

**Cambridge
DPW's
Contractor
Presentation**

April 2nd, 2019

Agenda

1. Welcome/ Introduction – T.J. Shea
2. Permits, No Parking Signs, SPOF – Andrew Bock
3. New Permitting System – Paul Creedon
4. Special Variances and Noise Ordinances – Andrea Boy
5. Traffic Management Plans – Melissa Miguel
6. Sidewalk & Pavement Repairs - Yaser Samerraei
7. Confined Space/Trench Safety– Ken Bergeron
8. Erosion and Sediment Control – Yilkal Bekele
9. Tree Protection & Plantings – David Lefcourt
10. Community Relations – Kate Riley
11. Police Details – Sargent Lopes

Permit Requirements

Online Permits:

■ Construction related permits available online:

-Crane, Boom &
Pump Truck

-Dewatering

-Excavation

-Sidewalk Obstruction

-Stormwater Control

-Temporary

Construction Access

-Sewer Connection Fees

Before you begin:

- Register – Only needs to be done once per user and once per company

Have required documents ready for upload:

- Surety bond and insurance certificate
- A traffic/pedestrian management plan (TMP)

Before you begin:

Have required documents ready for upload:

- Water Permit
- Electrical Department Utility Permit
- MWRA 8M Permit

City of Cambridge Online Permitting and Licensing System

<https://cambridgema.viewpointcloud.com>

 City of Cambridge, MA

[Login](#) [Sign Up](#)

City of Cambridge Online Permitting and Licensing System

Access service information and apply online – all from here.

Search for something like "One Day Alcoholic and/or Entertainment License" or "Curb Cut"

Discover Online Services

Choose below to browse services by department



Frequently Asked Questions and



License Commission



Inspectional Services

<https://cambridgema.viewpointcloud.com>

City of Cambridge Online Permitting and Licensing System

Access service information and apply online – all from here.

Search for something like "Mechanical Permit" or "Gas Permit"

Discover Online Services

Choose below to browse services by department



Frequently Asked Questions and Useful Documents

General Online Permitting and Licensing Help, Service Fee FAQ + 2 more

[Explore](#)



License Commission

Annual Auctioneer Permit, Annual Common Victualler, Alcohol and/or Entertainment License + 19 more

[Explore](#)



Inspectional Services

Asbestos Permit, Building Permit - Addition / Alteration + 26 more

[Explore](#)



Expectations for 2019

- MUST have an approved permit before starting work
- A copy of the permit MUST be on site
- Anyone working without an approved permit could have their permit privileges revoked
- Permits MUST be paid for before a permit will be issued

Expectations Cont'd

- MUST abide by permit conditions
- Call for inspections 24hrs in advance
- Do not start emergency work with out notifying the DPW. Apply for permit as soon as possible
- MUST continue to use A-tag markers on temporary and permanent asphalt patches



No Parking Signs

- Must be City of Cambridge Signs, be legible and posted curbside-Include Permit Number
- If they need to be updated, use a new sign
- State Mon-Fri, and are only valid during permit hours. *(5 work days max at a time)*
- Post an adequate number of signs
- Be posted *48 hours in advance*



No Parking Signs

- If you are taking a handicap space, a temporary handicap space must be created at the nearest available parking space
- If you need to relocate a bus stop, contact the MBTA, EZRide or Appropriate Authorities.
- Must take a picture with a date stamp showing that the signs have been properly posted 48 hours in advance
- Towing is only allowed if the above procedures have been followed

Street Preservation Offset Fee (SPOF):

- 3.1 Prior to restoration of the surface of a municipal street, sidewalk, public right of way, or public easement, the permit holder shall certify in writing that it has completed work in the opening and has backfilled, closed, and compacted the opening to a soil density value of 95% modified Proctor density as specified in the American Association of State Highway and Transportation Officials standard AASHTO T180.
- 3.2 In the event the Department of Public Works determines that the opening has not been backfilled, closed, and compacted to this standard, the Department will charge the permit applicant for all costs required to complete backfilling, closing, and compaction to the AASHTO T180 standard or Call the contractor to re excavate, compact and pave the street. **There no statute of limitations for failed compaction.**
- 3.3 If the permit holder elects to participate in the SPOF Restoration program and has paid the SPOF Restoration fee calculated under section 4.2, the permit holder shall restore the opening and surface of the municipal street, sidewalk, public right of way, or public easement and maintain it in serviceable condition for 12 months. **The 12 months period only applies to the surface restoration but not for compaction.**

How SPOF is calculated:

- Patches less than 100 sq ft = \$11.00 per square foot.
- Patches greater than 100 sq ft but < 4ft wide = \$33.00 per linear foot
- Patches greater than 100 sq ft but > 4ft wide = \$90.00 per linear foot

Special Variances & Noise Ordinances

City of Cambridge
License Commission

Special Noise Variance (SNV)

April 2019



SPECIAL NOISE VARIANCE: (SNV)

When is a SNV required?



Before the Allowable Hours



After Allowable Hours



Loading/Unloading



Holidays



Sundays 17

*This list is not inclusive of all circumstances where a SNV may be required

ALL SNV APPLICATIONS ARE SUBMITTED ONLINE VIA VIEWPOINT SYSTEM

City of Cambridge, MA

Second Hand Goods, Junk Dealers and/or Antiques
Apply for a Second Hand Goods, Junk Dealers and/or Antiques License in the City of Cambridge. You need to apply for a license if you plan to solicit for, be a collector of, or a dealer in antiques, secondhand goods and/or junk within the City of Cambridge. [Select](#)

Special Noise Variance
(Cambridge Municipal Code Chapter 8.16.090) This application allows you to request a variance for those activities that are regulated by the Noise Control Ordinance which include limitations on measured and non-measured noise disturbances, hours of construction, and use of certain equipment. Special Variances may be granted if the applicant shows "that bringing the source of sound or activity for which the special variance is sought into compliance with [Chapter 8.16] would constitute an unreasonable hardship on the applicant, on the community, or on other persons." [Select](#)

Used Car Dealer License
New Applicants Only: Apply for a Used Car Dealer License in the City of Cambridge. Do not click Select if you are trying to renew your license. [Select](#)

<https://cambridgema.viewpointcloud.com>

SPECIAL NOISE VARIANCE (SNV)

ViewPoint Application:

- Fourteen (14) days prior to scheduled activity/day you want the Board to consider the application.
- Must submit a Notarized Abutter Notification Affidavit.
- Submit a plot plan of the area.
- Non-refundable/non-transferrable application fee of \$75.00 may be paid by credit card or check.
- If the SNV is granted, there is an additional \$100.00 permit fee which must be paid prior to being able to exercise the permit.



Questions:

Andrea Boyer, Chief Licensing Investigator
Cambridge License Commission
831 Massachusetts Avenue
Cambridge, MA 02139

617-349-6149

noise@cambridgema.gov

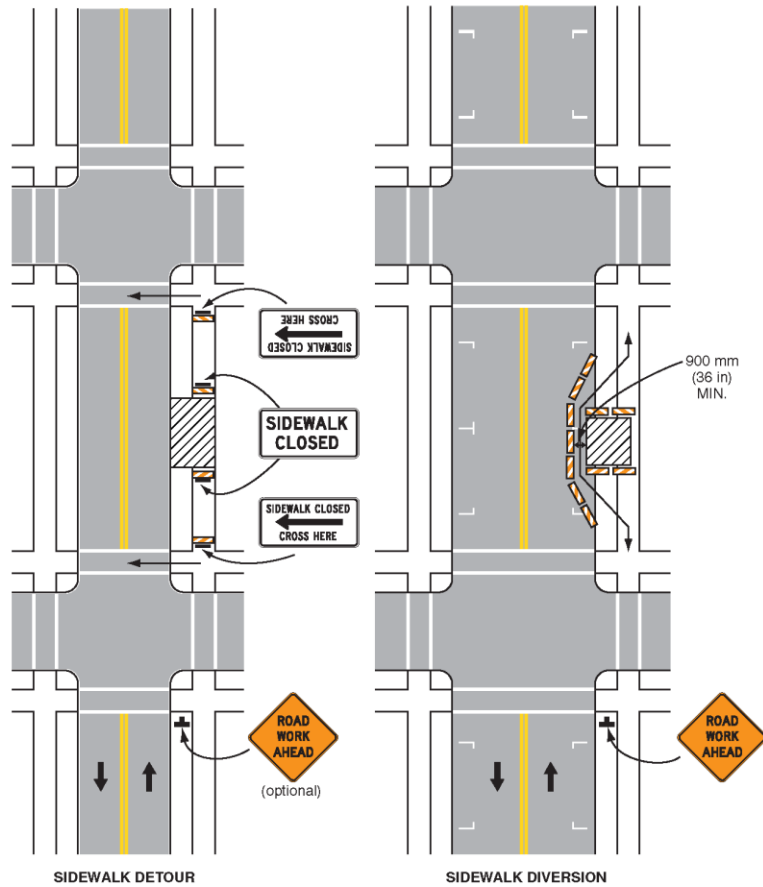
Traffic/Pedestrian Management Plans and Bike Safety

TMP must be submitted with application & must:

- Follow MUTCD & reflect unique location
- Account for pedestrians, cyclists, passenger vehicles and transit.
- Include a police detail– but function without one –
Police Details – Order Online at
[**https://details.cambridgepolice.org**](https://details.cambridgepolice.org)
- Consider the nature of the work when determining whether to set up a detour. Large, deep excavations are more likely to require a detour versus smaller utility repairs that may be easier to route through.

- Put yourself in the pedestrian's shoes and think about whether YOU would take a particular detour.
- Can the detour be clearly communicated?
- Is the detour accessible?
- Does the detour cut off access to bus stops or accessible parking spaces?
- Does the detour require crossing heavy traffic volumes or wide intersection approaches?

Figure 6H-28. Sidewalk Detour or Diversion (TA-28)



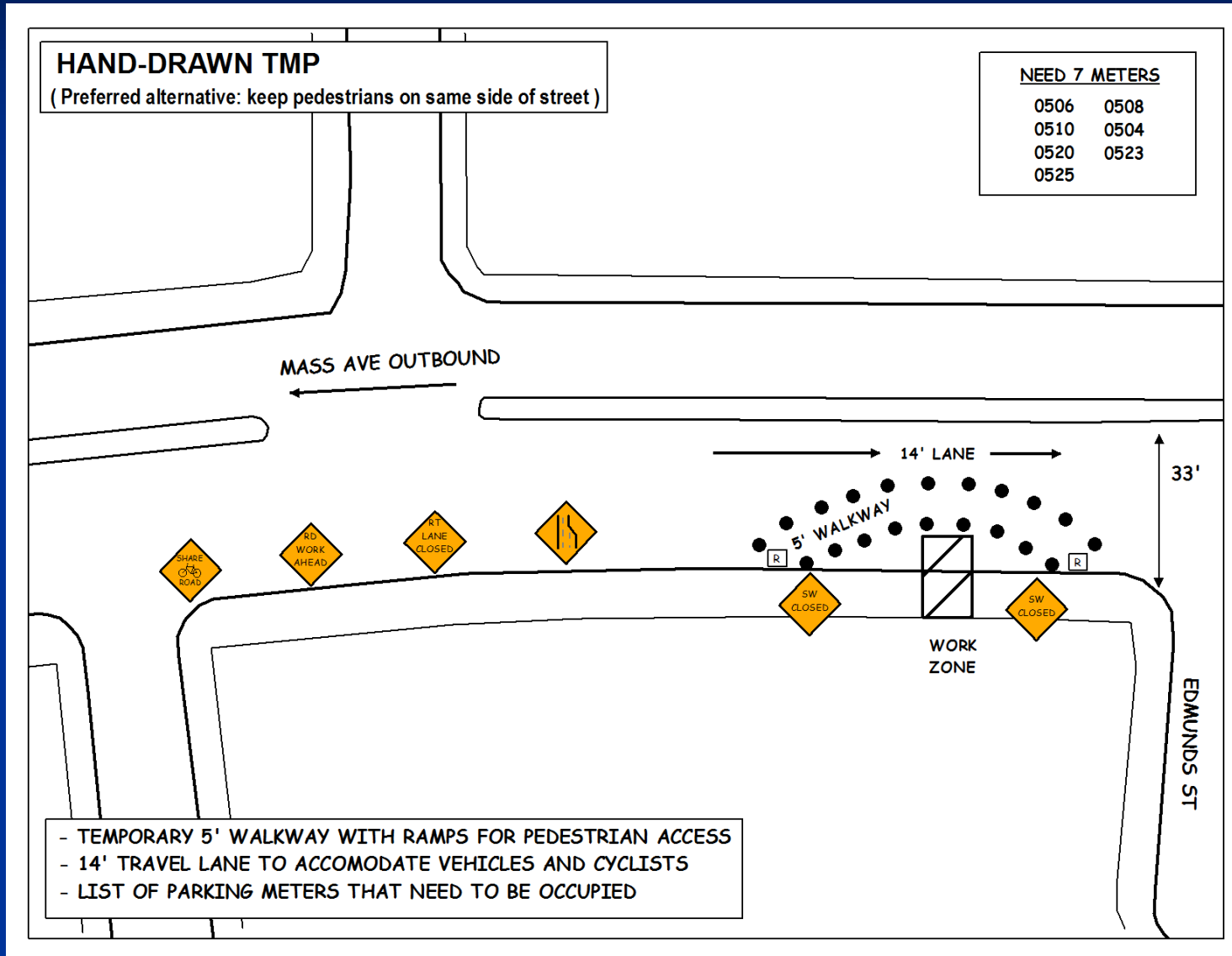
Typical Application 28

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Example from
2003 MUTCD:
*Sidewalk
closures &
bypass
walkway(TA-28)*

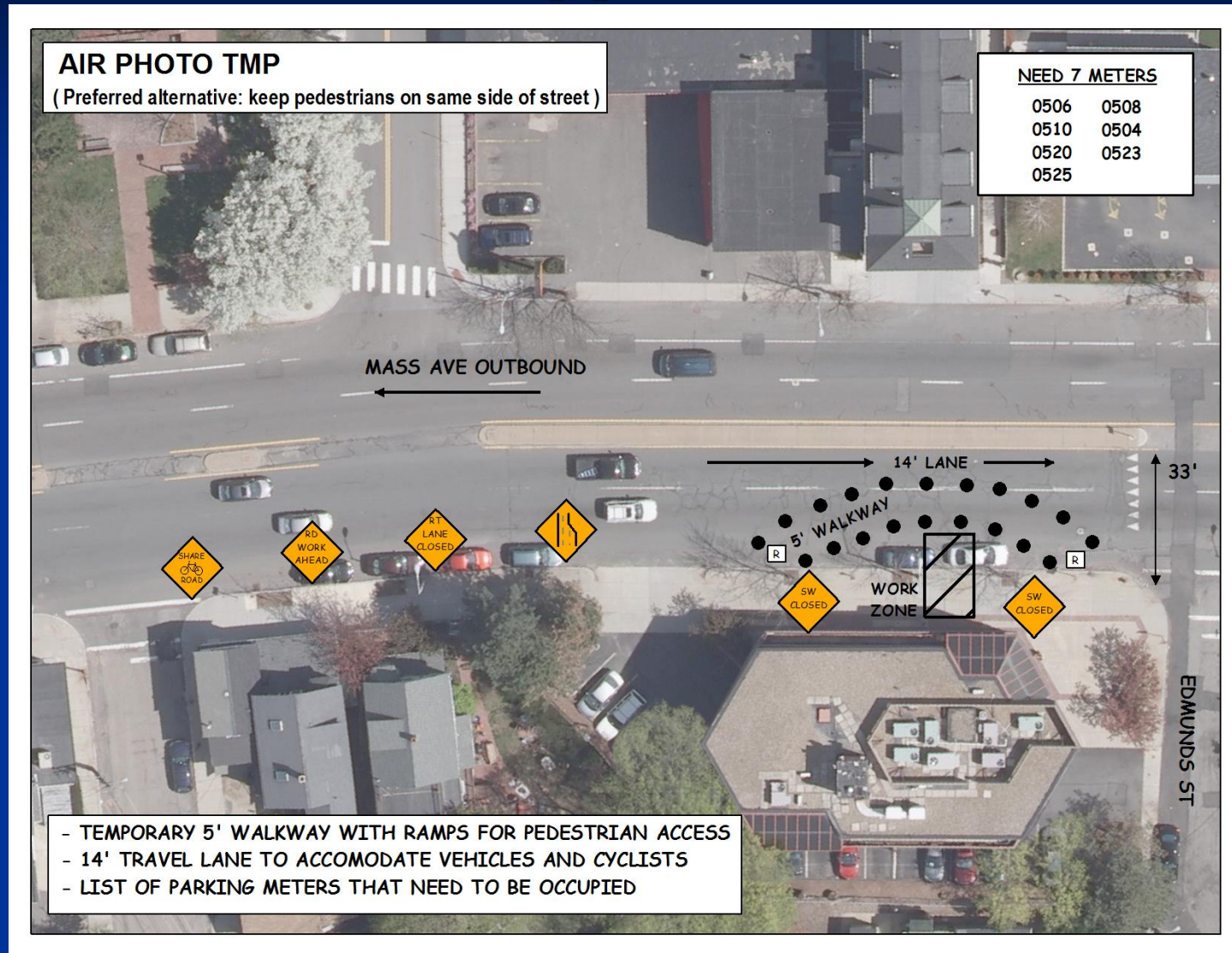
Sample TMP- Hand-Drawn

(Preferred Alternative -- keep pedestrians on same side of street.)



Same TMP- Using On-Line Mapping

(Preferred Alternative -- keep pedestrians on same side of street.)



TMPs & Final Conditions Must Meet AAB & ADA Standards

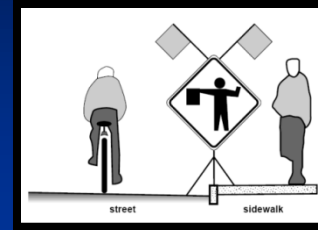


Provide temporary facilities to ensure accessible route



TMPs must account for bikes

- Maintain access to bicycle lane if possible.
- Ensure adequate space for bicycles in travel lane.
- Post “Bicycles May Use Full Lane” signs (R4-11).
- Road signs of any type should not be placed in bicycle lanes.
- Restore bicycle facility pavement markings ASAP after paving.



Pavement/Surfacing

- Pavement is the preferred temporary surface option.
- Surfaces should be smooth, and edges should be uniform.
- Metal/steel plates: Slick and dangerous, not easily visible.
 - If used: post advance warning signs, and recess plates so that top of plate is level with adjacent pavement. If not possible, provide temporary bituminous concrete lip painted reflective pink all around the plate to provide a smooth transition between the plate and adjacent pavement. All plate edges should be painted with reflective pink paint. Plates should have non-slippery textured surface (required within intersection or crosswalks).

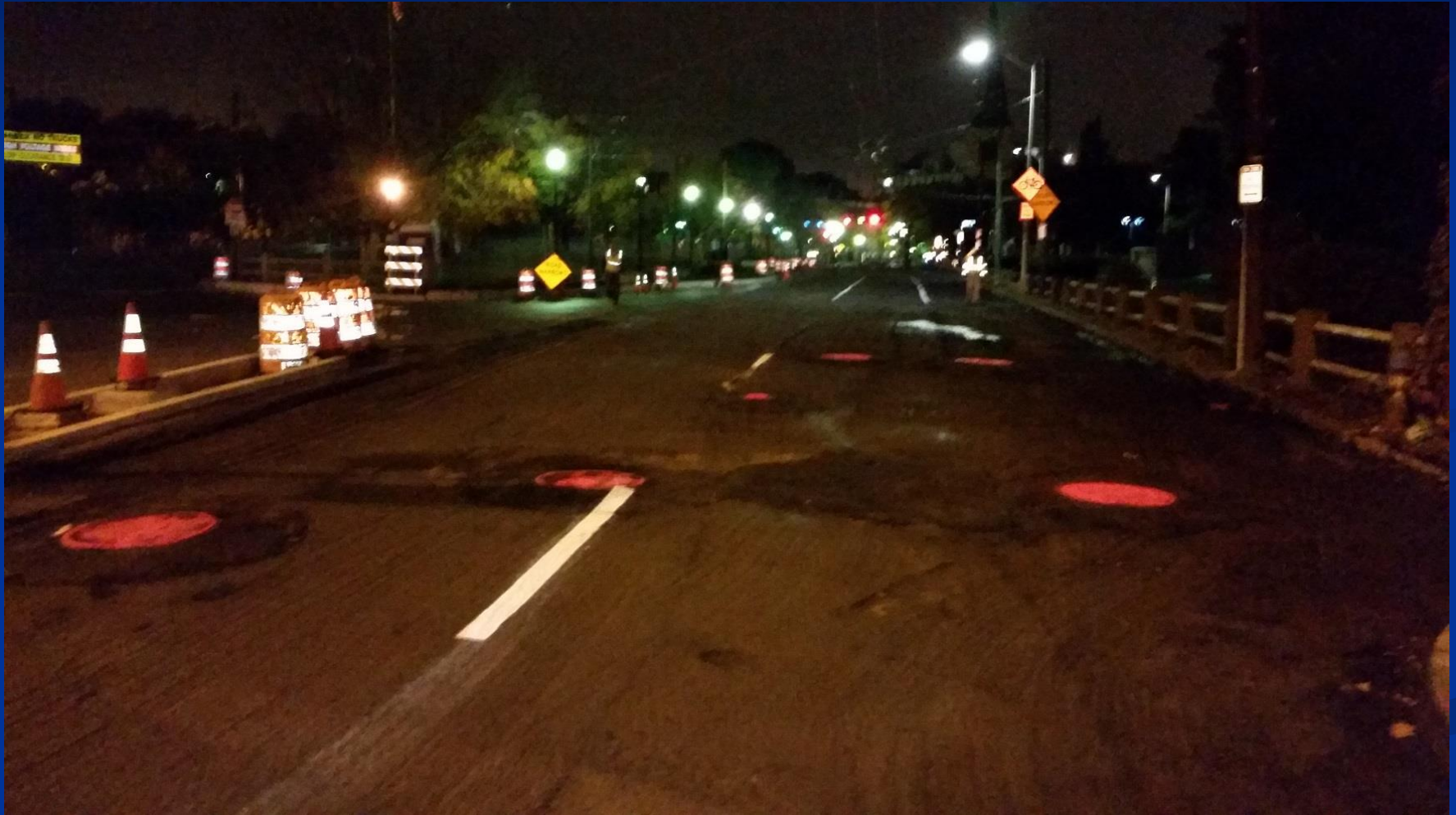


Bicycle Access During Construction

- Cold Planing
- Where raised castings are exposed, post caution signs.
- Raised castings must be spray painted reflective **PINK**.
- Edges should have temporary bituminous patches to smooth the transition.



Bicycle Access During Construction



Pedestrian Route Blocked and/or Signage Too Far From Alternate Route



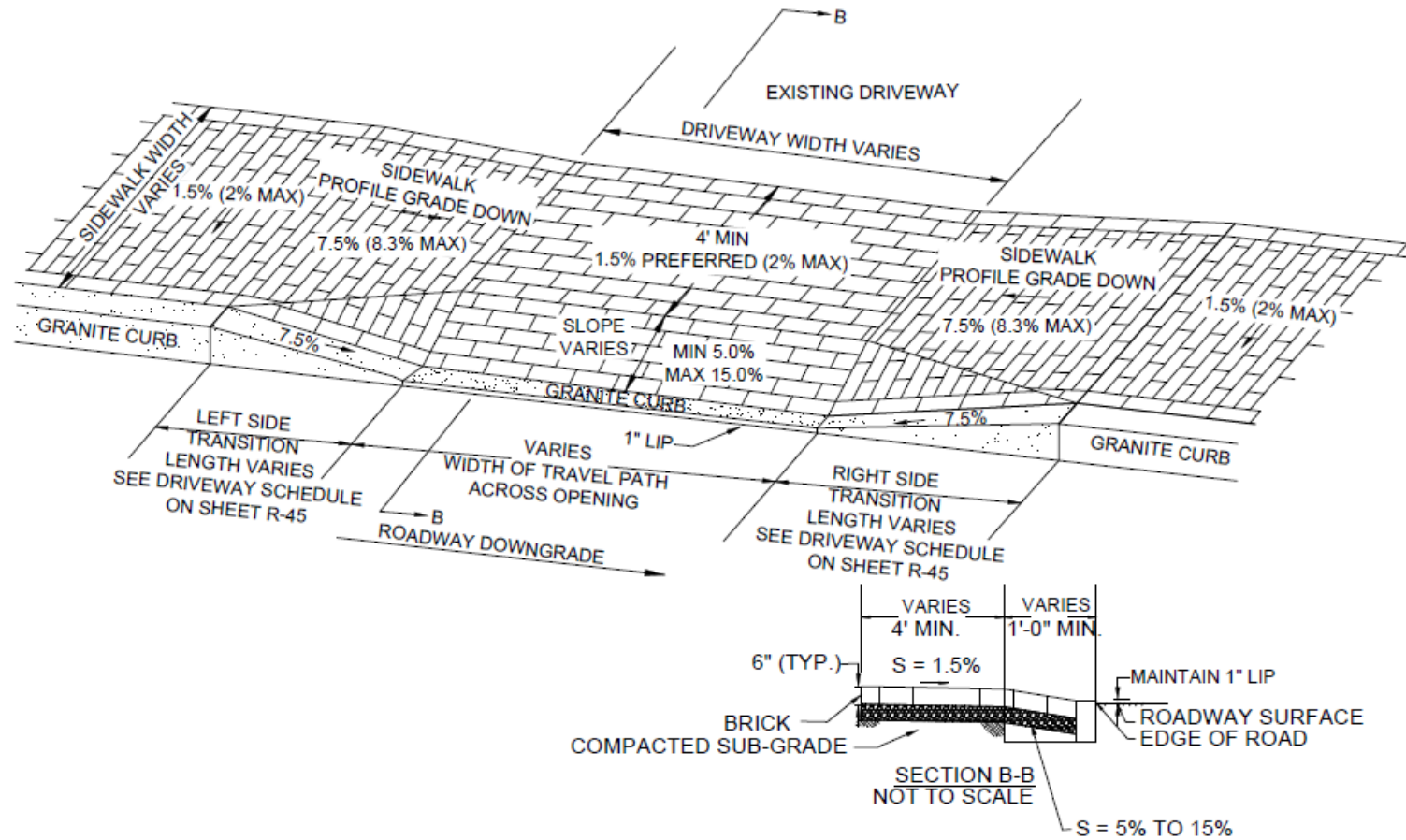
Sidewalk & Pavement Repairs

Brick

Sidewalk & Driveway Repair

- Replace 5x5 brick sidewalk
- ADA Compliant
- Use existing bricks if available
- Match existing base but can use 4" binder
- Use wire cut bricks
 - Pine Hall Brick – Pathway Full Range – 800-334-8689
- Contractor shall follow City standards for installation

Brick Driveway Detail



BRICK DRIVEWAY AT SIDEWALK

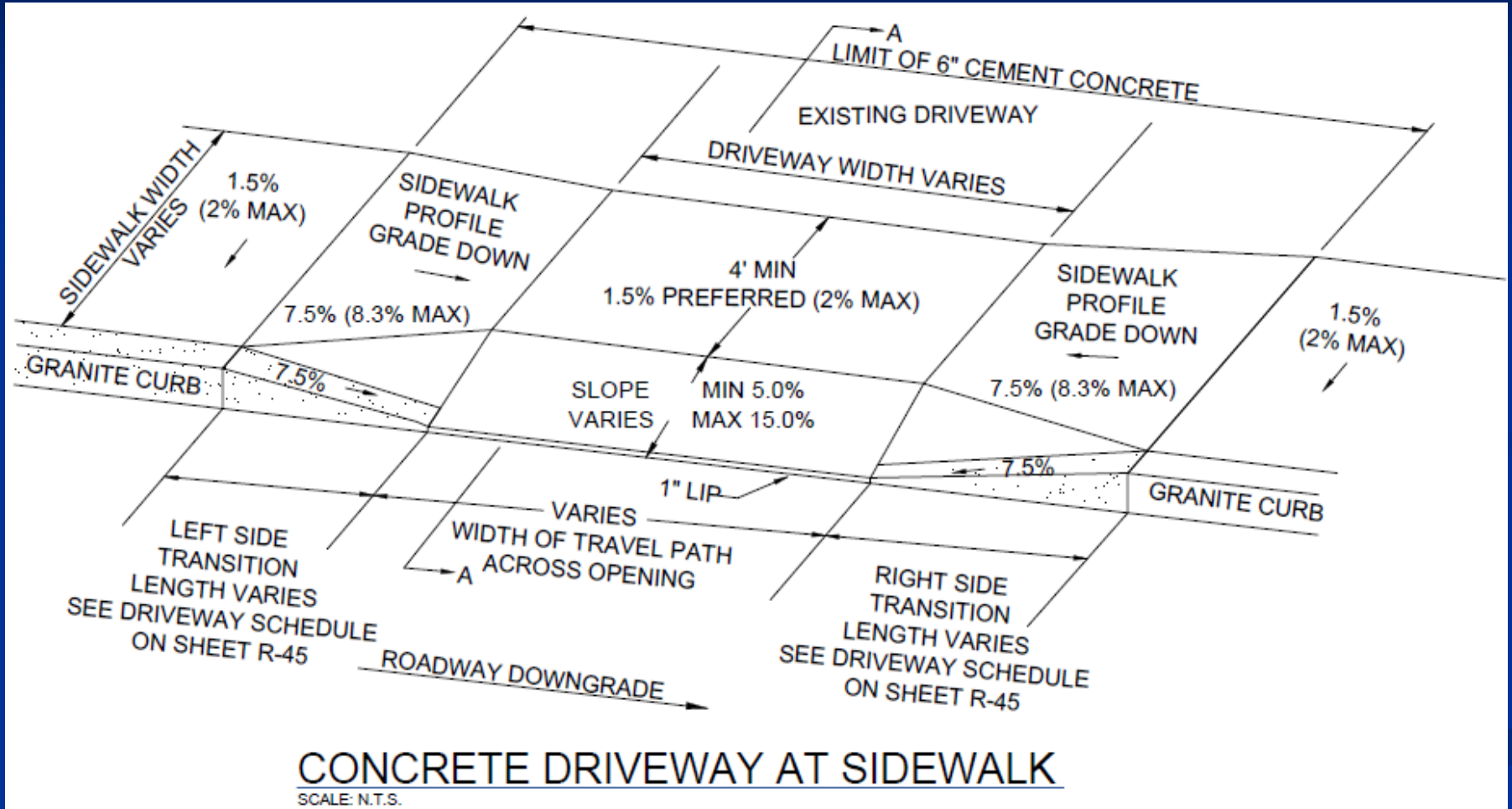
SCALE: N.T.S.

Concrete

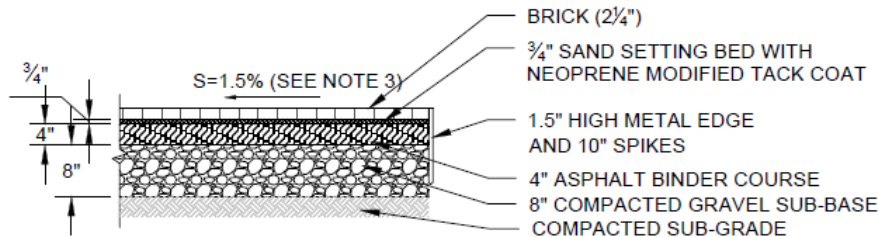
Sidewalk & Driveway Repair

- Replace full 5ft panels
- ADA compliant
- New standard
 - 7% air entrained , 1-2lbs lamp black per cubic yard, 1-2lb micro-fiber per cubic yard
- Expansion joints full depth
- Broom finish
- Do not dump in catch basins, use wash out area for concrete

Concrete Driveway Detail



Sections Concrete vs Brick

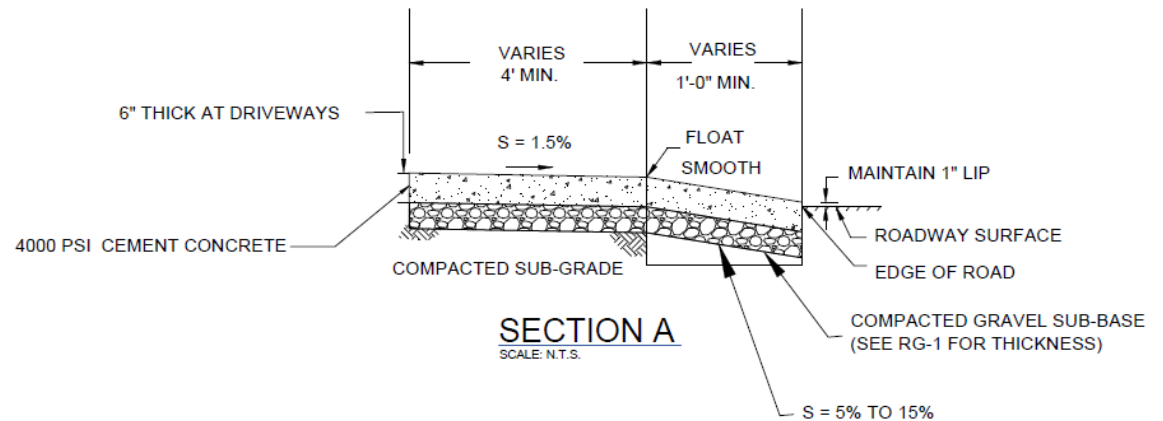


NOTES:

1. NEW SIDEWALK SHALL MATCH WIDTH OF EXISTING SIDEWALK, UNLESS OTHERWISE NOTED.
2. SIDEWALK MATERIAL TO MATCH EXISTING SIDEWALK, UNLESS OTHERWISE NOTED.
3. SIDEWALKS TO BE BUILT ACCORDING TO PROWAG AND MA AAB REGULATIONS, 2.0% MAX (0% TOLERANCE) CROSS SLOPE.
5. SEE ROADWAY GRADING, RESTORATION PLANS, AND CROSS SECTION SHEETS FOR SIDEWALK GRADES.

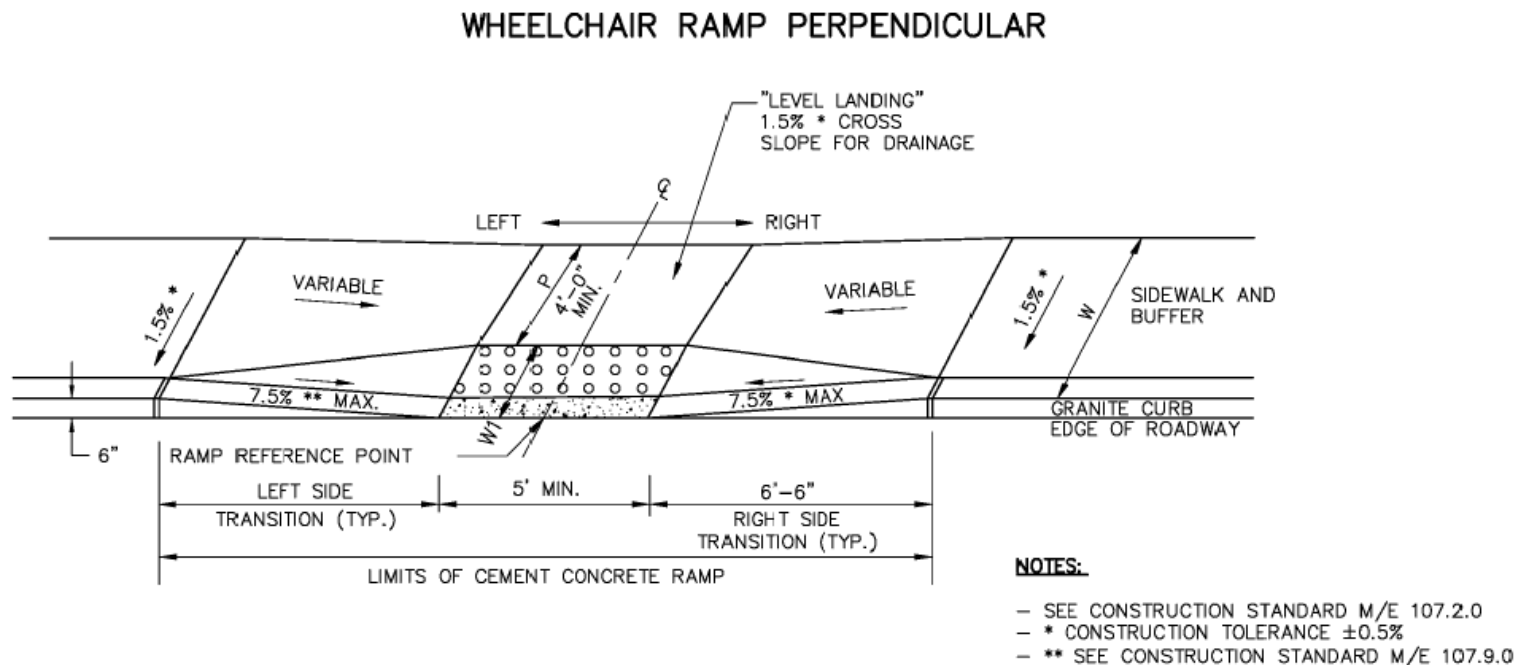
BRICK SIDEWALK

SCALE: N.T.S.

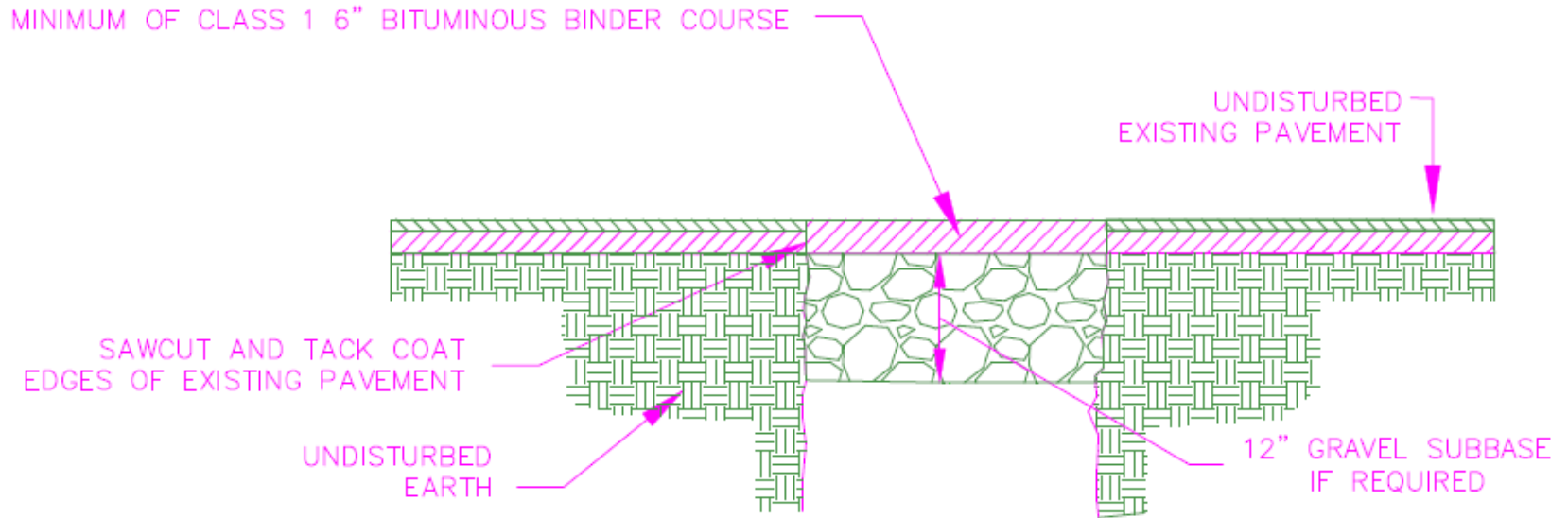


Concrete Handicap Ramp Repair

- Must be ADA Compliant
- Cast Iron Detectable Warning Plates by East Jordan Iron Works (800-626-4653)
 - Plates should have truncated domes and a slip resistant texture with a coefficient of friction rating greater than 0.80. Warning panels shall be at least 24" deep and 60" wide at the point of crossing.
- Previously non complaint ramp must be made compliant



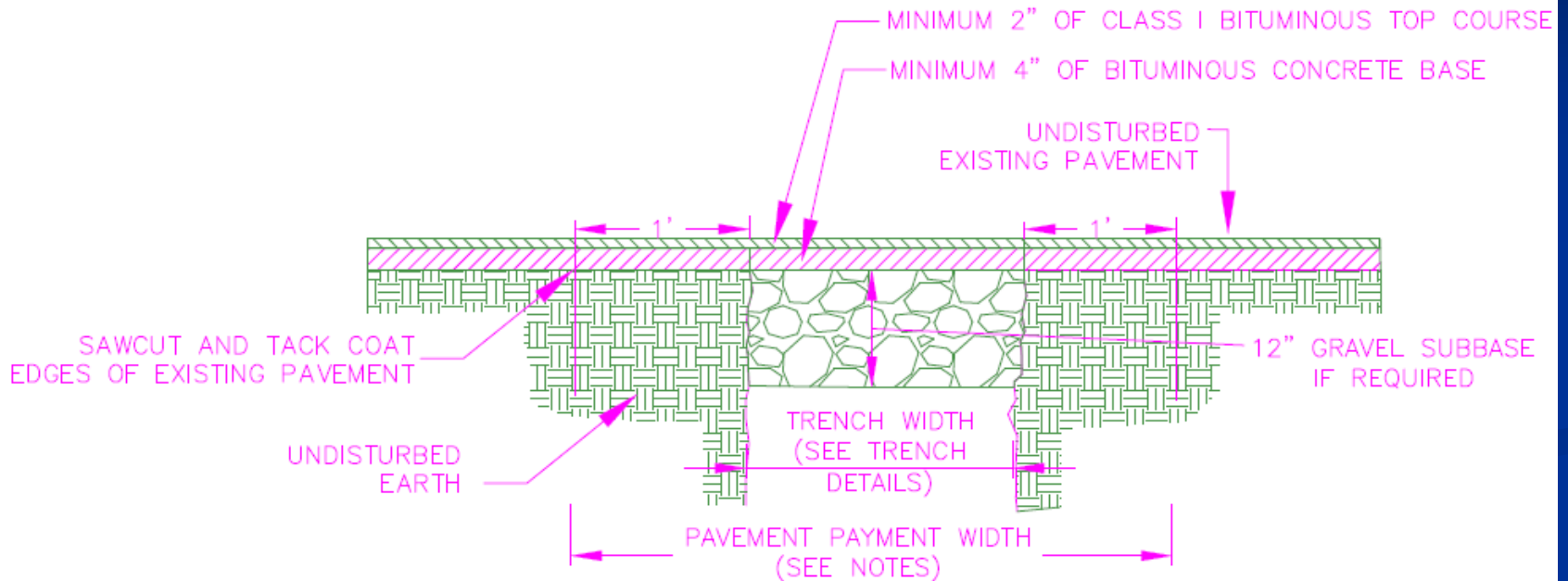
Temporary Trench Pavement Patch



NOTES:

1. TEMPORARY TRENCH PAVEMENT PAYMENT WIDTH SHALL BE EQUAL TO THE TRENCH PAYMENT LIMIT
2. REMOVE AND DISPOSE ALL TEMPORARY PAVEMENT AS REQUIRED. RESTORE AND COMPACT SUBBASE AS REQUIRED PRIOR TO PERMANENT TRENCH PAVEMENT.

Permanent Trench Pavement Patch



NOTES:

1. PERMANENT TRENCH PAVEMENT PAYMENT WIDTH SHALL BE THE TRENCH PAY LIMIT PLUS 2 FEET
2. REMOVE AND DISPOSE ALL TEMPORARY PAVEMENT AS REQUIRED. RESTORE AND COMPACT SUBBASE AS REQUIRED PRIOR TO PERMANENT TRENCH PAVEMENT.

A-Tag Pavement Marker

- Make it easier to identify responsible parties
- The A-tag marker must be installed in the center of the patch during the final lift of paving
- The marker must be flush with the surface or slightly below
- The marker cannot be secured to the patch by nails or other means
- This marker is NOT to be used for the identification of under ground structures

- The DPW will provide generic markers to small private contractors
- You can find suppliers on the internet by searching for “A-tag pavement markers”



Confined Space & Trenching Safety

Ken Bergeron ~ DPW Safety Officer

CONFINED SPACE ENTRY (HOW TO DO IT SAFELY)



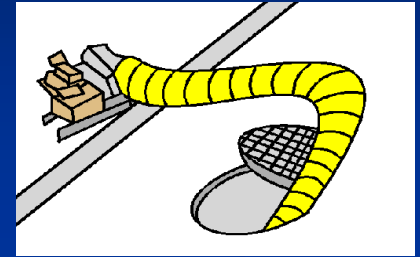
Utility Holes/ Confined Space

- Introduction
 - This training is to inform all employees in the above standard, and to reinforce the importance of adhering to all safety practices when working in utility holes or confined spaces.



Utility Holes/ Confined Space

■ Utility Hole Safety



■ Key safety points:

- Employees must be trained and proficient for the work operation.
- Appropriate personal protective equipment must be worn (safety glasses, hard hats, vests, proper footwear, etc.).
- Appropriate work area protection equipment must be used (signs, flags, cones, barricades, etc.)
- The utility hole guard must be in place.
- The appropriate ladder must be used for entry/exit.

Utility Holes/ Confined Space

- Utility Hole Safety (cont.)
 - When work is to be performed in a utility hole where a hazard exists that cannot be controlled by established safety methods, a person with basic first aid training must be immediately available to render assistance, and additional safety procedures may be required.



Examples of utility holes which constitute hazards that cannot be controlled by established safety methods include
Traffic patterns that can not be corrected by normal work area protection.

Unusual water hazards that cannot be controlled.

Entry of toxic and/or flammable materials into the hole.

Utility holes occupied jointly by an electric utility and a telecommunications utility.

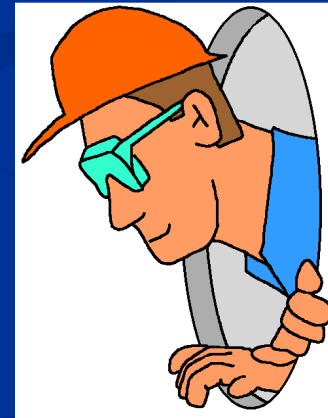
Utility Holes/ Confined Space

- Utility Hole Safety (cont.)
 - If you encounter a hazard that cannot be controlled by following safety procedures, apply the following:
 - Stop the work operation.
 - Contact your supervisor and/or your Safety Person.
 - An evaluation will be made to determine if the OSHA Permit-Required Confined Space Standard may apply.

Utility Holes/ Confined Space

- Confined Space Safety
 - The focal point of the confined space standard is the entry permit.
 - The permit is used to authorize employees to enter permit required spaces and to document the measures taken to protect employees from the hazards of the space.
 - The standard requires a written entry program.

There are several locations that are classified as permit-required confined spaces that employees may be instructed to perform work in.



Permit for Confined Space

CONFINED SPACE PERMIT

Date _____ Time of Issue _____ Length of Permit _____
 Location _____ Equipment ID _____
 Purpose of Entry & Description of Work _____

 Authorized Entrant(s) _____
 Eligible Attendant(s) _____
 Authorizer(s) of this Entry _____
 Will "HOT" Work be authorized for this Entry? No Yes (describe) _____

HAZARD IDENTIFICATION

Indicate ALL potential Hazards of this Permit Space:

	Yes	N/A
a. Contains or may contain a hazardous atmosphere	_____	_____
b. Contains a material for potential engulfment	_____	_____
c. Has an internal configuration for potential entrapment If "Yes", describe _____	_____	_____
d. Contains the following recognized serious safety or health hazards: _____		

PRE-ENTRY PREPARATION

		Yes	N/A	Done			Removed		
				Date	Time	By	Date	Time	By
1. Lines broken and / or blanked. Line Contents: _____ Location: _____									
a. _____									
b. _____									
c. _____									
2. Drain or at a workable level									
3. Purge - flush and vent									
4. Force air to bottom & vent									
5. Lock out power feeds: Equip / Location of Lock-Out _____									
a. _____									
b. _____									
c. _____									
6. Shut-off heating systems									
7. Other: _____									

TESTS TO BE TAKEN

	P.E.L.	Time Tester		Results	Results	Results
		Yes	N/A			
% of Oxygen	19.5% to 21%					
Temperature	110°F / 43°C					
% of LEL	Any % over 10					
Hydrogen Sulfide	10 ppm					

Form No. 2099 - 10/98 by B&E Co., Inc. - 1-800-955-2866

Permit Required Confined Space

By definition, a **confined space**: Is large enough for an employee to enter fully and perform assigned work;

- Is not designed for continuous occupancy by the employee; and
- Has a limited or restricted means of entry or exit.
- These spaces may include underground vaults, tanks, storage bins, pits and vessels, and other similar areas.

- By definition, a **permit-required confined space** has one or more of these characteristics:
- Contains or has the potential to contain a hazardous atmosphere;
- Contains a material with the potential to engulf someone who enters the space;
- Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section; and/or
- Contains any other recognized serious safety or health hazards.

Safety Before & During Excavation

While working:
ALWAYS PUT SAFETY FIRST

- Set up work zone as it appeared in your permit application or Approved TMP
 - Use OSHA-approved methods
 - Wear personal protective equipment
 - Protect utilities
 - Keep Steel Plates On Site
1. **Schedule inspections – Give 24 hours notice**
 2. ***Restore streets***

SAFE TRENCHING PRACTICES



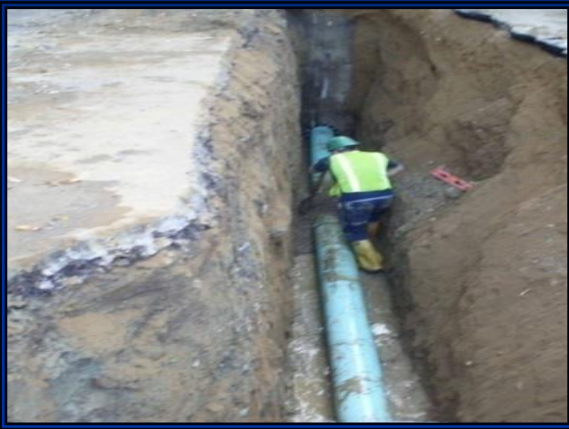
Use OSHA Approved Trench Support Systems
Timber Sheeting and Whalers
Steel Sheeting, Trench Boxes

Trenches 4 ft or more in depth should be provided with a fixed means of egress. Spacing between ladders or other means of egress must be such that a worker will not have to travel more than 25 feet laterally to the nearest means of egress. Ladders must be secured and extend a minimum of 36 in (0.9 m) above the landing.



Unsafe Practice

No support



Inadequate support



No ladder



Ladder too short



DO YOUR JOB SAFELY!



QUESTIONS?
THANK YOU!

Erosion and Sediment Control for Small construction activities

Construction Site Soil & Stormwater Management



Construction Site BMPs

Materials Covered

Perimeter Control

Building Material Staging area

Storm Drain and CB cover



Concrete Truck

Concrete Wash out area

Designated material storage

Construction site entrance

Dumpsters Covered



Catch Basin Inlet Protection



Site entrance/exit and wheel washing





Construction site BMPs

- **Protecting Catch Basins**
- **Using Perimeter Controls (Silt Fence w/Haybale).**
- **Having Construction Entrance/Exit Protections.**
- **Maintaining Designated Material Stock Pile area**
- **Proper Dewatering Setups**

Catch Basin Inlet Protection



Catch Basin Protections





Stockpiles protection



New/Emergency Repairs for Utilities/Drain/Sewer

- Protecting Catch Basins
 - Filter Fabric, Silt Sacks
- Protecting materials stored on site
 - Poly, plastics etc.
- Dust Management
 - Saw Cutting
 - Broom after use

Trees and Construction

Protect street trees

■ Avoid the Following When Working Around Trees:

1. Wounding the tree
2. Exposing Roots to Elements for Long Periods
3. Cutting or Ripping Roots
4. Compacting Rooting Soil with Materials and Equipment
5. Breaking Branches



2 x 4's help protect trunks from injury

- ### ■ Failure to do so will result in permits being revoked or fines

Wounding the Tree During Construction



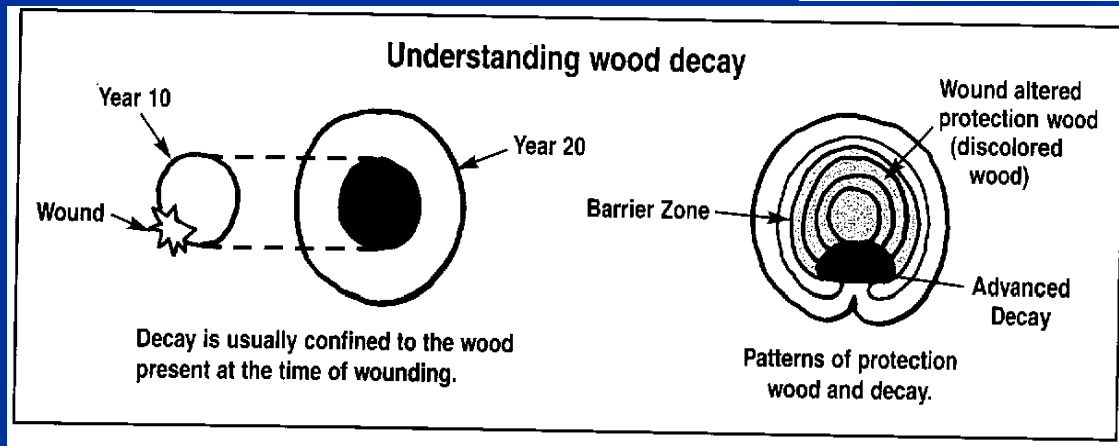
Small wound at first



May develop into large cavity



Small wound increased the chance for failure years down the road



Exposed Roots

The majority of tree roots reside in the top 24" inches of the soil

Structural Roots: help support trunk and canopy and a tree i

Roots were only exposed for a week and drought stress is already present in canopy

Feeder Roots: uptake water and nutrients for tree

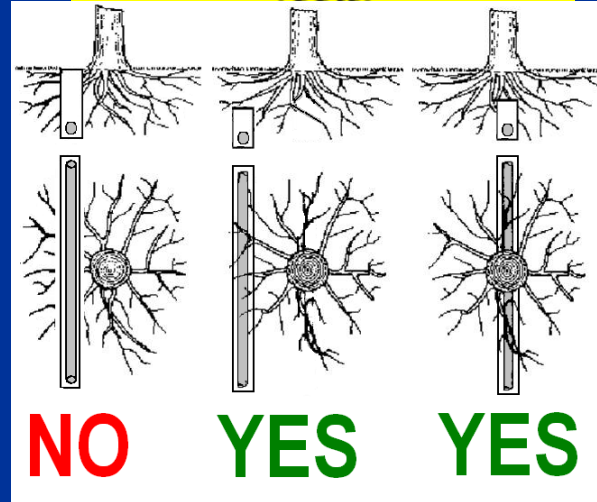


Excavating around trees



> 60% of root system removed due to excavation – Tree was removed due to lack of structural roots

Less damage is done to tree roots if utilities are tunneled under a tree rather than across the roots.



Excavating around trees



Air excavation allows utility conduit to be inserted beneath tree roots, with minimal damage to the roots.

Mechanical Injury



Look out for low hanging branches when working with construction equipment (i.e. backhoes, large trucks)



Storing Materials/Equipment on Roots



Tree protection should have been installed to protect roots from construction materials and soil compaction

Installing Tree Protection Around Trees



Snow fencing helps minimize soil compaction and storage of materials and equipment



2 x 4's help protect trunks from mechanical injury



Wires/String Around Trees



Remove all wires, tape or strapping used to hang signage. If left on, wire or strapping will girdle (strangle) tree and restrict water and nutrient movement, eventually causing tree to die.

CERTIFIED ARBORIST

Any contractor hired to do tree related work involving City owned trees shall have a certified arborist on board

Questions?

David Lefcourt

City Arborist/Tree Warden

617-224-2864

dlefcourt@cambridgema.gov

cambridgema.gov/tree

Community Relations

Be a good neighbor

Limit Idling

- State Law: no more than 5 minutes when vehicles are not working.

Observe Work Hours

- Cambridge noise ordinance prohibits construction noise between 6PM-7AM (9AM on Saturdays).
- This includes noise from deliveries, back up sensors, emptying portable toilets.
- Apply for a noise variance to work within these hours.

Manage Dust and Keep Worksite Clean

- Spray area as necessary
- Clean up trash

Don't Enter Private Property Without Permission

- Don't use water hookups, dump, or dewater

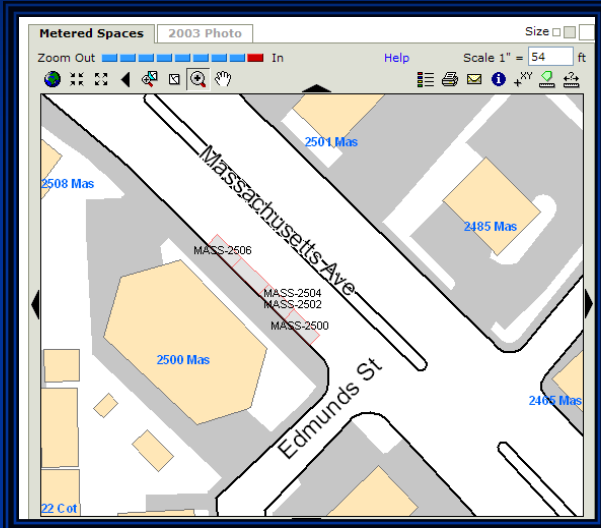
Notification

- Advance notice can prevent a lot of issues
- Overcommunicate wherever you can

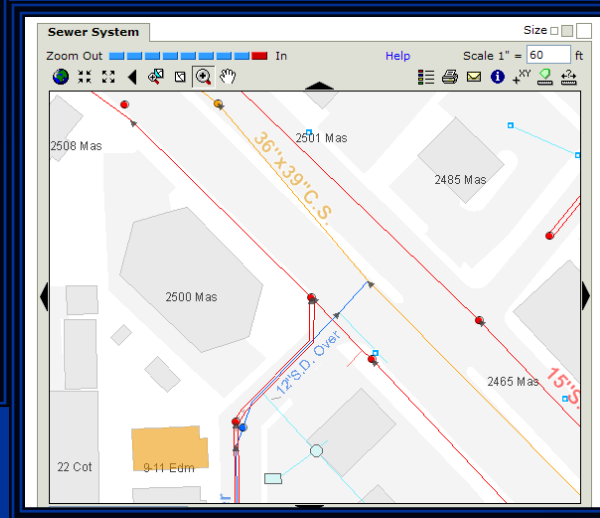
Parking

- Post No Parking Signs 48 hours in advance
- Take down when work will not be occurring
- Only take parking where necessary (to store materials or do work)

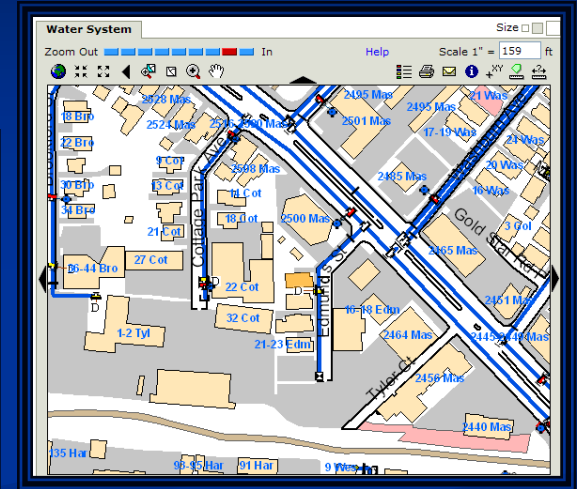
www.cambridgema.gov/GIS provides...



Parking Meter #s



Sewer & Drain Data



Water System Info

...and much more!

Questions?

Please feel free to contact us with any questions:

Permits:

- Andrew Bock, 617-349-4051 / abock@cambridgema.gov

Community Relations:

- Kate Riley, 617-349-4870 / kriley@cambridgema.gov

City Arborist:

- Dave Lefcourt, 617-349-6433 / dlefcourt@cambridgema.gov

Noise Variances:

- Andrea Boyer, License Commission
617-349-6141 / aboyer@cambridgema.gov