

Bore
1

Work Request - G6181 - Beach Village - Phase 1, 2 and 3

DIRECTIONAL DRILLING AS-BUILT FORM

PROJECT NAME: Beach Village

DATE WORK WAS PERFORMED: 7-22-19

LOCATION/DESCR. OF BORE: Deerfield Links Dr

HDD SUBCONTRACTOR: Cost to Coast
(COMPANY NAME & OPERATOR NAME)

CONTRACTOR COMPANY NAME: Cost to Coast Pike

HDD FLUID REPRESENTATIVE: Van
(ONLY IF ON SITE)

FOREMAN RESPONSIBLE FOR PROJECT: Cory Wilson

MAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCSSG ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☐ 4"	☐ 11	☐ .188"
	☒ 6"	☐ 11.5	☐ .203"
☐ STEEL	☐ 8"	☒ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

☐ VERMEER 7 x 11	☒ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☐ OTHER

TRACKING SYSTEM

☒ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ FS
OTHER

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
OTHER

RODS

LENGTH OF RODS (ft)
☒ 10 ☐ 15 ☐ 20 ☐ OTHER
 # OF RODS 8

DRILL BIT

☒ DUCK BILL	☐ OTHER
☐ RAILHEAD	

BREAK AWAY CONNECTOR

TYPE USED
☐ SMALLER DIA PIPE
 DIAMETER _____ SDR _____
☒ MECHANICAL
 SETTING (LBS) 9500
☐ N/A (INCLUDE EXPLANATION IF N/A)
 DID IT BREAK DURING PULLBACK?
☒ YES ☐ NO

HORIZONTAL DISTANCE OF BORE 80 (ft)

PIPE STRING DISTANCE OF BORE 120 (ft)

MAKE UP WATER

INITIAL pH 7.5 INITIAL HARDNESS (ppm) 80
 TASTE SALT? ☐ Y ☒ N
 SMELL CHLORINE? ☐ Y ☒ N
 AMOUNT OF SODA ASH PER 100 GAL ADDED _____ (LBS)
 FINAL pH 8.5 FINAL HARDNESS (ppm) 80

SOIL TYPE: ☐ Clay ☐ Silt ☐ Sand ☐ Silty Clay ☒ Sandy Clay ☐ Sandy Clay Loam
☐ Silty Clay Loam ☐ Clay Loam ☐ Silt Loam ☐ Sandy Loam ☐ Loamy Sand ☐ Shale ☐ Loam
☐ Marl ☐ Granite ☐ Other: _____

①

DIRECTIONAL DRILLING AS-BUILT FORMNAME OF DRILLING FLUID MANUFACTURER: W90 Ber

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	5.5			
REAMER SIZE		8		
REAMER TYPE (barrel, fluted, open, etc)		open		
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☐ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Tru Bore</u> (# / 100 gal)	30 LB/100	30 LB/100		
ADDITIVE #2: (# / 100 gal)				
ADDITIVE #3: (# / 100 gal)				
ADDITIVE #4: (# / 100 gal)				
ADDITIVE #5: (# / 100 gal)				
ADDITIVE #6: (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)				
INITIAL FLUID DENSITY (# / gal)	9.5	9.5		
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)	11.5	11.5		
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)	225 gals	7		
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)				
AVG. THRUST/PULL SPEED THIS PASS (min / rod)				
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

Approved site

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

1

Work Request - G6181 - Beach Village - Phase 1, 2 and 3

SCE&G Directional Drill Report

Date: 7-22-19 Work Order/Account # and Job Name: G6181 Beach Village
Contractor: Pike Coast to Coast Street/Intersection Location: Deer Field Lines Dr Hwy 17 Bypass
Operator: Kiffin Brantley Begin Station/Set-up Location: South side of Deer Field Lines Dr Hwy 17
Locator: Vann End Station: North side of Deer Field Lines Dr Hwy 17
Rig/Rod Size: 2" Pipe/Type: 6" PL
Rod Length: 10 SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	36	3'1"				31					
2	78	6'				32					
3	-0	7'				33					
4	71	7'1"				34					
5	15	7'				35					
6	12	6'2"				36					
7	20	5'2"				37					
8	20	4'5"				38					
9						39					
10						40					
11						41					
12						42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

Bore
2A

* Crosses Hwy 17 Borrow Ditch *

2A

DIRECTIONAL DRILLING AS-BUILT FORMPROJECT NAME: Beach VillageDATE WORK WAS PERFORMED: 8-6-19LOCATION/DESCR. OF BORE: Hwy 17n + DeerfieldHDD SUBCONTRACTOR: Coorst to Coorst
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: Vann
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Cory WilsonMAX ANTICIPATED PRESSURE : _____
(TO BE ENTERED BY SCE&G ENGINEER)**CARRIER PIPE**

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☐ PLASTIC	☐ 2" ☐ 4" ☒ 6" ☐ 8" ☐ 10"	☐ 7 ☐ 11 ☐ 11.5 ☒ 13.5	☐ .154" ☐ .188" ☐ .203" ☐ .219" ☐ .237" ☐ OTHER

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4" ☐ 6" ☐ 8" ☐ 10" ☐ 12"
☐ STEEL	
☐ N/A	

HDD MACHINE USED

☐ VERMEER 7 x 11	☒ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☐ OTHER _____

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>F5</u> OTHER _____

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER _____

RODS

LENGTH OF RODS (ft)
☒ 10 ☐ 15 ☐ 20 ☐ OTHER _____
OF RODS <u>34</u>

DRILL BIT

☒ DUCK BILL	☐ OTHER _____
☐ RAILHEAD	

BREAK AWAY CONNECTOR

<u>TYPE USED</u>	
☐ SMALLER DIA PIPE	DIAMETER _____ SDR _____
☒ MECHANICAL	SETTING (LBS) <u>9500</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK ?	
☐ YES	☒ NO

HORIZONTAL DISTANCE OF BORE _____ (ft)

PIPE STRING DISTANCE OF BORE _____ (ft)

MAKE UP WATER

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>80</u>
TASTE SALT ? ☐ Y ☐ N	
SMELL CHLORINE ? ☐ Y ☐ N	
AMOUNT OF SODA ASH PER 100 GAL ADDED _____ (LBS)	
FINAL pH <u>8.5</u>	FINAL HARDNESS (ppm) <u>80</u>

SOIL TYPE:	☐ Clay	☐ Silt	☐ Sand	☐ Silty Clay	☒ Sandy Clay	☐ Sandy Clay Loam	
	☐ Silty Clay Loam	☐ Clay Loam	☐ Silt Loam	☐ Sandy Loam	☐ Loamy Sand	☐ Shale	☐ Loam
	☐ Marl	☐ Granite	☐ Other: _____				

DIRECTIONAL DRILLING AS-BUILT FORM

2A

NAME OF DRILLING FLUID MANUFACTURER: Wyo Ben

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	5.5			
REAMER SIZE		8	12	12
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☒ YES ☐ NO
ADDITIVE #1: <u>Tru Bore</u> (# / 100 gal)	30 LB/100			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)				
INITIAL FLUID DENSITY (# / gal)	9.5	9.5	9.5	9.5
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)	11.5	11.5	11.5	11.5
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)	250	500	700	1200
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)				
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2 m	2.5	2.5	2.5
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☒ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO

WHERE WERE SPENT FLUIDS DISPOSED AT? Approved site

ADDITIONAL NOTES & COMMENTS:
Bore 2A Between F19 → F18

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

2A

SCE&G Directional Drill Report

Date: 8-6-19 Work Order/Account # and Job Name: 66181 Beach Village
 Contractor: Coast to Coast Street/Intersection Location: Queens Harbor
 Operator: Kiffin Brantley Begin Station/Set-up Location: Wicken Park going N to Deerfield links
 Locator: Vann End Station: HWY 175
 Rig/Rod Size: 24x40 2 Pipe Size/Type: 6"
 Rod Length: 10 SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-26	3'6"				31	+16	8'8"			
2	-26	5'				32	+21	6'4"			
3	-20	6'9"				33	+24	4'3"			
4	-22	8'6"				34	P.T	4'4"			
5	-22	10'7"				35					
6	-17	11'4"				36					
7	-10	11'7"				37					
8	-3	12'				38					
9	0	12'7"				39					
10	0	12'9"				40					
11	+1	12'8"				41					
12	+1	12'11"				42					
13	0	12'3"				43					
14	0	12'0"				44					
15	-2	12'9"				45					
16	+1	12'9"				46					
17	+4	13'2"				47					
18	+4	13'8"				48					
19	+3	13'5"				49					
20	+3	13'3"				50					
21	+3	12'11"				51					
22	+3	12'6"				52					
23	0	12'9"				53					
24	+4	13'5"				54					
25	+4	14'1"				55					
26	+5	13'4"				56					
27	+5	13'4"				57					
28	+7	12'1"				58					
29	+10	12'3"				59					
30	+10	9'4"				60					

Comments:

Bore
2B

2B

DIRECTIONAL DRILLING AS-BUILT FORM

PROJECT NAME: Beach VillageDATE WORK WAS PERFORMED: 7-25-19LOCATION/DESCR. OF BORE: HWY 17 Bypass SouthHDD SUBCONTRACTOR: Coast to Coast
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PillcHDD FLUID REPRESENTATIVE: Vann
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Cory WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☐ 4"	☐ 11	☐ .188"
	☒ 6"	☐ 11.5	☐ .203"
☐ STEEL	☐ 8"	☒ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☐ N/A	☐ 12"

HDD MACHINE USED

☐ VERMEER 7 x 11	☒ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☐ OTHER

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>FS</u>
OTHER

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
OTHER

RODS

LENGTH OF RODS (ft)
☒ 10 ☐ 15 ☐ 20 ☐ OTHER
OF RODS <u>42</u>

DRILL BIT

☐ DUCK BILL	☐ OTHER
☐ RAILHEAD	

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	DIAMETER _____ SDR _____
☒ MECHANICAL	SETTING (LBS) <u>9500</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK?	
☒ YES	☐ NO

HORIZONTAL DISTANCE OF BORE 410 (ft)PIPE STRING DISTANCE OF BORE 460 (ft)

MAKE UP WATER

INITIAL pH <u>9.5</u>	INITIAL HARDNESS (ppm) <u>80</u>
TASTE SALT? ☐ Y ☒ N	
SMELL CHLORINE? ☐ Y ☒ N	
AMOUNT OF SODA ASH PER 100 GAL ADDED _____ (LBS)	
FINAL pH <u>8.5</u>	FINAL HARDNESS (ppm) <u>80</u>

SOIL TYPE:	☐ Clay	☐ Silt	☐ Sand	☐ Silty Clay	☒ Sandy Clay	☐ Sandy Clay Loam
	☐ Silty Clay Loam	☐ Clay Loam	☐ Silt Loam	☐ Sandy Loam	☐ Loamy Sand	☐ Shale
	☐ Marl	☐ Granite	☐ Other: _____			

DIRECTIONAL DRILLING AS-BUILT FORM

(2B)

NAME OF DRILLING FLUID MANUFACTURER: Wyo Ber

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	5.5			
REAMER SIZE		8	12	
REAMER TYPE (barrel, fluted, open, etc)		open	open	
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>True Bore</u> (# / 100 gal)	300 LB/100			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)				
INITIAL FLUID DENSITY (# / gal)	9.5			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)	11.5			
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)	400	1200 gals	1900 gals	
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)				
AVG. THRUST/PULL SPEED THIS PASS (min / rod)				
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☒ YES ☐ NO	☒ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT? Approved Site

ADDITIONAL NOTES & COMMENTS: Broke away Bore ke 80 feet From Drill. Crew dug up pipe Did not pull back the last 80'
Bore 2B between F19 → F20

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

2B

SCE&G Directional Drill Report

Date: 7-25-19 Work Order/Account # and Job Name: 66181 Beechville
 Contractor: Pike & Coesthoberst Street/Intersection Location: Hwy 17 Bypass South
 Operator: Kiffin Brantley Begin Station/Set-up Location: Deerfield Lakes Dr goes north
 Locator: Vann End Station: Hwy 17 South Front of Pond
 Rig/Rod Size: 2" Pipe Size/Type: 6" PL
 Rod Length: 10 SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-36	3'				31	+1	10'9"			
2	-24	6'2"				32	+2	10'4"			
3	-12	8'4"				33	+2	10'			
4	-4	9'8"				34	+2	9'7"			
5	-6	9'8"				35	+5	9'			
6	-3	10'2"				36	+4	9'1"			
7	0	10'2"				37	+6	8'6"			
8	0	10'2"				38	+9	7'9"			
9	+1	10'				39	+12	6'6"			
10	0	10'				40	+12	5'4"			
11	0	10'2"				41	+12	4'4"			
12	0	10'4"				42	+12	3'			
13	0	10'4"				43					
14	0	10'4"				44					
15	0	10'				45					
16	+1	9'8"				46					
17	0	9'8"				47					
18	+1	9'8"				48					
19	0	9'10"				49					
20	0	9'10"				50					
21	0	9'10"				51					
22	+3	9'2"				52					
23	-0	9'5"				53					
24	-2	7'0"				54					
25	0	10'				55					
26	0	10'1"				56					
27	0	10'2"				57					
28	-2	10'6"				58					
29	-2	10'9"				59					
30	0	10'9"				60					

Comments:

Bore
4

4

DIRECTIONAL DRILLING AS-BUILT FORMPROJECT NAME: Beech VillageDATE WORK WAS PERFORMED: 7-29-19LOCATION/DESCR. OF BORE: Queens Harbor BlvdHDD SUBCONTRACTOR: Coast to Coast
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikHDD FLUID REPRESENTATIVE: Van
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Cory WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☐ 4"	☐ 11	☐ .188"
	☒ 6"	☐ 11.5	☐ .203"
☐ STEEL	☐ 8"	☒ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☐ N/A	☐ 12"

HDD MACHINE USED

☐ VERMEER 7 x 11	☒ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☐ OTHER

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>F5</u>
OTHER

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER

RODS

LENGTH OF RODS (ft)
☒ 10 ☐ 15 ☐ 20 ☐ OTHER
OF RODS <u>80</u>

DRILL BIT

☒ DUCK BILL	☐ OTHER
☐ RAILHEAD	

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	DIAMETER _____ SDR _____
☒ MECHANICAL	SETTING (LBS) <u>9500</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK ?	
☐ YES	☒ NO

HORIZONTAL DISTANCE OF BORE 80 (ft)PIPE STRING DISTANCE OF BORE 120 (ft)

MAKE UP WATER

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>80</u>
TASTE SALT ?	☐ Y ☒ N
SMELL CHLORINE?	☒ Y ☐ N
AMOUNT OF SODA ASH PER 100 GAL ADDED _____ (LBS)	
FINAL pH <u>8.5</u>	FINAL HARDNESS (ppm) <u>80</u>

SOIL TYPE:	☐ Clay	☐ Silt	☐ Sand	☐ Silty Clay	☒ Sandy Clay	☐ Sandy Clay Loam
	☐ Silty Clay Loam	☐ Clay Loam	☐ Silt Loam	☐ Sandy Loam	☐ Loamy Sand	☐ Shale
	☐ Marl	☐ Granite	☐ Other: _____			

DIRECTIONAL DRILLING AS-BUILT FORM

④

NAME OF DRILLING FLUID MANUFACTURER: Wyo Bore

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	5.5			
REAMER SIZE				
REAMER TYPE (barrel, fluted, open, etc)		open		
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>TruBore</u> (# / 100 gal)	30 lb / 100	30 lb / 100		
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)				
INITIAL FLUID DENSITY (# / gal)	9.5	9.5		
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)	11.5	11.5		
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)	250 gals	900 gals		
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)				
AVG. THRUST/PULL SPEED THIS PASS (min / rod)				
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT? Approved Site

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

4

SCE&G Directional Drill Report

Date: 7-29-19 Work Order/Account # and Job Name: G6181 Beach Village
Contractor: Pike Coast to Coast Street/Intersection Location: Queens Harbor Blvd
Operator: Kiffin Brantley Begin Station/Set-up Location: South Side Queens Harbor Blvd
Locator: Vann Thornton End Station: North Side Queens Harbor Blvd
Rig/Rod Size: 3" Pipe Size/Type: 6" PC
Rod Length: 10 SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-24	3				31					
2	-12	5'6"				32					
3	-6	6'1"				33					
4	+3	5'10"				34					
5	+5	5'11"				35					
6	+10	4'6"				36					
7	0	3'9"				37					
8	10	3'9"				38					
9						39					
10						40					
11						41					
12						42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

DIRECTIONAL DRILLING AS-BUILT FORM

PROJECT NAME: Beach VillageDATE WORK WAS PERFORMED: 7-30-19LOCATION/DESCR. OF BORE: Hwy 17 BypassHDD SUBCONTRACTOR: Coast to Coast
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: uqun
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Cory WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☐ PLASTIC	☐ 2" ☐ 4" ☒ 6"	☐ 7 ☐ 11 ☐ 11.5 ☒ 13.5	☐ .154" ☐ .188" ☐ .203" ☐ .219" ☐ .237" ☐ OTHER
☐ STEEL	☐ 8" ☐ 10"		

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4" ☐ 6"
☐ STEEL	☐ 8" ☐ 10" ☐ 12"
☐ N/A	

HDD MACHINE USED

☐ VERMEER 7 x 11	☒ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☐ OTHER _____

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>F5</u>
OTHER _____

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER _____

RODS

LENGTH OF RODS (ft)
☒ 10 ☐ 15 ☐ 20 ☐ OTHER _____
OF RODS <u>28</u>

DRILL BIT

☐ DUCK BILL	☐ OTHER _____
☐ RAILHEAD	

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	DIAMETER _____ SDR _____
☒ MECHANICAL	SETTING (LBS) <u>9500</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK?	
☐ YES	☒ NO

HORIZONTAL DISTANCE OF BORE	<u>280</u> (ft)
PIPE STRING DISTANCE OF BORE	<u>400</u> (ft)

MAKE UP WATER

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>80</u>
TASTE SALT? ☐ Y ☒ N	
SMELL CHLORINE? ☒ Y ☐ N	
AMOUNT OF SODA ASH PER 100 GAL ADDED _____ (LBS)	
FINAL pH <u>8.5</u>	FINAL HARDNESS (ppm) <u>80</u>

SOIL TYPE:	☐ Clay	☐ Silt	☐ Sand	☐ Silty Clay	☒ Sandy Clay	☐ Sandy Clay Loam	
	☐ Silty Clay Loam	☐ Clay Loam	☐ Silt Loam	☐ Sandy Loam	☐ Loamy Sand	☐ Shale	☐ Loam
	☐ Marl	☐ Granite	☐ Other: _____				

DIRECTIONAL DRILLING AS-BUILT FORM

(5)

NAME OF DRILLING FLUID MANUFACTURER: Wynor

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	5.5"			
REAMER SIZE		8"	12"	
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Tin Bore</u> (# / 100 gal)	36 ^{LB} /100gal	30 ^{LB} /100gal	30 ^{LB} /100gal	
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)				
INITIAL FLUID DENSITY (# / gal)	9.5	9.5	9.5	
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)	11.5	11.5	11.5	
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)	250	500	900	
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)				
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2 min	2.5 min	2.5 min	
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☒ YES ☐ NO	☒ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT? Approved site

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

5

SCE&G Directional Drill Report

Date: 7-30-14 Work Order/Account # and Job Name: G6181 Beach Village
Contractor: Pike & Coast Coors Street/Intersection Location: Queen Harbor Blvd
Operator: Kippen Brantley Begin Station/Set-up Location: Front of Murphy gas station Hwy 1790155
Locator: Vern Thornton End Station: Front of Lion Park Hwy 17
Rig/Rod Size: 2" Pipe Size/Type: 6" PC
Rod Length: 10 SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-26	3'2"				31					
2	-14	4'6"				32					
3	-2	5'6"				33					
4	0	5'8"				34					
5	0	5'6"				35					
6	-1	5'8"				36					
7	-3	6'4"				37					
8	-3	7'				38					
9	-6	7'				39					
10	0	7'11"				40					
11	0	7'14"				41					
12	0	7'14"				42					
13	0	7'				43					
14	0	6'8"				44					
15	0	7'				45					
16	0	7'				46					
17	0	7'2"				47					
18	+3	6'7"				48					
19	+0	6'5"				49					
20	+1	6'				50					
21	+1	6'				51					
22	+3	5'7"				52					
23	+6	5'4"				53					
24	+8	4'11"				54					
25	+5	5'				55					
26	+10	4'6"				56					
27	+10	4'1"				57					
28	+10	3'				58					
29						59					
30						60					

Comments:

Bore
6

6

DIRECTIONAL DRILLING AS-BUILT FORMPROJECT NAME: Beach VillageDATE WORK WAS PERFORMED: 7-31-19LOCATION/DESCR. OF BORE: Queens Harbor BlvdHDD SUBCONTRACTOR: Coast to Coast
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PilleHDD FLUID REPRESENTATIVE: vann
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Cory WilsonMAX ANTICIPATED PRESSURE : _____
(TO BE ENTERED BY SCE&G ENGINEER)**CARRIER PIPE**

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☐ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☐ 4"	☐ 11	☐ .188"
	☒ 6"	☐ 11.5	☐ .203"
☐ STEEL	☐ 8"	☒ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER _____

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☐ N/A	☐ 12"

HDD MACHINE USED

☐ VERMEER 7 x 11	☒ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☐ OTHER _____

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>FS</u>
OTHER _____

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER _____

RODS

LENGTH OF RODS (ft)
☒ 10 ☐ 15 ☐ 20 ☐ OTHER _____
OF RODS <u>11</u>

DRILL BIT

☒ DUCK BILL	☐ OTHER _____
☐ RAILHEAD	

BREAK AWAY CONNECTOR

<u>TYPE USED</u>	
☐ SMALLER DIA PIPE	DIAMETER _____ SDR _____
☒ MECHANICAL	SETTING (LBS) <u>9500</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK ?	
☐ YES	☒ NO

HORIZONTAL DISTANCE OF BORE 102 (ft)PIPE STRING DISTANCE OF BORE 120 (ft)**MAKE UP WATER**

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>80</u>
TASTE SALT ?	☐ Y ☒ N
SMELL CHLORINE?	☒ Y ☐ N
AMOUNT OF SODA ASH PER 100 GAL ADDED _____ (LBS)	
FINAL pH <u>8.5</u>	FINAL HARDNESS (ppm) <u>80</u>

SOIL TYPE:	☐ Clay	☐ Silt	☐ Sand	☐ Silty Clay	☒ Sandy Clay	☐ Sandy Clay Loam
	☐ Silty Clay Loam	☐ Clay Loam	☐ Silt Loam	☐ Sandy Loam	☐ Loamy Sand	☐ Shale
	☐ Marl	☐ Granite	☐ Other: _____			☐ Loam

(6)

DIRECTIONAL DRILLING AS-BUILT FORMNAME OF DRILLING FLUID MANUFACTURER: W90BEL

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	5.5			
REAMER SIZE				
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>TruBore</u> (# / 100 gal)	304B/100gal	304B/100gal		
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)				
INITIAL FLUID DENSITY (# / gal)	9.5	9.5		
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)	11.5	11.5		
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)	250	700		
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)				
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2	2.5		
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

Approved Site

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

6

SCE&G Directional Drill Report

Date: 7-31-19 Work Order/Account # and Job Name: 66181 Beach Village
Contractor: Pile & Coast to Coast Street/Intersection Location: Queen Harbor Blvd
Operator: K. Brian Brantly Begin Station/Set-up Location: West side of Murphy Gas Station Driveway
Locator: Vann Therton End Station: East side of Murphy Gas Station Driveway
Rig/Rod Size: 2" Pipe Size/Type: 6" PL
Rod Length: 10' SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-24	3'				31					
2	-12	5'				32					
3	-1	5'6"				33					
4	-0	5'6"				34					
5	-0	5'6"				35					
6	0	5'6"				36					
7	+2	5'4"				37					
8	+4	5'1"				38					
9	+8	4'8"				39					
10	+12	4'4"				40					
11	+24	3'				41					
12						42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

DIRECTIONAL DRILLING AS-BUILT FORM

⑦

PROJECT NAME: Beach Village Phase 1,2,3

DATE WORK WAS PERFORMED: 9/3/19

LOCATION/DESCR. OF BORE: DeerField Ave

HDD SUBCONTRACTOR: J & H Under Ground
(COMPANY NAME & OPERATOR NAME)

CONTRACTOR COMPANY NAME: Pike

HDD FLUID REPRESENTATIVE:

(ONLY IF ON-SITE)

FOREMAN RESPONSIBLE FOR PROJECT: Coeey Wilson

MAX ANTICIPATED PRESSURE :

(TO BE ENTERED BY SCE&G ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☒ 4"	☒ 11	☐ .188"
	☐ 6"	☒ 11.5	☐ .203"
☐ STEEL	☐ 8"	☐ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER

CASING PIPE

MATERIAL	NOMINAL DIA
☒ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

☐ VERMEER 7 x 11	☐ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☒ <u>10 x 15</u>
	OTHER

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>F-2</u>
OTHER

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER

RODS

LENGTH OF RODS (ft)

☐ 10 ☐ 15 ☐ 20 ☒ 6Ft

OF RODS 15 OTHER

DRILL BIT

☒ DUCK BILL	☐ OTHER
☐ RAILHEAD	

BREAK AWAY CONNECTOR

TYPE USED

☐ SMALLER DIA PIPE
DIAMETER _____ SDR _____

☒ MECHANICAL
SETTING (LBS) 5250

☐ N/A (INCLUDE EXPLANATION IF N/A)

DID IT BREAK DURING PULLBACK ?

☐ YES ☒ NO

HORIZONTAL DISTANCE OF BORE 90 (ft)

PIPE STRING DISTANCE OF BORE 120 (ft)

MAKE UP WATER

INITIAL pH 7.5 INITIAL HARDNESS (ppm) 80

TASTE SALT ? ☐ Y ☐ N

SMELL CHLORINE ? ☐ Y ☐ N

AMOUNT OF SODA ASH PER 100 GAL ADDED NA (LBS)

FINAL pH 8.5 FINAL HARDNESS (ppm) 80

SOIL TYPE:

☐ Clay ☐ Silt ☐ Sand ☐ Silty Clay ☒ Sandy Clay ☐ Sandy Clay Loam

☐ Silty Clay Loam ☐ Clay Loam ☐ Silt Loam ☐ Sandy Loam ☐ Loamy Sand ☐ Shale ☐ Loam

☐ Marl ☐ Granite ☐ Other: _____

DIRECTIONAL DRILLING AS-BUILT FORM

⑦

NAME OF DRILLING FLUID MANUFACTURER: Wyoben

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	4 1/2			
REAMER SIZE		8"		
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Trubore</u> (# / 100 gal)	30lb			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	90			
INITIAL FLUID DENSITY (# / gal)	8.5			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	8 gal	14 gal		
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3 min	2-3 min		
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

7

SCE&G Directional Drill Report

Date: 9/3/19 Work Order/Account # and Job Name: G6181 Beach Village Phase 1, 2, 3
 Contractor: J+H Street/Intersection Location: Deerfield Links
 Operator: Jason Cantor Begin Station/Set-up Location: Deerfield Links
 Locator: Charles Ard End Station: _____
 Rig/Rod Size: _____ Pipe Size/Type: 4"
 Rod Length: 6" SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-26	4'5"				31					
2	-15	5'				32					
3	-11	5'7"				33					
4	-10	6'2"				34					
5	-11	6'8"				35					
6	-8	6'5"				36					
7	-2	6'10"				37					
8	+3	6'8"				38					
9	+2	6'8"				39					
10	+2	6'6"				40					
11	+3	6'3"				41					
12	+8	5'4"				42					
13	+15	5'3"				43					
14	+18	4'3"				44					
15	+21	2'10'				45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

Bore
8

8

DIRECTIONAL DRILLING AS-BUILT FORM

PROJECT NAME: Beach Village Phase 1,2,3DATE WORK WAS PERFORMED: 9/3/19LOCATION/DESCR. OF BORE: Reindeer Rd. WHDD SUBCONTRACTOR: J & H Under Ground
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Corey WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☒ 4"	☒ 11	☐ .188"
	☐ 6"	☒ 11.5	☐ .203"
☐ STEEL	☐ 8"	☐ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER _____

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

☐ VERMEER 7 x 11	☐ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☐ <u>10x15</u>
	OTHER _____

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>F-2</u>
OTHER _____

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
☐ _____
OTHER _____

RODS

LENGTH OF RODS (ft)
☐ 10 ☐ 15 ☐ 20 ☒ <u>6ft</u>
OF RODS <u>7</u>
OTHER _____

DRILL BIT

☒ DUCK BILL	☐ _____
☐ RAILHEAD	OTHER _____

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	DIAMETER _____ SDR _____
☒ MECHANICAL	SETTING (LBS) <u>5250</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK ?	
☐ YES	☒ NO

HORIZONTAL DISTANCE OF BORE 42 (ft)PIPE STRING DISTANCE OF BORE 80 (ft)

MAKE UP WATER

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>80</u>
TASTE SALT ? ☐ Y ☐ N	
SMELL CHLORINE? ☐ Y ☐ N	
AMOUNT OF SODA ASH PER 100 GAL ADDED <u>N/A</u> (LBS)	
FINAL pH <u>8.5</u>	FINAL HARDNESS (ppm) <u>80</u>

SOIL TYPE:	☐ Clay	☐ Silt	☐ Sand	☐ Silty Clay	☒ Sandy Clay	☐ Sandy Clay Loam
	☐ Silty Clay Loam	☐ Clay Loam	☐ Silt Loam	☐ Sandy Loam	☐ Loamy Sand	☐ Shale
	☐ Marl	☐ Granite	☐ Other: _____			☐ Loam

8

DIRECTIONAL DRILLING AS-BUILT FORM

NAME OF DRILLING FLUID MANUFACTURER: Wyoben

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	4 1/2"			
REAMER SIZE		8"		
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Trubore</u> (# / 100 gal)	30lb			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	90			
INITIAL FLUID DENSITY (# / gal)	8.5lb			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	8gal	14gal		
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3 min	2-3 min		
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

8

SCE&G Directional Drill Report

Date: 9/3/19 Work Order/Account # and Job Name: G6681 Beach Village Phase 1,2,3
Contractor: J+H Street/Intersection Location: Reindeer Rd N
Operator: Jason Caney Begin Station/Set-up Location: Lefts Rightside on Reindeer Rd N
Locator: Charles Reed End Station: Leftsides on Reindeer Rd N
Rlg/Rod Size: _____ Pipe Size/Type: 4" PL
Rod Length: 6' SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-28'	3'3"				31					
2	-23'	4'				32					
3	-13'	5'				33					
4	-6'	5'6"				34					
5	+4'	5'3"				35					
6	+9'	4'2"				36					
7	+19'	4'5"				37					
8						38					
9						39					
10						40					
11						41					
12						42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

Bore
9

Work Request - G6181 - Beach Village - Phase 1, 2 and 3

DIRECTIONAL DRILLING AS-BUILT FORM

9

PROJECT NAME: Beach Village Phase 1, 2, 3DATE WORK WAS PERFORMED: 9/18/19LOCATION/DESCR. OF BORE: DrainHDD SUBCONTRACTOR: J & H Under Brown
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Corey WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY LOGGING ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☒ 4"	☐ 11	☐ .188"
	☐ 6"	☒ 11.5	☐ .208"
☐ STEEL	☐ 8"	☐ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER _____

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

☐ VERMEER 7 x 11	☐ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☒ 10x15
	OTHER _____

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ F-2
OTHER _____

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER _____

RODS

LENGTH OF RODS (ft)
☐ 10 ☐ 15 ☐ 20 ☒ 6'
OF RODS <u>5</u> OTHER _____

DRILL BIT

☒ DUCK BILL	☐ OTHER _____
☐ RAILHEAD	

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	
DIAMETER _____	SDR _____
☒ MECHANICAL	
SETTING (LBS) <u>5050</u>	
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK?	
☐ YES	☒ NO

HORIZONTAL DISTANCE OF BORE <u>30</u> (ft)
PIPE STRING DISTANCE OF BORE <u>80</u> (ft)

MAKE UP WATER

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>80</u>
TASTE SALT? ☐ Y ☐ N	
SMELL CHLORINE? ☐ Y ☐ N	
AMOUNT OF SODA ASH PER 100 GAL ADDED <u>N/A</u> (LBS)	
FINAL pH <u>8.0</u>	FINAL HARDNESS (ppm) <u>80</u>

SOIL TYPE:	☐ Clay	☐ Silt	☐ Sand	☐ Silty Clay	☒ Sandy Clay	☐ Sandy Clay Loam
	☐ Silty Clay Loam	☐ Clay Loam	☐ Silt Loam	☐ Sandy Loam	☐ Loamy Sand	☐ Shale
	☐ Marl	☐ Granite	☐ Other: _____			☐ Loam

9

DIRECTIONAL DRILLING AS-BUILT FORM

NAME OF DRILLING FLUID MANUFACTURER: Wyo-ben

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	4 1/2			
REAMER SIZE		8"		
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Trubore</u> (# / 100 gal)	3015			
ADDITIVE #2: (# / 100 gal)				
ADDITIVE #3: (# / 100 gal)				
ADDITIVE #4: (# / 100 gal)				
ADDITIVE #5: (# / 100 gal)				
ADDITIVE #6: (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	90			
INITIAL FLUID DENSITY (# / gal)	8.515			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	6000	14991		
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3min	2-3min		
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

9

Work Request - G6181 - Beach Village - Phase 1, 2 and 3

SCE&G Directional Drill Report

Date: 9/18/19 Work Order/Account # and Job Name: G6181 Beach Village Phase 1, 2, 3
Contractor: JTH Street/Intersection Location: Reindeer Rd N.
Operator: John Decort Begin Station/Set-up Location: N. on Reindeer Rd N.
Locator: Jeremy MacCormack End Station: S. on Reindeer Rd N.
Rig/Rod Size: _____ Pipe/Type: 4" RC
Rod Length: 6' SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES				Locate Ticket #				EXISTING UTILITIES/STRUCTURES			
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP
1	-23	3' 5"				31						41			
2	-23	4' 7"				32						42			
3	-4	6' 2"				33						43			
4	+13	6'				34						44			
5	+17	4' 11"				35						45			
6						36						46			
7						37						47			
8						38						48			
9						39						49			
10						40						50			
11						41						51			
12						42						52			
13						43						53			
14						44						54			
15						45						55			
16						46						56			
17						47						57			
18						48						58			
19						49						59			
20						50						60			
21						51									
22						52									
23						53									
24						54									
25						55									
26						56									
27						57									
28						58									
29						59									
30						60									

Comments:

30 Ft Bore

Bore
10

Work Request - G6181 - Beach Village - Phase 1, 2 and 3

10

DIRECTIONAL DRILLING AS-BUILT FORM

PROJECT NAME: Beach Village Phase 1,2,3DATE WORK WAS PERFORMED: 9/18/19LOCATION/DESCR. OF BORE: DrainHDD SUBCONTRACTOR: J & H Under Brown
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Corey WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY GEOTECH ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☒ 4"	☐ 11	☐ .188"
	☐ 6"	☒ 11.5	☐ .203"
☐ STEEL	☐ 8"	☐ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER _____

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

- ☐ VERMEER 7 x 11
☐ VERMEER 16 x 20a
☐ VERMEER 18 x 22
☐ VERMEER 24 x 40
☐ VERMEER 36 x 50
☐ DITCH WITCH 27 x 20
☒ 10x15
 OTHER _____

TRACKING SYSTEM

- ☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ F-2
 OTHER _____

MUD MIXING SYSTEM

- ☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER _____

RODS

LENGTH OF RODS (ft)

- ☐ 10 ☐ 15 ☐ 20 ☒ 6'
 # OF RODS 6 OTHER _____

DRILL BIT

- ☒ DUCK BILL ☐ _____
☐ RAILHEAD OTHER _____

BREAK AWAY CONNECTOR

TYPE USED

- ☐ SMALLER DIA PIPE
 DIAMETER _____ SDR _____
☒ MECHANICAL
 SETTING (LBS) 5250
☐ N/A
(INCLUDE EXPLANATION IF N/A)

DID IT BREAK DURING PULLBACK?

- ☐ YES ☒ NO

HORIZONTAL DISTANCE OF BORE 36 (ft)PIPE STRING DISTANCE OF BORE 80 (ft)

MAKE UP WATER

INITIAL pH 7.5 INITIAL HARDNESS (ppm) 80
 TASTE SALT? ☐ Y ☐ N
 SMELL CHLORINE? ☒ Y ☐ N
 AMOUNT OF SODA ASH PER 100 GAL ADDED NA (LBS)
 FINAL pH 8.0 FINAL HARDNESS (ppm) 80

SOIL TYPE: ☐ Clay ☐ Silt ☐ Sand ☐ Silty Clay ☒ Sandy Clay ☐ Sandy Clay Loam
☐ Silty Clay Loam ☐ Clay Loam ☐ Silt Loam ☐ Sandy Loam ☐ Loamy Sand ☐ Shale ☐ Loam
☐ Marl ☐ Granite ☐ Other: _____

Work Request - G6181 - Beach Village - Phase 1, 2 and 3

DIRECTIONAL DRILLING AS-BUILT FORM

NAME OF DRILLING FLUID MANUFACTURER:

Wyoben

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	4 1/2			
REAMER SIZE		8"		
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Trubore</u> (# / 100 gal)	30lb			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	90			
INITIAL FLUID DENSITY (# / gal)	8.516			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	8 gal	14 gal		
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3 min	2-3 min		
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

10

Work Request - G6181 - Beach Village - Phase 1, 2 and 3

SCE&G Directional Drill Report

Date: 9/18/19 Work Order/Account # and Job Name: G6181 Beach Village Phase 1,2,3
Contractor: J+H Street/Intersection Location: Reindeer Rd W.
Operator: John Decost Begin Station/Set-up Location: N. on Reindeer Rd W
Locator: Jeremy McCormick End Station: S. on Reindeer Rd W
Rig/Rod Size: _____ Pipe/Type: 4" PL
Rod Length: 6 SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES			Locate Ticket #				EXISTING UTILITIES/STRUCTURES		
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH		ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	
1	-22	3'6"					31						
2	-19	4'3"					32						
3	-16	4'11"					33						
4	-8	5'8"					34						
5	+13	5'6"					35						
6	+31	4'					36						
7							37						
8							38						
9							39						
10							40						
11							41						
12							42						
13							43						
14							44						
15							45						
16							46						
17							47						
18							48						
19							49						
20							50						
21							51						
22							52						
23							53						
24							54						
25							55						
26							56						
27							57						
28							58						
29							59						
30							60						

Comments:

30 Ft

9/18/19

Bore
11

Work Request - G6181 - Beach Village - Phase 1, 2 and 3

DIRECTIONAL DRILLING AS-BUILT FORM

11

PROJECT NAME: 9/18/19

DATE WORK WAS PERFORMED: 9/18/19

LOCATION/DESCR. OF BORE: Road

HDD SUBCONTRACTOR: J & H Underberg
(COMPANY NAME & OPERATOR NAME)

CONTRACTOR COMPANY NAME: Pike

HDD FLUID REPRESENTATIVE:
(ONLY IF ON-SITE)

FOREMAN RESPONSIBLE FOR PROJECT: Corey Wilson

MAX ANTICIPATED PRESSURE:
(TO BE ENTERED BY SDRS ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☒ 4"	☒ 11	☐ .188"
	☐ 6"	☒ 11.5	☐ .203"
☐ STEEL	☐ 8"	☐ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

☐ VERMEER 7 x 11	☐ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☒ 10x15
	☐ OTHER

TRACKING SYSTEM

☒ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ f-2
☐ OTHER

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER

RODS

LENGTH OF RODS (ft)
☐ 10 ☐ 15 ☐ 20 ☒ 6ft
OF RODS 11
☐ OTHER

DRILL BIT

☒ DUCK BILL	☐ OTHER
☐ RAILHEAD	

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	
DIAMETER _____	SDR _____
☒ MECHANICAL	
SETTING (LBS) 5250	
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK? ☒ YES ☐ NO	

HORIZONTAL DISTANCE OF BORE 66 (ft)

PIPE STRING DISTANCE OF BORE 80 (ft)

MAKE UP WATER

INITIAL pH 7.5	INITIAL HARDNESS (ppm) 80
TASTE SALT? ☐ Y ☐ N	
SMELL CHLORINE? ☒ Y ☐ N	
AMOUNT OF SODA ASH PER 100 GAL ADDED NA (LBS)	
FINAL pH 8.5	FINAL HARDNESS (ppm) 80

SOIL TYPE: ☐ Clay ☐ Silt ☐ Sand ☐ Silty Clay ☒ Sandy Clay ☐ Sandy Clay Loam
☐ Silty Clay Loam ☐ Clay Loam ☐ Silt Loam ☐ Sandy Loam ☐ Loamy Sand ☐ Shale ☐ Loam
☐ Marl ☐ Granite ☐ Other: _____

11

DIRECTIONAL DRILLING AS-BUILT FORMNAME OF DRILLING FLUID MANUFACTURER: WyoBen

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	4 1/2			
REAMER SIZE		8"		
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Tru bore</u> (# / 100 gal)	30 lb			
ADDITIVE #2: (# / 100 gal)				
ADDITIVE #3: (# / 100 gal)				
ADDITIVE #4: (# / 100 gal)				
ADDITIVE #5: (# / 100 gal)				
ADDITIVE #6: (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	90			
INITIAL FLUID DENSITY (# / gal)	8.5 lb			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	8 gal	14 gal		
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3 min	2-3 min		
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

11

SCE&G Directional Drill Report

Date: 9/18/19 Work Order/Account # and Job Name: G6181 Beach Village Phase 1,2,3
 Contractor: Pike Street/Intersection Location: Reindeer Rd N.
 Operator: John Decost Begin Station/Set-up Location: South on Reindeer Rd N
 Location: Jeremy McCormick End Station: North on Reindeer Rd N.
 Rig/Rod Size: _____ Pipe/Type: 4" PL
 Rod Length: 6 ft SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-16	3"				31					
2	-16	3' 5"				32					
3	-17	4' 5"				33					
4	-7	5"				34					
5	+1	5'				35					
6	+2	5'				36					
7	-4	5' 2"				37					
8	-6	5' 10"				38					
9	+2	5' 9"				39					
10	+17	5' 5"				40					
11	+32	4' 7"				41					
12						42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

60 FT Bore

Pond
Bore
12

Work Request - G6181 - Beach Village - Phase 1, 2 and 3

12

DIRECTIONAL DRILLING AS-BUILT FORM

PROJECT NAME: Beach Village Phase 1, 2, 3

DATE WORK WAS PERFORMED: 9/11/19

LOCATION/DESCR. OF BORE: Pond

HDD SUBCONTRACTOR: J & H Under & Brocnel
(COMPANY NAME & OPERATOR NAME)

CONTRACTOR COMPANY NAME: Pike

HDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)

FOREMAN RESPONSIBLE FOR PROJECT: Corey Wilson

MAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SC&S ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2" ☒ 4" ☐ 6" ☐ 8" ☐ 10"	☐ 7 ☐ 11 ☒ 11.5 ☐ 13.5	☐ .154" ☐ .188" ☐ .203" ☐ .219" ☐ .237" ☐ OTHER
☐ STEEL			

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4" ☐ 6" ☐ 8" ☐ 10" ☐ 12"
☐ STEEL	
☒ N/A	

HDD MACHINE USED

- | | |
|---|---|
| ☐ VERMEER 7 x 11 | ☒ VERMEER 24 x 40 |
| ☐ VERMEER 16 x 20a | ☐ VERMEER 36 x 50 |
| ☐ VERMEER 18 x 22 | ☐ DITCH WITCH 27 x 20 |
| | ☒ 10 x 10 <u>other</u> |
| | OTHER |

TRACKING SYSTEM

- ☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ F2
OTHER

MUD MIXING SYSTEM

- ☐ VERMEER 125
☐ DITCHWITCH MM9
☒ Mix 240
OTHER

RODS

LENGTH OF RODS (ft)

- ☒ 10 ☐ 15 ☐ 20 ☐ OTHER

OF RODS 37

DRILL BIT

- ☒ DUCK BILL ☐ OTHER
☐ RAILHEAD

BREAK AWAY CONNECTOR

TYPE USED

- ☐ SMALLER DIA PIPE
DIAMETER _____ SDR _____
☒ MECHANICAL
SETTING (LBS) 5250
☐ N/A (INCLUDE EXPLANATION IF N/A)

DID IT BREAK DURING PULLBACK?

- ☐ YES ☒ NO

HORIZONTAL DISTANCE OF BORE 370 (ft)

PIPE STRING DISTANCE OF BORE 440 (ft)

MAKE UP WATER

INITIAL pH 8.5 INITIAL HARDNESS (ppm) 120
TASTE SALT? ☐ Y ☒ N
SMELL CHLORINE? ☒ Y ☐ N
AMOUNT OF SODA ASH PER 100 GAL ADDED N/A (LBS)
FINAL pH 8.5 FINAL HARDNESS (ppm) 120

SOIL TYPE: ☐ Clay ☐ Silt ☐ Sand ☐ Silty Clay ☒ Sandy Clay ☐ Sandy Clay Loam
☐ Silty Clay Loam ☐ Clay Loam ☐ Silt Loam ☐ Sandy Loam ☐ Loamy Sand ☐ Shale ☐ Loam
☐ Marl ☐ Granite ☐ Other: _____

12

DIRECTIONAL DRILLING AS-BUILT FORM

NAME OF DRILLING FLUID MANUFACTURER: _____

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	5 1/2			
REAMER SIZE		8	8	
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>True bore</u> (# / 100 gal)	30 lb / 100			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)				
INITIAL FLUID DENSITY (# / gal)	9.5			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)	11.5			
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)	400 gals	925 gals	925 gals	
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)				
AVG. THRUST/PULL SPEED THIS PASS (min / rod)				
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☒ YES ☐ NO	☒ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

Approved site

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

172

SCE&G Directional Drill Report

Date: 9-11-19 Work Order/Account # and Job Name: G6181 Beach Village
 Contractor: JTH Street/Intersection Location: Reindeer Rd N.
 Operator: John Begin Station/Set-up Location: South on Reindeer Rd N
 Locator: Jeremy McCormick End Station: North on Reindeer Rd N
 Rig/Rod Size: 24x40 Pipe/Type: 4" PL
 Rod Length: 10' SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES			Locate Ticket #				EXISTING UTILITIES/STRUCTURES		
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH		
1	-12	3'10"				31	0	8'2"					
2	-14	6'1"				32	+3	8'1"					
3	-10	7'1"				33	+5	7'10"					
4	-5	7'4"				34	+5	7'6"					
5	-6	8'1"				35	+11	6'9"					
6	0	8'				36	-12	5'9"					
7	-2	8'3"				37	+27	3'7"					
8	+1	8'1"				38							
9	0	7'11"				39							
10	0	7'11"				40							
11	0	8'				41							
12	0	7'11"				42							
13	-1	8'				43							
14	0	8'				44							
15	0	8'1"				45							
16	0	8"				46							
17	0	7'11"				47							
18	0	8'1"				48							
19	0	7'11"				49							
20	0	8'0"				50							
21	0	8'0"				51							
22	+1	8'0"				52							
23	0	8'1"				53							
24	0	8'3"				54							
25	+3	8'1"				55							
26	+1	8'2"				56							
27	0	8'2"				57							
28	0	8'2"				58							
29	0	8'2"				59							
30	0	8'2"				60							

Comments:

Bore
13

DIRECTIONAL DRILLING AS-BUILT FORM

13

PROJECT NAME: Beach Village Ph 123DATE WORK WAS PERFORMED: 12/1/18LOCATION/DESCR. OF BORE: Reindeer Road-HDD SUBCONTRACTOR: J & H Under Grounder
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Cory WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2" ☒ 4" ☐ 6"	☐ 7 ☐ 11 ☒ 11.5 ☐ 13.5	☐ .154" ☐ .188" ☐ .203" ☐ .219" ☐ .237" ☐ OTHER
☐ STEEL	☐ 8" ☐ 10"		

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4" ☐ 6" ☐ 8" ☐ 10" ☐ 12"
☐ STEEL	
☒ N/A	

HDD MACHINE USED

☐ VERMEER 7 x 11	☐ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☒ <u>16415</u> OTHER

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>F2</u> OTHER

MUD MIXING SYSTEM

☐ VERMEER 125
☐ DITCHWITCH MM9
☐ _____ OTHER

RODS

LENGTH OF RODS (ft)
☐ 10 ☐ 15 ☐ 20 ☐ <u>6</u> # OF RODS <u>8</u> OTHER

DRILL BIT

☒ DUCK BILL	☐ _____ OTHER
☐ RAILHEAD	

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	DIAMETER _____ SDR _____
☒ MECHANICAL	SETTING (LBS) <u>5250</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK? ☐ YES ☒ NO	

HORIZONTAL DISTANCE OF BORE <u>48</u> (ft)
PIPE STRING DISTANCE OF BORE <u>80</u> (ft)

MAKE UP WATER

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>80</u>
TASTE SALT? ☐ Y ☐ N	
SMELL CHLORINE? ☐ Y ☐ N	
AMOUNT OF SODA ASH PER 100 GAL ADDED <u>n/a</u> (LBS)	
FINAL pH <u>8.5</u>	FINAL HARDNESS (ppm) <u>80</u>

SOIL TYPE:	☐ Clay	☐ Silt	☐ Sand	☐ Silty Clay	☒ Sandy Clay	☐ Sandy Clay Loam	
	☐ Silty Clay Loam	☐ Clay Loam	☐ Silt Loam	☐ Sandy Loam	☐ Loamy Sand	☐ Shale	☐ Loam
	☐ Marl	☐ Granite	☐ Other: _____				

13

DIRECTIONAL DRILLING AS-BUILT FORM

NAME OF DRILLING FLUID MANUFACTURER: Wyomen

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	4 1/2"			
REAMER SIZE		8"		
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Turbop</u> (# / 100 gal)	30lb			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	90			
INITIAL FLUID DENSITY (# / gal)	8.516			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	8gal	14gal		
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3 min	2-3 min		
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

13

SCE&G Directional Drill Report

Date: 10/1/19 Work Order/Account # and Job Name: C4187 Beach Village Ph 1, 23
 Contractor: JTH Street/Intersection Location: Reindeer Road
 Operator: Jason Conroy Begin Station/Set-up Location: West Reindeer Road
 Locator: Charles Ave End Station: East Reindeer Road
 Rlg/Rod Size: 4" PL Pipe Size/Type: 4" PL
 Rod Length: 6" SCE&G Inspector: Spencer Tamm

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	+23	3'6"				31					
2	-5	3'9"				32					
3	0	3'11"				33					
4	+1	4'				34					
5	0	4'3"				35					
6	0	4'2"				36					
7	+3	4'				37					
8	+5	3'6"				38					
9						39					
10						40					
11						41					
12						42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

DIRECTIONAL DRILLING AS-BUILT FORMPROJECT NAME: Beach Village Phase 1,2,3DATE WORK WAS PERFORMED: 9/3/19LOCATION/DESCR. OF BORE: Reindeer Rd.

HDD SUBCONTRACTOR:

(COMPANY NAME & OPERATOR NAME)

CONTRACTOR COMPANY NAME: Pike

HDD FLUID REPRESENTATIVE:

(ONLY IF ON-SITE)

FOREMAN RESPONSIBLE FOR PROJECT: Corey Wilson

MAX ANTICIPATED PRESSURE :

(TO BE ENTERED BY SCE&G ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☒ 4"	☐ 11	☐ .188"
	☐ 6"	☒ 11.5	☐ .203"
☐ STEEL	☐ 8"	☐ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

- ☐ VERMEER 7 x 11
☐ VERMEER 16 x 20a
☐ VERMEER 18 x 22
☐ VERMEER 24 x 40
☐ VERMEER 36 x 50
☐ DITCH WITCH 27 x 20
☒ 10x15
 OTHER

TRACKING SYSTEM

- ☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ F-2
 OTHER

MUD MIXING SYSTEM

- ☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER

RODS**LENGTH OF RODS (ft)**

- ☐ 10 ☐ 15 ☐ 20 ☒ 6ft
 # OF RODS 8 OTHER

DRILL BIT

- ☒ DUCK BILL ☐ OTHER
☐ RAILHEAD

BREAK AWAY CONNECTOR**TYPE USED**

- ☐ SMALLER DIA PIPE
 DIAMETER _____ SDR _____
☒ MECHANICAL
 SETTING (LBS) 5250
☐ N/A
 (INCLUDE EXPLANATION IF N/A)
 DID IT BREAK DURING PULLBACK? ☐ YES ☒ NO

HORIZONTAL DISTANCE OF BORE 48 (ft)PIPE STRING DISTANCE OF BORE 80 (ft)**MAKE UP WATER**

INITIAL pH 7.5 INITIAL HARDNESS (ppm) 80
 TASTE SALT? ☐ Y ☐ N
 SMELL CHLORINE? ☐ Y ☐ N
 AMOUNT OF SODA ASH PER 100 GAL ADDED N/A (LBS)
 FINAL pH 8.5 FINAL HARDNESS (ppm) 80

SOIL TYPE: ☐ Clay ☐ Silt ☐ Sand ☐ Silty Clay ☒ Sandy Clay ☐ Sandy Clay Loam
☐ Silty Clay Loam ☐ Clay Loam ☐ Silt Loam ☐ Sandy Loam ☐ Loamy Sand ☐ Shale ☐ Loam
☐ Marl ☐ Granite ☐ Other: _____

DIRECTIONAL DRILLING AS-BUILT FORM

(14)

NAME OF DRILLING FLUID MANUFACTURER: Wyoben

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	4 1/2			
REAMER SIZE		8"		
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Trubore</u> (# / 100 gal)	30lb			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	90			
INITIAL FLUID DENSITY (# / gal)	8.5 lb			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	8 gal	14 gal		
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3 min	2-3 min		
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

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SCE&G Directional Drill Report

Date: 9/3/19 Work Order/Account # and Job Name: G6181 Beach Village Phase 1,2,3
 Contractor: J+H Street/Intersection Location: Reindeer Rd.
 Operator: Jason Cury Begin Station/Set-up Location: S. on Reindeer Rd.
 Locator: Charles Adel End Station: N. on Reindeer Rd
 Rig/Rod Size: _____ Pipe Size/Type: 4" PL
 Rod Length: 6" SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-30	4'4"				31					
2	-25	6'				32					
3	-15	6'10"				33					
4	-7	7'9"				34					
5	-1	7'6"				35					
6	+3	7'6"				36					
7	+7	6'11"				37					
8	+14	6'4"				38					
9						39					
10						40					
11						41					
12						42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

10/11/19

BORE
15

(15)

BORE
1 Road**DIRECTIONAL DRILLING AS-BUILT FORM**PROJECT NAME: Beach Village Ph. 1,2,3DATE WORK WAS PERFORMED: 10/1/19LOCATION/DESCR. OF BORE: Corner Auburn Lane/Reindorff RdHDD SUBCONTRACTOR: J & H Underground
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Corey WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)**CARRIER PIPE**

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2" ☒ 4" ☐ 6" ☐ 8" ☐ 10"	☐ 7 ☐ 11 ☒ 11.5 ☐ 13.5	☐ .154" ☐ .188" ☒ .203" ☐ .219" ☐ .237" ☐ OTHER
☐ STEEL			

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4" ☐ 6" ☐ 8" ☐ 10" ☐ 12"
☐ STEEL	
☒ N/A	

HDD MACHINE USED

☐ VERMEER 7 x 11	☐ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☒ <u>10 x 15</u>
	OTHER _____

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>F-2</u>
OTHER _____

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
OTHER _____

RODS

LENGTH OF RODS (ft)
☐ 10 ☐ 15 ☐ 20 ☒ <u>6 ft</u>
OF RODS <u>6</u>
OTHER _____

DRILL BIT

☒ DUCK BILL	☐ _____
☐ RAILHEAD	OTHER _____

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	DIAMETER _____ SDR _____
☒ MECHANICAL	SETTING (LBS) <u>5250</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A) _____
DID IT BREAK DURING PULLBACK?	
☐ YES	☒ NO

HORIZONTAL DISTANCE OF BORE 36 (ft)PIPE STRING DISTANCE OF BORE 80 (ft)**MAKE UP WATER**

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>80</u>
TASTE SALT? ☐ Y ☐ N	
SMELL CHLORINE? ☐ Y ☐ N	
AMOUNT OF SODA ASH PER 100 GAL ADDED <u>N/A</u> (LBS)	
FINAL pH <u>8.5</u>	FINAL HARDNESS (ppm) <u>80</u>

SOIL TYPE: ☐ Clay ☐ Silt ☐ Sand ☐ Silty Clay ☒ Sandy Clay ☐ Sandy Clay Loam
☐ Silty Clay Loam ☐ Clay Loam ☐ Silt Loam ☐ Sandy Loam ☐ Loamy Sand ☐ Shale ☐ Loam
☐ Marl ☐ Granite ☐ Other: _____

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DIRECTIONAL DRILLING AS-BUILT FORM

NAME OF DRILLING FLUID MANUFACTURER: _____

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	4 1/2			
REAMER SIZE				
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: _____ (# / 100 gal)	30 lb			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	90			
INITIAL FLUID DENSITY (# / gal)	8.5			
DENSITY OF RETURN FLUID @ BORE MIDPT (# / gal)				
DENSITY OF RETURN FLUID @ END OF BORE (# / gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	8 gal	14 gal		
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3 min	2-3 min		
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT? _____

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

15

SCE&G Directional Drill Report

Date: 10/1/19 Work Order/Account # and Job Name: G6181 Beach Village Ph 12,3
Contractor: J+H Street/Intersection Location: Auburn Lane / Reindeer Rd N.
Operator: Jason Conner Begin Station/Set-up Location: Reindeer Rd N.
Locator: Charles Ard End Station: Auburn Lane
Rig/Rod Size: 4" Pipe Size/Type: 4"
Rod Length: 6" SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	0	3'	2'10"			31					
2	-2	3'				32					
3	-1	3'2"				33					
4	0	3'5"				34					
5	+2	3'6"				35					
6	0	3'5"				36					
7						37					
8						38					
9						39					
10						40					
11						41					
12						42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

Bore
16

(16)

DIRECTIONAL DRILLING AS-BUILT FORMPROJECT NAME: Beach Village Ph. 1,2,3DATE WORK WAS PERFORMED: 10/2/19LOCATION/DESCR. OF BORE: Auburn LaneHDD SUBCONTRACTOR: J + H under ground
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Carey WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)**CARRIER PIPE**

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☒ 4"	☐ 11	☐ .188"
	☐ 6"	☒ 11.5	☐ .203"
☐ STEEL	☐ 8"	☐ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER _____

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

☐ VERMEER 7 x 11	☐ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☒ <u>10 x 15</u>
	OTHER _____

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>F-Z</u>
OTHER _____

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
OTHER _____

RODS

LENGTH OF RODS (ft)			
☐ 10	☐ 15	☐ 20	☒ <u>6 ft</u>
# OF RODS <u>33</u>			OTHER _____

DRILL BIT

☒ DUCK BILL	☐ _____
☐ RAILHEAD	OTHER _____

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	DIAMETER _____ SDR _____
☒ MECHANICAL	SETTING (LBS) <u>5250</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK ?	
☐ YES	☐ NO

HORIZONTAL DISTANCE OF BORE <u>198</u>	(ft)
PIPE STRING DISTANCE OF BORE <u>250</u>	(ft)

MAKE UP WATER

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>80</u>
TASTE SALT ?	☐ Y ☐ N
SMELL CHLORINE ?	☐ Y ☐ N
AMOUNT OF SODA ASH PER 100 GAL ADDED <u>N/A</u>	(LBS)
FINAL pH <u>8.5</u>	FINAL HARDNESS (ppm) <u>80</u>

SOIL TYPE:	☐ Clay	☐ Silt	☐ Sand	☐ Silty Clay	☒ Sandy Clay	☐ Sandy Clay Loam
	☐ Silty Clay Loam	☐ Clay Loam	☐ Silt Loam	☐ Sandy Loam	☐ Loamy Sand	☐ Shale
	☐ Marl	☐ Granite	☐ Other: _____			

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DIRECTIONAL DRILLING AS-BUILT FORM

NAME OF DRILLING FLUID MANUFACTURER: _____

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	4 1/2			
REAMER SIZE				
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: _____ (# / 100 gal)	30 lb			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	90			
INITIAL FLUID DENSITY (# / gal)	8.5			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	8 gal	14 gal		
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3 min	2-3 min		
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT? _____

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

10/2/19

(16)

SCE&G Directional Drill Report

Date: 10/2/19 Work Order/Account # and Job Name: Q6181 Beach Village Phase 1,2,3
 Contractor: J4H Street/Intersection Location: Auburn Lane / Colony Dr
 Operator: Jason Begin Station/Set-up Location: S. Auburn Lane
 Locator: Charles End Station: N. Auburn Lane
 Rig/Rod Size: 4" Pipe Size/Type: 4"
 Rod Length: 6" SCE&G Inspector: Spencer Thorne

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-30	3'9"				31	+1	3'1"			
2	-20	4'8"				32	0	3'3"			
3	-5	5'2"				33	0	3'1"			
4	+5	5'				34					
5	+6	4'9"				35					
6	+5	4'3"				36					
7	+5	4'2"				37					
8	+4	3'7"				38					
9	+3	3'3"				39					
10	0	3'3"				40					
11	-3	3'6"				41					
12	-3	3'6"				42					
13	0	3'5"				43					
14	0	3'7"				44					
15	0	3'7"				45					
16	-1	3'10"				46					
17	0	3'9"				47					
18	+1	3'10"				48					
19	-3	3'11"				49					
20	0	3'11"				50					
21	0	3'10"				51					
22	0	3'8"				52					
23	0	3'8"				53					
24	-1	4'0"				54					
25	-2	4'3"				55					
26	-1	4'0"				56					
27	+2	3'9"				57					
28	0	3'10"				58					
29	0	3'9"				59					
30	+3	3'3"				60					
Comments:											

200

Bore
17

(17)

DIRECTIONAL DRILLING AS-BUILT FORMPROJECT NAME: Breach Village Ph 1,2,3DATE WORK WAS PERFORMED: 10/3/19LOCATION/DESCR. OF BORE: Auburn LaneHDD SUBCONTRACTOR: J & H Under Ground
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Cory WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2" ☒ 4" ☐ 6" ☐ 8" ☐ 10"	☐ 7 ☐ 11 ☒ 11.5 ☐ 13.5	☐ .154" ☐ .188" ☐ .203" ☐ .219" ☐ .237" ☐ OTHER
☐ STEEL			

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4" ☐ 6" ☐ 8" ☐ 10" ☐ 12"
☐ STEEL	
☒ N/A	

HDD MACHINE USED

☐ VERMEER 7 x 11	☐ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☒ <u>Vermeer 10x15</u>
	OTHER _____

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>F2</u>
OTHER _____

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
OTHER _____

RODS

LENGTH OF RODS (ft)			
☐ 10	☐ 15	☐ 20	☒ <u>6"</u>
OTHER _____			
# OF RODS <u>30</u>			

DRILL BIT

☒ DUCK BILL	☐ _____
☐ RAILHEAD	OTHER _____

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	DIAMETER _____ SDR _____
☒ MECHANICAL	SETTING (LBS) <u>5250</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK ?	
☐ YES	☒ NO

HORIZONTAL DISTANCE OF BORE	<u>180</u>	(ft)
PIPE STRING DISTANCE OF BORE	<u>240</u>	(ft)

MAKE UP WATER

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>48</u>
TASTE SALT ?	☐ Y ☐ N
SMELL CHLORINE?	☒ Y ☐ N
AMOUNT OF SODA ASH PER 100 GAL ADDED	<u>N/A</u> (LBS)
FINAL pH <u>6.9</u>	FINAL HARDNESS (ppm) <u>88</u>

SOIL TYPE:	☐ Clay	☐ Silt	☐ Sand	☐ Silty Clay	☒ Sandy Clay	☐ Sandy Clay Loam
	☐ Silty Clay Loam	☐ Clay Loam	☐ Silt Loam	☐ Sandy Loam	☐ Loamy Sand	☐ Shale
	☐ Marl	☐ Granite	☐ Other: _____			

17

DIRECTIONAL DRILLING AS-BUILT FORM

NAME OF DRILLING FLUID MANUFACTURER: Wysben

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	4 1/2			
REAMER SIZE		8		
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☒ YES ☒ NO	☒ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Turbore</u> (# / 100 gal)	3816			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	90			
INITIAL FLUID DENSITY (# / gal)	8.515			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	8 gal?	14 gal?		
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3 min	2-3 min		
INADVERTENT RETURNS (FRAC-OUTS)?	☒ YES ☒ NO	☒ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☒ YES ☒ NO	☒ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

10/3/19

(17)

SCE&G Directional Drill Report

Date: 10/3/19 Work Order/Account # and Job Name: 06187 Beach Village 1, 23
 Contractor: J+H Street/Intersection Location: Auburn Lane
 Operator: Jason Begin Station/Set-up Location: W. Auburn Lane
 Locator: Charles And End Station: S. Auburn Lane
 Rig/Rod Size: 6" Pipe Size/Type: 4" PE
 Rod Length: 6" SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-15	3'3"				31					
2	-6	4'2"				32					
3	-5	4'6"				33					
4	-5	5'2"				34					
5	-3	5'4"				35					
6	-1	5'5"				36					
7	0	5'9"				37					
8	+1	6'				38					
9	+4	5'8"				39					
10	+6	5'4"				40					
11	+5	5'				41					
12	+4	4'7"				42					
13	+7	4'11" 4'1"				43					
14	0	3'9"				44					
15	-2	3'7"				45					
16	-1	3'8"				46					
17	+3	3'6"				47					
18	0	4'1"				48					
19	-3	4'5"				49					
20	-3	4'				50					
21	-1	3'8"				51					
22	-2	3'9"				52					
23	0	3'8"				53					
24	0	3'7"				54					
25	+1	3'1"				55					
26	-1	3'				56					
27	+1	4'4"				57					
28	+5	4'2"				58					
29	+8	3'10"				59					
30	+15	2'11"				60					

Comments:

Bore
18

18

DIRECTIONAL DRILLING AS-BUILT FORMPROJECT NAME: Beach VillageDATE WORK WAS PERFORMED: 10/7/19LOCATION/DESCR. OF BORE: Auburn LaneHDD SUBCONTRACTOR: JH Under Brown
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Corey WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)**CARRIER PIPE**

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☐ 2"	☐ 7	☐ .154"
	☒ 4"	☐ 11	☐ .188"
	☐ 6"	☒ 11.5	☐ .203"
☐ STEEL	☐ 8"	☐ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

☐ VERMEER 7 x 11	☐ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☐ <u>10x15</u>
	OTHER

TRACKING SYSTEM

☐ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☒ <u>1-2</u>
OTHER

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER

RODS

LENGTH OF RODS (ft)
☐ 10 ☐ 15 ☐ 20 ☒ <u>6</u>
OF RODS <u>20</u>
OTHER

DRILL BIT

☒ DUCK BILL	☐ OTHER
☐ RAILHEAD	

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	DIAMETER _____ SDR <u>6</u>
☒ MECHANICAL	SETTING (LBS) <u>5250</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK?	
☐ YES	☒ NO

HORIZONTAL DISTANCE OF BORE 168 (ft)PIPE STRING DISTANCE OF BORE 180 (ft)**MAKE UP WATER**

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>88</u>
TASTE SALT? ☐ Y ☐ N	
SMELL CHLORINE? ☒ Y ☐ N	
AMOUNT OF SODA ASH PER 100 GAL ADDED <u>N/A</u> (LBS)	
FINAL pH <u>8.5</u>	FINAL HARDNESS (ppm) <u>90</u>

SOIL TYPE: ☐ Clay ☐ Silt ☐ Sand ☐ Silty Clay ☒ Sandy Clay ☐ Sandy Clay Loam
☐ Silty Clay Loam ☐ Clay Loam ☐ Silt Loam ☐ Sandy Loam ☐ Loamy Sand ☐ Shale ☐ Loam
☐ Marl ☐ Granite ☐ Other: _____

(18)

DIRECTIONAL DRILLING AS-BUILT FORMNAME OF DRILLING FLUID MANUFACTURER: Wyoben

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	4 1/2			
REAMER SIZE		8"		
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☐ YES ☒ NO	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>True bore</u> (# / 100 gal)	30 lb			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	90			
INITIAL FLUID DENSITY (# / gal)	8.5 lb			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	8 gal	14 gal		
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3 min	2-3 min		
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

10/7/19
End 4" PL
BORE

18

SCE&G Directional Drill Report

Date: 10/7/19 Work Order/Account # and Job Name: G6181 Beech Village Ph 123
Contractor: J&H Street/Intersection Location: Auburn Lane
Operator: Jason Cansoy Begin Station/Set-up Location: N Auburn Lane
Locator: Charles Ard End Station: S. Auburn Lane
Rig/Rod Size: 4" PL Pipe Size/Type: 4" PL
Rod Length: 6' SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-30	4'				31					
2	-17	5'5"				32					
3	-6	5'11"				33					
4	+3	5'10"				34					
5	+3	5'11"				35					
6	+2	6'				36					
7	+3	6'				37					
8	+5	5'6"				38					
9	+5	5'2"				39					
10	+13	4'5"				40					
11	+11	3'11"				41					
12	+1	3'10"				42					
13	0	3'10"				43					
14	0	3'9"				44					
15	-2	3'11"				45					
16	-1	4'				46					
17	-2	4'1"				47					
18	+1	4'1"				48					
19	0	4'4"				49					
20	0	4'6"				50					
21	+2	4'5"				51					
22	+2	4'3"				52					
23	+3	4'5"				53					
24	+3	4'8"				54					
25	+4	4'1"				55					
26	+4	4'2"				56					
27	+7	3'10"				57					
28	+9	2'10"				58					
29						59					
30						60					

Comments:

Bore
19

19

DIRECTIONAL DRILLING AS-BUILT FORMPROJECT NAME: Beach Village Phase 1,2,3DATE WORK WAS PERFORMED: 10/9/19LOCATION/DESCR. OF BORE: Auburn-DaveHDD SUBCONTRACTOR: J & H Undergrowth
(COMPANY NAME & OPERATOR'S NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Cory WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)**CARRIER PIPE**

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☒ 2"	☐ 7	☐ .154"
	☐ 4"	☒ 11	☐ .188"
	☐ 6"	☐ 11.5	☐ .203"
☐ STEEL	☐ 8"	☐ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER

CASING PIPE

MATERIAL	NOMINAL DIA
☒ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

☐ VERMEER 7 x 11	☐ VERMEER 24 x 40
☐ VERMEER 16 x 20a	☐ VERMEER 36 x 50
☐ VERMEER 18 x 22	☐ DITCH WITCH 27 x 20
	☒ <u>Vermeer 10X15</u>
	OTHER

TRACKING SYSTEM

☒ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☐ OTHER

MUD MIXING SYSTEM

☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER

RODS

LENGTH OF RODS (ft)
☐ 10 ☐ 15 ☐ 20 ☒ 6'
OF RODS <u>11</u> OTHER

DRILL BIT

☒ DUCK BILL	☐ OTHER
☐ RAILHEAD	

BREAK AWAY CONNECTOR

TYPE USED	
☐ SMALLER DIA PIPE	DIA _____ SDR _____
☒ MECHANICAL	SETTING (LBS) <u>1500</u>
☐ N/A	(INCLUDE EXPLANATION IF N/A)
DID IT BREAK DURING PULLBACK?	
☐ YES	☒ NO

HORIZONTAL DISTANCE OF BORE <u>66</u> (ft)
PIPE STRING DISTANCE OF BORE <u>80</u> (ft)

MAKE UP WATER

INITIAL pH _____	INITIAL HARDNESS (ppm) _____
TASTE SALT? ☐ Y ☐ N	
SMELL CHLORINE? ☐ Y ☐ N	
AMOUNT OF SODA ASH PER 100 GAL ADDED _____ (LBS)	
FINAL pH _____	FINAL HARDNESS (ppm) _____

SOIL TYPE:	☐ Clay	☐ Silt	☒ Sand	☐ Silty Clay	☐ Sandy Clay	☐ Sandy Clay Loam
	☐ Silty Clay Loam	☐ Clay Loam	☐ Silt Loam	☐ Sandy Loam	☐ Loamy Sand	☐ Shale
	☐ Marl	☐ Granite	☐ Other: _____			

(19)

DIRECTIONAL DRILLING AS-BUILT FORMNAME OF DRILLING FLUID MANUFACTURER: Wyooben

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE <u>4"</u>				
REAMER SIZE				
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Trubore</u> (# / 100 gal)	<u>30 lb</u>			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	<u>90</u>			
INITIAL FLUID DENSITY (# / gal)	<u>8.5</u>			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	<u>11991</u>			
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	<u>2-3</u>			
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

10/9/19

Road
Bore

(19)

10-9-19
2nd Road
Shot

SCE&G Directional Drill Report

Date: 10-9-19 Work Order/Account # and Job Name: G6181 Beach Village Ph. 123

Contractor: JTH Street/Intersection Location: Auburn Lane

Operator: John DeCost Begin Station/Set-up Location: Corner Auburn Lane / Marsh Deer Place

Locator: End Station: Auburn Lane

Rig/Rod Size: Pipe Size/Type: 2"

Rod Length: 6 FT SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-13	3'1"				31					
2	-17	3'7"				32					
3	-24	5'0"				33					
4	-25	6'7"				34					
5	-22	6'11"				35					
6	-8	7'4"				36					
7	-2	7'4"				37					
8	+10	6'11"				38					
9	+17	6'5"				39					
10	+26	4'8"				40					
11	+28	3'2"				41					
12						42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

Power

Water →
Phone →

Bore
20

20

DIRECTIONAL DRILLING AS-BUILT FORMPROJECT NAME: Beach Village PhaseDATE WORK WAS PERFORMED: 10/9/19LOCATION/DESCR. OF BORE: The Pond on Marsh Deer placeHDD SUBCONTRACTOR: J & H Undergrawner
(COMPANY NAME & OPERATOR NAME)CONTRACTOR COMPANY NAME: PikeHDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)FOREMAN RESPONSIBLE FOR PROJECT: Corey WilsonMAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)

CARRIER PIPE

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☒ 2"	☐ 7	☐ .154"
	☐ 4"	☒ 11	☐ .188"
	☐ 6"	☐ 11.5	☐ .203"
☐ STEEL	☐ 8"	☐ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER _____

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

- | | |
|---|--|
| ☐ VERMEER 7 x 11 | ☐ VERMEER 24 x 40 |
| ☐ VERMEER 16 x 20a | ☐ VERMEER 36 x 50 |
| ☐ VERMEER 18 x 22 | ☐ DITCH WITCH 27 x 20 |
| | ☒ <u>Vermeer 10x16</u> |
| | ☐ OTHER _____ |

TRACKING SYSTEM

- | |
|---|
| ☒ VERMEER DIGITRACK |
| ☐ DITCH WITCH SUB SITE |
| ☐ OTHER _____ |

MUD MIXING SYSTEM

- | |
|---|
| ☒ VERMEER 125 |
| ☐ DITCHWITCH MM9 |
| ☐ OTHER _____ |

RODS

LENGTH OF RODS (ft)

- | | | | |
|--------------------------------------|-----------------------------|-----------------------------|---|
| ☐ 10 | ☐ 15 | ☐ 20 | ☒ <u>6'</u> |
| ☐ OTHER _____ | | | |

OF RODS 12

DRILL BIT

- | | |
|---|--------------------------------------|
| ☒ DUCK BILL | ☐ _____ |
| ☐ RAILHEAD | ☐ OTHER _____ |

BREAK AWAY CONNECTOR

TYPE USED

- | | | |
|--|------------------------------------|-----------|
| ☐ SMALLER DIA PIPE | DIAMETER _____ | SDR _____ |
| ☒ MECHANICAL | SETTING (LBS) <u>1500</u> | |
| ☐ N/A | (INCLUDE EXPLANATION IF N/A) _____ | |

DID IT BREAK DURING PULLBACK ?

- | | |
|------------------------------|-----------------------------|
| ☐ YES | ☐ NO |
|------------------------------|-----------------------------|

HORIZONTAL DISTANCE OF BORE 72 (ft)PIPE STRING DISTANCE OF BORE 120 (ft)

MAKE UP WATER

INITIAL pH <u>7.5</u>	INITIAL HARDNESS (ppm) <u>80</u>
TASTE SALT ? ☐ Y ☐ N	
SMELL CHLORINE ? ☒ Y ☐ N	
AMOUNT OF SODA ASH PER 100 GAL ADDED <u>n/a</u> (LBS)	
FINAL pH <u>8.5</u>	FINAL HARDNESS (ppm) <u>80</u>

SOIL TYPE:

- | | | | | | |
|--|------------------------------------|---------------------------------------|-------------------------------------|--|--|
| ☐ Clay | ☐ Silt | ☐ Sand | ☐ Silty Clay | ☒ Sandy Clay | ☐ Sandy Clay Loam |
| ☐ Silty Clay Loam | ☐ Clay Loam | ☐ Silt Loam | ☐ Sandy Loam | ☐ Loamy Sand | ☐ Shale |
| ☐ Marl | ☐ Granite | ☐ Other: _____ | | | |

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DIRECTIONAL DRILLING AS-BUILT FORM

NAME OF DRILLING FLUID MANUFACTURER:

Wxoben

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE <u>8.5</u>	<u>8.5</u>			
REAMER SIZE				
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Trubore</u> (# / 100 gal)	<u>3016</u>			
ADDITIVE #2: (# / 100 gal)				
ADDITIVE #3: (# / 100 gal)				
ADDITIVE #4: (# / 100 gal)				
ADDITIVE #5: (# / 100 gal)				
ADDITIVE #6: (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)	<u>90</u>			
INITIAL FLUID DENSITY (# / gal)	<u>8.516</u>			
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)				
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)				
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	<u>11 gal</u>			
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	<u>2-3</u>			
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT?

Designated location

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

10-9-14 1st shot/pond/

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SCE&G Directional Drill Report

Date: 10-9-19 Work Order/Account # and Job Name: 66181 Beach Village Ph. 1,2,3
 Contractor: JTH Street/Intersection Location: Marsh Deer Place
 Operator: John DeCost Begin Station/Set-up Location: N. Marsh Deer Place
 Locator: 31 End Station: S. Marsh Deer Place
 Rig/Rod Size: 2" Pipe Size/Type: 2"
 Rod Length: 6 FT SCE&G Inspector: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-23	4'5				31					
2	-23	5'9				32					
3	-12	6'10				33					
4	0	6'11				34					
5	+6	6'10				35					
6	+4	6'10				36					
7	+15	5'5				37					
8	+14	5'0				38					
9	+27	4'5				39					
10	+31	3'7				40					
11	+38	3'0				41					
12	+26	3'2				42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

DIRECTIONAL DRILLING AS-BUILT FORMPROJECT NAME: Beach Village Ph 1,2,3LOCATION/DESCR. OF BORE: Reindeer Rd.CONTRACTOR COMPANY NAME: PilleFOREMAN RESPONSIBLE FOR PROJECT: Corey WilsonDATE WORK WAS PERFORMED: 11/20/19HDD SUBCONTRACTOR: _____
(COMPANY NAME & OPERATOR NAME)HDD FLUID REPRESENTATIVE: _____
(ONLY IF ON-SITE)MAX ANTICIPATED PRESSURE: _____
(TO BE ENTERED BY SCE&G ENGINEER)**CARRIER PIPE**

MATERIAL	NOMIAL DIA	PLASTIC SDR	STEEL WALL THICKNESS
☒ PLASTIC	☒ 2"	☐ 7	☐ .154"
	☐ 4"	☒ 11	☐ .188"
	☐ 6"	☐ 11.5	☐ .203"
☐ STEEL	☐ 8"	☐ 13.5	☐ .219"
	☐ 10"		☐ .237"
			☐ OTHER

CASING PIPE

MATERIAL	NOMINAL DIA
☐ PLASTIC	☐ 4"
	☐ 6"
☐ STEEL	☐ 8"
	☐ 10"
☒ N/A	☐ 12"

HDD MACHINE USED

- ☐ VERMEER 7 x 11
☐ VERMEER 16 x 20a
☐ VERMEER 18 x 22
☐ VERMEER 24 x 40
☐ VERMEER 36 x 50
☐ DITCH WITCH 27 x 20
☒ 10X15
 OTHER

TRACKING SYSTEM

- ☒ VERMEER DIGITRACK
☐ DITCH WITCH SUB SITE
☐ OTHER

MUD MIXING SYSTEM

- ☒ VERMEER 125
☐ DITCHWITCH MM9
☐ OTHER

RODS

LENGTH OF RODS (ft)

- ☐ 10 ☐ 15 ☐ 20 ☒ 6
 # OF RODS 6 OTHER

DRILL BIT

- ☒ DUCK BILL
☐ RAILHEAD
☐ OTHER

BREAK AWAY CONNECTOR**TYPE USED**

- ☐ SMALLER DIA PIPE
 DIAMETER _____ SDR _____
☒ MECHANICAL
 SETTING (LBS) 1500
☐ N/A (INCLUDE EXPLANATION IF N/A)

DID IT BREAK DURING PULLBACK ?

- ☐ YES ☒ NO

HORIZONTAL DISTANCE OF BORE 30 (ft)PIPE STRING DISTANCE OF BORE 40 (ft)**MAKE UP WATER**

INITIAL pH 7.5 INITIAL HARDNESS (ppm) 80
 TASTE SALT ? ☐ Y ☐ N
 SMELL CHLORINE ? ☒ Y ☐ N
 AMOUNT OF SODA ASH PER 100 GAL ADDED N/A (LBS)
 FINAL pH 8.5 FINAL HARDNESS (ppm) 80

SOIL TYPE: ☐ Clay ☐ Silt ☐ Sand ☐ Silty Clay ☒ Sandy Clay ☐ Sandy Clay Loam
☐ Silty Clay Loam ☐ Clay Loam ☐ Silt Loam ☐ Sandy Loam ☐ Loamy Sand ☐ Shale ☐ Loam
☐ Marl ☐ Granite ☐ Other: _____

DIRECTIONAL DRILLING AS-BUILT FORM

(21)

NAME OF DRILLING FLUID MANUFACTURER: _____

	PILOT BORE	REAM 1	REAM 2	REAM 3
PILOT HOLE SIZE	5 1/2			
REAMER SIZE				
REAMER TYPE (barrel, fluted, open, etc)				
WAS PIPE PULLED BACK ON THIS PASS? (Y/N)	☒ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
ADDITIVE #1: <u>Trubone</u> (# / 100 gal)	30 lb			
ADDITIVE #2: _____ (# / 100 gal)				
ADDITIVE #3: _____ (# / 100 gal)				
ADDITIVE #4: _____ (# / 100 gal)				
ADDITIVE #5: _____ (# / 100 gal)				
ADDITIVE #6: _____ (# / 100 gal)				
INITIAL FLUID VISCOSITY (sec / qt)				
INITIAL FLUID DENSITY (# / gal)				
DENSITY OF RETURN FLUID @ BORE MIDPT (#/gal)	9.0			
DENSITY OF RETURN FLUID @ END OF BORE (#/gal)	8.5 lb			
MAX. MUD PUMPING PRESSURE (psi, if known)				
EST. VOL. OF FLUID USED THIS PASS (gal)				
AVG. FLUID PUMPING RATE THIS PASS (gal/rod)	11 gal			
AVG. THRUST/PULL SPEED THIS PASS (min / rod)	2-3 min			
INADVERTENT RETURNS (FRAC-OUTS)?	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO
EXPERIENCE ANY LOSS OF RETURNS?	☐ YES ☒ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO

WHERE WERE SPENT FLUIDS DISPOSED AT? _____

ADDITIONAL NOTES & COMMENTS:

GENERAL NOTES: ACTUAL PATH ALIGNMENT AND DEPTH OF COVER FOR CASING/CARRIER PIPE TO BE INDICATED ON AS-BUILT DRAWINGS AND TABLES. CARRIER PIPE PRESSURE TEST REPORTS TO BE INDICATED ON ATTACHED TEST REPORTS.

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SCE&G Directional Drill Report

Date: 11/20/19 Work Order/Account # and Job Name: 244841 - G6681 Beach Village Ph 1,2,3
Contractor: John DeCost Street/Intersection Location: Reindeer Rd
Operator: JV Begin Station/Set-up Location: left side Reindeer Rd
Locator: 2" PL End Station: Rightside Reindeer Rd.
Rig/Rod Size: 6 ft Pipe Size/Type: 2" PL
Rod Length: Spencer Turner

Daily Report #				EXISTING UTILITIES/STRUCTURES		Locate Ticket #				EXISTING UTILITIES/STRUCTURES	
ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH	ROD #	PITCH +/-	DEPTH	DISTANCE FROM EOP	TYPE	DEPTH
1	-30	3'8"				31					
2	-15	4'6"				32					
3	-1	4'10"				33					
4	+5	4'6"				34					
5	+7	3'8"				35					
6	+8	3'3"				36					
7						37					
8						38					
9						39					
10						40					
11						41					
12						42					
13						43					
14						44					
15						45					
16						46					
17						47					
18						48					
19						49					
20						50					
21						51					
22						52					
23						53					
24						54					
25						55					
26						56					
27						57					
28						58					
29						59					
30						60					

Comments:

30 ft