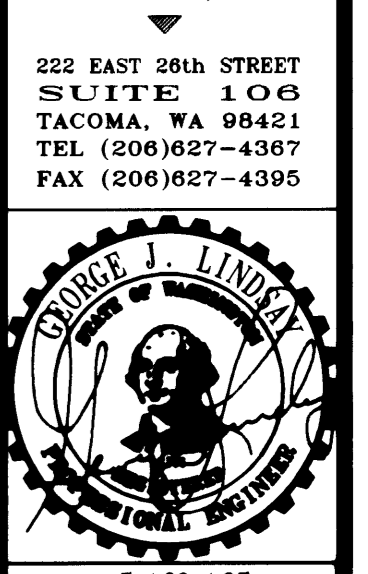
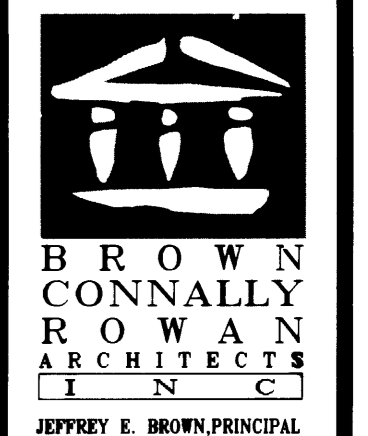


PORTION OF THE S 1/2 OF SEC 26 AND N 1/2 OF SEC 35 TWP. 20N., RGE. 4 E. W.M. PIERCE COUNTY, WA

**APPROVED**  
 BY: *[Signature]*  
 CITY OF PUYALLUP  
 CITY ENGINEER  
 DATE: 9-26-95  
 NOTE: THIS APPROVAL IS VOID AFTER 1 YEAR FROM APPROVAL DATE.  
 ANY ERRORS AND/OR OMISSIONS ARE NOT THE RESPONSIBILITY OF THE CITY OF PUYALLUP.

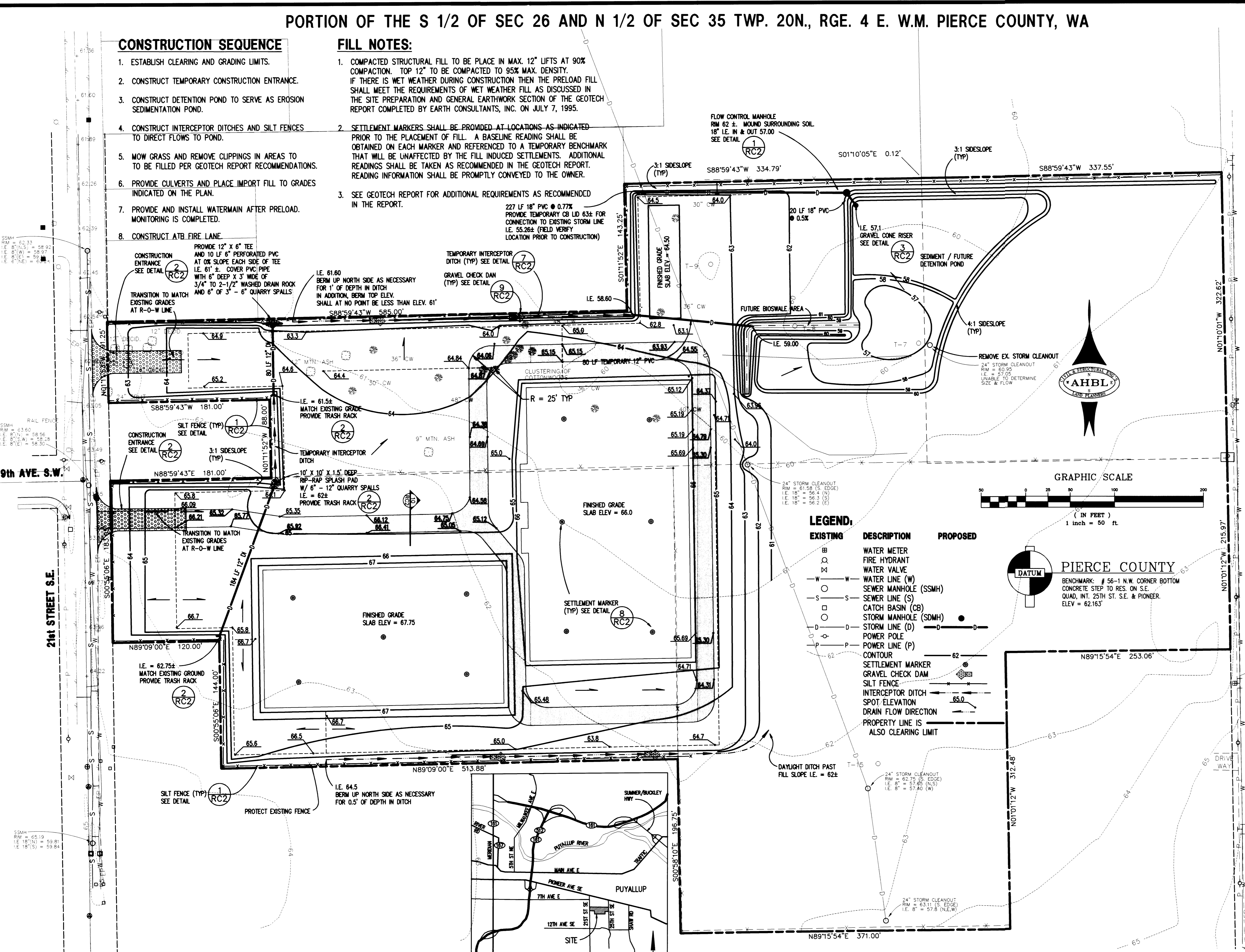


**CONSTRUCTION SEQUENCE**

1. ESTABLISH CLEARING AND GRADING LIMITS.
2. CONSTRUCT TEMPORARY CONSTRUCTION ENTRANCE.
3. CONSTRUCT DETENTION POND TO SERVE AS EROSION SEDIMENTATION POND.
4. CONSTRUCT INTERCEPTOR DITCHES AND SILT FENCES TO DIRECT FLOWS TO POND.
5. MOW GRASS AND REMOVE CLIPPINGS IN AREAS TO BE FILLED PER GEOTECH REPORT RECOMMENDATIONS.
6. PROVIDE CULVERTS AND PLACE IMPORT FILL TO GRADES INDICATED ON THE PLAN.
7. PROVIDE AND INSTALL WATERMAIN AFTER PRELOAD. MONITORING IS COMPLETED.
8. CONSTRUCT ATB FIRE LANE.

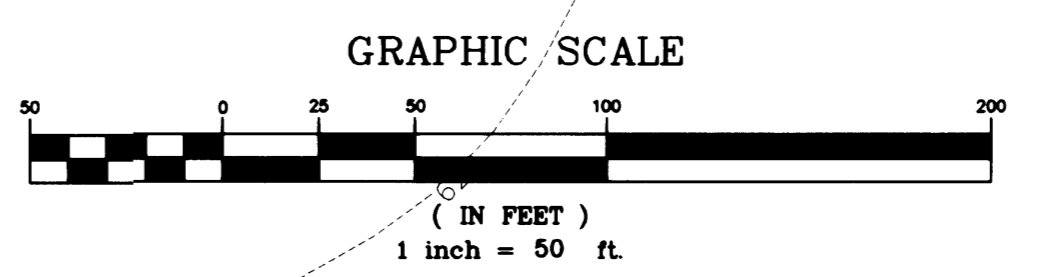
**FILL NOTES:**

1. COMPACTED STRUCTURAL FILL TO BE PLACE IN MAX. 12" LIFTS AT 90% COMPACTION. TOP 12" TO BE COMPACTED TO 95% MAX. DENSITY. IF THERE IS WET WEATHER DURING CONSTRUCTION THEN THE PRELOAD FILL SHALL MEET THE REQUIREMENTS OF WET WEATHER FILL AS DISCUSSED IN THE SITE PREPARATION AND GENERAL EARTHWORK SECTION OF THE GEOTECH REPORT COMPLETED BY EARTH CONSULTANTS, INC. ON JULY 7, 1995.
2. SETTLEMENT MARKERS SHALL BE PROVIDED AT LOCATIONS AS INDICATED PRIOR TO THE PLACEMENT OF FILL. A BASELINE READING SHALL BE OBTAINED ON EACH MARKER AND REFERENCED TO A TEMPORARY BENCHMARK THAT WILL BE UNAFFECTED BY THE FILL INDUCED SETTLEMENTS. ADDITIONAL READINGS SHALL BE TAKEN AS RECOMMENDED IN THE GEOTECH REPORT. READING INFORMATION SHALL BE PROMPTLY CONVEYED TO THE OWNER.
3. SEE GEOTECH REPORT FOR ADDITIONAL REQUIREMENTS AS RECOMMENDED IN THE REPORT.

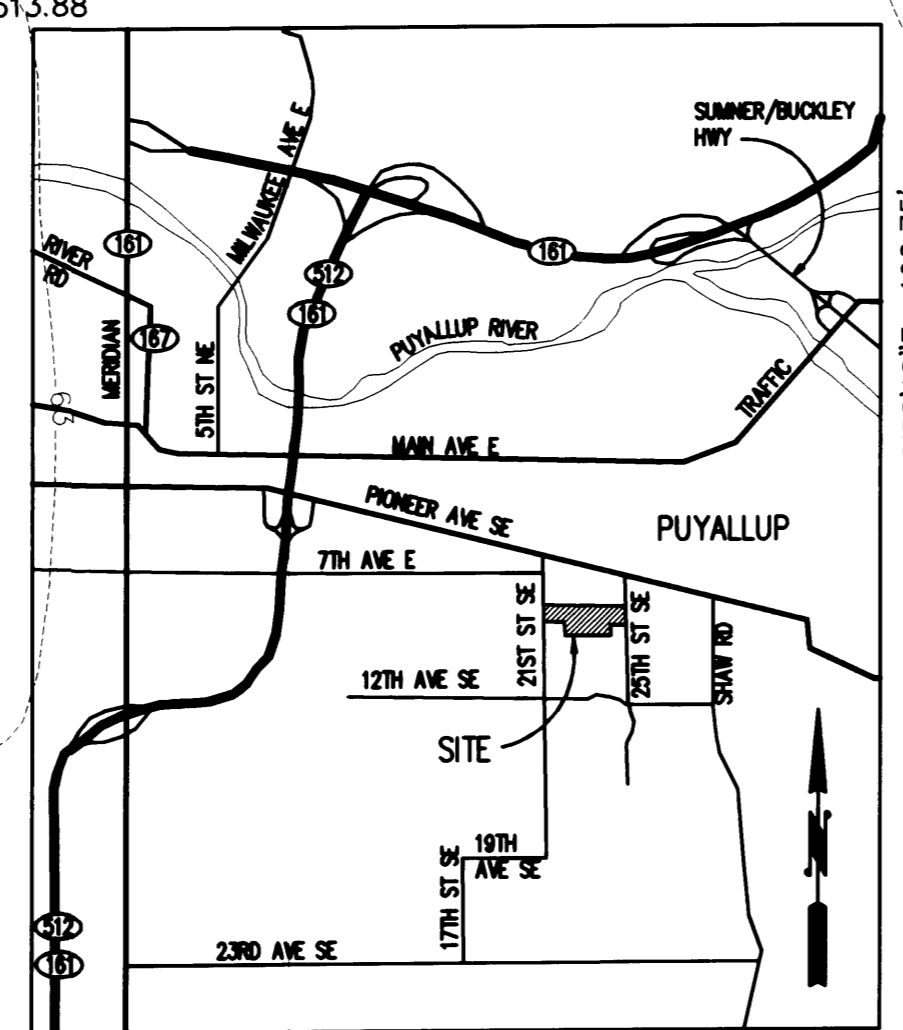


**LEGEND:**

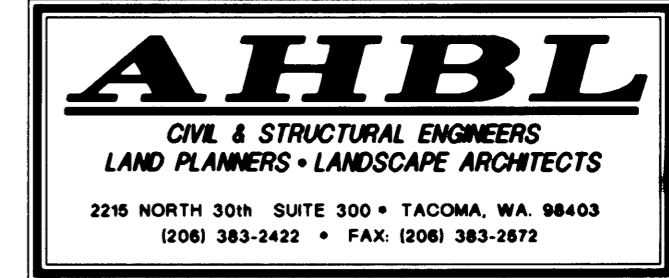
EXISTING	DESCRIPTION	PROPOSED
⊕	WATER METER	
⊕	FIRE HYDRANT	
⊕	WATER VALVE	
—W—	WATER LINE (W)	
—S—	SEWER MANHOLE (SSMH)	
—S—	SEWER LINE (S)	
⊕	CATCH BASIN (CB)	
⊕	STORM MANHOLE (SDMH)	
—D—	STORM LINE (D)	
—P—	POWER POLE	
—P—	POWER LINE (P)	
—	CONTOUR	
⊕	SETTLEMENT MARKER	
⊕	GRAVEL CHECK DAM	
⊕	SILT FENCE	
⊕	INTERCEPTOR DITCH	
⊕	SPOT ELEVATION	
⊕	DRAIN FLOW DIRECTION	
—	PROPERTY LINE IS ALSO CLEARING LIMIT	



**PIERCE COUNTY**  
 BENCHMARK: # 56-1 N.W. CORNER BOTTOM CONCRETE STEP TO RES. ON S.E. QUAD, INT. 25TH ST. S.E. & PIONEER. ELEV = 62.163'



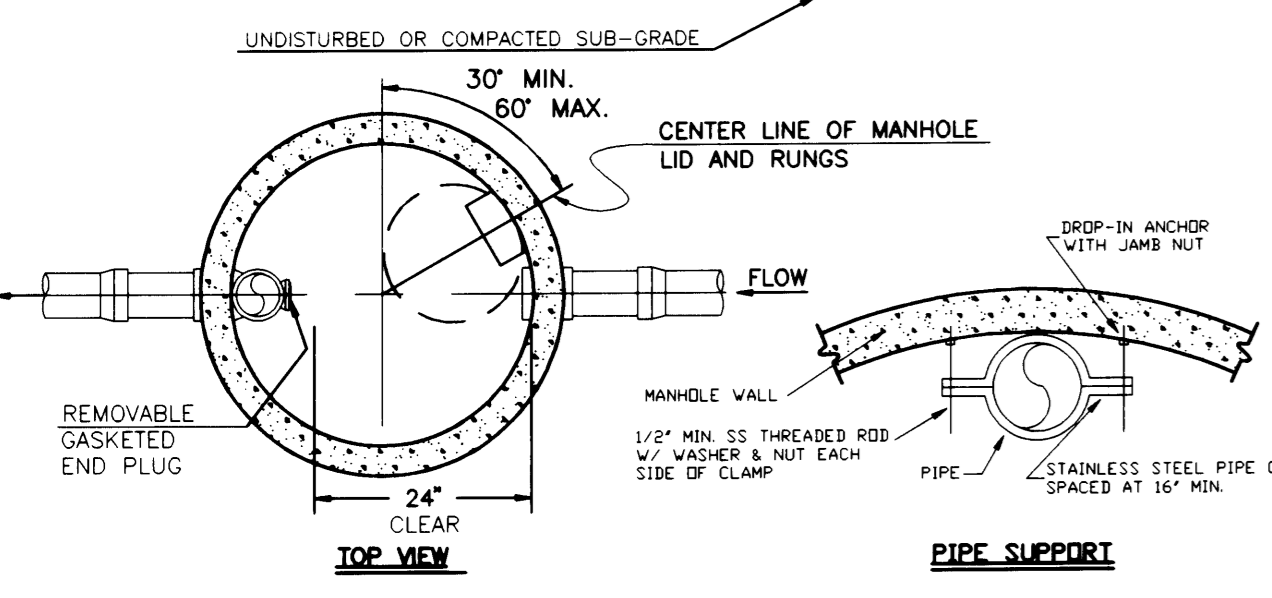
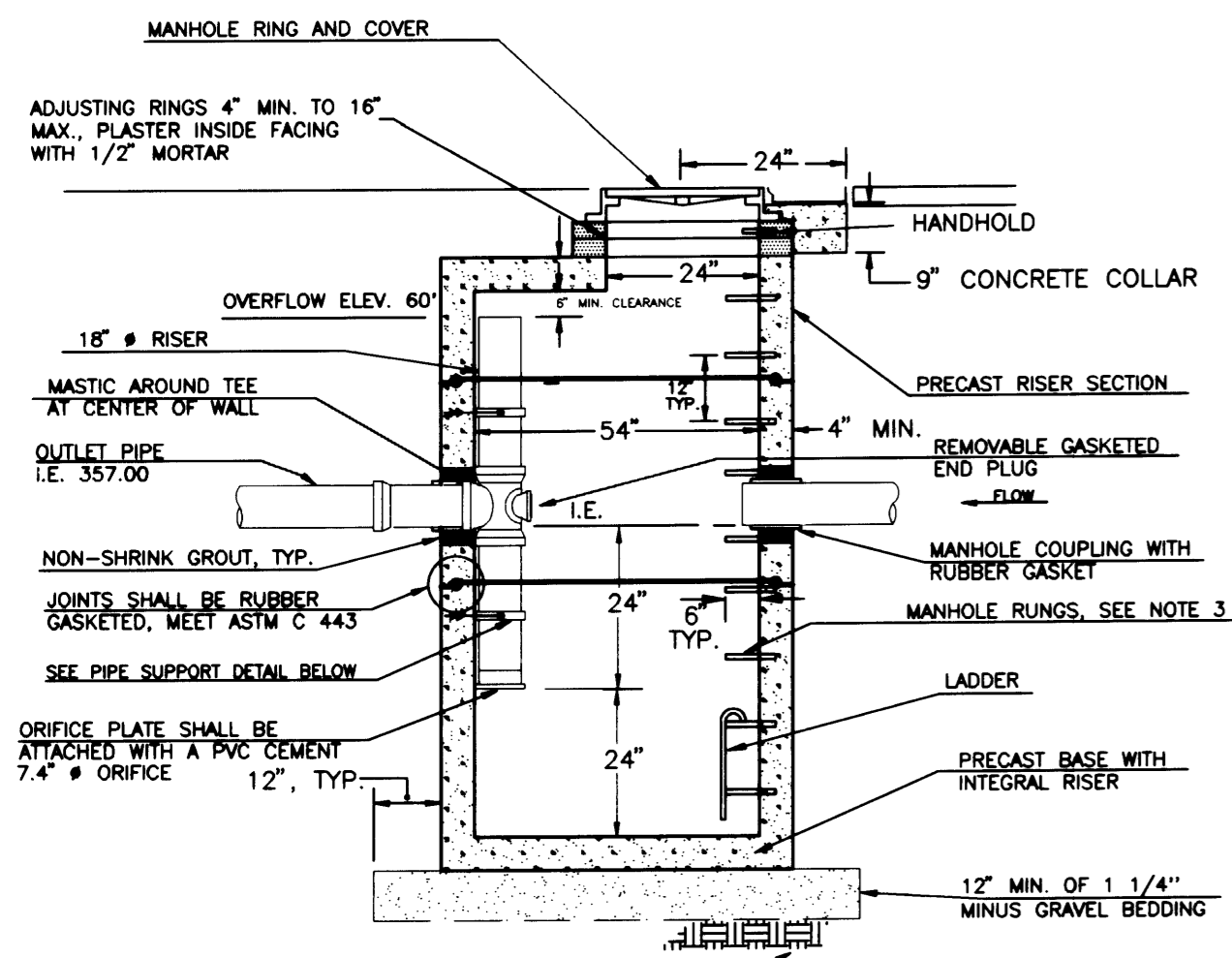
**EARTHWORK**  
 45,000 CY OF FILL FOR PRELOAD  
 QUANTITY IS FOR PERMITTING PURPOSES ONLY.



**CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555**

Project: **CASCADE CHRISTIAN SCHOOLS**  
 Drawing Title: **TEMPORARY EROSION CONTROL AND ROUGH GRADE - PRELOAD PLAN**  
 Project No.:  
 Date: AUG 95  
 PUYALLUP, WA 98371

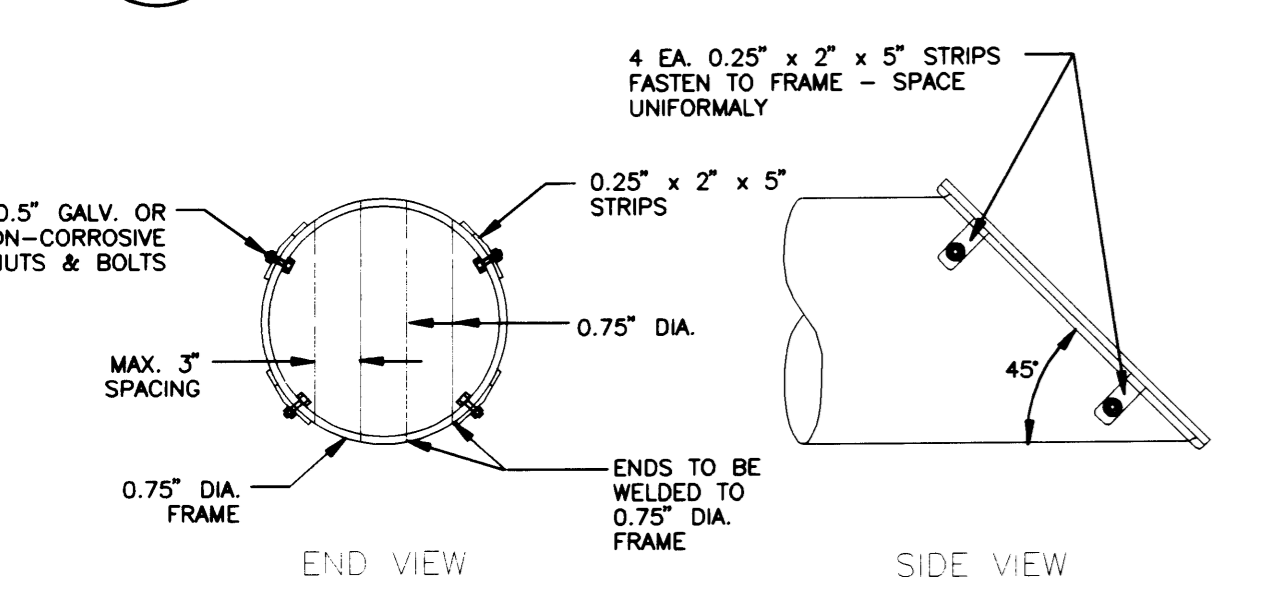
Sheet No.: **RC1**



**NOTES FOR FLOW CONTROL MANHOLE:**

- MANHOLE RING SHALL CONFORM TO SECTION R, ASTM C 478 (ASHTO M-199) AND MEET ALL WISHA REQUIREMENTS. MANHOLE RUNGS SHALL BE PARALLEL OR APPROXIMATELY RADIAL AT THE OPTION OF THE MANUFACTURER, EXCEPT THAT ALL STEPS IN ANY MANHOLE SHALL BE SIMILAR. PENETRATION OF OUTER WALL BY A RUNG LEG IS PROHIBITED. SEE MANHOLE STEP AND LADDER DETAIL, CITY STANDARD NO. 506.
- PRECAST RISER SECTION SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF TWO (2) INCHES MINIMUM. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MINIMUM DISTANCE BETWEEN HOLES IS EIGHT (8) INCHES.
- PRECAST CONCRETE MANHOLE COMPONENTS SHALL CONFORM TO ASTM C 478.
- FLEXIBLE JOINTS SHALL BE RUBBER GASKETED IN ACCORDANCE WITH THE WSDOT STANDARD SPECIFICATIONS. MORTARED, DRY-PACKED, OR CAST-IN-PLACE JOINTS WILL BE PERMITTED FOR CONNECTIONS TO OR THROUGH MANHOLES. A FLEXIBLE GASKETED JOINT SHALL BE INSTALLED WITHIN ONE (1) FOOT OF EACH CONNECTION TO OR THROUGH SAID MANHOLES. CONNECTIONS TO MANHOLE WITH PVC PIPE SHALL UTILIZE A MANHOLE COUPLING AND RUBBER GASKET.
- THE COVER ON THE MANHOLE SHALL BE MARKED WITH "STORM" OR "DRAIN" IN TWO (2) INCH RAISED LETTERS. SEE MANHOLE RING AND COVER DETAIL, CITY STANDARD NO. 505.
- STAINLESS STEEL PIPE CLAMP WITH 1/2" DIAMETER STAINLESS STEEL THREADED ROD WITH WASHER AND NUT EACH SIDE OF CLAMP. PROVIDE 1/2" DIAMETER DROP-IN ANCHOR WITH JAMB NUT AT WALL. PIPE CLAMPS SHALL BE PLACED AT SIXTEEN (16) INCHES ON CENTER.
- FLOW CONTROL UNIT SHALL BE MADE FROM PVC PIPE AND SHALL CONFORM TO THE STANDARD PIPE SPECIFICATIONS.

**1 RC1 FLOW CONTROL MANHOLE WITH FLAT TOP**  
NOT TO SCALE



**NOTES:**

- ALL STEEL PARTS MUST BE GALVANIZED AND ASPHALT COATED (TREATMENT 1 OR BETTER).
- TRASH RACKS SHALL BE INSTALLED AT ALL OPEN ENDS OF STORM DRAINAGE PIPE 12" DIA. AND GREATER.

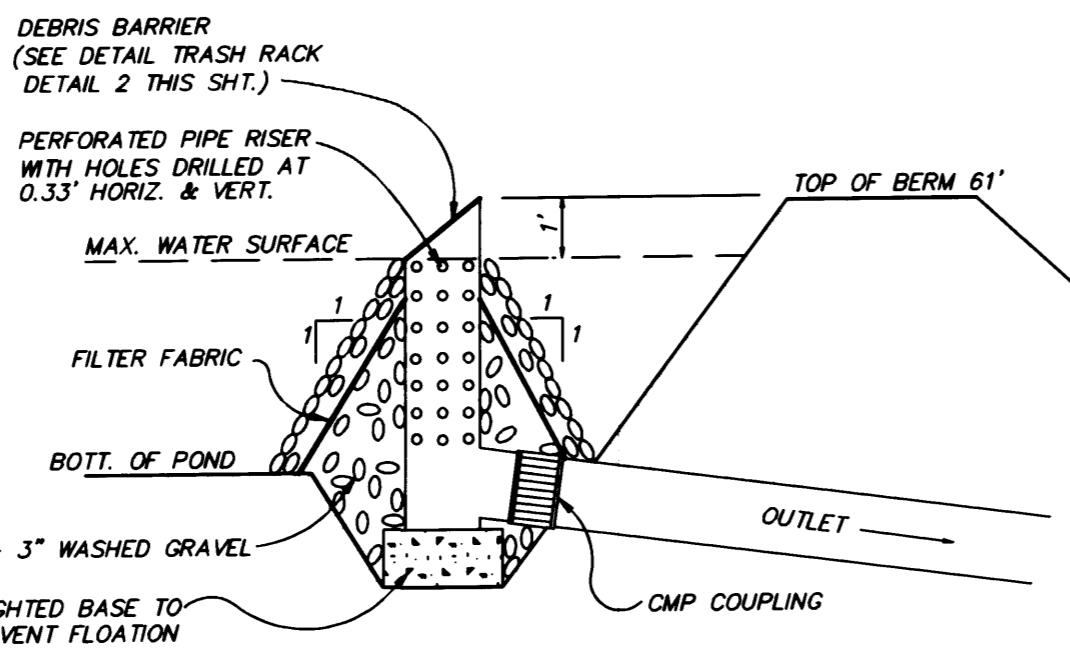
**2 RC1 TRASH RACK DETAIL**  
NOT TO SCALE



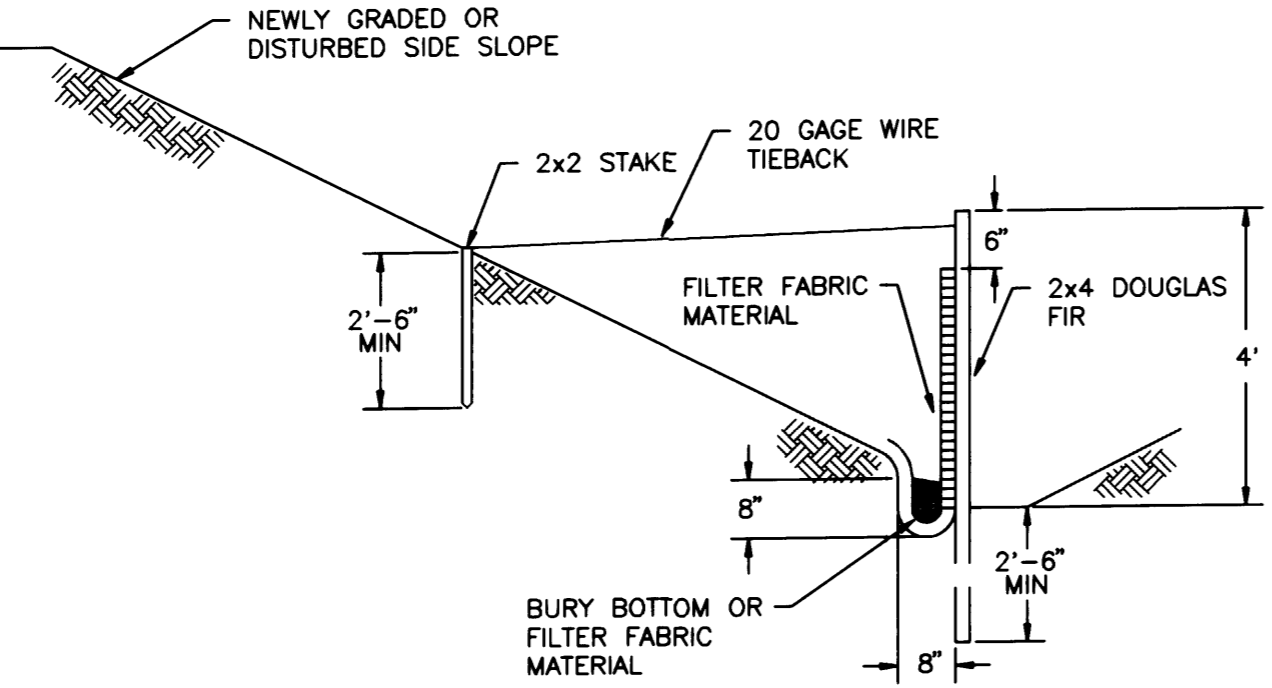
**CALL 48 HOURS BEFORE YOU DIG**  
1-800-424-5555

**PIPE NOTES:**

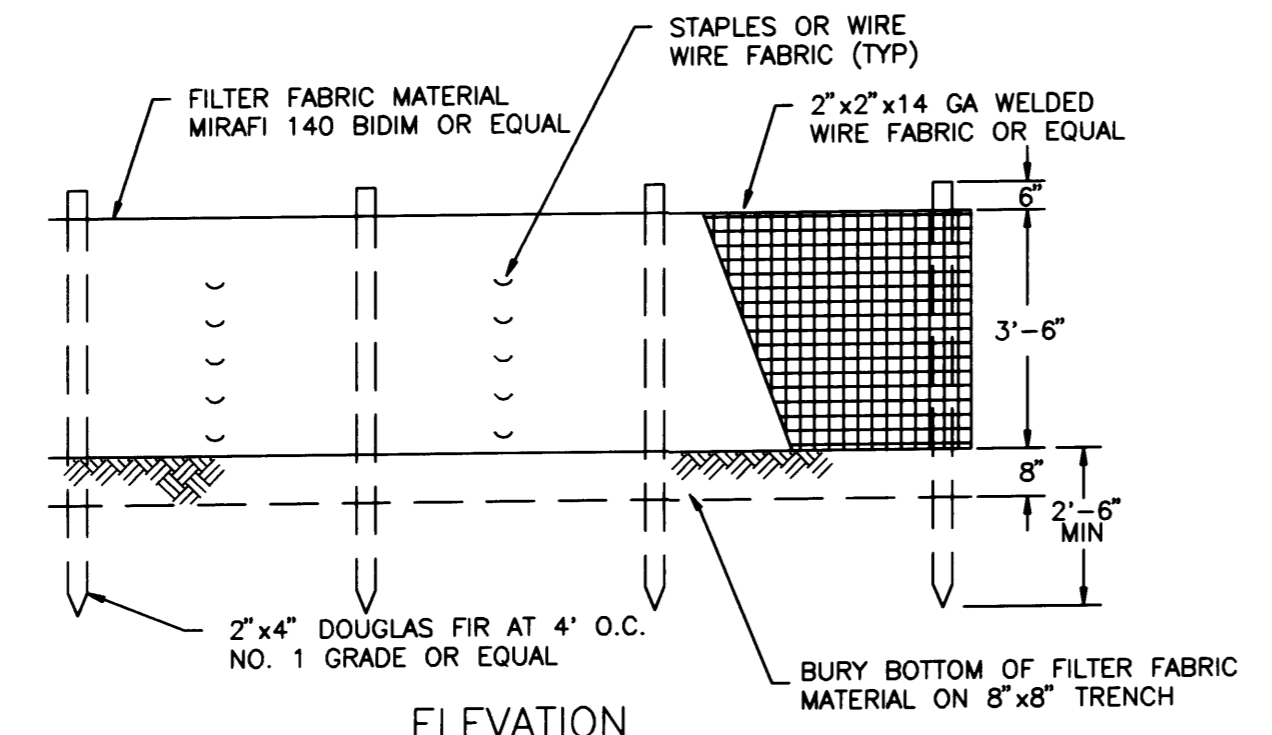
- STORM SEWER PIPE SHALL BE ONLY PVC OR DUCTILE IRON PIPE. THE USE OF ANY OTHER TYPE SHALL BE REVIEWED AND APPROVED BY THE CITY ENGINEER PRIOR TO INSTALLATION.  
  
PVC PIPE SHALL BE PER ASTM D-3034, SDR 35 FOR PIPE SIZES 15" AND SMALLER AND F679 FOR PIPE SIZES 18" - 27" MINIMUM COVER ON PVC PIPE SHALL BE 3.0 FEET.  
  
CONCRETE PIPE SHALL CONFORM TO THE 1991 WSDOT SPECIFICATIONS FOR CONCRETE UNDERDRAIN PIPE. MINIMUM COVER ON CONCRETE PIPE SHALL BE AS RECOMMENDED BY THE MANUFACTURER BUT NOT LESS THAN 3.0 FOOT.  
  
DUCTILE IRON PIPE SHALL BE SPECIAL CLASS 52, CONFORMING TO ANWA C151. MINIMUM COVER ON DUCTILE IRON PIPE SHALL BE 1.0 FOOT.
- TRENCHING, BEDDING, AND BACKFILL FOR PIPE SHALL CONFORM TO CITY STANDARD NO. 503. (DETAIL 5 THIS SHEET)



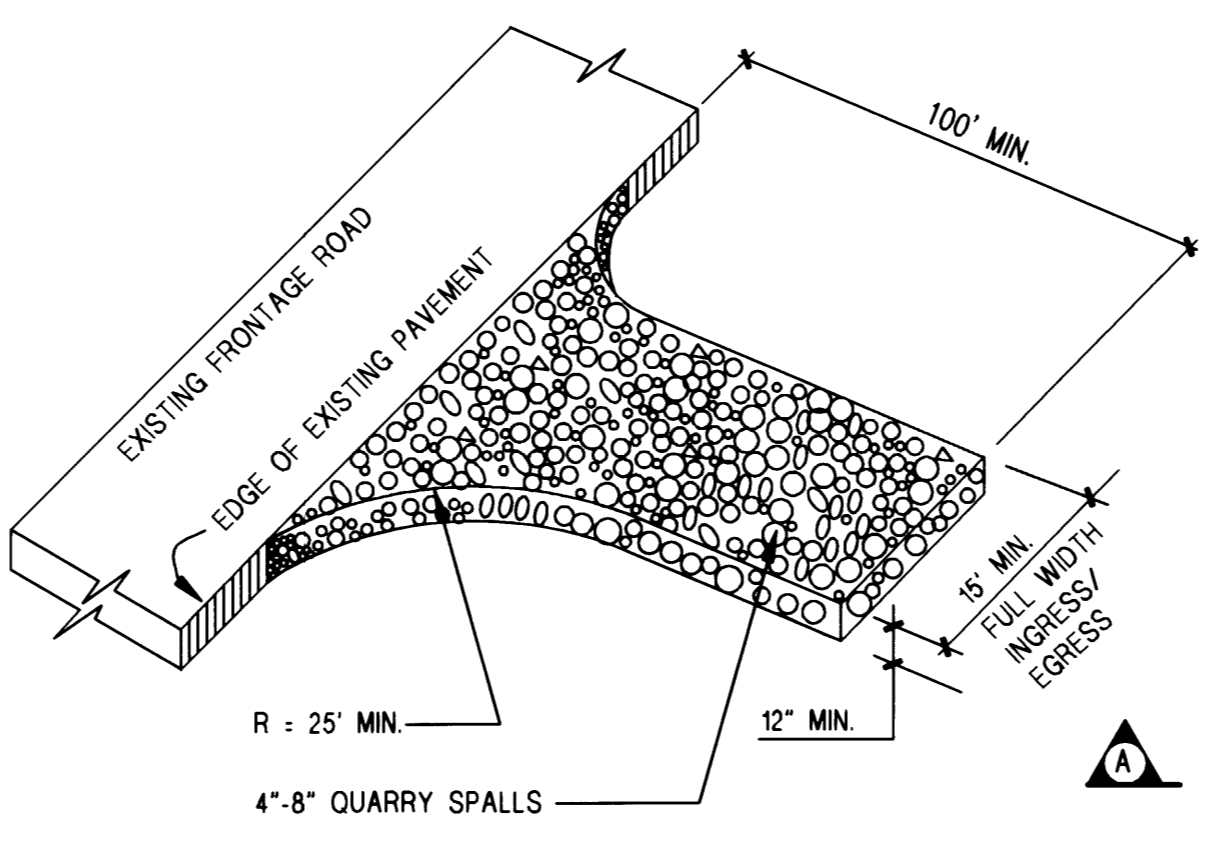
**3 RC1 GRAVEL CONE WITH RISER**  
NOT TO SCALE



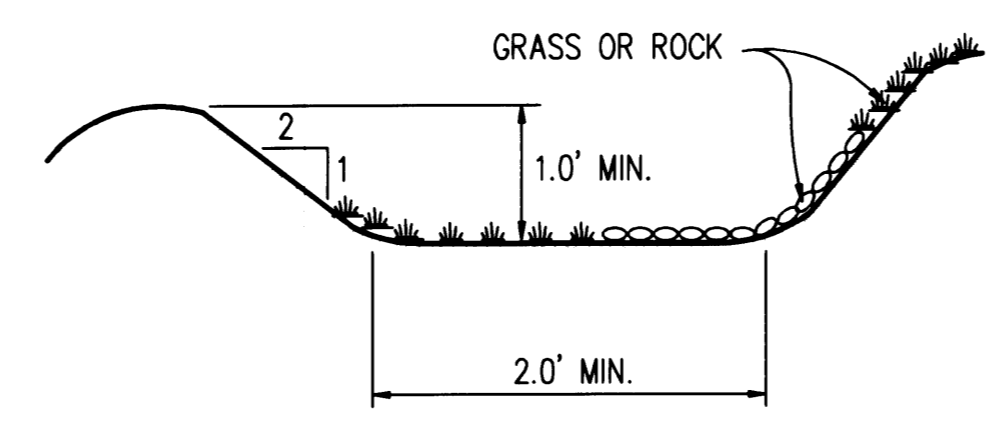
**TYPICAL CROSS SECTION**



**4 RC1 SILTATION FENCE DETAIL**  
NOT TO SCALE

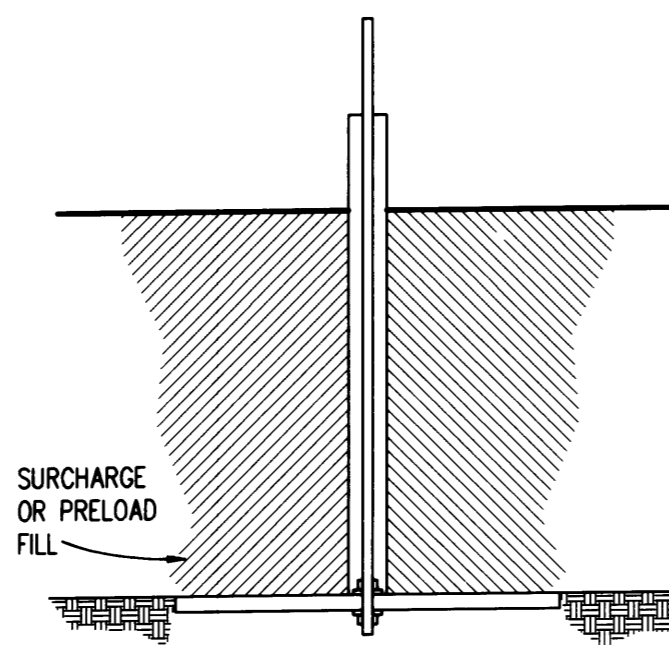


**6 RC1 CONSTRUCTION ENTRANCE**  
NOT TO SCALE

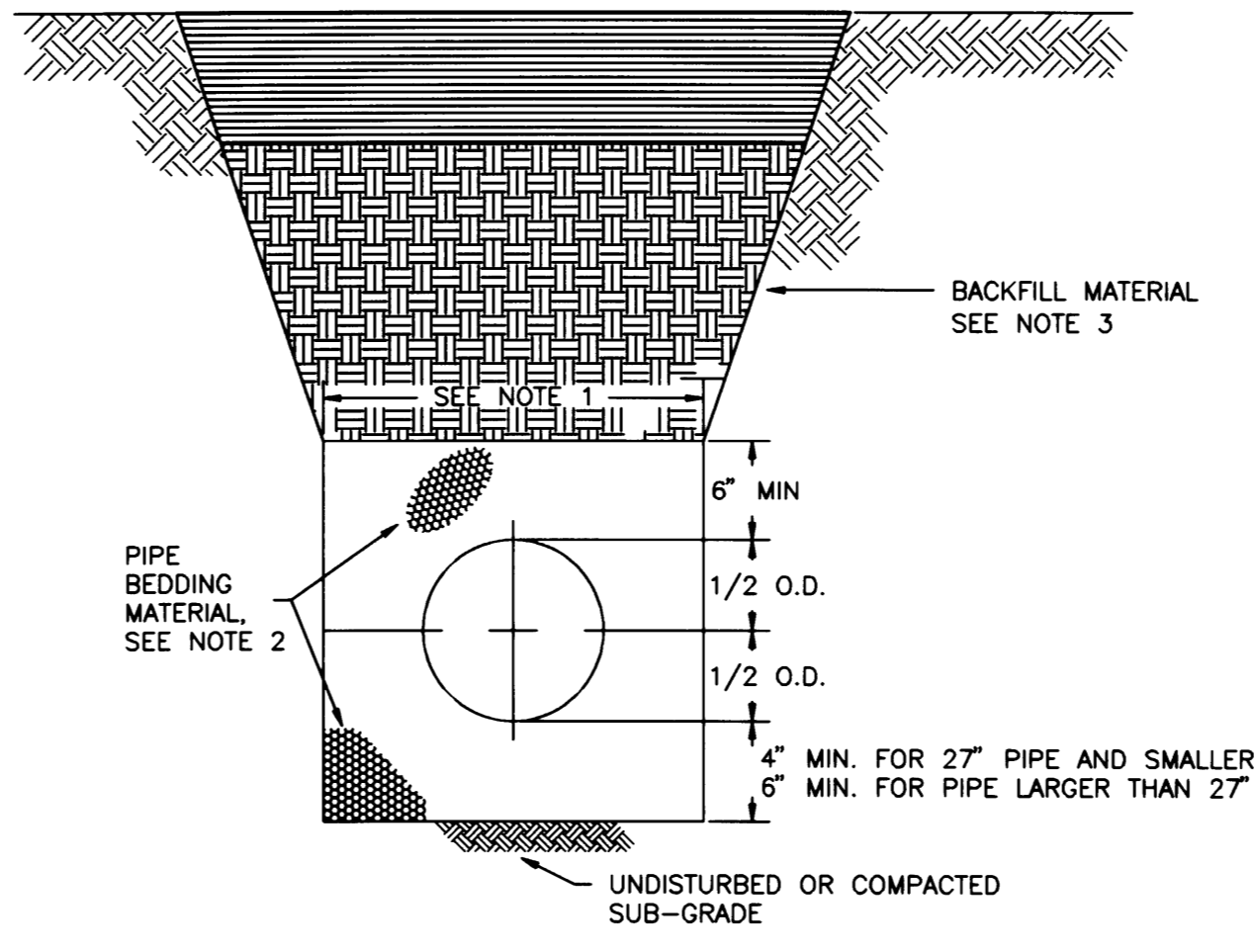


**7 RC1 TEMPORARY INTERCEPTOR DITCH**  
NOT TO SCALE

- STANDARD NOTES:**
- BASE CONSISTS OF 3/4 INCH THICK, 2 FOOT BY 2 FOOT PLYWOOD WITH CENTER DRILLED 5/8 INCH DIAMETER HOLE.
  - BEDDING MATERIAL, IF REQUIRED, SHOULD CONSIST OF TRACTION SAND.
  - MARKER ROD IS 1/2 INCH DIAMETER STEEL ROD THREADED AT BOTH ENDS.
  - MARKER ROD IS ATTACHED TO BASE BY NUT AND WASHER ON EACH SIDE OF BASE.
  - PROTECTIVE SLEEVE SURROUNDING MARKER ROD SHOULD CONSIST OF 2 INCH DIAMETER PLASTIC TUBING. SLEEVE IS NOT ATTACHED TO ROD OR BASE.
  - ADDITIONAL SECTIONS OF STEEL ROD CAN BE CONNECTED WITH THREADED COUPLINGS.
  - ADDITIONAL SECTIONS OF PLASTIC SLEEVE CAN BE CONNECTED WITH PRESS-FIT PLASTIC COUPLINGS.
  - STEEL MARKER ROD SHOULD EXTEND AT LEAST 6 INCHES ABOVE TOP OF PLASTIC SLEEVE.
  - MARKER SHOULD EXTEND AT LEAST 2 FEET ABOVE TOP OF FILL SURFACE.



**8 RC1 SETTLEMENT MARKER DETAIL**  
NOT TO SCALE



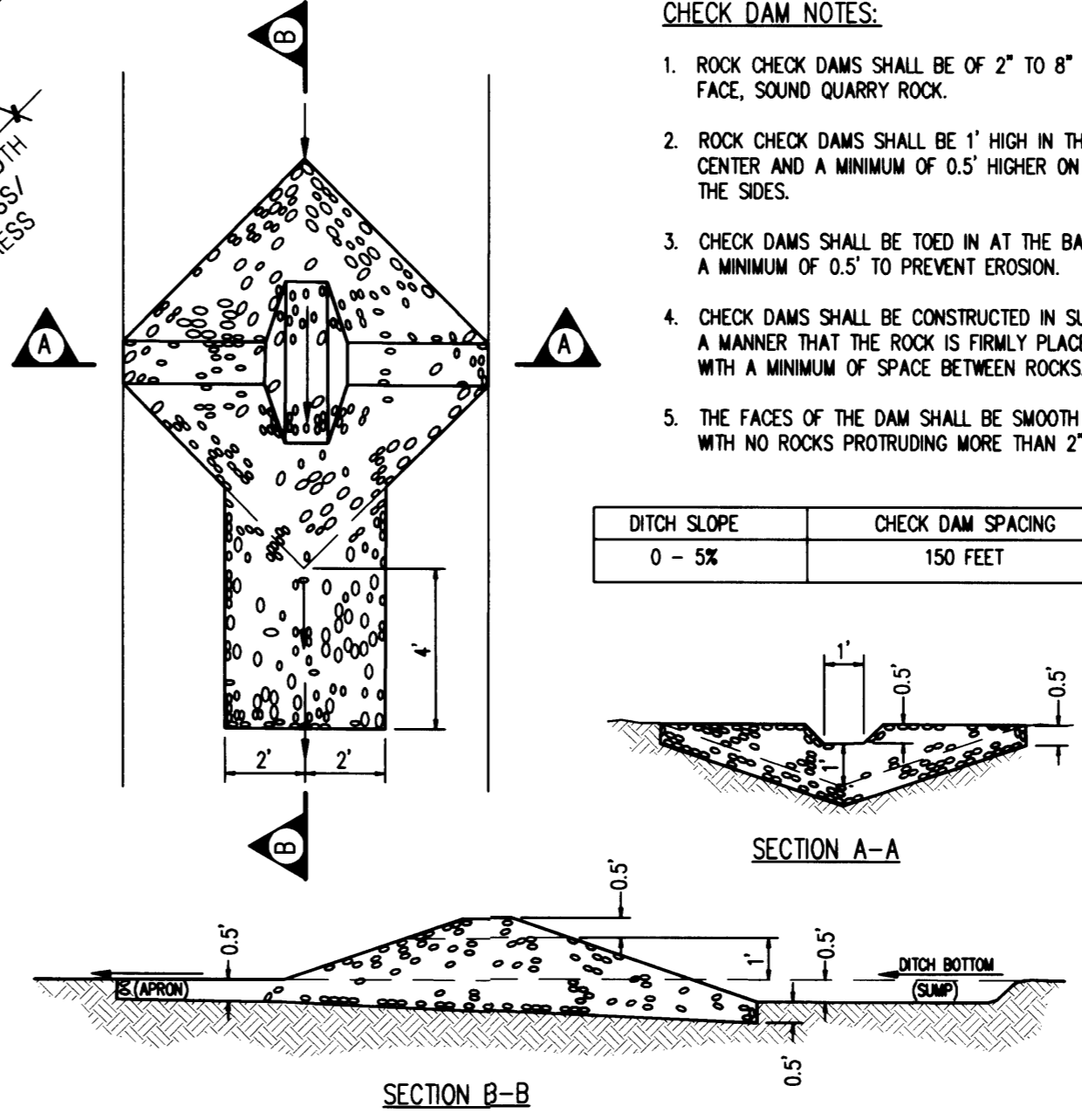
- TRENCHING SHALL MEET THE REQUIREMENTS OF SECTION 7-10.3(7) OF THE WSDOT SPECIFICATIONS.
- BEDDING MATERIAL FOR RIGID PIPE SHALL BE CRUSHED, PARTIALLY CRUSHED, OR NATURALLY OCCURRING GRANULAR MATERIAL CONFORMING TO THE FOLLOWING GRADATION:

SIEVE SIZE	PERCENT PASSING
1-1/4" SQUARE	100
1/4" SQUARE	30-50
U.S. NO. 40	3-18
U.S. NO. 200	7.0 MAX.
SAND EQUIVALENT	35 MIN.

ALL PERCENTAGES ARE BY WEIGHT.  
NATIVE MATERIAL SHALL NOT BE USED FOR PIPE BEDDING.

- GRAVEL BACKFILL FOR ABOVE BEDDING SHALL CONSIST OF CRUSHED, PROCESSED, OR NATURALLY OCCURRING GRANULAR MATERIAL. IT SHALL BE ESSENTIALLY FREE FROM VARIOUS TYPES OF WOOD WASTE OR OTHER EXTRANEIOUS OR OBJECTIONABLE MATERIALS. IT SHALL HAVE SUCH CHARACTERISTICS OF SIZE AND SHAPE THAT IT WILL COMPACT READILY.

**5 RC1 PIPE TRENCHING BEDDING AND BACKFILL**  
NOT TO SCALE

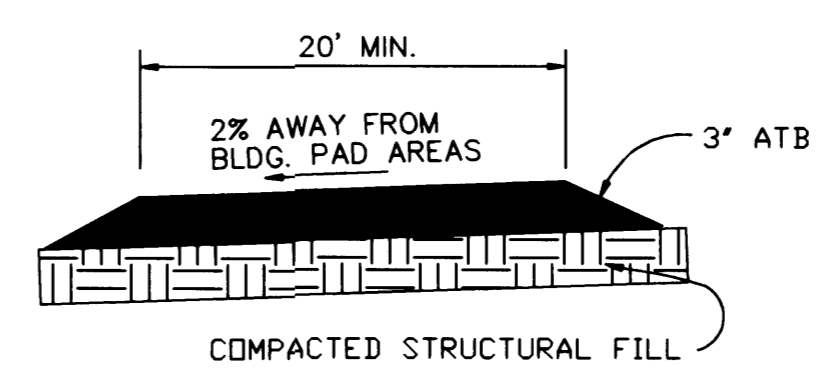


**CHECK DAM NOTES:**

- ROCK CHECK DAMS SHALL BE OF 2" TO 8" FACE, SOUND QUARRY ROCK.
- ROCK CHECK DAMS SHALL BE 1' HIGH IN THE CENTER AND A MINIMUM OF 0.5' HIGHER ON THE SIDES.
- CHECK DAMS SHALL BE TOED IN AT THE BASE A MINIMUM OF 0.5' TO PREVENT EROSION.
- CHECK DAMS SHALL BE CONSTRUCTED IN SUCH A MANNER THAT THE ROCK IS FIRMLY PLACED WITH A MINIMUM OF SPACE BETWEEN ROCKS.
- THE FACES OF THE DAM SHALL BE SMOOTH WITH NO ROCKS PROTRUDING MORE THAN 2".

DITCH SLOPE	CHECK DAM SPACING
0 - 5%	150 FEET

**NO SHT GRAVEL CHECK DAM DETAIL**  
NOT TO SCALE



**10 RC1 TEMPORARY FIRE ACCESS ROAD**  
NOT TO SCALE

**GENERAL NOTES:**

- ALL WORK IN CITY RIGHT-OF-WAY REQUIRES A PERMIT FROM THE CITY OF PUYALLUP. PRIOR TO ANY WORK COMMENCING, THE GENERAL CONTRACTOR SHALL ARRANGE FOR A PRECONSTRUCTION MEETING AT CITY HALL TO BE ATTENDED BY ALL MAJOR CONTRACTORS, REPRESENTATIVES OF INVOLVED UTILITIES AND THE CITY OF PUYALLUP. THE CONTRACTOR IS RESPONSIBLE TO HAVE HIS SET OF PLANS AT THE MEETING.
- AFTER COMPLETION OF ALL ITEMS SHOWN ON THESE PLANS AND BEFORE ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL OBTAIN A "PUNCH LIST" PREPARED BY THE CITY'S INSPECTOR DETAILING REMAINING ITEMS OF WORK TO BE COMPLETED. ALL ITEMS OF WORK SHOWN ON THESE PLANS SHALL BE COMPLETED TO THE SATISFACTION OF THE CITY PRIOR TO ACCEPTANCE OF THE WATER SYSTEM AND PROVISION OF SANITARY SEWER SERVICE.
- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION," (HEREINAFTER REFERRED TO AS THE STANDARD SPECIFICATIONS) WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND AMERICAN PUBLIC WORKS ASSOCIATION, WASHINGTON CHAPTER, 1991 EDITION UNLESS SUPERSEDED OR AMENDED BY THE "CITY STANDARDS" FOR PUBLIC WORKS ENGINEERING AND CONSTRUCTION IN THE CITY OF PUYALLUP.
- A COPY OF THESE APPROVED PLANS AND APPLICABLE CITY DEVELOPER SPECIFICATIONS AND DETAILS SHALL BE ON SITE DURING CONSTRUCTION.
- ANY REVISIONS MADE TO THESE PLANS MUST BE REVIEWED AND APPROVED BY THE DEVELOPER'S ENGINEER AND THE CITY ENGINEER PRIOR TO ANY IMPLEMENTATION IN THE FIELD. THE CITY SHALL NOT BE RESPONSIBLE FOR ANY ERROR AND/OR OMISSIONS ON THESE PLANS.
- THE CONTRACTOR SHALL HAVE ALL UTILITIES VERIFIED ON THE GROUND PRIOR TO ANY CONSTRUCTION. CALL (1-800-424-5555) AT LEAST 48 HOURS IN ADVANCE. THE OWNER AND HIS ENGINEER SHALL BE CONTACTED IMMEDIATELY IF A CONFLICT EXISTS.
- ANY STRUCTURE AND/OR OBSTRUCTION WHICH REQUIRES REMOVAL OR RELOCATION RELATING TO THIS PROJECT, SHALL BE DONE SO AT THE DEVELOPER'S EXPENSE.
- LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE TRUE ELEVATIONS AND LOCATIONS OF HIDDEN UTILITIES.
- THE CONTRACTOR SHALL INSTALL, REPLACE, OR RELOCATE ALL SIGNS, AS SHOWN ON THE PLANS OR AS AFFECTED BY CONSTRUCTION, PER CITY STANDARD NO.111.
- POWER, STREET LIGHT, CABLE AND TELEPHONE LINES SHALL BE IN A TRENCH LOCATED WITHIN A TEN-FOOT (10') UTILITY EASEMENT ADJACENT TO PUBLIC RIGHT-OF-WAY. RIGHT-OF-WAY CROSSINGS SHALL HAVE A MINIMUM HORIZONTAL SEPARATION FROM OTHER UTILITIES (SEWER, WATER, STORM) OF FIVE FEET (5').
- ALL CONSTRUCTION SURVEYING FOR EXTENSIONS OF PUBLIC FACILITIES SHALL BE DONE UNDER THE DIRECTION OF A WASHINGTON STATE LICENSED LAND SURVEYOR OR A WASHINGTON LICENSED PROFESSIONAL CIVIL ENGINEER.
- DURING CONSTRUCTION, ALL PUBLIC STREETS ADJACENT TO THIS PROJECT SHALL BE KEPT CLEAN OF ALL MATERIAL DEPOSITS RESULTING FROM ON-SITE CONSTRUCTION, AND EXISTING STRUCTURES SHALL BE PROTECTED AS DIRECTED BY THE CITY.

**APPROVED**  
By: *[Signature]*  
CITY OF PUYALLUP  
CITY ENGINEER  
DATE: 9-26-95  
NOTE: THIS APPROVAL IS VOID AFTER 1 YEAR FROM APPROVAL DATE.  
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**BROWN CONNALLY ROWAN ARCHITECTS INC.**  
JEFFREY E. BROWN, PRINCIPAL  
222 EAST 26th STREET SUITE 106 TACOMA, WA 98421 TEL (206)827-4387 FAX (206)827-4395

**SEAL OF THE CITY OF PUYALLUP**  
EXPRES 7/23/97

Project No. \_\_\_\_\_  
Date: AUC 95

Drawn By: WV  
Checked By: SS

Project: **CASCADE CHRISTIAN SCHOOLS**  
PUYALLUP, WA 98371  
306 NORTH MERIDIAN

**GRADING & EROSION NOTES & DETAILS**

Sheet No. \_\_\_\_\_

**AHBL**  
CIVIL & STRUCTURAL ENGINEERS  
LAND PLANNERS • LANDSCAPE ARCHITECTS  
2215 NORTH 30th SUITE 300 • TACOMA, WA 98403  
(206) 383-2422 • FAX: (206) 383-2872

PORTION OF THE S 1/2 OF SEC 26 AND N 1/2 OF SEC 35 TWP. 20N., RGE. 4 E. W.M. PIERCE COUNTY, WA

**APPROVED**  
 BY: *[Signature]* PE  
 CITY OF PUYALLUP  
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 DATE: 9-26-95  
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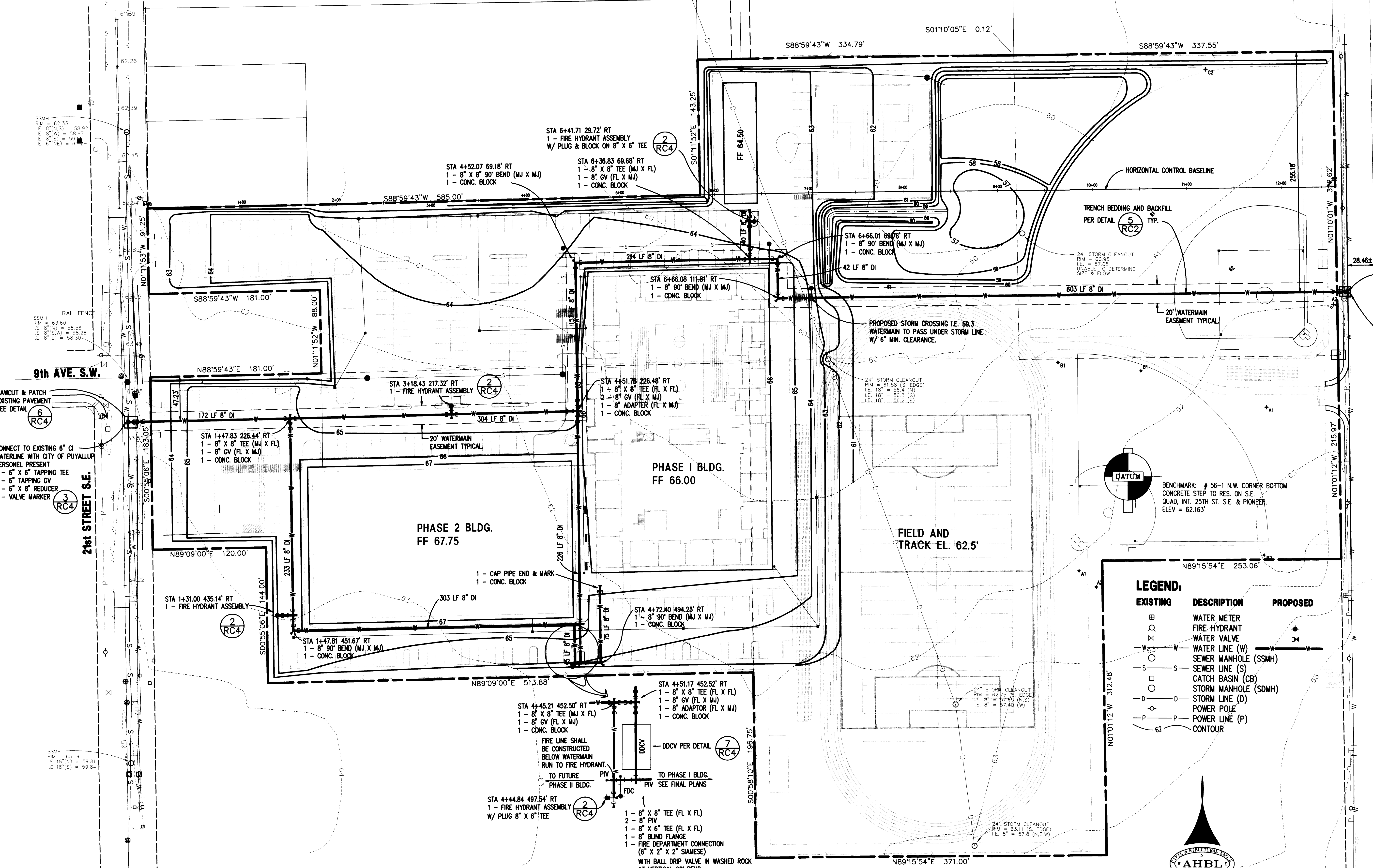
Expires 7/23/97

Drawn By	VV	Checked By	SS
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Project No.		Date:	AUG 95
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**CASCADE CHRISTIAN  
 SCHOOLS**  
 306 NORTH MERIDIAN  
 PUYALLUP, WA 98371

**WATER PLAN**  
 RC3

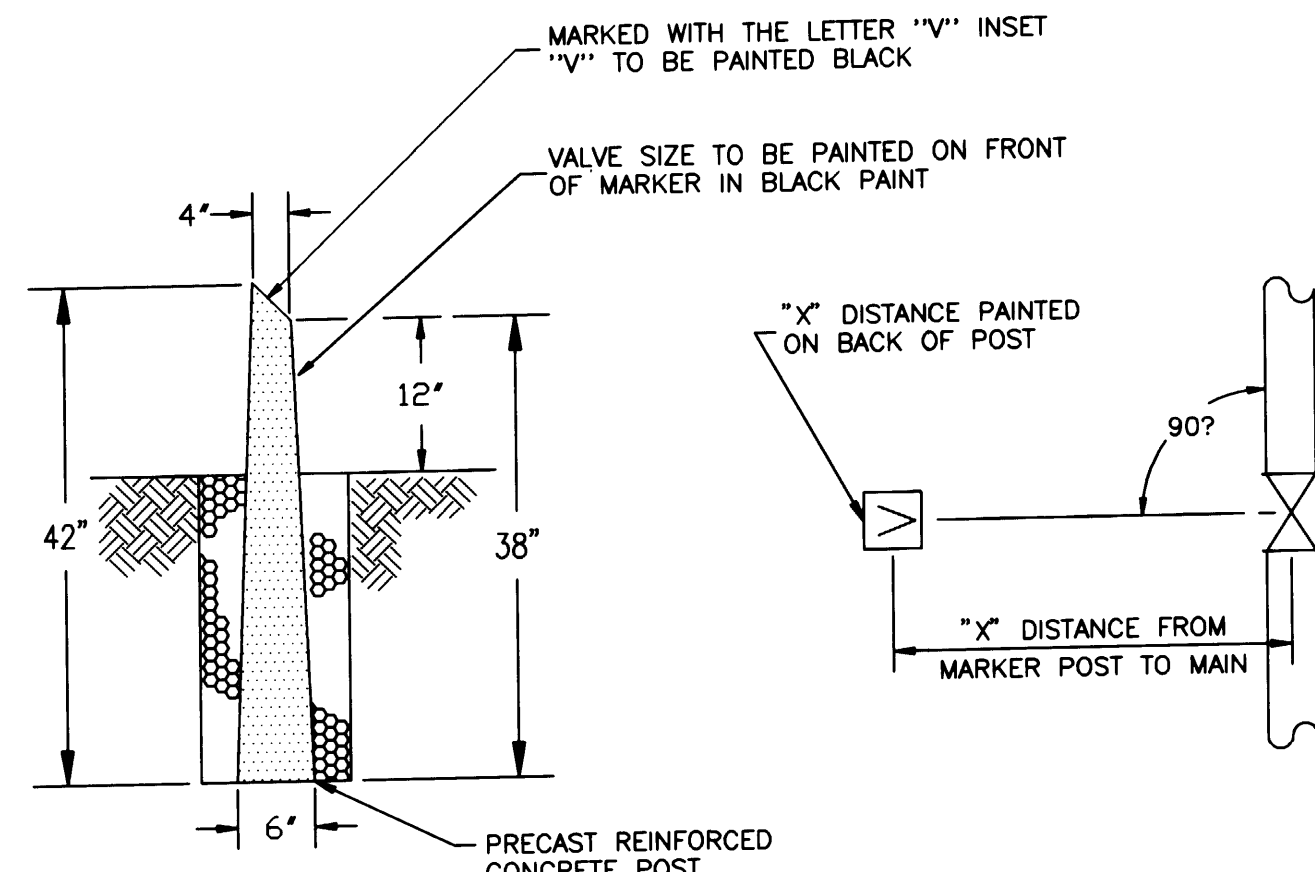


- WATER NOTES:**
- BIOLOGICAL TEST SAMPLES WILL BE TAKEN BY THE CITY AND PAID FOR BY THE CONTRACTOR.
  - WATER MAINS SHALL HAVE A MINIMUM COVER OF 42 INCHES IN IMPROVED RIGHT-OF-WAY AND A MINIMUM OF 48 INCHES IN UNIMPROVED RIGHT-OF-WAY AND EASEMENTS.
  - PIPE FOR WATER MAINS SHALL BE DUCTILE IRON CONFORMING TO SECTION 7-09 OF THE STANDARD SPECIFICATIONS AND SHALL BE THICKNESS CLASS 52 OR GREATER, WITH TYTON OR APPROVED EQUAL JOINTS. PIPE SHALL BE CEMENT LINED IN ACCORDANCE WITH A.S.A. SPECIFICATION A 21-4-1964.
  - CONNECTIONS TO EXISTING WATER MAINS SHALL BE WET TAPS THROUGH A TAPPING TEE AND TAPPING VALVE AND SHALL BE MADE BY A CITY APPROVED CONTRACTOR. THE CITY SHALL APPROVE THE TIME AND LOCATION FOR THESE CONNECTIONS.
  - ALL WATER MAINS AND APPURTENANCES SHALL BE HYDROSTATICALLY TESTED AT 200 PSI IN ACCORDANCE WITH SECTION 7-11.3(11) OF THE STANDARD SPECIFICATIONS.
  - VALVE MARKER POSTS SHALL BE INSTALLED WHERE VALVE BOXES ARE HIDDEN FROM VIEW OR IN UNPAVED AREAS. THE INSTALLATION SHALL CONFORM TO DETAIL (3) RC4
  - VALVE BOXES SHALL BE PROVIDED AND INSTALLED CONFORMING TO DETAIL (5) RC4
  - PIPE FITTING FOR WATER MAINS SHALL BE DUCTILE IRON AND SHALL BE MECHANICAL JOINT CONFORMING TO AWWA SPECIFICATION C111-72.
  - WATER MAIN PIPE AND SERVICE CONNECTIONS SHALL BE TEN (10) FEET AWAY FROM BUILDING FOUNDATIONS AND/OR ROOF LINES.
  - WHERE WATER MAIN CROSSES NORTHWEST GAS PIPELINE, THE WATER LINE SHALL BE CASED WITH PVC PIPE A MINIMUM OF TEN (10) FEET BEYOND EACH SIDE OF THE GAS LINE EASEMENT. CONTACT NORTHWEST GAS BEFORE CROSSING IS MADE.
  - TRENCHING, BEDDING, AND BACKFILL FOR WATER MAINS SHALL BE IN DETAIL (5) RC2
  - FOR COMMERCIAL DEVELOPMENTS, ALL IRRIGATION SYSTEMS AND WATER SERVICE CONNECTIONS SHALL BE ROUTED THROUGH A DOUBLE CHECK VALVE ASSEMBLY CONFORMING TO CITY STANDARD.

**NOTE**  
 SITE LAYOUT FEATURES SHOWN FOR REFERENCE ONLY AND MAY BE SUBJECT TO SOME CHANGE. BUILDING TO BE CONSTRUCTED WITH FUTURE PLAN SETS.  
 48" MIN. COVER SHALL BE PROVIDED TO FINISHED GRADES. CONTOURS SHOWN ARE ROUGH GRADES. SEE FINAL PLANS AT THE TIME OF CONSTRUCTION FOR ADDITIONAL DETAILED GRADING INFORMATION.  
 SEE SHEET RC1 FOR TEMPORARY FIRE ACCESS ROAD CONSTRUCTION.  
 WATER SERVICES TO BE INSTALLED UNDER FINAL PLANS.

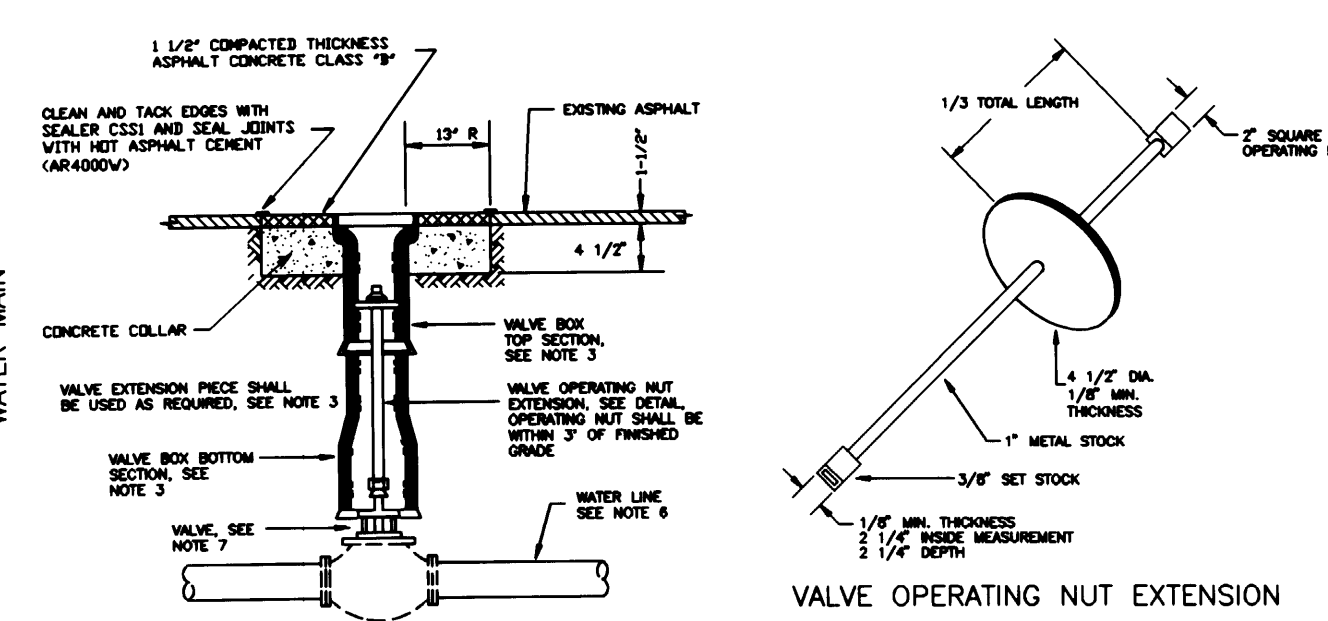
**GRAPHIC SCALE**  
 ( IN FEET )  
 1 inch = 50 ft.

**AHBL**  
 CIVIL & STRUCTURAL ENGINEERS  
 LAND PLANNERS • LANDSCAPE ARCHITECTS  
 2215 NORTH 30th SUITE 300 • TACOMA, WA 98403  
 (206) 383-4422 • FAX: (206) 383-2572

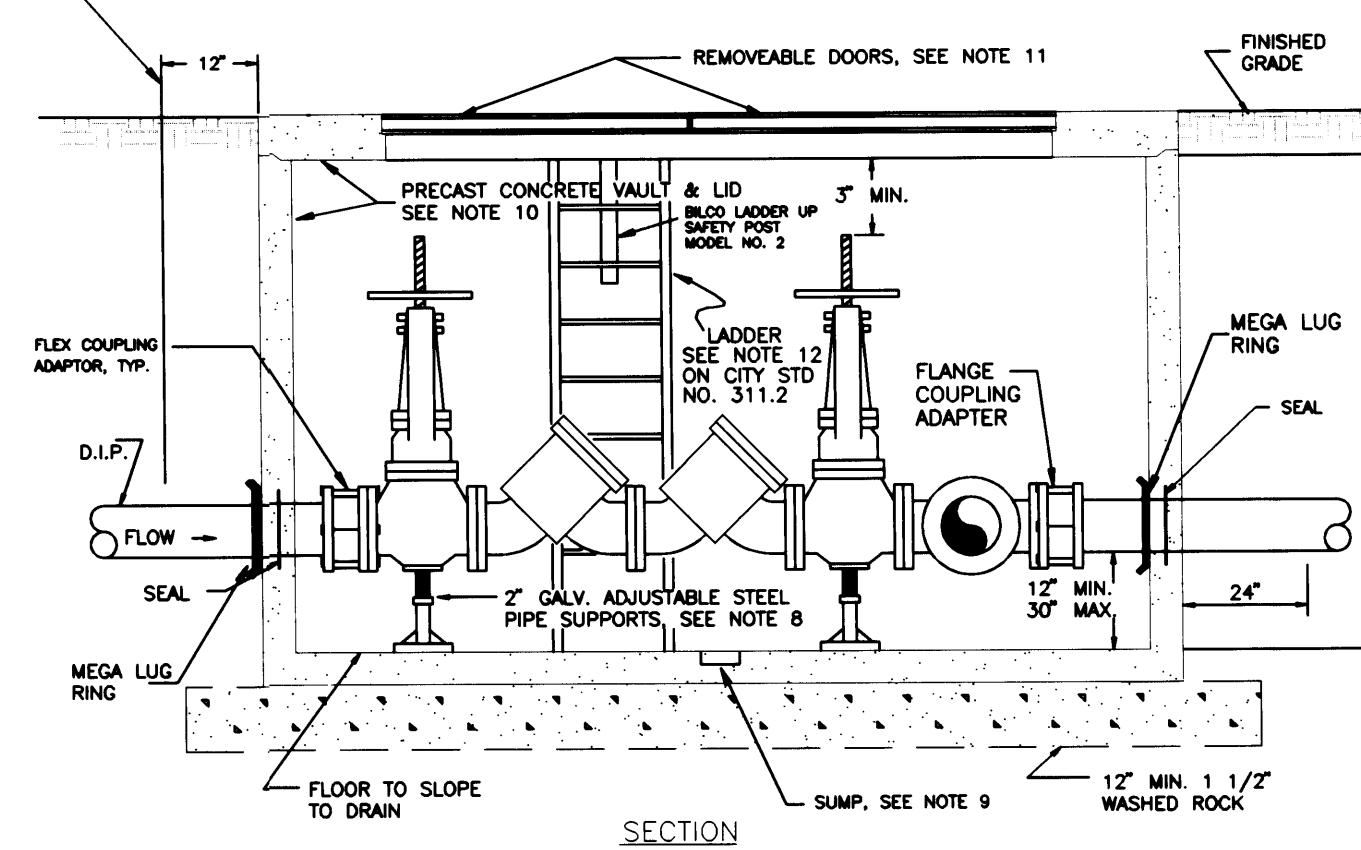
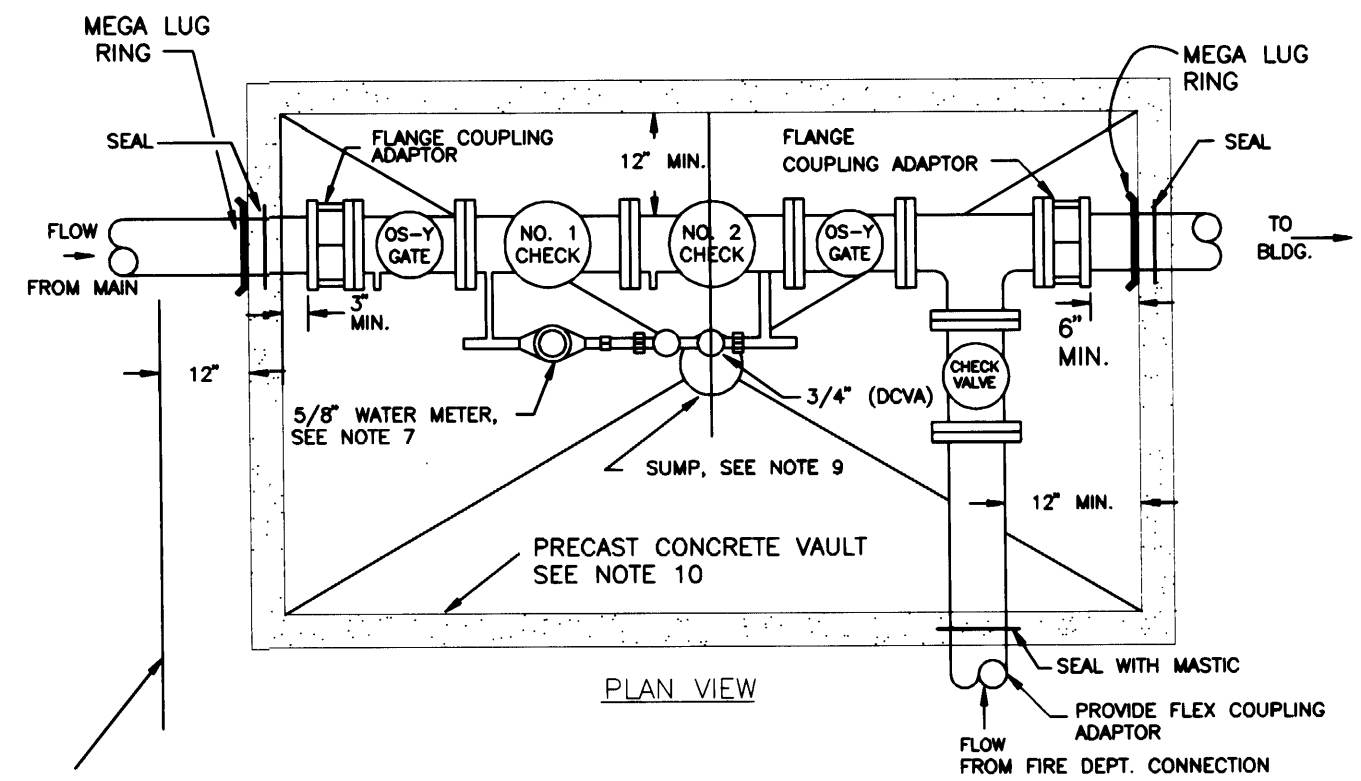


- NOTES:**
1. PRECAST REINFORCED POST TO BE PAINTED FLAT TRAFFIC YELLOW # 2612 OR SAFETY YELLOW # 1063 BY PARKER PAINT OR APPROVED EQUAL PER THE CITY ENGINEER.
  2. THE DISTANCE FROM THE MARKER POST TO THE WATER MAIN & SIZE OF GATE VALVE SHALL BE PAINTED ON THE FRONTSIDE OF THE MARKER POST IN BLACK WITH A 2" HIGH NUMBER.

**3 VALVE MARKER POST**  
RC3 NOT TO SCALE



- NOTES:**
1. VALVE OPERATING NUT EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN THREE (3) FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG, ONLY ONE EXTENSION TO BE USED PER VALVE.
  2. ALL VALVE OPERATING NUT EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND PAINTED WITH TWO COATS OF METAL PAINT.
  3. VALVE BOXES SHALL BE TWO-PIECE, ADJUSTABLE, CAST IRON WITH EXTENSION PIECES (IF NECESSARY) AS MANUFACTURED BY THE WAREHO USA SEATTLE OR APPROVED EQUAL. THE WORD "WATER" SHALL BE CAST IN RELIEF IN THE TOP.
  4. HEAD LINE CUTS SHALL BE SEALED WITH A HOT PAVING GRADE ASPHALT AND FACE OF CUT TACKED.
  5. WATER MAINS SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH DIVISION 7 OF THE CITY OF PUYALLUP STANDARD SPECIFICATIONS.
  6. SECTION 7-09.2 OF THE STANDARD SPECIFICATIONS SHALL BE SUPPLEMENTED BY THE FOLLOWING:
    - A. DUCTILE IRON PIPE SHALL CONFORM TO ANMA C 151, THICKNESS CLASS 50, AND THE EXTERIOR SHALL BE COATED WITH AN EPDM RUBBER LINING. FITTINGS SHALL BE DUCTILE IRON PIPE SHALL CONFORM TO ANMA C 151, THICKNESS CLASS 50, AND THE EXTERIOR SHALL BE COATED WITH AN EPDM RUBBER LINING. FITTINGS SHALL BE DUCTILE IRON PIPE SHALL CONFORM TO ANMA C 151, THICKNESS CLASS 50, AND THE EXTERIOR SHALL BE COATED WITH AN EPDM RUBBER LINING. FITTINGS SHALL BE DUCTILE IRON PIPE SHALL CONFORM TO ANMA C 151, THICKNESS CLASS 50, AND THE EXTERIOR SHALL BE COATED WITH AN EPDM RUBBER LINING.
    - B. JOINTS SHALL BE TYTON PUSH-ON JOINTS, OR APPROVED EQUAL, OR MECHANICAL JOINT TYPE PER ANMA C 111 EXCEPT WHERE FLANGED JOINTS ARE REQUIRED TO CONNECT TO VALVES OR OTHER EQUIPMENT.
    - C. BOLTS AND NUTS FOR BURIED FLANGES LOCATED OUTDOORS ABOVE GROUND OR IN OPEN VAULTS IN STRUCTURES SHALL BE TYPE 316 STAINLESS STEEL CONFORMING TO ASTM A 193, GRADE B16 FOR BOLTS AND ASTM A 194, GRADE B16 FOR NUTS. BOLTS AND NUTS LARGER THAN ONE AND ONE-QUARTER (1 1/4) INCHES SHALL BE STEEL, ASTM A 307, GRADE B, WITH GALVANNEAL PLATING, ASTM A 168, TYPE NS.
    - D. BOLTS USED IN FLANGE INSULATIONS SETS SHALL CONFORM TO ASTM B 193, GRADE B7. NUTS SHALL CONFORM TO ASTM A 194, GRADE B16.
    - E. PROVIDED WASHER FOR EACH NUT. WASHERS SHALL BE OF THE SAME MATERIAL AS THE NUTS.
    - F. ALL FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF ANMA C 110 AND ANMA C 111.
  7. SECTION 7-12.2 OF THE STANDARD SPECIFICATIONS SHALL BE SUPPLEMENTED BY THE FOLLOWING:
    - A. GATE VALVES SHALL BE USED FOR SIGHT OR HIGH MAINS AND SMALLER. BUTTERFLY VALVES SHALL BE USED FOR MAINS GREATER THAN EIGHT (8) INCHES.
    - B. GATE VALVES SHALL CONFORM TO THE LATEST ANMA SPECIFICATIONS FOR GATE VALVES. DOUBLE-CHECK GATE VALVES FOR WORKING PRESSURE. THEY SHALL BE NON-ROTTED, BRONZE-MOUNTED, NON-RISING STEM, COUNTER-CLOCKWISE OPENING, MECHANICAL JOINT ENDS (EXCEPT VALVES ON FIRE HYDRANT LINES WHICH SHALL BE MECHANICAL JOINTS BY FLANGED VALVE STEMS SHALL BE PROVIDED WITH O-RING SEALS AND SHALL BE AS MANUFACTURED BY THE MUELLER COMPANY OR APPROVED EQUAL.
    - C. BUTTERFLY VALVES CONFORMING WITH ANMA C 304, CLASS 150 AND SHALL HAVE STANDARD ANMA TWO (2) INCH SQUARE NUT.



NOTES FOR: DOUBLE DETECTOR CHECK VALVE ASSEMBLY (DOCVA) INSTALLATION

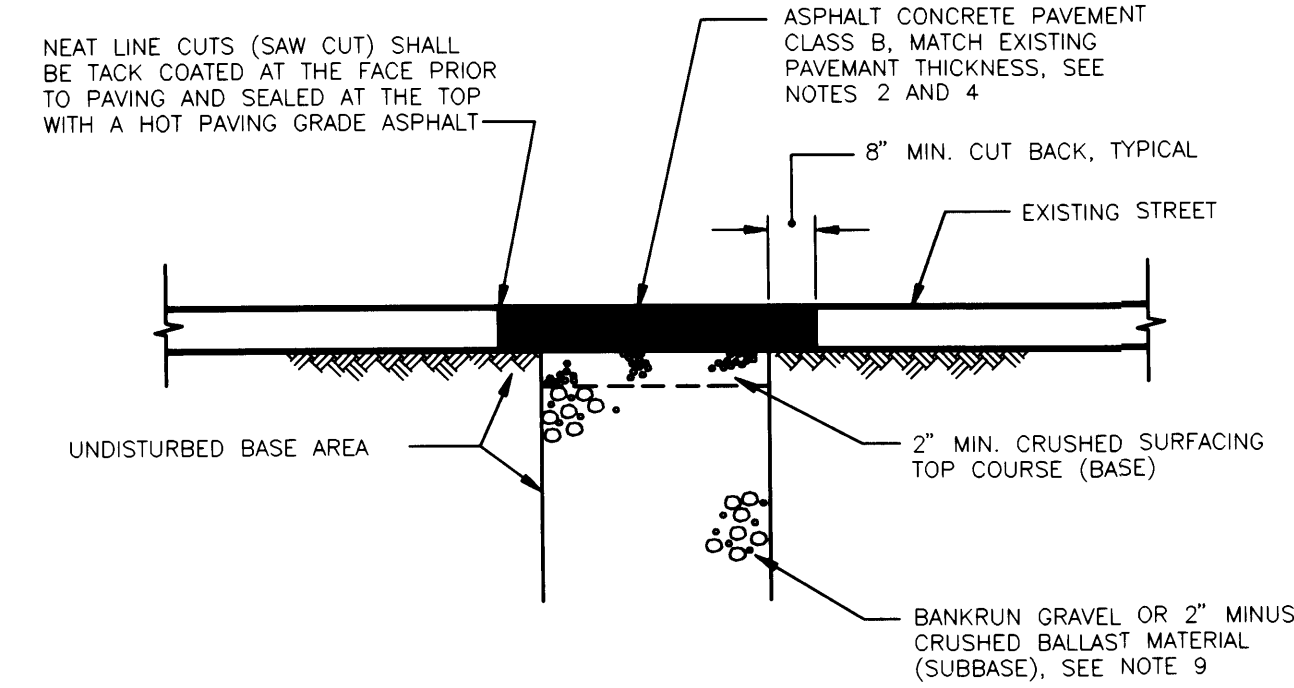
1. INSTALLATION OF THE APPROVED BACKFLOW ASSEMBLY SHALL BE IN ACCORDANCE WITH THE ACCEPTED PROCEDURE AND PRACTICE IN CROSS-CONNECTION CONTROL MANUAL OF THE CROSS-CONNECTION CONTROL COMMITTEE, PACIFIC N.W. SECTION OF THE A.W.W.A., MAY 1990, 5TH EDITION MANUAL.
2. BACKFLOW ASSEMBLY MUST BE SELECTED FROM WASHINGTON STATE DEPARTMENT OF SOCIAL AND HEALTH SERVICES' LIST OF BACKFLOW PREVENTION ASSEMBLIES APPROVED FOR INSTALLATION IN WASHINGTON STATE, LATEST EDITION.
3. UPON INSTALLATION OF THE APPROVED BACKFLOW ASSEMBLY, (AND YEARLY THEREAFTER), THE ASSEMBLY SHALL BE TESTED BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER, WHO SHALL PROMPTLY FORWARD THE TEST RESULTS TO: THE CITY OF PUYALLUP, WATER QUALITY OPERATIONS, 218 WEST PIONEER, PUYALLUP, WA. 98371.
4. DOUBLE DETECTOR CHECK VALVE ASSEMBLY OS & Y GATE VALVES SHALL HAVE SUPERVISED TAMPER SWITCHES.
5. ALL ELECTRICAL SHALL BE INSPECTED BY A WASHINGTON STATE ELECTRICAL INSPECTOR.
6. DOCVA MUST BE PURCHASED AS A UNIT. NO MODIFICATIONS TO ASSEMBLY ARE ALLOWED.
7. WATER METER SHALL BE A ROCKWELL SR-2/CF OR AN APPROVED EQUAL, READING IN CUBIC FEET.
8. PIPE SUPPORTS SHALL BE RUST-PROTECTED WITH ALUMINUM PAINT.
9. A 1/4 HP SUMP PUMP SHALL BE INSTALLED IN THE SUMP PIT OF THE VAULT. IT SHALL BE WIRED PER WASHINGTON STATE ELECTRICAL CODE AND INSPECTED BY AT STATE ELECTRICAL INSPECTOR. THE DISCHARGE PIPE SHALL BE CONNECTED TO THE NEAREST ON SITE STORM DRAINAGE STRUCTURE OR DRAIN TO DAYLIGHT.
10. THE VAULT SHALL BE A PRECAST CONCRETE VAULT SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN ON THE DETAIL.
11. REMOVABLE DOORS SHALL BE A MINIMUM OF 6'-0" X 3'-0" DIAMOND PLATE, DIAMOND PLATE HINGED LOCKING DOORS, WITH HINGES LOCATED AT EACH END OF OPENING. DOORS SHALL HAVE AN H-20 LOAD RATING IN AREAS THAT ARE SUBJECT TO VEHICLE TRAFFIC. DOORS SHALL BE SPRING LOADED WITH OPEN POSITION LOCK.
12. A GALVANIZED LADDER SHALL BE SET INSIDE THE VAULT FOR ACCESS INTO THE VAULT. IT SHALL BE SECURED TO THE VAULT WITH 1/2" DIA. BOLTS EPOXYED TO THE VAULT LID AND FLOOR.
13. A BILCO LADDER UP SAFETY POST MODEL NO. 2 SHALL BE ATTACHED TO THE LADDER STEPS.
14. THE FIRE DEPARTMENT CONNECTION SHALL BE LOCATED WITHIN 15 FEET OF A FIRE HYDRANT BUT NOT LESS THAN 10 FEET. THE FIRE DEPARTMENT SHALL BE CONSTRUCTED PER THE REQUIREMENTS OF THE CITY OF PUYALLUP FIRE DEPARTMENT.

**7 DOUBLE DETECTOR CHECK VALVE ASSEMBLY INSTALLATION**  
RC3 NOT TO SCALE

PIPE SIZE	P.S.I.	TEE/ DEAD ENDS	90° BENDS	45° BENDS	22 1/2" BENDS
3"	100	1220	1720	931	474
	150	1330	1880	1020	519
	200	1610	2270	1230	628
4"	100	1840	2750	1490	759
	150	2020	3350	1550	790
	200	2350	3330	1800	919
6"	100	3630	5420	2930	1500
	150	4100	5800	3140	1500
	200	4750	6710	3630	1850
8"	100	6580	9310	5040	2570
	150	6980	9870	5340	2720
	200	7910	11200	6050	3090

1. TO DETERMINE THRUST AT PRESSURES OTHER THAN PSI SHOWN, MULTIPLY THE THRUST OBTAINED IN THE TABLE BY THE RATIO OF THE PRESSURE TO 100.  
EXAMPLE, THE THRUST ON A 12 INCH, 90° BEND AT 125 PSI:  
 $19,500 \times \frac{125}{100} = 24,375 \text{ LBS}$
2. TO DETERMINE THE VOLUME OF THE THRUST BLOCK:  
EXAMPLE, (150 LB/C.F. WEIGHT OF CONCRETE)  
 $24,375 \text{ LBS.} \div 150 \text{ LB/C.F.} = 162.50 \text{ C.F.}$   
 $162.50 \text{ C.F.} \div 27 \text{ C.Y./C.F.} = 6.02 \text{ C.Y. OF CONC.}$
3. TO DETERMINE THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET (S.F.) SEE TABLE 1, BEARING VALUE OF SOIL:  
EXAMPLE:  $24,375 \text{ LBS.} \div 3000 \text{ LB/S.F.} = 8.13 \text{ S.F. OF AREA}$

**5 WATER VALVES AND MAINS**  
RC3 NOT TO SCALE

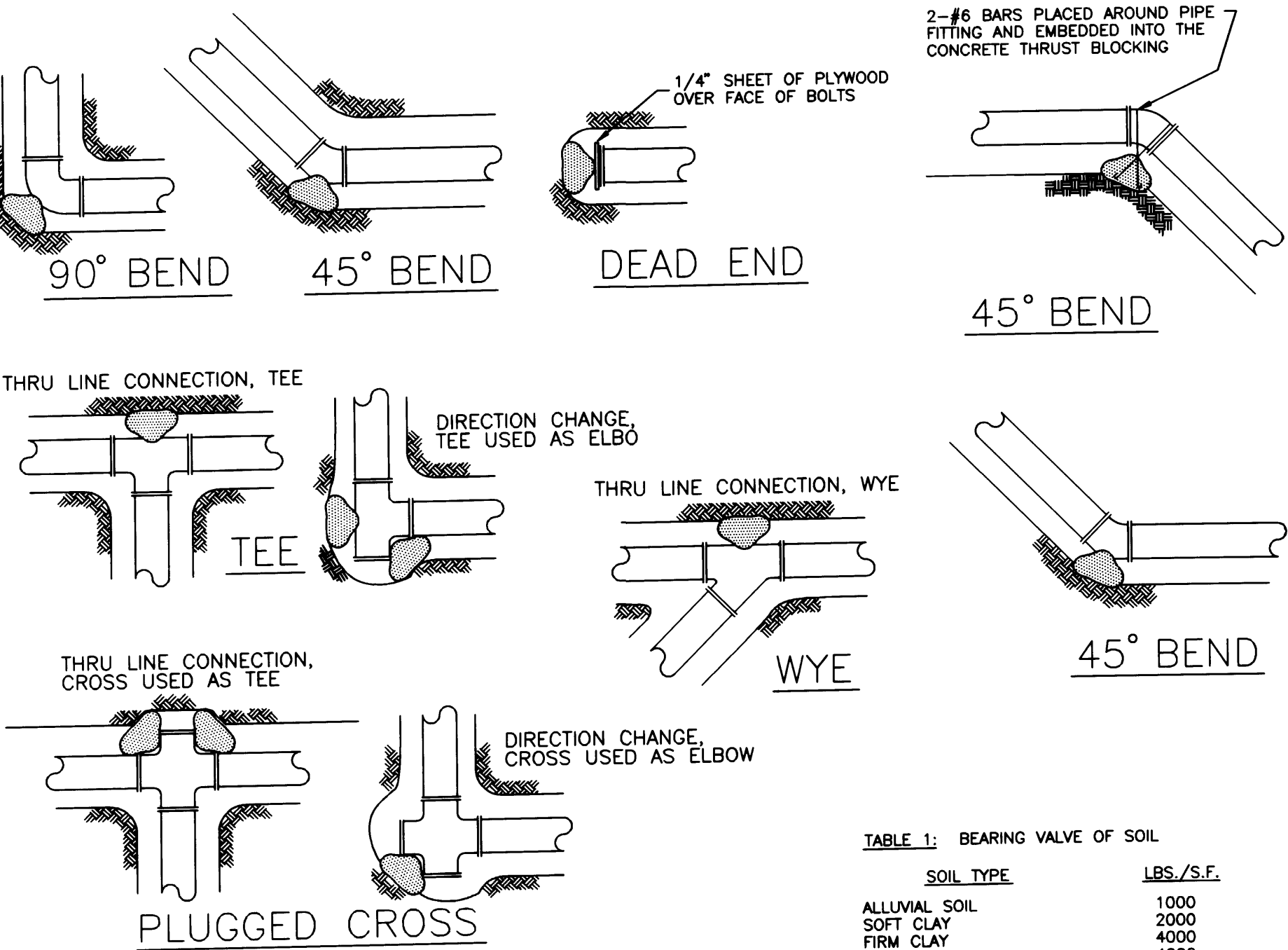


- NOTES:**
1. BASE AND SUBBASE MATERIAL SHALL BE COMPACTED TO 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY.
  2. ASPHALT CONCRETE PAVEMENT THICKNESS:
    - A. RESIDENTIAL STREET 2" MINIMUM
    - B. COLLECTOR / ARTERIAL STREETS 4" MINIMUM
  3. ALL DEPTHS INDICATED ARE A MINIMUM COMPACTED DEPTH.
  4. ALL PATCHES 8' X 8' AND SMALLER MAY BE PAVED WITH A PAVING BOX.
  5. INITIAL BACKFILL SHALL BE PERFORMED ONLY AFTER INSPECTION AND APPROVAL OF THE INSTALLED PIPE OR STRUCTURE. THE BACKFILL MATERIAL SHALL BE PLACED IN ACCORDANCE WITH CITY STANDARD 503.
  6. ALL BACKFILL FOR PIPE TRENCHES SHALL BE MECHANICALLY COMPACTED BY A POWER-OPERATED MECHANICAL TAMPER(S) AS SPECIFIED IN SECTION 2-03.3 (14)C, COMPACTING EARTH EMBANKMENTS, METHOD C OF THE WSDOT SPECIFICATIONS.
  7. INITIAL BACKFILL MATERIAL SHALL BE SELECT TRENCH EXCAVATION MATERIAL.
  8. COMPACTION SHALL BE MADE IN ONE (1) FOOT LIFTS.
  9. BANKRUN GRAVEL SHALL MEET THE REQUIREMENTS OF WSDOT SPEC. SECTION 9-03.10. CRUSHED BALLAST SHALL MEET THE REQUIREMENTS OF WSDOT SPEC. SECTION 9-03.9(1).

**6 STREET PATCH**  
RC3 NOT TO SCALE

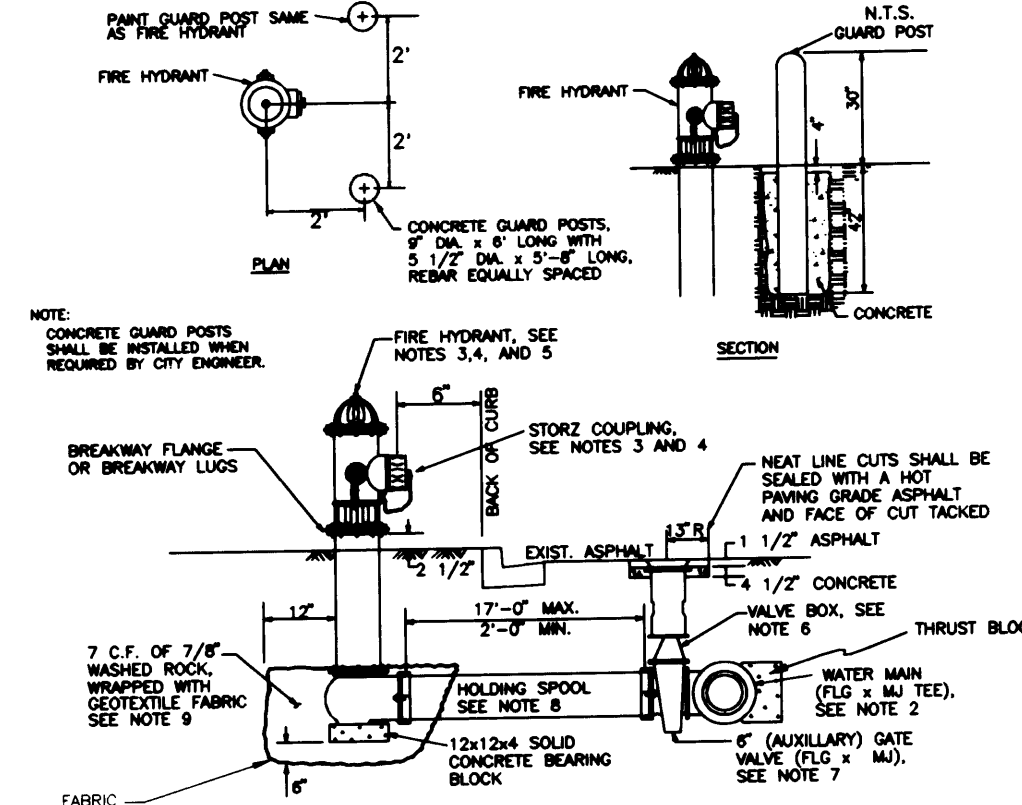
TABLE 1: BEARING VALUE OF SOIL

SOIL TYPE	LBS./S.F.
ALLUVIAL SOIL	1000
SOFT CLAY	2000
FIRM CLAY	4000
WET SAND	4000
SAND AND CLAY MIXED	4000
FINE DRY SAND	8000
HARD CLAY	8000
COARSE DRY SAND	8000
GRAVEL	12000
GRAVEL AND SAND, WELL GRAINED	16000
HARDPAN OR HARD SHALE	20000
MEDIUM ROCK	40000
ROCK UNDER CAISSONS	50000
HARD ROCK	160,000



- NOTES:**
1. THE FOLLOWING PRECAUTIONS MUST BE OBSERVED WHEN CONSTRUCTING THRUST BLOCKS:
    - A. BLOCKS MUST BE POURED AGAINST UNDISTURBED SOIL.
    - B. THE PIPE JOINT AND BOLTS MUST BE ACCESSIBLE.
    - C. CONCRETE SHOULD BE CURED FOR AT LEAST 5 DAYS AND SHOULD HAVE A COMPRESSION STRENGTH OF 2,000 LBS. AT 28 DAYS.
    - D. BLOCKS MUST BE POSITIONED TO COUNTERACT THE DIRECTION OF THE RESULTANT THRUST FORCE.
  2. ALL PIPE SHALL BE PROPERLY BEDDED, SEE CITY OF PUYALLUP STANDARD BEDDING DETAILS

**4 THRUST BLOCKING**  
RC3 NOT TO SCALE



- NOTES:**
1. ALL MATERIALS AND FITTINGS SHALL BE AS SPECIFIED OR APPROVED EQUAL.
  2. WATER MAINS SHALL HAVE A MINIMUM COVER OF 42" IN IMPROVED RIGHT-OF-WAY AND A MINIMUM OF 18" IN UNIMPROVED RIGHT-OF-WAY AND EASEMENTS. THE FINAL COVER SHALL BE INTERNATIONAL YELLOW NO. 114 OR AN APPROVED EQUAL. THE STORZ FITTING SHALL NOT BE PAINTED.
  3. THE FIRE HYDRANT AND CONCRETE GUARD POSTS SHALL BE PAINTED, PARKER PAINTS FLAT TRAFFIC YELLOW #2612 OR AN APPROVED EQUAL. THE FINAL COVER SHALL BE INTERNATIONAL YELLOW NO. 114 OR AN APPROVED EQUAL. THE STORZ FITTING SHALL NOT BE PAINTED.
  4. FIRE HYDRANTS SHALL HAVE TWO 1 1/2" HOSE PORTS (NATIONAL STANDARD THREAD) WITH CAPS AND CHAINS AND ONE 2" PUMPER PORT (TACOMA STEAMER THREAD) WITH A 2" STORZ COUPLING AND IRON CAP INSTALLED ON THE PORT. STEAMER PORT SHALL FACE THE STREET. 1 1/2" PENETRATIONAL STEAMING NUT (COUNTER-CLOCKWISE OPENING), 0-90° TYPE SLIDING BOX, AUTOMATIC BARREL DRAINS AND 3/4" MAIN VALVE OPERATING HYDRANTS SHALL BE INSTALLED. THE WORD "WATER" SHALL BE CAST IN RELIEF IN THE TOP OF THE VALVE. HYDRANTS SHALL CONFORM TO THE LATEST REVISION OF ANMA C 300-23 FOR FIRE HYDRANTS FOR ORDINARY WATER SERVICE. FIRE HYDRANTS SHALL INCLUDE THE ENTIRE ASSEMBLY INCLUDING HYDRANT, GATE VALVE AND BOX, CONNECTING PIPING FITTINGS AND ACCESSORIES.
  5. FIRE HYDRANTS SHALL BE W & H 925, CLOW F2500, MUELLER CENTERION OR AN APPROVED EQUAL.
  6. VALVE BOXES SHALL BE TWO-PIECE, ADJUSTABLE, CAST IRON WITH EXTENSION PIECES (IF NECESSARY) AS MANUFACTURED BY THE WAREHO USA SEATTLE OR APPROVED EQUAL. THE WORD "WATER" SHALL BE CAST IN RELIEF IN THE TOP.
  7. GATE VALVES SHALL CONFORM TO THE LATEST ANMA SPECIFICATIONS FOR GATE VALVES. DOUBLE-CHECK GATE VALVES FOR WORKING PRESSURE. THEY SHALL BE NON-ROTTED, BRONZE-MOUNTED, NON-RISING STEM, COUNTER-CLOCKWISE OPENING, MECHANICAL JOINT ENDS (EXCEPT VALVES ON FIRE HYDRANT LINES WHICH SHALL BE MECHANICAL JOINTS BY FLANGED VALVE STEMS SHALL BE PROVIDED WITH O-RING SEALS AND SHALL BE AS MANUFACTURED BY THE MUELLER COMPANY OR APPROVED EQUAL.
  8. THE HOLDING SPOOL SHALL BE A MECHANICAL-JOINT (M.J.) HOLDING SPOOL WITH THE USE OF CLASS 53 DUCTILE IRON PIPE AS MANUFACTURED BY PARKER WATER WORKS OR AN APPROVED EQUAL. OR THE USE OF MEGA-LUG CONNECTORS WITH CLASS 50 DUCTILE IRON PIPE.
  9. THE CONTRACTOR SHALL PLACE A 6 OZ. GEOTEXTILE FABRIC AROUND THE WASHED ROCK AREA.
  10. A FLORESENT ORANGE BAG MUST COVER AND BE SECURED TO THE FIRE HYDRANT UNTIL APPROVED FOR USE BY CITY ENGINEER.

**2 FIRE HYDRANT ASSEMBLY**  
RC3 NOT TO SCALE

CALL 48 HOURS BEFORE YOU DIG  
1-800-424-5555

**APPROVED**  
BY: *[Signature]*  
CITY OF PUYALLUP  
CITY ENGINEER  
DATE: 9-26-95  
NOTE: THIS APPROVAL IS VOID AFTER 1 YEAR FROM APPROVAL DATE.  
ANY ERRORS AND/OR OMISSIONS ARE NOT THE RESPONSIBILITY OF THE CITY OF PUYALLUP.

**BROWN CONNALLY ROWAN ARCHITECTS INC.**  
JEFFREY E. BROWN, PRINCIPAL  
222 EAST 28th STREET  
SUITE 106  
TACOMA, WA 98421  
TEL: (206) 827-4387  
FAX: (206) 827-4395

**SEAL**  
1/23/97

**Drawn By** WIV  
**Checked By** SS

**Project No.** CASCADE CHRISTIAN SCHOOLS  
**Date:** AUG 95

**Project** CASCADE CHRISTIAN SCHOOLS  
306 NORTH MERIDIAN  
PUYALLUP, WA 98371

**Water Notes & Details**

**Sheet No.** RC4

**AHBL**  
CIVIL & STRUCTURAL ENGINEERS  
LAND PLANNERS • LANDSCAPE ARCHITECTS  
2215 NORTH 30th SUITE 300 • TACOMA, WA 98403  
(206) 383-2422 • FAX: (206) 383-2572

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