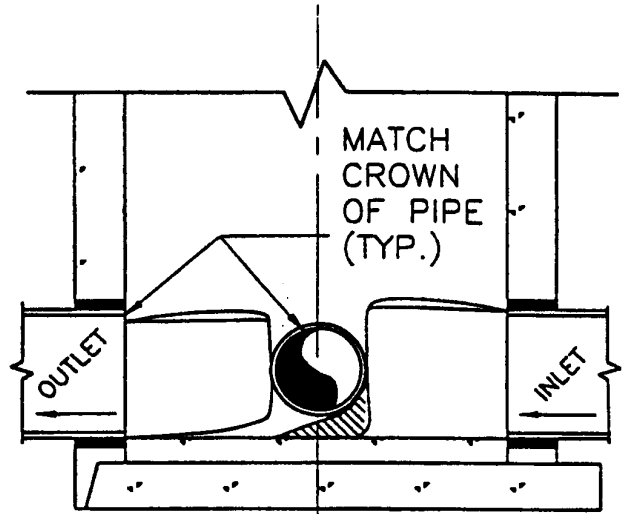
SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

6" RAD.
UPSTREAM
SWEEP (TYP.)

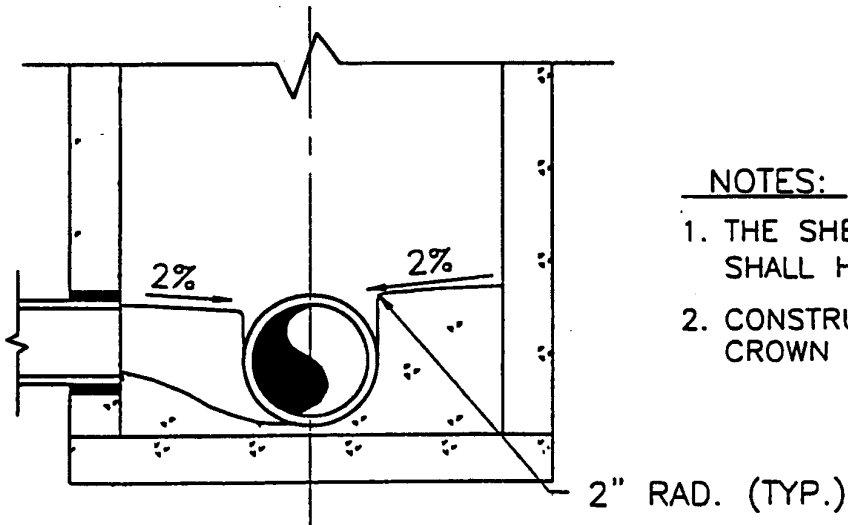
SHAPED
MORTAR
FILLET



PLAN



SECTION B-B



SECTION A-A

NOTES:

1. THE SHELF AND CHANNEL SHALL HAVE A SMOOTH FINISH.
2. CONSTRUCT SHELF TO THE CROWN LINE OF PIPE.



COPIES 8/29/08

STANDARD U-11

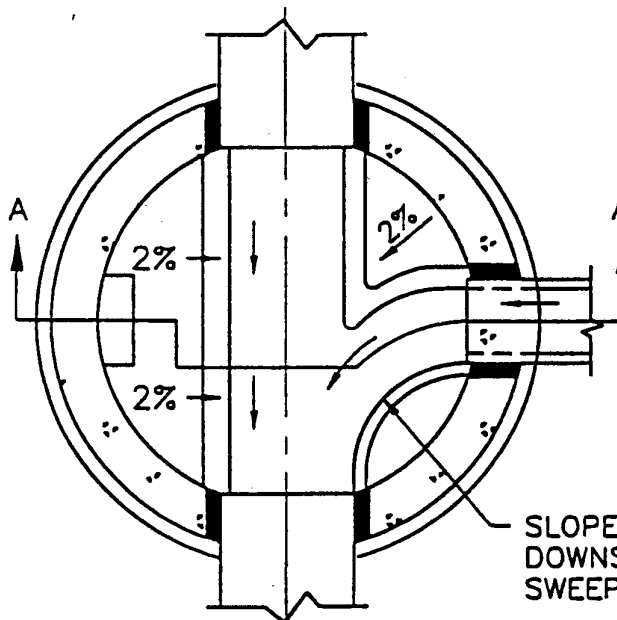
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

STANDARD
TYPICAL CHANNEL DETAIL

SHEET
U-11

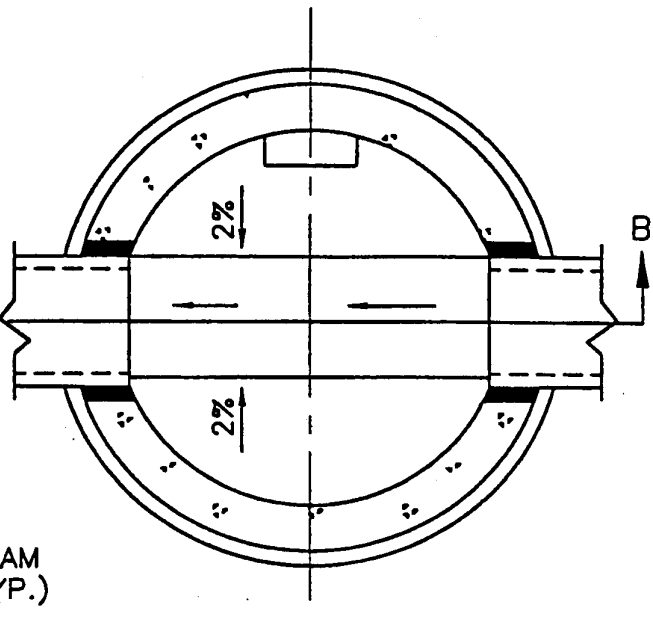
NO.	DATE	BY	CKD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604



PLAN
(LATERAL DROP)

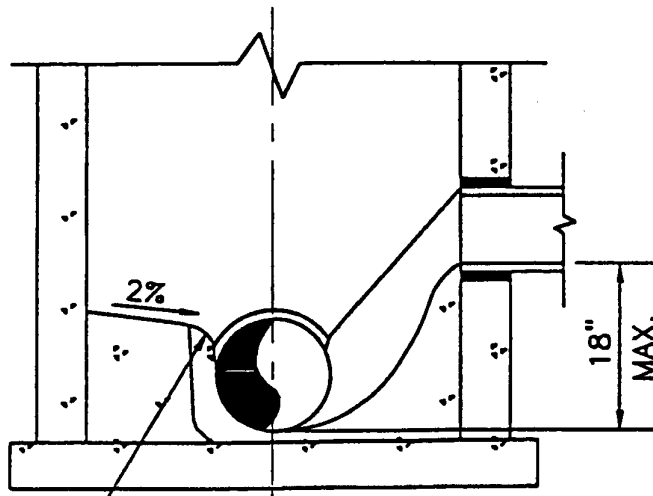
SLOPED
DOWNSTREAM
SWEEP (TYP.)



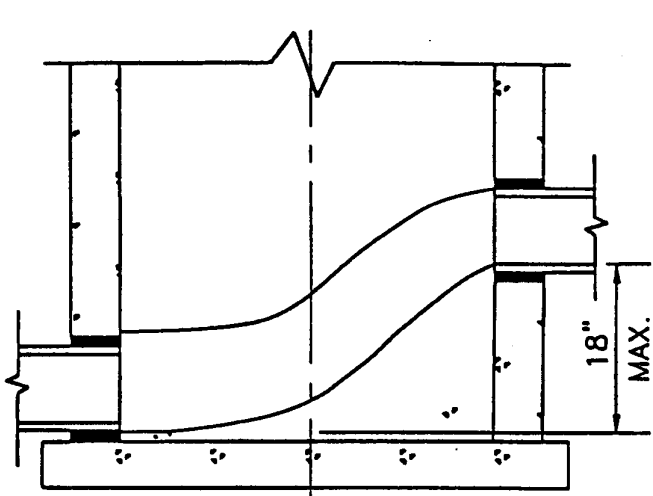
PLAN
(THROUGH DROP)

NOTES

1. THE SHELF AND CHANNEL SHALL HAVE A SMOOTH FINISH.
2. MAXIMUM PIPE SIZE IS 15" DIA. UNLESS OTHERWISE SPECIFIED.



SECTION A-A



SECTION B-B



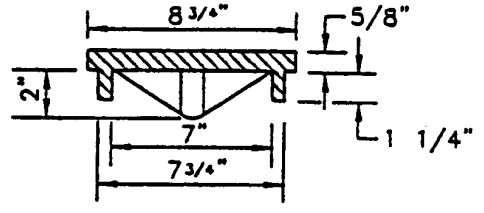
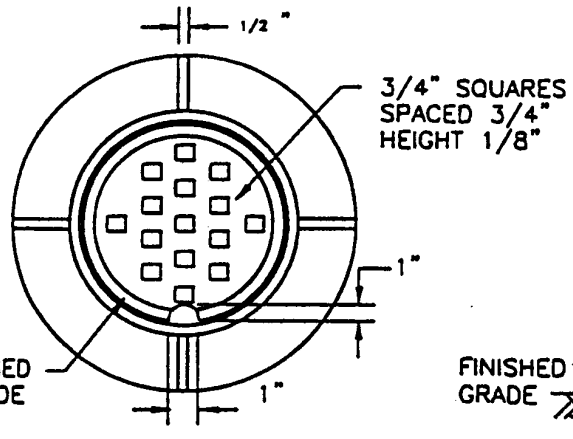
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/09

STANDARD
INTERIOR DROP CHANNELS

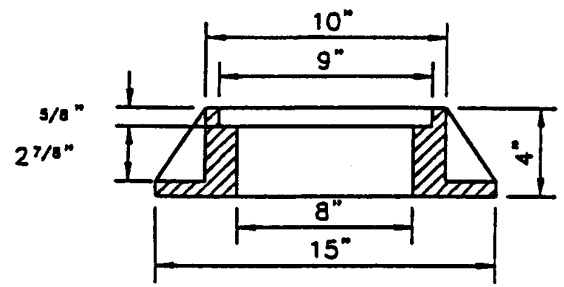
STANDARD U-12
SHEET
U-12

NO.	DATE	BY	CKD.	APPR.	REVISION

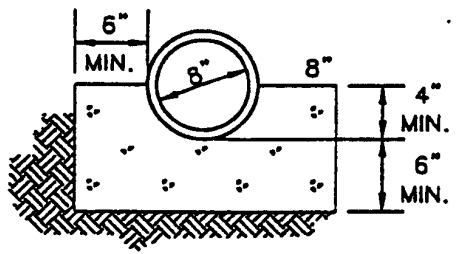
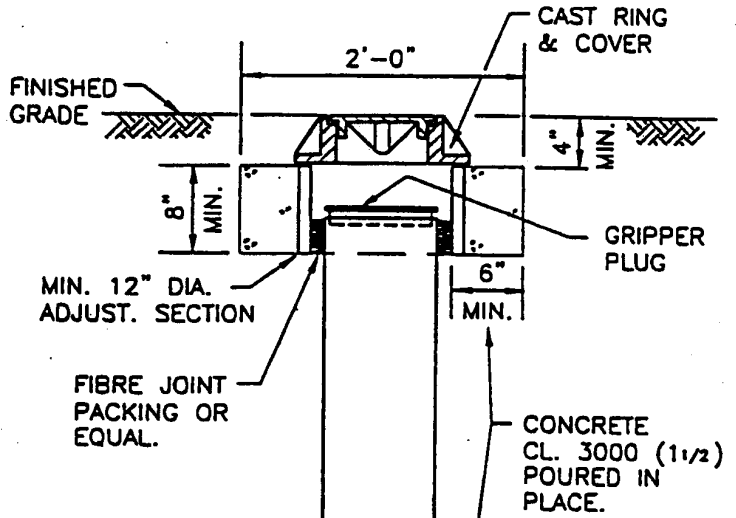
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604



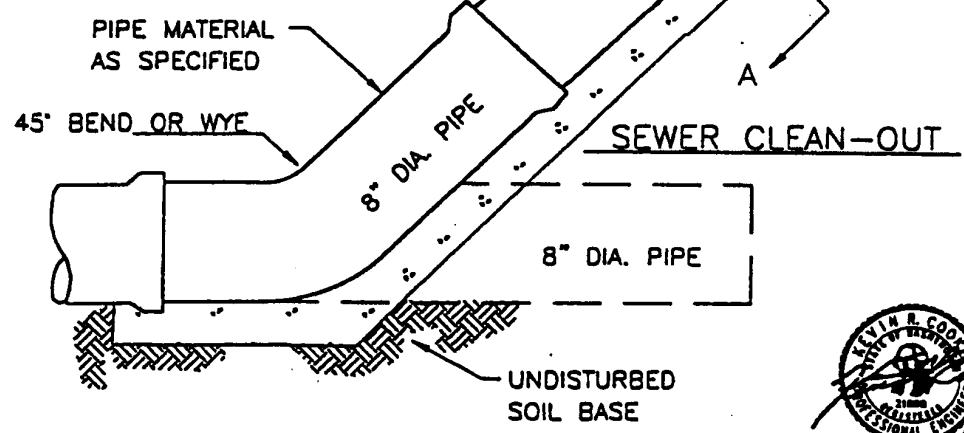
CAST IRON COVER



CAST IRON RING



SECTION A-A



STANDARD U-13

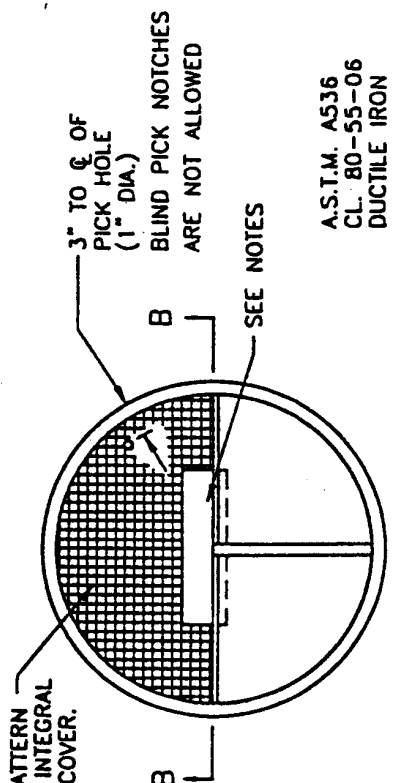
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/5/99

STANDARD
MAIN LINE SEWER CLEAN-OUT WITH
CAST IRON RING & COVER

SHEET
U-13

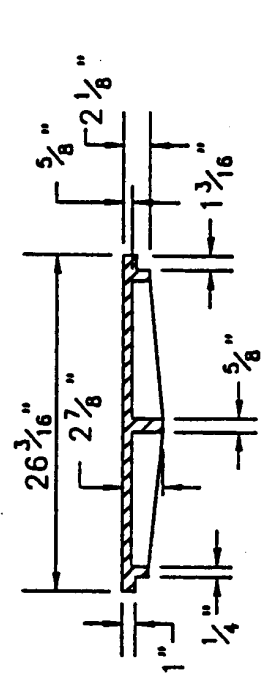
NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

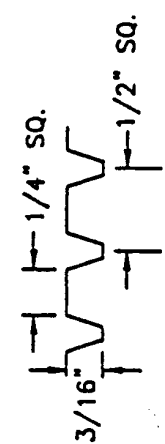


A.S.T.M. A536
CL. 80-55-06
DUCTILE IRON

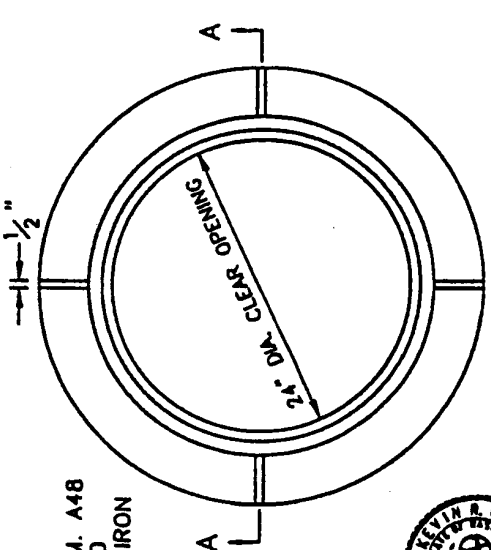
DUCTILE IRON COVER
MIN. WEIGHT 118 LBS.



SECTION B-B

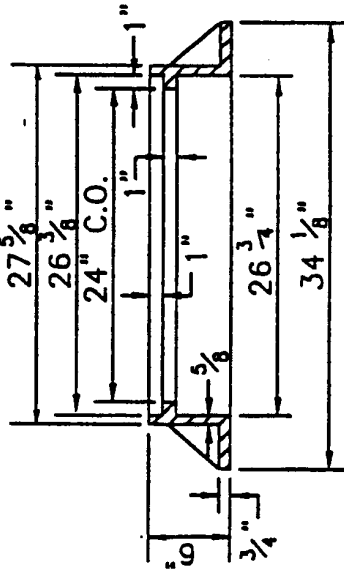


COVER SKID DESIGN DETAIL



A.S.T.M. A48
CL. 30
GRAY IRON

CAST IRON FRAME
MIN. WEIGHT 168 LBS.



SECTION A-A



EX-103 8/26/00

NOTES:

1. THE WORD SEWER SHALL BE EMBOSSED ON EACH SANITARY MANHOLE COVER WITH 3/16" RAISED LETTERS.
2. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621E.
3. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.

STANDARD U-14

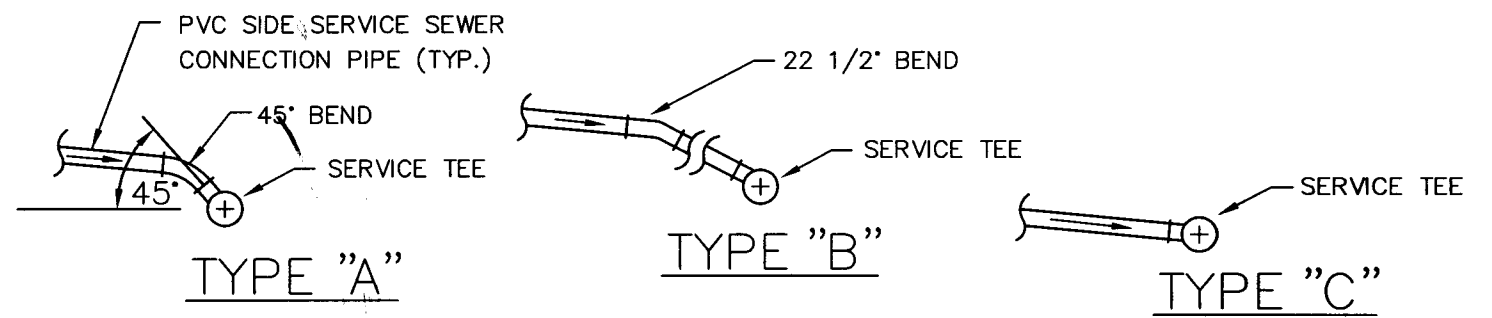
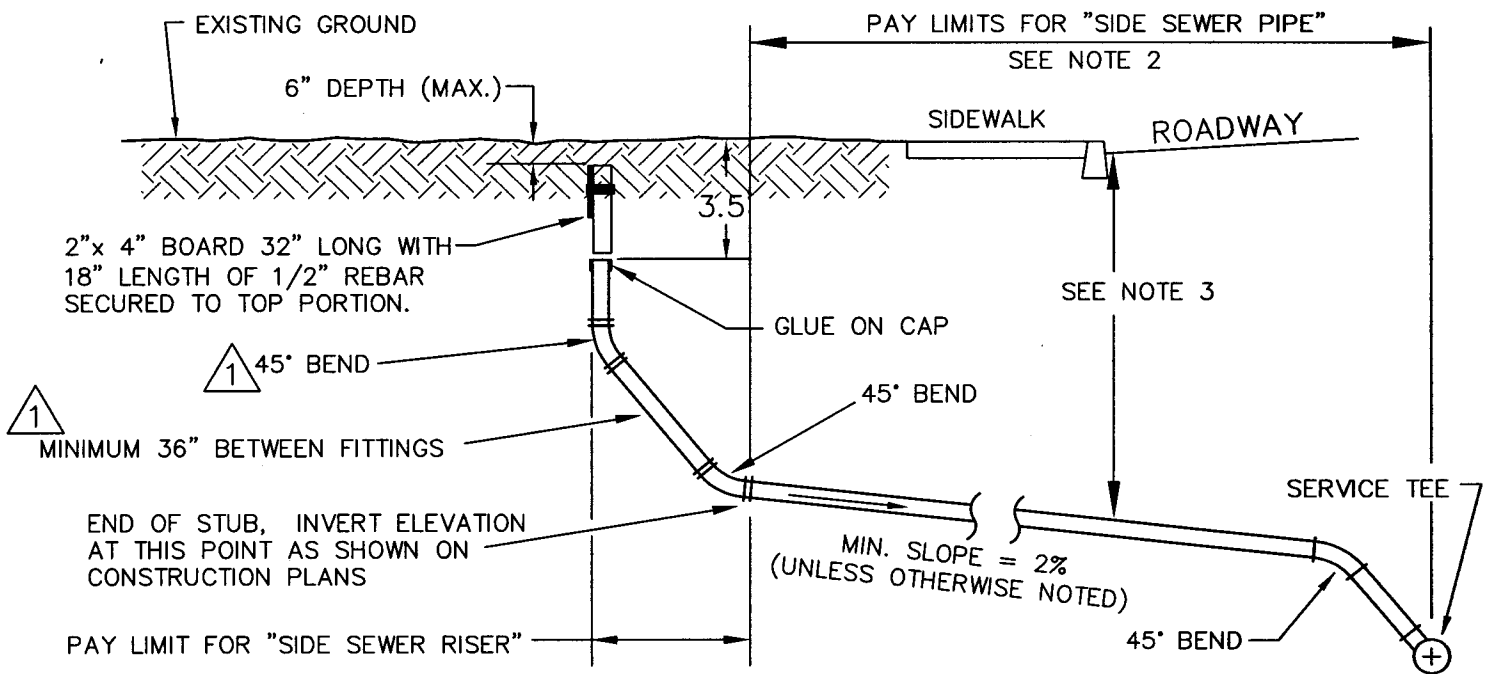
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/09

STANDARD
MANHOLE RING AND COVER

SHEET
U-14

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CKD.	APPR.	REVISION



NOTES

1. INSTALL PIPE ZONE MATERIAL (BEDDING) PER SPECIFICATIONS.
2. THE SIDE SEWER PIPE SHALL EXTEND TO THE POINT SHOWN ON THE PLANS. THE ENGINEER MAY FURTHER EXTEND THE SIDE SEWER PIPE TO MAINTAIN A 1:1 SLOPE FROM EXISTING OR PLANNED EDGE OF ASPHALT OR CONCRETE IMPROVEMENTS.
3. ALL SIDE SERVICES TO BE INSTALLED AT A MINIMUM DEPTH OF 8' WITHIN THE RIGHT OF WAY, UNLESS APPROVED BY THE SEWER DESIGN MANAGER.
4. THE RECORD DRAWINGS FOR EACH INDIVIDUAL STUB SHALL INCLUDE TWO (2) HORIZONTAL TIES TO THE TOP OF THE RISER. IN ADDITION, THE SEWER MAINLINE STATION AND 90° OFFSET DISTANCE TO THE RISER PIPE SHALL BE PROVIDED. THE DEPTH AND INVERT ELEVATION REQUIRED ON THE RECORD DRAWING (SPOKANE COUNTY STD. SHEET U-16) SHALL REFER TO THE PIPE INVERT AT THE BOTTOM OF THE SIDE SEWER RISER.
5. ALL CONNECTIONS SHALL BE TYPE "A" UNLESS OTHERWISE NOTED.
6. SIDE SEWER RISER IS OPTIONAL INSIDE NEW DEVELOPMENTS. IF RISER IS NOT INSTALLED, EXTEND 2"x 4" MARKER TO STUB INVERT.
7. SERVICE TEE SHALL MEET ASTM D3034, SDR 26.



APPROVED: *n Bruce Rawls*
 UTILITIES DIRECTOR
 DATE: *3/16/04*

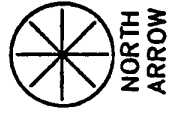
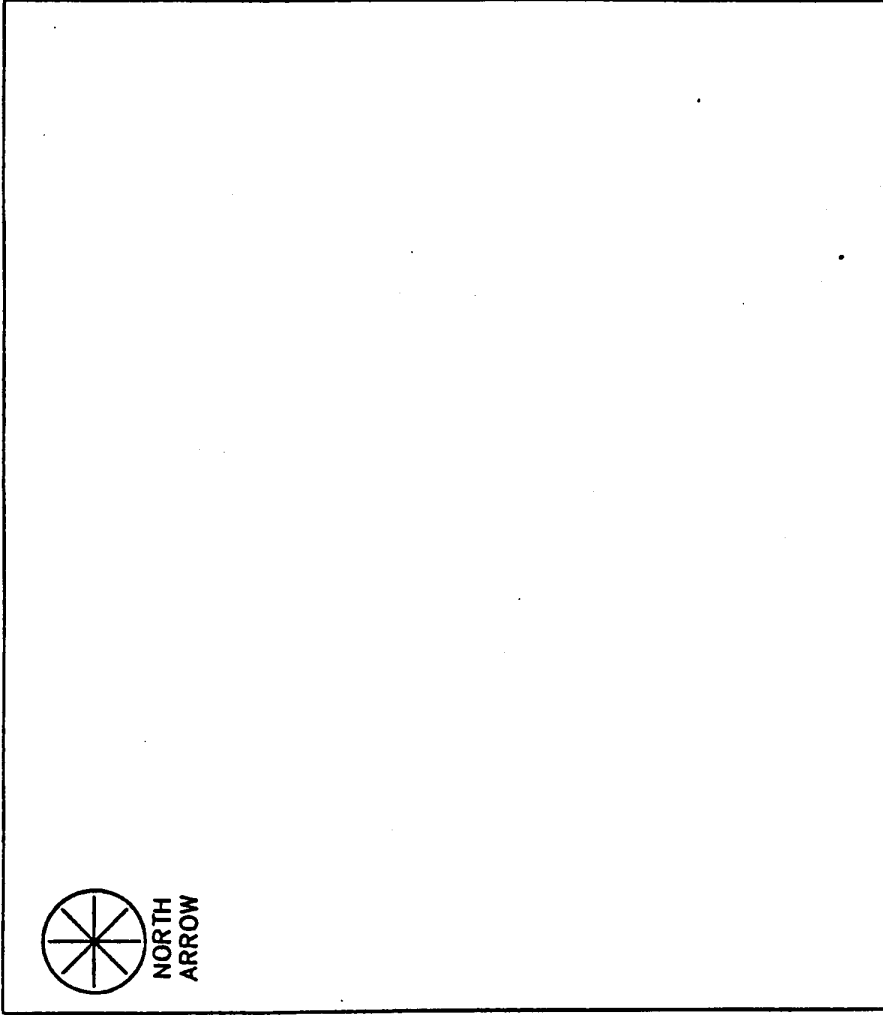
STANDARD
 SERVICE CONNECTION

SHEET
 U-15

1	3/04	GG	MS	KRC	DELETED DEEP SOCKET BEND REQUIREMENT
1	3/04	GG	MS	KRC	ADDED NOTES 6 AND 7
1	3/04	GG	MS	KRC	LENGTH BETWEEN 45°s WAS 12" MIN., NOW 36" MIN.
NO.	DATE	BY	CKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

CONTRACTOR _____
 INSPECTOR _____
 COMPANY _____
 DATE INSTALLED _____
 TEE TYPE _____
 STUB: DIA. _____
 LENGTH _____
 CENTERLINE STATION _____
 LINE NO. _____
 STA. OF AND DIRECTION TO NEAREST MANHOLE _____
 INVERT EL. _____
 DEPTH FROM NATURAL GROUND TO STUB _____
 LOCAL B.M. ELEV. _____
 DESCRIPTION OF LOCAL B.M. _____
 PIPE GRADE _____
 _____ FT. BELOW THRESHOLD _____
 HOUSE TYPE _____
 REMARKS _____



NOTE: MAKE TIES TO PERMANENT SURFACE FEATURES SHOWN ON PLANS

PROJECT NAME: _____
 REF. DRAWING NO. _____
 FILE NUMBER: _____
 PARCEL: _____
 STREET: _____
 ADDRESS: _____

STANDARD U-16

APPROVED: WBR
 UTILITIES DIRECTOR
 DATE: 11/15/99

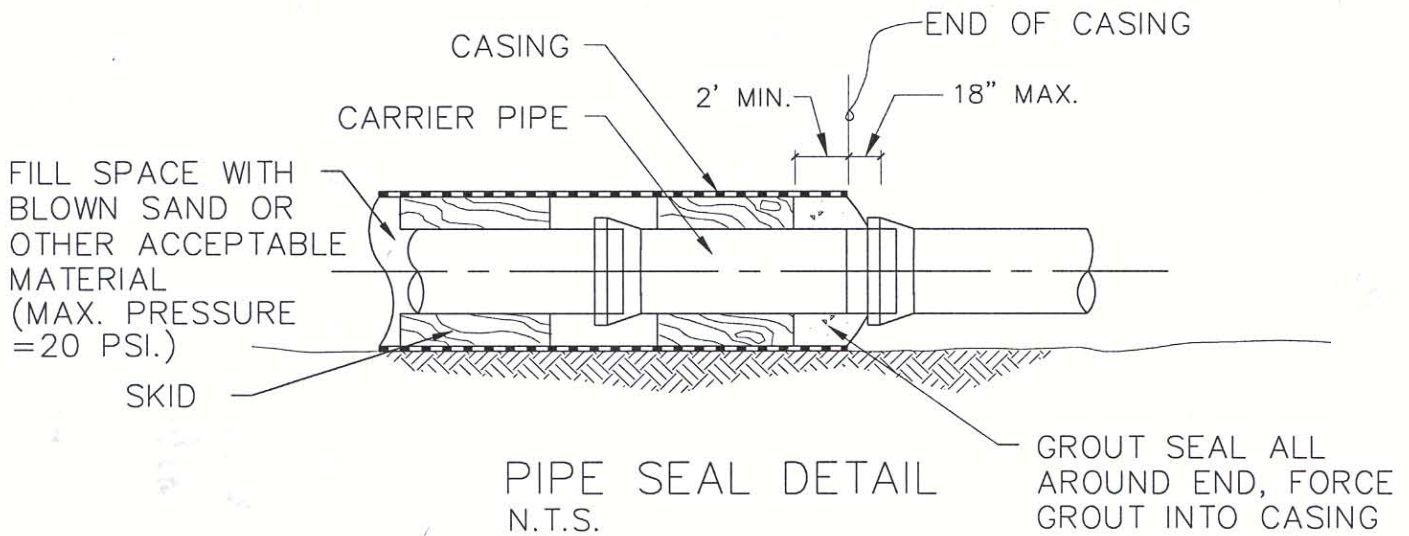


STANDARD
 SIDE SERVICE CONNECTION
 RECORD DRAWINGS

SHEET
 U-16

NO.	DATE	BY	CKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

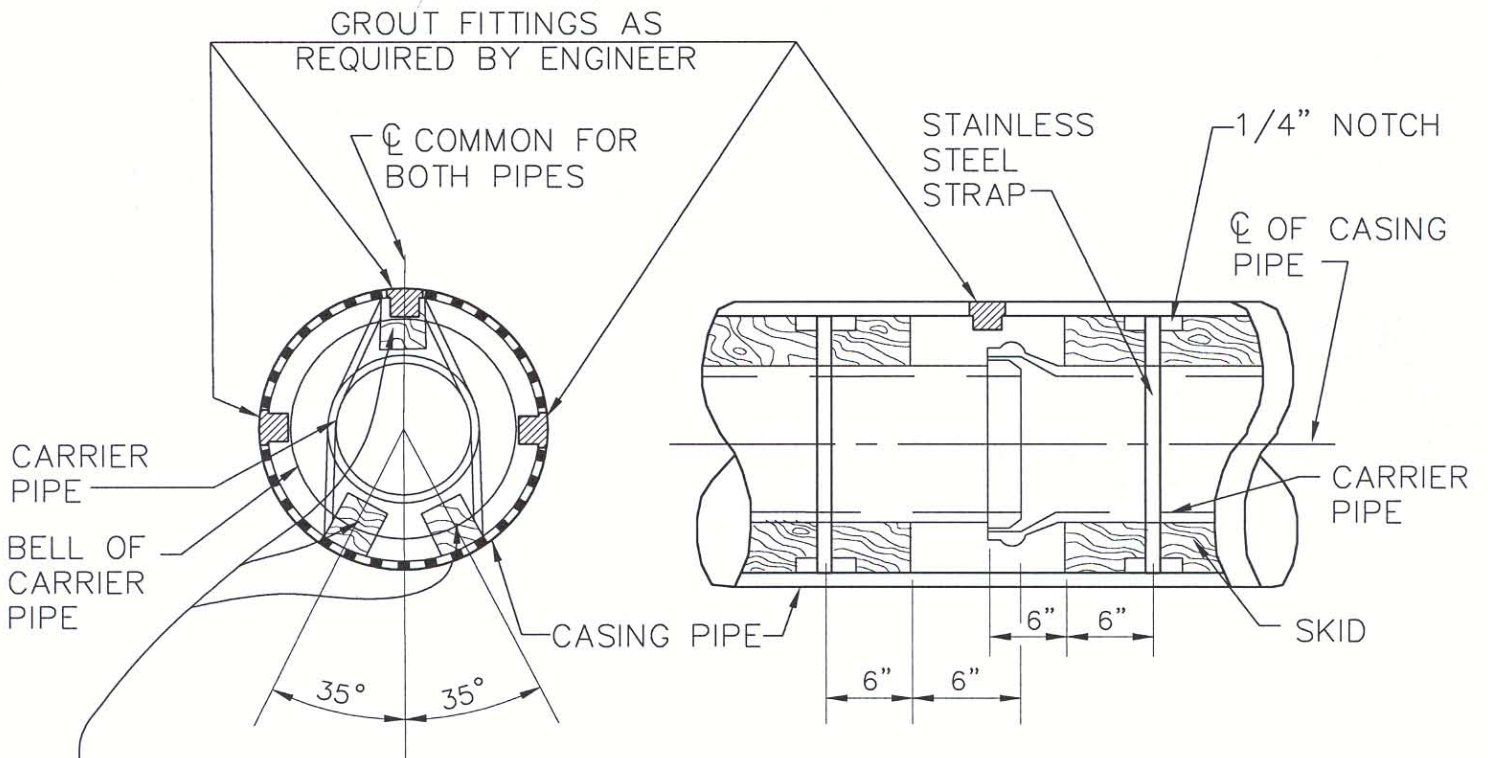


FILL SPACE WITH
BLOWN SAND OR
OTHER ACCEPTABLE
MATERIAL
(MAX. PRESSURE
=20 PSI.)

SKID

PIPE SEAL DETAIL
N.T.S.

GROUT SEAL ALL
AROUND END, FORCE
GROUT INTO CASING



PRESSURE TREATED FIR SKIDS FOR ENTIRE
LENGTH OF PIPELINE THRU CASING - OMIT AT BELLS.
FASTEN TO CARRIER PIPE BARREL WITH CONTINUOUS
CONTACT CEMENT BOND AND 3 STAINLESS STEEL
STRAPS PER PIPE BARREL. NOTCH SKIDS 1/4" DEEP
FOR STRAPS AS SHOWN.

CREOSOTE TREATED WOOD IS PROHIBITED.

COMMERCIALY FABRICATED CASING SPACERS APPROVED BY THE ENGINEER
MAY BE USED IN LIEU OF THE FIR SKIDS.

TYPICAL PIPE CASING DETAIL
N.T.S.



EXPIRES 8/20/06

STANDARD U-17

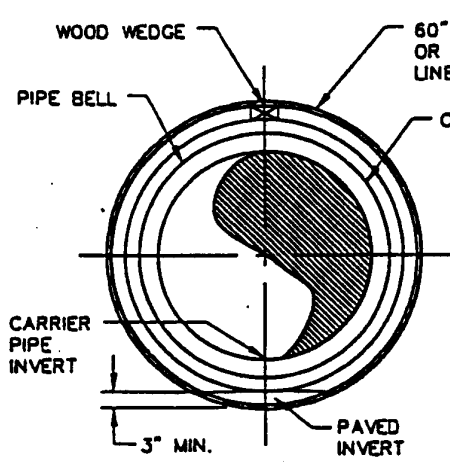
APPROVED: *Bruce Rawls*
UTILITIES DIRECTOR
DATE: 5/23/2006

STANDARD
TYPICAL PIPE CASING DETAIL

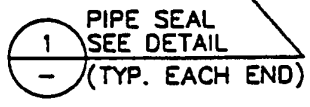
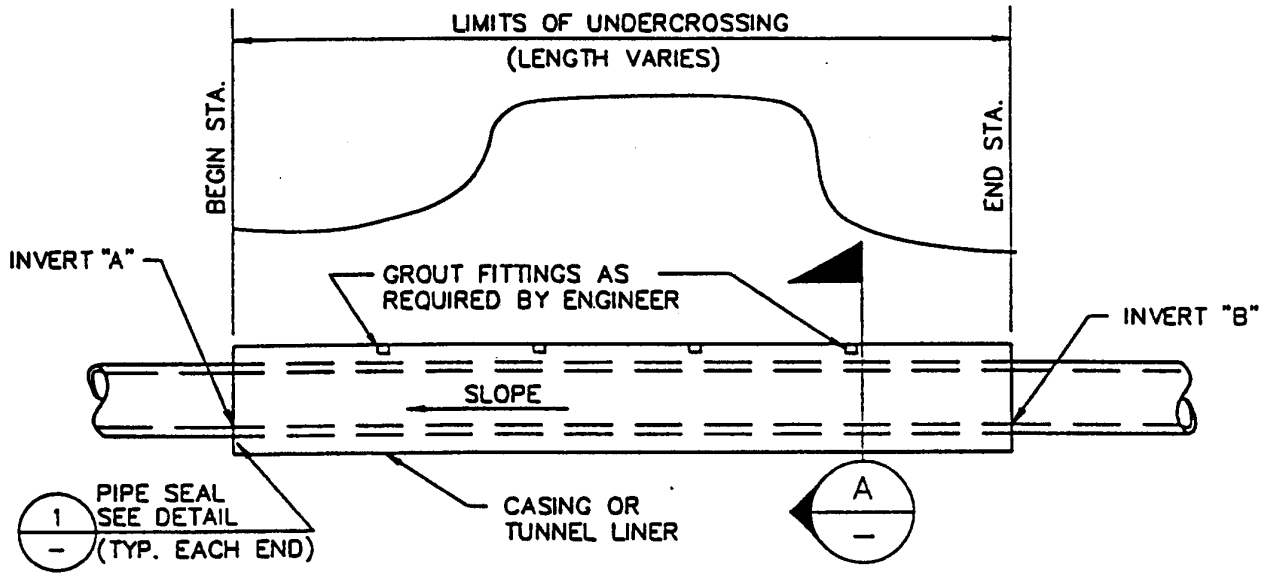
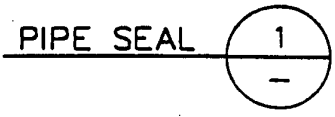
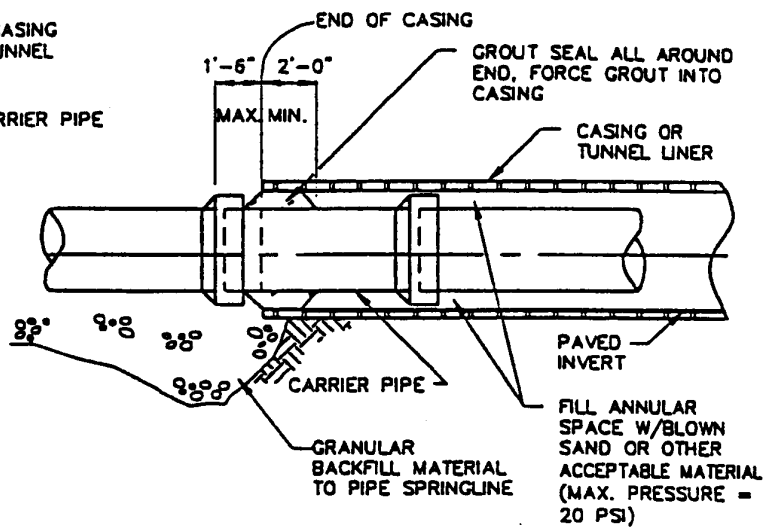
SHEET
U-17

NO.	DATE	BY	CHKD.	APPR.	REVISION
1	4/06	GG	KRC	NBR	MISSPELLING IN NOTES

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604



SECTION A



EXPIRES 8/30/00 STANDARD U-18

APPROVED: NBR
 UTILITIES DIRECTOR
 DATE: 11/18/99

STANDARD
 TYPICAL PIPE CASING DETAIL
 (CONCRETE)

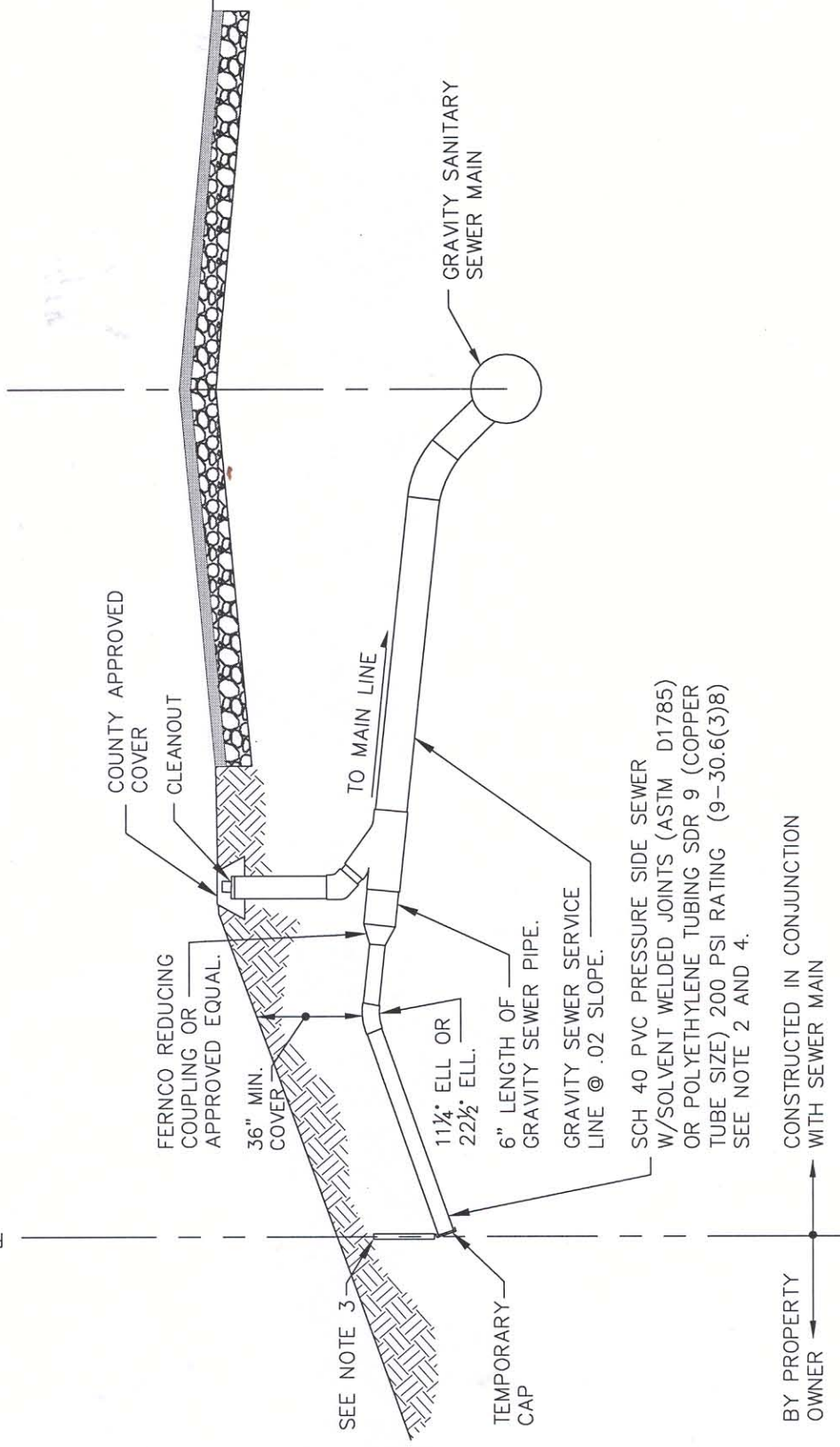
SHEET
U-18

NO.	DATE	BY	CKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

R/W

R/W



NOTES:

1. GRINDER PUMP ASSEMBLY CHECK VALVE AND PRESSURE SIDE SEWER INSTALLED BY PROPERTY OWNER.
2. PRESSURE SIDE SEWER AND SOLVENT WELD JOINTS SHALL BE PRESSURE TESTED AT 50 PSI FOR 15 MINUTES WITHOUT PRESSURE LOSS. PRESSURE TEST PIPE AND BUSHING PRIOR TO MAKING CONNECTION TO THE 4" STUB.
3. THE END OF THE PIPE (TEMPORARY CAP) SHALL BE MARKED ACCORDING TO SPOKANE COUNTY STANDARD PLAN U-15.
4. PRESSURE SERVICE STUB TO BE CONSTRUCTED IN CONFORMANCE WITH SPOKANE COUNTY STANDARD PLAN U-23 IF WATER MAIN CROSSING IS ENCOUNTERED.

COUNTY APPROVED COVER CLEANOUT

FERNCO REDUCING COUPLING OR APPROVED EQUAL.

36" MIN. COVER

SEE NOTE 3

11 1/4" ELL OR 22 1/2" ELL.

TEMPORARY CAP

6" LENGTH OF GRAVITY SEWER PIPE.

GRAVITY SEWER SERVICE LINE @ .02 SLOPE.

SCH 40 PVC PRESSURE SIDE SEWER W/SOLVENT WELDED JOINTS (ASTM D1785) OR POLYETHYLENE TUBING SDR 9 (COPPER TUBE SIZE) 200 PSI RATING (9-30.6(3)8) SEE NOTE 2 AND 4.

CONSTRUCTED IN CONJUNCTION WITH SEWER MAIN

BY PROPERTY OWNER



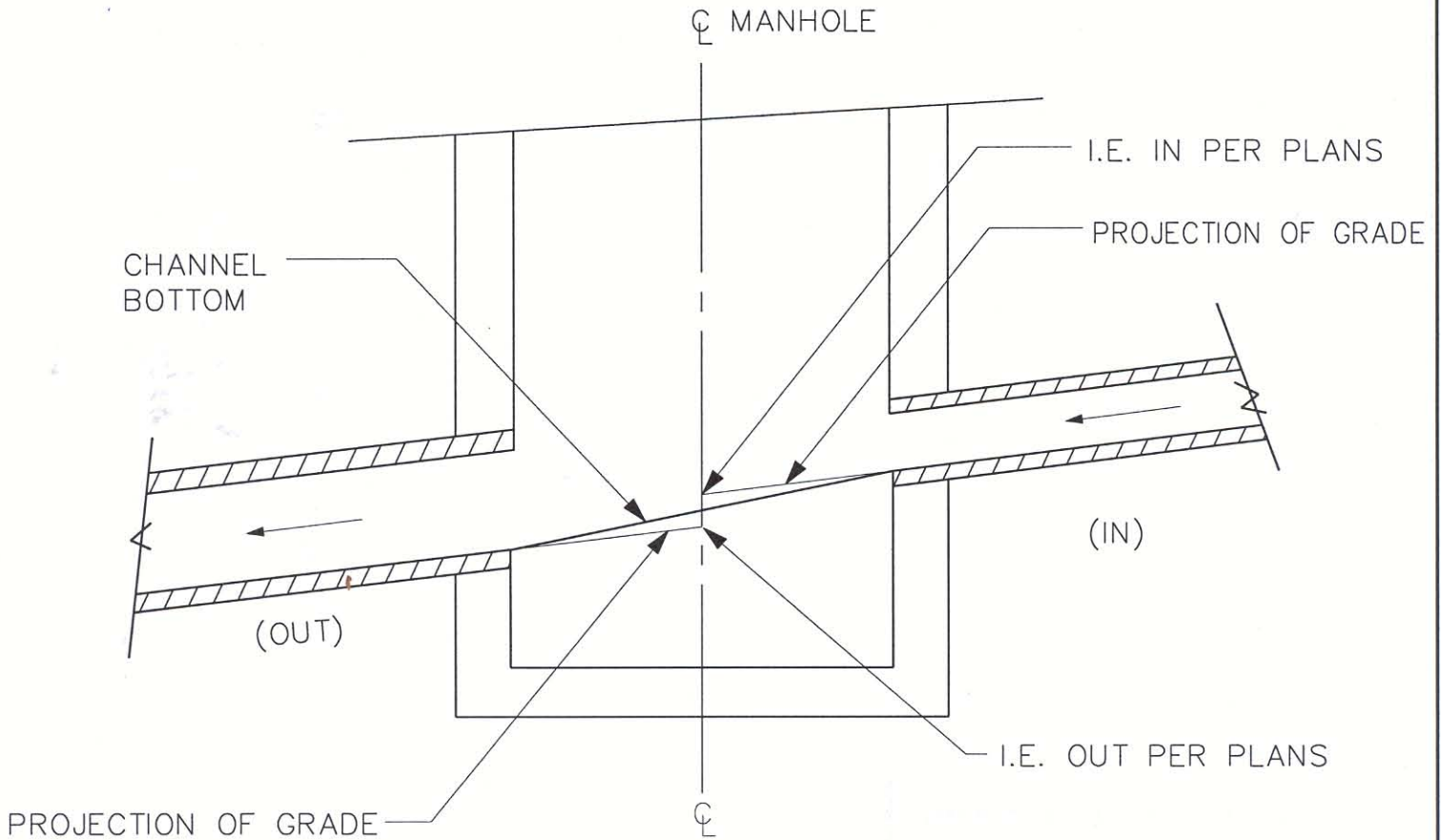
APPROVED: *Bruce Rawls*
 UTILITIES DIRECTOR
 DATE: 5/23/2006

STANDARD
 PRESSURE SERVICE STUB
 FROM GRAVITY SEWER MAIN

SHEET
 U-19

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. 99206 477-3604

NO.	DATE	BY	CKD.	APPR.	REVISION



MANHOLE I.E. DETAIL

NOT TO SCALE

NOTES:

INVERT ELEVATIONS SHOWN ON PLANS SHALL BE CALCULATED BY PROJECTING PIPE GRADES TO CENTER OF MANHOLE.

THE DIFFERENCE BETWEEN THE PLAN INVERT ELEVATION FOR THE INLET & THE DISCHARGE LINES SHALL BE AT LEAST 0.10' REGARDLESS OF GRADE. DEVIATIONS MUST BE APPROVED BY SEWER DESIGN MANAGER



EXPIRES 8/20/06 \STANDARD\U-20

APPROVED: *Bruce Rawls*
 UTILITIES DIRECTOR
 DATE: 5/23/2006

==== STANDARD ====

MANHOLE INVERT ELEVATION DETAIL

SHEET
U-20

NO.	DATE	BY	CKD.	APPR.	REVISION
1	4/06	GG	KRC	NBR	CHANGES IN NOTES

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

PVC FEMALE ADAPTER COUPLING

ADJUST VALVE BOX TO MATCH FINAL ROAD GRADE. TOP OF LID TO READ "SEWER"

CAST IRON VALVE BOX TRAFFIC RATED

SERVICE CLAMP OR TEE

12"x8"x2" SOLID CONCRETE THRUST BLOCK

LOW PRESSURE MAIN

BRASS CORPORATION STOP

CONCRETE BLOCK

PVC PIPE SCHED. 40 PER ASTM 1785

NOTES/SPECIFICATIONS:

PROPERTY LINE

1'

TOP OF LID TO READ "SEWER"

PROVIDE 6" SQ. CONC. PAD

FINISH GRADE

CURB BOX W/FOOT AND SLEEVE, TRAFFIC RATED

4" MIN.

BRASS CURB STOP

BALL CHECK VALVE

BRASS THREADED COUPLER

PVC PLUG

6" BRASS OR STAINLESS STEEL NIPPLE

CONCRETE BLOCK

6" BRASS OR STAINLESS STEEL NIPPLE

BRASS THREADED COUPLER

CONCRETE BLOCK

PVC FEMALE ADAPTER COUPLING

1. SEE PLANS FOR PIPE AND FITTING DIAMETERS AND INSTALLATION LENGTH.
2. PIPE SHALL BE PVC SCHEDULE 40 PER ASTM 1785.
3. FITTINGS SHALL BE PVC SCHEDULE 80 PER ASTM 2467 UNLESS OTHERWISE INDICATED.
4. CORPORATION STOPS AND CURB STOPS SHALL BE BRASS AND SHALL CONFORM TO THE PROVISIONS OF AWWA C800.
5. SERVICE CLAMP SHALL CONFORM TO THE PROVISIONS OF AWWA C800, BRONZE, SIZED TO FIT THE PRESSURE MAIN DIAMETER, WITH THREADS COMPATIBLE WITH THE CORPORATION STOP.
6. CURB BOX SHALL BE CAST IRON, IMPROVED EXTENSION TYPE WITH ARCH PATTERN BASE, FOOT AND SLEEVE.
7. INSTALLATION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE SPOKANE COUNTY STANDARD SPECIFICATIONS FOR ROAD AND SEWER CONSTRUCTION, LATEST EDITION.
8. BALL CHECK VALVE SHALL BE FLOMATIC MODEL 208, CAST IRON, WITH EPOXY COATED BODY.
9. INSTALL VALVE BOX OPERATING NUT EXTENSION FOR SHUT OFF IF DEPTH EXCEEDS 4 FEET.



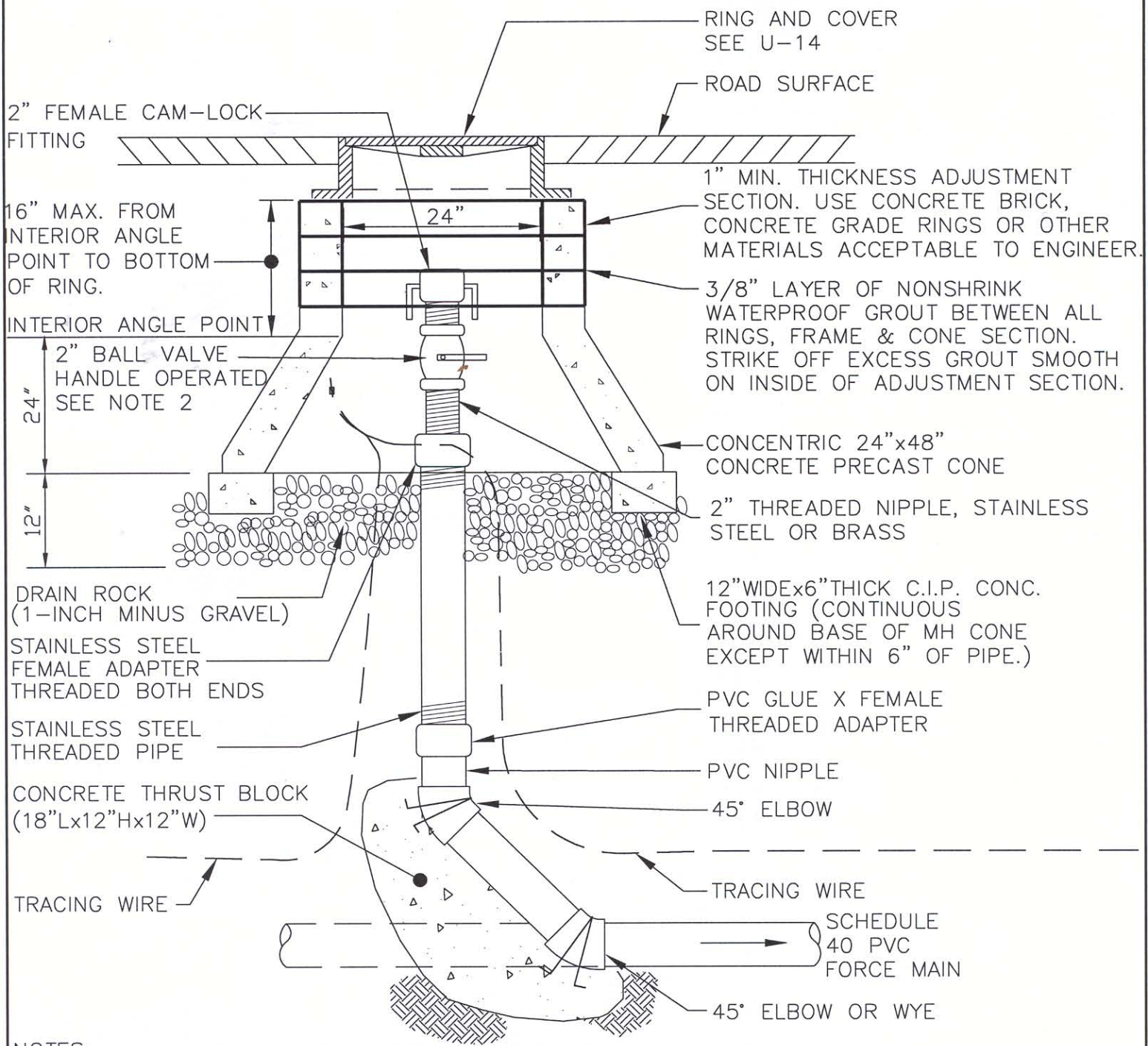
APPROVED: *Bruce Rawls*
 UTILITIES DIRECTOR
 DATE: 5/23/2006

STANDARD
 PRESSURE SERVICE STUB
 FROM FORCE MAIN

SHEET
 U-21

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. 99206 477-3604

NO.	DATE	BY	CKD.	APPR.	REVISION



NOTES:

1. FLUSHING CONNECTIONS SHALL BE INSTALLED AT TERMINAL END OF EACH MAIN, A MINIMUM OF EVERY 1000 LINEAL FEET ON STRAIGHT RUNS OF PIPE, AND AT THE INTERSECTION OF 3 OR MORE FORCE MAINS.
2. BALL VALVE SHALL BE 2 WAY STAINLESS STEEL SIZED TO MATCH FORCE MAIN DIAMETER, BY PITTSBURG BRASS OR APPROVED EQUAL.
3. TRACING WIRE (10GA. GALV.) TO BE INSTALLED MAX. 2' ABOVE FORCE MAIN LINE FOR THE ENTIRE LENGTH, WITH CONTACT POINTS AT MAIN LINE GATE VALVES AND FLUSHING CONNECTIONS.



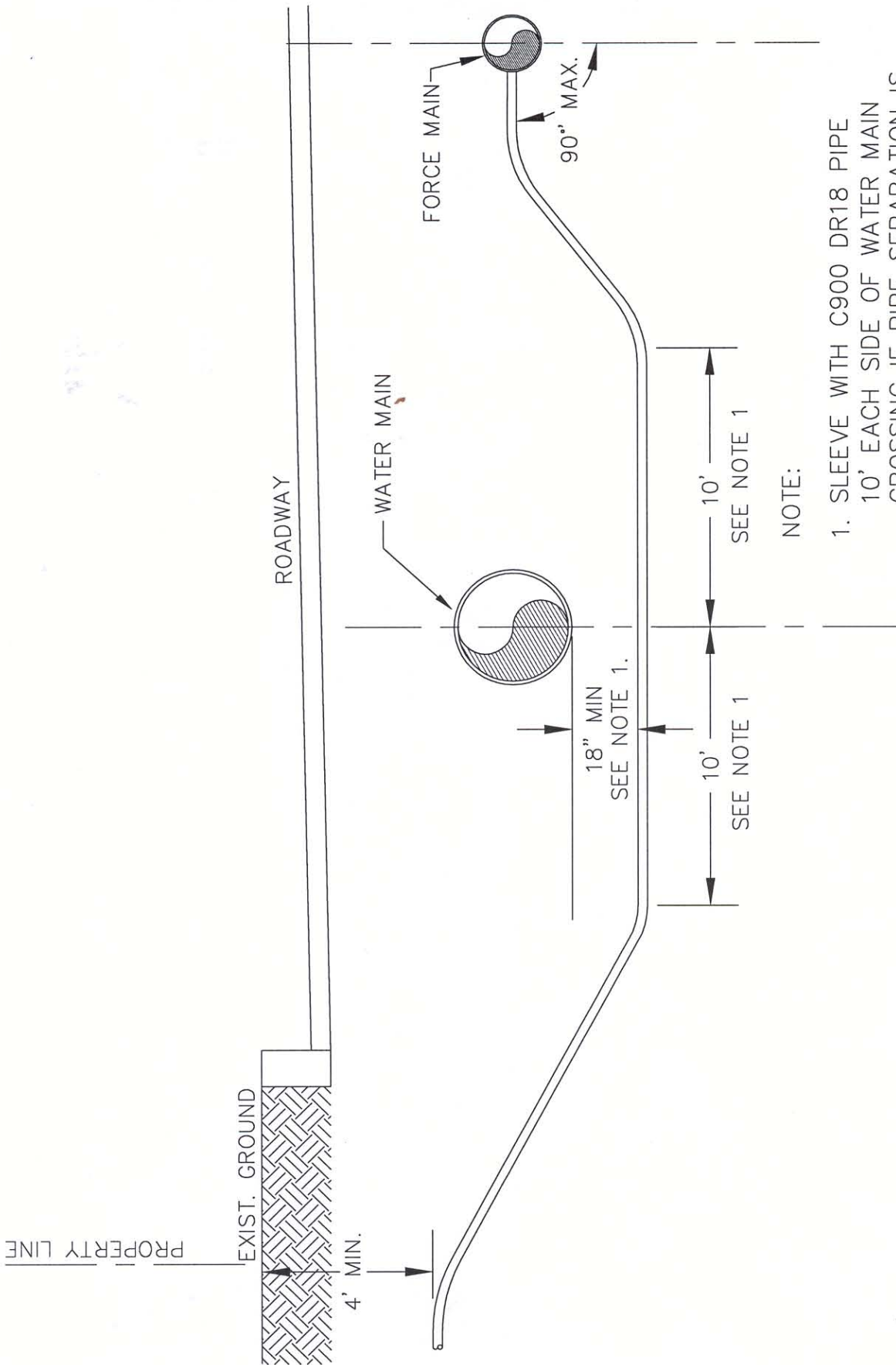
APPROVED: *Bruce Rawls*
 UTILITIES DIRECTOR
 DATE: 5/23/2006

STANDARD
 FLUSHING CONNECTION
 LOW PRESSURE SEWER SYSTEM

SHEET
 U-22

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. 99206 477-3604

NO.	DATE	BY	CKD.	APPR.	REVISION



NOTE:

1. SLEEVE WITH C900 DR18 PIPE 10' EACH SIDE OF WATER MAIN CROSSING IF PIPE SEPARATION IS LESS THAN 18".
2. PRESSURE SERVICE CONNECTION SHALL BE INSTALLED IN CONFORMANCE WITH SPOKANE COUNTY STANDARD PLAN U-21.



APPROVED: *Bruce Rawls*
 UTILITIES DIRECTOR
 DATE: 5/23/2006

STANDARD
 PRESSURE SERVICE STUB DETAIL
 FOR WATER MAIN CROSSING

SHEET
 U-23

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. 99206 477-3604

NO.	DATE	BY	CKD.	APPR.	REVISION