

# GROUND FRAME™

## Installation Instructions Beam (GFB-200)



### OVERVIEW

The Ground Frame Foundation System provides a solid, stable, and efficient foundation that captures and preserves the supporting strength and natural functions of the Earth's soil and provides a flexible connection to the structure above.

### IMPORTANT NOTE:

- Prior to commencing work, all installations must be reviewed by Ground Frame engineering team or the project engineer of record.
- Ensure all permits have been obtained.
- Check for buried utilities, mark on site as per local building codes.
- Have all required tools and equipment outlined on page 2.
- Wear proper safety gear.



Safety Glasses



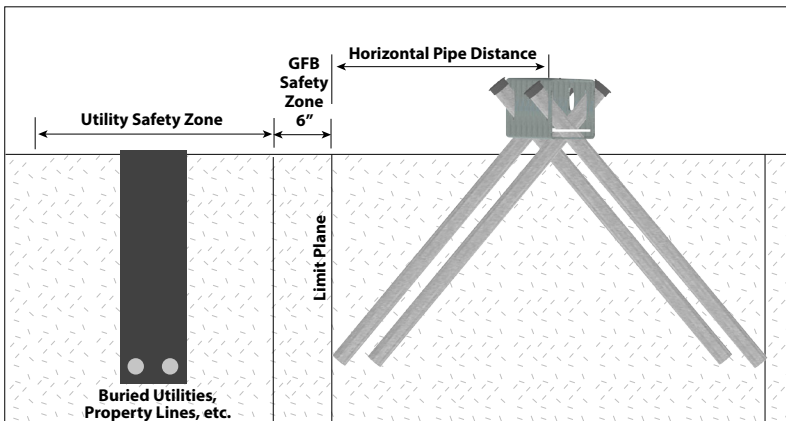
Ear Protection



Steel Toe Work Boots



Rubber Insulated Gloves

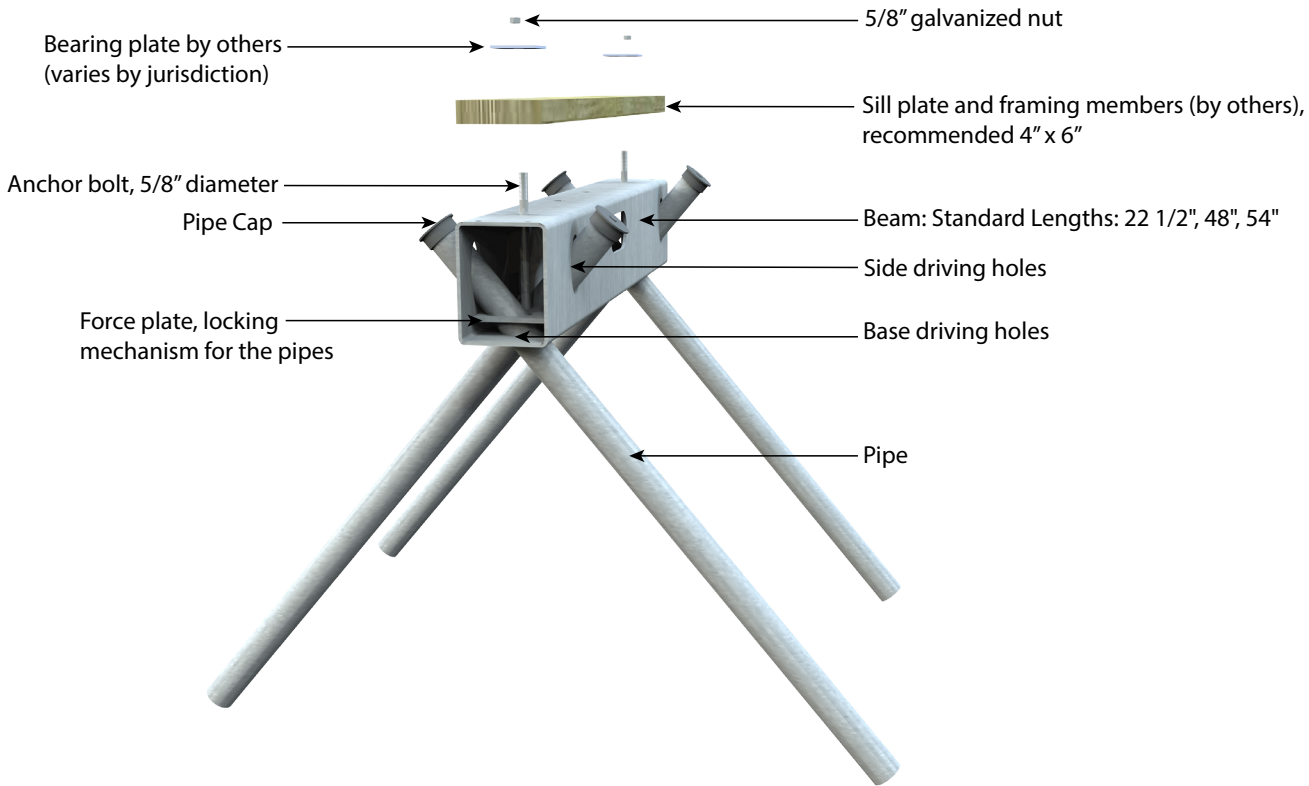


### Horizontal Pipe Distance

Measured from horizontal center of anchor bolt to vertical pipe end limit

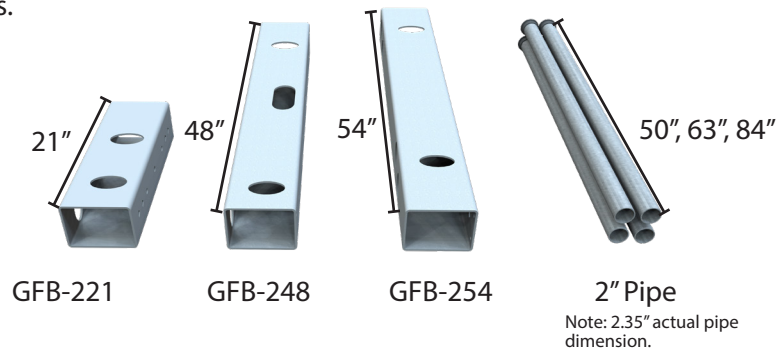
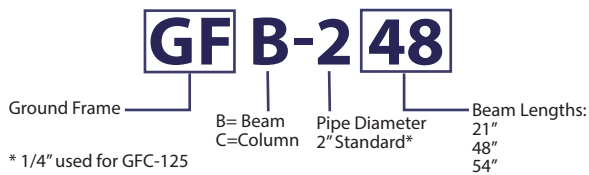
Pipe Length (Inches)	Horizontal Pipe Distance (inches)
	Pipe at 90 degrees Perpendicular to limit plane
50	29
63	38
84	51

### GROUND FRAME BEAM OVERVIEW

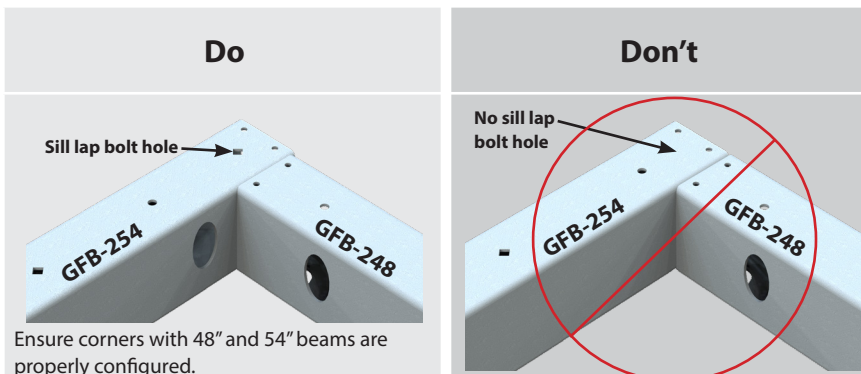


### GROUND FRAME SMART PART NUMBERS

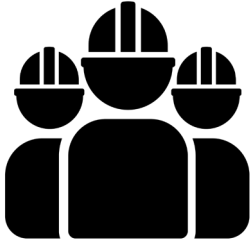
Simplify field inventory checks using our smart part numbers.



### BEAM CONFIGURATION DO'S AND DONT'S



### REQUIRED CREW AND TOOLS



Minimum three-person crew for beam installation, two-person for column



Site transit level



Electric driving hammer (60 lb or 90 lb) with driving bit  
Sledgehammer or post driver



Small level with magnetic edge



Torque wrench,  
Socket,  
Ratcheting wrench



Drill and impact driver



Square-edge shovel required for column installation



Steel Stake (36" length)  
(Use for batter boards and for plumbing beams)

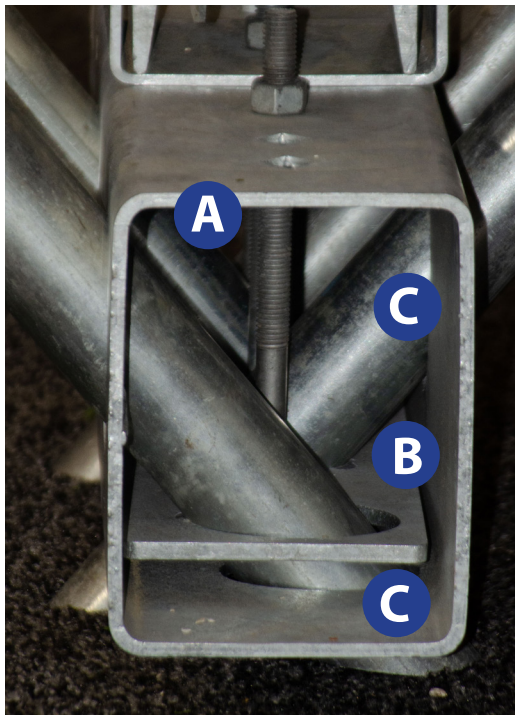
GROUND FRAME		Ground Frame Pipe Driving Log											
Beam	Time	1	2	3	4	5	6	7	8	9	10	11	12
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													

Driving log

**Note:** Download template at [groundframes.com](https://groundframes.com)

### BEFORE YOU BEGIN

#### Check Pipes for Proper Slide



- A** Anchor bolt
- B** Force plate
- C** Driving holes - side and base

The anchor bolt and force plate are factory set for proper pipe slide, but may have altered during shipping and handling.

Pipes should easily slide through holes. If pipes do not easily slide, loosen locking bolt. **Do NOT force the pipes through the beam/ column holes.**

If the bolt is fully loosened and the pipes do not easily slide, contact Ground Frame customer service.

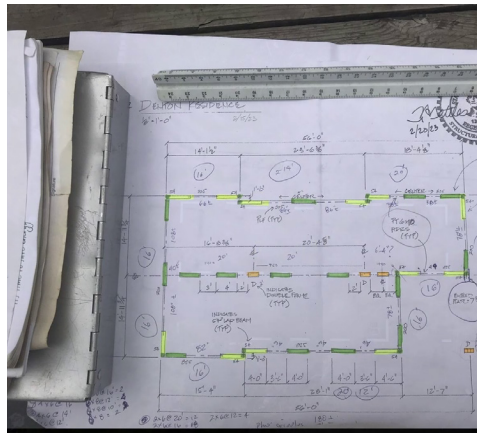


Do	Don't
Follow the instructions in this guide.	Proceed without reading this guide.
Check all local building regulations before you begin.	Don't assume local building regulations have been checked.
Use only specified hardware.	Substitute hardware
Review troubleshooting tips to safely remove pipes or adjust pipes.	Force pipes past obstructions

## SITE PREPARATION



**1.** Clear and level site as per approved plans. Ensure proper site drainage and desired floor height.



**2.** Using the dimensioned layout as a guide, establish the building border with a string line.

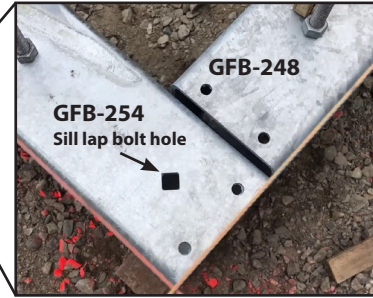
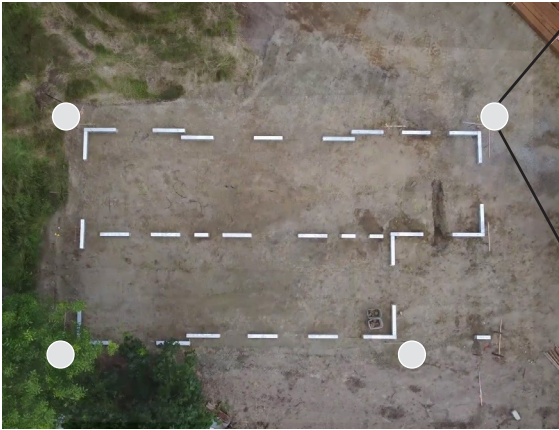


**3.** Measure diagonally to ensure the border is squared.



**4.** Find the elevation of a "Master Corner" (the highest corner).





Ensure steel beams are properly aligned.



**5.** Using the dimensioned layout, roughly stage the Ground Frame steel beams. It is best practice to start in the corners.



**6.** Block and shim the end of steel beams to the same level as the master corner. Minimum block height is 1.5" from master corner.



**7.** Maximum block height is 4".



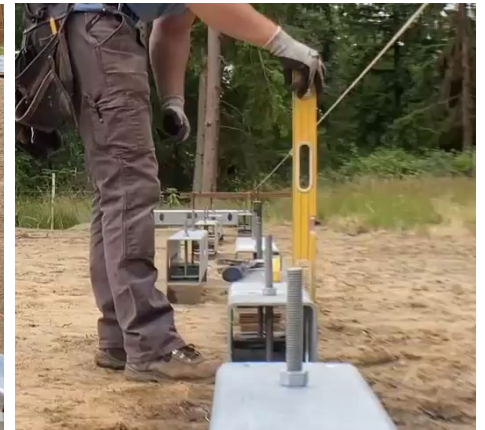
**8.** Ensure driving holes remain open and are not blocked by shims.



**9.** Ensure steel beams are properly aligned as per the dimensioned layout.



**10.** Verify all outer dimensions according to the dimensioned layout. Ensure steel beams are plumb, level, and square to the overall layout.

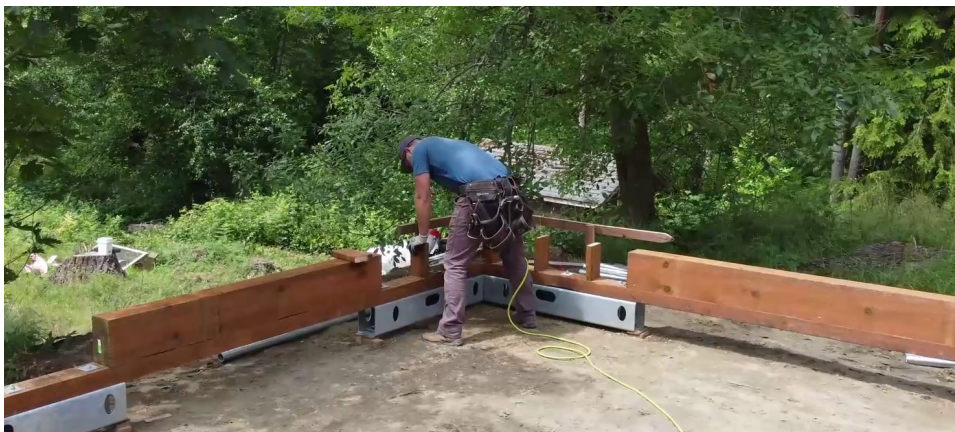




### SECURE AND BRACE SILL AND FRAMING BEAMS



**11.** Pre-drill the recommended 4" x 6" sill plates, using a 3/4" bit, where the anchor bolts are located. It is best practice to start in the corners. Install header beam to the sill plate, prior to placing on steel beams.



**12.** Place the pre-drilled sill plate and header beam over the anchor bolts.



**13.** Add the specified bearing plate, finger tighten the bolts.



**14.** When two Ground Frame steel beams meet at a corner, ensure that the sill plates overlap on top, in a manner that is opposite to the steel beams.





15. Continue installing the sill plates and headers.



16. Construct the pony walls on top of the sill plates using 2"x 6" crippers as per the dimensioned plan. Frame pony walls off the sill plates to specified dimensions.

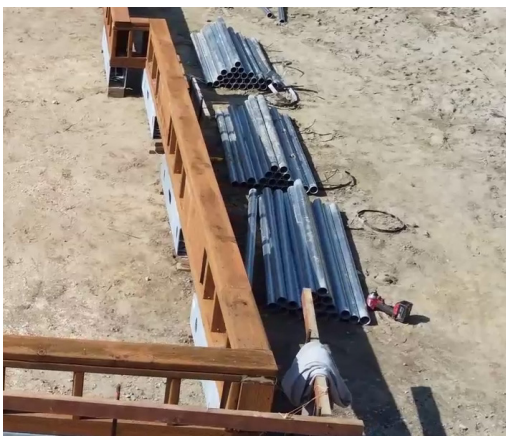


17. Double check your elevations and make any necessary adjustments.

## PIPE INSTALLATION

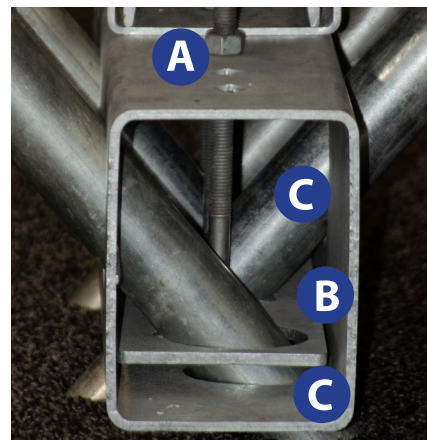
Ground Frame strongly recommends using a two-person crew for pipe driving.

**Ground Frame pipes are not refusal driving systems.** All pipes must be driven to their full length to provide specified bearing, uplift and lateral capacities.



18. Upon framing completion, gather and stage Ground Frame pipes.

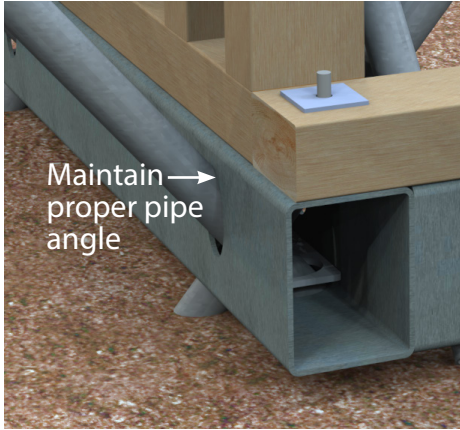
- A** Anchor bolt
- B** Force plate
- C** Driving holes - side and base



19. Ensure the pipe can easily slide through the side driving hole.

**Important Note:** If pipe does not easily slide, loosen the nut (on top of beam), lowering the force plate.





**20.** To ensure the pipe maintains the proper angle, hold it against the upper edge of the side driving hole.



**21.** Using a sledgehammer, drive the pipe in a few inches, to maintain the proper angle.

GROUND FRAME		Ground Frame Pipe Driving Log											
Head No.	Height	1		2		3		4		5		6	
		min	sec	min	sec	min	sec	min	sec	min	sec	min	sec
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													



**22.** Prepare the driving log.

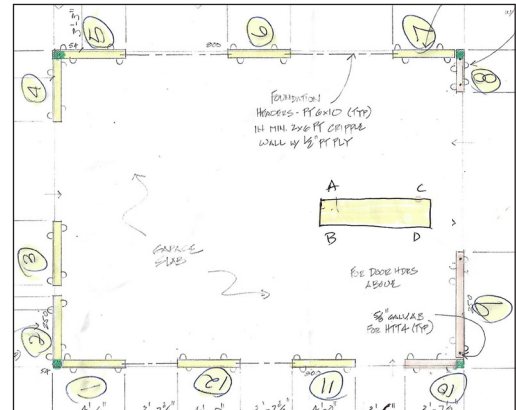
**Note:** Download template at [groundframes.com](http://groundframes.com)

**23.** While holding the pipe up, drive the pipe through the side driving hole, using the jackhammer with the pipe driving bit.



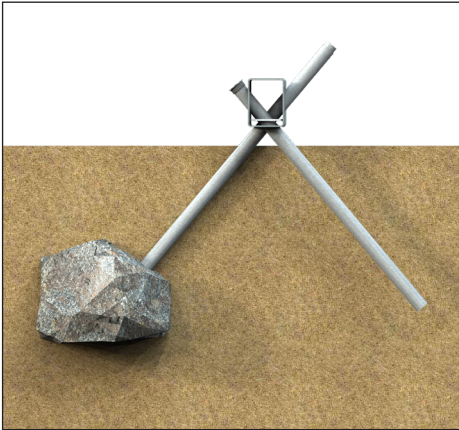
**24.** Stop driving prior to bit hitting the beam.

Pipe No.	A	B	C	D
No.	A	B	C	D
1	min 34 sec	min 42 sec	min 33 sec	min 41 sec
2	min 36 sec	min 44 sec	min 52 sec	min 50 sec
3	min 38 sec	min 37 sec	min 40 sec	min 41 sec
4	min 43 sec	min 39 sec	min 53 sec	min 38 sec
5	min 03 sec	min 32 sec	min 14 sec	min 41 sec
6	min 00 sec	min 45 sec	min 58 sec	min 57 sec
7	min 14 sec	min 53 sec	min 04 sec	min 48 sec
8	min 07 sec	min 00 sec	min 21 sec	min 14 sec
9	min 56 sec	min 41 sec	min 46 sec	min 32 sec
10	min 55 sec	min 43 sec	min 48 sec	min 42 sec
11	min 11 sec	min 47 sec	min 12 sec	min 38 sec
12	min 24 sec	min 38 sec	min 32 sec	min 49 sec



**25.** After each pipe installation note time in driving log.

**Tip:** Take planned dimension, number each beam, and denote the driving time for each side of the beam (A, B, C, D).



**26.** When pipe hits an obstruction, follow the troubleshooting steps found on page 10.



**27.** Install pipe caps on top of each pipe.

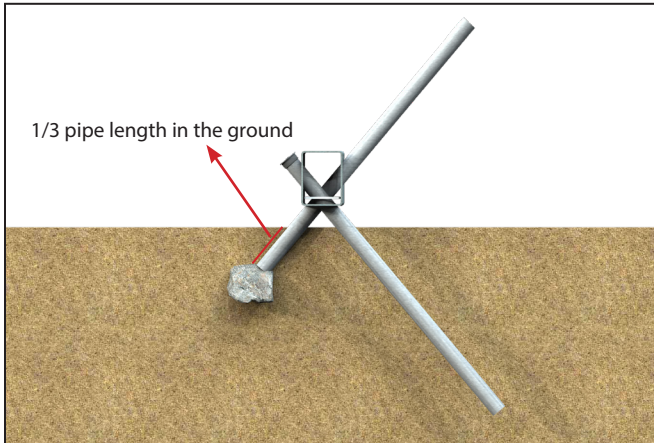


**28.** Torque all bolts to 55 ft. lbs. Remove leveling blocks (installed in step 6-8) after torquing.



### TROUBLESHOOTING

#### SHALLOW OBSTRUCTION: ~1/3 Pipe Length in the Ground



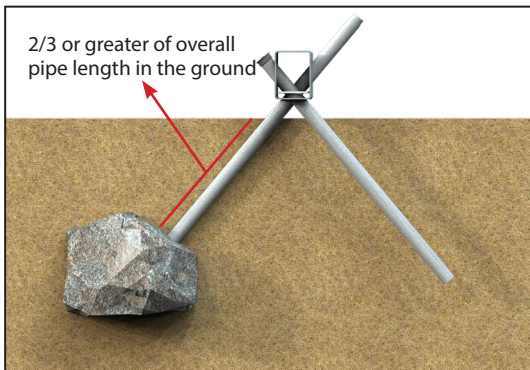
1. Remove pipe.

**Tip:** Simultaneously spin and pry pipe, using two pipe wrenches with two people.

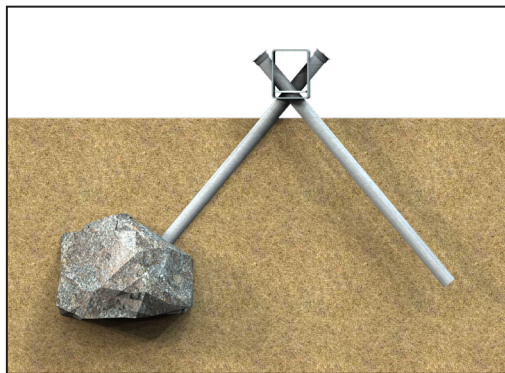
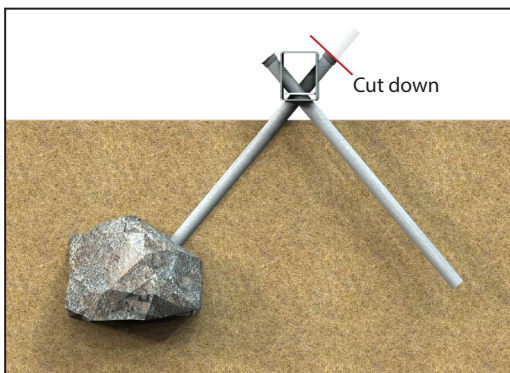
2. Remove obstruction and recompact soil in 6" lifts.

3. Redrive pipe.

#### DEEP OBSTRUCTION: 2/3 Pipe Length in the Ground



1. Using a sledgehammer, strike the pipe, 3-5 blows, to ensure pipe refusal.



2. Cut the remaining portion of the pipe, above the Ground Frame beam, and cap.

**Important Note:** Indicate the length of the pipe that was cut off in the driving log.

Pipe No.	A	B	C	D
1	34 sec	42 sec	33 sec	41 sec
2	38 sec	44 sec	52 sec	58 sec
3	38 sec	37 sec	1 min 10 sec	41 sec
4	43 sec	39 sec	53 sec	38 sec
5	1 min 03 sec	32 sec	1 min 14 sec	41 sec
6	1 min 00 sec	45 sec	59 sec	57 sec
7	1 min 14 sec	53 sec	R 12" cut-off	48 sec
8	2 min 07 sec	00 sec	1 min 28 sec	1 min 14 sec
9	1 min 56 sec	41 sec	46 sec	1 min 32 sec
10	2 min 55 sec	43 sec	48 sec	1 min 42 sec
11	1 min 11 sec	47 sec	1 min 12 sec	38 sec
12	1 min 44 sec	38 sec	32 sec	49 sec

Denote refusal (R) and indicate length of pipe that was cut.