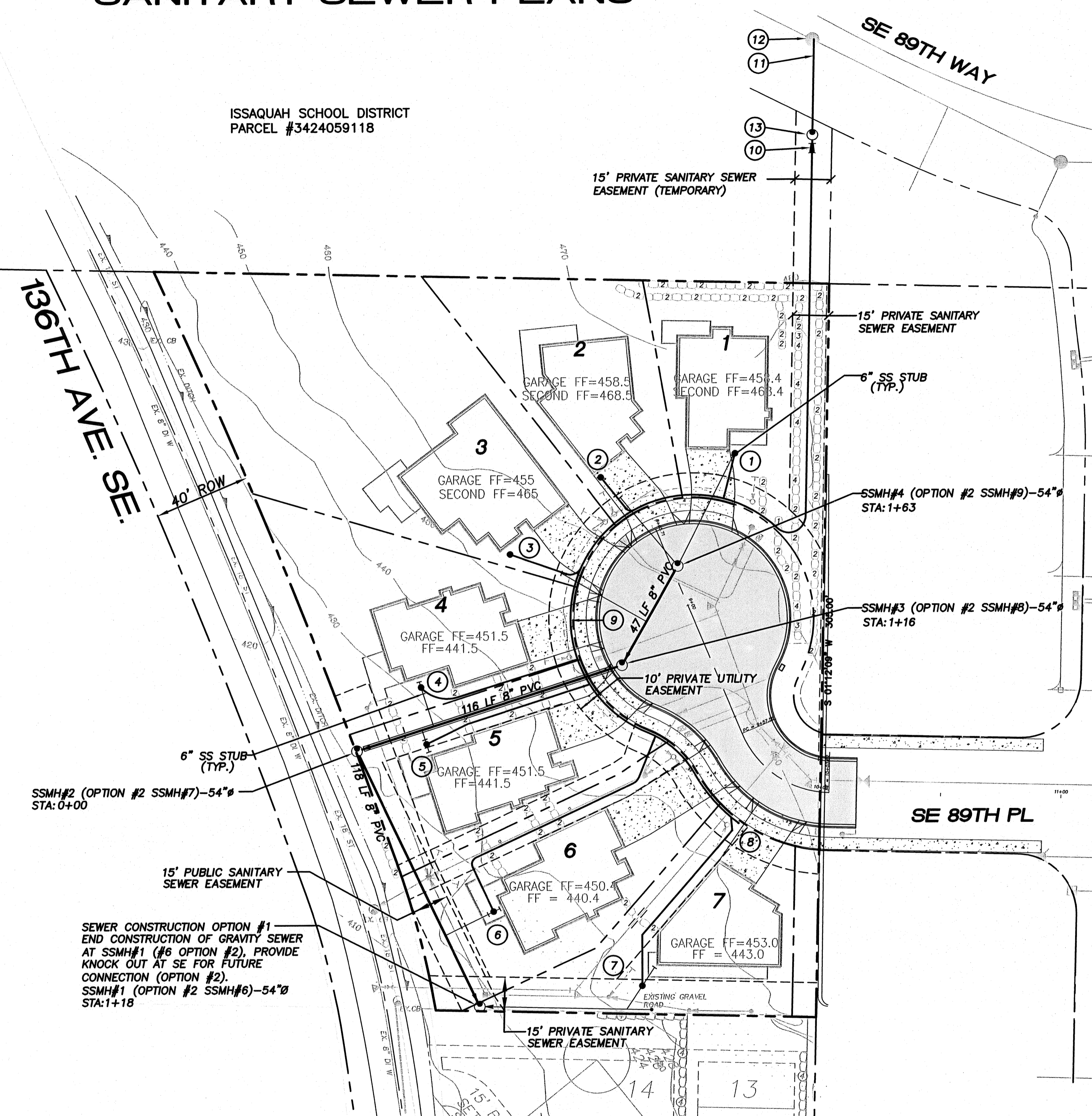


# VARNEY SUBDIVISION

## SANITARY SEWER PLANS

## CITY OF NEWCASTLE



### SEWER CONSTRUCTION

USE E-ONE GRINDER PUMPS AND SEWER FORCE MAINS TO PUMP SEWERAGE TO EXISTING SEWER MANHOLE AT SE 88TH WAY.

- ① E-ONE MODEL WH231-73, W/75 LF 1.50" HDPE SDR-11 LATERAL, PA1998P01 1.50" HDPE SDR-11 LATERAL KIT, SEE DETAIL SHEET 7
- ② E-ONE MODEL WH231-73, W/105 LF 1.50" HDPE SDR-11 LATERAL, PA1998P01 1.50" HDPE SDR-11 LATERAL KIT, SEE DETAIL SHEET 7
- ③ E-ONE MODEL WH231-73, W/70 LF 1.50" HDPE SDR-11 LATERAL, PA1998P01 1.50" HDPE SDR-11 LATERAL KIT, SEE DETAIL SHEET 7
- ④ E-ONE MODEL WH231-73, W/60 LF 1.50" HDPE SDR-11 LATERAL, PA1998P01 1.50" HDPE SDR-11 LATERAL KIT, SEE DETAIL SHEET 7
- ⑤ E-ONE MODEL WH231-73, W/25 LF 1.50" HDPE SDR-11 LATERAL, PA1998P01 1.50" HDPE SDR-11 LATERAL KIT, SEE DETAIL SHEET 7
- ⑥ E-ONE MODEL WH231-73, W/15 LF 1.50" HDPE SDR-11 LATERAL, PA1998P01 1.50" HDPE SDR-11 LATERAL KIT, SEE DETAIL SHEET 7
- ⑦ E-ONE MODEL WH231-73, W/15 LF 1.50" HDPE SDR-11 LATERAL, PA1998P01 1.50" HDPE SDR-11 LATERAL KIT, SEE DETAIL SHEET 7
- ⑧ CLEAN OUT W/ PIG PORT. SEE DETAIL SHEET 2
- ⑨ 400 LF 1.50" HDPE SDR-11 FORCEMAIN
- ⑩ 6" CLEANOUT, 6"x4" REDUCER, 4"x2" REDUCER, 2"x1-1/2" REDUCER
- ⑪ 26 LF 6" PVC @2.50%
- ⑫ CORE DRILL CONNECT TO EXISTING SSMH @ 88TH WAY, W/ KOR-N-SEAL BOOT, RECHANNELIZE EXISTING SSMH BASE AS REQUIRED.
- ⑬ INSTALL MANHOLE

### NOTE:

**OPTION 1:**  
 SANITARY SEWER WILL CONNECT TO THE EXISTING MANHOLE IN S.E. 89TH WAY. A PRIVATE FORCEMAIN SYSTEM WILL BE TEMPORARILY INSTALLED TO PROVIDE SEWER SERVICE IN THE EVENT THAT DOWNSTREAM EASEMENTS CANNOT BE OBTAINED FROM PRIVATE PROPERTY OWNERS. A MANHOLE WILL BE INSTALLED ON ISSAQUAH SCHOOL DISTRICT PROPERTY AT THE NORTHERLY PROPERTY LINE ADJACENT TO S.E. 89TH WAY TO RECEIVE THE FORCEMAIN. A GRAVITY SEWER MAIN FROM THIS PRIVATE MANHOLE TO THE EXISTING MANHOLE IN S.E. 89TH WAY WILL SEPARATE THE PRIVATE SYSTEM FROM THE PUBLIC GRAVITY SEWER SYSTEM. THE ON-SITE PORTION OF OPTION 2 OF THE GRAVITY SEWER SYSTEM WILL BE INSTALLED IN CONJUNCTION WITH THE TEMPORARY PRIVATE FORCEMAIN SYSTEM TO PROVIDE GRAVITY HOOKUPS WHEN THE DOWNSTREAM SYSTEM IS EXTENDED TO THE SOUTHERLY PROPERTY LINE. A GRAVITY SEWER MAIN FROM EXISTING MANHOLE WITHIN THE COX PROPERTY TO SEWER MANHOLE No. 2 (THE NORTHERLY BOUNDARY OF THE COX PROPERTY) WILL BE CONSTRUCTED, AS SHOWN ON SHEET 4 OF 7.

**OPTION 2:**  
 IN THE EVENT THAT DOWNSTREAM EASEMENTS ARE PROCURED, THE GRAVITY SEWER SYSTEM ONLY WILL BE CONSTRUCTED PROVIDING CONNECTION TO MANHOLE No. 2 (THE NORTHERLY BOUNDARY OF THE COX PROPERTY) SHOWN ON SHEET 4 OF 7.

### OWNERS

MARK AND DORTHEA VARNEY  
 GREACEN CONSTRUCTION, INC  
 1140 140TH AVE NE STE D  
 BELLEVUE, WA 98005-2976  
 PHONE: (425) 746-6440  
 FAX: (425) 766-2303

### PROJECT ENGINEER/PLANNER

PACIFIC ENGINEERING DESIGN, LLC  
 15445 53RD AVE. S.  
 SEATTLE, WA 98188  
 PHONE: (206) 431-7970  
 FAX: (206) 388-1648  
 WEB SITE: PACENG.COM

### SURVEYOR

HANSEN SURVEYING  
 17420 116TH AVE S.E.  
 RENTON, WA, 98058  
 PHONE: (425) 235-8440  
 FAX: (425) 235-0266

### SHEET INDEX

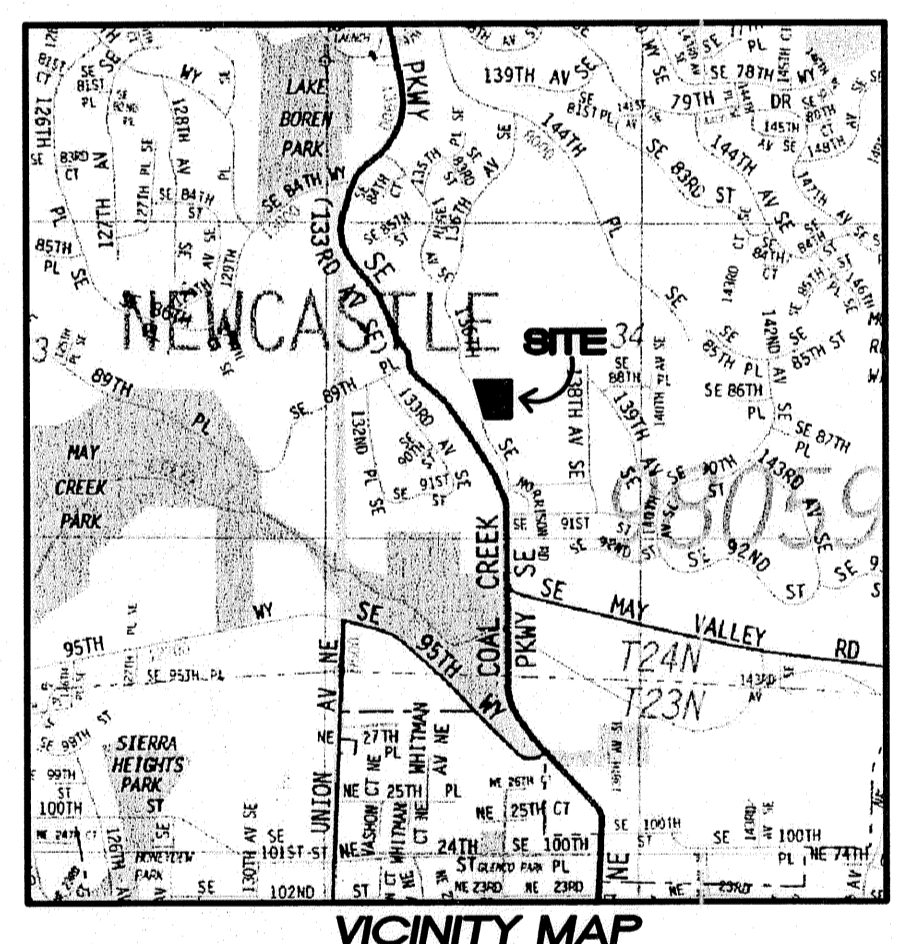
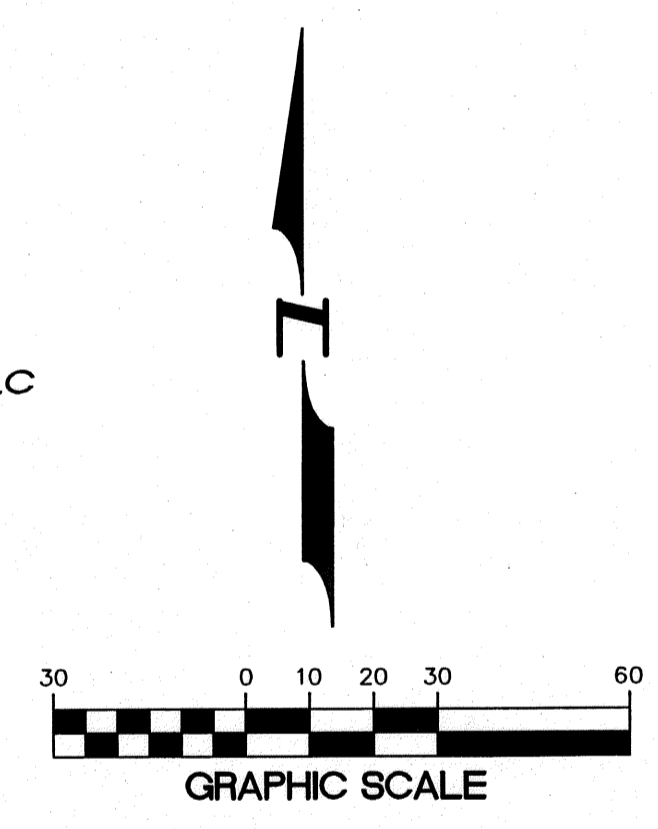
- 1 SANITARY SEWER PLAN/COVER SHEET (OPTION #1)
- 2 SANITARY SEWER ON-SITE PLAN AND PROFILE (OPTION #1)
- 3 SANITARY SEWER ON-SITE PLAN AND PROFILE (OPTION #2)
- 4 SANITARY SEWER OFF-SITE PLAN AND PROFILE (OPTION #2)
- 5 STANDARDS NOTES
- 6 STANDARDS DETAILS
- 7 E-ONE PUMP DETAILS (OPTION #1)

### CAUTION

LOCATION OF EXISTING UTILITIES SHOWN IS APPROXIMATE AND MAY NOT BE ACCURATE OR ALL INCLUSIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY LOCATION OF UTILITIES PRIOR TO PROCEEDING WITH CONSTRUCTION.

### UTILITY PURVEYORS

WATER: COAL CREEK UTILITY DISTRICT  
 SEWER: COAL CREEK UTILITY DISTRICT  
 POWER: PUGET SOUND ENERGY  
 TELEPHONE: QWEST COMMUNICATIONS  
 SCHOOL DISTRICT: ISSAQUAH #411  
 FIRE DISTRICT: BELLEVUE FIRE DISTRICT

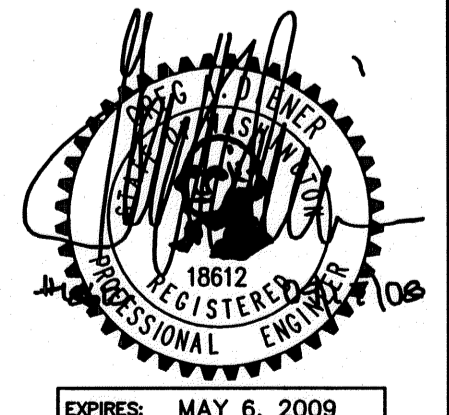


### SITE INFORMATION

PROPERTY ADDRESS: 8824 136TH AVE. SE.  
 NEWCASTLE, WA 98059  
 EXISTING SITE ZONING: R-6, CITY OF NEWCASTLE  
 TOTAL SITE AREA: 1.5 AC.  
 PROPOSED LAND USE: SINGLE FAMILY DETACHED  
 PROPERTY PARCEL NO.: 3424059012  
 PROPOSED NUMBER OF LOTS: 7 LOTS  
 PROPOSED DWELLING UNITS: 7 DWELLING UNITS

Approved By:  
**Coal Creek Utility District**  
 Date *9/26/08 Dave Hardy*

CALL BEFORE YOU DIG  
 Call: TOLL FREE  
 1-800-424-5555



FILE NAME (UPDATED BY) PROJECT DATE & TIME

DESIGNED				
DRAWN	JRL	REVISED PER COAL CREEK UTILITY DISTRICT COMMENTS	09/17/08	JGC DGS
CHECKED	DGS	ADD FORCE MAIN/PRESENT TWO OPTIONS	08/21/08	JGC DGS
	SYM	REVISION	DATE	BY APP'D

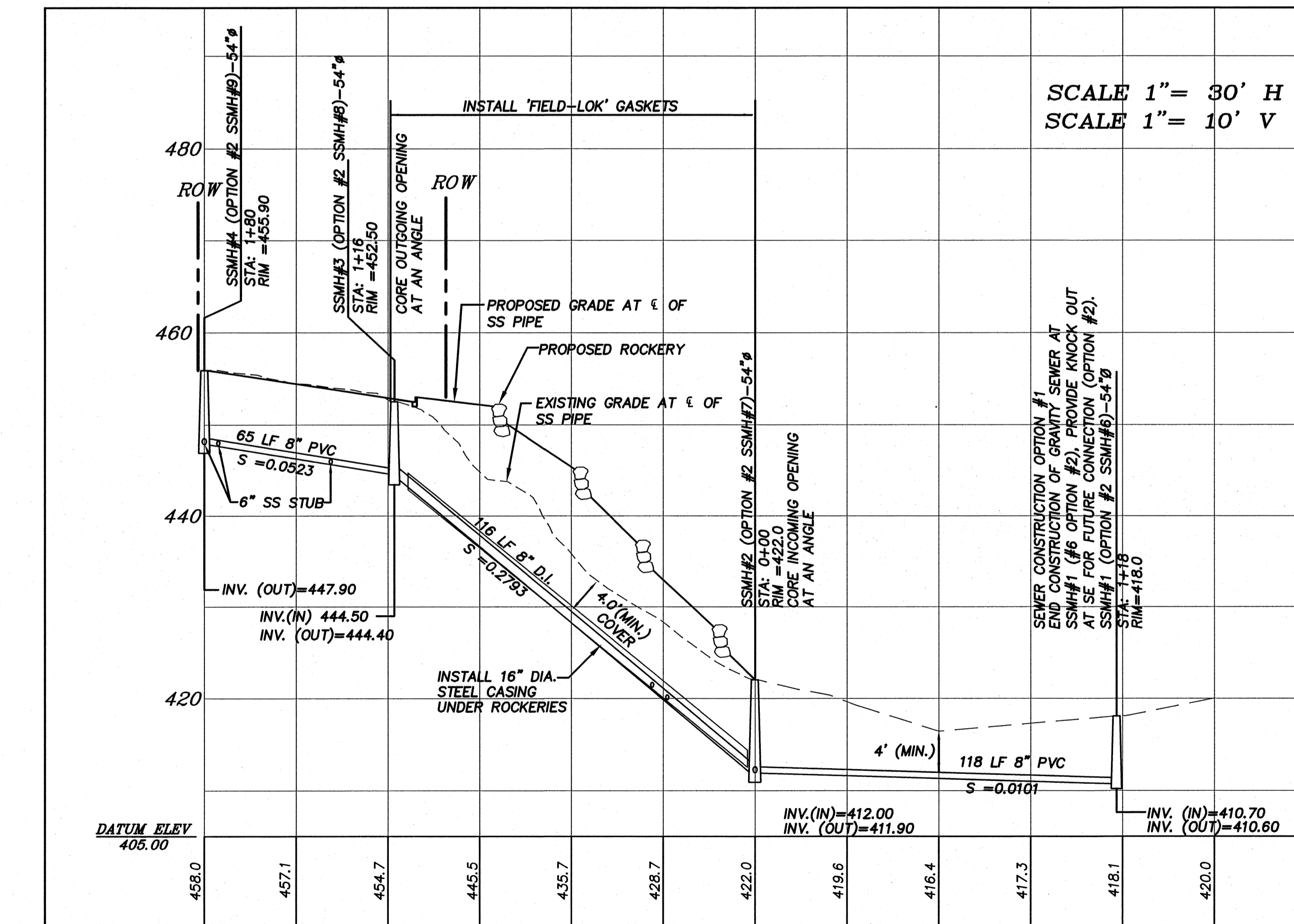
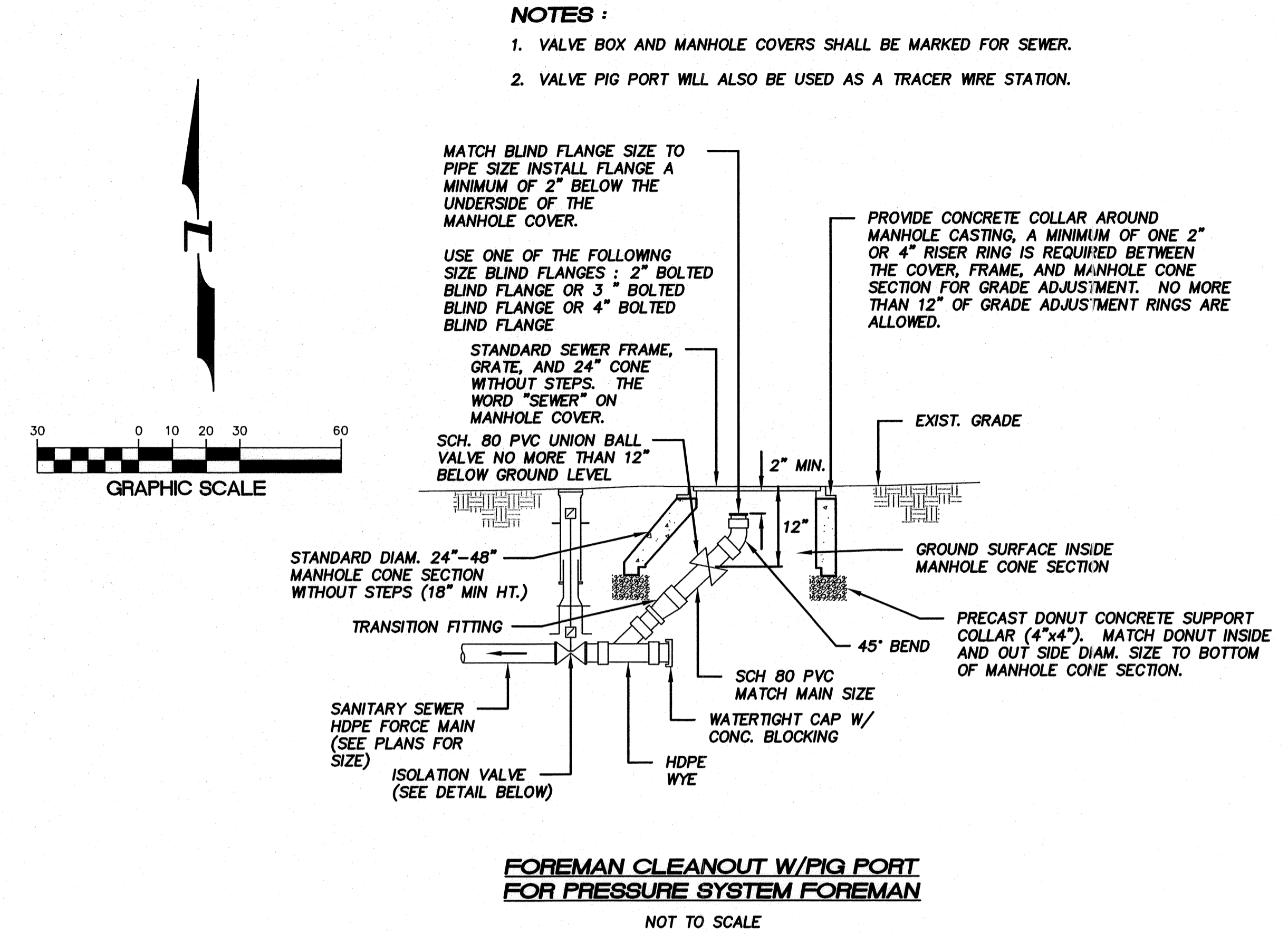
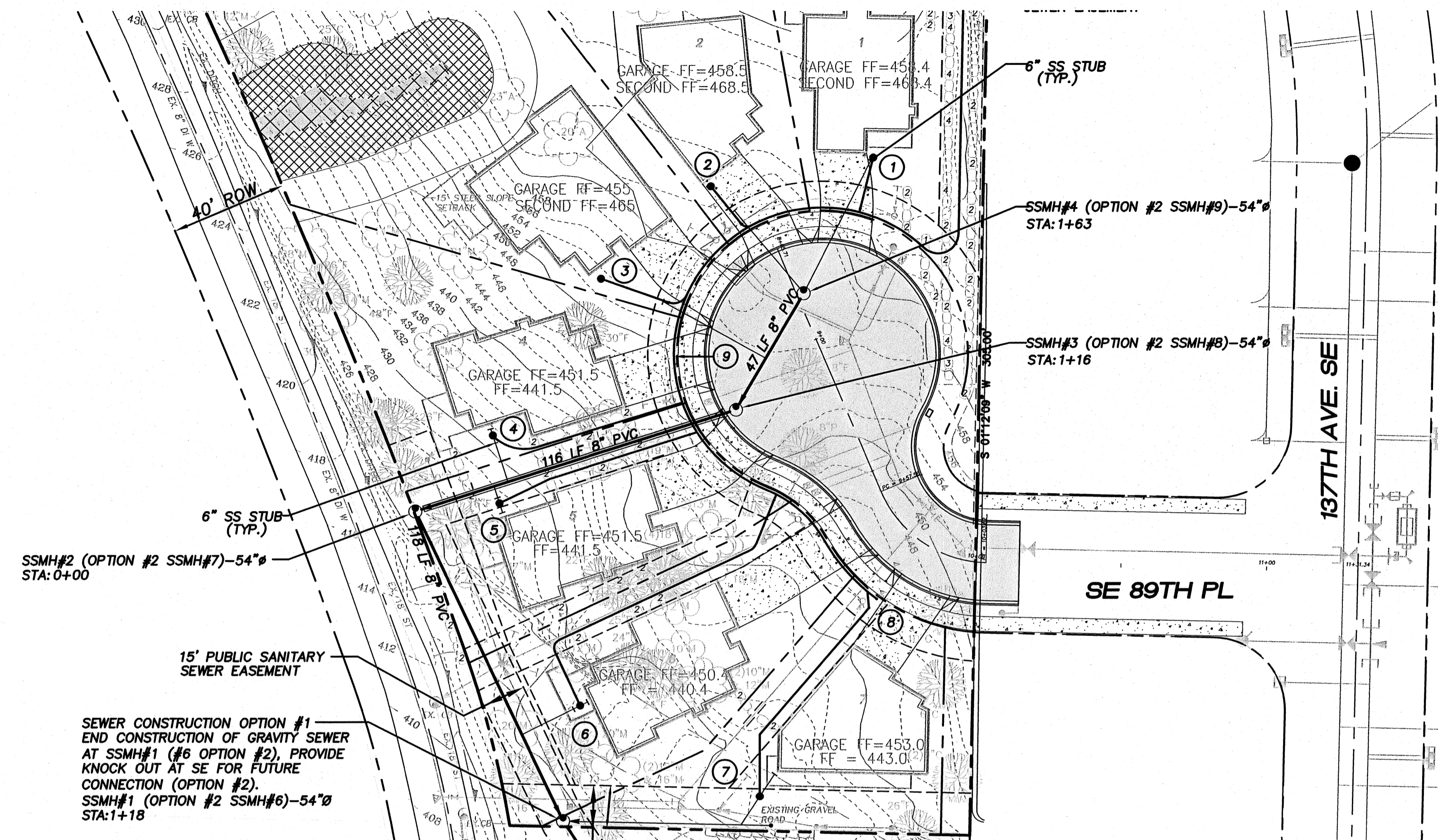
**Pacific Engineering Design, LLC**  
 15445 53RD AVE. S. SEATTLE, WA 98188  
 PHONE: (206) 431-7970 FAX: (206) 388-1648 WEB SITE: PACENG.COM  
 Civil Engineering and Planning Consultants

**COAL CREEK UTILITY DISTRICT**  
 6801 132ND PLACE S.E.  
 NEWCASTLE, WASHINGTON 98059

REFERENCE INFORMATION	DATE
FIELD BOOK:	JULY 26, 2007
SURV. CPU FILE:	SCALE
DATUM: NGVD29	NOTED

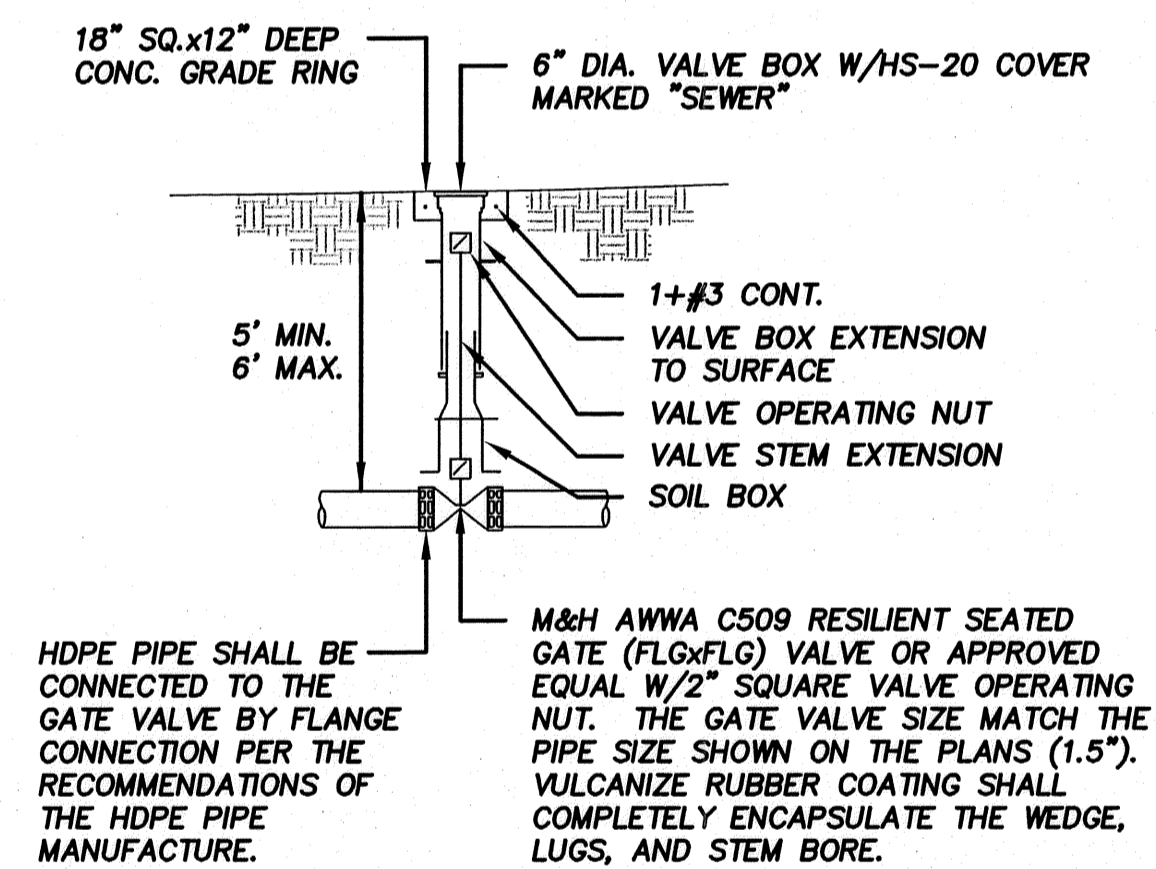
**VARNEY SEWER EXTENTION  
 SANITARY SEWER PLAN  
 OPTION # 1**

JOB NUMBER	07020.00
DWG NO. 0601555.DWG	
SHEET	1 OF 7



**SANITARY SEWER MAIN PROFILE**

1. ISOLATION VALVE BOX WILL ALSO BE USED AS A TRACER WIRE STATION.



**GENERAL NOTES**

- CONSTRUCTION SHALL BE IN ACCORDANCE WITH COAL CREEK UTILITY DISTRICT STANDARD SPECIFICATIONS.
- WHERE THE WATER MAIN CROSSES OVER SANITARY SEWER, THE MINIMUM VERTICAL SEPARATION SHALL BE 18 INCHES, OR CONSTRUCTION SHALL BE IN ACCORDANCE WITH D.O.E. CRITERIA FOR SEWAGE WORKS DESIGN (SEE DETAILS).
- ALL SIDE SEWER TEES SHALL BE FIELD LOCATED
- SECURE SIDE SEWER PERMITS FROM DISTRICT PRIOR TO INSTALLING SIDE SEWERS.
- MANHOLE RING COVERS SHALL BE SLOPED TO MATCH THE GRADE OF THE STREET IN WHICH THEY ARE PLACED.
- STREETS SHALL BE CONSTRUCTED TO SUBGRADE PRIOR TO INSTALLING THE SANITARY SEWERS.
- SIDE SEWERS TO BE EXTENDED 10 FEET INTO THE LOTS.

**CALL BEFORE YOU DIG**

Call: TOLL FREE

1-800-424-5555



FILE NAME (UPDATED BY) PLOT DATE & TIME

DESIGNED				
DRAWN	JRL	REVISED PER COAL CREEK UTILITY DISTRICT COMMENTS	08/17/08	JGC DGS
CHECKED	DGS	ADD FORCE MAIN/PRESENT TWO OPTIONS	08/21/08	JGC DGS
	SYM	REVISION		DATE BY APP'D

**Pacific Engineering Design, LLC**

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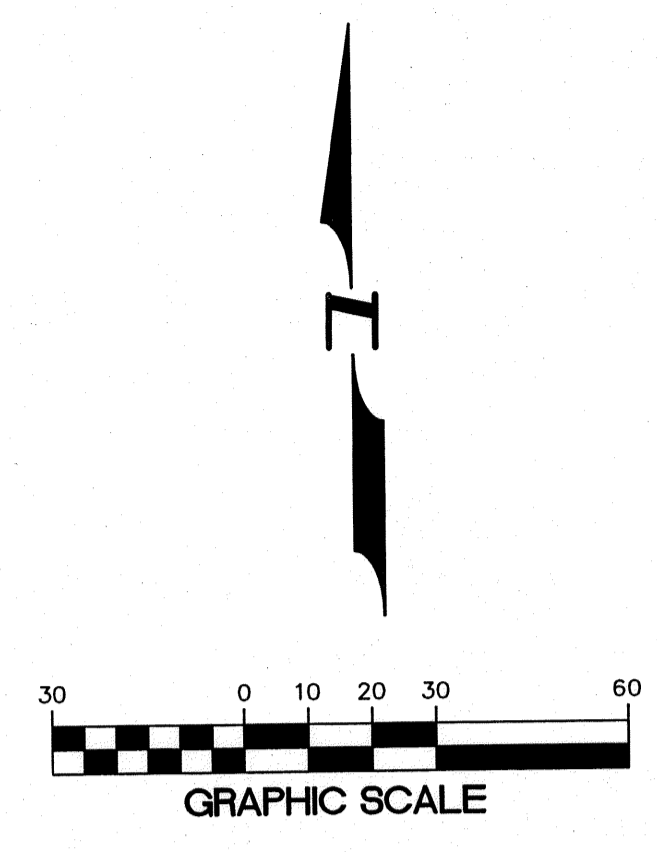
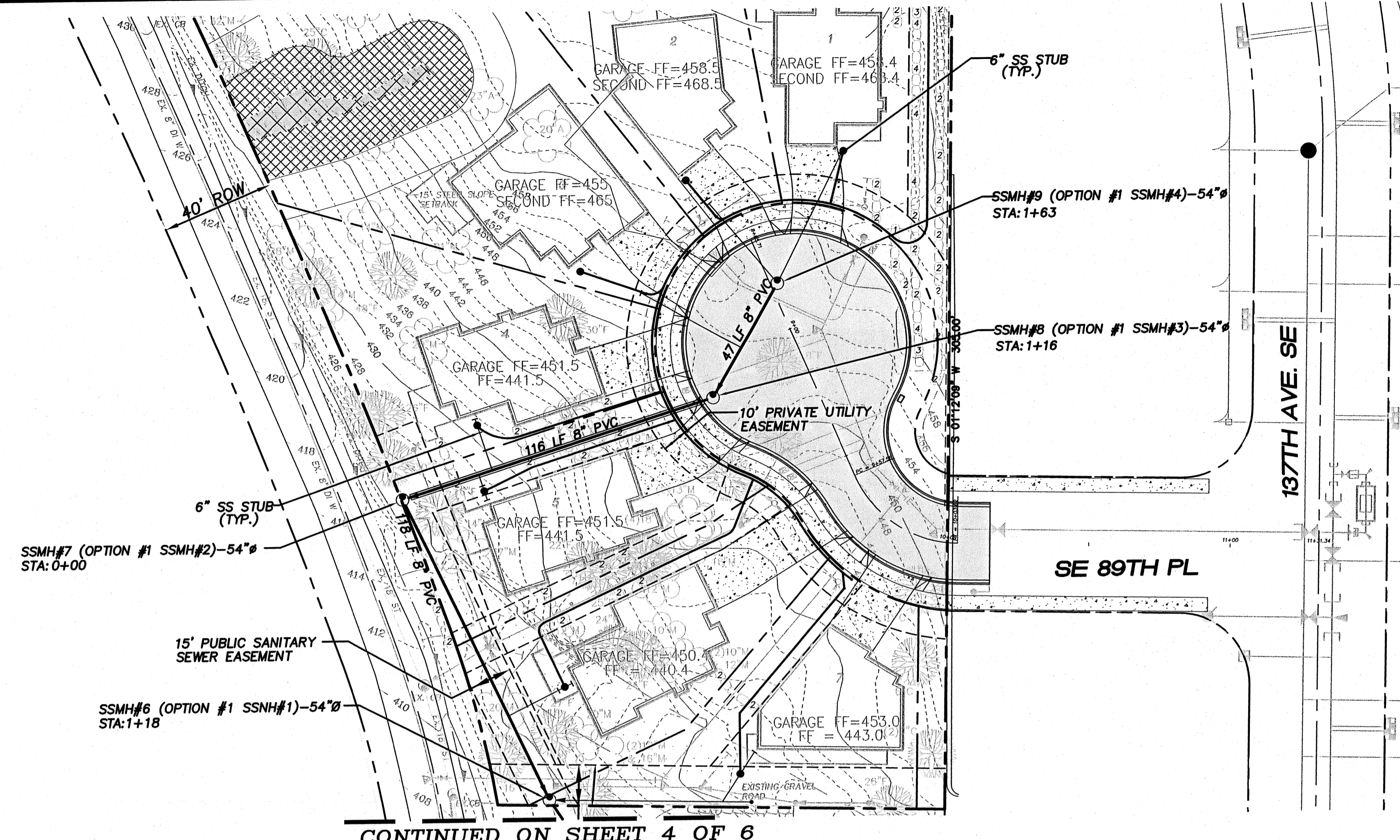
**COAL CREEK UTILITY DISTRICT**

6801 132ND PLACE S.E.  
NEWCASTLE, WASHINGTON 98059

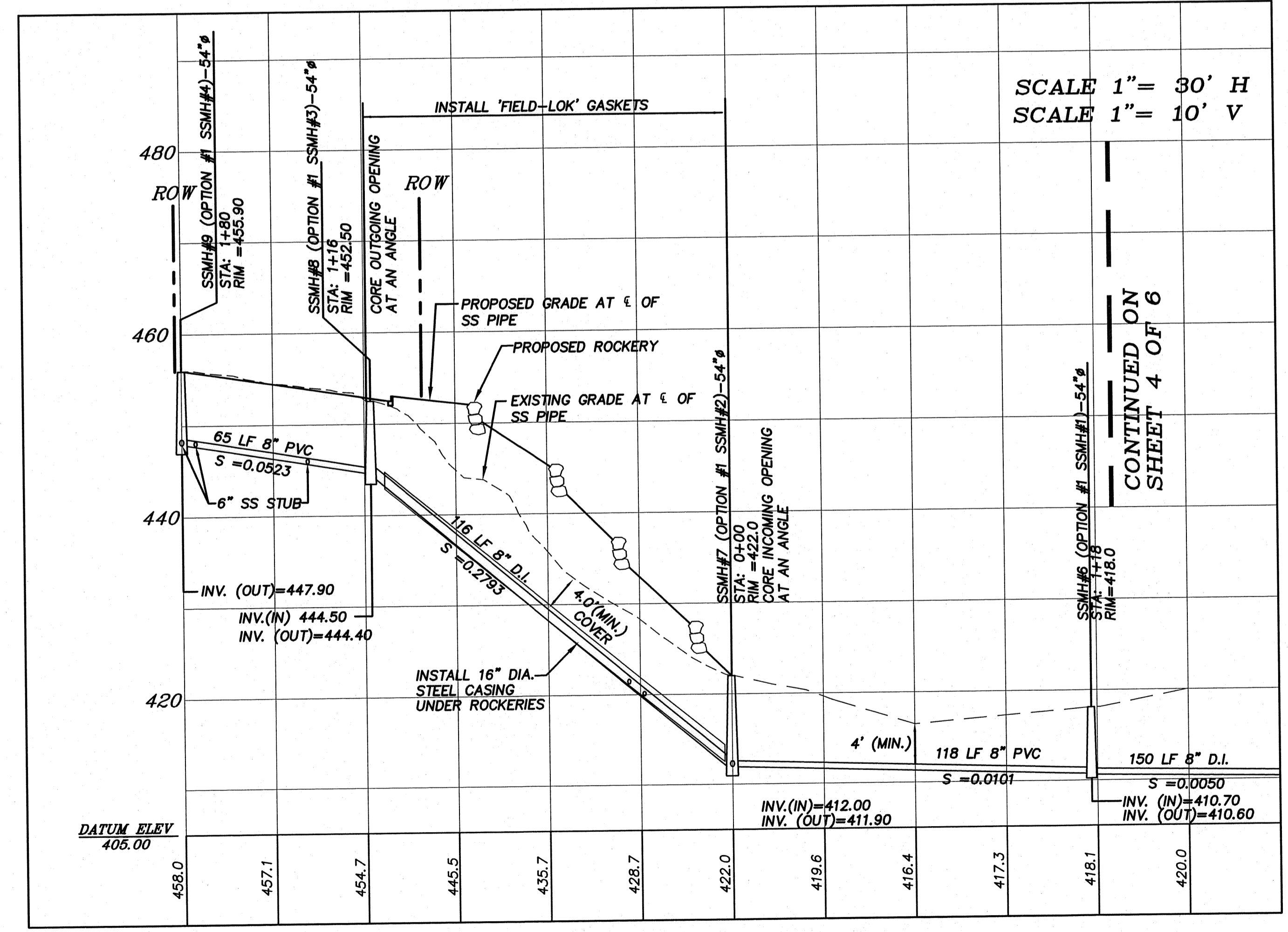
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FIELD BOOK:	JULY 26, 2007
SURV. CPU FILE:	SCALE
DATUM: NAD83	NOTED

**VARNEY SEWER EXTENSION SANITARY SEWER MAIN ON-SITE PLAN AND PROFILE OPTION #1**

JOB NUMBER	07020.00
DWG NO.	06015SS.DWG
SHEET	2 of 7



CONTINUED ON SHEET 4 OF 6



SANITARY SEWER MAIN PROFILE

GENERAL NOTES

- CONSTRUCTION SHALL BE IN ACCORDANCE WITH COAL CREEK UTILITY DISTRICT STANDARD SPECIFICATIONS.
- WHERE THE WATER MAIN CROSSES OVER SANITARY SEWER, THE MINIMUM VERTICAL SEPARATION SHALL BE 18 INCHES, OR CONSTRUCTION SHALL BE IN ACCORDANCE WITH D.O.E. CRITERIA FOR SEWAGE WORKS DESIGN (SEE DETAILS).
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- SIDE SEWERS TO BE EXTENDED 10 FEET INTO THE LOTS.

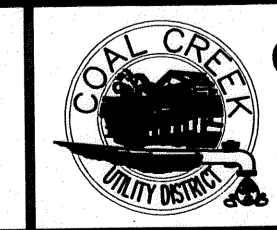
CONTINUED ON SHEET 4 OF 6

FILE NAME (UPDATED BY) PLOT DATE & TIME

DESIGNED				
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CHECKED	DGS	ADD FORCE MAIN/PRESENT TWO OPTIONS	08/21/08	JGC DGS
	SYM	REVISION	DATE	BY APP'D



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 PHONE: (206) 431-7970 FAX: (206) 388-1648 WEB SITE: PACENG.COM  
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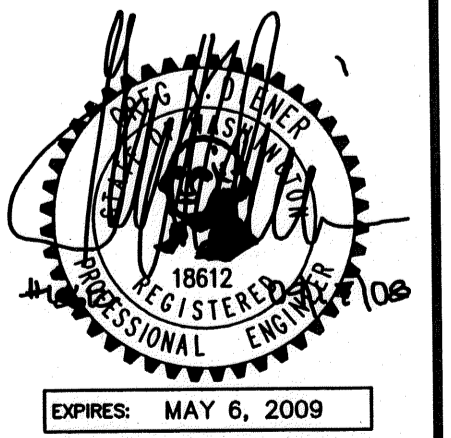


COAL CREEK UTILITY DISTRICT  
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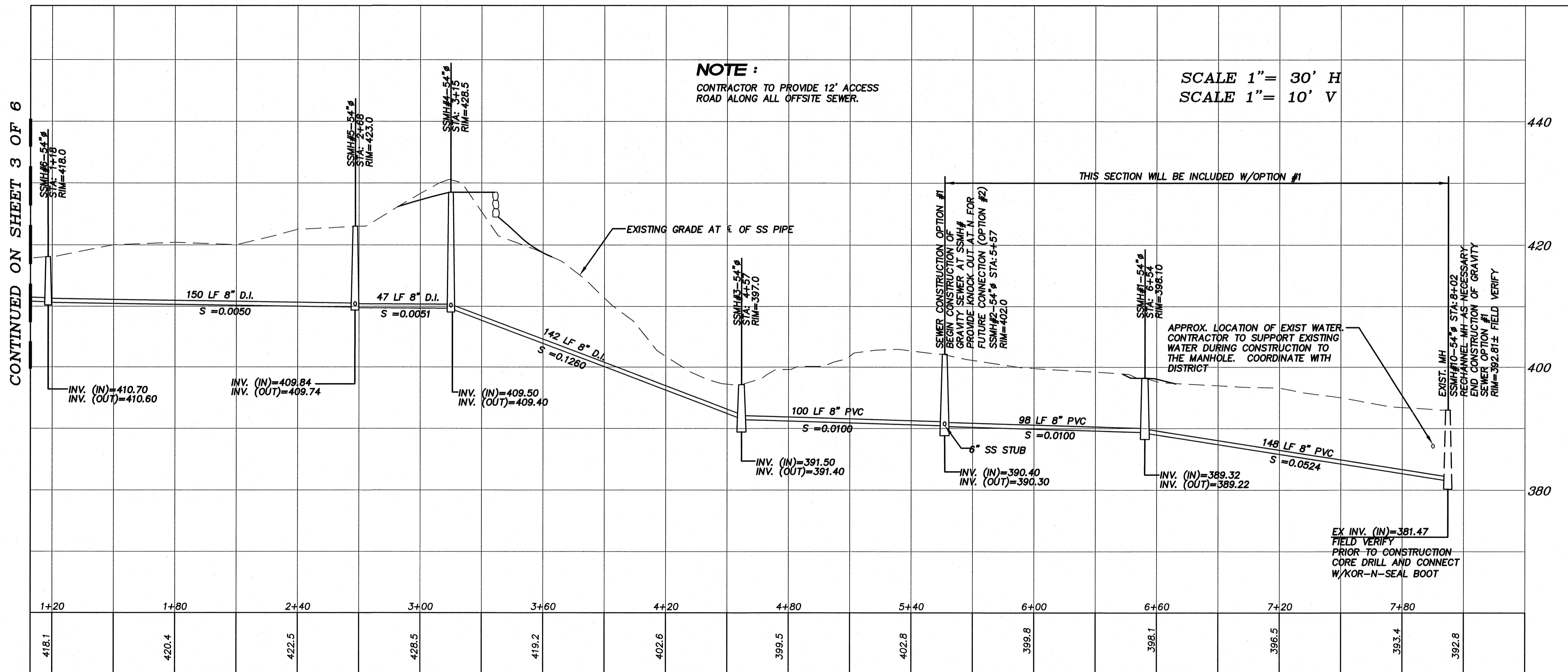
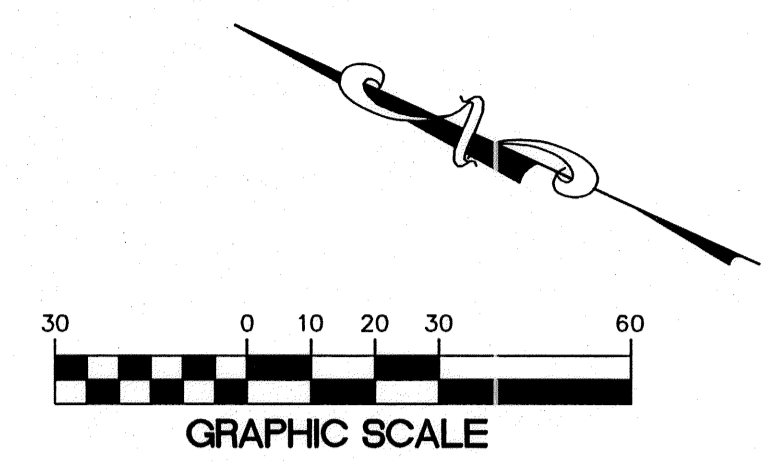
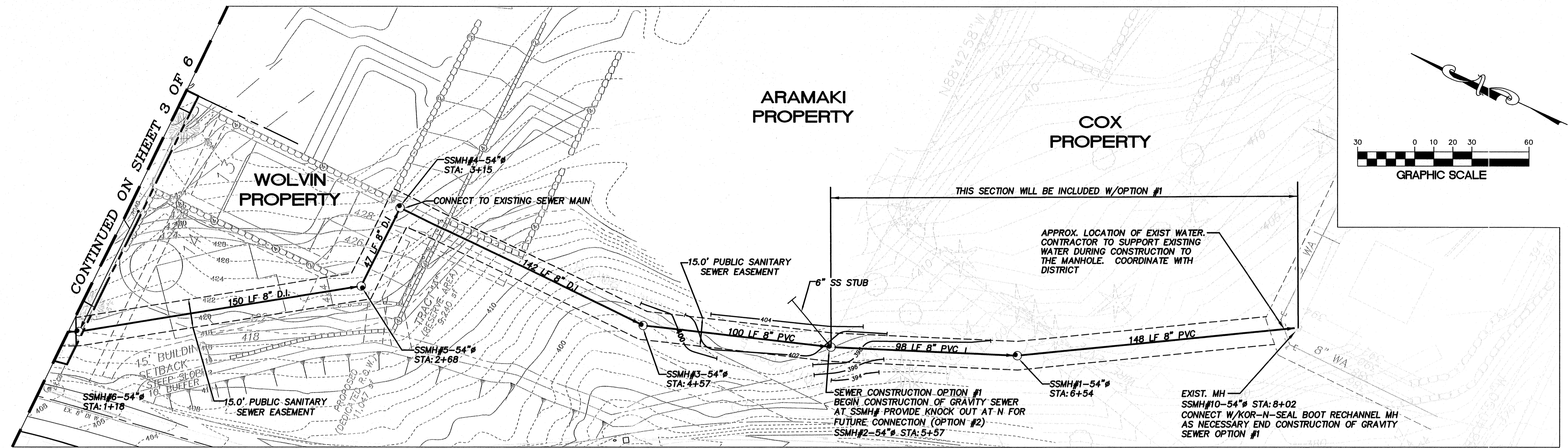
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SURV. CPU FILE:	SCALE
DATUM: NVD29	NOTED

VARNEY SEWER EXTENTION  
 SANITARY SEWER MAIN ON-SITE  
 PLAN AND PROFILE OPTION #2

CALL BEFORE YOU DIG  
 Call: TOLL FREE  
 1-800-424-5555



JOB NUMBER	07020.00
DWG NO.	06015SS.DWG
SHEET	3 OF 7
EXPIRES:	MAY 6, 2009



**NOTE :**  
 CONTRACTOR TO PROVIDE 12' ACCESS ROAD ALONG ALL OFFSITE SEWER.

SCALE 1" = 30' H  
 SCALE 1" = 10' V

**SANITARY SEWER MAIN OFF-SITE EXTENSION PROFILE**

**CALL BEFORE YOU DIG**  
 Call: TOLL FREE  
 1-800-424-5555



FILE NAME (UPDATED BY) PLOT DATE & TIME

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**COAL CREEK UTILITY DISTRICT**  
 6801 132ND PLACE S.E.  
 NEWCASTLE, WASHINGTON 98059

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SURV. CPU FILE:	SCALE
DATUM: NGVD29	NOTED

**SANITARY SEWER MAIN OFF-SITE EXTENSION PLAN AND PROFILE OPTION 2**

JOB NUMBER	07020.00
DWG NO.	0601SS.DWG
SHEET	4 OF 7

PART TWO - MATERIALS

2-1 GENERAL
All materials and equipment shall be new and workmanship and materials shall be good quality. All material incorporated into the work shall conform to the provisions of this part.

2-2 MATERIAL LISTS AND SPECIFICATIONS
The Developer or his Contractor shall deliver to the Engineer a material list not less than ten (10) days before commencement of construction.

2-3 GUARANTEE BY MANUFACTURER
If requested by the District or by the Engineer, a written guarantee made by the manufacturer of any materials to be incorporated into the work shall be furnished, guaranteeing to the District that such materials shall conform to these Specifications and any specifications otherwise applying to the work.

2-4 SEWER PIPE AND APPURTENANCES, NON-PRESSURE
Non-pressure sewer pipe shall be PVC pipe conforming to ASTM D-3034 for depths of cover between 5 feet to 12 feet; and Ductile Iron pipe, class 50, cement lined conforming to AWWA Standard C-151 and C-104 for depths of cover less than 5 feet or exceeding 12 feet and for slopes less than 1% and over 15%.

2-5 SEWER PIPE AND APPURTENANCES - PRESSURE
Unless otherwise specified, pressure pipe shall be constructed of:
(a) Ductile Iron pipe conforming to AWWA C-151 with a manufacturer's thin cement lining conforming to AWWA C-104 (except as to thickness) and with the type of joint, class, thickness, designation and markings as specified.

2-6 MANHOLES - 54" STANDARD
Manhole Frames and Covers
Cast iron frames and covers shall conform to the Olympic Foundry Company No. M930A, or equivalent. Castings shall conform to the requirements of ASTM A48, class 30 and shall be free of porosity, shrink cavities, cold shuts, or cracks or any surface defects which would impair service ability.

2-7 BEDDING MATERIAL
Bedding material shall be well-graded, clean, granular material, commonly known as pea gravel and shall meet the following requirements:
U.S. Standard Sieve Size % Passing By Weight
2-1/2" square opening 98%
1" square opening 92%
3/4" square opening 72%
1/2" square opening 58%
3/8" square opening 27%
No. 40 sieve 3%
No. 4 sieve 0%

2-8 ASPHALTIC CONCRETE
Asphalt concrete pavement shall conform to the technical requirements for Class B Asphalt in the latest edition of the State of Washington Standard Specifications for Road, Bridge and Municipal Construction.

2-9 TOP COURSE AND KEYSTONE MATERIAL
For use in the restoration of excavated areas, Top Course and Keystone material shall be manufactured from ledge or talus rock, be free from wood, roots, bark and other extraneous material and shall conform to the following requirements:

2-10 BASE COURSE MATERIAL
Base course material shall conform to the following requirements:
U.S. Standard Sieve Size % Passing By Weight
1-1/2" square opening 100%
5/8" square opening 50-90%
3/4" square opening 30-50%
U.S. No. 40 sieve 3-18%
U.S. No. 200 sieve 7.5 Max.
Sand Equivalent 40 Min.

2-11 CONCRETE BEDDING AND BLOCKING
Bedding and blocking concrete shall be Portland cement concrete containing four sacks of cement per cubic yard and maximum aggregate size of 1-1/2 inches. Maximum slump shall be 3-1/2 inches.

2-12 PIPELAYING
Each pipe shall be laid with bells up grade and the invert of the pipe to the alignment and grade shown on the Plans. Concentric joints shall be closed and a smooth invert provided. Open ends of pipes or fittings shall be temporarily blocked or covered when laying is not in progress.

2-13 CONSTRUCTION
Except as otherwise noted herein, all work shall be accomplished as recommended in the latest revision of AWWA and APWA Specifications and according to the recommendations of the manufacturer of the material and equipment concerned.

2-14 TRENCH EXCAVATION
Trenches shall be excavated to the line and grade designated by the District. Unless otherwise specified, trench sides shall be excavated vertically. Trench widths shall be adequate for proper working space and placement of bedding material under and around the pipe.

2-15 TIMBERING AND SHEETING
The developer shall provide and install timbering and sheeting as necessary to protect workers, the work, existing buildings, utilities and other properties, and shall meet all OSHA and WISHA requirements.

2-16 JACKED OR BORED CROSSING
All work shall be done in conformance with the requirements of the agency in control of the facility being bored or jacked. See Roadway and Railway Crossings for further details.

2-17 ROADWAY AND RAILWAY CROSSINGS
Any method may be used for roadway or railway crossings that provides for satisfactory results and is acceptable to both the District and the governmental or private agency having control of the road or track, provided that the road or track shall be restored to its original condition after the crossing is completed.

2-18 TRENCH FOUNDATION
Over-excavated material shall be replaced with trench foundation material conforming to one of the following gradations as specified:
U.S. Standard Sieve Size Class "A" Min. Max. Class "B" Min. Max.
2-1/2" square opening 98% 100% 95% 100%
1" square opening 92 100 75 100
3/4" square opening 72 87 30 60
1/2" square opening 58 75 0 15
3/8" square opening 27 47 0 1
No. 40 sieve 3 14 0 0
No. 4 sieve 0 1 0 0

2-19 BEDDING MATERIAL PLACEMENT
All flexible pipe shall be placed in bedding material of the type specified in Section 2-9 (a). The bedding shall be placed from a minimum of 4 inches below the pipe barrel to 4 inches above the pipe as shown on the Standard Detail herein. Bedding material shall be worked by hand under, around and over the pipe to the depths required for the full width of the trench.

2-20 BACKFILLING
No backfilling shall be performed until after the District has inspected the installation of the pipe and bedding and approved backfilling.

2-21 GRADE LINES
The Contractor shall maintain the correct grades between manholes and shall check all intermediate grade stakes by means of a taut grade wire between at least three intermediate grade stakes. In the event that the grade stakes do not line up, the work shall be stopped until the situation is corrected.

2-22 COMPACTION OF BACKFILL
Compaction of backfill and backfill procedures in public rights-of-way shall, at the minimum, conform to the requirements of the governmental agency having jurisdiction thereof.

2-23 TESTING OF PRESSURE SEWER PIPE
All force mains shall be tested at a minimum pressure of at least 50 percent above the design operating pressure for at least 30 minutes. Leakage shall not exceed the amount given by the following formula:
L = ND^2/P
1850
Where: L = allowable leakage in gallons per hour
N = the number of pipe joints
D = the pipe diameter in inches
P = the test pressure in psi

2-24 6-INCH SIDE SEWER FROM MAIN TO PROPERTY LINE
The material and strength class of side sewer pipe shall be the same as the sewer pipe to which it connects and these specifications shall be applicable to side sewer work. The slope of side sewers shall not exceed 2-foot vertical to 1-foot horizontal and grade shall not be less than 2 percent. Side sewers shall have minimum 48" cover. When change in slope exceeds 2 inches per foot, standard wy bends shall be used. All side sewers shall be plugged and the plugs blocked.

2-25 CONNECTION TO THE EXISTING SYSTEM
No connections shall be made to the existing sewer system without the presence of the District. Written application for connection shall be made to the District for connection, and the connection shall be made at a time agreed upon with the District.

2-26 TRAFFIC CONTROL
All traffic control shall be per the Manual of Uniform Traffic Control Devices, and/or agency of jurisdiction. During construction, traffic shall not be delayed for more than 5 minutes unless previously approved by the District and the agency of jurisdiction.

2-27 T.V. INSPECTION
Prior to acceptance, all pipe shall be flushed at the contractor's expense and T.V. inspected by the District at contractor's expense. Contractor shall notify the District 48 hours prior to the need for flushing and T.V. inspection. All manholes must be channeled, the sewer system completed and the roadway subspace (ATB or 2" class B asphalt) installed before the T.V. inspection.

2-28 MANHOLE ACCEPTANCE TESTS
All manholes shall be subject to an acceptance test at the request of the Owner. Manholes shall be tested by an approved vacuum test.

2-29 SIDE SEWERS
A side sewer permit will be required from the District before installation of side sewers. Commercial waste discharge from fixtures and equipment that may contain grease, including but not limited to, scullery sinks, pot and pan sinks, dishwashers, soup kettles, and floor drains located in areas where grease containing materials may exist, will require a grease interceptor prior to entering the sanitary sewer system.

2-30 STREAMGUARD CATCH BASIN INSERTS
All catch basins located along project shall have a streamguard sediment catch basin insert model 8228 as manufactured by Ultra-Drain Guard, model 3003 as manufactured by Foss Environmental or approved equal installed. Inserts are to be cleaned and replaced by Contractor per manufacturer's recommendations or by District direction.

2-31 GENERAL
Each pipe shall be laid with bells up grade and the invert of the pipe to the alignment and grade shown on the Plans. Concentric joints shall be closed and a smooth invert provided. Open ends of pipes or fittings shall be temporarily blocked or covered when laying is not in progress.

2-32 CLEANING AND FLUSHING
Prior to pipe testing, all pipes shall be cleaned as provided in this section. An inflatable ball of a size that will inflate to fit snugly into the pipe shall be furnished by the Contractor and placed in the last manhole on the pipe to be cleaned. The ball may be used with a tag line or a rope may be fastened to the ball to locate and control its position at all times.

2-33 TESTING OF NON-PRESSURE SEWER PIPE - DEFLECTION TESTING FOR FLEXIBLE SEWER PIPE
All non-pressure sewer pipe shall be air tested. The procedures set forth in this section shall be employed in conducting the testing. All facilities and personnel for conducting the testing under the observation of the District shall be furnished by the Developer. All equipment and personnel to conduct the test shall be subject to the approval of the District.

2-34 TESTING OF NON-PRESSURE SEWER PIPE - DEFLECTION TESTING FOR FLEXIBLE SEWER PIPE
All non-pressure sewer pipe shall be air tested. The procedures set forth in this section shall be employed in conducting the testing. All facilities and personnel for conducting the testing under the observation of the District shall be furnished by the Developer.

2-35 CONNECTION TO THE EXISTING SYSTEM
No connections shall be made to the existing sewer system without the presence of the District. Written application for connection shall be made to the District for connection, and the connection shall be made at a time agreed upon with the District.

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A side sewer permit will be required from the District before installation of side sewers. Commercial waste discharge from fixtures and equipment that may contain grease, including but not limited to, scullery sinks, pot and pan sinks, dishwashers, soup kettles, and floor drains located in areas where grease containing materials may exist, will require a grease interceptor prior to entering the sanitary sewer system.

2-40 STREAMGUARD CATCH BASIN INSERTS
All catch basins located along project shall have a streamguard sediment catch basin insert model 8228 as manufactured by Ultra-Drain Guard, model 3003 as manufactured by Foss Environmental or approved equal installed. Inserts are to be cleaned and replaced by Contractor per manufacturer's recommendations or by District direction.

2-41 SEWER PIPE AND APPURTENANCES - PRESSURE
Unless otherwise specified, pressure pipe shall be constructed of:
(a) Ductile Iron pipe conforming to AWWA C-151 with a manufacturer's thin cement lining conforming to AWWA C-104 (except as to thickness) and with the type of joint, class, thickness, designation and markings as specified.

2-42 BEDDING MATERIAL
Bedding material shall be well-graded, clean, granular material, commonly known as pea gravel and shall meet the following requirements:
U.S. Standard Sieve Size % Passing By Weight
2-1/2" square opening 98%
1" square opening 92%
3/4" square opening 72%
1/2" square opening 58%
3/8" square opening 27%
No. 40 sieve 3%
No. 4 sieve 0%

2-43 ASPHALTIC CONCRETE
Asphalt concrete pavement shall conform to the technical requirements for Class B Asphalt in the latest edition of the State of Washington Standard Specifications for Road, Bridge and Municipal Construction.

2-44 TOP COURSE AND KEYSTONE MATERIAL
For use in the restoration of excavated areas, Top Course and Keystone material shall be manufactured from ledge or talus rock, be free from wood, roots, bark and other extraneous material and shall conform to the following requirements:

2-45 BASE COURSE MATERIAL
Base course material shall conform to the following requirements:
U.S. Standard Sieve Size % Passing By Weight
1-1/2" square opening 100%
5/8" square opening 50-90%
3/4" square opening 30-50%
U.S. No. 40 sieve 3-18%
U.S. No. 200 sieve 7.5 Max.
Sand Equivalent 40 Min.

2-46 CONCRETE BEDDING AND BLOCKING
Bedding and blocking concrete shall be Portland cement concrete containing four sacks of cement per cubic yard and maximum aggregate size of 1-1/2 inches. Maximum slump shall be 3-1/2 inches.

2-47 PIPELAYING
Each pipe shall be laid with bells up grade and the invert of the pipe to the alignment and grade shown on the Plans. Concentric joints shall be closed and a smooth invert provided. Open ends of pipes or fittings shall be temporarily blocked or covered when laying is not in progress.

2-48 CONSTRUCTION
Except as otherwise noted herein, all work shall be accomplished as recommended in the latest revision of AWWA and APWA Specifications and according to the recommendations of the manufacturer of the material and equipment concerned.

2-49 TRENCH EXCAVATION
Trenches shall be excavated to the line and grade designated by the District. Unless otherwise specified, trench sides shall be excavated vertically. Trench widths shall be adequate for proper working space and placement of bedding material under and around the pipe.

2-50 TIMBERING AND SHEETING
The developer shall provide and install timbering and sheeting as necessary to protect workers, the work, existing buildings, utilities and other properties, and shall meet all OSHA and WISHA requirements.

2-51 JACKED OR BORED CROSSING
All work shall be done in conformance with the requirements of the agency in control of the facility being bored or jacked. See Roadway and Railway Crossings for further details.

2-52 ROADWAY AND RAILWAY CROSSINGS
Any method may be used for roadway or railway crossings that provides for satisfactory results and is acceptable to both the District and the governmental or private agency having control of the road or track, provided that the road or track shall be restored to its original condition after the crossing is completed.

2-53 TRENCH FOUNDATION
Over-excavated material shall be replaced with trench foundation material conforming to one of the following gradations as specified:
U.S. Standard Sieve Size Class "A" Min. Max. Class "B" Min. Max.
2-1/2" square opening 98% 100% 95% 100%
1" square opening 92 100 75 100
3/4" square opening 72 87 30 60
1/2" square opening 58 75 0 15
3/8" square opening 27 47 0 1
No. 40 sieve 3 14 0 0
No. 4 sieve 0 1 0 0

2-54 BEDDING MATERIAL PLACEMENT
All flexible pipe shall be placed in bedding material of the type specified in Section 2-9 (a). The bedding shall be placed from a minimum of 4 inches below the pipe barrel to 4 inches above the pipe as shown on the Standard Detail herein. Bedding material shall be worked by hand under, around and over the pipe to the depths required for the full width of the trench.

2-55 BACKFILLING
No backfilling shall be performed until after the District has inspected the installation of the pipe and bedding and approved backfilling.

2-56 GRADE LINES
The Contractor shall maintain the correct grades between manholes and shall check all intermediate grade stakes by means of a taut grade wire between at least three intermediate grade stakes. In the event that the grade stakes do not line up, the work shall be stopped until the situation is corrected.

2-57 COMPACTION OF BACKFILL
Compaction of backfill and backfill procedures in public rights-of-way shall, at the minimum, conform to the requirements of the governmental agency having jurisdiction thereof.

2-58 TESTING OF PRESSURE SEWER PIPE
All force mains shall be tested at a minimum pressure of at least 50 percent above the design operating pressure for at least 30 minutes. Leakage shall not exceed the amount given by the following formula:
L = ND^2/P
1850
Where: L = allowable leakage in gallons per hour
N = the number of pipe joints
D = the pipe diameter in inches
P = the test pressure in psi

2-59 6-INCH SIDE SEWER FROM MAIN TO PROPERTY LINE
The material and strength class of side sewer pipe shall be the same as the sewer pipe to which it connects and these specifications shall be applicable to side sewer work. The slope of side sewers shall not exceed 2-foot vertical to 1-foot horizontal and grade shall not be less than 2 percent. Side sewers shall have minimum 48" cover. When change in slope exceeds 2 inches per foot, standard wy bends shall be used. All side sewers shall be plugged and the plugs blocked.

2-60 CONNECTION TO THE EXISTING SYSTEM
No connections shall be made to the existing sewer system without the presence of the District. Written application for connection shall be made to the District for connection, and the connection shall be made at a time agreed upon with the District.

2-61 TRAFFIC CONTROL
All traffic control shall be per the Manual of Uniform Traffic Control Devices, and/or agency of jurisdiction. During construction, traffic shall not be delayed for more than 5 minutes unless previously approved by the District and the agency of jurisdiction.

2-62 T.V. INSPECTION
Prior to acceptance, all pipe shall be flushed at the contractor's expense and T.V. inspected by the District at contractor's expense. Contractor shall notify the District 48 hours prior to the need for flushing and T.V. inspection. All manholes must be channeled, the sewer system completed and the roadway subspace (ATB or 2" class B asphalt) installed before the T.V. inspection.

2-63 MANHOLE ACCEPTANCE TESTS
All manholes shall be subject to an acceptance test at the request of the Owner. Manholes shall be tested by an approved vacuum test.

2-64 SIDE SEWERS
A side sewer permit will be required from the District before installation of side sewers. Commercial waste discharge from fixtures and equipment that may contain grease, including but not limited to, scullery sinks, pot and pan sinks, dishwashers, soup kettles, and floor drains located in areas where grease containing materials may exist, will require a grease interceptor prior to entering the sanitary sewer system.

2-65 STREAMGUARD CATCH BASIN INSERTS
All catch basins located along project shall have a streamguard sediment catch basin insert model 8228 as manufactured by Ultra-Drain Guard, model 3003 as manufactured by Foss Environmental or approved equal installed. Inserts are to be cleaned and replaced by Contractor per manufacturer's recommendations or by District direction.

2-66 GENERAL
Each pipe shall be laid with bells up grade and the invert of the pipe to the alignment and grade shown on the Plans. Concentric joints shall be closed and a smooth invert provided. Open ends of pipes or fittings shall be temporarily blocked or covered when laying is not in progress.

2-67 CLEANING AND FLUSHING
Prior to pipe testing, all pipes shall be cleaned as provided in this section. An inflatable ball of a size that will inflate to fit snugly into the pipe shall be furnished by the Contractor and placed in the last manhole on the pipe to be cleaned. The ball may be used with a tag line or a rope may be fastened to the ball to locate and control its position at all times.

2-68 TESTING OF NON-PRESSURE SEWER PIPE - DEFLECTION TESTING FOR FLEXIBLE SEWER PIPE
All non-pressure sewer pipe shall be air tested. The procedures set forth in this section shall be employed in conducting the testing. All facilities and personnel for conducting the testing under the observation of the District shall be furnished by the Developer.

2-69 CONNECTION TO THE EXISTING SYSTEM
No connections shall be made to the existing sewer system without the presence of the District. Written application for connection shall be made to the District for connection, and the connection shall be made at a time agreed upon with the District.

2-70 TRAFFIC CONTROL
All traffic control shall be per the Manual of Uniform Traffic Control Devices, and/or agency of jurisdiction. During construction, traffic shall not be delayed for more than 5 minutes unless previously approved by the District and the agency of jurisdiction.

2-71 T.V. INSPECTION
Prior to acceptance, all pipe shall be flushed at the contractor's expense and T.V. inspected by the District at contractor's expense. Contractor shall notify the District 48 hours prior to the need for flushing and T.V. inspection. All manholes must be channeled, the sewer system completed and the roadway subspace (ATB or 2" class B asphalt) installed before the T.V. inspection.

2-72 MANHOLE ACCEPTANCE TESTS
All manholes shall be subject to an acceptance test at the request of the Owner. Manholes shall be tested by an approved vacuum test.

2-73 SIDE SEWERS
A side sewer permit will be required from the District before installation of side sewers. Commercial waste discharge from fixtures and equipment that may contain grease, including but not limited to, scullery sinks, pot and pan sinks, dishwashers, soup kettles, and floor drains located in areas where grease containing materials may exist, will require a grease interceptor prior to entering the sanitary sewer system.

2-74 STREAMGUARD CATCH BASIN INSERTS
All catch basins located along project shall have a streamguard sediment catch basin insert model 8228 as manufactured by Ultra-Drain Guard, model 3003 as manufactured by Foss Environmental or approved equal installed. Inserts are to be cleaned and replaced by Contractor per manufacturer's recommendations or by District direction.

2-75 SEWER PIPE AND APPURTENANCES - PRESSURE
Unless otherwise specified, pressure pipe shall be constructed of:
(a) Ductile Iron pipe conforming to AWWA C-151 with a manufacturer's thin cement lining conforming to AWWA C-104 (except as to thickness) and with the type of joint, class, thickness, designation and markings as specified.

2-76 BEDDING MATERIAL
Bedding material shall be well-graded, clean, granular material, commonly known as pea gravel and shall meet the following requirements:
U.S. Standard Sieve Size % Passing By Weight
2-1/2" square opening 98%
1" square opening 92%
3/4" square opening 72%
1/2" square opening 58%
3/8" square opening 27%
No. 40 sieve 3%
No. 4 sieve 0%

2-77 ASPHALTIC CONCRETE
Asphalt concrete pavement shall conform to the technical requirements for Class B Asphalt in the latest edition of the State of Washington Standard Specifications for Road, Bridge and Municipal Construction.

2-78 TOP COURSE AND KEYSTONE MATERIAL
For use in the restoration of excavated areas, Top Course and Keystone material shall be manufactured from ledge or talus rock, be free from wood, roots, bark and other extraneous material and shall conform to the following requirements:

2-79 BASE COURSE MATERIAL
Base course material shall conform to the following requirements:
U.S. Standard Sieve Size % Passing By Weight
1-1/2" square opening 100%
5/8" square opening 50-90%
3/4" square opening 30-50%
U.S. No. 40 sieve 3-18%
U.S. No. 200 sieve 7.5 Max.
Sand Equivalent 40 Min.

2-80 CONCRETE BEDDING AND BLOCKING
Bedding and blocking concrete shall be Portland cement concrete containing four sacks of cement per cubic yard and maximum aggregate size of 1-1/2 inches. Maximum slump shall be 3-1/2 inches.

2-81 PIPELAYING
Each pipe shall be laid with bells up grade and the invert of the pipe to the alignment and grade shown on the Plans. Concentric joints shall be closed and a smooth invert provided. Open ends of pipes or fittings shall be temporarily blocked or covered when laying is not in progress.

2-82 CONSTRUCTION
Except as otherwise noted herein, all work shall be accomplished as recommended in the latest revision of AWWA and APWA Specifications and according to the recommendations of the manufacturer of the material and equipment concerned.

2-83 TRENCH EXCAVATION
Trenches shall be excavated to the line and grade designated by the District. Unless otherwise specified, trench sides shall be excavated vertically. Trench widths shall be adequate for proper working space and placement of bedding material under and around the pipe.

2-84 TIMBERING AND SHEETING
The developer shall provide and install timbering and sheeting as necessary to protect workers, the work, existing buildings, utilities and other properties, and shall meet all OSHA and WISHA requirements.

2-85 JACKED OR BORED CROSSING
All work shall be done in conformance with the requirements of the agency in control of the facility being bored or jacked. See Roadway and Railway Crossings for further details.

2-86 ROADWAY AND RAILWAY CROSSINGS
Any method may be used for roadway or railway crossings that provides for satisfactory results and is acceptable to both the District and the governmental or private agency having control of the road or track, provided that the road or track shall be restored to its original condition after the crossing is completed.

2-87 TRENCH FOUNDATION
Over-excavated material shall be replaced with trench foundation material conforming to one of the following gradations as specified:
U.S. Standard Sieve Size Class "A" Min. Max. Class "B" Min. Max.
2-1/2" square opening 98% 100% 95% 100%
1" square opening 92 100 75 100
3/4" square opening 72 87 30 60
1/2" square opening 58 75 0 15
3/8" square opening 27 47 0 1
No. 40 sieve 3 14 0 0
No. 4 sieve 0 1 0 0

2-88 BEDDING MATERIAL PLACEMENT
All flexible pipe shall be placed in bedding material of the type specified in Section 2-9 (a). The bedding shall be placed from a minimum of 4 inches below the pipe barrel to 4 inches above the pipe as shown on the Standard Detail herein. Bedding material shall be worked by hand under, around and over the pipe to the depths required for the full width of the trench.

2-89 BACKFILLING
No backfilling shall be performed until after the District has inspected the installation of the pipe and bedding and approved backfilling.

2-90 GRADE LINES
The Contractor shall maintain the correct grades between manholes and shall check all intermediate grade stakes by means of a taut grade wire between at least three intermediate grade stakes. In the event that the grade stakes do not line up, the work shall be stopped until the situation is corrected.

2-91 COMPACTION OF BACKFILL
Compaction of backfill and backfill procedures in public rights-of-way shall, at the minimum, conform to the requirements of the governmental agency having jurisdiction thereof.

2-92 TESTING OF PRESSURE SEWER PIPE
All force mains shall be tested at a minimum pressure of at least 50 percent above the design operating pressure for at least 30 minutes. Leakage shall not exceed the amount given by the following formula:
L = ND^2/P
1850
Where: L = allowable leakage in gallons per hour
N = the number of pipe joints
D = the pipe diameter in inches
P = the test pressure in psi

2-93 6-INCH SIDE SEWER FROM MAIN TO PROPERTY LINE
The material and strength class of side sewer pipe shall be the same as the sewer pipe to which it connects and these specifications shall be applicable to side sewer work. The slope of side sewers shall not exceed 2-foot vertical to 1-foot horizontal and grade shall not be less than 2 percent. Side sewers shall have minimum 48" cover. When change in slope exceeds 2 inches per foot, standard wy bends shall be used. All side sewers shall be plugged and the plugs blocked.

2-94 CONNECTION TO THE EXISTING SYSTEM
No connections shall be made to the existing sewer system without the presence of the District. Written application for connection shall be made to the District for connection, and the connection shall be made at a time agreed upon with the District.

2-95 TRAFFIC CONTROL
All traffic control shall be per the Manual of Uniform Traffic Control Devices, and/or agency of jurisdiction. During construction, traffic shall not be delayed for more than 5 minutes unless previously approved by the District and the agency of jurisdiction.

2-96 T.V. INSPECTION
Prior to acceptance, all pipe shall be flushed at the contractor's expense and T.V. inspected by the District at contractor's expense. Contractor shall notify the District 48 hours prior to the need for flushing and T.V. inspection. All manholes must be channeled, the sewer system completed and the roadway subspace (ATB or 2" class B asphalt) installed before the T.V. inspection.

2-97 MANHOLE ACCEPTANCE TESTS
All manholes shall be subject to an acceptance test at the request of the Owner. Manholes shall be tested by an approved vacuum test.

2-98 SIDE SEWERS
A side sewer permit will be required from the District before installation of side sewers. Commercial waste discharge from fixtures and equipment that may contain grease, including but not limited to, scullery sinks, pot and pan sinks, dishwashers, soup kettles, and floor drains located in areas where grease containing materials may exist, will require a grease interceptor prior to entering the sanitary sewer system.

2-99 STREAMGUARD CATCH BASIN INSERTS
All catch basins located along project shall have a streamguard sediment catch basin insert model 8228 as manufactured by Ultra-Drain Guard, model 3003 as manufactured by Foss Environmental or approved equal installed. Inserts are to be cleaned and replaced by Contractor per manufacturer's recommendations or by District direction.

2-100 SEWER PIPE AND APPURTENANCES - PRESSURE
Unless otherwise specified, pressure pipe shall be constructed of:
(a) Ductile Iron pipe conforming to AWWA C-151 with a manufacturer's thin cement lining conforming to AWWA C-104 (except as to thickness) and with the type of joint, class, thickness, designation and markings as specified.

2-101 BEDDING MATERIAL
Bedding material shall be well-graded, clean, granular material, commonly known as pea gravel and shall meet the following requirements:
U.S. Standard Sieve Size % Passing By Weight
2-1/2" square opening 98%
1" square opening 92%
3/4" square opening 72%
1/2" square opening 58%
3/8" square opening 27%
No. 40 sieve 3%
No. 4 sieve 0%

2-102 ASPHALTIC CONCRETE
Asphalt concrete pavement shall conform to the technical requirements for Class B Asphalt in the latest edition of the State of Washington Standard Specifications for Road, Bridge and Municipal Construction.

2-103 TOP COURSE AND KEYSTONE MATERIAL
For use in the restoration of excavated areas, Top Course and Keystone material shall be manufactured from ledge or talus rock, be free from wood, roots, bark and other extraneous material and shall conform to the following requirements:

2-104 BASE COURSE MATERIAL
Base course material shall conform to the following requirements:
U.S. Standard Sieve Size % Passing By Weight
1-1/2" square opening 100%
5/8" square opening 50-90%
3/4" square opening 30-50%
U.S. No. 40 sieve 3-18%
U.S. No. 200 sieve 7.5 Max.
Sand Equivalent 40 Min.

2-105 CONCRETE BEDDING AND BLOCKING
Bedding and blocking concrete shall be Portland cement concrete containing four sacks of cement per cubic yard and maximum aggregate size of 1-1/2 inches. Maximum slump shall be 3-1/2 inches.

2-106 PIPELAYING
Each pipe shall be laid with bells up grade and the invert of the pipe to the alignment and grade shown on the Plans. Concentric joints shall be closed and a smooth invert provided. Open ends of pipes or fittings shall be temporarily blocked or covered when laying is not in progress.

2-107 CONSTRUCTION
Except as otherwise noted herein, all work shall be accomplished as recommended in the latest revision of AWWA and APWA Specifications and according to the recommendations of the manufacturer of the material and equipment concerned.

2-108 TRENCH EXCAVATION
Trenches shall be excavated to the line and grade designated by the District. Unless otherwise specified, trench sides shall be excavated vertically. Trench widths shall be adequate for proper working space and placement of bedding material under and around the pipe.

2-109 TIMBERING AND SHEETING
The developer shall provide and install timbering and sheeting as necessary to protect workers, the work, existing buildings, utilities and other properties, and shall meet all OSHA and WISHA requirements.

2-110 JACKED OR BORED CROSSING
All work shall be done in conformance with the requirements of the agency in control of the facility being bored or jacked. See Roadway and Railway Crossings for further details.

2-111 ROADWAY AND RAILWAY CROSSINGS
Any method may be used for roadway or railway crossings that provides for satisfactory results and is acceptable to both the District and the governmental or private agency having control of the road or track, provided that the road or track shall be restored to its original condition after the crossing is completed.

2-112 TRENCH FOUNDATION
Over-excavated material shall be replaced with trench foundation material conforming to one of the following gradations as specified:
U.S. Standard Sieve Size Class "A" Min. Max. Class "B" Min. Max.
2-1/2" square opening 98% 100% 95% 100%
1" square opening 92 100 75 100
3/4" square opening 72 87 30 60
1/2" square opening 58 75 0 15
3/8" square opening 27 47 0 1
No. 40 sieve 3 14 0 0
No. 4 sieve 0 1 0 0

2-113 BEDDING MATERIAL PLACEMENT
All flexible pipe shall be placed in bedding material of the type specified in Section 2-9 (a). The bedding shall be placed from a minimum of 4 inches below the pipe barrel to 4 inches above the pipe as shown on the Standard Detail herein. Bedding material shall be worked by hand under, around and over the pipe to the depths required for the full width of the trench.

2-114 BACKFILLING
No backfilling shall be performed until after the District has inspected the installation of the pipe and bedding and approved backfilling.

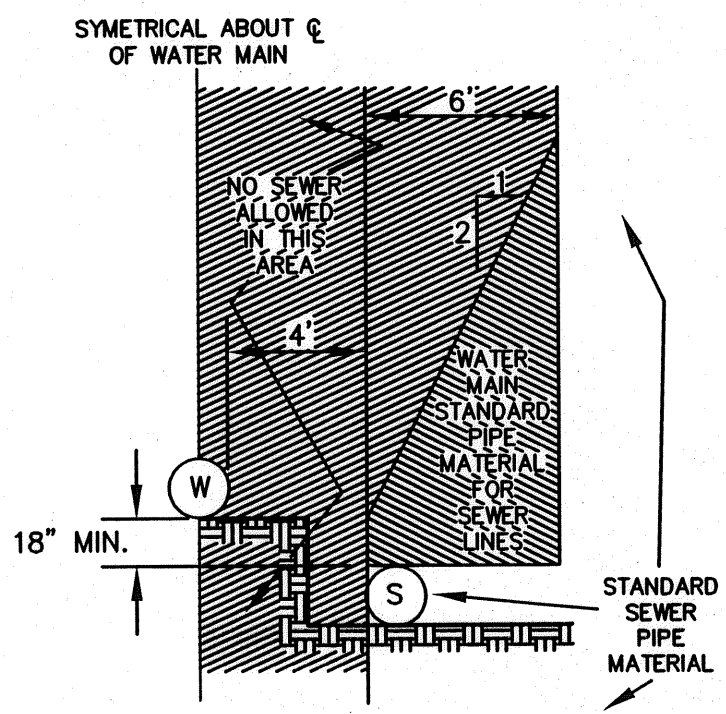
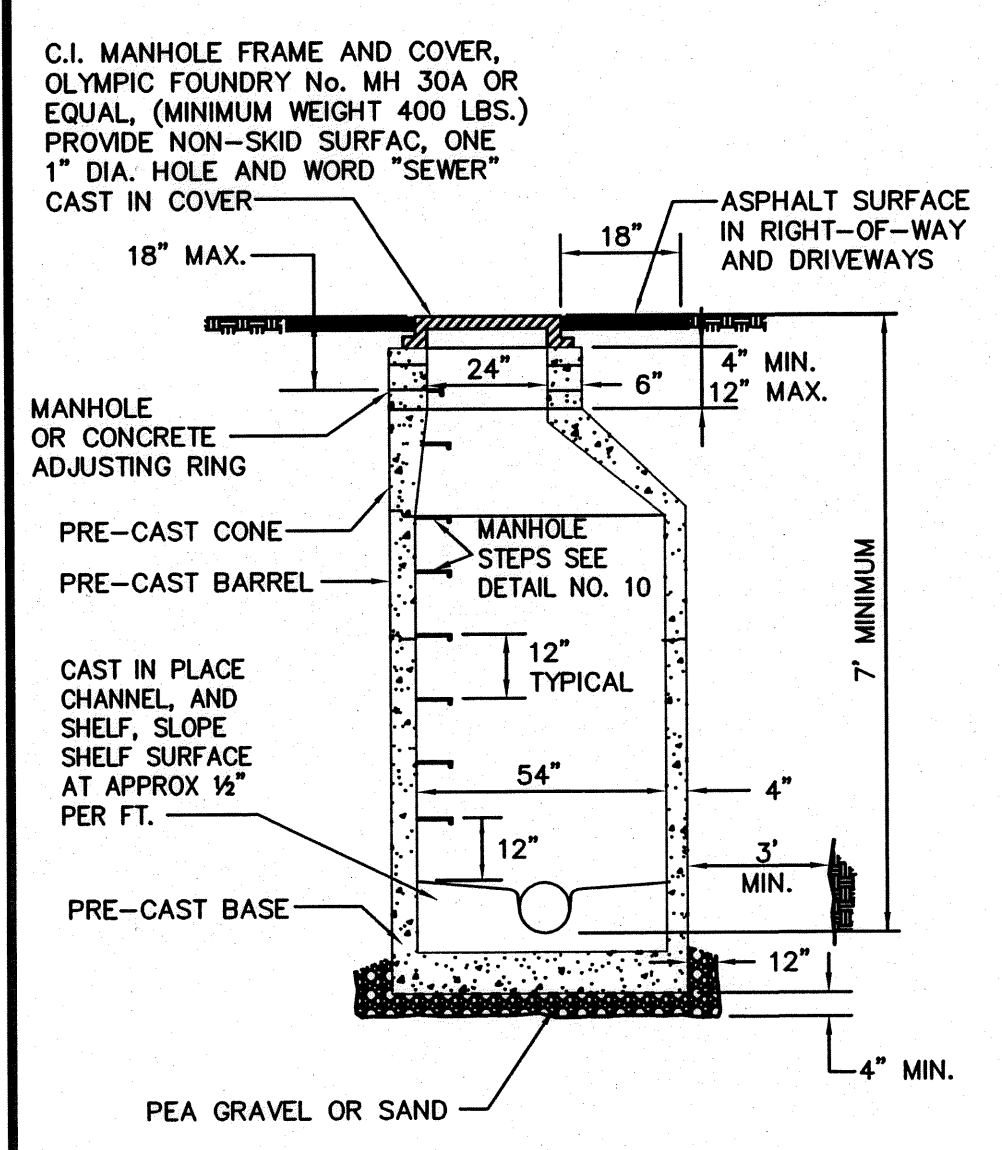


Table 1  
WATER MAIN STANDARD PIPE MATERIAL

TYPE OF PIPE	AWWA (ASTM) STANDARD		
	PIPE	JOINT	FITTINGS
Ductile Iron	C 151 & C104	C 111	C 153

NOTE:  
For perpendicular construction, maintain 18" separation or construct waterline passing over sewer line and use water main standards setforth above for the sewer with minimum 18 feet length centered over crossing.

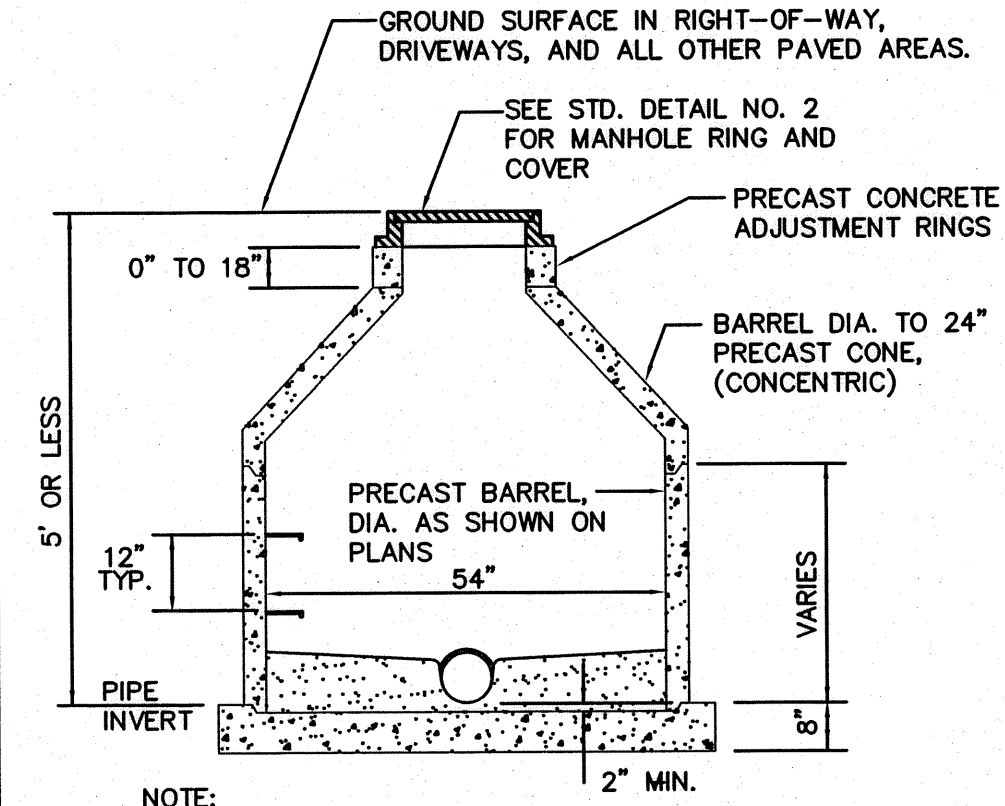
DETAIL NO. 1  
PARALLEL CONSTRUCTION



TYPICAL FOR 54" MANHOLE

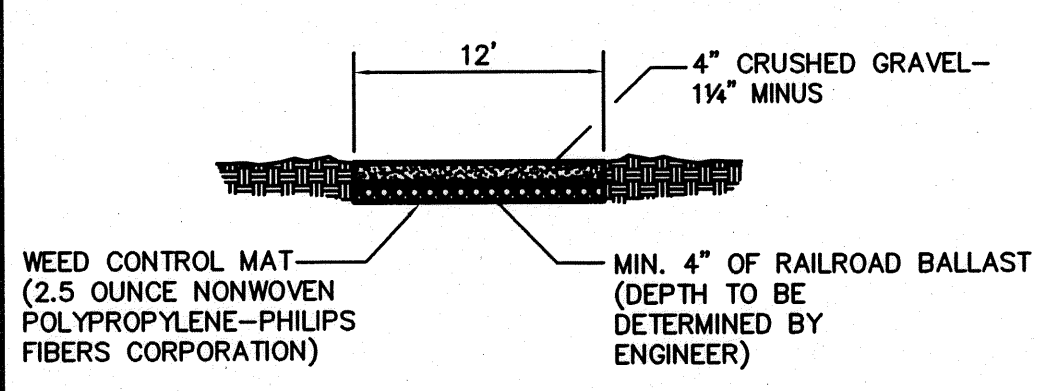
- NOTES:
- Details shown are typical for all manholes unless otherwise noted.
  - A 2 inch thick, 6 foot diameter asphalt pad is to be placed around the rim of manholes in unpaved areas.
  - Manholes with depths of 20 feet and greater need to be 72" diameter with a safety platform. Ask for detail.
  - Provide a minimum three foot clearance from outside face of manhole to excavation in order to use a hoepac during compaction.
  - All Manholes shall have all interior surfaces, including channelling, coated (sealed) with a high solids urethane coating, Wasser MC-AROSHIELD or approved equal. Color of coating shall be white.

DETAIL NO. 2  
STANDARD MANHOLE

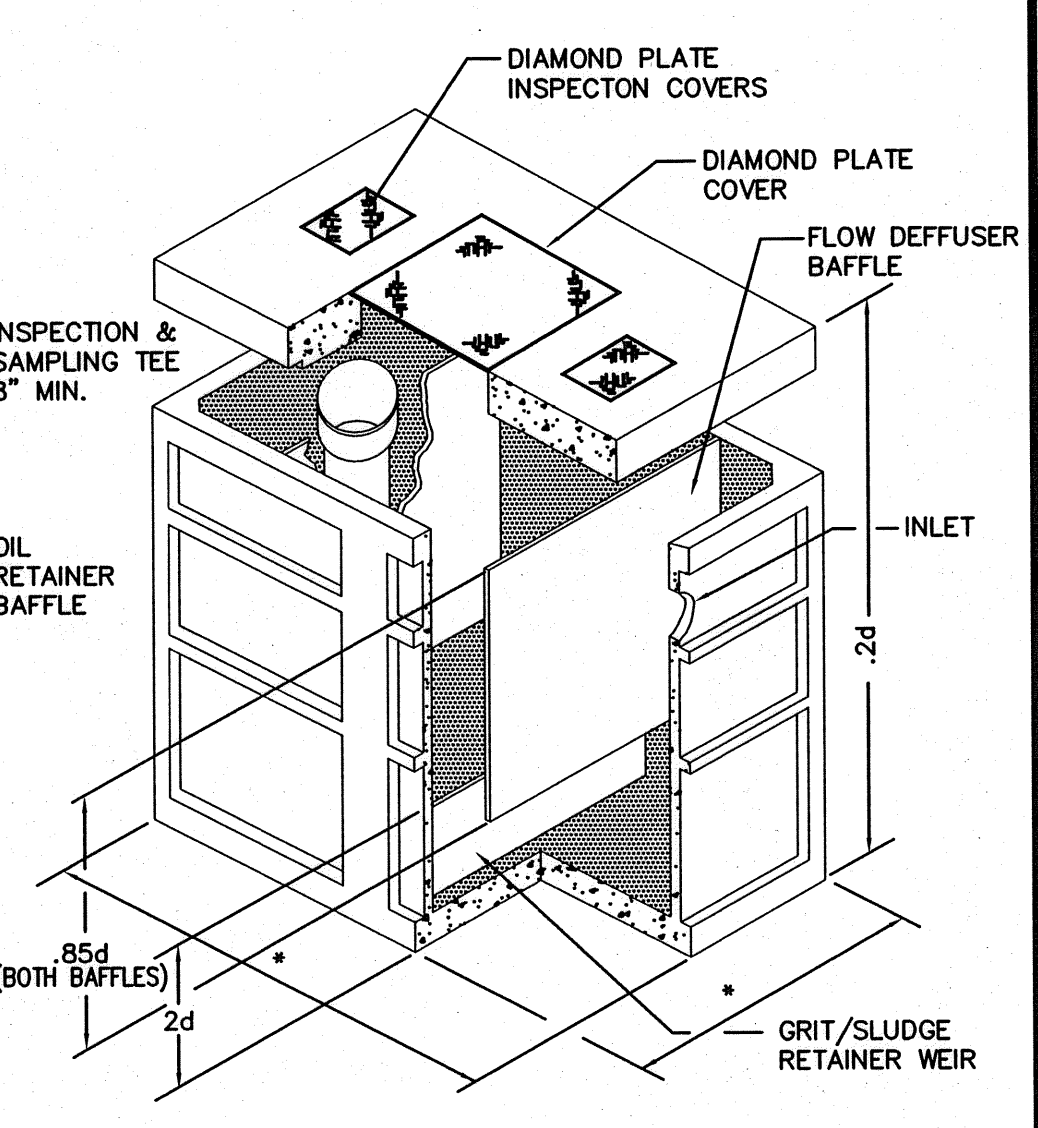


TYPICAL FOR 54" MANHOLE  
DETAIL NO. 3  
SHALLOW MANHOLE

- NOTE:  
1. Manholes over 5 feet in depth from rim to invert shall have an eccentric cone and conform to standard detail no. 2.

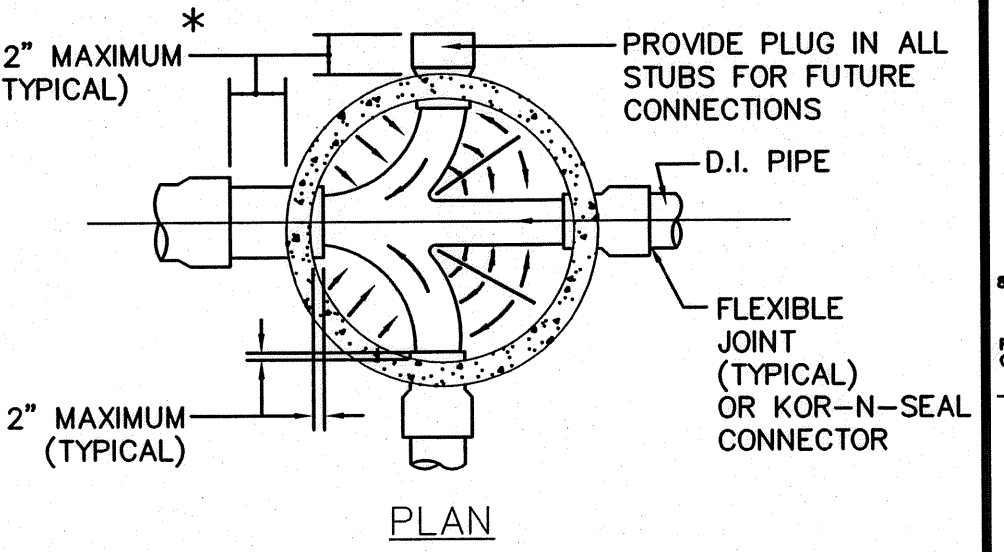


DETAIL NO. 15  
ACCESS ROAD

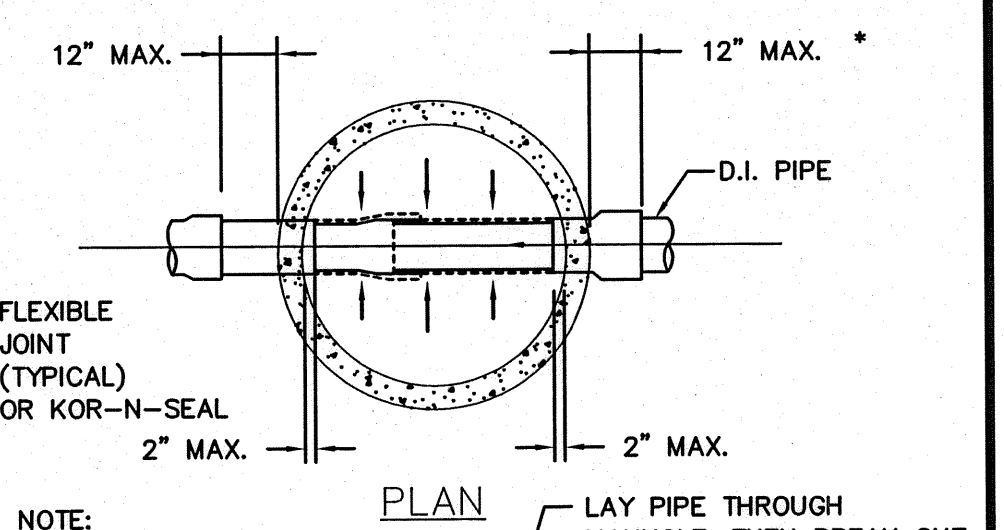


DETAIL NO. 4  
TYPICAL OIL SEPARATOR (600 gal. min.)

- NOTE:  
\* OIL SEPARATOR TO BE SIZED TO HAVE A RETENTION TIME OF 45 MINUTES OR TO HAVE A MIN. OF 600 GALLONS OF TREATMENT CAPACITY.

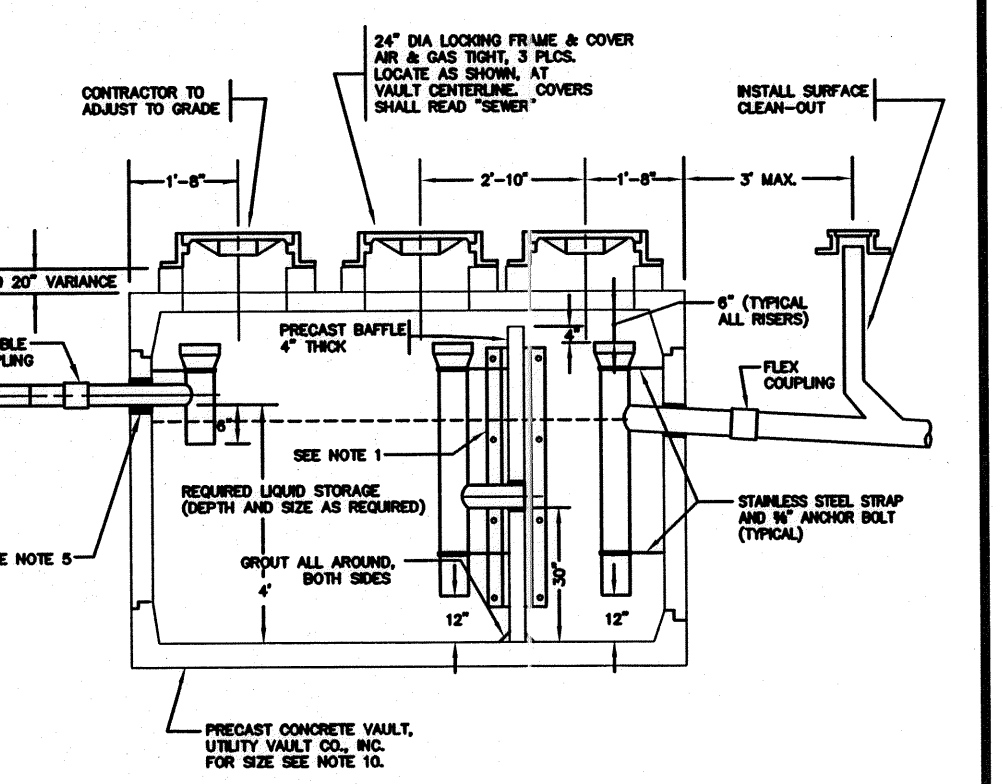


DETAIL NO. 5  
MANHOLE BASE - BRANCHING SEWERS



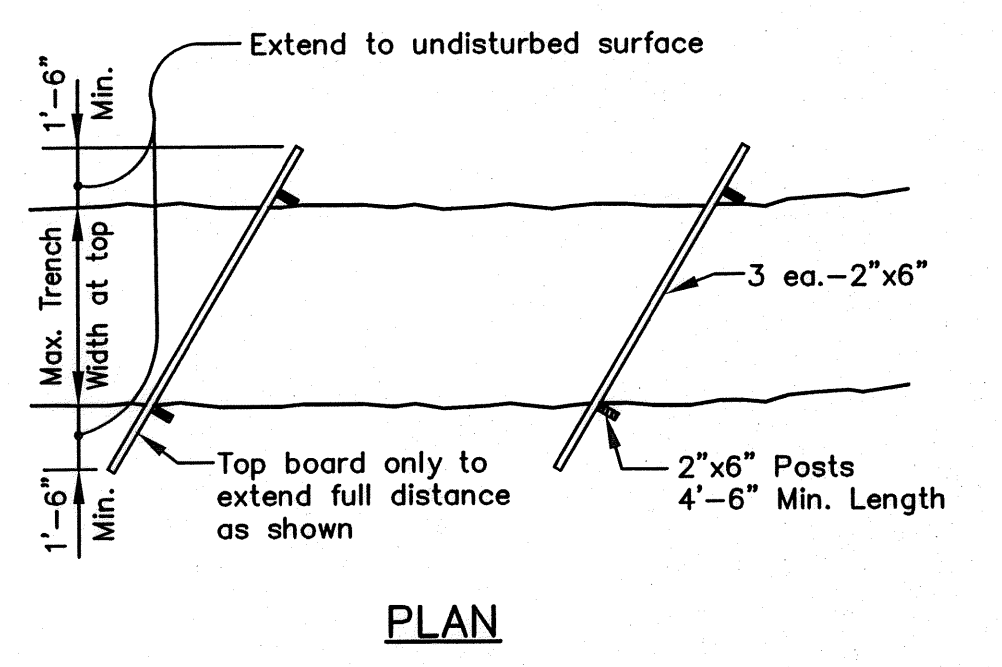
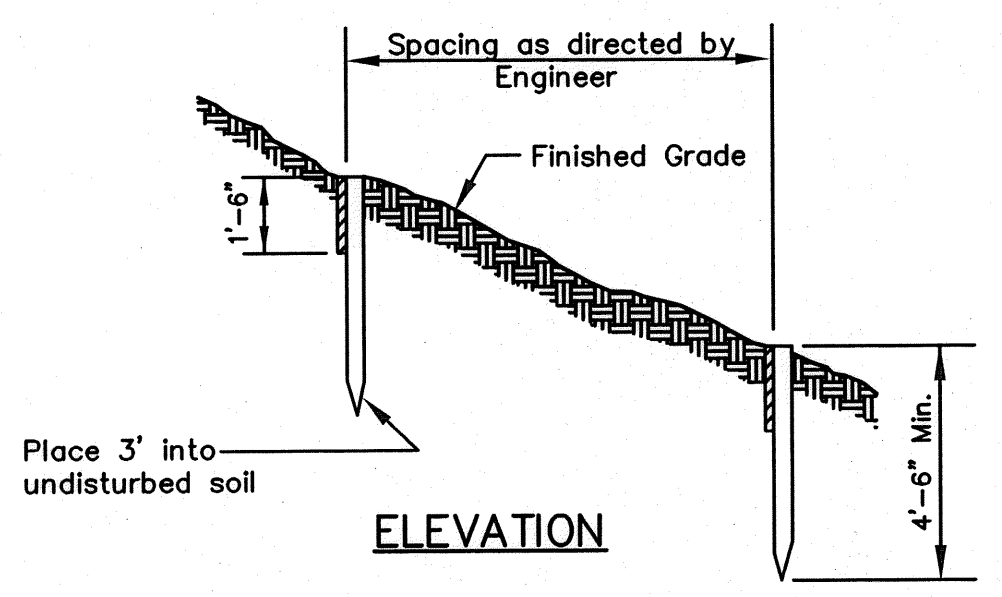
DETAIL NO. 6  
MANHOLE BASE  
STRAIGHT THROUGH FLOW

- \* FOR PVC PIPE, JOINTS SHALL BE PLACED A MIN. OF 10 FEET FROM THE MANHOLE WALL.



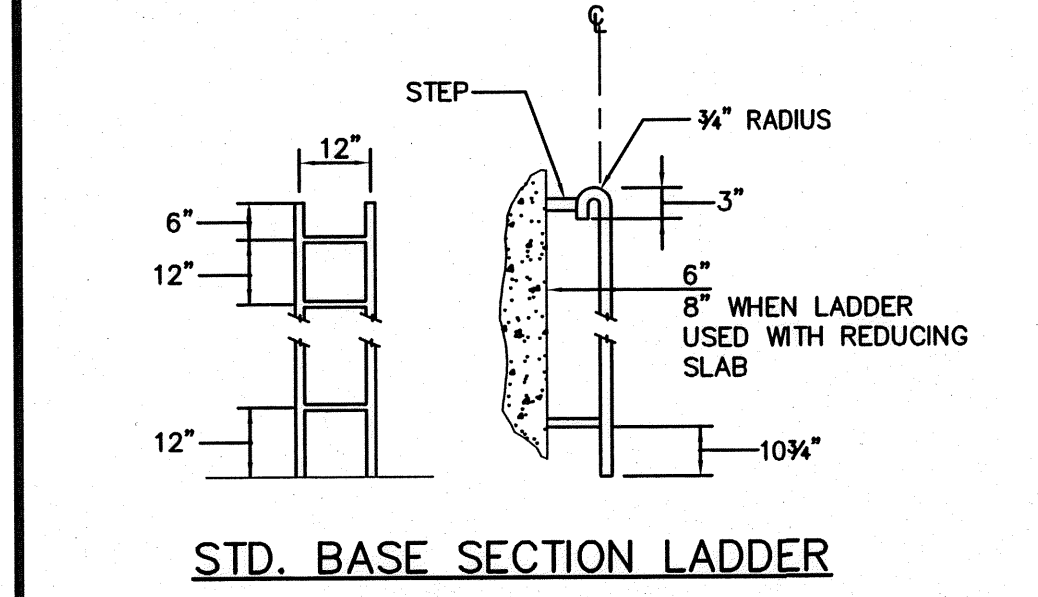
DETAIL NO. 7  
TYPICAL VEGETABLE-ANIMAL  
FAT & GREASE INTERCEPTOR

- NOTES:
- IF VAULT IS NOT SLOTTED TO ACCEPT PRECAST CONC. BAFFLE SHALL BE HELD IN PLACE BY (2) 3" x 3" x 1/2" ANGLE (4 FT. LONG) ATTACHED TO VAULT WALL WITH (4 EA.) 1" BOLTS AND NUTS (WITH WASHERS) SPACED 14" O.C. ANGLE AND FASTENERS SHALL BE STAINLESS STEEL, OR GALVANIZED AND ASPHALT COATED.
  - PRECAST VAULT AND BAFFLE SHALL HAVE KNOCKOUTS AT ALL PIPE OPENINGS. IF KNOCKOUTS ARE NOT PRESENT THEN PIPE OPENINGS SHALL BE CORE-DRILLED. PIPE OPENINGS SHALL BE 2" LARGER THAN PIPE DIAMETER.
  - POSITION RISERS BELOW ACCESS OPENINGS TO ALLOW CLEAR ACCESS TO RISER AND VAULT CHAMBER.
  - LOCATE INTERCEPTOR WITHIN 20' OF DRIVE FOR ACCESS BY MAINT. VEHICLE.
  - CONNECTIONS TO CONCRETE WALLS WITH P.V.C. PIPE REQUIRE KOR-N-SEAL CONNECTOR OR A.C. x P.V.C. BRANT ADAPTER. SEAL ALL PIPE CONNECTIONS WITH NONSHRINK GROUT.
  - LINE-SIZED P.V.C. PIPE SHALL BE USED THROUGHOUT.
  - GRAY-WATER ONLY. BLACK-WATER SHALL BE CARRIED BY SEPERATE SIDE SEWER.
  - CLEAN-OUT REQUIRED 3' MAX. DOWNSTREAM OR INTERCEPTOR.
  - FILL WITH CLEAN WATER PRIOR TO START UP OF SYSTEM.
  - SIZE WILL BE PER UNIFORM PLUMBING CODE APPENDIX H. (750 GAL. MIN.)

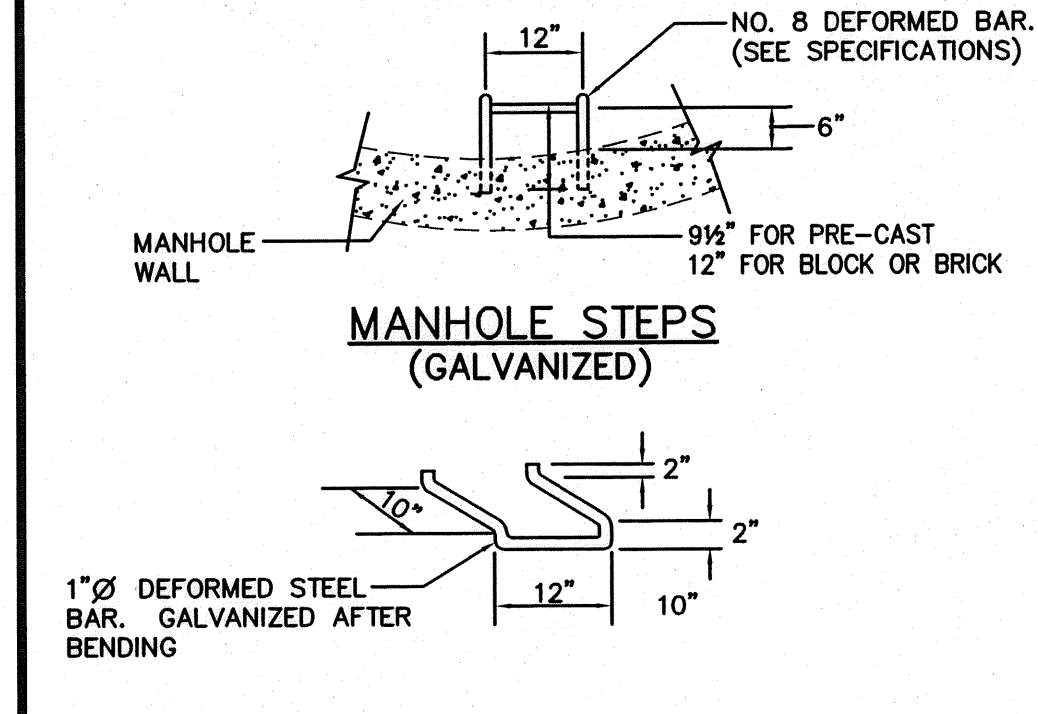


- Notes:
- Timber baffles to be installed where directed by the Engineer or District Inspector.
  - All backfill shall be seeded.

DETAIL NO. 9  
HILL HOLDER



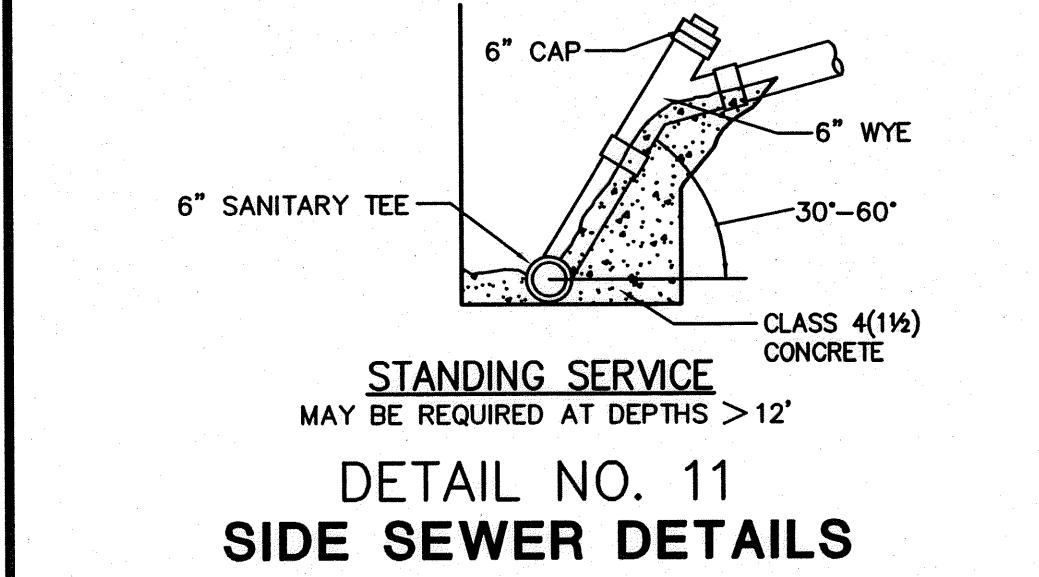
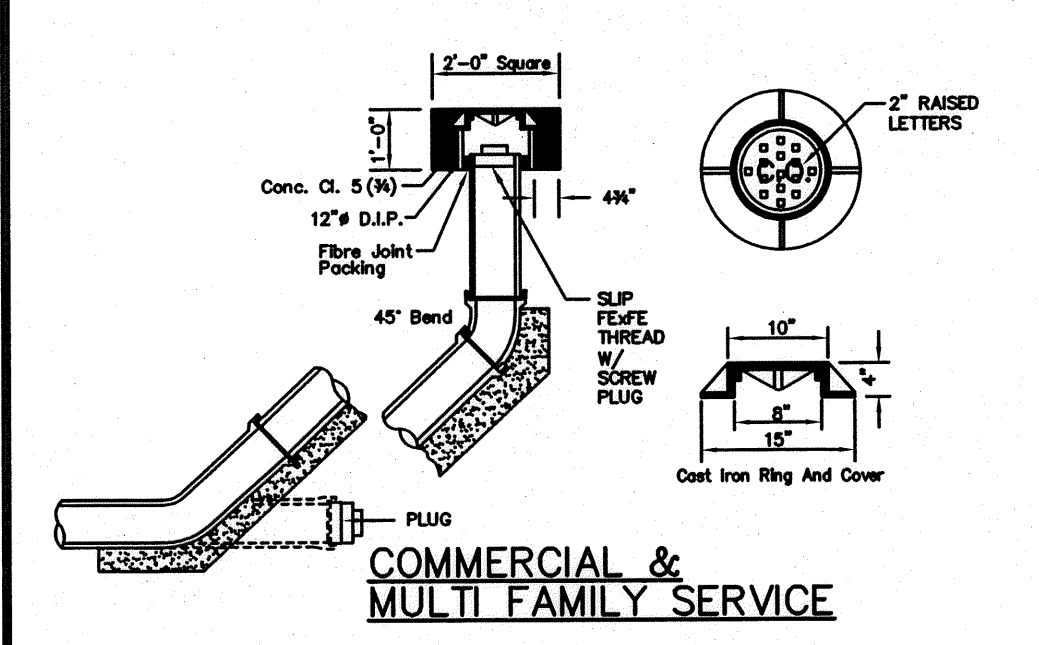
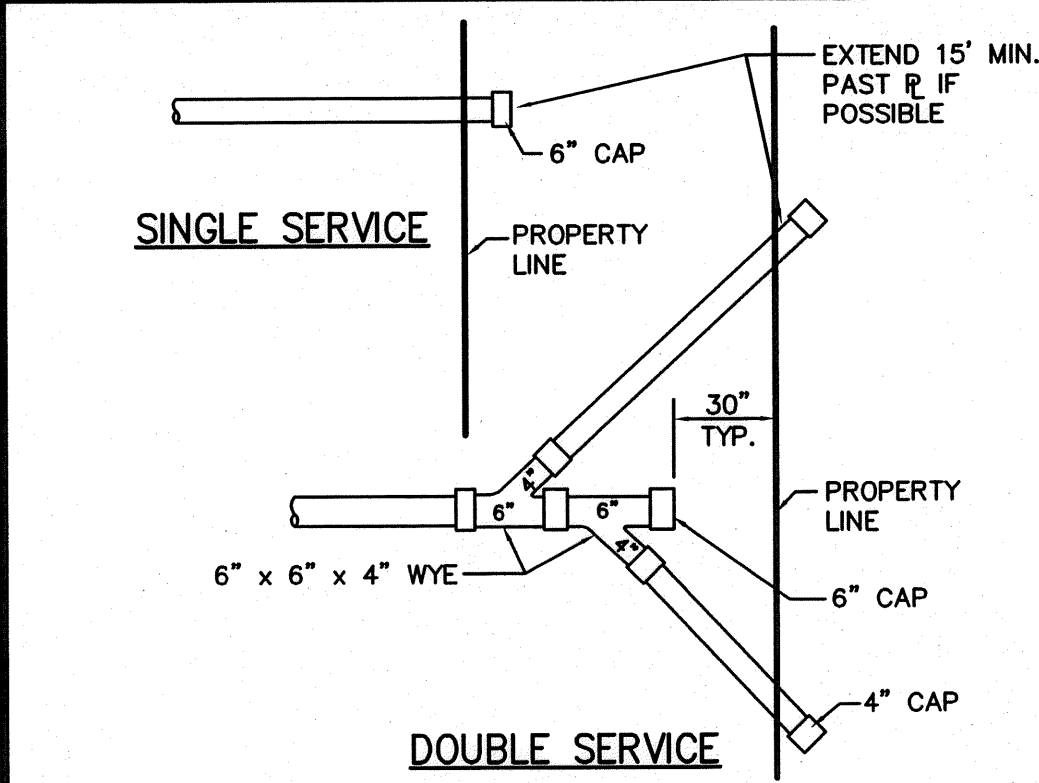
STD. BASE SECTION LADDER



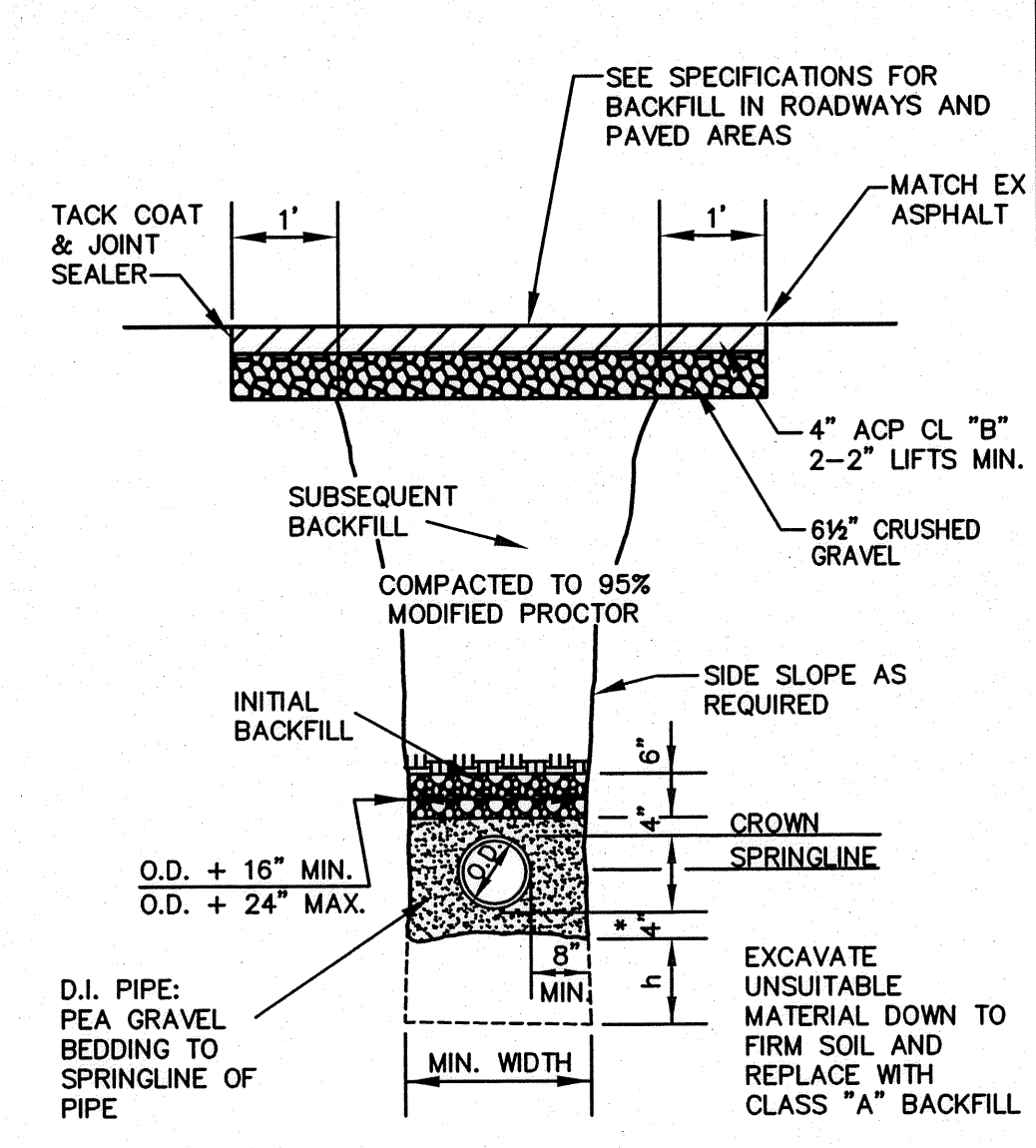
MANHOLE STEPS  
(GALVANIZED)

- NOTE:  
POLYPROPYLENE STEPS MAY BE SUBSTITUTED FOR GALVANIZED. POLYPROPYLENE MANHOLE STEPS SHALL BE LANE MODEL P-14938 OR APPROVED EQUAL.

DETAIL NO. 10  
MANHOLE STEP DETAILS

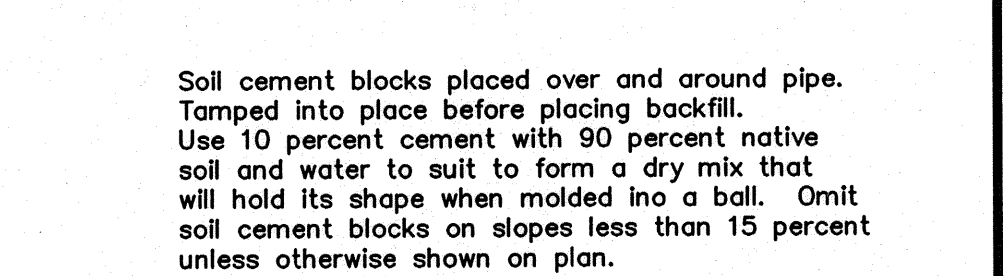
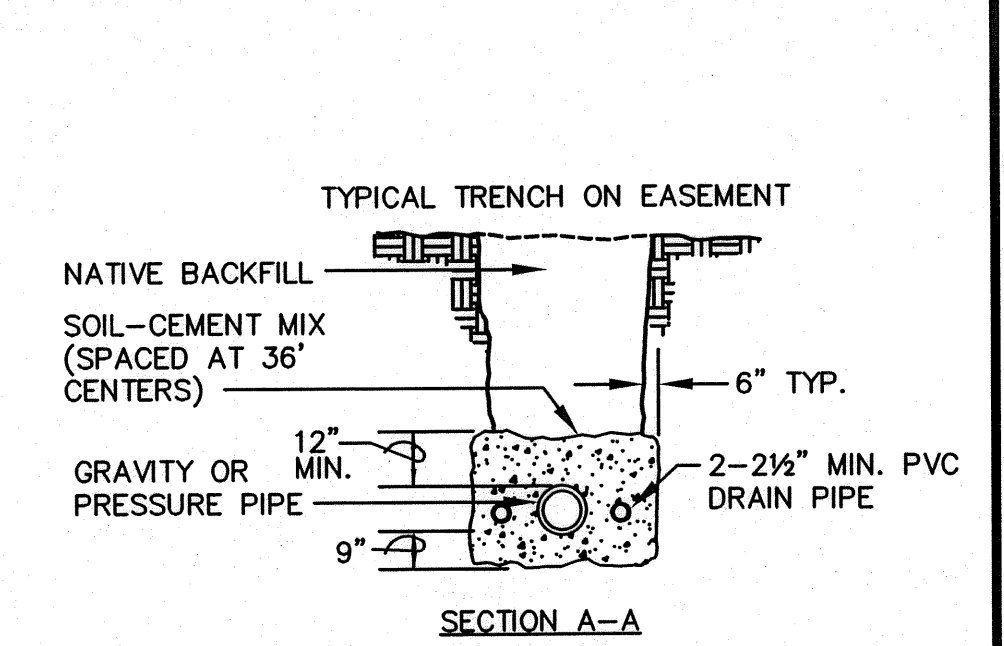


DETAIL NO. 11  
SIDE SEWER DETAILS

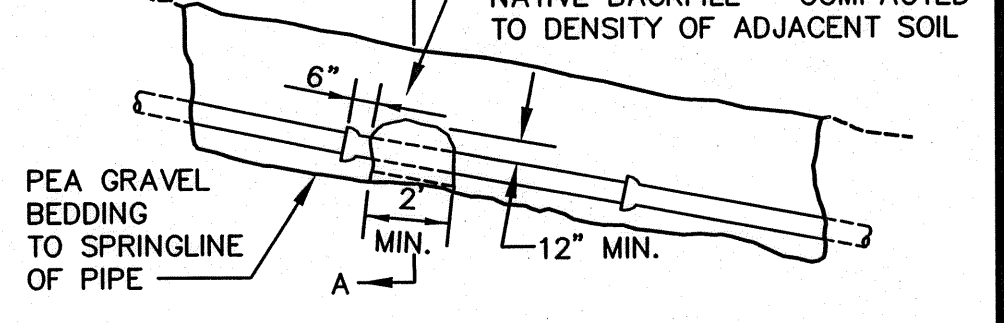


- MIN. WIDTH: WHEN h IS LESS THAN 1', MIN. WIDTH = O.D. + 16".  
WHEN h IS GREATER THAN 1', MIN. WIDTH = O.D. + 24".
- \* 8" MIN. IF IN SOLID ROCK

DETAIL NO. 12  
TRENCH CROSS SECTION FOR  
P.V.C. OR D.I. PIPE

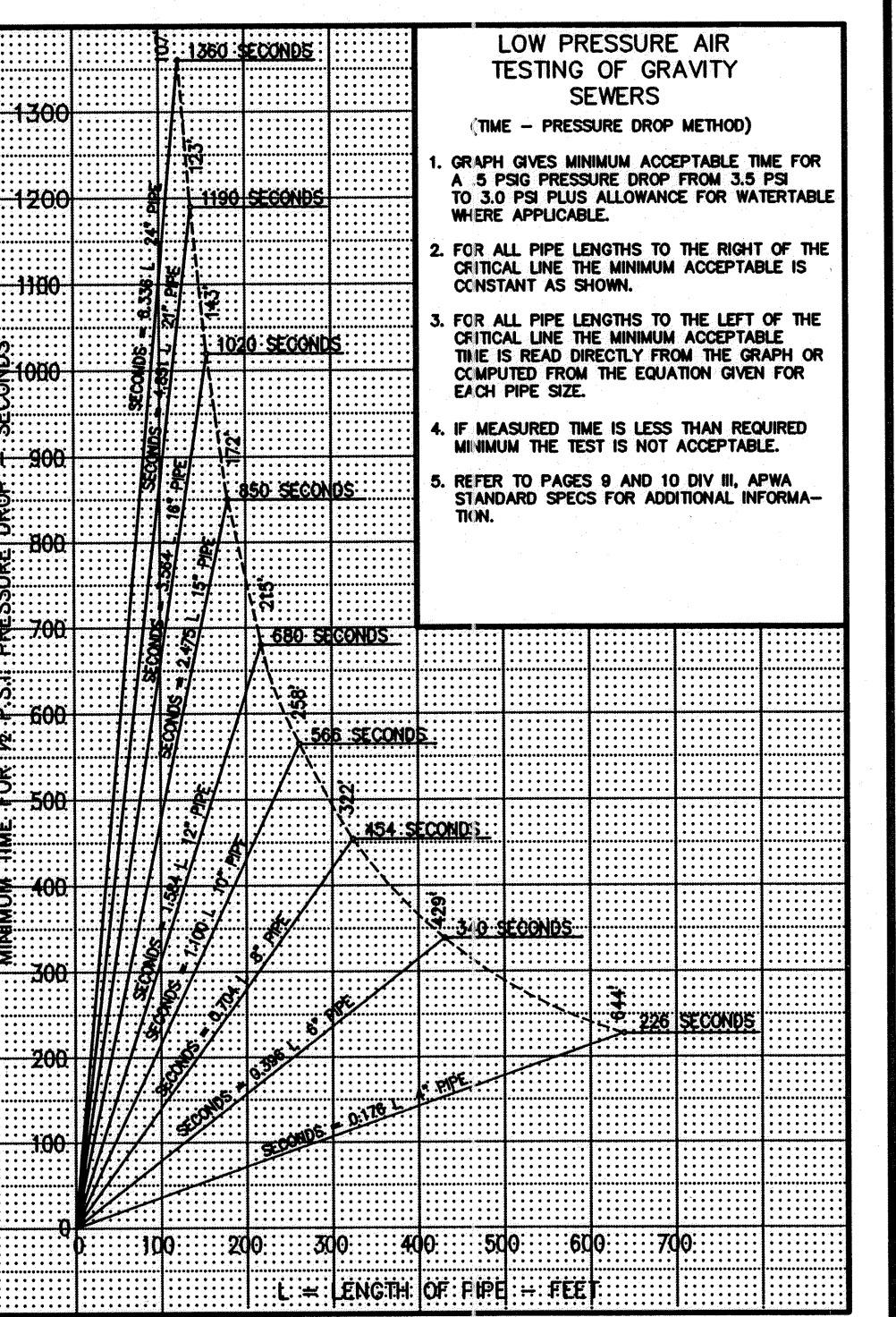


- Soil cement blocks placed over and around pipe. Tamped into place before placing backfill. Use 10 percent cement with 90 percent native soil and water to suit to form a dry mix that will hold its shape when molded into a ball. Omit soil cement blocks on slopes less than 15 percent unless otherwise shown on plan.



- NOTE: "FIELD LOK" GASKETS MAY BE USED IN LIEU OF PIPE ANCHORS.

DETAIL NO. 13  
PIPE ANCHOR



DETAIL NO. 14  
LOW PRESSURE AIR TESTING OF  
GRAVITY SEWERS

DESIGNED					
DRAWN	JRL				
CHECKED	DGS				
SYN		REVISION		DATE	BY
				APP'D	

Pacific Engineering Design, LLC  
15445 53RD AVE. S. SEATTLE, WA 98188  
PHONE: (206) 431-7970 FAX: (206) 388-1648 WEB SITE: PACENG.COM  
Civil Engineering and Planning Consultants

COAL CREEK UTILITY DISTRICT  
6801 132ND PLACE S.E.  
NEWCASTLE, WASHINGTON 98059

REFERENCE INFORMATION	DATE
FIELD BOOK:	JULY 26, 2007
SURV. CPU FILE:	SCALE
DATUM: NGVD29	NOTED

VARNEY SUBDIVISION  
STANDARD DETAILS

JOB NUMBER	07020.00
DWG NO	NOB01SSD-T-PS.DWG
SHEET	6 OF 7

