CITY OF CLEVELAND
Mayor Justin M. Bibb

2025 City of Cleveland

# Fire Code Fundamentals

## *On Access*

*A review of the Ohio Building Code,*
*Ohio Fire Code & Cleveland Fire Code.*

clevelandohio.gov

CITY OF CLEVELAND
Mayor Justin M. Bibb

# Introductions

# Understanding Fire Code in a Changing City

Cleveland is embracing a new vision for the built environment—moving toward greater density and walkable, connected neighborhoods.

This shift creates both exciting opportunities and complex challenges for designers, planners, and developers.

This webinar will explore some fundamentals you need to know to build safely and smartly in today's Cleveland.

# Presentation Topics

- Fire Department Apparatus Access
- Fire Department Aerial Access
- Fire Hydrant Location
- Safeguards During Construction

# Fire Dept. Apparatus Access

## Connecting the Dots

OBC 101.4.5 ,
The provisions of the *Ohio Fire Code* (chapters 1301:7-1 to 1301:7-7 of the Administrative Code), designated as the "*fire code*," apply to the preventive measures that provide for '... processes to reduce the risk from the hazards of fire and explosion and includes the maintenance of fire-detection, fire alarm, fire extinguishing equipment and systems, exit facilities, opening protectives, and other fire-safety devices and protection features'

# Fire Dept. Apparatus Access

## Connecting the Dots

OBC 102.11 (1.)

The state fire marshal or fire chief of municipal corporations or townships having fire departments enforce all provisions of the rules of the board relating to fire prevention.

# Fire Dept. Apparatus Access

## Connecting the Dots

### OBC 912.2 LOCATION

With respect to hydrants, driveways, buildings and landscaping, fire department connections shall be so located that fire apparatus and hose connected to supply the system will not obstruct access to the buildings for other fire apparatus. The location of fire department connections shall be *approved* by the *building official*.

### CCO 389.29(b).

When Fire Division hose connections are required, they shall be provided on each street and alley frontage or, when the building sets back of the street lines, on each accessible exterior wall facing street or alley. However, when a frontage or exterior wall is less than fifty (50) feet in length no connection shall be required on that frontage when approved connections are provided on other frontages.

# Fire Dept. Apparatus Access

## Connecting the Dots

### OFC 503.1

Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction *which are not readily accessible from a public and/or private street.* The fire apparatus access road shall comply with the requirements of this paragraph and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

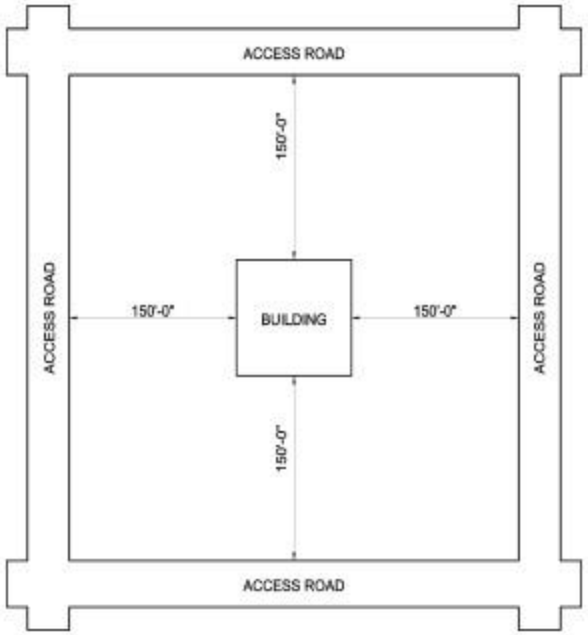
### OFC 503.2.2

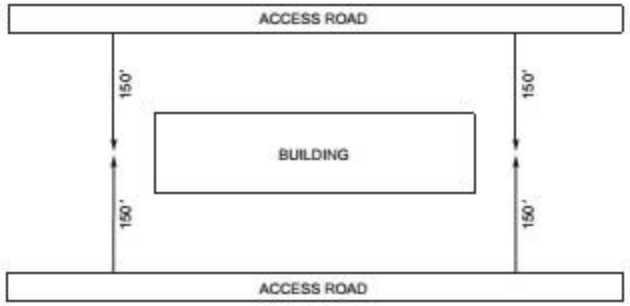
The fire code official shall have the authority to require an increase in the minimum access widths where they are inadequate for fire or rescue operations.

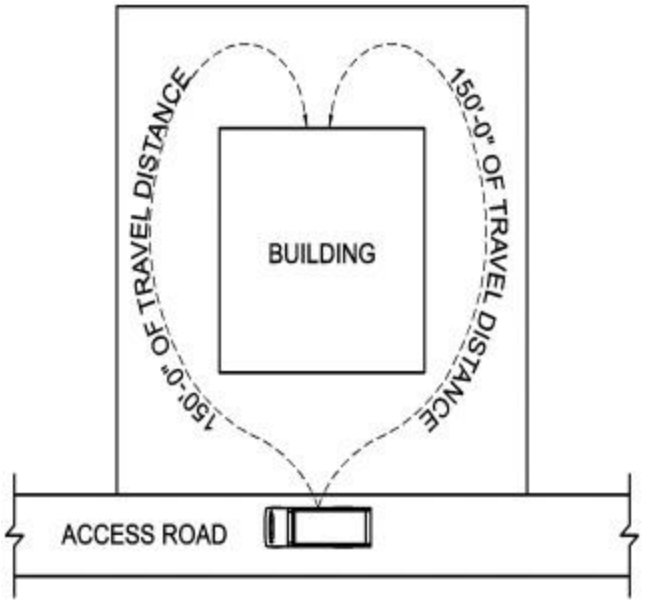
*(The City of Cleveland Fire Service relies on IFC Appendix D for minimum design criteria for Aerial Fire Apparatus Access)*

# Fire Dept. Apparatus Access

## Photo Diagrams

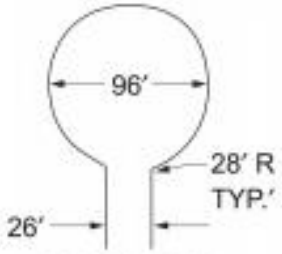


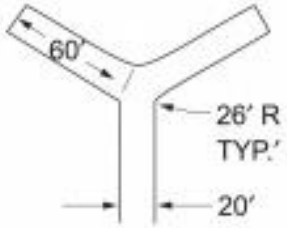



# Fire Dept. Apparatus Access

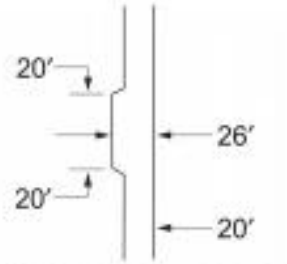
## Photo Diagrams



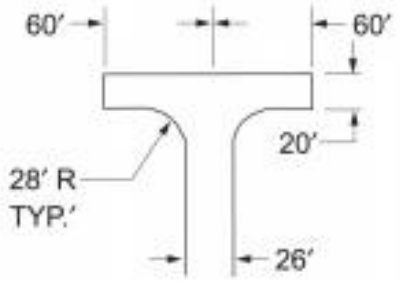

96′ DIAMETER
CUL-DE-SAC



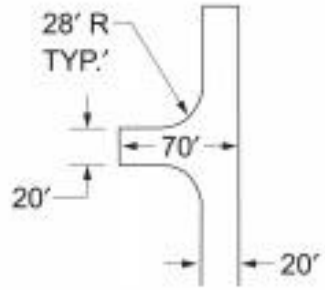

60-FOOT "Y"




MINIMUM CLEARANCE
AROUND A FIRE
HYDRANT




120′ HAMMERHEAD




ACCEPTABLE ALTERNATIVE
TO 120′ HAMMERHEAD

# Fire Aerial Apparatus Access

## Connecting the Dots

### IFC Appendix D Section D101.1 Scope

Fire apparatus access roads shall be in accordance with this appendix and all other applicable requirements of the *International Fire Code*.

# Fire Aerial Apparatus Access

## Connecting the Dots

### IFC Appendix D Section D105 Scope

Where the vertical distance between the *grade plane* and the highest roof surface exceeds 30 feet (9144 mm), *approved* aerial fire apparatus access roads shall be provided. For purposes of this section, the highest roof surface shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater

*Exception; Where approved by the fire code official, buildings of Type IA, Type IB or Type IIA construction equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and having fire fighter access through an enclosed stairway with a Class I standpipe from the lowest level of fire department vehicle access to all roof surfaces.*

# Fire Aerial Apparatus Access

## Section D105 Aerial Fire Apparatus Access Roads

### 2021 IFC Appendix D – Apparatus & Aerial Access

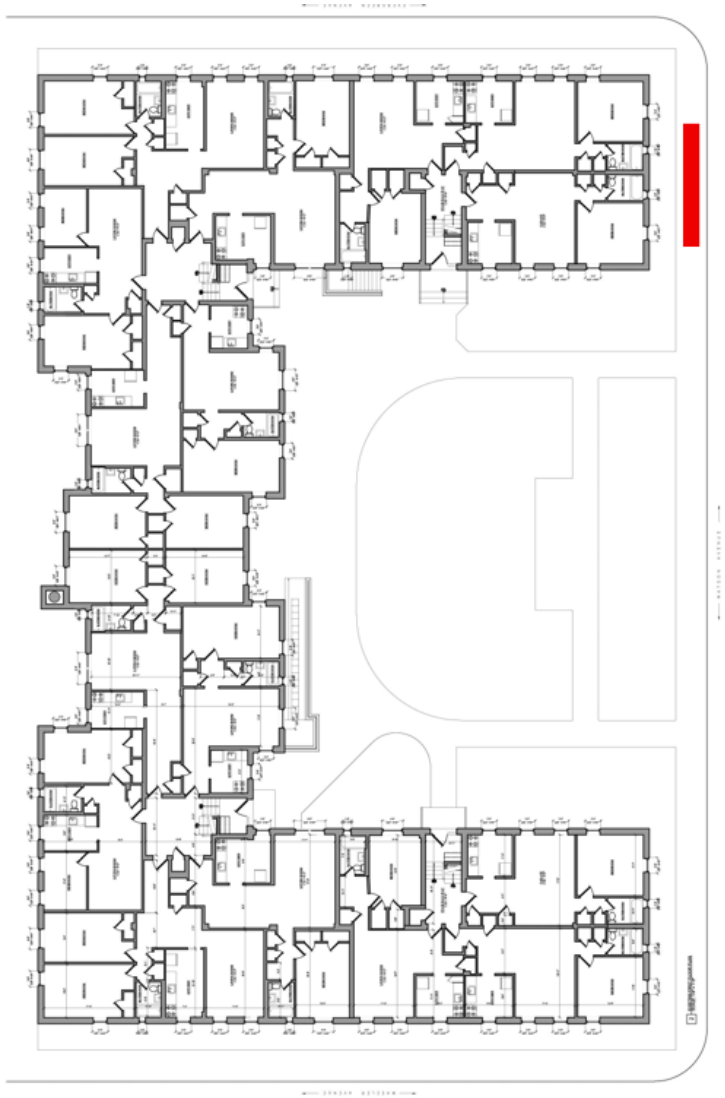
- **D105.1 Where required.**
  - Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet.
- **D105.2 Width.**
  - Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet.
- **D105.3 Proximity to building.**
  - Shall be located not less than 15 feet (4572 mm) and not greater than 30 feet (9144 mm) from the building and shall be positioned parallel to one entire side of the building.
  - The side of the building on which the aerial fire apparatus access road is positioned shall be approved by the fire code official.
- **D105.4 Obstructions.**
  - Overhead utility and power lines shall not be located over the aerial fire apparatus access road or between the aerial fire apparatus road and the building.
  - Other obstructions shall be permitted to be placed with the approval of the fire code official.

# Fire Aerial Apparatus Access

IFC D105.3

The side of the building on which the aerial fire apparatus access road is positioned shall be approved by the fire code official.

<u>This is not approved by the fire official.</u>



# Fire Aerial Apparatus Access

# Fire Aerial Apparatus Access

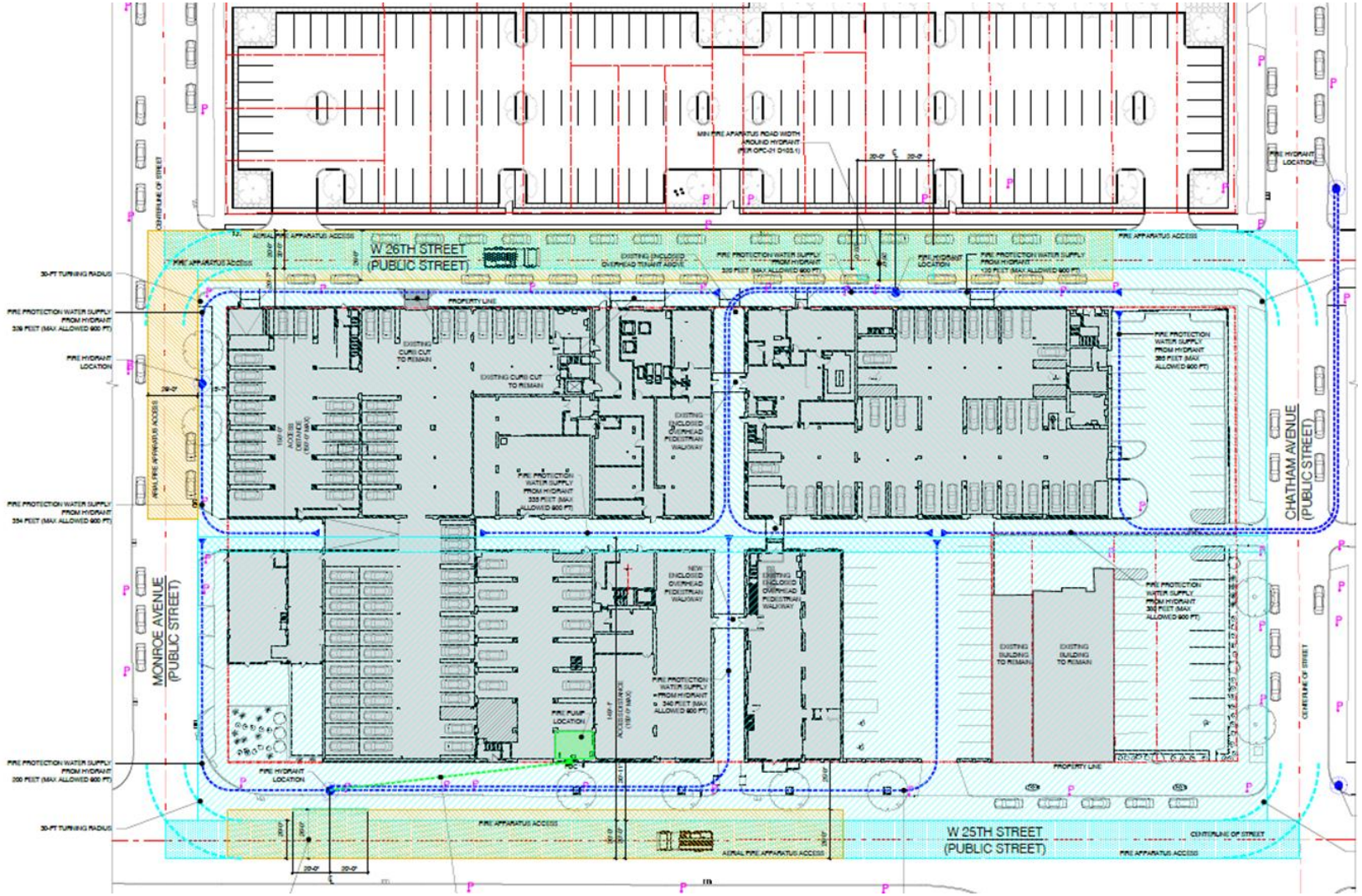
# Fire Aerial Apparatus Access

# Fire Aerial Apparatus Access

# Fire Aerial Apparatus Access


# Fire Aerial Apparatus Access

# Fire Aerial Apparatus Access



# Fire Hydrant Location

## Connecting the Dots

OBC 901.2 Fire protection systems.
Fire protection and life safety systems shall be installed, repaired, operated and maintained in accordance with this code and the *International Fire Code*.

OBC *905.1 General.*
Standpipe systems shall be provided in new buildings and structures in accordance with Sections 905.2 through 905.11. In buildings used for high-piled combustible storage, fire protection shall be in accordance with the *International Fire Code*.

IFC 507.5.1.1 Hydrant for standpipe systems.
Buildings equipped with a standpipe system installed in accordance with Section 905 shall have a fire hydrant within 100 feet (30 480 mm) of the fire department connections.

Exception: *The distance shall be permitted to exceed 100 feet (30 480 mm) where approved by the fire code official.*

# Fire Hydrant Location

## Connecting the Dots

### OBC 912.2 Location.

With respect to hydrants, driveways, buildings and landscaping, fire department connections shall be so located that fire apparatus and hose connected to supply the system will not obstruct access to the buildings for other fire apparatus. The location of fire department connections shall be approved by the building official.

### OBC 912.4 Access.

Immediate access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other fixed or moveable object. Access to fire department connections shall be approved by the building official.

# Fire Hydrant Location

## Connecting the Dots

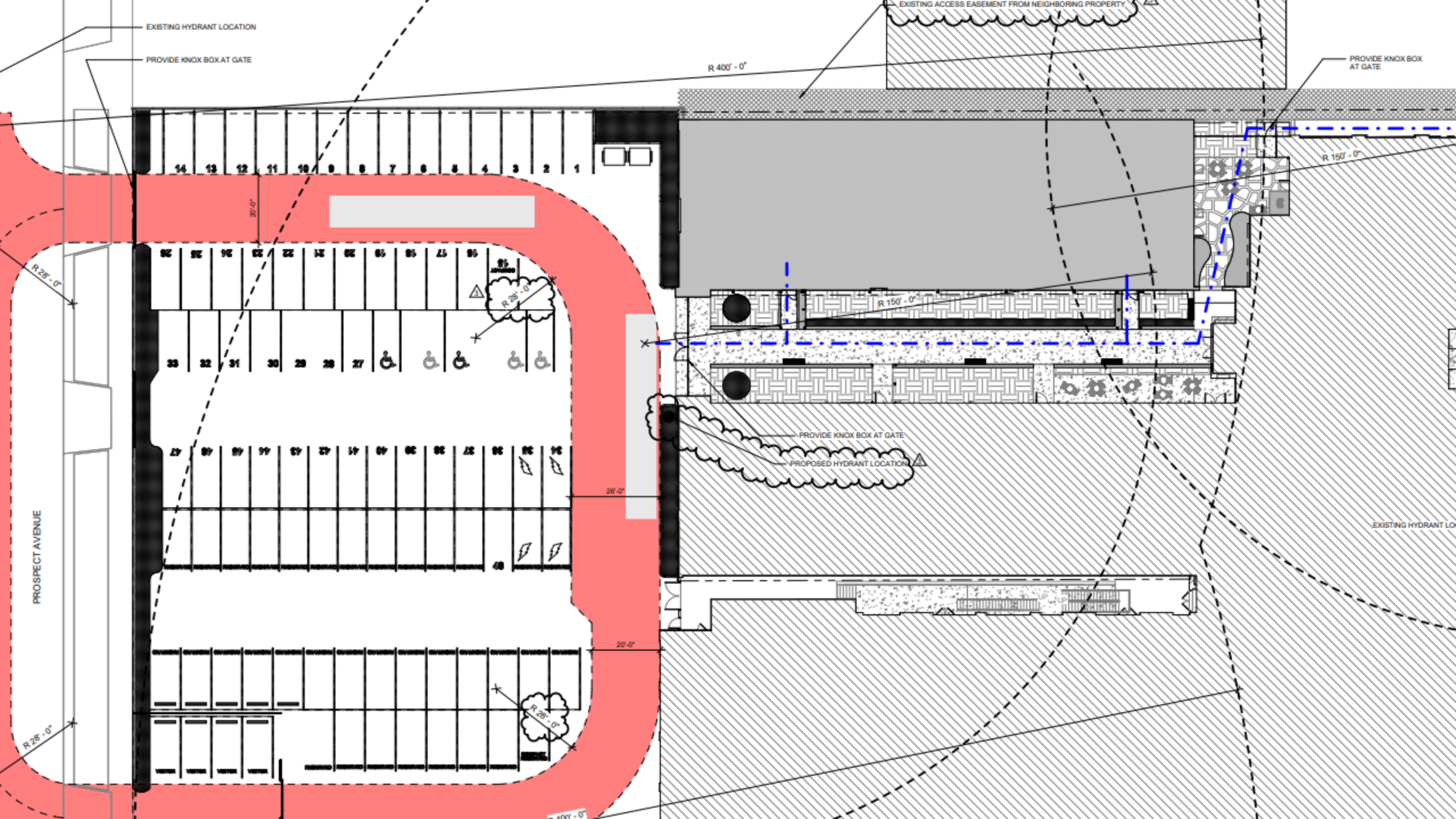
### OFC/IFC Section 507. Fire Protection Water Supplies

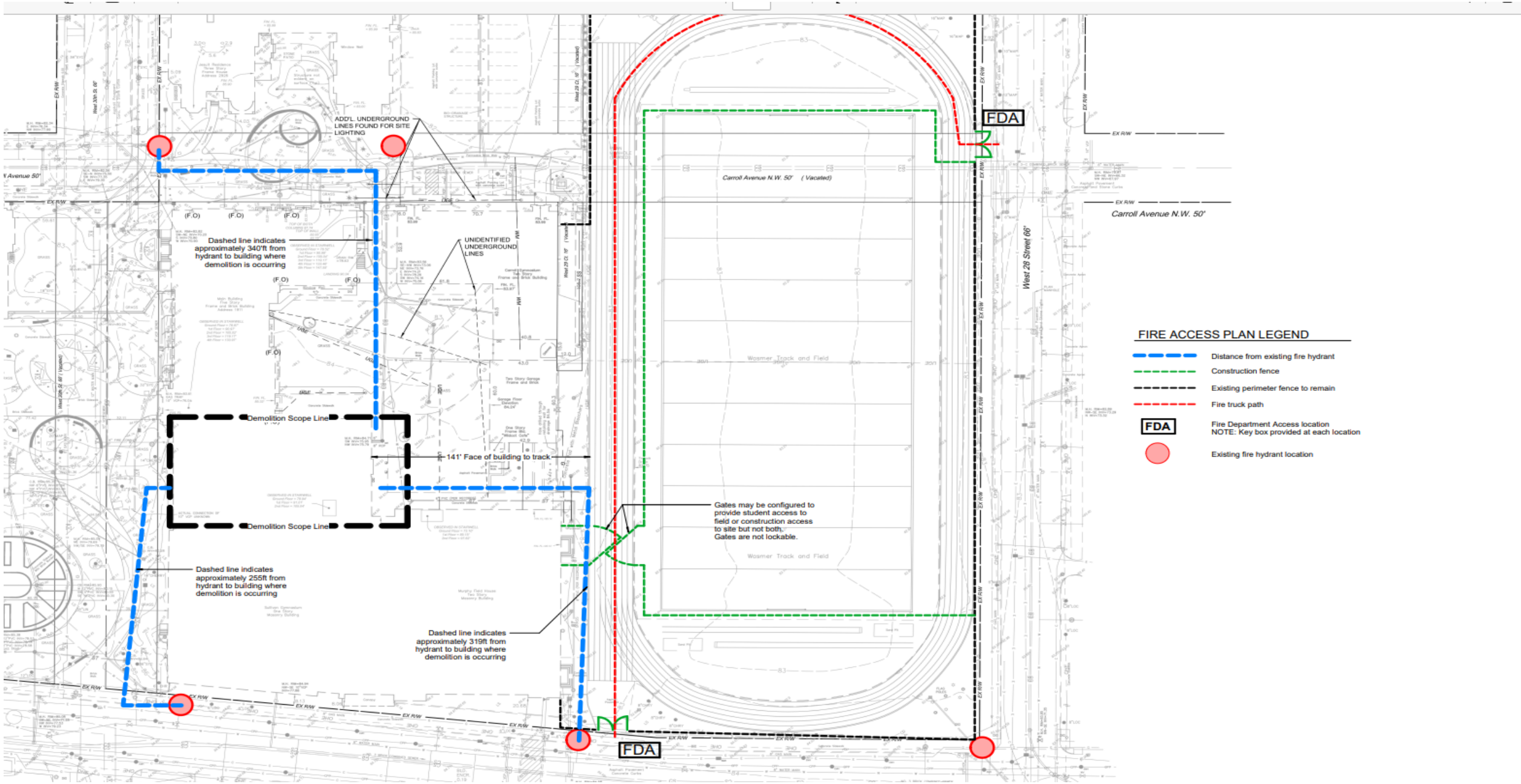
#### 507.5.1 Where required.

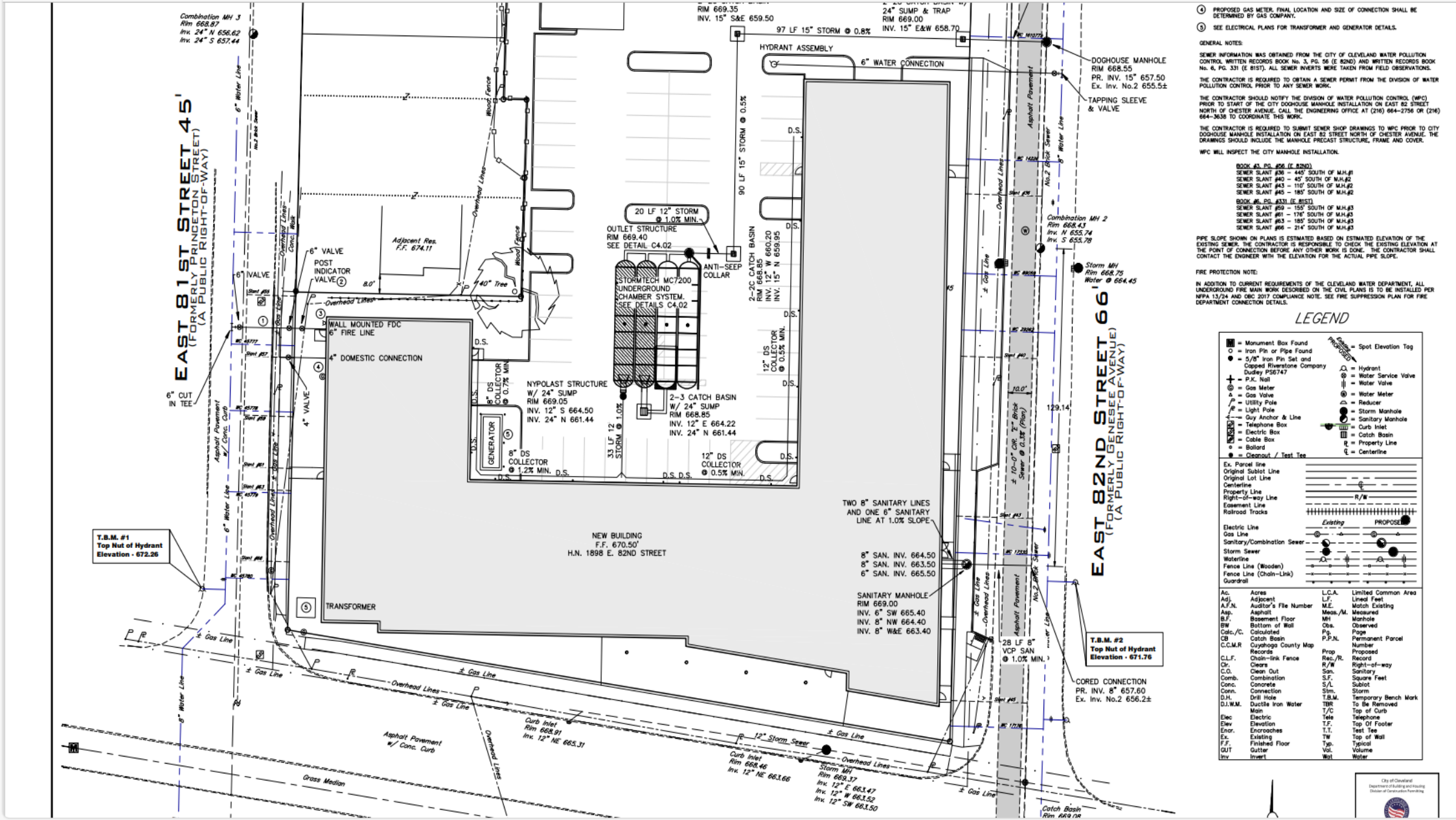
Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet (122 m) from a hydrant on a fire apparatus access road, as measured by an *approved* route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the *fire code official*.

**Exceptions:**

1. For Group R-3 and Group U occupancies, the distance requirement shall be 600 feet (183 m).
2. For buildings equipped throughout with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the distance requirement shall be 600 feet (183 m).


EXISTING HYDRANT LOCATION
PROVIDE KNOX BOX AT GATE
EXISTING ACCESS EASEMENT FROM NEIGHBORING PROPERTY
R 400' - 0"
PROVIDE KNOX BOX AT GATE
R 150' - 0"
20'-0"
R 28' - 0"
R 150' - 0"
PROVIDE KNOX BOX AT GATE
PROPOSED HYDRANT LOCATION
26'-0"
PROSPECT AVENUE
20'-0"
R 28' - 0"
R 28' - 0"
EXISTING HYDRANT LO


ADD'L UNDERGROUND LINES FOUND FOR SITE LIGHTING
Dashed line indicates approximately 340'ft from hydrant to building where demolition is occurring
UNIDENTIFIED UNDERGROUND LINES
Demolition Scope Line
141' Face of building to track
Demolition Scope Line
Dashed line indicates approximately 255ft from hydrant to building where demolition is occurring
Dashed line indicates approximately 319ft from hydrant to building where demolition is occurring
Gates may be configured to provide student access to field or construction access to site but not both. Gates are not lockable.
FDA
FDA
Carroll Avenue N.W. 50' ( Vacated)
Carroll Avenue N.W. 50'
West 28 Street 66'
Wasmer Track and Field
FIRE ACCESS PLAN LEGEND
Distance from existing fire hydrant
Construction fence
Existing perimeter fence to remain
Fire truck path
FDA
Fire Department Access location
NOTE: Key box provided at each location
Existing fire hydrant location




4. PROPOSED GAS METER. FINAL LOCATION AND SIZE OF CONNECTION SHALL BE DETERMINED BY GAS COMPANY.
5. SEE ELECTRICAL PLANS FOR TRANSFORMER AND GENERATOR DETAILS.

GENERAL NOTES:

SEWER INFORMATION WAS OBTAINED FROM THE CITY OF CLEVELAND WATER POLLUTION CONTROL WRITTEN RECORDS BOOK No. 3, PG. 56 (E 82ND) AND WRITTEN RECORDS BOOK No. 6, PG. 331 (E 81ST). ALL SEWER INVERTS WERE TAKEN FROM FIELD OBSERVATIONS.

THE CONTRACTOR IS REQUIRED TO OBTAIN A SEWER PERMIT FROM THE DIVISION OF WATER POLLUTION CONTROL PRIOR TO ANY SEWER WORK.

THE CONTRACTOR SHOULD NOTIFY THE DIVISION OF WATER POLLUTION CONTROL (WPC) PRIOR TO START OF THE CITY DOGHOUSE MANHOLE INSTALLATION ON EAST 82 STREET NORTH OF CHESTER AVENUE. CALL THE ENGINEERING OFFICE AT (216) 664-2756 OR (216) 664-3638 TO COORDINATE THIS WORK.

THE CONTRACTOR IS REQUIRED TO SUBMIT SEWER SHOP DRAWINGS TO WPC PRIOR TO CITY DOGHOUSE MANHOLE INSTALLATION ON EAST 82 STREET NORTH OF CHESTER AVENUE. THE DRAWINGS SHOULD INCLUDE THE MANHOLE PRECAST STRUCTURE, FRAME AND COVER.

WPC WILL INSPECT THE CITY MANHOLE INSTALLATION.

BOOK #3, PG. #56 (E 82ND)
SEWER SLANT #36 – 445' SOUTH OF M.H.#1
SEWER SLANT #40 – 45' SOUTH OF M.H.#2
SEWER SLANT #43 – 110' SOUTH OF M.H.#2
SEWER SLANT #45 – 185' SOUTH OF M.H.#2

BOOK #6, PG. #331 (E 81ST)
SEWER SLANT #59 – 155' SOUTH OF M.H.#3
SEWER SLANT #61 – 176' SOUTH OF M.H.#3
SEWER SLANT #63 – 185' SOUTH OF M.H.#3
SEWER SLANT #66 – 214' SOUTH OF M.H.#3

PIPE SLOPE SHOWN ON PLANS IS ESTIMATED BASED ON ESTIMATED ELEVATION OF THE EXISTING SEWER. THE CONTRACTOR IS RESPONSIBLE TO CHECK THE EXISTING ELEVATION AT THE POINT OF CONNECTION BEFORE ANY OTHER WORK IS DONE. THE CONTRACTOR SHALL CONTACT THE ENGINEER WITH THE ELEVATION FOR THE ACTUAL PIPE SLOPE.

FIRE PROTECTION NOTE:

IN ADDITION TO CURRENT REQUIREMENTS OF THE CLEVELAND WATER DEPARTMENT, ALL UNDERGROUND FIRE MAIN WORK DESCRIBED ON THE CIVIL PLANS IS TO BE INSTALLED PER NFPA 13/24 AND OBC 2017 COMPLIANCE NOTE. SEE FIRE SUPPRESSION PLAN FOR FIRE DEPARTMENT CONNECTION DETAILS.

## LEGEND

- Monument Box Found
- Iron Pin or Pipe Found
- 5/8" Iron Pin Set and Capped Riverstone Company Dudley PS8747
- P.K. Nail
- Gas Meter
- Gas Valve
- Utility Pole
- Light Pole
- Guy Anchor & Line
- Telephone Box
- Electric Box
- Cable Box
- Bollard
- Cleanout / Test Tee
- Spot Elevation Tag
- Hydrant
- Water Service Valve
- Water Valve
- Water Meter
- Reducer
- Storm Manhole
- Sanitary Manhole
- Curb Inlet
- Catch Basin
- Property Line
- Centerline

Ex. Parcel line
Original Sublot Line
Original Lot Line
Centerline
Property Line
Right-of-way Line
Easement Line
Railroad Tracks
Electric Line
Gas Line
Sanitary/Combination Sewer
Storm Sewer
Waterline
Fence Line (Wooden)
Fence Line (Chain-Link)
Guardrail

Existing / PROPOSED

| | | | |
|---|---|---|---|
| Ac. | Acres | L.C.A. | Limited Common Area |
| Adj. | Adjacent | L.F. | Lineal Feet |
| A.F.N. | Auditor's File Number | M.E. | Match Existing |
| Asp. | Asphalt | Meas./M. | Measured |
| B.F. | Basement Floor | MH | Manhole |
| BW | Bottom of Wall | Obs. | Observed |
| Calc./C. | Calculated | Pg. | Page |
| CB | Catch Basin | P.P.N. | Permanent Parcel Number |
| C.C.M.R | Cuyahoga County Map Records | Prop | Proposed |
| C.L.F. | Chain-link Fence | Rec./R. | Record |
| Clr. | Clears | R/W | Right-of-way |
| C.O. | Clean Out | San. | Sanitary |
| Comb. | Combination | S.F. | Square Feet |
| Conc. | Concrete | S/L | Sublot |
| Conn. | Connection | Stm. | Storm |
| D.H. | Drill Hole | T.B.M. | Temporary Bench Mark |
| D.I.W.M. | Ductile Iron Water Main | TBR | To Be Removed |
| Elec | Electric | T/C | Top of Curb |
| Elev | Elevation | Tele | Telephone |
| Encr. | Encroaches | T.F. | Top Of Footer |
| Ex. | Existing | T.T. | Test Tee |
| F.F. | Finished Floor | TW | Top of Wall |
| GUT | Gutter | Typ. | Typical |
| Inv | Invert | Vol. | Volume |
| | | Wat | Water |

RIVERSTONE
LAND SURVEYING - ENGINEERING - DESIGN
3800 LAKESIDE AVENUE - SUITE 100
CLEVELAND, OHIO 44114
PHONE: (216) 491-9640 FAX: (216) 491-9640
WWW.RIVERSTONESURVEY.COM

2022-484

PLAN REVISIONS:
7/25/2023 WPC Comments
7/31/2023 CWD
8/9/2023 NEORSD Comments
9/8/2023 Generator

PAGE REVISIONS:

ISSUED FOR:
PERMIT
7/5/2023
NOT FOR CONSTRUCTION

# CHESTER AVE. & EAST 82ND STREET APARTMENTS
CLEVELAND, OHIO

UTILITY PLAN

# Fire Hydrant Location

## Connecting the Dots

## Hose Monitors/"Deck Guns"

# Fire Hydrant Location

## Connecting the Dots

- Starting Point for Hydrant Placement
- Municipal requirements from CWD
- Additional hydrants to meet volume or system demand (parking garages)
- Placement to meet water monitors or apparatus ‘deck monitors’
- Hydrants to meet construction site requirements

# Safeguards During Construction

## Connecting the Dots

### OBC 3301.1 Scope.

The provisions of this chapter shall govern safety during construction and the protection of adjacent public and private properties.

### OBC 3311.1 Where required. (Standpipes)

In buildings required to have standpipes by Section 905.3.1, not fewer than one standpipe shall be provided for use during construction. Such standpipes shall be installed prior to construction exceeding 40 feet (12 192 mm) in height above the lowest level of fire department vehicle access. Such standpipes shall be provided with fire department hose connections at locations adjacent to stairways complying with Section 3310.1. As construction progresses, such standpipes shall be extended to within one floor of the highest point of construction having secured decking or flooring.

# Safeguards During Construction

## Connecting the Dots

### IFC SECTION 3311
### ACCESS FOR FIRE FIGHTING

- Compliments OBC Section 33 Safeguards During Construction

**3311.1 Required access.**
*Approved* vehicle access for fire fighting shall be provided to all construction or demolition sites. Vehicle access shall be provided to within 100 feet (30 480 mm) of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads, capable of supporting vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available.

Remember: It’s not just your building. It’s the structure next to it as well.

# Safeguards During Construction

## Connecting the Dots

### OBC 3313 Water Supply For Fire Protection

**3313.1 Where required.**
An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible building materials arrive on the site, on commencement of vertical combustible construction, and on installation of a standpipe system in buildings under construction, in accordance with Sections 3313.2 through 3313.5.

- 3312 Combustible building materials
- 3313.3 Vertical construction of Types III, IV, and V construction
- 3313.3.1 Fire separation up to 30 feet
- 3313.3.2 Fire separation of 30 feet up to 60 feet
- …continued through 3313.5

# Conclusion

There are direct and indirect connections:

OBC Administrative sections, Chapter 9, and Chapter 33

OFC/IFC Sections 503, 507 and Appendices

CITY OF CLEVELAND
Mayor Justin M. Bibb

# Questions?

*Type questions in chat or raise hand to ask to be un-muted.*
*Please keep questions general, not project-specific.*

CITY OF CLEVELAND
Mayor Justin M. Bibb