

SET NO.

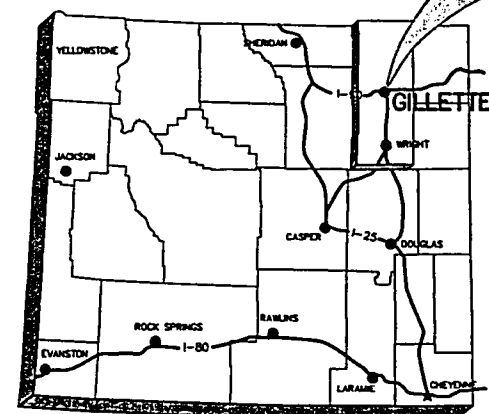
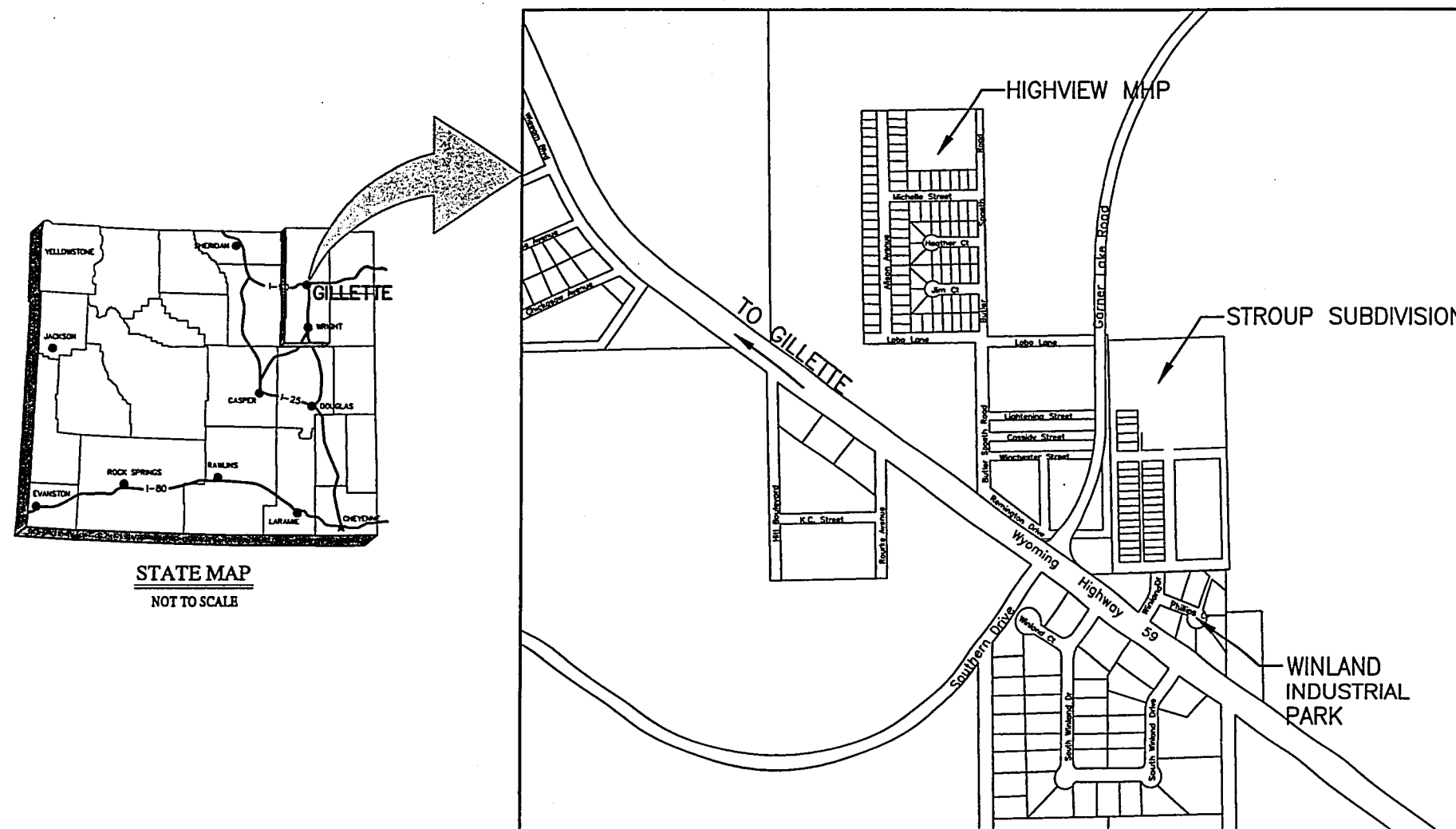
DRAWINGS OF CONSTRUCTION RECORD FOR SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

SCHEDULE A - HIGHVIEW MHP SANITARY SEWER MAIN
SCHEDULE B - STROUP SUBDIVISION SANITARY SEWER COLLECTION SYSTEM
SCHEDULE C - WINLAND INDUSTRIAL PARK SANITARY SEWER MAIN
OCTOBER, 2004

Sanitary Sewer Mains to be Located
as part of this agreement are shown
on Sheet 10, 11 and 12 and identified
with a red "cloud". - MC, 7/17/2018

INDEX

COVER.....	SHEET 1
PROJECT LOCATIONS.....	SHEET 2
LEGENDS, TABLES, AND QUANTITIES.....	SHEET 3
SCHEDULE A, OVERALL MAP.....	SHEET 4
SCHEDULE A, P&P STA 1+25-6+00.....	SHEET 5
SCHEDULE A, P&P STA 6+00-8+94.....	SHEET 6
SCHEDULE A, P&P STA 8+94-13+00.....	SHEET 7
SCHEDULE A, P&P STA 13+00-18+23.....	SHEET 8
SCHEDULE B, OVERALL MAP.....	SHEET 9
SCHEDULE B, A LINE P&P STA 1+00-5+69.....	SHEET 10
SCHEDULE B, B LINE P&P STA 1+00-5+00.....	SHEET 11
SCHEDULE B, C LINE P&P STA 1+00-5+00.....	SHEET 12
SCHEDULE B, C LINE P&P STA 5+00-7+60.....	SHEET 13
SCHEDULE B, NORTH SANITARY SERVICES.....	SHEET 14
SCHEDULE B, SOUTH SANITARY SERVICES.....	SHEET 15
SCHEDULE C, P&P STA 1+00-2+50.....	SHEET 16
DETAILS.....	SHEET 17
DETAILS.....	SHEET 18
DETAILS.....	SHEET 19
DETAILS.....	SHEET 20



STATE MAP
NOT TO SCALE

VICINITY SKETCH

NOT TO SCALE

I THOMAS A. SYLTE CERTIFY THAT CONSTRUCTION
INSPECTION AND "DRAWINGS OF CONSTRUCTION RECORD"
PLAN PREPARATION WERE PERFORMED BY ME OR UNDER
MY DIRECT CONTROL AND SUPERVISION. THE
CONSTRUCTION DETAILS AS SHOWN ON THESE "DRAWINGS
OF CONSTRUCTION RECORD" ARE ACCURATE AND
COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.



Prepared for:
SDHW&SD

P.O. BOX 2245
GILLETTE, WYOMING 82717-2245
(307) 687-0510

4506 Wigwam Blvd.
P.O. Box 2185
Gillette, Wyoming 82718
307-687-0600
PCA ENGINEERING, INC.

COPYRIGHT © ALL RIGHTS RESERVED BY PCA ENGINEERING, INC.

Drawn by: CS	Date: 2/2004
Design by: CS	Date: 2/2004
Reviewed by: RPS	Date: 2/04; 10/04
Revised: CS 10/2004	

P.C.A. Project Number: 032900.00
G:\Projects\03290000\ABDwgs\Details\Details.dwg

X-Ref: ... city_temp.dwg
xcer PR Trunk.dwg
Main.DWG

Plot Date: Sep 27, 2005 - 10:39am

**SOUTH DOUGLAS
HIGHWAY REGIONAL
SEWER SYSTEM
PHASE 1A**

**SCHEDULE A
SCHEDULE B
SCHEDULE C**

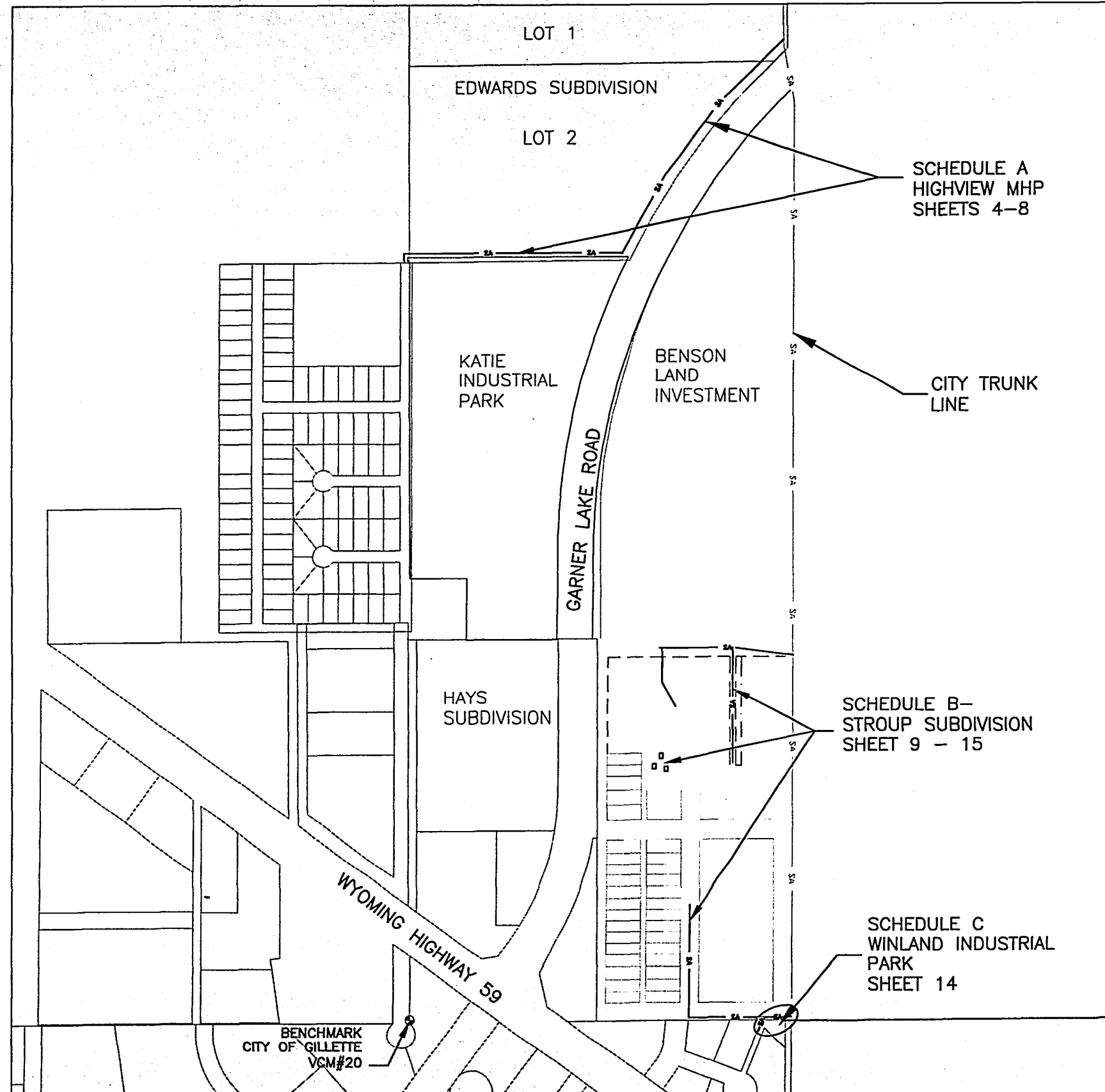
**DRAWINGS OF
CONSTRUCTION RECORD**

COVER

SHEET 1 OF 20

SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

PROJECT LOCATIONS



N.T.S.

BENCHMARK

BASED ON CITY OF GILLETTE VERTICAL CONTROL MONUMENT #20 ELEVATION= 4550.597

Prepared for:
SDHW&SD
P.O. BOX 2245
GILLETTE, WYOMING 82717-2245
(307) 687-0510

PCA ENGINEERING, INC.
4506 Wigwam Blvd.
P.O. Box 2185
Gillette, Wyoming 82718
307-687-0600

COPYRIGHT © ALL RIGHTS RESERVED BY PCA ENGINEERING, INC.

Drawn by: CS	Date: 2/2004
Design by: CS	Date: 2/2004
Reviewed by: RPS	Date: 2/04; 10/04
Revised: CS 10/2004	
P.C.A. Project Number: 032900.00	
G:\Projects\03290000\ABDwgs\Details\Details.dwg	
X-Ref: ...	city_temp.dwg xcer PR Trunk.dwg Main.DWG
Plot Date: Sep 22, 2005 - 1:48pm	

SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

**SCHEDULE A
SCHEDULE B
SCHEDULE C**

DESIGN DRAWINGS

PROJECT LOCATIONS

SHEET 2 OF 20

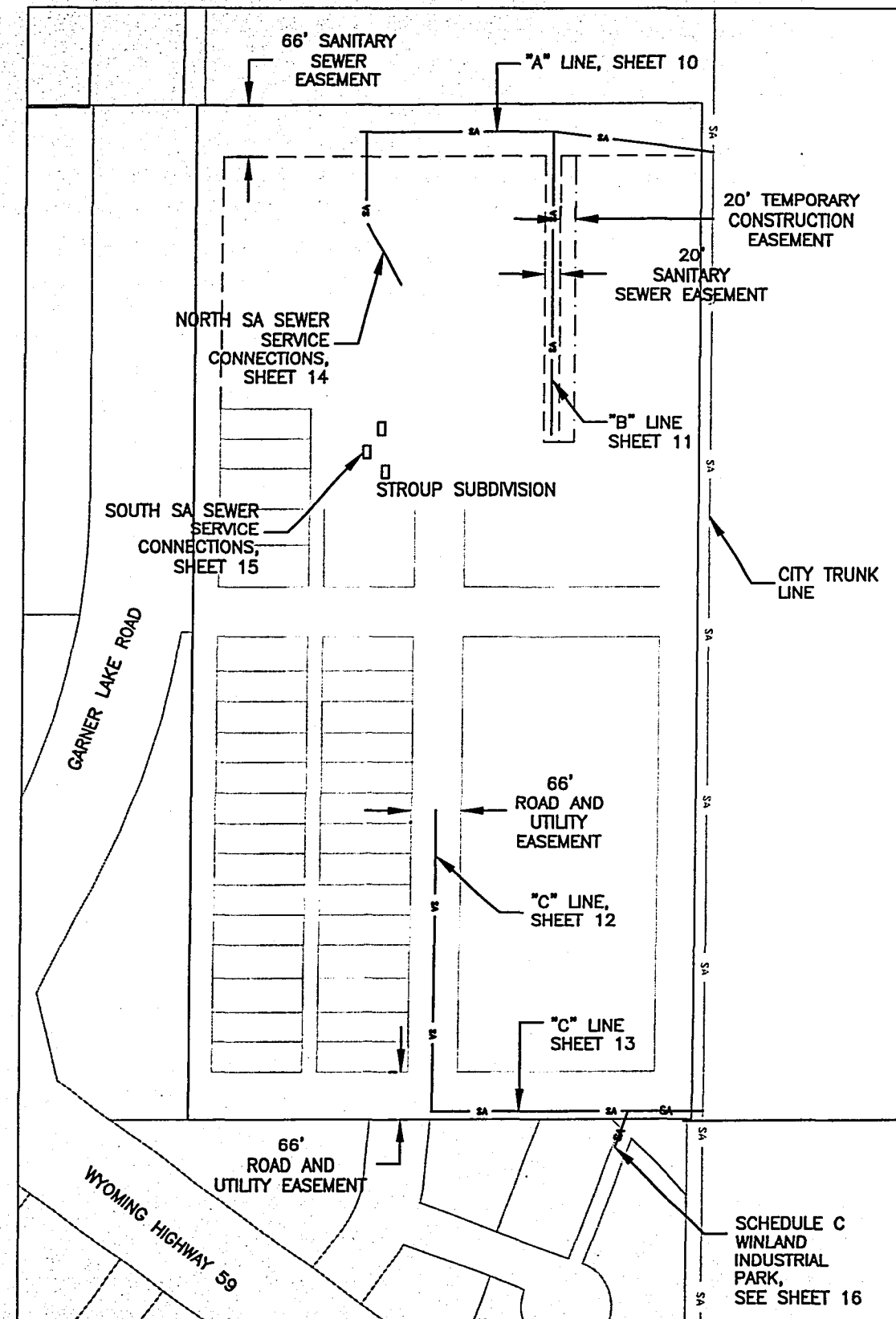
LEGEND

SHEET 3 OF 20

SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

SCHEDULE B - OVERALL MAP

SHEET 9 OF 20 - SCHEDULE B, OVERALL MAP			
ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
601-2	Excavation Below Subgrade	C.Y.	50
601-3	Rejected Material Disposal	C.Y.	50
601-4	Imported Borrow	C.Y.	50
601-10	Install Geogrid	S.Y.	50
601-15	NPDES (Sedimentation) Control	L.S.	1
614-1	Construction Signing & Traffic Control	L.S.	1
1001-1	Contract Bond	L.S.	1
1001-3	Mobilization	L.S.	1
1001-4	Force Account	L.S.	1



SCALE: 1" = 100'

Prepared for:
SDHW&SD
 P.O. BOX 2245
 GILLETTE, WYOMING 82717-2245
 (307) 687-0510

PCA ENGINEERING, INC.
 4506 Wigham Blvd.
 P.O. Box 2185
 Gillette, Wyoming 82718
 307-687-0600

COPYRIGHT © ALL RIGHTS RESERVED BY PCA ENGINEERING, INC.

Drawn by: CS Date: 2/04

Design by: CS Date: 2/04

Reviewed by: RPS Date: 2/04; 10/04

Revised: CS 10/2004

P.C.A. Project Number: 032900.00

G:\Projects\03290000\ABDwg\Details\

Details.dwg

X-Ref: ... city_temp.dwg

xCER PR Trunk.dwg

Main.DWG

Plot Date: Sep 22, 2005 - 1:48pm

**SOUTH DOUGLAS
 HIGHWAY REGIONAL
 SEWER SYSTEM
 PHASE 1A**

**SCHEDULE B
 STROUP SUBDIVISION**

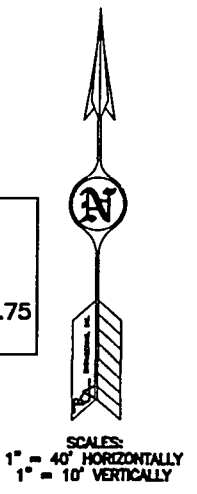
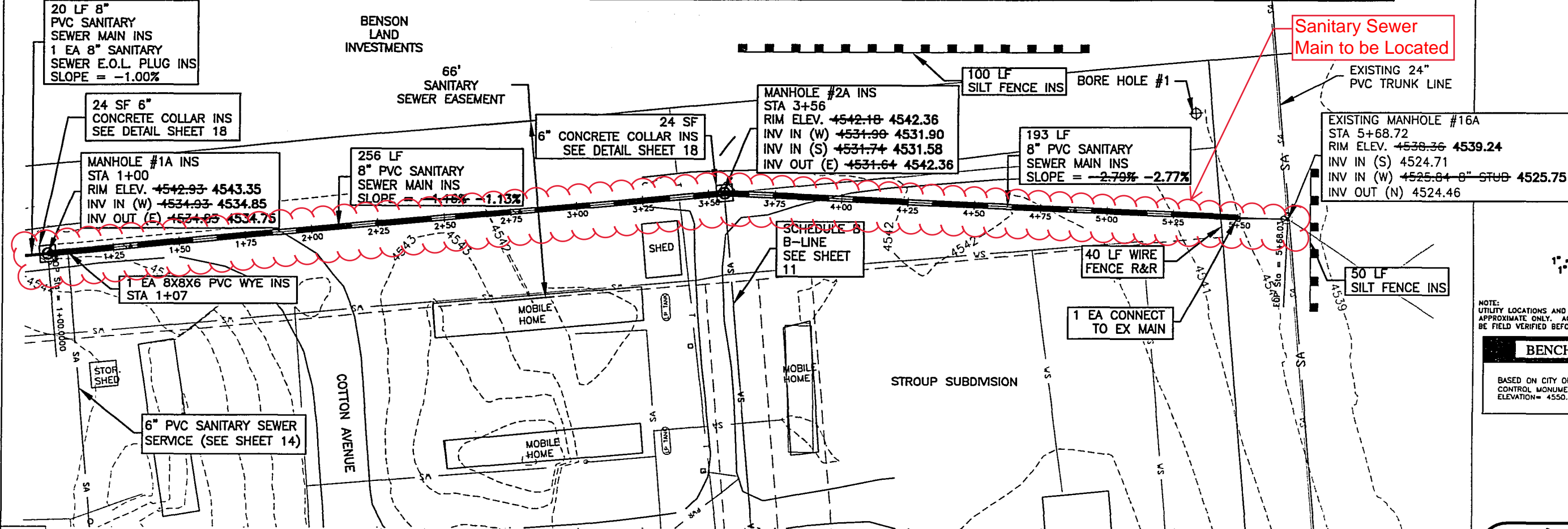
**DRAWINGS OF
 CONSTRUCTION RECORD**

**SCHEDULE B
 OVERALL MAP**

SHEET 9 OF 20

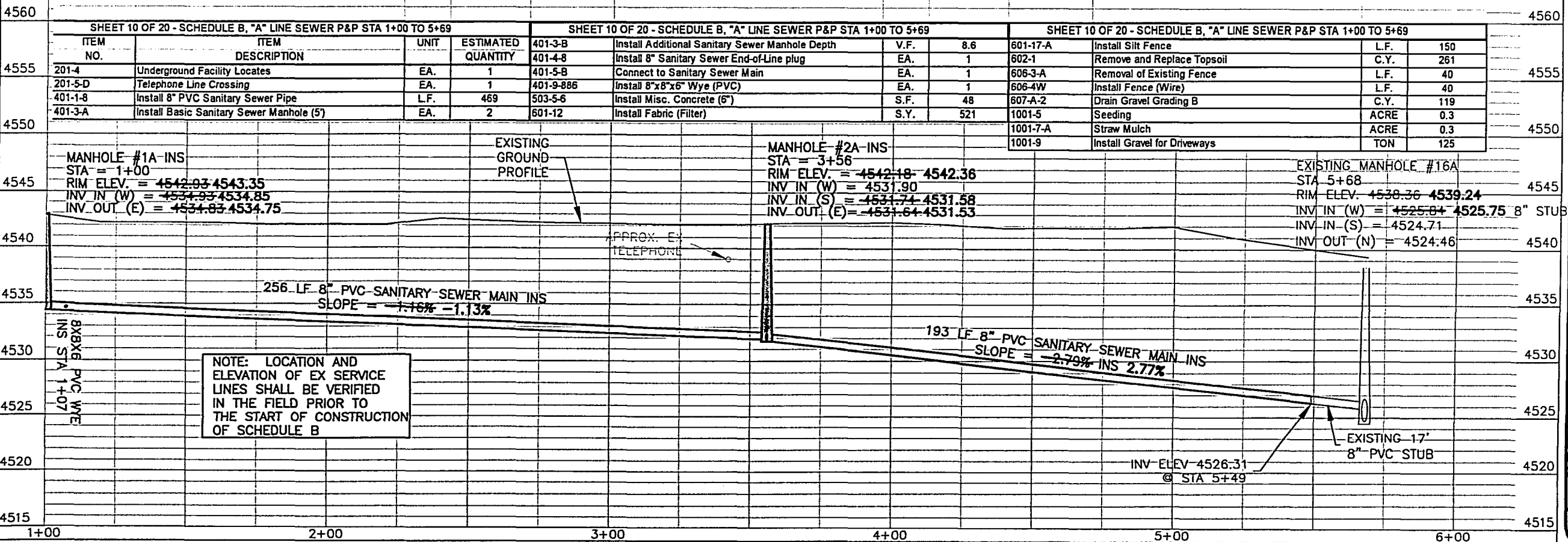
SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

SCHEDULE B - STROUP SUBDIVISION "A" LINE SEWER PLAN AND PROFILE STA 1+00 - 5+69



NOTE: UTILITY LOCATIONS AND DESCRIPTIONS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS SHOULD BE FIELD VERIFIED BEFORE EXCAVATING.

BENCHMARK
BASED ON CITY OF GILLETTE VERTICAL CONTROL MONUMENT #20 ELEVATION = 4550.597



Prepared for:
SDHW&SD
P.O. BOX 2245
GILLETTE, WYOMING 82718-2245
(307) 687-0510

4506 Wigwam Blvd.
P.O. Box 2185
Gillette, Wyoming 82718
307-687-0600
ENGINEERING, INC.

Drawn by: CS Date: 2/04
Design by: CS Date: 2/04; 10/04
Reviewed by: RPS
Revised: CS 10/2004
P.C.A. Project Number: 032893.00
G:\projects\03289300\abdwgs\main\RCp01001.dwg
X-Ref: ... repr001.dwg
Main.DWG
xCR PR Trunk.dwg
Plot Date: Sep 22, 2005 - 2:49pm

**SOUTH DOUGLAS
HIGHWAY REGIONAL
SEWER SYSTEM
PHASE 1A**

**SCHEDULE B
STROUP
SUBDIVISION "A" LINE
DRAWINGS OF
CONSTRUCTION RECORD
PLAN AND PROFILE
STA 1+00-STA 5+69**

SHEET 10 OF 20

STROUP SUBDIVISION

Sanitary Sewer Main to be Located

SEE SHEET 13

MANHOLE #2C INS
STA 4+90
RIM ELEV. ~~4546.30~~ 4546.55
INV IN (N) ~~4535.63~~ 4535.60
INV OUT (E) ~~4535.53~~ 4535.50
INV IN (W) ~~4535.63~~ 4535.46

24 SF
6" CONCRETE COLLAR INS
SEE DETAIL SHEET 18

20 LF 12" PVC
SANITARY SEWER
MAIN INS
1 EA 12" PVC
SANITARY SEWER MAIN
E.O.L. PLUG INS
SLOPE = 1.00%

66'
SANITARY
SEWER
EASEMENT

66'
ROAD
EASEMENT

390 ~~400~~ LF 8" PVC
SANITARY SEWER
MAIN INS
SLOPE = ~~-0.78%~~ -0.80%

1 EA DISASSEMBLE LIFT STATION
AND MODIFY EXISTING MANHOLE,
SEE NOTE THIS PAGE

1 EA ABANDON SEPTIC TANK IN-PLACE
APPROX. VOLUME 142 CY

1 EA SA SEWER MANHOLE REM

1 EA CONNECT TO EX
SANITARY SEWER MAIN
EX 8" MAIN SHALL BE
VERIFIED IN THE FIELD
PRIOR TO THE START OF
CONSTRUCTION OF
SCHEDULE B, "C" LINE

MANHOLE #1C INS
STA 1+00
RIM ELEV. ~~4546.10~~ 4546.04
INV IN (W) ~~4539.70~~ 4539.53
INV OUT (S) ~~4539.72~~ 4539.41

24 SF
6" CONCRETE COLLAR INS
SEE DETAIL SHEET 18

COTTON AVENUE

THOMAS AVENUE

NOTE:
UTILITY LOCATIONS AND DESCRIPTIONS ARE
APPROXIMATE ONLY. ACTUAL LOCATIONS SHOULD
BE FIELD VERIFIED BEFORE EXCAVATING.

BASED ON CITY OF GILLETTE VERTICAL
CONTROL MONUMENT #20
ELEVATION= 4550.597

1 EA CONNECT TO
EX SANITARY SEWER MAIN
EX 8" MAIN SHALL BE
VERIFIED IN THE FIELD
PRIOR TO THE START OF
CONSTRUCTION OF
SCHEDULE B, "C" LINE

TO MODIFY THE EX MH, REMOVE TOP SECTION
AND SLURRY FULL TOP MANHOLE SECTION
SHALL BE SLAVAGED TO PROPERTY OWNER.

MANHOLE #2C
STA = 5+00
RIM ELEV. = ~~4546.30~~ 4546.55
INV IN (N) = ~~4535.63~~ 4535.60
INV OUT (E) = ~~4535.53~~ 4535.46
INV IN (W) = ~~4535.63~~ 4535.50

390-400 LF 8" PVC SANITARY SEWER
MAIN INS SLOPE = ~~-0.78%~~ -0.80%

0+00 1+00 2+00 3+00 4+00 5+00

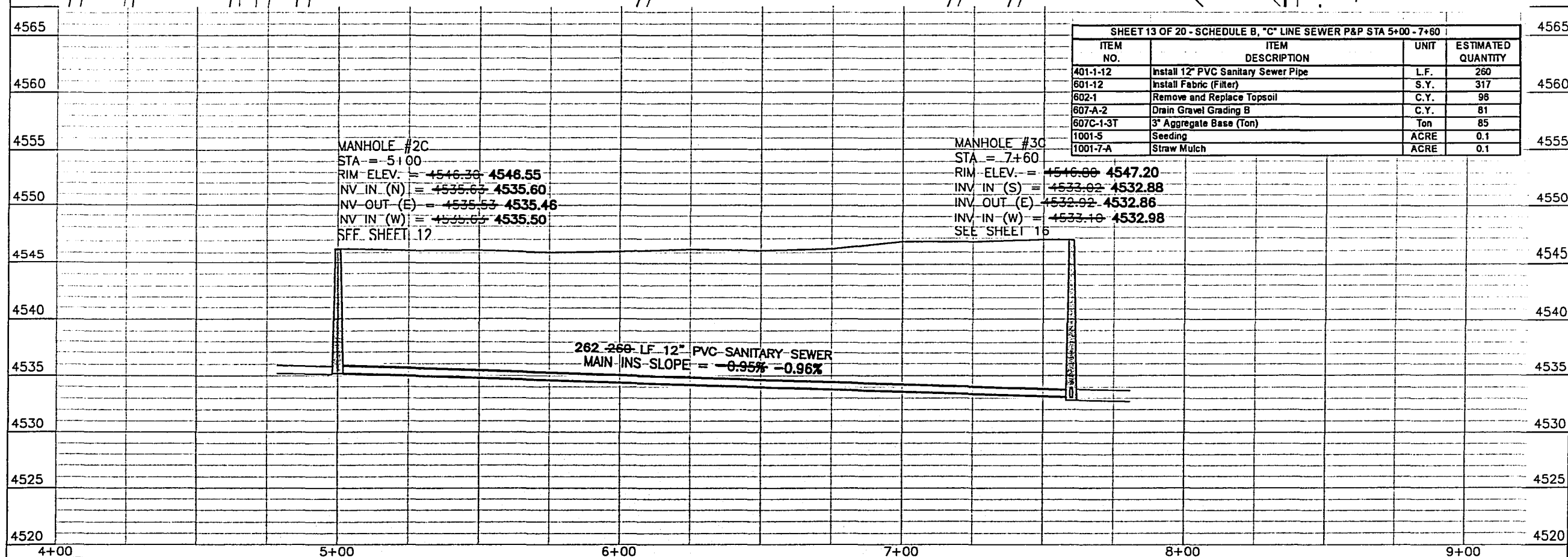
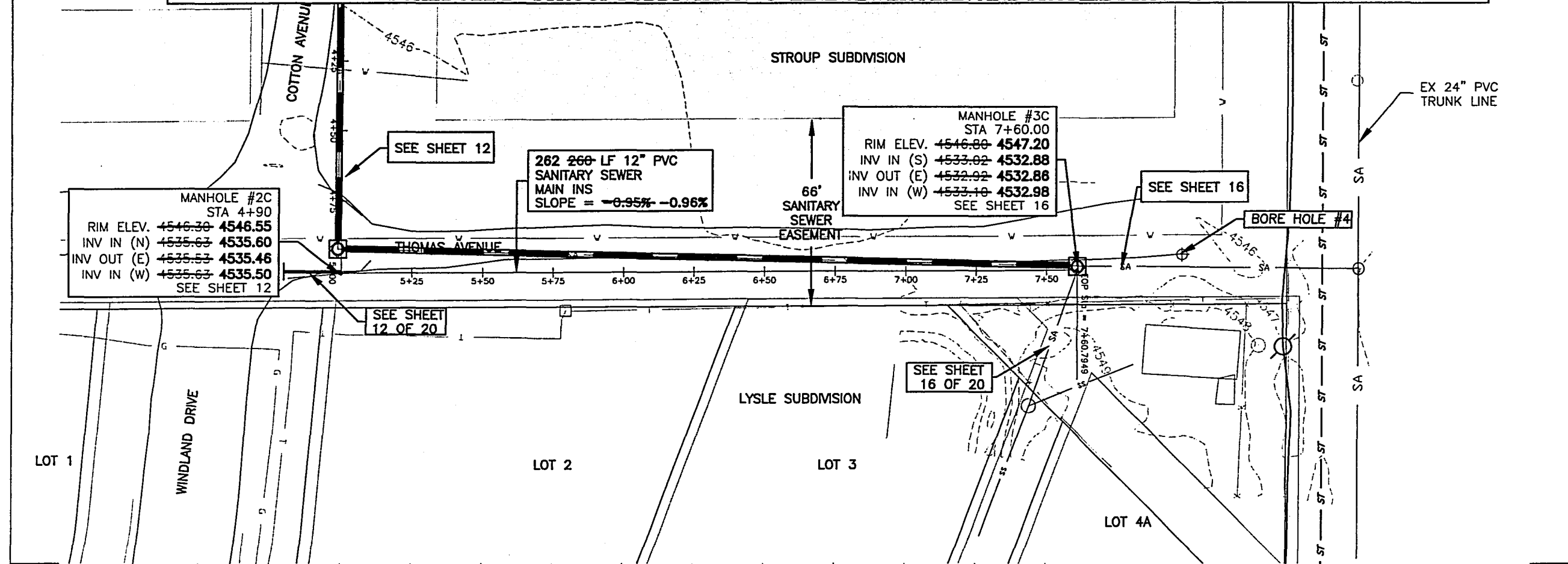
Drawn by: CS	Date: 2/04
Design by: CS	Date: 2/04
Reviewed by: RPS	Date: 10/04
Revised: CS 10/2004	
P.C.A. Project Number: 032893.00	
G:\projects\03289300\abdwsa\main\ Rcp01004.dwg	
X-Ref: ... rcrpr1004.dwg Main.DWG xCR PR Trunk.dwg	
Plot Date: Sep 22, 2005 - 2:53pm	

**DRAWINGS OF
CONSTRUCTION RECORD
PLAN AND PROFILE
STA 1+00-STA 5+00**

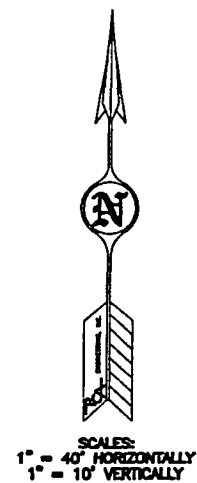
SHEET 12 OF 20

SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

SCHEDULE B - STROUP SUBDIVISION "C" LINE SEWER PLAN AND PROFILE STA 5+00 - 7+60



SHEET 13 OF 20 - SCHEDULE B, "C" LINE SEWER P&P STA 5+00 - 7+60			
ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
401-1-12	Install 12" PVC Sanitary Sewer Pipe	L.F.	260
601-12	Install Fabric (Filter)	S.Y.	317
602-1	Remove and Replace Topsoil	C.Y.	98
607-A-2	Drain Gravel Grading B	C.Y.	81
607C-1-3T	3" Aggregate Base (Ton)	Ton	85
1001-5	Seeding	ACRE	0.1
1001-7-A	Straw Mulch	ACRE	0.1



NOTE: UTILITY LOCATIONS AND DESCRIPTIONS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS SHOULD BE FIELD VERIFIED BEFORE EXCAVATING.

BENCHMARK

BASED ON CITY OF GILLETTE VERTICAL CONTROL MONUMENT #20 ELEVATION = 4550.597

Prepared for:
SDHW&SD
P.O. BOX 2245
GILLETTE, WYOMING 82717-2245
(307) 687-0510

P.C.A. ENGINEERING, INC.
4506 Wigwam Blvd.
P.O. Box 2185
Gillette, Wyoming 82718
307-687-0600

Drawn by: CS Date: 2/04
Design by: CS Date: 2/04
Reviewed by: RPS Date: 10/04
Revised: CS 10/2004
P.C.A. Project Number: 032893.00
G:\projects\03289300\abdwgs\main\RCp01005.dwg
X-Ref: ... reproj005.dwg
Main.DWG
xGER PR Trunk.dwg
Plot Date: Sep 22, 2005 - 2:54pm

**SOUTH DOUGLAS
HIGHWAY REGIONAL
SEWER SYSTEM
PHASE 1A**

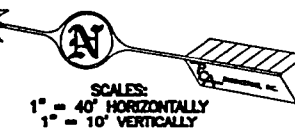
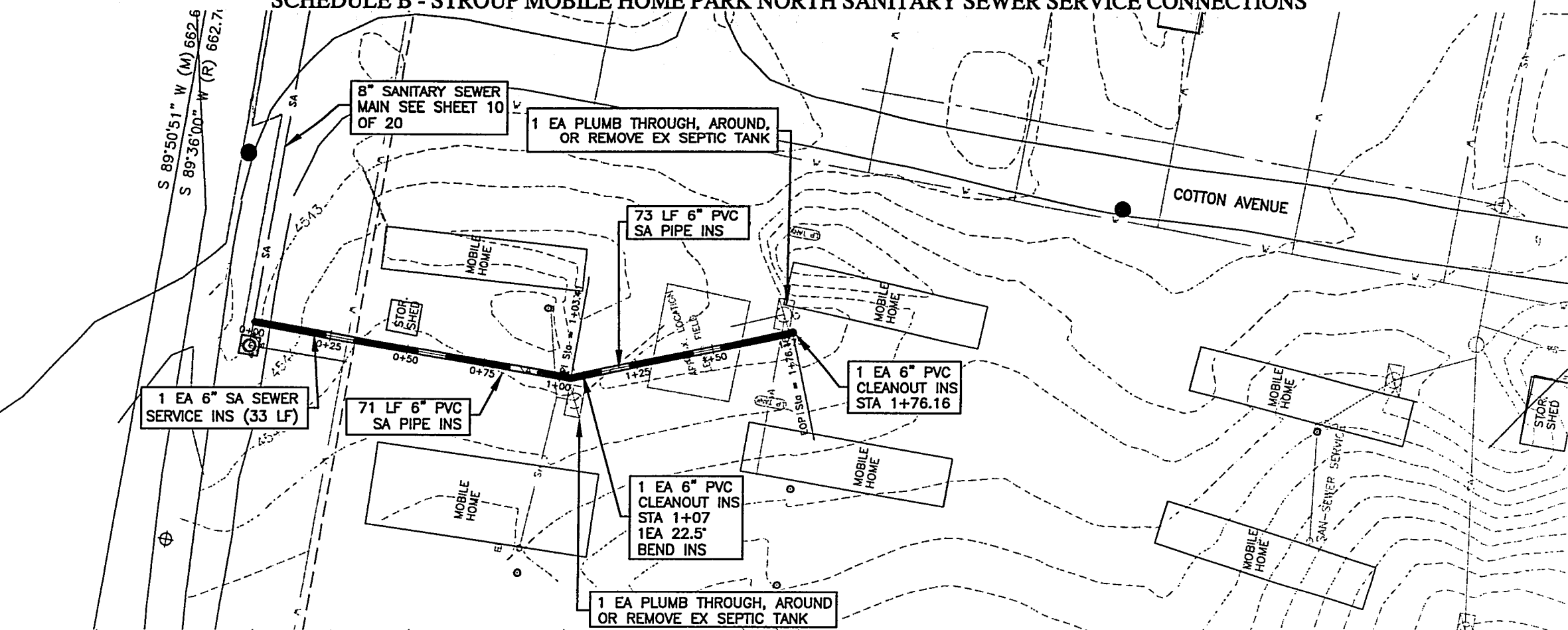
**SCHEDULE B
STROUP
SUBDIVISION "C" LINE**

**DRAWINGS OF
CONSTRUCTION RECORD
PLAN AND PROFILE
STA 5+00-STA 7+60**

SHEET 13 OF 20

SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

SCHEDULE B - STROUP MOBILE HOME PARK NORTH SANITARY SEWER SERVICE CONNECTIONS

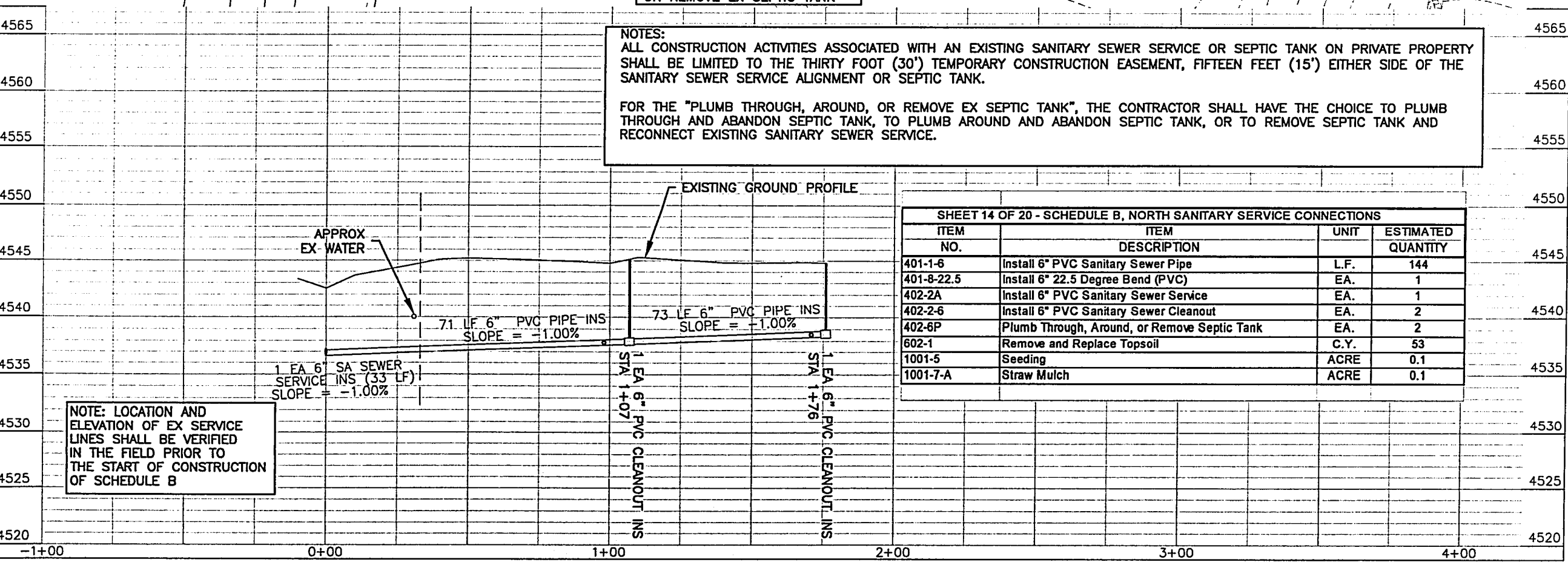


NOTE: UTILITY LOCATIONS AND DESCRIPTIONS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS SHOULD BE FIELD VERIFIED BEFORE EXCAVATING.

BENCHMARK
BASED ON CITY OF GILLETTE VERTICAL CONTROL MONUMENT #10
ELEVATION = 4501.384

NOTES:
ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH AN EXISTING SANITARY SEWER SERVICE OR SEPTIC TANK ON PRIVATE PROPERTY SHALL BE LIMITED TO THE THIRTY FOOT (30') TEMPORARY CONSTRUCTION EASEMENT, FIFTEEN FEET (15') EITHER SIDE OF THE SANITARY SEWER SERVICE ALIGNMENT OR SEPTIC TANK.

FOR THE "PLUMB THROUGH, AROUND, OR REMOVE EX SEPTIC TANK", THE CONTRACTOR SHALL HAVE THE CHOICE TO PLUMB THROUGH AND ABANDON SEPTIC TANK, TO PLUMB AROUND AND ABANDON SEPTIC TANK, OR TO REMOVE SEPTIC TANK AND RECONNECT EXISTING SANITARY SEWER SERVICE.



NOTE: LOCATION AND ELEVATION OF EX SERVICE LINES SHALL BE VERIFIED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OF SCHEDULE B

SHEET 14 OF 20 - SCHEDULE B, NORTH SANITARY SERVICE CONNECTIONS			
ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
401-1-6	Install 6" PVC Sanitary Sewer Pipe	L.F.	144
401-8-22.5	Install 6" 22.5 Degree Bend (PVC)	EA.	1
402-2A	Install 6" PVC Sanitary Sewer Service	EA.	1
402-2-6	Install 6" PVC Sanitary Sewer Cleanout	EA.	2
402-6P	Plumb Through, Around, or Remove Septic Tank	EA.	2
602-1	Remove and Replace Topsoil	C.Y.	53
1001-5	Seeding	ACRE	0.1
1001-7-A	Straw Mulch	ACRE	0.1

Prepared for:
SDHW&SD
P.O. BOX 2245
GILLETTE, WYOMING 82717-2245
(307) 687-0510

PCA ENGINEERING, INC.
4506 Wigwam Blvd.
P.O. Box 2185
Gillette, Wyoming 82718
307-687-0600

Drawn by: CS Date: 2/04
Design by: CS Date: 2/04
Reviewed by: RPS Date: 10/04
Revised: CS 10/2004
P.C.A. Project Number: 032893.00
c:\projects\03289300\ebdwgs\main\RCp01006.dwg
x-Ref: ... rpt006.dwg
 Main.DWG
 xCR PR Trunk.dwg
Plot Date: Sep 22, 2005 - 2:55pm

**SOUTH DOUGLAS
HIGHWAY REGIONAL
SEWER SYSTEM
PHASE 1A**

**SCHEDULE B
STROUP
SUBDIVISION SERVICES**

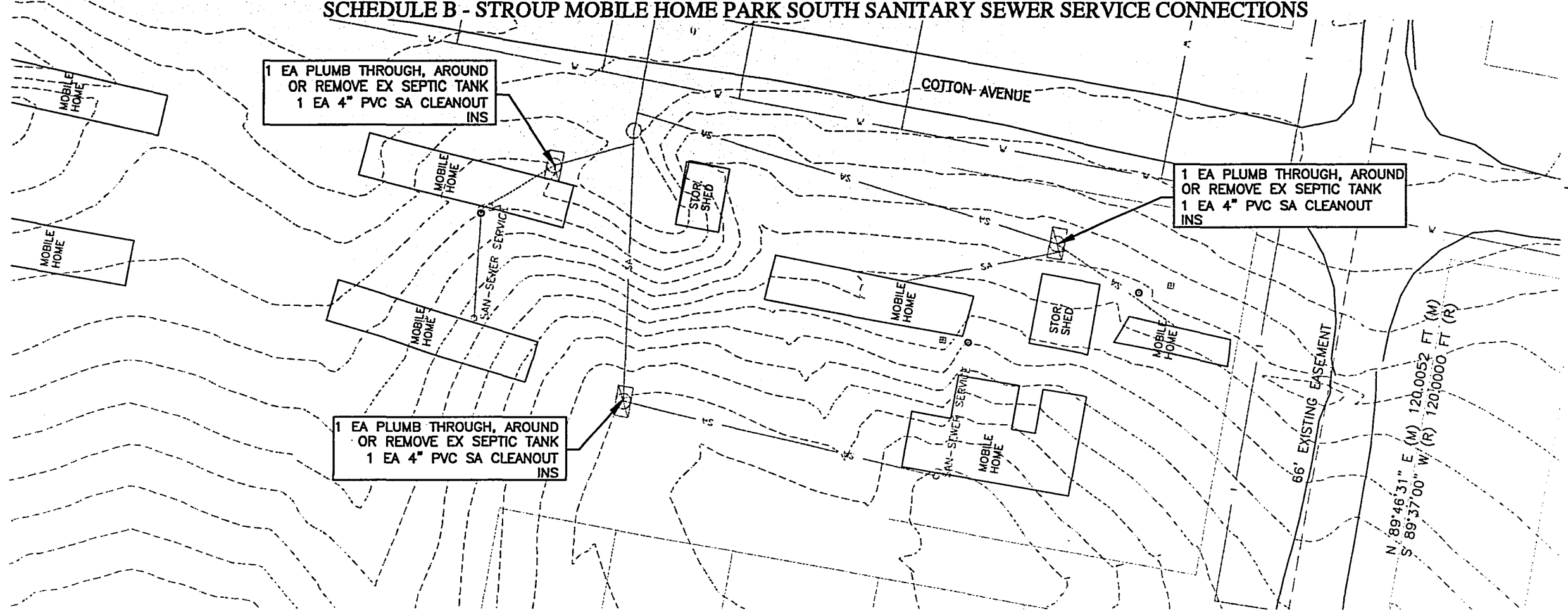
**DRAWINGS OF
CONSTRUCTION RECORD**

**NORTH SANITARY
SEWER SERVICES**

SHEET 14 OF 20

SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

SCHEDULE B - STROUP MOBILE HOME PARK SOUTH SANITARY SEWER SERVICE CONNECTIONS



SCALES:
1" = 40' HORIZONTALLY
1" = 10' VERTICALLY

NOTE:
UTILITY LOCATIONS AND DESCRIPTIONS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS SHOULD BE FIELD VERIFIED BEFORE EXCAVATING.

BENCHMARK
BASED ON CITY OF GILLETTE VERTICAL CONTROL MONUMENT #10
ELEVATION= 4501.384

Prepared for:
SDHW&SD
P.O. BOX 2245
GILLETTE, WYOMING 82717-2245
(307) 687-0510

PCA ENGINEERING, INC.
4506 Wagon Blvd.
P.O. Box 2185
Gillette, Wyoming 82718
307-687-0600

Drawn by: CS Date: 2/04
Design by: CS Date: 2/04
Reviewed by: RPS Date: 10/04
Revised: CS 10/2004
P.C.A. Project Number: 032893.00
G:\projects\03289300\abdws\main\RCp01006.dwg
X-Ref: ... rcp0006.dwg
 Main.DWG
 xCER PR Trunk.dwg
Plot Date: Sep 22, 2005 - 3:10pm

**SOUTH DOUGLAS
HIGHWAY REGIONAL
SEWER SYSTEM
PHASE 1A**

**SCHEDULE B
STROUP
SUBDIVISION SERVICES**

**DRAWINGS OF
CONSTRUCTION RECORD**

**SOUTH SANITARY
SEWER SERVICES**

SHEET 15 OF 20 - SCHEDULE B, SOUTH SANITARY SEWER SERVICE CONNECTIONS			
ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
402-2-4	Install 4" PVC Sanitary Sewer Cleanout	EA.	3
402-6P	Plumb Through, Around, or Remove Septic Tank	EA.	3
602-1	Remove and Replace Topsoil	C.Y.	22
1001-5	Seeding	ACRE	0.10
1001-7-A	Straw Mulch	ACRE	0.10

NOTE: LOCATION AND ELEVATION OF EX SERVICE LINES SHALL BE VERIFIED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OF SCHEDULE B

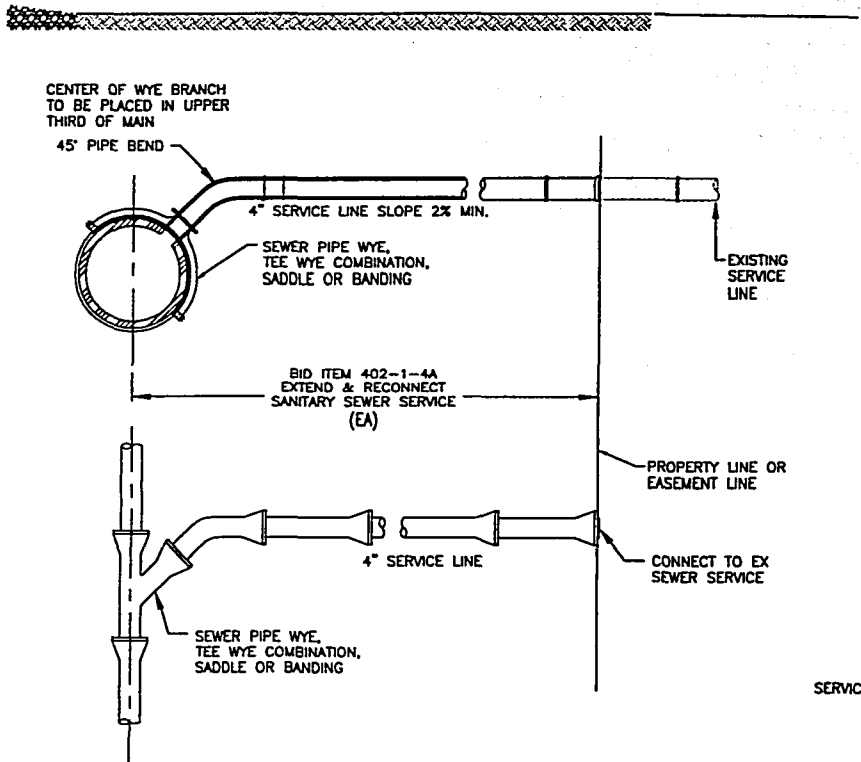
NOTES:
ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH AN EXISTING SANITARY SEWER SERVICE OR SEPTIC TANK ON PRIVATE PROPERTY SHALL BE LIMITED TO THE THIRTY FOOT (30') TEMPORARY CONSTRUCTION EASEMENT, FIFTEEN FEET (15') EITHER SIDE OF THE SANITARY SEWER SERVICE ALIGNMENT OR SEPTIC TANK.
FOR THE "PLUMB THROUGH, AROUND, OR REMOVE EX SEPTIC TANK", THE CONTRACTOR SHALL HAVE THE CHOICE TO PLUMB THROUGH AND ABANDON SEPTIC TANK, TO PLUMB AROUND AND ABANDON SEPTIC TANK, OR TO REMOVE SEPTIC TANK AND RECONNECT EXISTING SANITARY SEWER SERVICE.

SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

CONSTRUCTION DETAILS

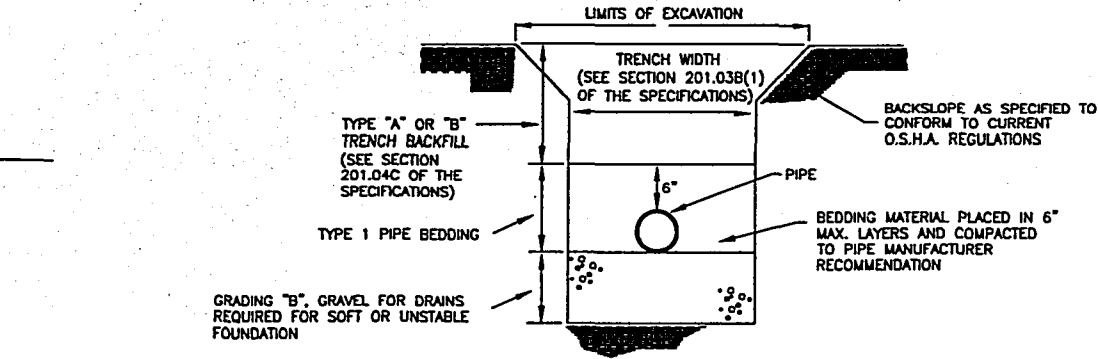
NOTES:

ALL SERVICE CONNECTIONS TO SEWAGE COLLECTION LINES SHALL BE MADE WITH A WYE FOR NEW CONSTRUCTION AND A TAPPING SADDLE OR WYE FOR CONNECTION TO EXISTING COLLECTION LINES.



TYPICAL 4" SANITARY SEWER SERVICE LINE

N.T.S.

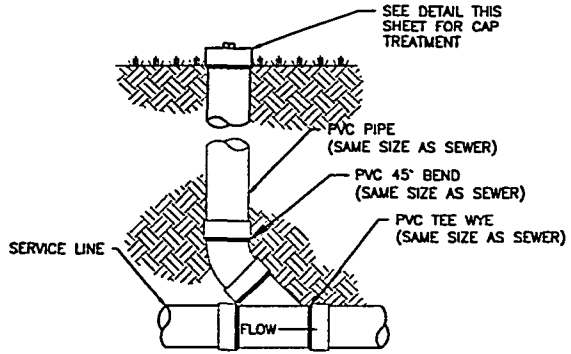


NOTES:

1. TYPE "A" TRENCH BACKFILL SHALL BE USED UNDER ALL PAVEMENT, DRIVEWAYS, AND CURB & GUTTER AND SHALL EXTEND A MINIMUM OF 36" PAST THESE ITEMS.
2. TYPE "B" TRENCH BACKFILL SHALL BE USED IN ALL OTHER AREAS.
3. COMPLY WITH SPECIFICATION SECTION 201 FOR ALL OTHER ITEMS NOT COVERED HERE.

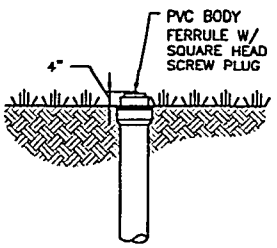
TRENCH & BEDDING DETAIL

N.T.S.



SANITARY SEWER CLEANOUT

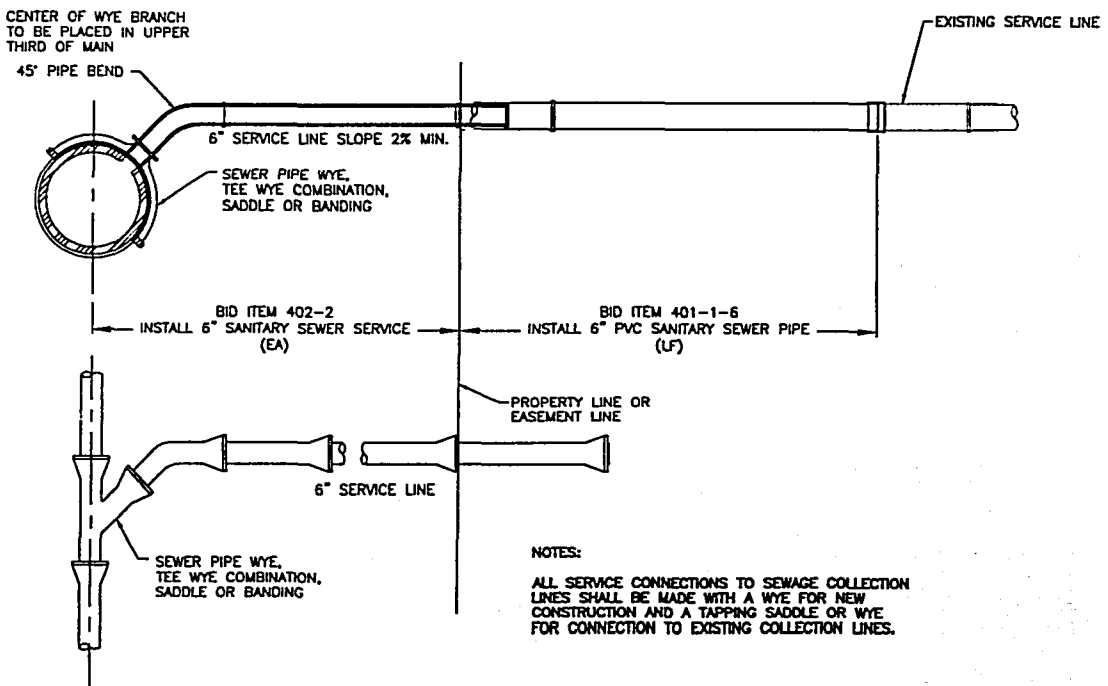
N.T.S.



IN GRASS

SANITARY SEWER CLEANOUT CAP TREATMENT

N.T.S.



TYPICAL 6" SANITARY SEWER SERVICE LINE

N.T.S.

NOTES:

ALL SERVICE CONNECTIONS TO SEWAGE COLLECTION LINES SHALL BE MADE WITH A WYE FOR NEW CONSTRUCTION AND A TAPPING SADDLE OR WYE FOR CONNECTION TO EXISTING COLLECTION LINES.

BACKSLOPE AS SPECIFIED TO CONFORM TO CURRENT O.S.H.A. REGULATIONS

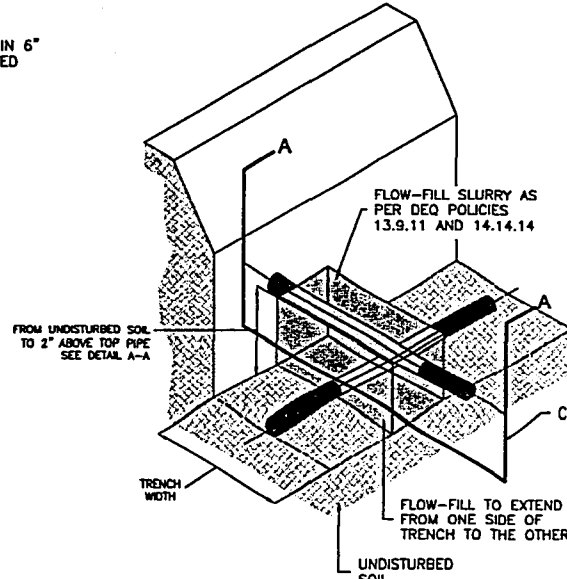
NOTES:

PIPES SHALL BE LAID SO THERE ARE NO JOINTS OR TAPS WITHIN 9 FEET OF THE CROSSING.

FLOW-FILL SHALL EXTEND FROM UNDISTURBED SOIL AT THE BOTTOM OF LOWER PIPE TO AT LEAST 2 INCHES ABOVE THE TOP OF UPPER PIPE AND EXTEND FROM ONE SIDE OF TRENCH TO THE OTHER.

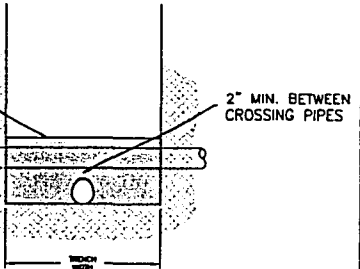
PIPE SEPARATION SHALL BE 2 INCHES MINIMUM.

THE BLOCK OF FLOW-FILL MUST BE WIDE ENOUGH TO ENSURE THE STRUCTURAL INTEGRITY OF THE INSTALLATION. THE MIX DESIGN OF THE BLOCK SHALL MEET A 28 DAY COMPRESSIVE STRENGTH OF BETWEEN 30-60 PSI.

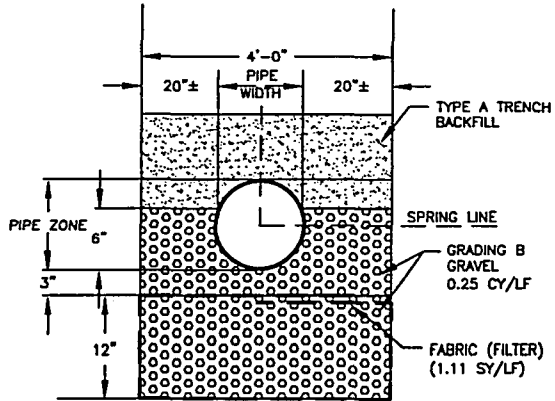


SLURRY SADDLE DETAIL

N.T.S.



DETAIL A-A

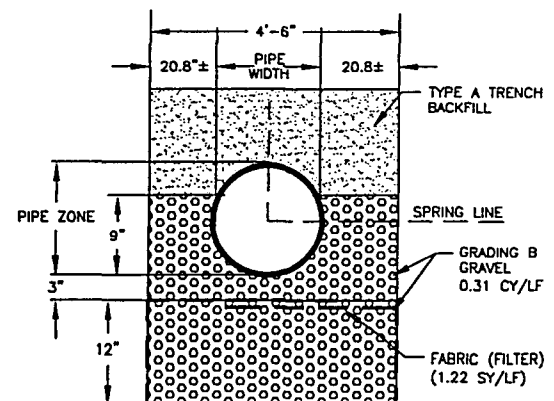


8" PVC PIPE BEDDING WITH DRAIN

N.T.S.

NOTE:

1. GRADING B, GRAVEL FOR DRAINS SHALL BE PLACED ON BOTH SIDES OF THE PIPE SIMULTANEOUSLY TO AVOID DISTURBING THE ALIGNMENT OF THE PIPE.
2. THE REMOVAL OF TRENCH BOXES SHALL BE DONE IN SUCH A MANNER SO AS TO NOT DISTURB THE GRAVEL DRAIN, FABRIC, AND PIPE BEDDING.
3. THE "GRADING B, GRAVEL FOR DRAINS" SHALL BE WRAPPED IN FABRIC (FILTER). THE AMOUNT SHOWN ON THE DRAWINGS SHALL BE PAID FOR EACH LINEAL FOOT OF PIPE INSTALLED. ALL FABRIC REQUIRED FOR OVERLAPS AT END OF ROLLS AND ON TOP OF THE PIPE SHALL BE CONSIDERED INCIDENTAL.
4. THE GRADING B GRAVEL FOR DRAINS AND FABRIC (FILTER) SHALL BE INSTALLED CONTINUOUSLY UNDER AND/OR AROUND THE MANHOLES.



12" PVC PIPE BEDDING WITH DRAIN

N.T.S.

Prepared for:
SDHW&SD
P.O. BOX 2245
GILLETTE, WYOMING 82717-2245
(307) 687-0510

4506 Wigwam Blvd.
P.O. Box 2185
Gillette, Wyoming 82718
307-687-0600

PCA ENGINEERING, INC.

COPYRIGHT © ALL RIGHTS RESERVED BY PCA ENGINEERING, INC.

Drawn by: CS	Date: 2/04
Design by: CS	Date: 2/04
Reviewed by: RPS	Date: 2/04; 10/04
Revised: CS 10/2004; 11/18/04 CS (ADD 1)	
P.C.A. Project Number: 032900.00	
C:\Projects\03290000\ABDwg\Details\Details.dwg	
X-Ref: ...	city_temp.dwg xcer PR Trunk.dwg Main.DWG
Plot Date: Sep 22, 2005 - 1:49pm	

**SOUTH DOUGLAS
HIGHWAY REGIONAL
SEWER SYSTEM
PHASE 1A**

**SCHEDULE A
SCHEDULE B
SCHEDULE C**

**DRAWINGS OF
CONSTRUCTION RECORD**

DETAILS

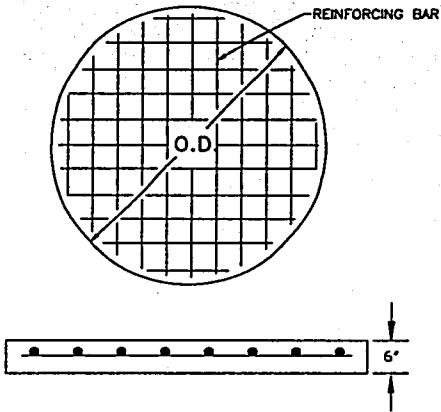
SHEET 17 OF 20

SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

CONSTRUCTION DETAILS

SIZE	O.D.	REINFORCING	TOTAL WT.
48"	64"	#4@8" EACH WAY	1675+
54"	71"	#4@8" EACH WAY	2065+
60"	78"	#4@8" EACH WAY	2409+
72"	92"	#4@6" EACH WAY	3465+

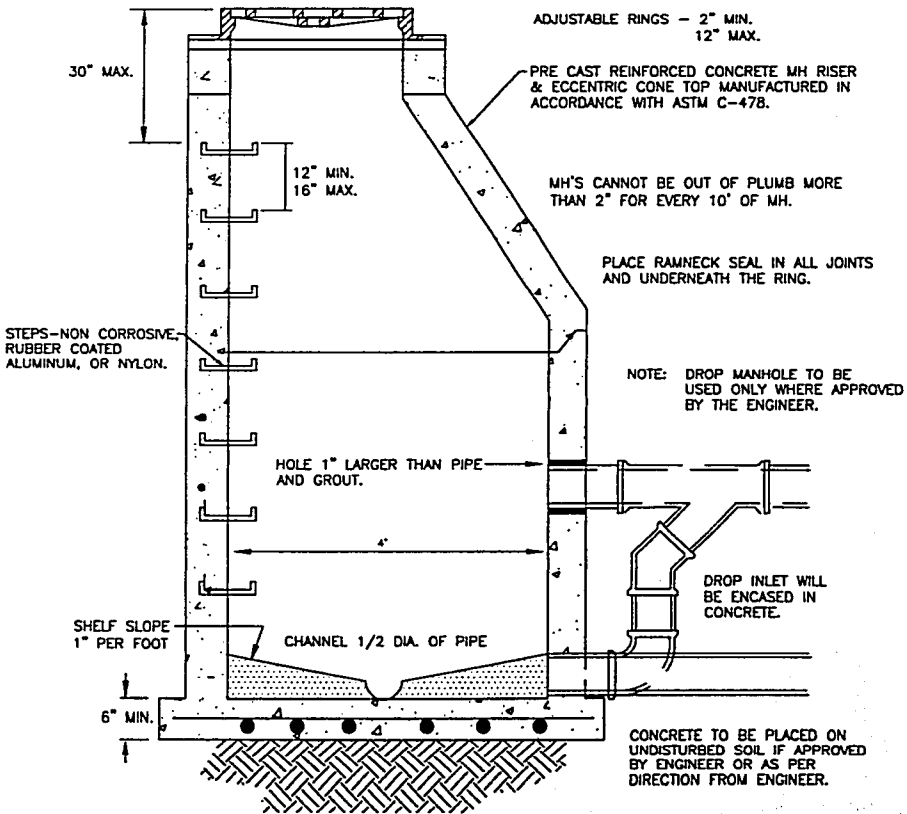
NOTES: 1. BASES MAY BE CAST IN PLACE OR PRECAST.



MANHOLE BASE DETAIL

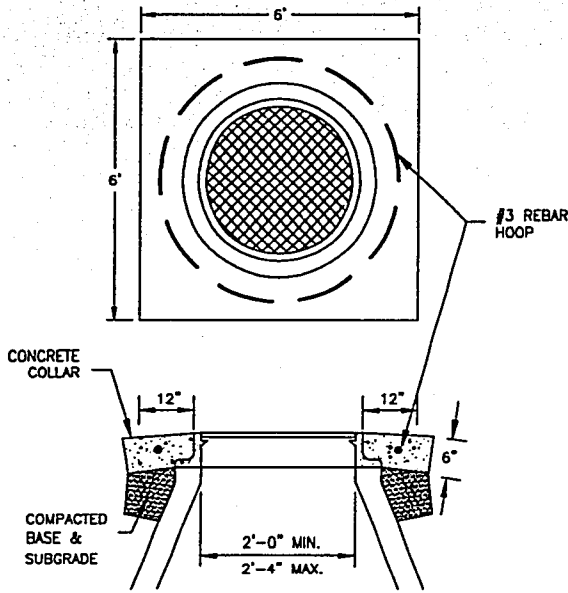
N.T.S.

ALL MH RINGS AND COVERS WILL BE NON-VENTING SELF SEALING NEENAH R-1849, DEETER 1258, OR APPROVED EQUAL.
ALL MH RINGS AND COVERS WILL BE NON-VENTING SELF SEALING NEENAH 1766, DEETER 1157, D&L 1071, OR APPROVED EQUAL.



SANITARY SEWER MANHOLE

N.T.S.

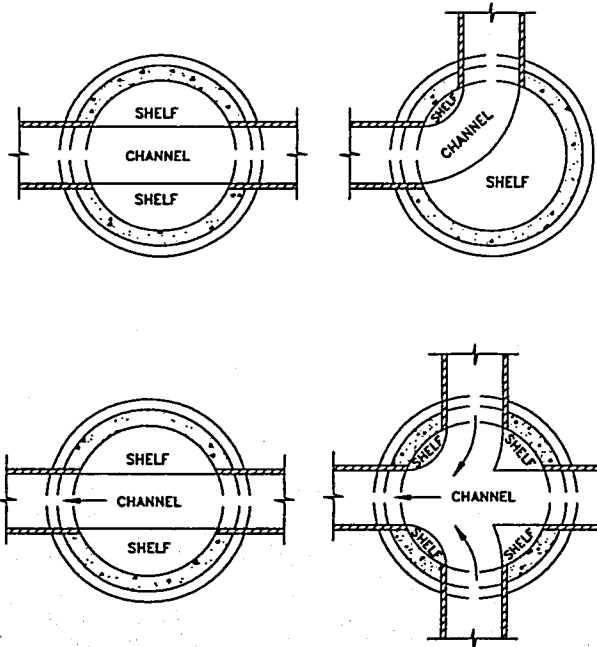


NOTE:

SLOPE CONCRETE COLLAR FROM MANHOLE. MINIMUM SLOPE AT 2% AND MAXIMUM SLOPE AT 4%.

CONCRETE COLLAR FOR MANHOLE IN DRIVING SURFACE

N.T.S.

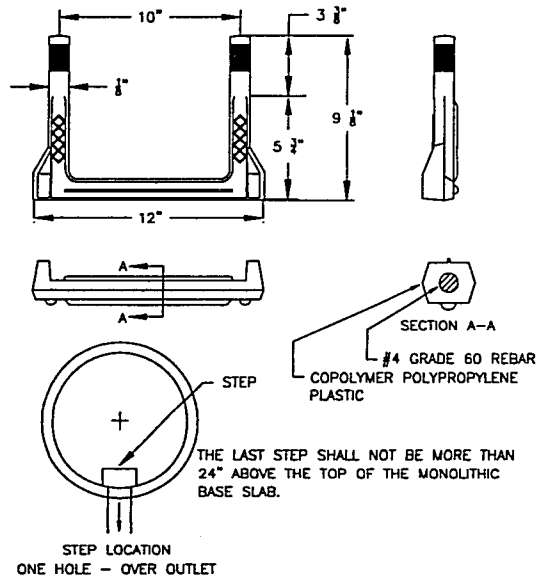


NOTES:

1. Slope all shelves to channel at 1" per foot.
2. See plan and profile sheets for slope of channel.

MANHOLE CHANNEL DETAIL

N.T.S.



NOTE:

1. MANHOLE STEP PSI-PF, AS MANUFACTURED BY M.A. INDUSTRIES, INC. PEACHTREE CITY GEORGIA, 404-487-7761.
2. COPOLYMER POLYPROPYLENE COATING MEETS ASTM D-4101-LATEST REVISION.
3. STEPS MEET ASTM C478 REQUIREMENTS AND ARE ON A 12" MIN./16" MAX. VERTICAL SPACING.
4. STEP LEGS ARE DRIVEN INTO 1" DIAMETER HOLES IN THE MANHOLE WALL.
5. DAMAGED STEPS CAN BE EXTRACTED AND REPLACED AT A LATER DATE.
6. STEPS ARE NONSPARKING, NONCONDUCTING AND NONABRASIVE.
7. OSHA INSTRUCTION STD 1-1.9, ISSUED DECEMBER 29, 1978, REVISED THE AGENCY'S ORIGINAL DIRECTIVE FOR FIXED LADDERS, 29 CFR 1910.27, TO SPECIFICALLY EXCLUDE MANHOLE STEPS. M.A. INDUSTRIES WILL FURNISH, ON REQUEST, THE ABOVE OSHA INFORMATION PLUS ANY MORE RECENT UPDATE.

STANDARD STEPS FOR MANHOLES

N.T.S.

Prepared for:
SDHW&SD
P.O. BOX 2245
GILLETTE, WYOMING 82717-2245
(307) 687-0510

4506 Wigwam Blvd.
P.O. Box 2185
Gillette, Wyoming 82718
307-687-0600

PCA ENGINEERING, INC.

COPYRIGHT © ALL RIGHTS RESERVED BY PCA ENGINEERING, INC.

Drawn by: CS	Date: 2/04
Design by: CS	Date: 2/04
Reviewed by: RPS	Date: 2/04; 10/04
Revised: CS 10/2004; 11/18/04 CS (ADD 1)	
P.C.A. Project Number: 032900.00	
G:\Projects\03290000\ABD\wgs\Details\Details.dwg	
X-Ref: ...	city_temp.dwg xcer PR Trunk.dwg Main.DWG
Plot Date: Sep 22, 2005 - 1:48pm	

**SOUTH DOUGLAS
HIGHWAY REGIONAL
SEWER SYSTEM
PHASE 1A**

**SCHEDULE A
SCHEDULE B
SCHEDULE C**

**DRAWINGS OF
CONSTRUCTION RECORD**

DETAILS

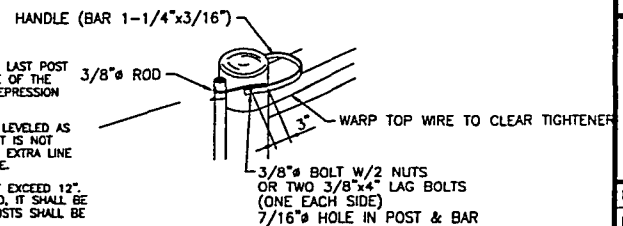
SHEET 18 OF 20

SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

CONSTRUCTION DETAILS

GENERAL WIRE FENCING NOTES

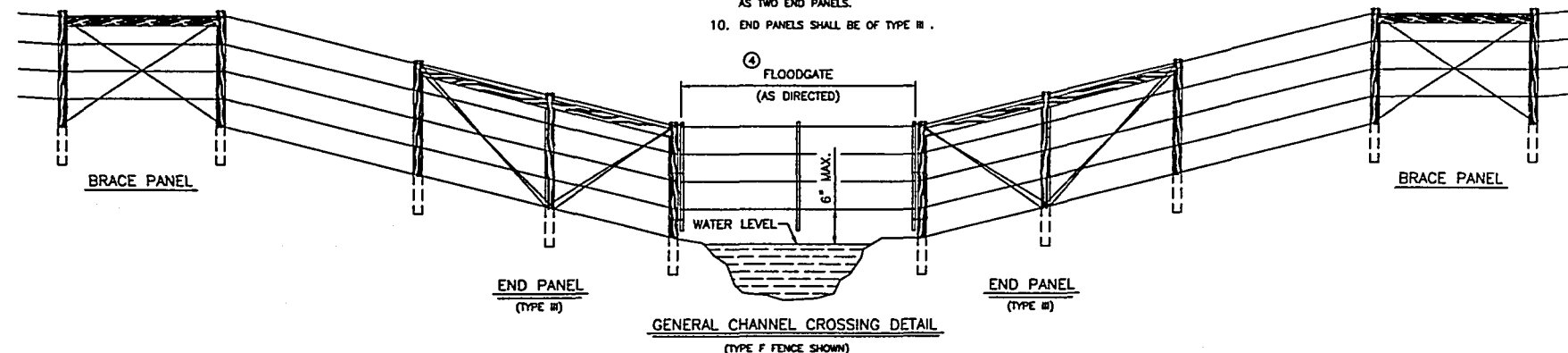
- ① END OR CORNER POSTS
1. END AND CORNER POSTS SHALL BE WOOD AND SHALL BE GREATER THAN 7" AND LESS THAN 10" IN DIAMETER, AND SHALL BE 7'-0" LONG (MIN.)
- ② BRACE POSTS
1. BRACE POSTS SHALL BE WOOD AND SHALL BE GREATER THAN 6" AND LESS THAN 8" IN DIAMETER, AND SHALL BE 6'-6" LONG (MIN.)
- ③ CROSS BRACES
1. CROSS BRACES SHALL BE WOOD AND SHALL BE 4" DIAMETER (MIN.)
2. CROSS BRACES FOR BRACE PANELS AND TYPE 1 END PANELS SHALL BE 6'-6" LONG (MIN.)
3. ALL CROSS BRACES SHALL BE NAILED TO THE POSTS WITH (3) 40d SPIKES AT EACH END (MIN.)
- ④ LINE POSTS
1. METAL LINE POSTS SHALL BE PLACED AS SHOWN ON PLANS, WITH A MAX. SPACING OF 16'-0". WOODEN LINE POSTS SHALL BE PLACED AT EVERY 5TH POST AND IN AREAS AS DIRECTED BY THE ENGINEER.
- ⑤ DEADMAN (NOT APPLICABLE)
- ⑥ DEADMAN WIRE TIES (NOT APPLICABLE)
- ⑦ BRACE WIRE
1. BRACE WIRES SHALL BE FORMED BY DOUBLE WRAPPING AND TWISTING (2) STRANDS OF 9-GAGE GALVANIZED SMOOTH WIRE OR (4) STRANDS OF 12 1/2 GAGE GALVANIZED SMOOTH WIRE. THE WIRE SHALL BE FASTENED WITH STAPLES ON THREE SIDES OF EACH BRACE POST.
- ⑧ GATE STICK
1. GATE STICKS SHALL HAVE MINIMUM CROSS SECTIONS OF EITHER A ROUGH 2"x2", 1 1/2"x3 1/2" (NOMINAL 2"x4), OR 2" DIAMETER. THE LENGTH SHALL BE SUFFICIENT TO ACCOMMODATE THE WIRE SPACING AND HEIGHT.
- ⑨ GATE HINGE
1. HINGES SHALL BE MADE OF DOUBLE LOOP 9-GAGE GALVANIZED SMOOTH TWISTED WIRE AND SHALL BE STAPLED TO THE GATE STICK AND TO THE END POST (3 REQUIRED EACH GATE).
- ⑩ GATE SUPPORT
1. GATE SUPPORTS SHALL BE MADE OF A DOUBLE LOOP OF 9-GAGE GALVANIZED WIRE. THE SUPPORT SHALL BE SECURELY ATTACHED TO THE END POST AND SHALL HAVE A LOOP ADEQUATE FOR A GATE STICK.
- ⑪ GATE TIGHTENER
1. THE GATE TIGHTENER AS DETAILED SHALL BE USED UNLESS SPECIFIED OTHERWISE. ALTERNATE TIGHTENERS MAY BE USED WITH ENGINEER APPROVAL.
- ⑫ CHAIN AND PADLOCK (NOT APPLICABLE)
- ⑬ STAYS
1. WIRE STAYS SHALL BE USED ON ALL BARBED WIRE FENCING UNLESS WOOD STAYS ARE SPECIFIED.
2. WIRE STAYS SHALL BE PROVIDED WITH WOVEN WIRE FENCING ONLY WHEN SPECIFIED.
3. WIRE STAYS SHALL BE 2" LONGER THAN THE DISTANCE BETWEEN THE TOP AND BOTTOM WIRES.
4. FOR WOVEN WIRE FENCING WITH BARBED WIRE ON TOP, WIRE STAYS SHALL EXTEND 6" (MIN.) BELOW THE TOP OF THE WOVEN WIRE.
5. IN SNOW PROBLEM AREAS, ONE OR TWO WOOD STAYS SHALL BE USED WHEN SPECIFIED. THEY SHALL BE EQUALLY SPACED BETWEEN LINE POSTS. IN SEVERE SNOW PROBLEM AREAS, AN INTERMEDIATE POST, EITHER STEEL OR WOOD, OR A WOODEN TOP RAIL MAY BE SPECIFIED. THE INTERMEDIATE POSTS SHALL BE EQUALLY SPACED BETWEEN LINE POSTS.
6. WHEN WOOD STAYS ARE SPECIFIED, THEY SHALL BE EITHER 2" ROUND, A ROUGH DIMENSION 2"x2" OR A NOMINAL 2"x4". THE STAYS SHALL BE OF SUFFICIENT LENGTH TO BE PLACED ON THE GROUND WITH THE TOP OF THE STAY EXTENDING 2" (MIN.) ABOVE THE TOP WIRE. EACH WIRE SHALL BE ATTACHED TO THE WOOD STAYS USING 1"x 9-GAGE BARBED STAPLES. WOOD STAYS NEED NOT BE TREATED.
- ⑭ WIRE TYPE AND SPACING
1. WIRE SHALL BE OF THE TYPE SPECIFIED ON THE PLANS AND SHALL HAVE THE SPACING AS SHOWN.
- ⑮ GATES
1. THE NUMBER OF BARBED WIRES AND SPACING ON GATES SHALL BE THE SAME AS THE FENCE.
2. WIRE GATES SHALL BE BUILT TO THE WIDTH SPECIFIED ON THE PLAN SHEETS.



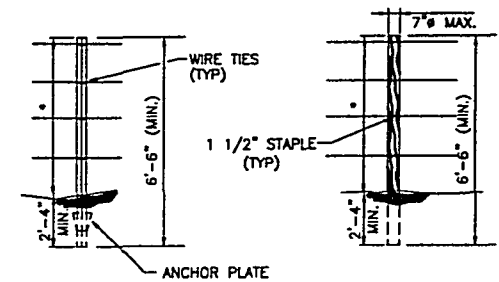
① TYPICAL GATE TIGHTENER

GENERAL NOTES

1. WHEN A FENCE APPROACHES A DITCH, GULLY, OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP-OFF THAT THE FENCE MAY BE STRUNG TO A POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.
2. IN CASE OF ROUGH AND BROKEN TERRAIN, THE GROUND SHALL BE LEVELED AS MUCH AS PRACTICAL TO AVOID HARD-TO-FENCE AREAS. WHEN THAT IS NOT POSSIBLE, HARD-TO-FENCE AREAS MAY BE FENCED BY PLACING AN EXTRA LINE POST IN THAT AREA AND STRINGING FENCE TO THE MAIN FENCE LINE.
3. THE DISTANCE FROM THE GROUND TO THE BOTTOM WIRE SHALL NOT EXCEED 12". IF A STRAND OF WIRE SHOULD COME IN CONTACT WITH THE GROUND, IT SHALL BE TIED TO THE NEXT HIGHER WIRE, OR THE WIRE SPACING ON THE POSTS SHALL BE CHANGED TO ELIMINATE THE SITUATION.
4. EVERY 5TH LINE POST SHALL BE WOODEN. ALL OTHERS, UNLESS NOTED OTHERWISE, SHALL BE STEEL.
5. FLOODGATE SHALL BE FASTENED IN SUCH A MANNER THAT FLOOD DEBRIS WILL RIP OUT THE FLOODGATE RATHER THAN THE MAIN FENCE.
6. FOR TANGENT SECTIONS OF FENCE, THE WIRE SHALL BE PLACED ON THE LANDOWNER SIDE OF THE FENCE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
7. UNLESS SPECIFIED OTHERWISE, THE FENCE SHALL BE PLACED ON THE RIGHT-OF-WAY LINE.
8. BRACE PANELS IN TANGENT SECTIONS SHALL BE PLACED AT A MAXIMUM SPACING OF 1320 FEET UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
9. AN END PANEL (CORNER INSTALLATION) SHALL CONSIST OF AND BE PAID FOR AS TWO END PANELS.
10. END PANELS SHALL BE OF TYPE III.



GENERAL CHANNEL CROSSING DETAIL
(TYPE F FENCE SHOWN)



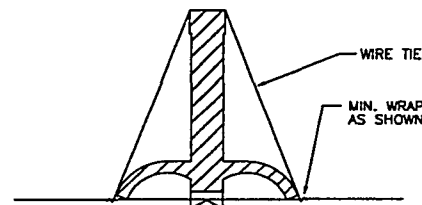
① METAL LINE POST (T POST)
② WOODEN LINE POST
• WIRE HEIGHT PLUS 2"

METAL LINE POST NOTES

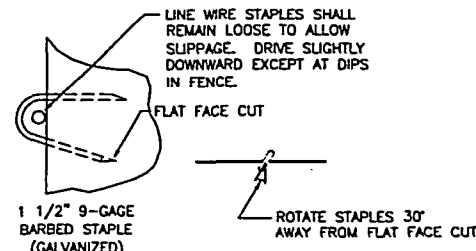
1. LINE POSTS SHALL BE A STANDARD METAL "T", 6'-6" (MIN.) LONG AND SHALL WEIGH 1.33 LBS./FT. (MIN.)
2. ANCHOR PLATES SHALL BE SECURELY FASTENED TO THE POST AND SHALL HAVE A WEIGHT OF 0.67 LBS. (APPROX.)
3. POSTS SHALL HAVE NOTCHES, STUDS, OR HOLES SO PLACED AS TO HOLD THE LINE WIRES IN PROPER POSITION. HOLES OR NOTCHES SHOULD BE LOCATED SO THEY WILL NOT IMPAIR POST STRENGTH.

WOODEN LINE POST NOTES

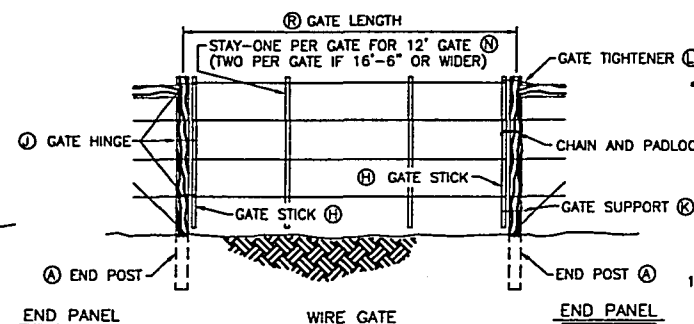
1. LINE POSTS SHALL HAVE NO DIAMETER LESS THAN 4", NOR GREATER THAN 7" AND SHALL BE 6'-6" (MIN.) LONG. POSTS SHALL NOT HAVE AN INCREASE IN DIAMETER GREATER THAN 1" FROM TIP TO BUTT.
2. DRIVEN POSTS SHALL BE ORIENTED WITH SMALL END IN THE GROUND. TAMPED POSTS SHALL BE ORIENTED WITH LARGE END (BUTT) IN THE GROUND.



① T POST SECTION



BARBED STAPLE DETAILS



① GATE HINGE
② GATE STICK
③ GATE SUPPORT
④ GATE TIGHTENER
⑤ CHAIN AND PADLOCK
⑥ END POST

- DENOTES WIRE TIE OR FENCE CLIP LOCATION FOR METAL POSTS;
1 1/2" X 9-GAGE BARBED STAPLE LOCATION FOR WOOD POSTS.

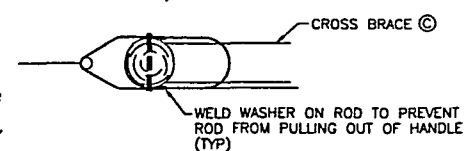
WIRE SPACING TABLE

BARBED WIRE			
48" HEIGHT		45" TEMPORARY FENCE	
4 BW	5 BW	6 BW	3 BW
TYPE F	TYPE G	TYPE H	TYPE J
12"	12"	12"	15"
12"	12"	8"	15"
12"	10"	8"	15"
12"	8"	8"	15"
12"	6"	6"	15"

GROUND LINE

HANDLE (BAR 1-1/4"x3/16")

3/8" BOLT W/2 NUTS
OR TWO 3/8"x4" LAG BOLTS
(ONE EACH SIDE)
7/16" HOLE IN POST & BAR



① TYPICAL GATE TIGHTENER

TEMPORARY FENCE NOTES

1. BRACE POSTS AND PANELS
BRACE POSTS SHALL BE WOOD AND SHALL HAVE NO DIAMETER LESS THAN 6", NOR GREATER THAN 9" AND SHALL BE 6'-6" LONG (MIN.). PROVIDE BRACE PANELS @ 1,320 FEET MAX. SPACING.
2. LINE POSTS
LINE POSTS FOR TEMPORARY FENCE SHALL BE WOOD 6'-6" LONG AND HAVE NO DIAMETER LESS THAN 4", NOR GREATER THAN 7" AND STANDARD METAL "T" 6'-6" LONG AND SHALL WEIGH 1.33 LBS./FT (MIN) WITH SPACING NOT TO EXCEED 33 FEET.
3. BRACE WIRE
BRACE WIRE SHALL BE FORMED BY TWISTING 3 STRANDS OF 9 GAGE GALVANIZED WIRE OR 4 STRANDS OF 12 1/2 GAGE GALVANIZED TWISTED BARBLESS WIRE AND SHALL BE FASTENED WITH STAPLES ON THREE SIDES OF EACH BRACE POST.
4. STAYS
1. WIRE STAYS SHALL BE USED ON ALL WIRE FENCING UNLESS WOOD STAYS ARE SPECIFIED.
2. WIRE STAYS SHALL BE PROVIDED WITH WOVEN WIRE FENCING ONLY WHEN SPECIFIED.
3. WIRE STAYS SHALL BE 2" LONGER THAN THE DISTANCE BETWEEN THE TOP AND BOTTOM WIRES.
4. FOR WOVEN WIRE FENCING WITH WIRE ON TOP, WIRE STAYS SHALL EXTEND 6" (MIN.) BELOW THE TOP OF THE WOVEN WIRE.
5. IN SNOW PROBLEM AREAS, ONE OR TWO WOOD STAYS SHALL BE REQUIRED WHEN SPECIFIED. THEY SHALL BE EQUALLY SPACED BETWEEN LINE POSTS. IN SEVERE SNOW PROBLEM AREAS, AN INTERMEDIATE POST, EITHER STEEL OR WOOD, OR A WOODEN TOP RAIL MAY BE SPECIFIED. THE INTERMEDIATE POSTS SHALL BE EQUALLY SPACED BETWEEN LINE POSTS.
5. WIRE TYPE AND SPACING
WIRE SHALL BE OF THE TYPE SPECIFIED ON THE PLANS AND SHALL HAVE THE SPACING AS SHOWN. FASTEN TO POSTS WITH 1 1/2" X 9 GAGE BARBED STAPLES.
6. TEMPORARY FENCE SHALL BE INSTALLED AT LOCATIONS AS SHOWN ON PLANS AND SHALL REMAIN IN PLACE UNTIL REMOVED BY OTHERS UNDER A FUTURE CONTRACT. TEMPORARY FENCE BECOMES THE PROPERTY OF THE OWNER ONCE ACCEPTED IN-PLACE.

Prepared for:
SDHW&SD
P.O. Box 2245
GILLETTE, WYOMING 82717-2245
(307) 687-0510

4506 Wigwam Blvd.
P.O. Box 2185
Gillette, Wyoming 82718
307-687-0800
PCA ENGINEERING, INC.

COPYRIGHT © ALL RIGHTS RESERVED BY PCA ENGINEERING, INC.

Drawn by: CS	Date: 2/04
Design by: CS	Date: 2/04
Reviewed by: RPS	Date: 2/04; 10/04
Revised: CS 10/2004	
P.C.A. Project Number: 032900.00	
G:\Projects\03290000\ABDWgs\Details\Details.dwg	
X-Ref: ...	city_temp.dwg xcer PR Trunk.dwg Main.DWG
Plot Date: Sep 22, 2005 - 1:48pm	

**SOUTH DOUGLAS
HIGHWAY REGIONAL
SEWER SYSTEM
PHASE 1A**

**SCHEDULE A
SCHEDULE B
SCHEDULE C**

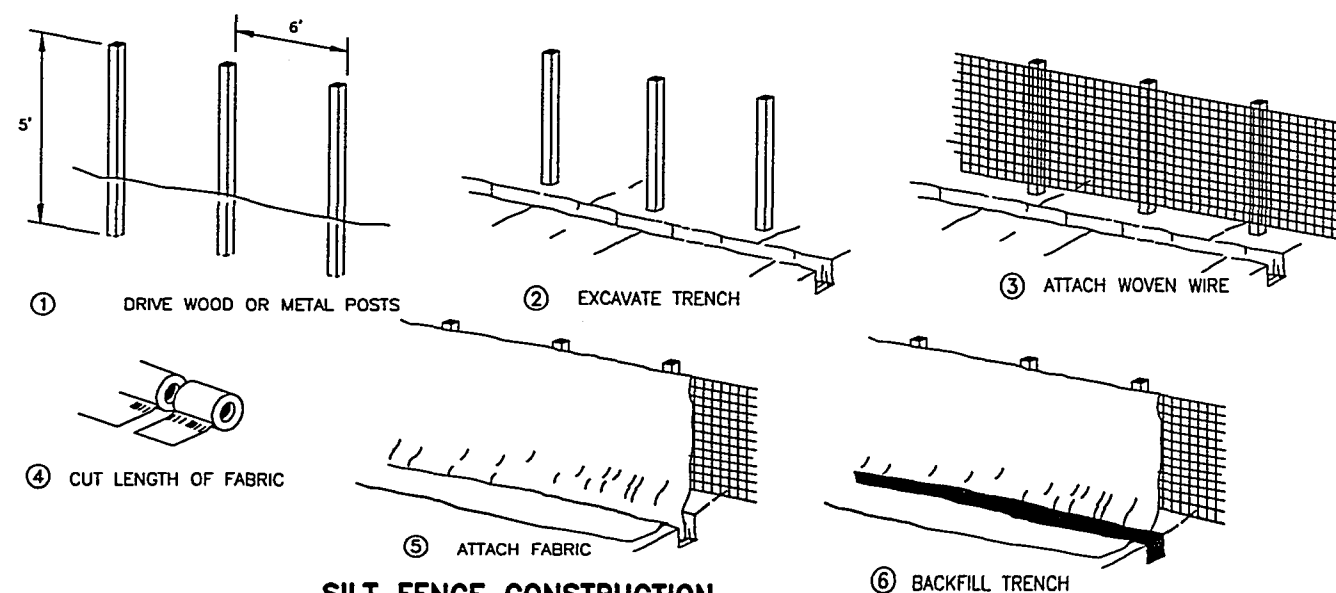
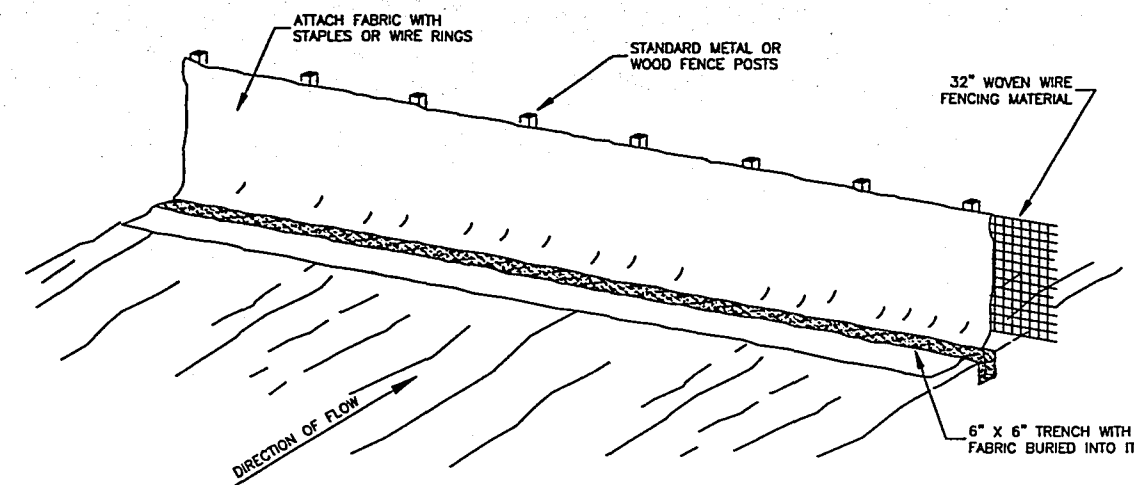
**DRAWINGS OF
CONSTRUCTION RECORD**

DETAILS

SHEET 19 OF 20

SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A

CONSTRUCTION DETAILS




SILT FENCE CONSTRUCTION

N.T.S.

NOTES:

ALL SILT FENCE SHALL BE REMOVED BY THE CONTRACTOR ONCE VEGETATION IS ESTABLISHED IN DISTURBED AREAS.

Prepared for: SDHW&SD P.O. BOX 2245 GILLETTE, WYOMING 82717-2245 (307) 687-0510	
 4506 Wagon Blvd. P.O. Box 2185 Gillette, Wyoming 82718 307-687-0600 ENGINEERING, INC.	
COPYRIGHT © ALL RIGHTS RESERVED BY PCA ENGINEERING, INC.	
Drawn by: CS	Date: 2/04
Design by: CS	Date: 2/04
Reviewed by: RPS	Date: 2/04; 10/04
Revised: CS 10/2004	
P.C.A. Project Number: 032900.00	
G:\Projects\03290000\ABDwgs\Details\Details.dwg	
X-Ref: ...	city_temp.dwg xcer PR Trunk.dwg Main.DWG
Plot Date: Sep 22, 2005 - 1:48pm	
SOUTH DOUGLAS HIGHWAY REGIONAL SEWER SYSTEM PHASE 1A	
SCHEDULE A SCHEDULE B SCHEDULE C	
DRAWINGS OF CONSTRUCTION RECORD	
DETAILS	
SHEET 20 OF 20	