
	<b>Surface barricading</b> <b>NAPG-SAF-SPI-0017</b>	<b>Revision</b>	
	<b>Public document</b>	<b>#</b>	<b>Date</b>
		<b>02</b>	<b>2021-03-15</b>
		<b>Annually</b>	
 <b>NORTH ATLANTIC PROJECTS GROUP</b> <b>Plan for ZERO HARM</b>			

**SIGNATURE**

**DATE**

PREPARED BY: Sheldon Chamberlain

REVIEWED BY: Shelley Cox



APPROVED BY: Darren Toner

 <small>Digitally signed by IO955255  DN: cn=IO955255  Date: 2020.07.21 13:53:28 -0400</small>	
 <small>Digitally signed by IO955255  DN: cn=IO955255  Date: 2020.07.21 14:17:12 -04'00'</small>	

**ISSUE/REVISION INDEX**



Issue Code	Revision					Revision Details
	No.	By	Rev'd.	App.	Date	
RR	01	SC	DT	DT	02/26/2021	Addition of PNR00069 CAR requirement.
RR	02	JB	DT	DT		General formatting, removal of section 5.7.

Issue Codes: RC = Released for Execution, RD = Released for Design, RF = Released for Fabrication, RI = Released for Information, RP = Released for Purchase, RPA = Released for Permit Application, RQ = Released for Quotation, RR = Released for Review and Comments.

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## 1.0 PURPOSE AND SCOPE

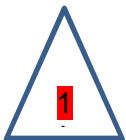
This procedure identifies NAPG minimum mandatory requirements for the selection and use of barricading and signage on surface/above the collar construction activities. It details the expectations to be used when identifying the need for and selection of appropriate barricading.

It shall apply to all employees, and to all contractors and visitors working on NAPG Project. The scope of this instruction is to establish the minimum requirements, measures and actions to be taken for the NAPG Project as they pertain to barricading.

## 2.0 DEFINITIONS

**Barricade:** Barricades include all forms of permanent and temporary structures, devices and equipment designed to prevent access to restricted areas such as construction islands or protect personnel inside and outside of construction islands from hazardous processes, falling objects, equipment, traffic hazards and high-risk areas. The three types of barricades are outlined in Section 5.0.

## 3.0 CAR REQUIREMENTS:



CAR 1.6.1a) Area isolation and warning: isolation and warning must be done **with physical barriers, such as barrier mesh and pedestal. The use of plain plastic zebra tape is prohibited . No Caution tape.**



CAR 3.6.1a) protective berms shall be constructed with a minimum height equal to half the diameter of the largest tire among equipment that travel on surface mining areas.

## 4.0 RESPONSIBILITIES

**All:** Adhere to the requirements set forth in this procedure.

**Construction Manager:** Ensure resources are available for the implementation and maintenance of this procedure.

**Area Construction Superintendents:** Ensure that work areas under their area of responsibility have properly installed and maintained barricades as necessary. Through field visits and inspections, they will also examine the effectiveness and suitability of barricaded areas and advise on means of improvement where necessary.

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**HSE Advisors:** HSE advisors shall ensure the proper implementation and communication of this procedure and provide guidance to contractor and subcontractor teams in terms of barricading requirements. Through field visits and audits, they will also examine the effectiveness and suitability of barricaded areas and advise on means of improvement where necessary.

**Contractor Supervision:** Ensure that barricades needed within their area of responsibility are erected as per the requirements of this Procedure and are appropriate for the nature of the work being performed. When allowing personnel to enter a barricaded area, Supervisors must also ensure that all hazards are communicated to and understood by those entering. Contractor Supervision may be required to escort personnel within a barricaded work area.

**Contractor Worker:** Workers working in the area are responsible to ensure that barricades and tags/signage are maintained throughout the duration of work activities and removed when work activities are completed. When allowing personnel to enter a barricaded area, workers must also ensure that all hazards are communicated to and understood by those entering. Report any deficiencies immediately to their Supervisor.

## 5.0 REQUIREMENTS



### 5.1 General Requirements

Always use appropriate barricades for task. All barricades are to be installed prior to commencing other work activities. Barricades **must be** maintained to be effective.

The NAPG Project will utilize the Pre-Mobilization Risk Assessment (PMRA) and Job Hazard Analysis (JHA) process to assess the need for barricading for specific work activities. These assessments shall examine hazards associated with the work that is to be performed and how that work may impact or interfere with other work, traffic or operations nearby. The intent of the barricading is to isolate work areas to control access to a designated area and to protect against potential hazards.

Examples when barricading a work area is required:

- Establishing a Construction Island
- Restricting and or controlling access to work environment
- Personnel working above and / or below

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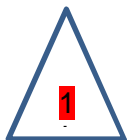
Barricading general requirements continued



- Unsafe, deteriorating or slippery walkways
- Unsecure structures
- Temporary removal of existing protection such as guardrails;
- Incomplete work platforms, scaffolds, and or other work environments
- Any opening in a floor, sump, vessel, bin, or other surface that may create a falling hazard to a worker
- Work being performed creates a hazard ex. X-ray for welds;
- An unsafe condition is identified;
- Danger of falling objects from overhead work;
- The work area is near vehicle or mobile equipment traffic;
- Personnel are within 3.1 m (10 feet) of a leading edge;
- An excavation or trench is greater than 1.2m (4 feet) in depth; or
- A critical incident has occurred, and the scene needs to be secured.

All barricading is to be selected by a competent person and installed by competent workers with the appropriate materials. All barriers are to be set back a reasonable distance to a known hazard.

As a minimum, temporary barricades shall be constructed using 3/8" polypropylene rope together with appropriate signs and tags to highlight the hazard and identify the contact person.

This does not preclude the use of other materials on a temporary basis to guardrail a condition while the required materials are found and installed.



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Wherever practicable, to provide better protection, a hard or rigid type barriers **are to be used** in place of standard rope barriers. Specific types of barricades are outlined in Section 4.2 below.

Barricades are to be constructed to provide complete protection against exposure to hazards. They shall completely enclose the work area, hazard zone and or travel way with enough access points and adequate tagging/signage. For a construction island, the barrier is to be continuous, **without** a break. Pedestrian and vehicle Entrance points to a construction island are to be clearly identified.

The barricade shall also account for factors such as:



- a) possible deflection of an object if it falls;
- b) slag or sparks created from hot work activities;
- c) Hoisting and rigging activities and their swing radius
- d) Minimum safe distance from the hazard; and
- e) creating an additional hazard, for example, congesting traffic, limiting access and egress.

Sites shall make sure that barricades are erected so that all sides of the hazard are protected from unauthorized access.

While essential, they encompass the work environment completely, barriers should not;

- a) be over extended and contain more area than what is reasonable to complete the task;
- b) impede, be attached to and or restrict operating equipment;
- c) block critical access and egress for equipment and pedestrians. If necessary to significantly impede travel ways, coordination amongst all affected parties and an accepted traffic plan shall be required prior to installation of barricades (see project contact for instruction);

All barricades shall be accompanied by an appropriate sign, which is to be placed on all access points.

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## 5.2 Signage Requirements:

Site expectation and regulatory requirements may differ by geographic location therefore signage may differ across sites. Signage **must be** standardized across a single site.

Signs are to be constructed using coroplast

The following information is to be displayed on the text general information sign:

- a) Organization and or Project name and the name of the person in charge of the barricaded area;
- b) the primary hazards that are within the barricaded area;
- c) the date; and
- d) the contact details of the person in charge of the area.

Where an assessment (PMRA or JHA) indicates the need to warn people of the presence of a barricade during darkness, amber-flashing lights shall be used.

Barricades shall be removed when work activities have been completed or when there is no further need to prevent or control access.

Overnight, off shift, weekend and or holiday access maybe required. Any barricade plan requires you to coordinate with your NAPG site contact and organize your barriers in a manner that should allow safe access to most work environments when there are no active construction activities. Particularly for brown field activities.



## 5.3 Overhead Work

Where there exists a potential overhead hazard of dropped objects (tools, materials, etc.), barricading shall be installed around the “drop zone” which is the area immediately below the work being performed.

This barricading shall be installed in such a way as to prevent access of personnel to the area where overhead hazards are present.

Contractors shall consider the potential for hazards beyond the immediate drop zone and establish suitable standoff for the barricade erection.

This type of barricading is required with the use of elevated work platforms. Barricades shall be installed and moved accordingly for the duration of the work to prevent access to the area immediately below and surrounding the equipment.

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#### 5.4 Traffic Interaction

In work areas where a potential hazard exists of interactions between personnel and light vehicle and/or mobile equipment, hard barriers should be used as a means of barricading. This type of barrier can be used in conjunction with other types providing the hard barriers are installed in all perimeter areas where light vehicles or mobile equipment can potentially cross the barricade.

#### 5.5 Lifting Operations

Barricading shall be installed and maintained in all work areas where lifting operations are being carried out. Within these areas, barricading shall be installed to:

- a) Prevent access to the swing radius of the crane;
- b) Contractors to consider the potential for hazards beyond the immediate swing radius and establish suitable standoff for the barricade erection;
- c) Prevent access to the areas where materials are being picked from and delivered to: and
- d) Prevent access to the counterweight swing radius of the crane.

As crane setup locations and material locations change, barricading must be updated accordingly.

#### 5.6 Trenching and Excavation

Barricading shall be installed a minimum of 1 meter from the edge of the trench/excavation, however, any barricading used must be secured to prevent upset or collapse into the excavation/ trench. The type(s) of barricading used shall be of enough type and materials to protect against access to the excavation or trench. Considerations must be given to access by personnel and other light vehicles and mobile equipment.

#### 5.7 Crossing Barricades



No person shall enter or cross through a barricaded work area unless permission is obtained from the person responsible for barricaded the area.

Upon permission for entry, the hazards associated with the work being performed shall be communicated to any personnel entering. All appropriate PPE and precautions must be met regardless of position or task ex. Fall protection, or hot work requirements. In some cases, an escort will need to be provided by the person responsible for the work area.

#### 5.8 Securing a Critical Incident Scene

Following the occurrence of a suspected critical or high potential incident on the project, the area shall be immediately secured with a barricade. This effort will be made jointly between the



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NAPG Construction Superintendent, the NAPG HSE Department and Contractor Supervision. The purpose of this is to preserve the scene for investigation to be carried out.

Following a critical injury, the area must be secured pending release by a Ministry of Labour inspector/ or relevant jurisdictional authority. If no such authority exists by the NAPG project director.

## 6.0 TYPES OF BARRICADES

Rigid barricades are the **preferred type** of barrier protection.

### 6.1 Temporary Barricading (Rope)

Standard Rope Barricading includes the use of rope to barricade or rope-off an area. These barricades shall be constructed using **3/8" polypropylene rope** and will be secured using vertical members (i.e: pylons, existing structures, buildings, etc.) at regular and suitable intervals. These barricades shall be installed in such a way to prevent sagging of the rope in between the vertical members.

This type of standard barricading is intended for use where barricades are temporary, are intended to be moved frequently, and or as establishing a general boundary around a large work area.

Standard temporary rope barricading has an inherent hazard in that personnel often disable a barrier for convenience by rolling it back or laying it on the ground. This practice must be aggressively countered through contractor and project staff supervision. To be effective a barrier **must always** be maintained.

It is **never permissible** for personnel to step over rope barriers. Entrance points shall be clearly identified and maintained.



These types of barriers **do not provide** protection against certain hazards such as falls.

They also **may not meet** regulatory requirements.

Wherever practicable, the use of rigid or hard barricades is the preferred requirement.

Should an NAPG project wish to use plastic coloured chain in replacement for the standard rope barricade, they shall submit their written barricading requirements to the NAPG HSER manager and NAPG project director for variance approval.

This maybe required to standardize the approach with local operational practices.

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### 6.1.1 Rigid Barriers

Rigid Barriers are the **preferred** method of delineating and protection.

Scopes of Work and work methodologies shall allow for the installation of appropriate rigid barriers.

This type of barricade is intended to be used where a more adequate means of controlling access than that of standard temporary barricading is required.

Types of rigid barriers include:

- a) construction fencing;
- b) constructed guardrails/fencing; or
- c) scaffold guardrails.

This is also the preferred means of barricading for long-term or more permanent installations.

When properly **designed and installed** it can also protect personnel from hazards such as falls and leading edges.

### 6.1.2 Hard Barriers



This type of barrier is intended to be used where a **means of solid protection** at a work area is required.

These include most commonly concrete jersey barriers but may also include other large concrete blocks, stone, or more permanent imbedded (engineered) steel and wood guard rail or fenced structures.

These types of barriers are meant to physically prevent light vehicles and mobile equipment from crossing into a work area, pedestrian pathways or excavations.

## 6.2 Information, Tags and Signage

In addition to the signage previously identified in section (5.2), an approved identification tag shall be placed on each barricade along its length and at key access areas.

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Information on the tag will be legible and shall include the date the barricade was installed, the name, contact information, department (or contractor name), and the **nature of the hazard** in the information box.

These tags are to be maintained and replaced/updated as required. Tags shall durable to withstand the environment in which they are used ie protective sleeve, laminated, or clear tape.

Additional signage may be required that is appropriate to the nature of the hazard present (i.e.: “Danger Open Hole” or “Danger Overhead Work”). These signs, when used, shall be properly secured and be accompanied by a tag that includes all required information as outlined above.

At key access points, a top hazards board and any additional requirements posting is collocated with the barricade access.

### 6.3 Open Hole and Leading-Edge Situations

#### 6.3.1 Guardrails

These barricades **must be** installed immediately as the first task and be completed prior to beginning any remaining work activities. If the leading edge or open hole condition does not previously exist, install the barrier first, then create the opening. Until the hard barricade is installed, the requirements of fall protection must be met.

Barricading, other than properly designed, constructed and secured/ supported construction fencing, wooden or metal guardrails or tube/clamp scaffolding components, is **not intended** to be used as protection against fall hazards in open hole or leading-edge situations.



Only competent trained persons (example carpenter or scaffolder as applicable) shall install these types of barricades to the approved design/ specifications.

#### 6.3.2 Bump Lines

Bump lines constructed of standard temporary barricading (rope) can be installed no less than 3.1m (10ft.) from a leading edge or a slope to a leading edge, only to provide warning of the hazard.

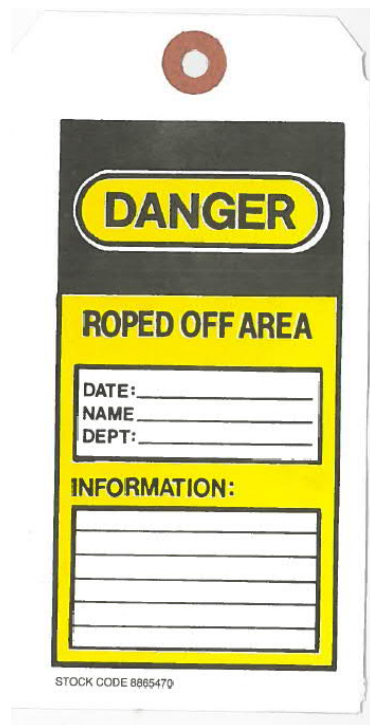
**This does not replace the requirement of proper fall protection equipment when exposed to fall hazards.**



equipment can potentially cross the barricade.

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**7.0 ATTACHMENTS**

**7.1 Barricade Tag example**



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## 8.0 REFERENCES

NAPG-SAF-SPI-0005	HSE Plan
NAPG-RA-SPI-0002	PMRA Procedure
NAPG-RA-SPI-0001	JHA Procedure
NAPG-RA-SPI-0003	FLHA Procedure
NAPG-SAF-SPI-0009	Working at Heights
NAPG-SAF-SPI-0016	Excavations
NAPG-SAF-SPI-00011	Traffic and Travel Management
NAPG-SAF-SPI-00012	Scaffolding
507763-000-0000-68AG-0038	AER barricades
IPT-VBME-000-720-PCD-0002	Chain/Rope and flagging procedure
CSA Z321.96	signs and symbols in the workplace
OD-SPI-SAF034	Ontario Division Signage
OD-SPI-SAF018	Ontario Division Surface barricading.

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