

Excavator Damage Prevention Overview

811

**Know what's below.
Contact 811 before you dig.**



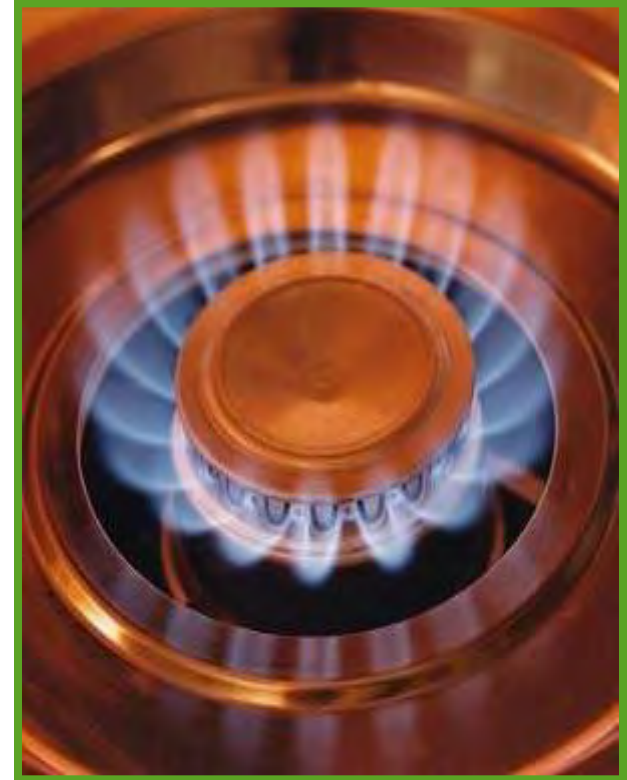
Preventing Excavation Damages



Striking an underground pipeline or underground electric line can lead to serious injury or death. If you hit either, call **(800) 477-5050**, even if there is no apparent damage. Call **911** if gas is blowing or if an injury is suspected.

Important Facts About Natural Gas

- **Natural gas is colorless, tasteless, odorless and nontoxic.**
 - A “rotten egg” odor is added to make it easier to recognize.
- **Natural gas cannot burn by itself.**
 - To burn, natural gas must be mixed with air and must have an ignition source.
- **Burning natural gas will not explode.**
 - If natural gas does ignite, let it burn.
- **Natural gas is not LPG.**
 - Natural gas is almost 40 percent lighter than air and collects at ceiling level in enclosed areas.



How to Recognize a Gas Leak

- Signs of a natural gas leak may include the following:
 - “Rotten egg” smell
 - *Note: Not all gas is odorized*
 - Dead or discolored vegetation in a green area
 - Dirt or dust blowing up from the ground
 - Bubbling in wet or flooded areas
 - Blowing or hissing sound
 - Flames, if a leak has ignited
- *If you observe any signs of a gas leak, first go to a safe location, and then immediately contact Consumers Energy @ 1-800-477-5050. Call 911 if gas is blowing or if an injury is suspected.*

Requirements of Public Act 174

- **Public Act 174 went into effect on April 1, 2015.**
 - **It requires anyone who is planning or performing any type of excavation to provide notice to the MISS DIG 811 system at least 72 hours before starting any of those activities.**
 - **It requires utility/facility owners to post to “Positive Response” and requires excavators to review “Positive Response” prior to digging.**
 - **Provides enforcement authorities to the Michigan Public Service Commission for violations to the law.**
- ***For more information, go to www.missdig.org.***

Requirements of Public Act 174

- Prior to digging, contact MISS DIG 811 at least three full working days in advance.
 - Do not work under the MISS DIG tickets of others.
- Wait for the underground facilities to be marked/staked with flags or paint.
- Confirm all underground facilities have been marked by each utility prior to digging.
 - Check “Positive Response” for the MISS DIG ticket by calling back into MISS DIG 811 (*follow the prompts*) or by going to www.missdig.org/positive-response.
- Call back into MISS DIG 811 for a “re-stake” if utilities are not clearly marked.

Interpreting Utility Marks









- **Underground facilities are marked with a combination of paint, flags, whisksers or wooden stakes.**



What the marks show:

- *Approximate location only.
An underground facility is considered accurately marked if it is located within 18 inches on either side of the mark.*

Michigan's Utility Color Codes

Electric	
Gas, Oil, Steam or Petroleum	
Communications	
Potable Water	
Reclaimed Water Irrigation	
Sewer & Drain Lines	
Proposed Excavation	
Temporary Surveying	

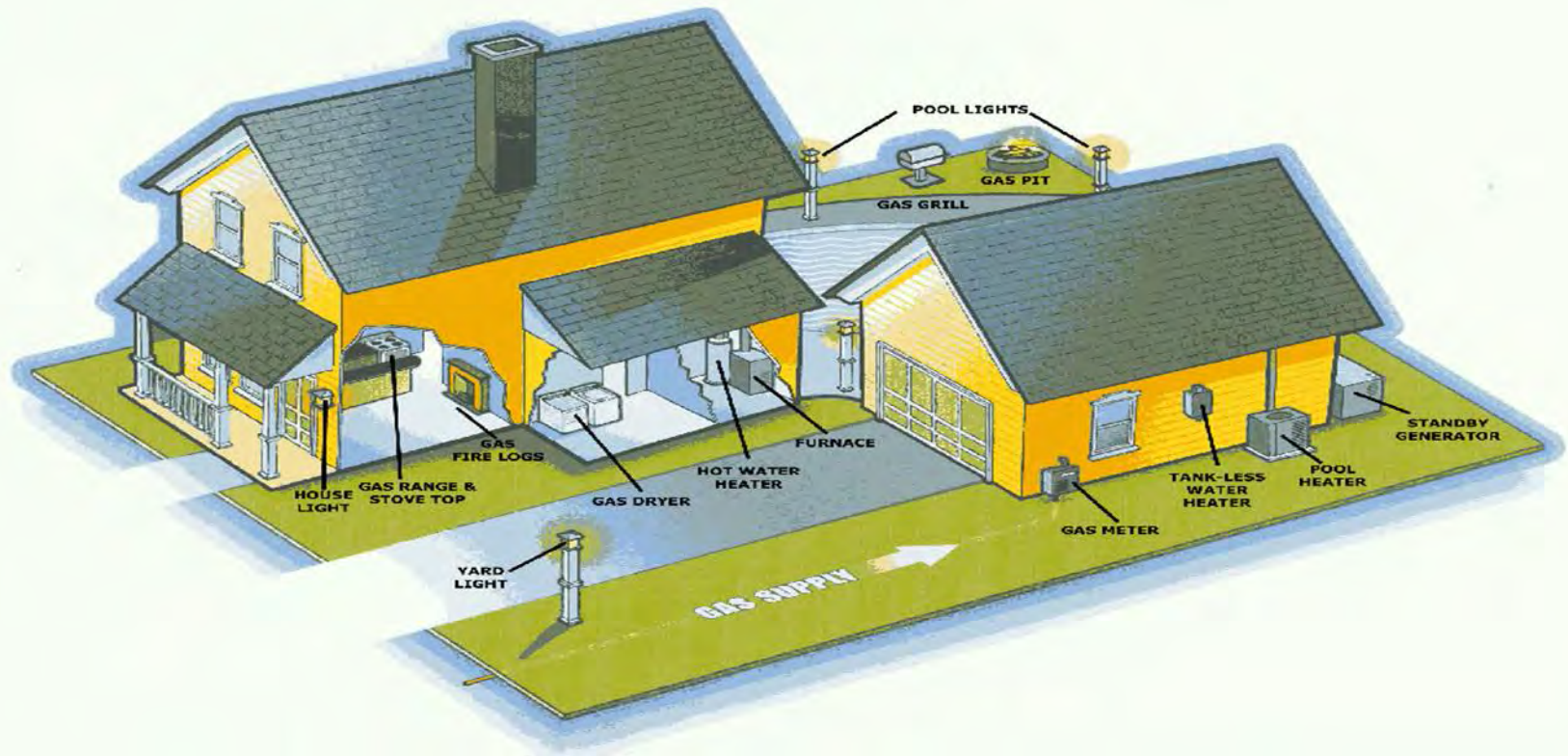


Look for Pipeline Markers

- Consumers Energy uses yellow above-ground pipeline markers to indicate the presence of gas mains
- Markers may not be present in some areas (*so ALWAYS contact MISS DIG 811 before digging*)
- Markers **DO NOT** indicate the pipeline's exact location, depth or direction



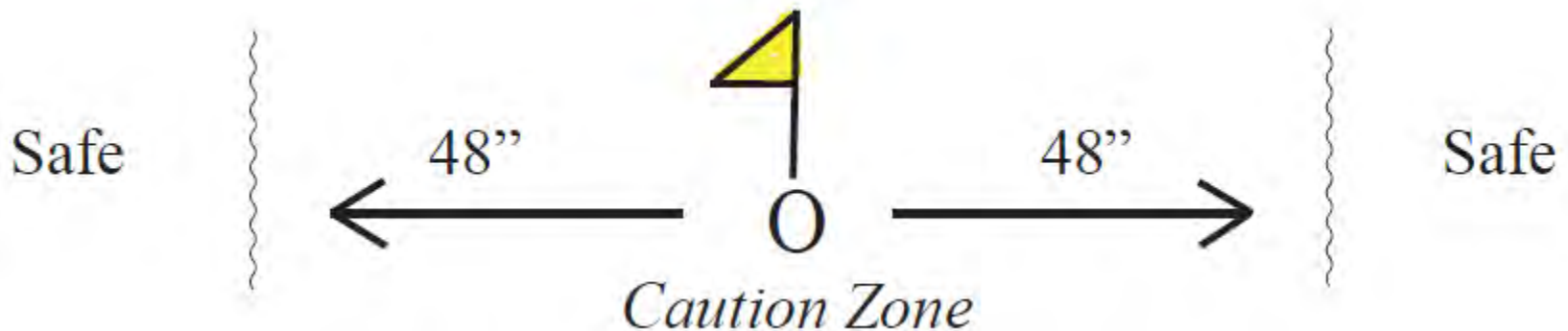
Interpreting Utility Marks



Customer Owned Fuel Lines - Consumers Energy only stakes facilities that it owns and operates – generally only up to the meter. You must work with the property owner to determine location of any buried lines from the meter to yard lights, grills, pool heaters, etc.

Requirements of Public Act 174

- Once all underground facilities have been marked, respect the marks and hand expose any marked utility to verify its exact location in the “Caution Zone”, prior to using power equipment.
 - Caution Zone is identified as 48 inches (4 feet) on either side of the markings.



Requirements of Public Act 174

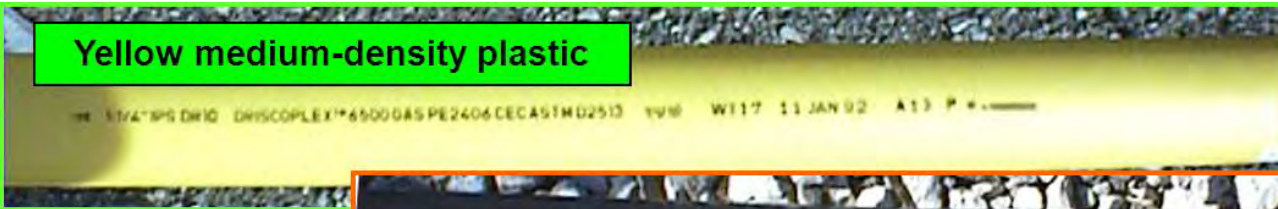
- Re-stakes - If there is visible evidence of underground gas or electric facilities that are not marked, the excavator must not dig (with power equipment) and must call back into MISS DIG 811 for a re-stake to request “additional assistance.”
 - *The law requires the facility owner to respond within 3 business hours in these instances.*



Requirements of Public Act 174

- Re-stakes - If an excavator is unable to locate a marked facility during hand exposure, the excavator must call back into MISS DIG 811 for a re-stake.
 - *The law requires a facility owner to respond within 3 business hours in these instances.*
- Re-stakes for destroyed markings - If the staking/ markings are destroyed/obliterated/faded due to weather, time or construction, an excavator must call back into MISS DIG 811 for a re-stake.
 - *The law requires the facility owner to respond within 24 business hours in these instances.*

Examples of Some Types of Gas Pipe



Yellow medium-density plastic



Black high-density plastic



green epoxy-coated steel



epoxy-coated steel



yellow-wrap steel



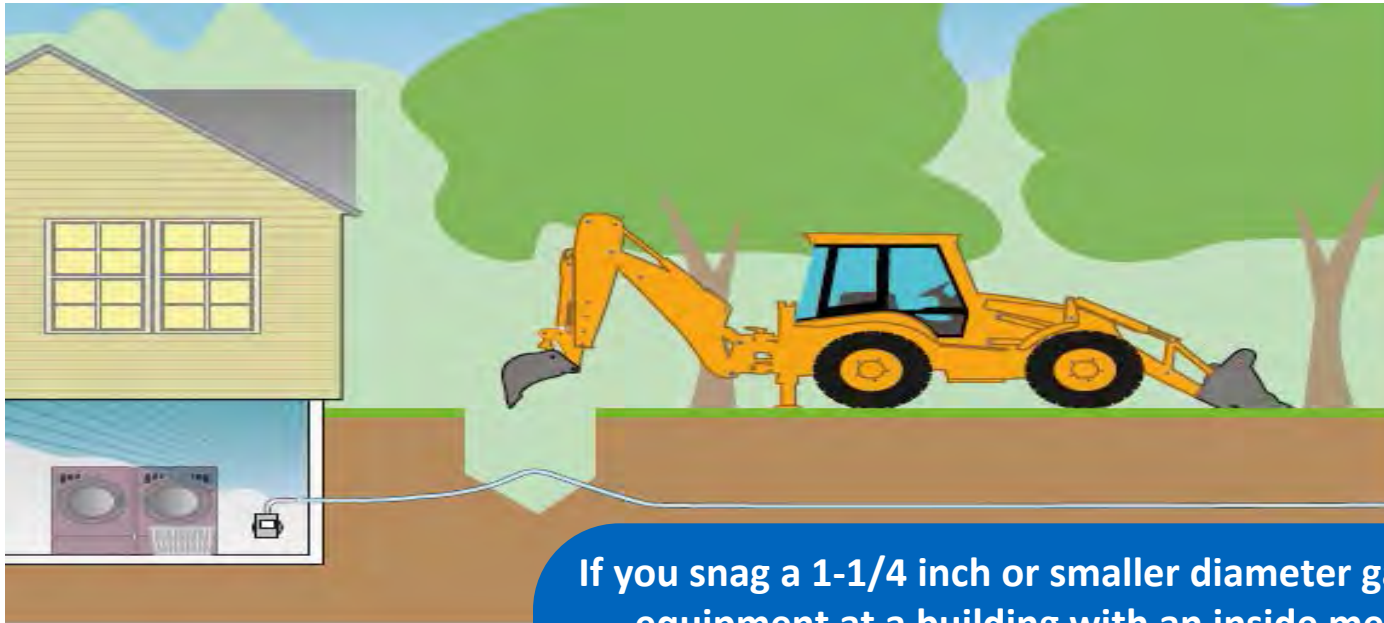
black-wrap steel

If You Make Contact with a Gas Line

- Stop your excavation and contact Consumers Energy immediately at 1-800-477-5050
- This includes nicks, dents, gouges, cuts, scrapes and scratches.
- Only Consumers Energy crews are qualified and allowed to make repairs to Consumers Energy facilities.
- **DO NOT** assume that damage only occurred only at the point of contact. Pipe failure can sometimes occur a distance from the point of contact.



If You Make Contact with a Gas Line



If you snag a 1-1/4 inch or smaller diameter gas service with power equipment at a building with an inside meter, use the power equipment to break the service so that gas is blowing to atmosphere at the excavation. This will eliminate the risk of gas blowing inside the building if the pipe has separated at an inside pipe joint.

Contact Consumers Energy immediately at 800-477-5050 and evacuate the building until we can assure that gas has not accumulated in the structure.

What TO DO if You Damage a Gas Line

- If you can do so safely, without risking the ignition of escaping gas, move your machine away from the damage. **DO NOT** start an engine or attempt to restart a stalled engine.
- If you can do so safely, turn off the engine to prevent possible ignition of escaping gas and abandon the equipment.
- Keep everyone away from the damage and up-wind until a Consumers crew arrives to shut off the gas.
- Be aware of safety to public and property.

What TO DO if You Damage a Gas Line

- If the damage is significant and poses a threat to employees and the public, it is the excavator's responsibility to begin evacuation procedures.
- If you suspect gas is entering a building, evacuate the building and direct occupants to not return until notified. Leave all doors open.
- **DO NOT** operate doorbells, light switches, phones, etc. within the building.
- From a safe area, well away from the damaged area, call 1-800-477-5050 to notify Consumers Energy and call 911 to request assistance.

What TO DO if You Damage a Gas Line

- Keep everyone away from the area.
- Prohibit smoking in the area.
- Consider traffic and other potential exposures.
- Do not operate equipment/vehicles in the evacuated area.



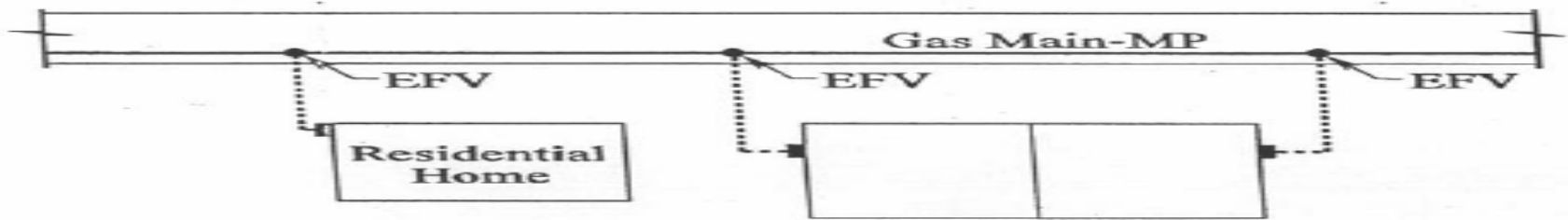
What NOT To Do if You Damage a Gas Line

- **DO NOT**
 - Start vehicles
 - Cover pipe with dirt
 - Crimp gas facilities (*static electricity hazard*)
 - Attempt to plug damaged pipes
 - Put out the flames if natural gas ignites (*burning gas will not explode*)
 - Use an open flame, matches or lighters
 - Attempt to shut off gas valves or make any repairs (*only qualified Consumers Energy employees can do this*)
 - Use equipment that could be a potential source of ignition (*i.e., flash camera, cell phones etc.*)



Excess Flow Valves (EFV)

- EFVs have been installed at the service connection to the main on most residential services since 1999.
- If a gas service with an EFV is damaged, the EFV will sense the additional gas flow and then act to restrict the gas flow
- The EFV will allow a slight amount of gas to continue to flow which can result in a hazardous condition.
- It is important that you contact Consumers Energy if you damage a gas line, even if gas is not blowing.

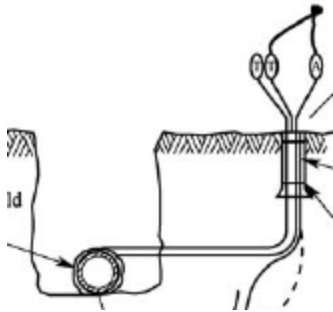


Safe Digging Practices

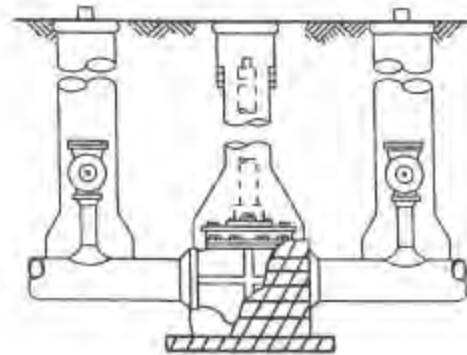
- Use reasonable care when working around exposed and unexposed gas pipes.
- When boring or augering in close proximity to gas lines, excavators must hand expose the gas line to ensure that the bore shot and return head will not contact the gas line.
- Avoid driving over valve boxes and regulator vaults.
- When backfilling, make sure valve boxes and lead wire boxes are not buried or made inaccessible.

Safe Digging Practices

- Before backfilling, notify Consumers Energy of any of the following if found in the excavation:



VALVE
BOX



- Threaded joints and mechanical fittings
- Damaged or gouged pipe
- Damaged cathodic lead wires and/or valve boxes
- Broken locating wire on plastic facilities
- Damaged coating or wrap on steel pipe

Support Standards

- Support exposed gas services and mains to prevent damage in the excavation area from cave ins, pipe movements, settlements and wash outs.

Maximum Spacing Between Supports

Use the following table to determine the number of supports needed to support main during and after construction.

Distribution Mains

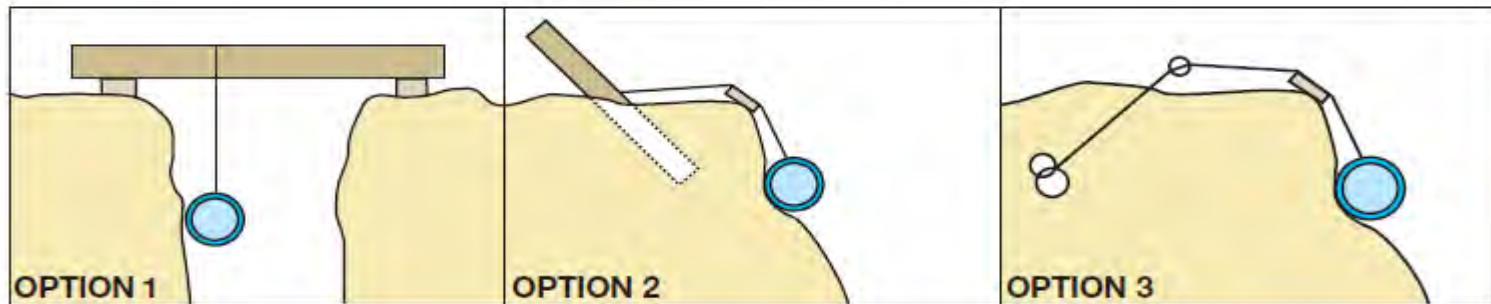
Pipe Size In inches	MAXIMUM SPACING BETWEEN SUPPORTS (FEET)			
	STEEL		PLASTIC	
	Temporary	Permanent	Temporary	Permanent
1-1/4"	15'	6'	25'	5'
2"	25'	6'	30'	6'
3"	-	-	35'	7'
4"	35'	10'	40'	8'
6"	45'	13'	45'	9'
8"	55'	15'	50'	10'
10"	60'	18'	-	-
12"	65'	20'	-	-
16"	70'	25'	-	-

Transmission Pipelines

The length of pipeline to be exposed shall not exceed 25 feet. Backfilling shall be performed so as to avoid damage to the pipe and coating and to provide firm support.

Support Standards

- **Main Parallel to Excavation - Installing temporary supports**
 - **Caution:** Protect the pipe at support points with old tires or equivalent.



Option 1 – Use a Class 4 or better utility pole.

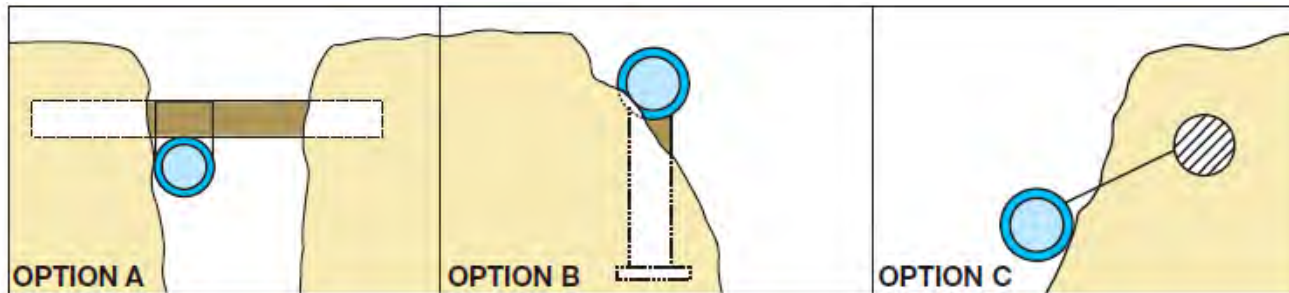
Option 2 – Use a 4 inch post driven 4 feet deep.

Option 3 – Use an 8 foot screw anchor guy and 1 inch steel bar.

Before removing any temporary supports, completely compact the backfill or install permanent supports if natural settlement is not complete.

Support Standards

- **Main Parallel to Excavation - *Installing permanent supports***
 - **Caution:** Protect the pipe at support points with old tires or equivalent.



Option A – Install 6 inch x 6 inch timber or utility pole below finish grade and leave in place.

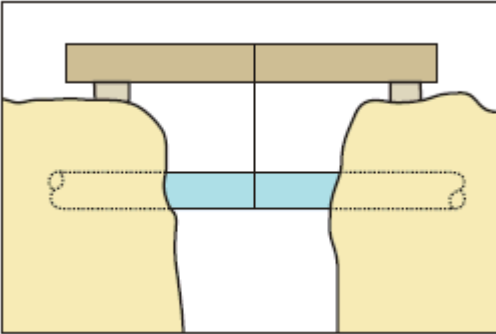
Option B – Install 6 inch x 6 inch timber on 2 inch x 12 inch plate on stable soil.

Option C – Install 6 foot log or timber deadman at least 4 feet into firm soil.
Use compacted sand under the pipe in the open trench in lieu of permanent physical supports.

Support Standards

■ Crossing the Excavation

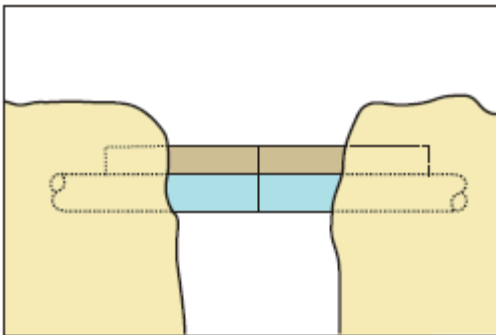
Installing temporary supports



Caution: *Protect the pipe at support points with old tires or equivalent.*

- Use a Class 4 or better utility pole. Acceptable alternates include 6 inch x .219 inch wall pipe or 6 inch x 3 3/8 inch I-beam.
- Before removing any temporary supports, completely compact the backfill or install permanent supports if natural settlement is not complete.

Installing permanent supports



Caution: *Protect the pipe at support points with old tires or equivalent*

- Use a Class 4 or better utility pole. Acceptable alternates include 6 inch by .219 inch wall pipe or 6 inch x 3 3/8 inch I-beam.
- Use compacted sand under the pipe in the open trench in lieu of permanent physical supports.

Additional Resources/Information



Online Tools

MISS DIG has developed a number of tools to assist those in the excavation and design fields to communicate with the call-center, and its member facility owners.

Remote Ticket Entry: A free service that allows frequent MISS DIG users to create their tickets from their home or office computer rather than through the call-center.

www.missdig.net/index.php/excavators/remote-ticket-entry

E-Locate: A free and easy program available to create single address tickets. This program is ideal for do-it-yourselfers, landscapers, and other small volume ticket creators.

elocate.missdig.org

Design Ticket: An online process which allows designers and engineers to initiate contact with utility personnel for the purpose of project planning.

www.missdig.net/index.php/excavators/design-survey-ticket

Positive Response: A program where MISS DIG member facility owners post status responses to the tickets they receive. Responses such as “clear” or “marked” are available for each facility owner on MISS DIG tickets.

Responses can be checked at: response.missdig.org

Additional information about these programs can be found at www.missdig.org

Additional Resources/Information

■ Positive Response Codes/Definitions:

- [000] **RESPONSE PENDING** - System generated default response attached to initial request
Explanation: Ticket is not yet due, so utility response is pending.
- [001] **NO CONFLICT** - Facility is outside of stated area/scope of excavation
Explanation: Formerly known as "clear" - no facilities within scope of ticket.
- [002] **MARKED** - Facilities have been marked
- [003] **NOT COMPLETE** - None or some of the facilities have been marked, more time needed, coordination or assistance required to complete locating of facility
Explanation: Utility is not able to meet excavator's dig-start date/time. When appropriate, other responses are now available to provide further explanation or clarification for incomplete staking.

GREEN - Dig with caution following PA174 requirements
YELLOW - Contact facility owner operator, Dig with caution following PA174 requirements
RED - Do not Dig

Additional Resources/Information

■ Positive Response Codes/Definitions:

- [004] **MARKED-UTILITY REQUIRED ON SITE DURING EXCAVATION** - Facility owner operator required to be on site when excavating within noted scope of work for this specific facility

Explanation: Utility wants to be on site during excavation. It is implied that the utility has been in contact with the excavator to coordinate schedules. The burden is on the utility to be on site when the excavator is ready to dig; cooperation of the excavator is appreciated.

- [005] **ON GOING COORDINATION** - On-going mutual cooperation between facility owner operator and excavator

Explanation: Utility is documenting that they have been in contact with the excavator to coordinate staking needs. Both parties should be aware that the coordination is taking place. If you see this response and are not aware of any coordination, do not dig before contacting the utility owner.

GREEN - Dig with caution following PA174 requirements
YELLOW - Contact facility owner operator, Dig with caution following PA174 requirements
RED - Do not Dig

Additional Resources/Information

■ Positive Response Codes/Definitions:

- [006] **NOT MARKED-NO ACCESS TO WORK AREA** - Facility owner operator could not get access to work area, and requires coordination with excavator

Explanation: The staker has not been able to get into the site due to locked gate or other obstacle. There have been situations where the staker is prevented from entering the site by the excavation crew.

- [007] **STATED SCOPE OF WORK COMPLETE** - Facility owner operator confirmed stated scope of work found completed prior to dig start date

Explanation: It appears to the staker that the excavation work has been completed - e.g. the tree is already planted when staking request is for planting tree. If you see this response, it is likely that no staking has been provided and a restake must be requested.

GREEN - Dig with caution following PA174 requirements
YELLOW - Contact facility owner operator, Dig with caution following PA174 requirements
RED - Do not Dig

Additional Resources/Information

■ Positive Response Codes/Definitions:

- **[008] FACILITY RESPONSE NOT REQUIRED** - For RXMT locate requests only (*retransmitted at the excavators request*) and intended for specific facility or facilities that have NOT been requested to locate. Example- the RXMT locate request states "Locate Gas and Electric only". In this case, all other facility owners (*water, sewer, telephone, cable TV, etc.*) would respond with "FACILITY RESPONSE NOT REQUIRED". Facilities that were requested (*Gas and Electric*) would choose from one of the other possible valid positive responses

Explanation: *The excavator should be aware of what specific utility was requested when they see this response from any of the utilities.*

- **[009] ADDITIONAL LOCATING REQUIRED** - Facility owner discovered field conditions require additional locating and will communicate with excavator on resolution of additional locating issues

Explanation: *The utility has started staking for the ticket but has been unable to complete the entire ticket. A typical situation is when the staker needs help from a more experienced staker for a specific location within scope of ticket for a large project. The excavator may dig on this ticket if they have been in contact with the staker and know which areas of the ticket location have been completed.*

GREEN	- Dig with caution following PA174 requirements
YELLOW	- Contact facility owner operator, Dig with caution following PA174 requirements
RED	- Do not Dig

Additional Resources/Information

■ Positive Response Codes/Definitions:

- [010] **EXEMPT FROM MARKING** - As defined in Public Act 174 Section 460.727 Sec. 7 (9). This is a system generated response
- [011] **NOT MARKED-EXCAVATOR CONTACTED FOR ADDITIONAL INFORMATION** - Facility owner operator reached out to excavator as noted on the locate request and requires additional information to properly complete locate request. Excavator required to contact facility owner/operator
- [013] **CANCELED** - System generated response indicating the dig notice was canceled
- [099] **HAS NOT RESPONDED** - System generated response indicating the facility owner operator has not responded to the request

GREEN - Dig with caution following PA174 requirements
YELLOW - Contact facility owner operator, Dig with caution following PA174 requirements
RED - Do not Dig

Additional Resources/Information

- CE Work Safe website
- <http://consumersenergy.e-smartonline.net/worker/>
 - Free training materials/resources
 - Overhead and Underground

The screenshot displays the 'WORK SAFE' section of the Consumers Energy website. At the top left is the Consumers Energy logo with the tagline 'Count on Us'. To the right, there are buttons for 'WORKERS' and 'TRAINERS'. The main content area is divided into several sections:

- WELCOME!**: A blue header with text: 'Check out our training tips, videos, and case studies. Each of these is designed to help you and your team work safely around electrical lines.' Below this is a link for 'MIO SHA Power Line Clearances Fact Sheet'.
- WORKERS**: A blue header with a list of links: 'Look Up and Live', 'Videos', 'Training Quiz', and 'Learn From These Mistakes'.
- LOOK UP AND LIVE**: A green header above a large image of workers on a power line. A yellow and black striped banner over the image reads: 'Learn vital information for staying safe around power lines.'
- VIDEOS**: A green header above a video thumbnail titled 'worker beware' with a play button icon. Below the thumbnail is the text: 'Watch in English and Spanish: 1) Electric & Gas Safety Basics, 2) Ladders & Long Tools, 3) Cranes & Heavy Equipment'.
- TRAINING QUIZ**: A green header above a thumbnail of a yellow 'CAUTION' sign that reads: 'Are you living dangerously on the job?'.

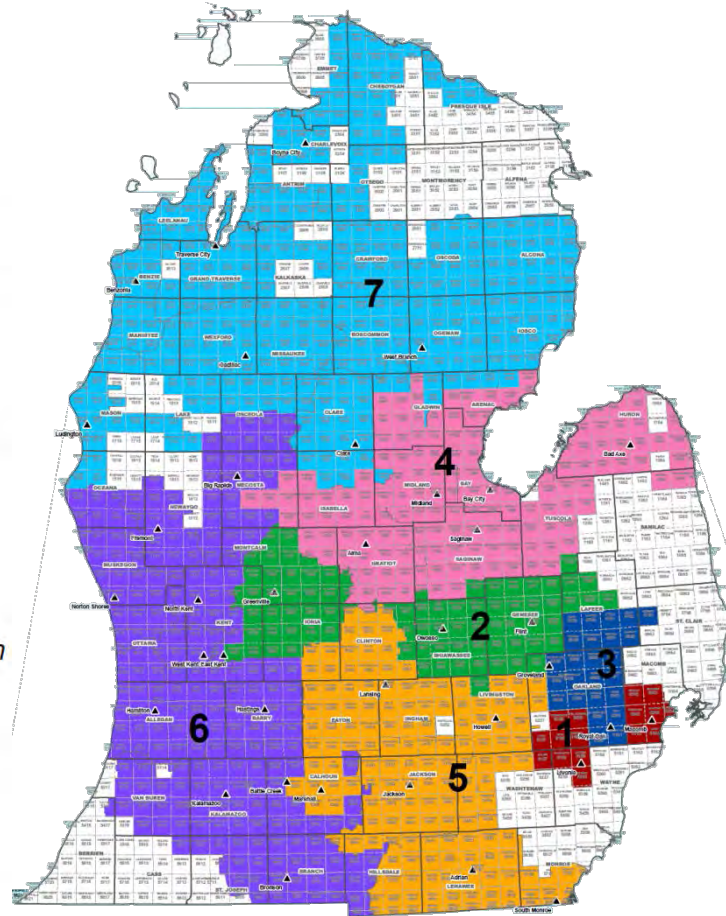
At the bottom left, there is an '811' logo with the text 'Know what's below. Call before you dig.' and a link to 'Contact our damage prevention and public safety team.' Below that, it says 'For more information & safe distances, call 811.'

Public Safety Outreach & Damage Prevention

▲ Service Centers

Region & Employee Responsible

-  Zone 1 *Lenore Lentz*
(586)438-1772
Lenore.Lentz@cmsenergy.com
-  Zone 2 *Mike Todd*
(989)293-7057
Michael.Toddjr@cmsenergy.com
-  Zone 3 *Steve Jackson*
(586)918-6736
Steven.Jackson@cmsenergy.com
-  Zone 4 *Cathy Kelbey*
(989)280-5994
Cathy.Kelbey@cmsenergy.com
-  Zone 5 *Kay Lancour*
(517)740-6248
Katherine.Lancour@cmsenergy.com
-  Zone 6 *Jeff Dickey*
(616)443-1310
Jeffrey.Dickey@cmsenergy.com
-  Zone 7 *Lisa Douglas*
(989)245-0980
Lisa.Douglas@cmsenergy.com



A current list and map are also available via the Consumers Energy website at <http://www.consumersenergy.com/safety>.