SOP Number **#011**

SOP Title **Working Near/Under Powerline**

	NAME	TITLE	SIGNATURE	DATE
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SOP no.	Effective Date	Significant Changes	Revision #	Revision Date
			0	

1. PURPOSE

- This document will provide the guidance necessary to establish the safe limit of approach distances when working operating equipment near energized overhead power lines on or off a BBGCI Construction site. Following this document ensures the safety of personnel and assets while working operating near overhead powerlines as well as traveling under existing overhead powerlines.

2. DEFINITIONS

- *Minimum Clearance Distance-* Depending on the voltage of the line (Chart 1), a worker or a conductive object, must keep the specified **minimum distance** between them and any energized part of the power line.
- *Work Zone-* 23 feet on either side of an existing powerline. The work zone will be clearly marked with goal post and ~~the~~ flagging. This flagging will be approximately 6 feet (see chart 3) lower than the existing powerline.
- *Visual Aid*- A visual object that ~~I~~ gives a person awareness that a hazard is present. The best form of this that BBGCI utilizes is goal post with flagging.
- *No-Go Zone*- a 10' radius around the existing power line. This zone will be established by additional flagging (see chart 4)

3. RESPONSIBILITIES

PIC on Location

1. Ensure compliance with this SOP and all applicable laws and regulations regarding working near powerlines.
2. Ensure the One Call and line find map are current and has all the required information on it.
3. Ensure Permits, JSEA's and other client required paperwork are being completed properly.
4. Review each powerline crossing on the line find map and, utilizing chart 1 and 2 below, establish the minimal operating clearance distance (usually 10 Ft) and the minimal clearance distance while traveling (usually 6 Ft).
5. Ensure all JSEA's and Work Permits have the voltage, height and emergency contact number of the line owner documented.

Line Locating Department

1. Ensure all overhead powerlines are marked on the line find map.
2. Coordinate with the Licensed Electrician to ensure he/she is aware of the location of all overhead powerlines on the right-of-way.
3. Gather height of all existing powerlines that were marked on the line find map from the licensed electrician and document it on the line find map.
4. Trace down each overhead powerline crossing and contact the line owner to notify them we will be crossing underneath their powerline.

5. Gather emergency contact numbers of the line owner and get the voltage of the existing overhead line.

Licensed Electrician (QEP)

1. Coordinate with the Line locating group to ensure all powerlines are located on the line find map.
2. Utilizing a powerline hot stick, the licensed electrician will measure the height of each powerline and forward that information to BBGCI line locating division. Should he forward all of the necessary information to the line finders? Rather than two people going to the same site ?

Qualified Spotter #1

1. Participate in tailgate meeting, JSEA and Permit approval process.
2. Understand the scope of work and the hazards involved in his/her specific job duty.
3. Wear a high visibility vest at all times
4. Understand the minimum clearance distance required when working underneath/near the powerline.
5. Ensure the work zone flagging is in the proper location and height.
6. Maintain good communication with the Equipment Operator and supporting personnel at all times.
7. Ensure that the work zone is free of any unauthorized equipment or personnel at all times.
8. Maintain a safe working distance away from any mobile equipment while work is in progress.
9. Be aware of traffic and pedestrians and make sure the equipment operator knows when equipment or a vehicle is approaching.
10. Be in the best position possible to assist the operator in performing the task in a safe manner.
11. Ensure that the operator does not initiate any traveling or operating without prior consent from the Spotter.

Qualified Spotter #2

NOTE: When mechanical work is being performed in between in the work zone (underneath existing powerline) an additional spotter will be utilized.

1. Participate in tailgate meeting and JSEA.
2. Wear a high visibility vest at all times
3. Understand the scope of work and the hazards involved in his/her specific job duty.

4. Ensure the two additional goal post are installed at 10‘ on each side of the existing powerline and 10’ below the existing powerline. (Chart 4)
5. Ensure the work zone flagging is 23 feet away from the powerline in both directions and height is 6 feet lower than the existing powerline.
6. Understand the minimum clearance distance required when working underneath/near the powerline.
7. Maintain good communication with the Equipment Operator and supporting personnel at all times.
8. Ensure that the work zone is free of any unauthorized equipment or personnel at all times.
9. Maintain a safe working distance away from any mobile equipment while work is in progress.
10. Be aware of traffic and pedestrians and make sure the equipment operator knows when equipment or a vehicle is approaching.
11. Strictly watch the clearance distance from the boom of the excavator and the existing powerlines. If the operator comes within the minimum clearance distance, utilizing an air horn the spotter will signal all stop.

Qualified Equipment Operator

1. Participate in tailgate meeting and JSEA and ensure voltage, height and contact number is documented.
2. Complete equipment inspection.
3. Ensure the work zone flagging is in the proper location and height.
4. Sign off on the work permit, JSEA and additional forms before beginning work.
5. Look over the current line find map and ensure he/she knows the height and voltage of the line they are working under.
6. Establish and maintain good communication with the spotter prior to beginning work.
7. Commence work and maintain safe operations.

4. GENERAL REQUIREMENTS

1. No one shall be allowed to touch the load or any part of the equipment when work is being done adjacent to, or within the safe limit of approach distances until a designated spotter indicates it is safe to do so.
2. When using taglines to control an elevated load, the taglines shall be made of a non-conducting material.
3. A JSEA and Work Permit must be filled out prior to any work next to existing powerlines. These documents must have the powerline height, voltage and emergency contact number present.

4. Spotters shall wear a high visibility vest or armlet and carry an air horn when work is being conducted inside the work zone.
5. Except in emergencies and for critical tasks, work near power lines shall be performed during daylight hours only.
6. Work shall not be conducted in close proximity to overhead power lines during rainy or stormy weather.
7. Equipment operators and users must obey the safe limit of approach distances specified by the PIC.
8. Other workers not directly involved in the work being performed shall be kept outside the work zone at all times.
9. Equipment operators and users must be aware that long power line spans could rise and fall as the ambient temperature changes, affecting safe limit of approach distances.
10. The erection of goal posts 7 m (23') (<500 kV) from the overhead power line crossing. The goal posts and connecting bunting are to be constructed from highly visible, non-conductive materials. Goal posts are to be installed in accordance with applicable ground disturbance procedures. The over-all heights of the goal posts are limited to include the safe limit of approach for the power line that they are protecting.
11. When working near overhead power lines, workers must install a minimum of two “Danger Overhead Line” signs. The signs shall be installed on both sides of the line at a distance of 7 m (23') (<500 kV) from the line.
12. If applicable, BBGCI shall ensure earth or other materials are not placed under or beside an overhead power line. Doing so reduces the safe clearance distance to less than the safe limit of approach distance listed in applicable governing legislation.

5. SPECIFIC PROCEDURE

Worksite Setup

1. The Line Locating department will walk the proposed site location and document any overhead power lines that are crossing the right-of-way.
2. Utilizing a powerline hot stick, the licensed electrician will measure the height of each powerline and forward that information to BBGCI line locating division.
3. The line locating department will document on the line find map the height of each powerline, voltage and the emergency contact of the line owner in case of an emergency.
4. BBGCI personnel will then drive in the work zone goal post 23 feet on each side of all powerlines. These posts will have flagging to provide a visual aid that there is a powerline above. Depending on the voltage, the height will be determined, but in normal cases, the work zone goal post will be 6 foot lower than the existing power line (See Chart 3)

5. Once the right-of-way is made, additional flagging will be installed across the right-of-way at 12'. This flagging will be high enough to allow crew trucks to pass underneath, but if equipment needs to pass, it will have to be removed (See Chart 5)

Working Within the Work Zone

(This set procedure is in place anytime equipment will have to work inside of the flagging area close to an overhead powerline.)

1. Participate in tailgate meeting and JSEA
2. Complete equipment inspection
3. Review the one call and line find map to ensure all involved personnel know the height, voltage and owner of the overhead powerlines.
4. Complete the work permit and any additional forms required and document the height, voltage and emergency contact owner on Permit.
5. Install two flag poles 10' on each side of the existing powerlines at approximately 10 feet lower that the powerline (see Chart 4).
6. If applicable, smooth out the spoil pile and the work area so that the equipment will not have to work on top of a spoil pile.
7. Ensure the spotters are in the proper position and no unauthorized personnel is in the path of travel.
8. Utilizing both spotters, the operator can begin to track equipment inside the work zone.
9. Once both spotters are in position, work can commence

Traveling Through the Work Zone with Heavy Equipment

1. Participate in tailgate meeting and JSEA
2. Complete equipment inspection
3. Review the one call and line find map to ensure all involved personnel know the height, voltage and owner of the overhead powerlines.
4. Ensure the equipment is in the travel position and no part of the equipment is high enough to enter the minimum clearance distance.
5. Ensure the spotter is in the proper position and no unauthorized personnel is in the path of travel
6. Begin to mobilize

Chart 1

TABLE A—MINIMUM CLEARANCE DISTANCES

Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

Note: The value that follows "to" is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.

Chart 2

Table T-Minimum Clearance Distances While Traveling With No Load

Voltage (nominal, kV, alternating current)	While traveling-minimum clearance distance (feet)
up to 0.75	4
over .75 to 50	6
over 50 to 345	10
over 345 to 750	16
Over 750 to 1,000	20
Over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

Chart 3

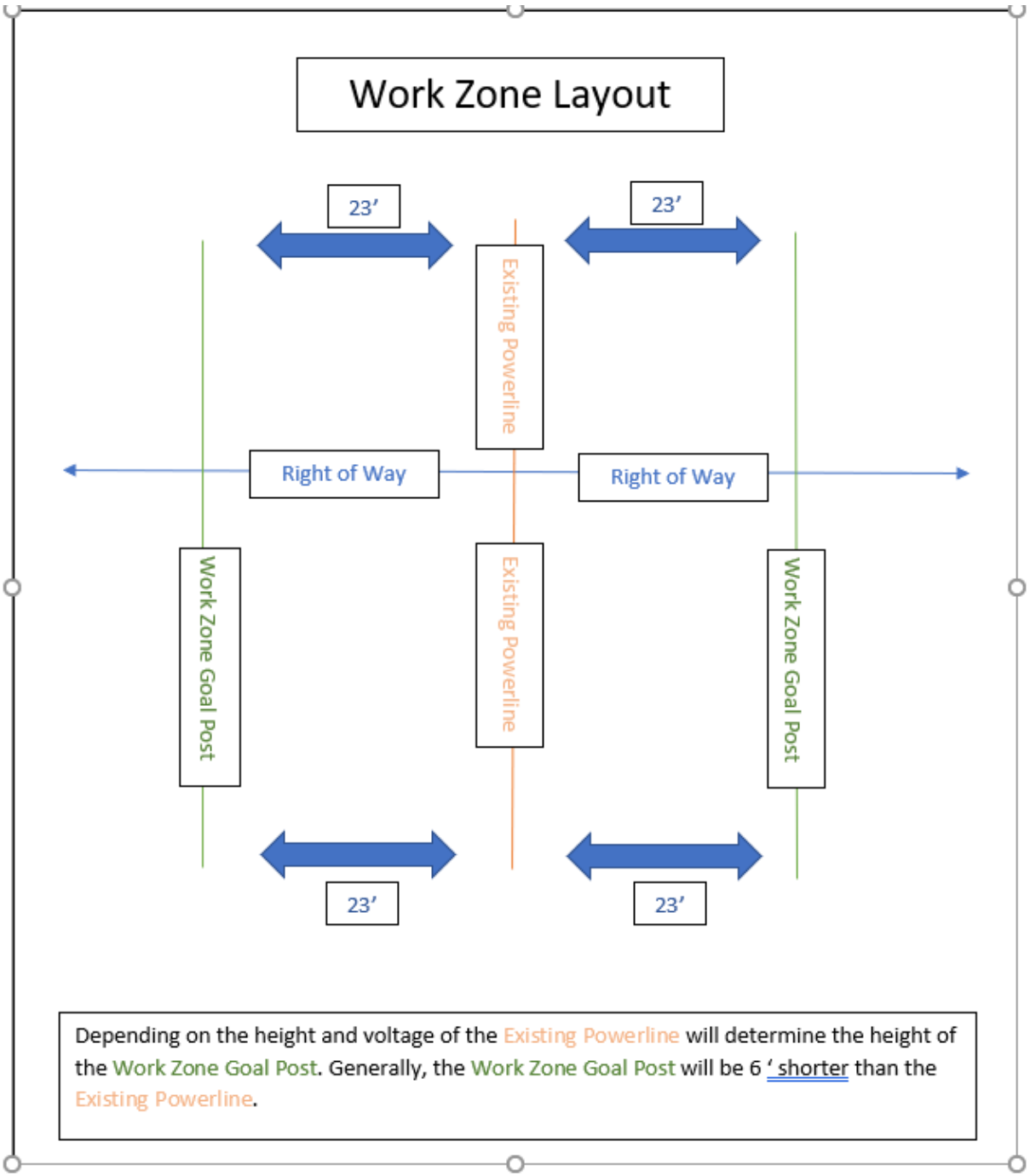

Work Zone Layout
23'
23'
Existing Powerline
Right of Way
Right of Way
Work Zone Goal Post
Existing Powerline
Work Zone Goal Post
23'
23'
Depending on the height and voltage of the Existing Powerline will determine the height of the Work Zone Goal Post. Generally, the Work Zone Goal Post will be 6 ' shorter than the Existing Powerline.

Chart 4

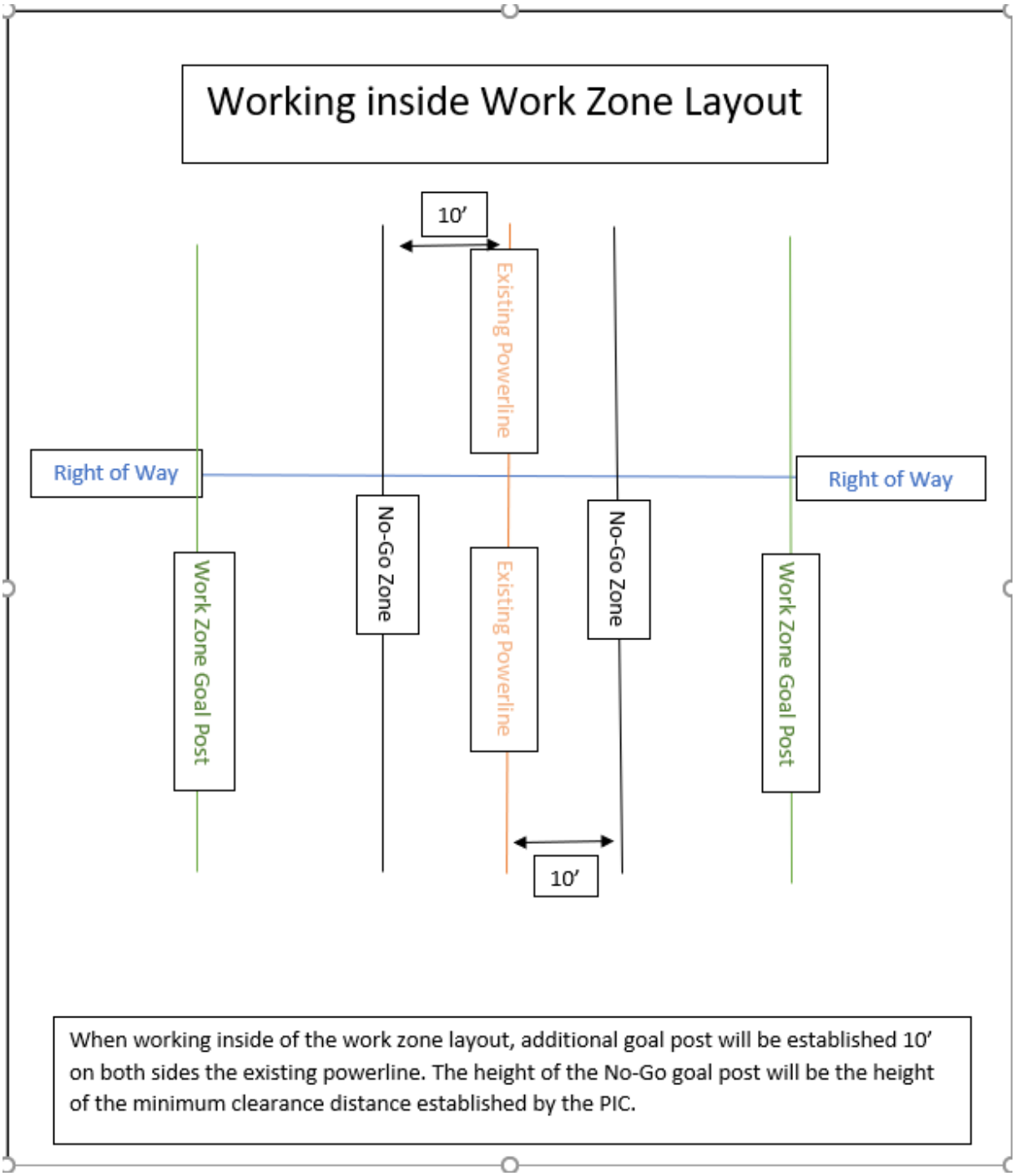
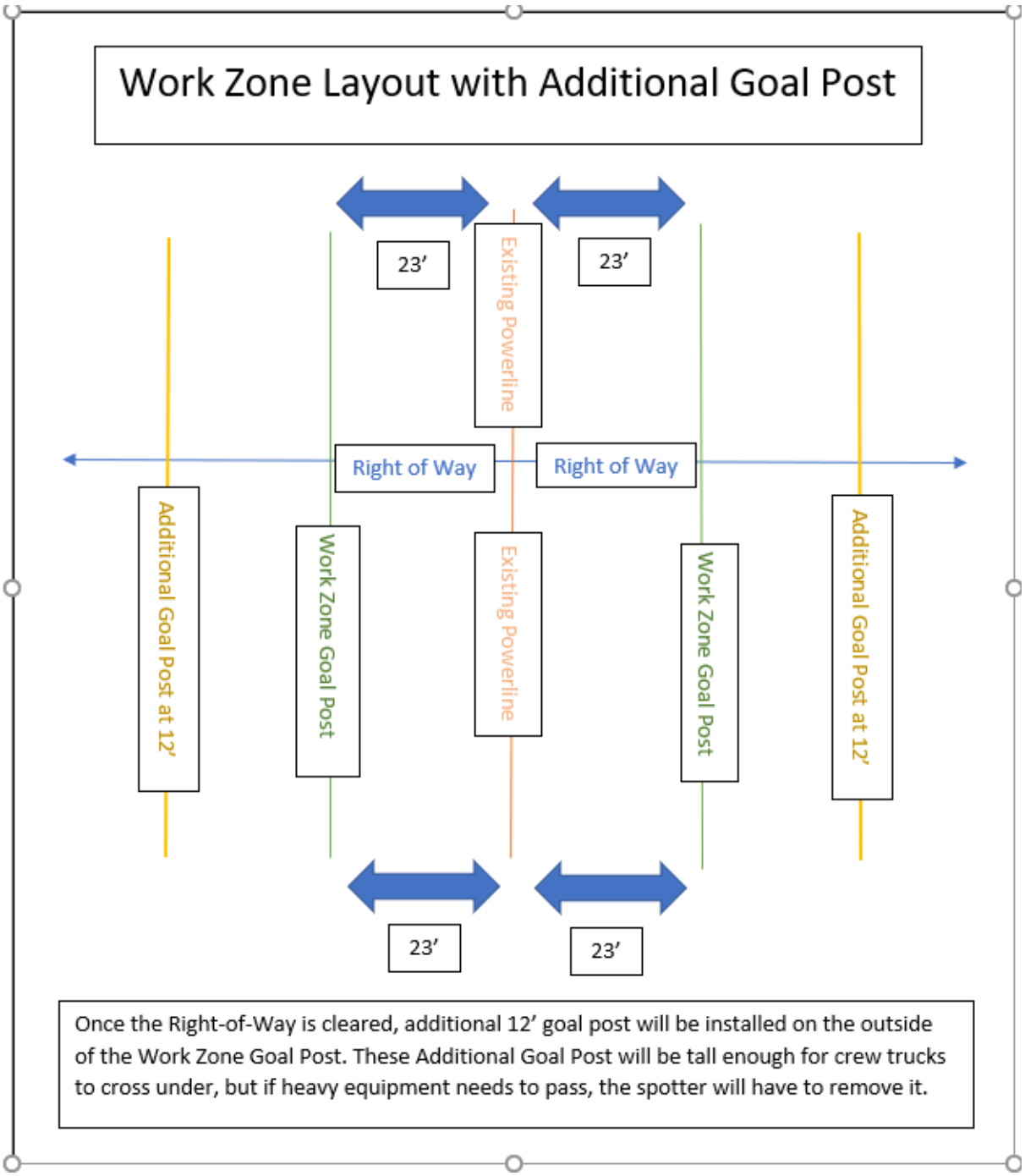

Working inside Work Zone Layout
10'
Existing Powerline
Right of Way
Right of Way
No-Go Zone
No-Go Zone
Work Zone Goal Post
Existing Powerline
Work Zone Goal Post
10'
When working inside of the work zone layout, additional goal post will be established 10' on both sides the existing powerline. The height of the No-Go goal post will be the height of the minimum clearance distance established by the PIC.

Chart 5


Work Zone Layout with Additional Goal Post
23'
Existing Powerline
23'
Right of Way
Right of Way
Additional Goal Post at 12'
Work Zone Goal Post
Existing Powerline
Work Zone Goal Post
Additional Goal Post at 12'
23'
23'
Once the Right-of-Way is cleared, additional 12' goal post will be installed on the outside of the Work Zone Goal Post. These Additional Goal Post will be tall enough for crew trucks to cross under, but if heavy equipment needs to pass, the spotter will have to remove it.