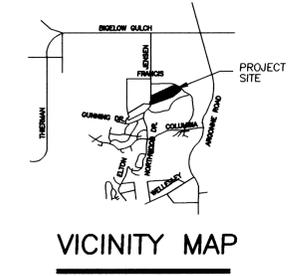
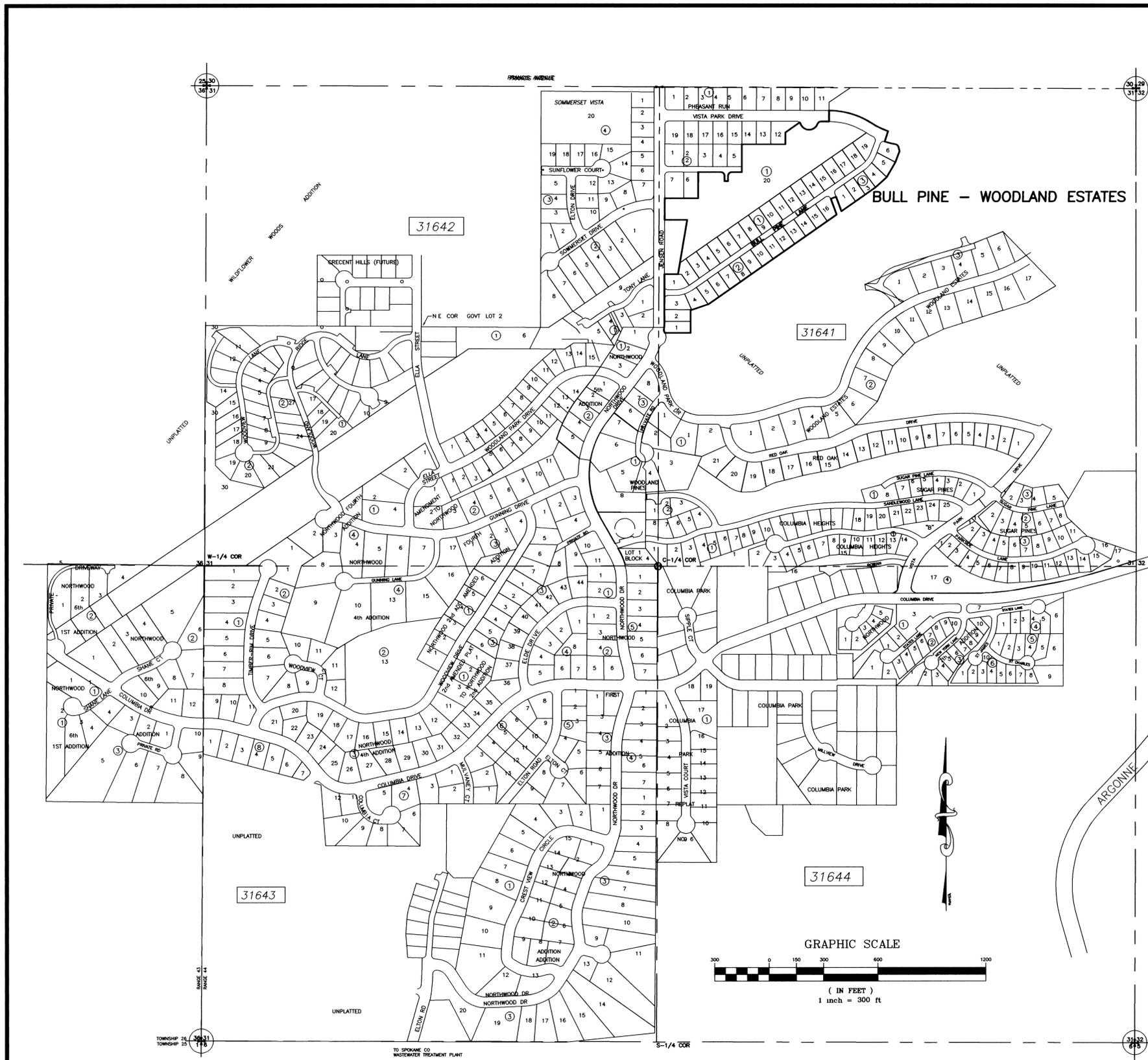


\\Server\0\Projects\1990\98-169-Bull Pine\98169sht1.dwg Thu Oct 14 14:48:55 1999



### SHEET INDEX

- SHEET 1 - STREET AND STORM DRAINAGE PLAN AND PROFILE TITLE SHEET
- SHEET 2 - STREET & STORMDRAIN - VISTA PARK DR - PLAN AND PROFILE - STA 38+00 TO STA 41+71.41
- SHEET 3 - STREET & STORMDRAIN - BULL PINE LANE PLAN AND PROFILE - STA 1+00 TO STA 11+00
- SHEET 4 - STREET & STORMDRAIN - BULL PINE LANE PLAN AND PROFILE - STA 11+00 TO VISTA PARK DRIVE
- SHEET 5 - EROSION AND SEDIMENT CONTROL PLAN
- SHEET 6 - STREET AND DRAINAGE DETAILS

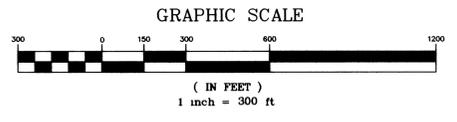
SPOKANE COUNTY ENGINEERS OFFICE  
OFFICIAL PUBLIC DOCUMENT ORIGINAL  
**CONSTRUCTION PLANS**  
PROJECT # **P1729 F**  
DATE ACCEPTED **21 OCT 99**  
ACCEPTANCE EXPIRES **21 OCT 2001**  
PROJECT LANE MILES PUBLIC **.53**  
CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS AS BIDDING ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE  
PERMIT REQUIRED (50% or more) **10** DAYS PRIOR TO CONSTRUCTION

### CERTIFICATION

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 Stormwater Management. All design deviations have been approved by the Spokane County Engineer. I approve these plans for construction.

Engineer's Approval: *Jerry Stork* Date: 10/14/99  


Developer's Approval: *John Gammara* Date: 10/15/99



SECTION 31, T. 26 N., R. 44 E. W. M.



**STORHAUG ENGINEERING**  
E. 9616 MONTGOMERY  
SPOKANE, WA 99206  
(509) 924-8052

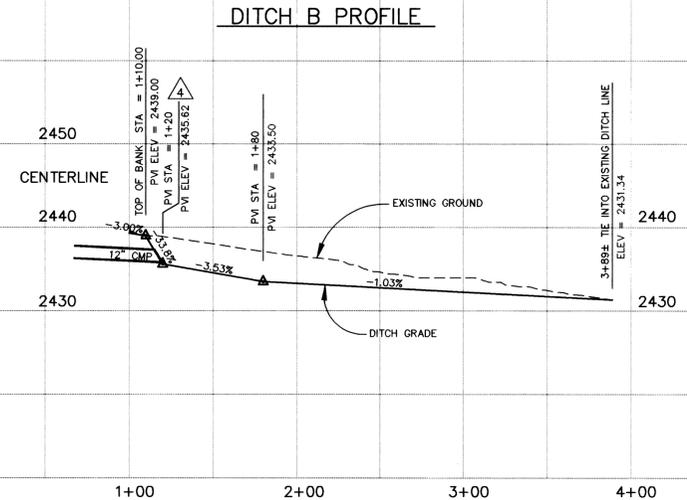
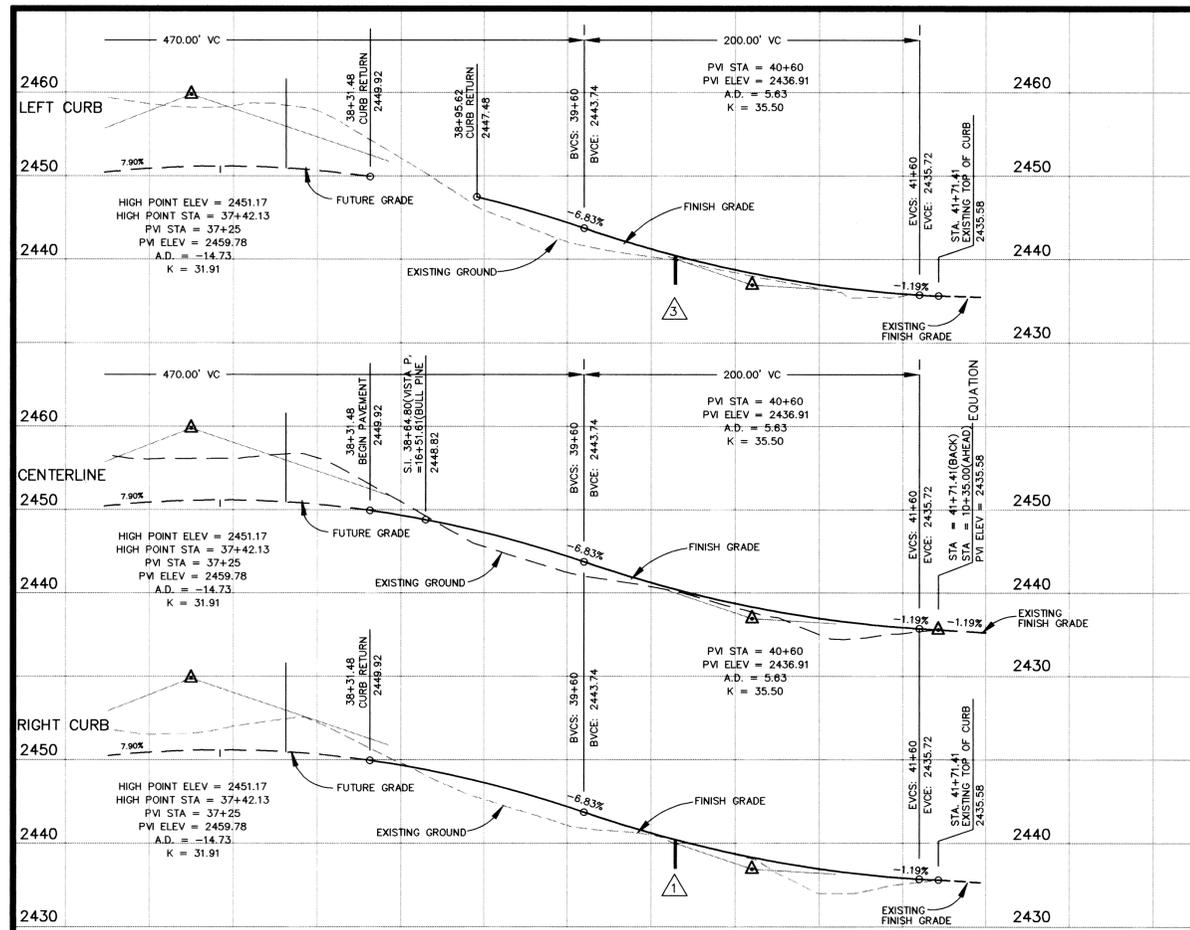
DRAWN BY: GREDVIG  
CHECKED BY: MORSE  
DATE: 9/17/99  
SCALE: AS SHOWN

**BULL PINE - WOODLAND ESTATES  
STREET AND STORM DRAINAGE  
PLAN AND PROFILE TITLE SHEET**

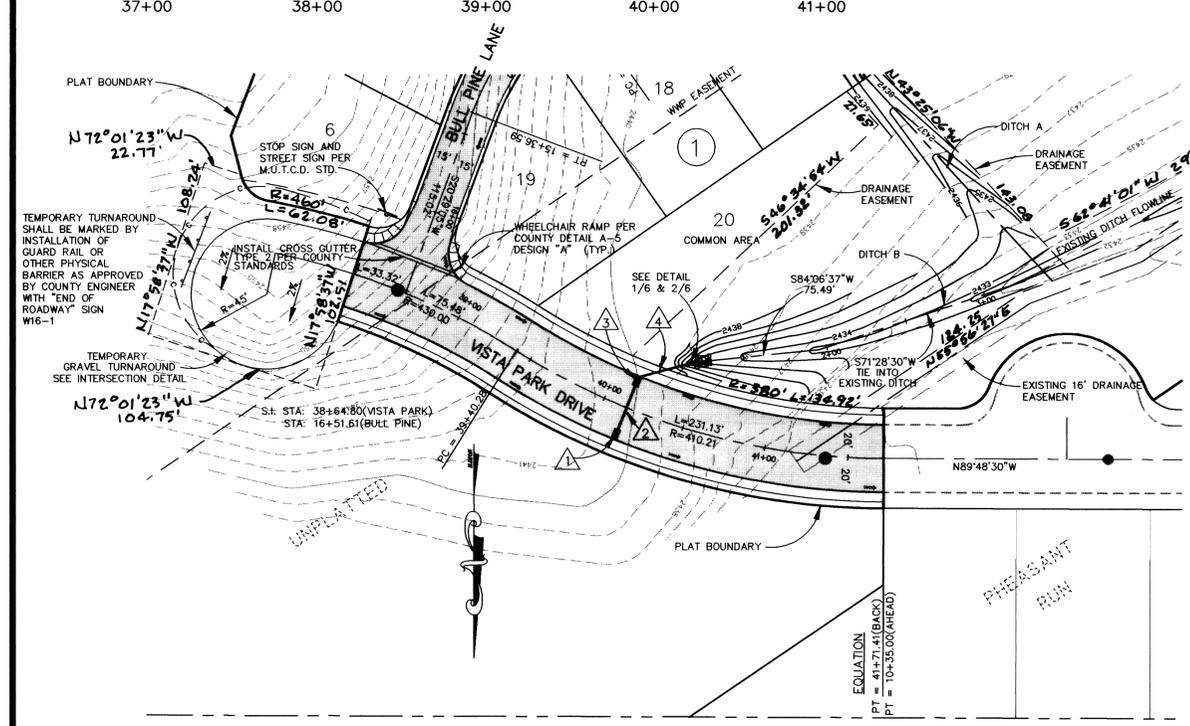
SHEET  
1 OF 6  
STREET

CALL BEFORE YOU DIG 456-8000

1729 F



SPOKANE COUNTY ENGINEERS OFFICE  
 OFFICIAL PUBLIC DOCUMENT ORIGINAL  
**CONSTRUCTION PLANS**  
 PROJECT #: 91724P  
 DATE ACCEPTED: 10/14/99  
 ACCEPTANCE EXPIRES: 10/14/2001  
 PROJECT LANE MILES PUBLIC: 0.3  
 PROJECT LANE MILES PRIVATE: 0.37  
 CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS, AS BUILT'S ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE.  
 PERMIT REQUIRED! (509) 477-3600  
 NOTIFY PERMIT ENGINEER 2 BUSINESS DAYS PRIOR TO CONSTRUCTION.



- LEGEND**
- EXISTING SANITARY SEWER MANHOLE
  - PROPOSED SANITARY SEWER MANHOLE
  - ⊙ PROPOSED WSDOT TYPE 1-L CATCH BASIN
  - ⊙ PROPOSED TYPE 2 CATCH BASIN
  - PROPOSED WSDOT TYPE 2 INLET
  - EXISTING CURB
  - PROPOSED CURB
  - - - SURFACE FLOW DIRECTION
  - ▤ HANDICAP CURB RAMP

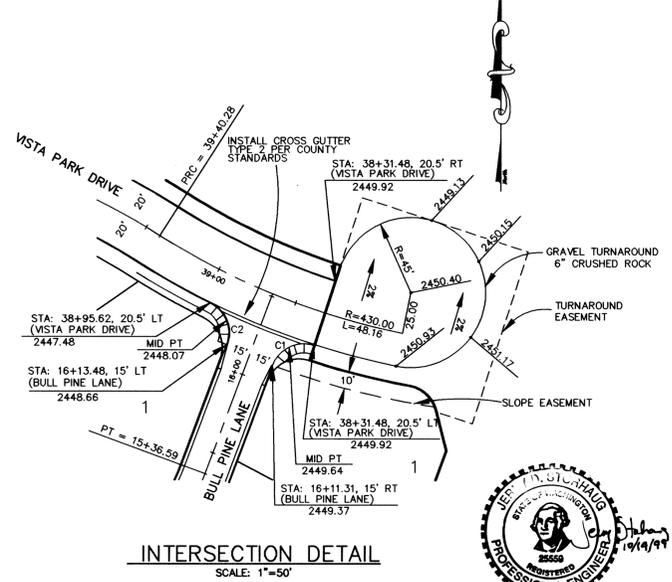
**STORM DRAIN STRUCTURE DATA**

△ WSDOT TYPE II INLET STA. 40+14.35, 20' RT T.O.G. 2439.84 I.E. 2436.965	△ WSDOT TYPE II INLET STA. 40+14.35, 20' LT T.O.G. 2439.84 I.E. 2436.589
△ 12" CMP (HELICAL) S=0.0114 L=33'	△ 12" CMP (HELICAL) S=0.03 L=33' OUTLET STA. 40+43.67, 39' LT OUTLET I.E.=2435.62

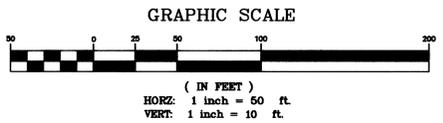
**CURB DATA TABLE**

CURVE	RADIUS	LENGTH	DELTA
C1	20.00'	30.54'	87°30'10"
C2	20.00'	29.31'	83°57'40"

- NOTES**
- SEE CONSTRUCTION SPECIFICATIONS SHOWN ON SHEET 6 OF 6
  - ALL CURB AND OFFSET DATA IS REFERENCED TO BACK OF CURB DIMENSION



DEVELOPER'S APPROVAL: *Greg Vig*  
 DATE: 10-15-99





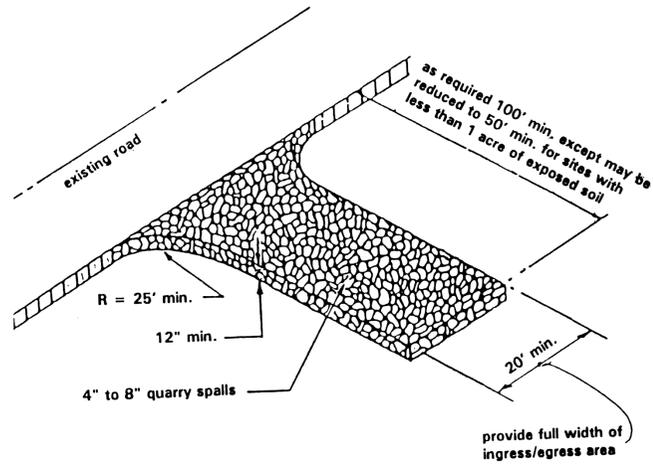
Code: (CE) Symbol:

**Definition** A temporary stone-stabilized pad located at points of vehicular ingress and egress on a construction site.

**Purpose**  
To reduce the amount of mud, dirt, rocks, etc. transported onto public roads by motor vehicles or runoff by constructing a stabilized pad of rock spalls at entrances to construction sites and washing of tires during egress.

**Conditions Where Practice Applies**

- Whenever traffic will be leaving a construction site and moving directly onto a public road or other paved areas.



STABILIZED CONSTRUCTION ENTRANCE AND TIRE WASH

(CE)

Code: (FF) Symbol:

**Definition** A temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts and entrenched. The filter fence is constructed of stakes and synthetic filter fabric with a rigid wire fence backing where necessary for support.

**Purpose**

- To intercept and detain small amounts of sediment under sheet flow conditions from disturbed areas during construction operations in order to prevent sediment from leaving the site.
- To decrease the velocity of sheet flows.

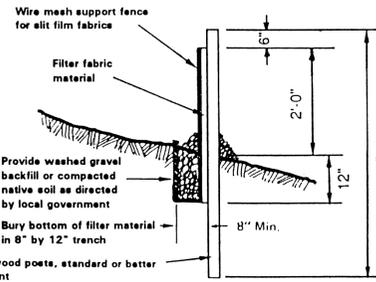
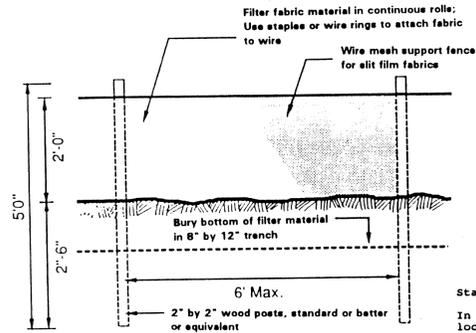
**Conditions Where Practice Applies**

- Filter fences must be provided just upstream of the point(s) of discharge of runoff from a site, before the flow becomes concentrated. They may also be required:
  - Below disturbed areas where runoff may occur in the form of sheet and rill erosion; wherever runoff has the potential to impact downstream resources.
  - Perpendicular to minor swales or ditch lines for contributing drainage areas up to one acre in size.

**Standard Notes**

In addition to the Technical Information Report (see Chapter I-3) required by the local government when preparing an erosion and sediment control plan, add the following notes to the Filter Fabric Fence Detail (Figure II-5.18):

- The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid use of joints. When joints are necessary, filter cloth shall be spliced together only at a support post, with a minimum 6 inch overlap, and both ends securely fastened to the post.
- Posts shall be spaced a maximum of 6 feet apart and driven securely into the ground a minimum of 30 inches (where physically possible).
- A trench shall be excavated approximately 8 inches wide and 12 inches deep along the line of posts and upslope from the barrier. The trench shall be constructed to follow the contour.
- When slit film filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy-duty wire staples at least 1 inch long, tie wires or hog rings. The wire shall extend into the trench a minimum of 4 inches and shall not extend more than 36 inches above the original ground surface.
- Slit film filter fabric shall be wired to the fence, and 20 inches of the fabric shall extend into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees. Other types of fabric may be stapled to the fence.
- When extra-strength or monofilament fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of Standard Note "e" applying. Extra care should be used when joining or overlapping these stiffer fabrics.
- Local governments may specify the use of properly compacted native material. In many instances, this may be the preferred alternative because the soil forms a more continuous contact with the trench below, and use of native materials



FILTER FENCE

(FF)

Code: (SR) Symbol:

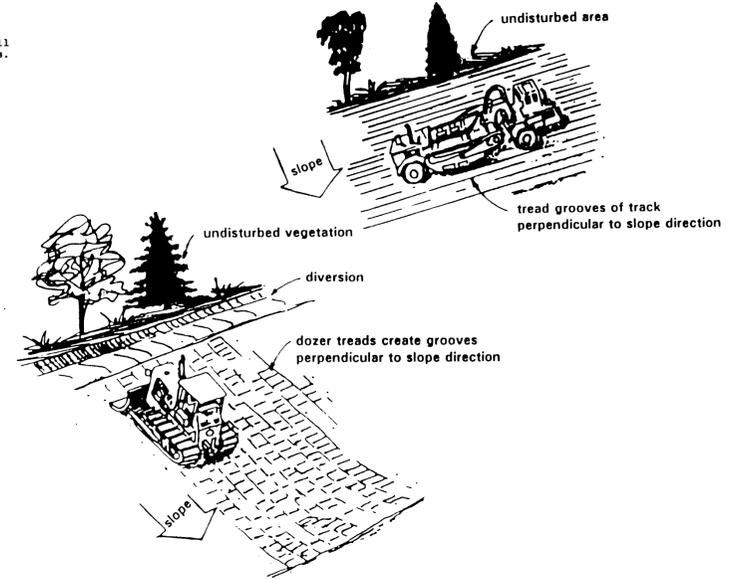
**Definition** Provision of a rough soil surface with horizontal depressions created by operating a tiller or other suitable equipment on the contour or by leaving slopes in a roughened condition by not fine grading them.

**Purpose**

To aid in establishment of vegetative cover, reduce runoff velocity, increase infiltration, and provide for sediment trapping.

**Conditions Where Practice Applies**

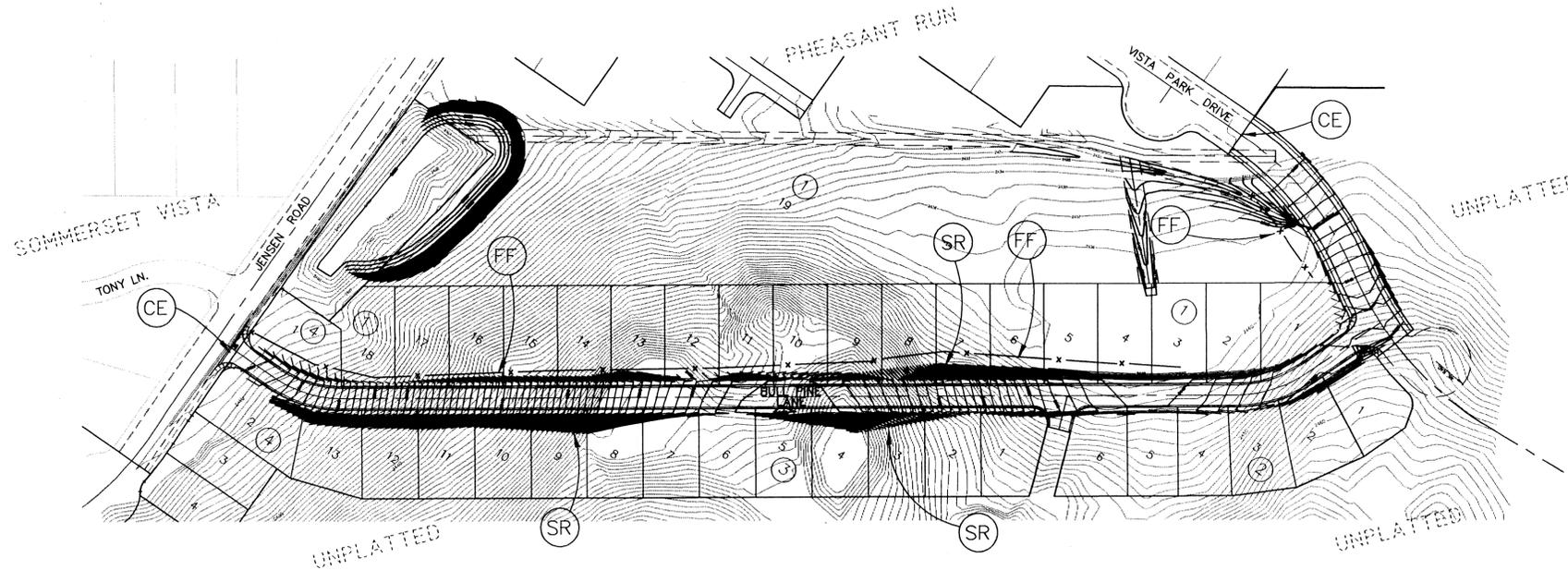
- All slopes steeper than 3:1, and greater than 5 vertical feet, require surface roughening; either stair-step grading, grooving, furrowing, or tracking if they are to be stabilized with vegetation.



SURFACE ROUGHENING

(SR)

SEE SHEET 6 OF 6 FOR CONSTRUCTION SPECIFICATIONS



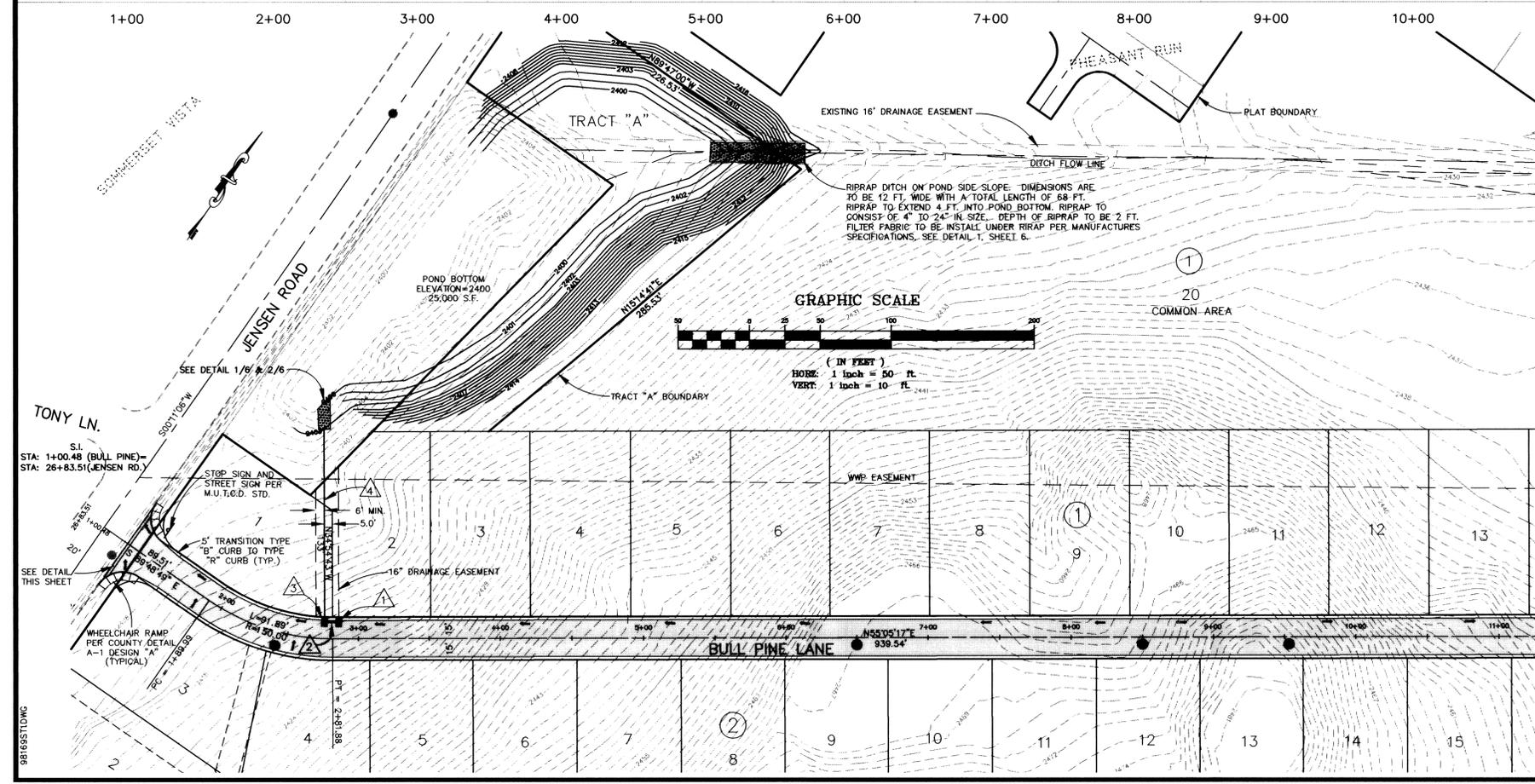
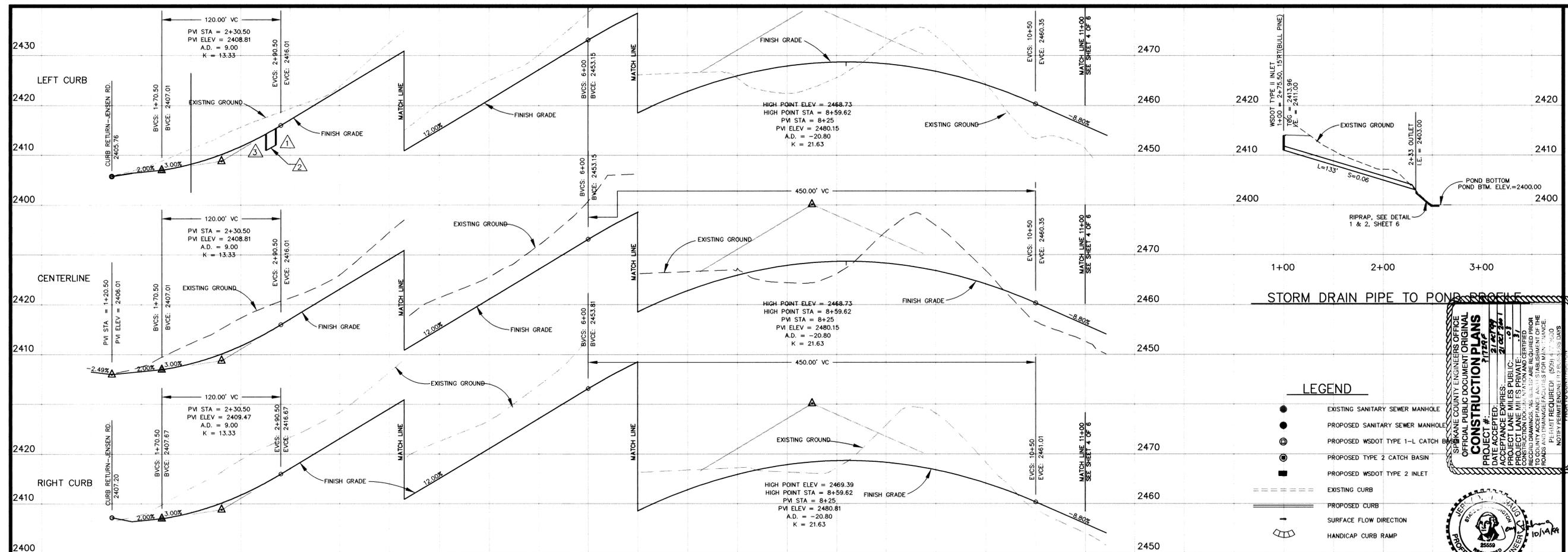
SPECIAL INSPECTION SCOPE  
 CONTRACT DOCUMENT ORIGINAL  
**CONSTRUCTION PLANS**  
 PROJECT NO. 21081  
 DATE 7/23/99  
 PROJECT NAME: WOODLAND ESTATES  
 PROJECT LOCATION: PRIVATE  
 CONTRACT TYPE: RESIDENTIAL AND COMMERCIAL  
 PROJECT DRAWINGS: AS SHOWN AND CERTIFIED  
 TO COUNTY ACCEPTANCE AND SHALL BE USED FOR THE  
 ROADWAY AND ARE NOT TO BE USED FOR ANY OTHER  
 PURPOSES WITHOUT THE WRITTEN CONSENT OF THE  
 ENGINEER. SEE SPECIFICATIONS FOR FURTHER  
 INFORMATION.

Salli L. Nune 10-7-99  
 DEVELOPER'S APPROVAL DATE

DRAWN BY: GG  
 CHECKED BY: JS  
 DATE: 7/23/99  
 SCALE: AS SHOWN

EROSION AND SEDIMENT CONTROL  
 PLAN FOR  
 BULL PINE - WOODLAND ESTATES

SHEET  
 5 OF 6  
 EROSION



**STORM DRAIN PIPE TO POND PROFILE**

**LEGEND**

- EXISTING SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- ⊕ PROPOSED WSDOT TYPE 1-L CATCH BASIN
- ⊙ PROPOSED TYPE 2 CATCH BASIN
- PROPOSED WSDOT TYPE 2 INLET
- EXISTING CURB
- PROPOSED CURB
- SURFACE FLOW DIRECTION
- ▬ HANDICAP CURB RAMP

SPokane County Engineers Office  
 OFFICIAL PUBLIC DOCUMENT ORIGINAL  
**CONSTRUCTION PLANS**  
 PROJECT # 17120  
 DATE ACCEPTED: 11/27/99  
 ACCEPTANCE EXPIRES: 11/27/01  
 PROJECT NAME: BULL PINE LANE  
 PROJECT LANE MILES PUBLIC: 0.01  
 PROJECT LANE MILES PRIVATE: 0.07  
 RECORD DRAWINGS: AS BUILT ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE POND.  
 PERMIT REQUIRED: (SEE PERMITS SECTION)  
 NOTICE: PERMIT ENGINEER'S SEAL REQUIRED



**CURB DATA TABLE**

CURVE	RADIUS	LENGTH	DELTA
C1	20.00'	31.42'	90°01'19"
C2	20.00'	31.41'	89°58'41"

**DRAINAGE NOTES:**

- DEVELOPER TO INSTALL TYPE "B" DRYWELL IN POND 4 OF THE DOWN STREAM STORMWATER SYSTEM.
- FLOW RESTRICTOR IN JENSEN ROAD SHALL BE MODIFIED SUCH THAT THE EXISTING 8.75 INCH ORIFICE IS REDUCED TO 2 1/4 INCH DIAMETER ORIFICE. ALL PORTIONS OF FLOW RESTRICTOR DAMAGE BY CHANGE SHALL BE COATED WITH GALVANIZED PAINT.

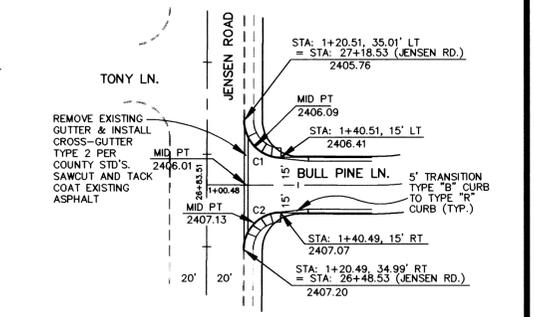
**NOTES**

- SEE CONSTRUCTION SPECIFICATIONS SHOWN ON SHEET 6 OF 6
- ALL CURB AND OFFSET DATA IS REFERENCED TO BACK OF CURB DIMENSION



CHISELED "+" IN CURB N.E. R.P. TO CENTER OF CUL DE SAC OF NORTHWOOD DRIVE AT NORTHERLY END, NORTHWOOD SHIP ADDITION. ELEVATION = 2406.75

*2d Dunning*  
 DEVELOPER'S APPROVAL DATE 10/15/99



**INTERSECTION DETAIL**  
 SCALE: 1"=50'

**STORM DRAIN STRUCTURE DATA**

- △ WSDOT TYPE II INLET  
 STA: 2+85.50, 15' LT  
 T.O.G. 2415.00  
 I.E. 2412.09
- △ WSDOT TYPE II INLET  
 STA: 2+75.50, 15' LT  
 T.O.G. 2413.86  
 I.E. 2411.00
- △ 12" CMP (HELICAL)  
 S=0.109  
 L=10'
- △ 12" CMP (HELICAL)  
 S=0.06  
 L=133' @ N34°54'43"W  
 I.E.=2403.00  
 SEE DETAIL SHT 2/6

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Provide fresh, clean new crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide seed mixture composed of grass species and percentages as follows:

20 percent Eka Perennial Rye

20 percent Durar Hard Fescue

45 percent Cover Sheep/Fescue

15 percent reubens Canadian Bluegrass

Provide mixture composed of grass seed and fertilizer in percentages as follows:

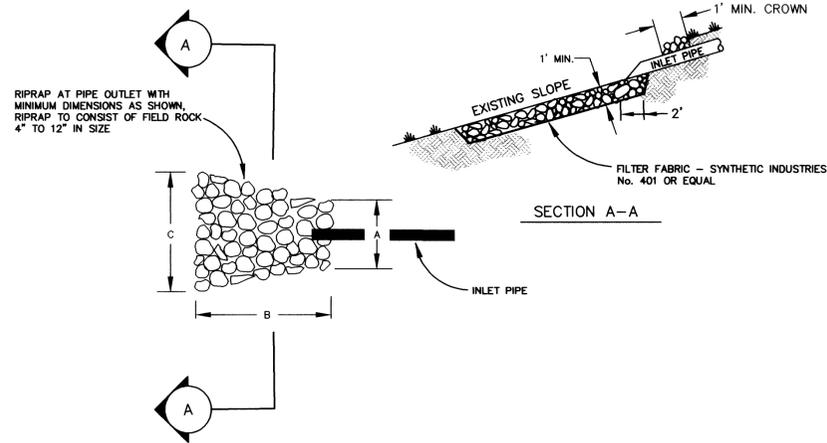
Grass seed mixture: 90 lbs. per acre

Fertilizer: 16:16:16 timed release composition, 300 lbs. per acre

All seeding of slopes shall be done in accordance with WSDOT Standard Specifications

Contractor shall irrigate seeded areas until seed has germinated and has been accepted by Spokane County.

### SEEDING SPECIFICATIONS



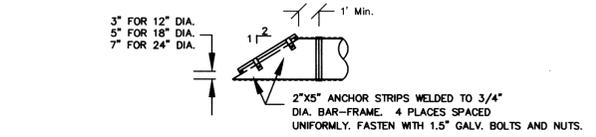
RIPRAP PAD TABLE

STATION/LOCATION	A	B	C
STA. 2+75 / S. END OF POND	3'	12.78'	8.11'
STA. 13+64 / TO DITCH "A"	6'	12.24'	12.24'
STA. 40+43 / VISTA PARK DR.	4.5'	12.66'	9.56'

OUTFALL RIP RAP SIZE CHART

STATION	MIN.	AVG.	MAX.	THICKNESS
40+43	4"	7"	9"	12"
13+64	18"	24"	30"	36"
2+75	9"	15"	22"	23"

### RIPRAP DETAIL



### PIPE INLET / OUTLET DETAIL

NOT TO SCALE

#### Standard Notes for Construction Plans

The following standard notes are to be included in a road and drainage plan set, for privately sponsored developments. These notes are applicable to both public and private roads.

- All work and materials shall be in conformance with the "SPOKANE COUNTY STANDARDS FOR ROAD AND SEWER CONSTRUCTION" 1995, and as amended.
- Locations of existing utilities shown in the plans are approximate. The Contractor shall be responsible for locating all underground utilities. Any conflicting utilities shall be relocated prior to construction of road and drainage facilities.
- The Contractor is required to have a complete set of the approved road and drainage plans on the job site whenever construction is in progress.
- If the Contractor discovers any discrepancies between the plans and existing conditions encountered, the Contractor shall immediately notify the Design Engineer and the Spokane County Engineer's Office.
- For construction of drywells, install filter fabric (Amoco 4545 or approved equivalent) between the drywell barrel and the washed drainrock, and between the washed drainrock and the native soils.
- Prior to site construction, the Contractor is responsible for locating underground utilities. Call the underground utility location service at 456-8000 before you dig.

#### Supplemental Notes, When Applicable

- For any curb grades less than 0.8% (0.008 ft/ft), a Washington State-licensed Professional Land Surveyor shall verify that the curb forms are at the grades noted on the approved plans, prior to placement of curb material. The Contractor is responsible for arranging and coordinating work with the Professional Land Surveyor.
- The Contractor shall employ a licensed surveyor to verify that the cross-gutter forms are at the correct plane grade prior to concrete placement. The cross-gutters shall be constructed prior to paving, and the pavement shall then match the edge of concrete gutter.

Use note #9 wherever GPA swales are used:

- The floor of a Grassed Percolation Area (GPA) swale includes the level portion of the floor of the swale, and the side slopes of the swale up to the GPA overflow elevation or top of drywell. The soil located in the floor of the GPA swale shall be a medium to well-draining material, with a minimum infiltration rate of 0.5 inches per hour. The Engineer shall provide a written statement which verifies that all GPA swales conform to this requirement. This written statement shall be submitted to the Spokane County Engineer's Office prior to installing finished landscaping/soil and prior to final acceptance. The swale floor material shall be installed to a native soil stratum which also meets or exceeds this minimum percolation rate of 0.5 inches per hour.

Notes ER1 through ER4 are to be included in the plan set when erosion control facilities are required or incorporated into the plans.

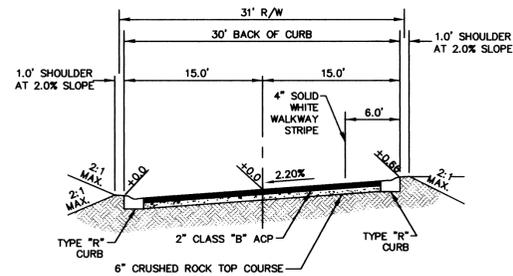
ER1) An Erosion/Sedimentation Control (ESC) plan is required for this project. Implementation of the ESC plan, and construction, maintenance, and upgrading of the ESC facilities are the responsibility of the Developer until all construction is completed and accepted by Spokane County, or until vegetation is established throughout the site, and accepted by the County Spokane, whichever is later.

ER2) Approval of the ESC plan does not constitute approval of any of the proposed road, storm drainage, grading or utility design elements shown on the ESC plan.

ER3) The erosion/sedimentation control measures shown are the minimum requirements for the anticipated site conditions. The Contractor shall inspect and maintain these ESC measures daily, and shall maintain and upgrade these measures as necessary to prevent sediment-laden water from either flowing off the site, or into new/existing storm drainage facilities, such as drywells, culverts, or gravel galleries.

ER4) The Contractor/Developer is responsible for installing Rock Construction Entries at any and all locations used to enter or exit the project site.

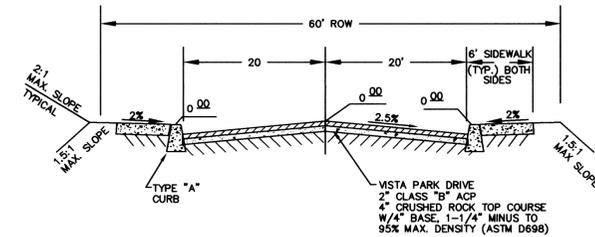
ER5) Geotextile fabric is to be placed on the rims of drywells, catch basins and inlets until such time the vegetation on the site is established and the threat of sediment deposition into the drainage system is mitigated.



NOTE:  
1. PROVIDE A WALKWAY STRIPE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 8-22.2

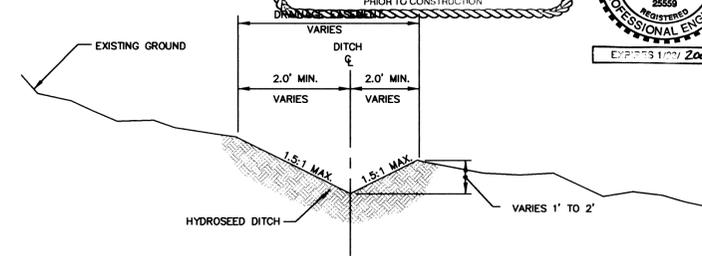
### BLUE SPRUCE LANE & BULL PINE LANE SECTION

NOT TO SCALE



### VISTA PARK DRIVE

NOT TO SCALE



### INTERCEPTOR DITCH DETAIL

NOT TO SCALE

### CONSTRUCTION SPECIFICATIONS

SPOKANE COUNTY ENGINEERS OFFICE  
OFFICIAL PUBLIC DOCUMENT ORIGINAL  
**CONSTRUCTION PLANS**  
PROJECT #: P1724P  
DATE ACCEPTED: 21 OCT 99  
ACCEPTANCE EXPIRES: 21 OCT 2001  
PROJECT LANE MILES PUBLIC: .05  
PROJECT LANE MILES PRIVATE: .31  
CONSTRUCTION DOCUMENTATION AND CERTIFIED RECORD DRAWINGS, AS NOTED, ARE REQUIRED PRIOR TO COUNTY ACCEPTANCE AND ESTABLISHMENT OF THE ROADS AND DRAINAGE FACILITIES FOR MAINTENANCE.  
PERMIT REQUIRED! (509) 477-3000  
NOTIFY PERMIT ENGINEER 9 BUSINESS DAYS PRIOR TO CONSTRUCTION



*Jed Lanning*  
DEVELOPER'S APPROVAL  
10-15-99  
DATE

CALL BEFORE YOU DIG 456-8000



**STORHAUG ENGINEERING**  
E. 9616 MONTGOMERY  
SPOKANE, WA 99206  
(509) 924-8052

DRAWN BY: GREDY/C  
CHECKED BY: MORSE  
DATE: 9/17/99  
SCALE: AS SHOWN

**BULL PINE - WOODLAND - ESTATES  
STREET AND DRAINAGE  
DETAILS**

SHEET  
6 OF 6  
STREET

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