

Cambridge  
DPW's  
**Contractor Guide  
to Permits &  
Work Zones**

March 10<sup>th</sup>, 2014

# *Agenda*

1. Welcome/ Introduction – Bill Dwyer
2. Permitting – Rob Linke
3. Traffic Management Plans – Kathy Watkins
4. Erosion and Sedimentation Control – Yilkal Bekele
5. Tree Protection & Plantings – David Lefcourt
6. Community Relations – Chris Neil

# *Permit Requirements*

# *Applying online or in person:*

- A valid bond and certificate of insurance must be on file at the DPW
- Online applicants must have a user name and password – call the permit desk to arrange
- A traffic management plan must accompany permit requests – for online applications, scan and attach with permit
- Permit fees must be paid at time of application
- A-tag markers **MUST** be used for All excavations in the public way





## *The permit review process:*

...Takes time

- DPW permit reviews take 3 to 5 working days
- Additional time may be needed for discussion, public notifications and/or revisions to TMPs
- DPW staff will not track down missing info
- Notification by phone or email that a permit has been approved is a courtesy – be sure to check in
- Approved permits **MUST** be on site

## *Other approvals/permit you may need:*

- Pole and Conduit Commission approval
- Traffic Department
- Water Department
- Electrical Department
- Curb cut approval
- MWRA (8M, dewatering)
- NPDES dewatering (catch basin or manhole that discharges into waterway)

*These approvals are separate from DPW's permit process but are needed for DPW permit approval*

## ***“No Parking” signs must***

- Be legible and posted curbside
- If they need to be updated, please us a new sign
- State Mon-Fri, and are only valid during permit hours. (*5 work days max at a time*)
- Be posted *48 hours in advance* – Traffic Dept. needs 4 days (business days)
- If taking meters, a Traffic and Parking permit is required
- 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

The image shows a white rectangular sign with a red border. At the top, it says 'TOW ZONE' in red. Below that, 'EMERGENCY' and 'NO PARKING' are written in large, bold, white letters on a red background. Underneath, there are four fields with red text and lines for information: 'DATE: March 4th TO March 8th, 2013', 'TIME: 7 AM - 4 PM (Monday - Friday)', 'REASON: Road Repair', and 'CONTRACTOR:'. At the bottom, it says 'City of Cambridge Crew' and 'C.D.P.W Permit # EXC - - - -'.

*Failure to follow these steps will result in your permit being voided and/or signs being removed. Contractors may be charged for towing that is appealed and determined to be the result of improper posting.*

## *Street Preservation Offset Fee (SPOF):*

- 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 month period only applies to the surface restoration, but not for compaction.
- There is no statute of limitations for failed compaction.
- SPOF calculation: patches less than 100 sq ft = \$11.00 per square foot.

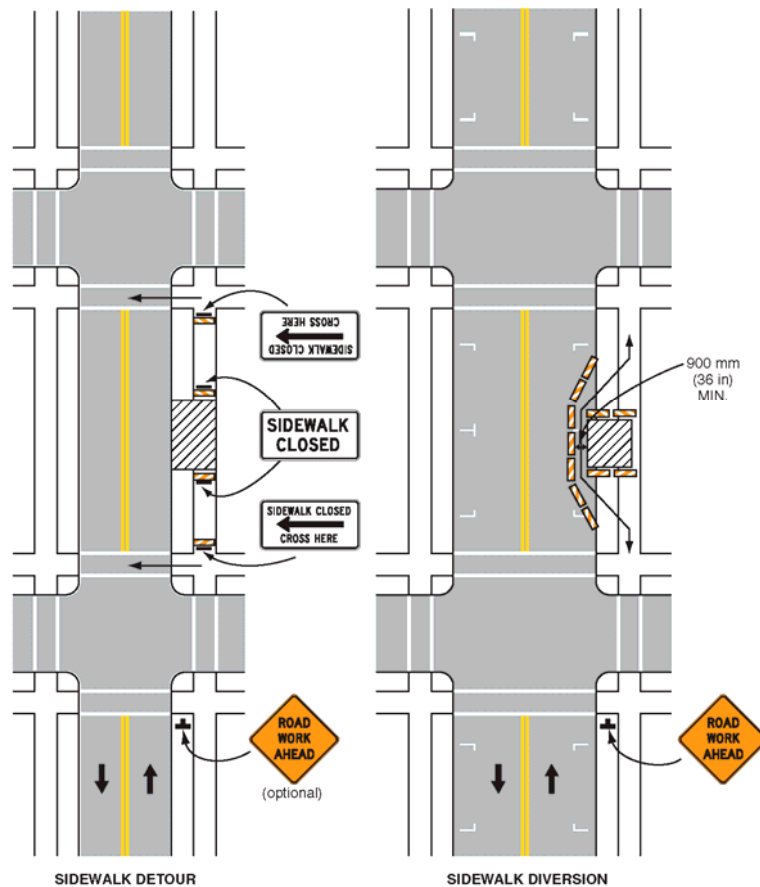
*Traffic Management Plans  
&  
Pedestrian Access*

## ***TMP must be submitted with applications & must:***

- Follow MUTCD & reflect unique location
- Account for pedestrians, cyclists & cars
- Include a police detail— but function without one
- 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?
- Does the detour require crossing heavy traffic volumes or wide intersection approaches?

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



Typical Application 28

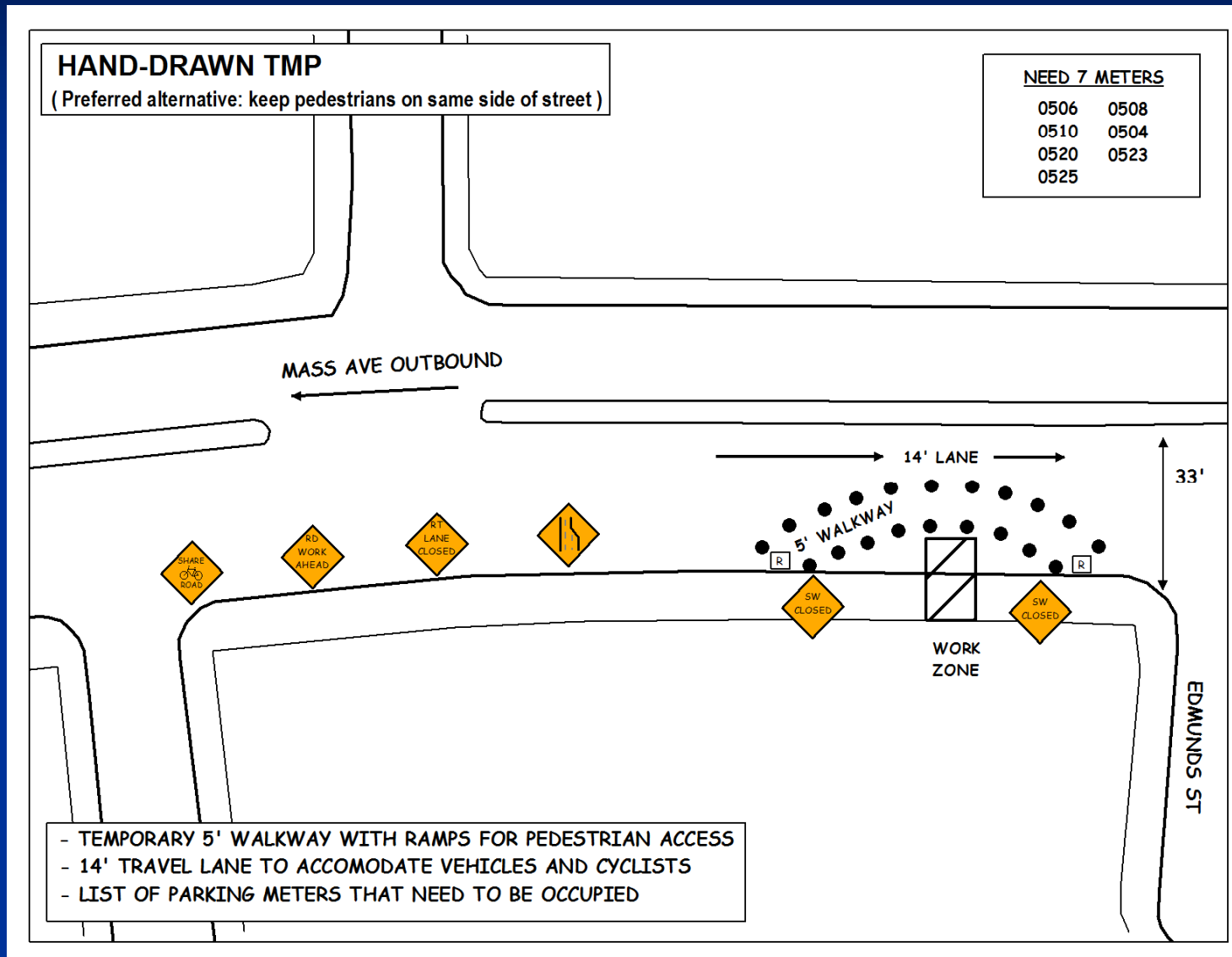
Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

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



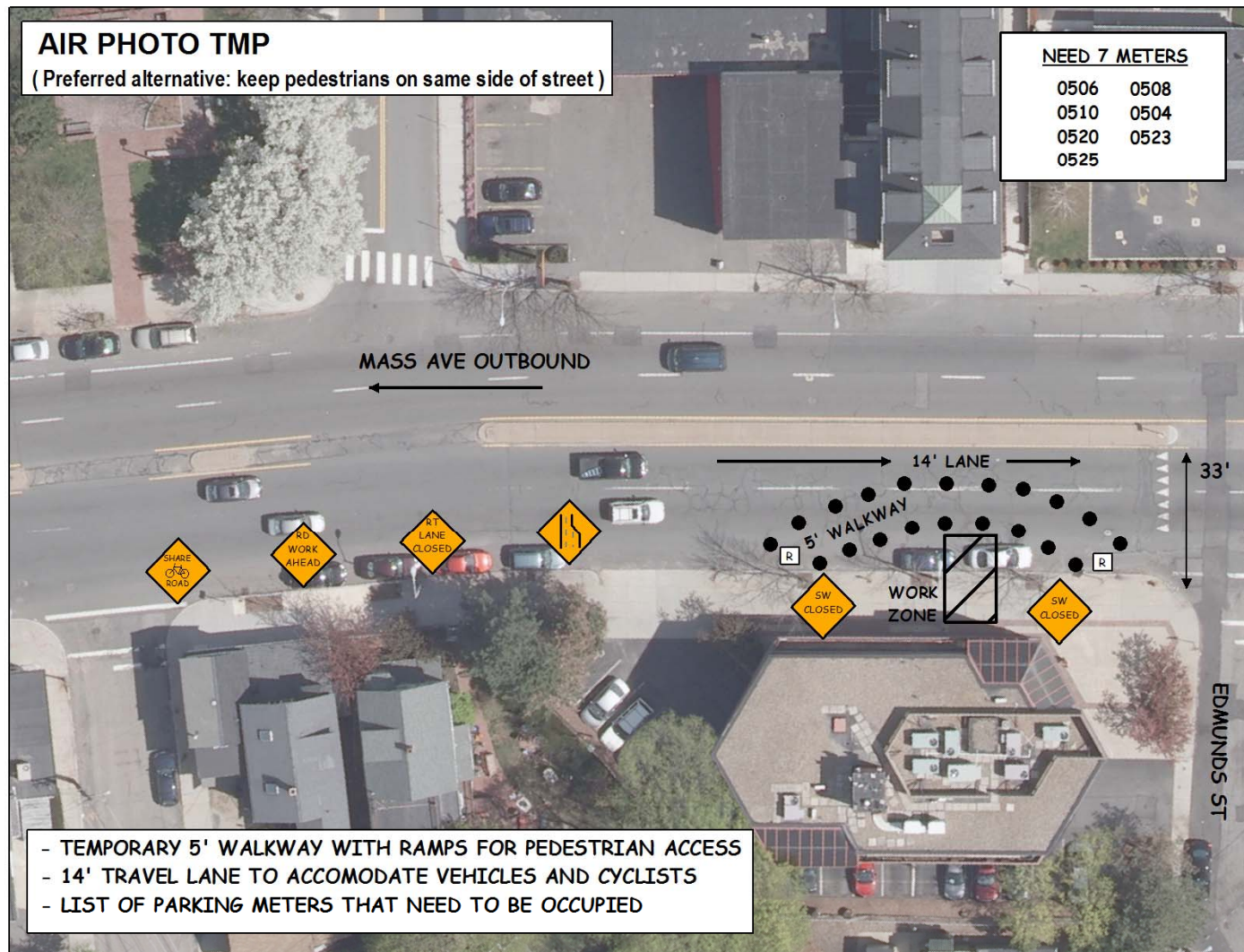
# Sample TMP- Hand-Drawn

(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



Reference: [access-board.gov/provac/alterations/guide.htm#1](https://access-board.gov/provac/alterations/guide.htm#1) & [pedbikeimages.org](https://pedbikeimages.org)

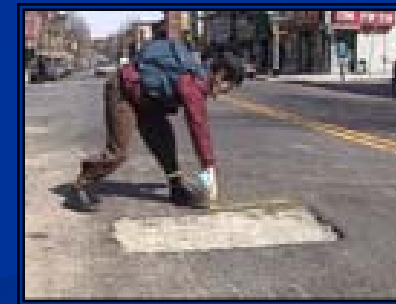
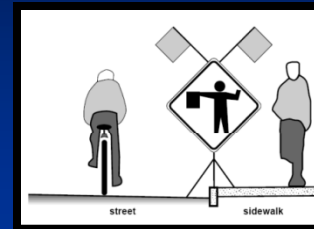


# 181 Mass Ave Covered Walkway



# *TMPs must account for bikes*

- Maintain access to bicycle lane if possible.
- Ensure adequate space for bicycles in travel lane.
- Post “Share the Road” (W11-1/W16-1) or “Bicycles May Use Full Lane” signs.
- 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 orange all around the plate to provide a smooth transition between the plate and adjacent pavement. All plate edges should be painted with reflective orange 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 orange.
- Edges should have temporary bituminous patches to smooth the transition.





*Pedestrian Route blocked  
and/or  
signage too far from alternate*



# 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 24hrs notice
  2. *Restore streets*

## *Be safe in trenches*



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

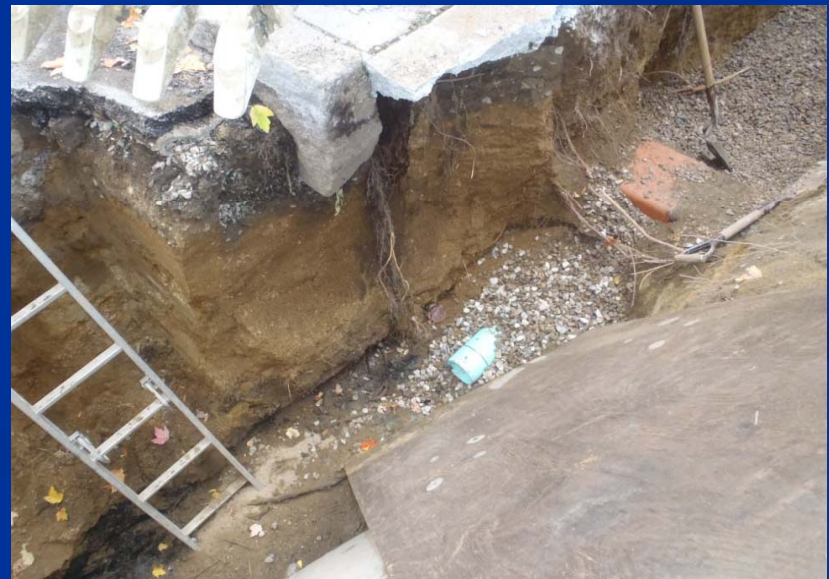


# Unsafe Practice

2012



No Support,  
Inadequate support system,  
Ladder too short, excavated  
material should be stocked piled  
away from trench.



# *Erosion And Sedimentation Control*





Catch Basin

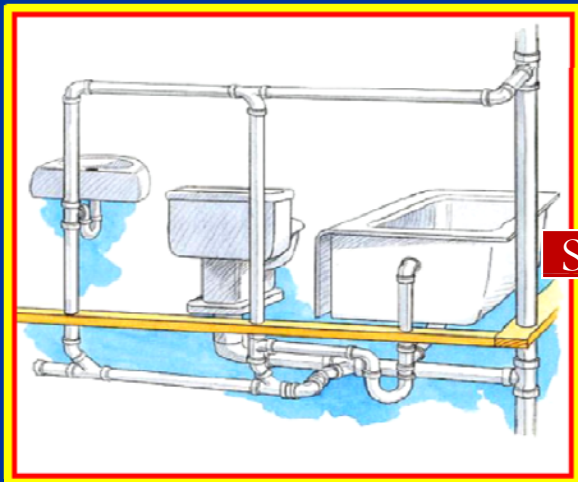


Outfall

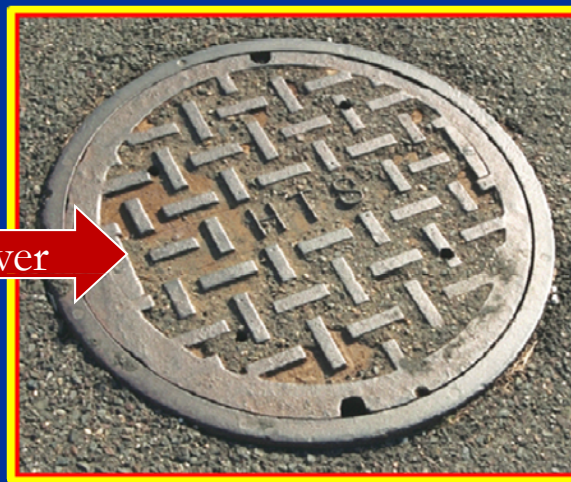


Surface Water

End up in



Residence Wastewater  
to Sanitary Sewer



Sanitary Sewer Manhole



Wastewater Treatment  
Plant at Deer Island



# Erosion and Sediment Control



# Erosion and Sediment Control

No washing concrete into the street/ tree wells/ drains



Good example of Concrete wash out with designated site





# Erosion and Sediment Control

Get a dewatering permit from EPA / MWRA and City of Cambridge before dewatering

Stabilized construction entrance/exit and Street Sweeping reduce storm water pollution





# Erosion and Sediment Control

Stock piles to be covered to help protect during heavy rain events



Use Hay bales around stock pile



*Don't dump into drains!*




**You are responsible for all sediment, dewatering, and discharge from your job site.**

# Erosion and Sediment Control

## Erosion and Sediment Control Warning Ticket

The City will issue warnings for sites violate BMPs followed by site closure and fines

CITY OF CAMBRIDGE		EROSION AND SEDIMENT CONTROL WARNING	
TIME	MONTH	DATE	YEAR
SITE ADDRESS		DEPARTMENT <input type="checkbox"/> DPW	
NAME OF CONTRACTOR			
ADDRESS OF PROPERTY OWNER		STATE	ZIP CODE
CONTACT PHONE NUMBER		EMAIL ADDRESS	
COMMENTS			
<input type="checkbox"/> NO ESC PLAN			
<input type="checkbox"/> ESC PLAN IS NOT FOLLOWED			
<input type="checkbox"/> ESC PLAN IS NOT ADEQUATELY CONTROLLING EROSION & SEDIMENT LOSS			
<input type="checkbox"/> BMPs ARE NOT PROPERLY MAINTAINED			
<input type="checkbox"/> ILLEGAL DUMPING TO CATCH BASINS			
<input type="checkbox"/> KEEP THE SITE CLEAN/PROPERLY MANAGE			
<input type="checkbox"/> DEWATERING VIOLATION			
CITY OF CAMBRIDGE WASTEWATER AND STORMWATER ARTICLE - V - B - SECTION 2			
"NO PERSON SHALL DISCHARGE OR CAUSE OR ALLOW TO BE DISCHARGED DIRECTLY OR INDIRECTLY INTO ANY SANITARY OR COMBINED SEWER OR INTO SANITARY OR COMBINED SEWER TRIBUTARY THERE TO ANY PROHIBITED WASTE OR SUBSTANCE..."			
CITY OF CAMBRIDGE WASTEWATER AND STORMWATER ARTICLE - V - C - SECTION 3			
"NO PERSON SHALL DIRECTLY OR INDIRECTLY DISCHARGE OR CAUSE OR ALLOW TO BE DISCHARGED ANY EXIST DISCHARGE OR ANY OTHER WATERS NOT COMPOSED ENTIRELY OF STORMWATER INTO A BUILDING STORMWATER DRAIN..."			
CITY OF CAMBRIDGE LAND DISTURBANCE REGULATION ARTICLE - V - SECTION 3 (b) (i), (ii), (iii), AND (iv)			
THE OWNER OR APPLICANT SHALL:			
(i) "IMPLEMENT MEASURES INTENDED TO KEEP SOIL ON SITE OR OUT OF WATER RESOURCES, STORMWATER DRAINAGE SYSTEM OR THE PUBLIC RIGHT-OF-WAY AS THE FIRST STEP IN ANY DEVELOPMENT."			
(ii) "REMOVE ANY SOIL THAT ENTERS THE PUBLIC RIGHT-OF-WAY."			
(iii) "PROTECT STORMWATER INLETS THAT ARE FUNCTIONING DURING THE COURSE OF THE DEVELOPMENT BY APPROVED SEDIMENT CONTROL MEASURES SO THAT SEDIMENT LADEN WATER CANNOT ENTER THE INLETS WITHOUT FIRST BEING PROPERLY TREATED."			
CITY OF CAMBRIDGE WASTEWATER AND STORMWATER ARTICLE - V - D - SECTION 3			
"NO PERSON SHALL DIRECTLY OR INDIRECTLY DUMP, DISCHARGE OR CAUSE OR ALLOW TO BE DISCHARGED INTO ANY CATCH BASIN ANY SOLID WASTE, CONSTRUCTION DEBRIS, PAINTS OR PAINTING PRODUCTS, ANTIFREEZE, HAZARDOUS WASTE, OIL, GASOLINE..."			
OFFENDER'S COPY			

WARNING	
DEPARTMENT OF PUBLIC WORKS 147 HAMPSHIRE STREET CAMBRIDGE MA 02139-3201	
	

# Tree Protection



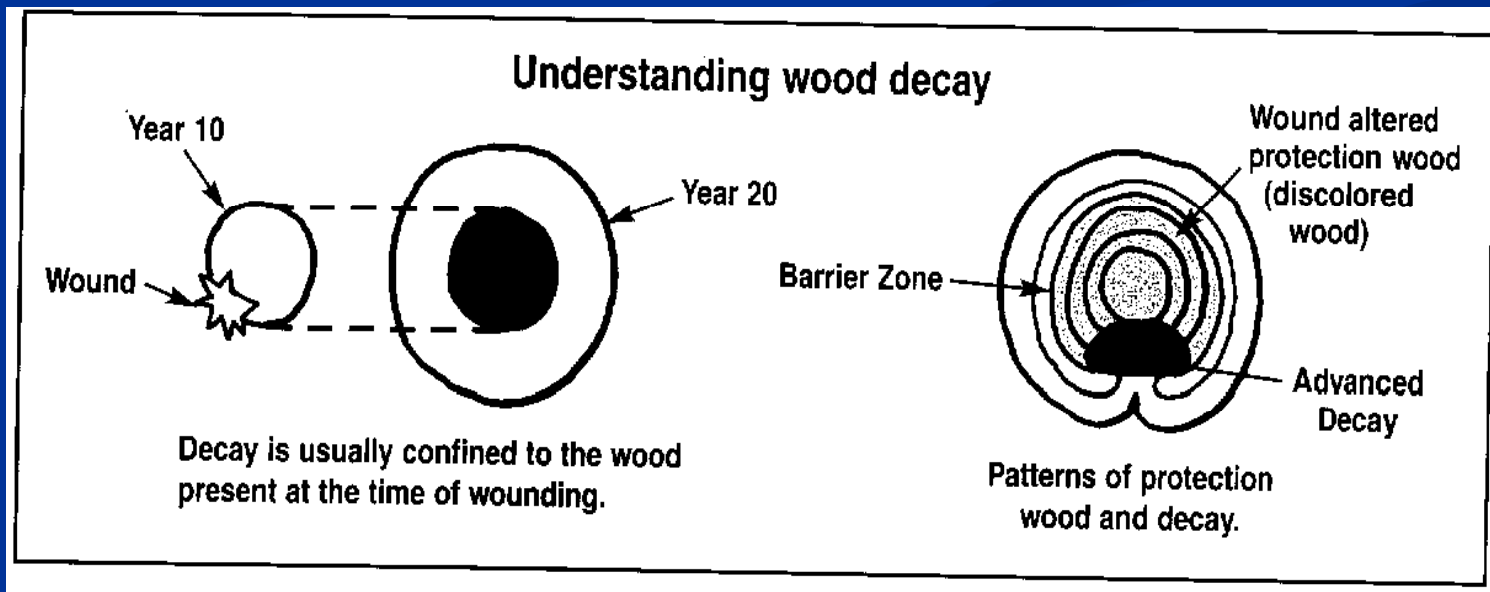
## *Protect street trees*

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



2 x 4's help protect trunks from injury

# Wounding the Tree During Construction





# Exposed Roots

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

**Structural Roots:**  
help support trunk and canopy and anchor tree in soil

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

**Feeder Roots:**  
uptake water and nutrients for tree



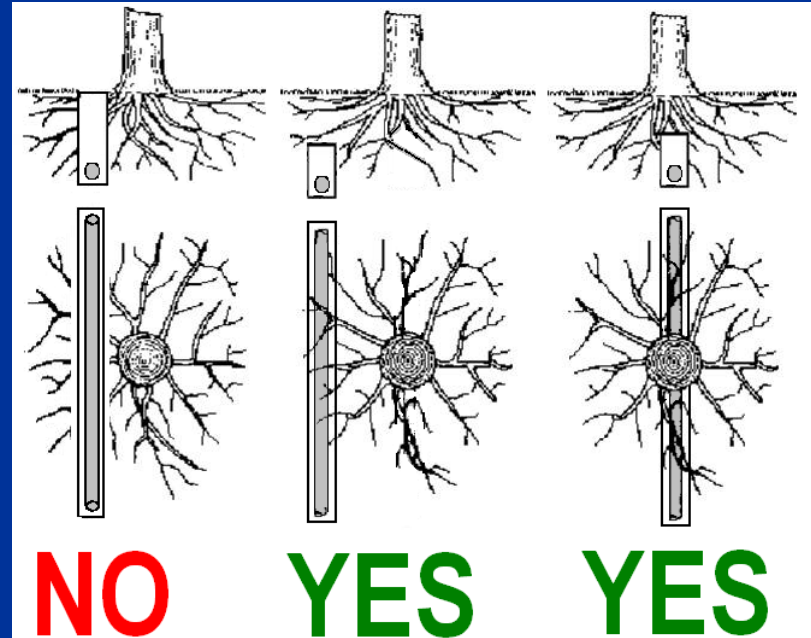


# Excavating around trees



**> 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.**





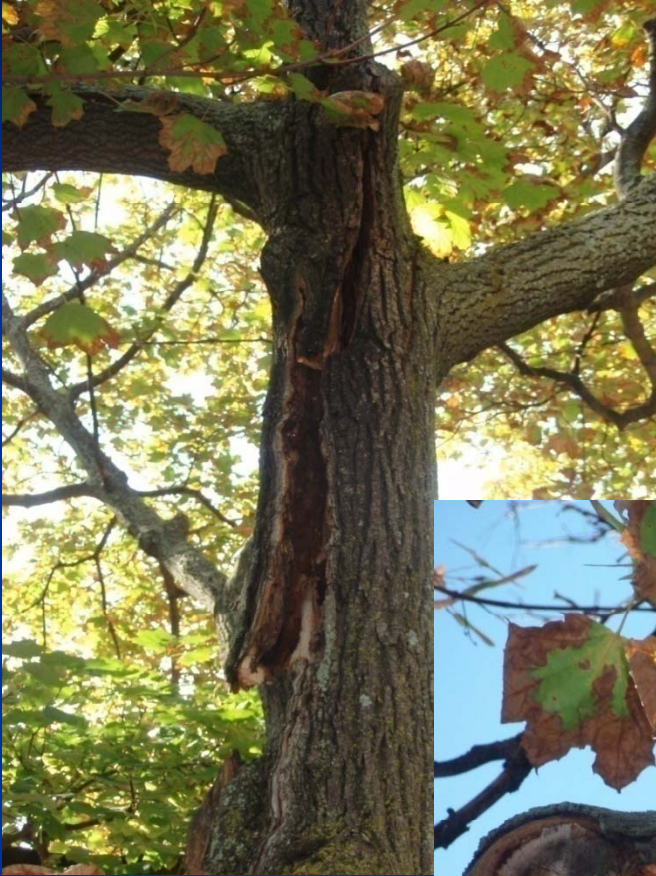
# Excavating around trees



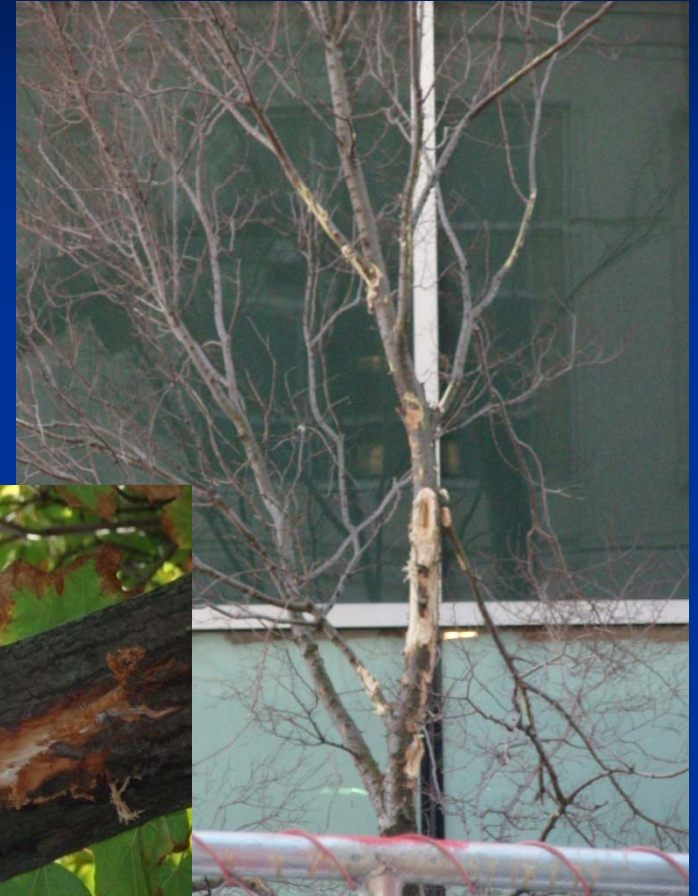
Air excavation allows utility conduit to be inserted beneath tree roots, with minimal damage to the roots.



# 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**



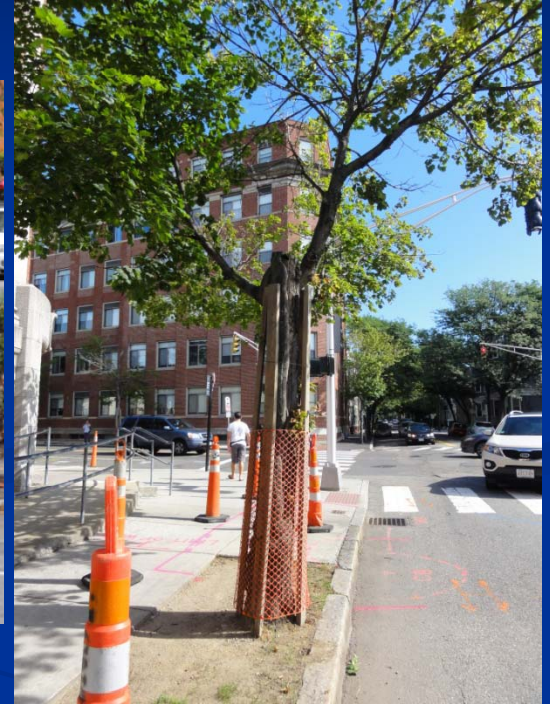
# Installing Tree Protection Around Trees



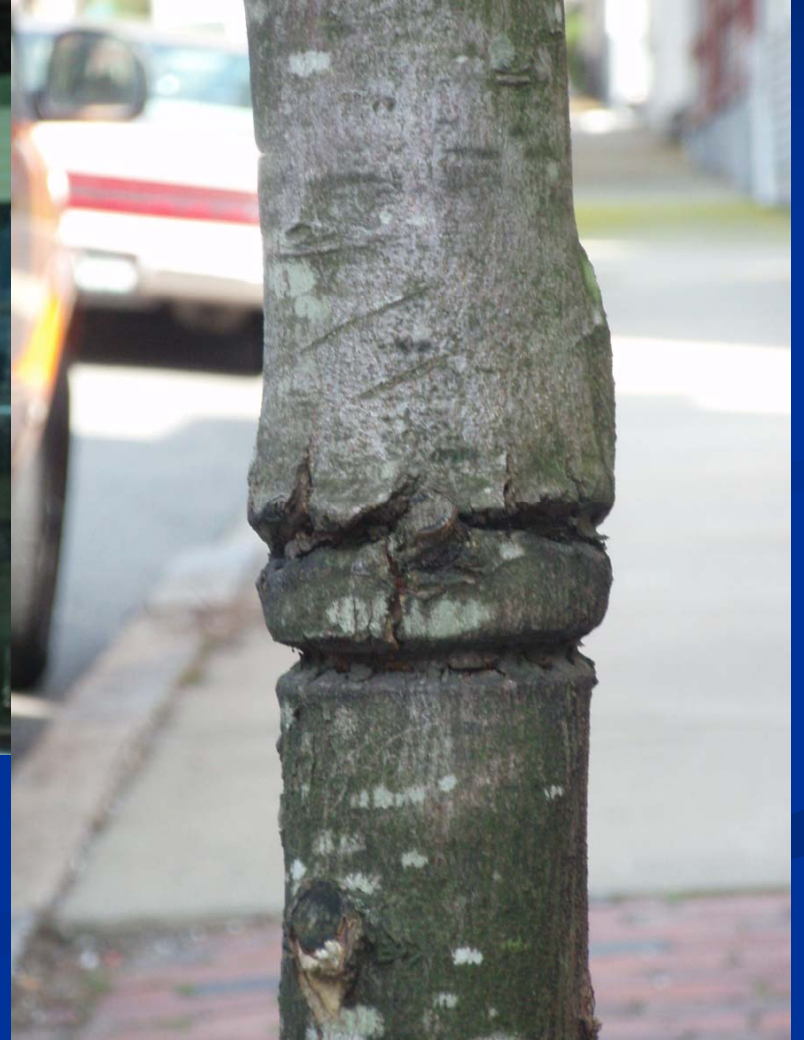
**Snow fencing helps minimize soil compaction and storage of materials and equipment**



**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.**

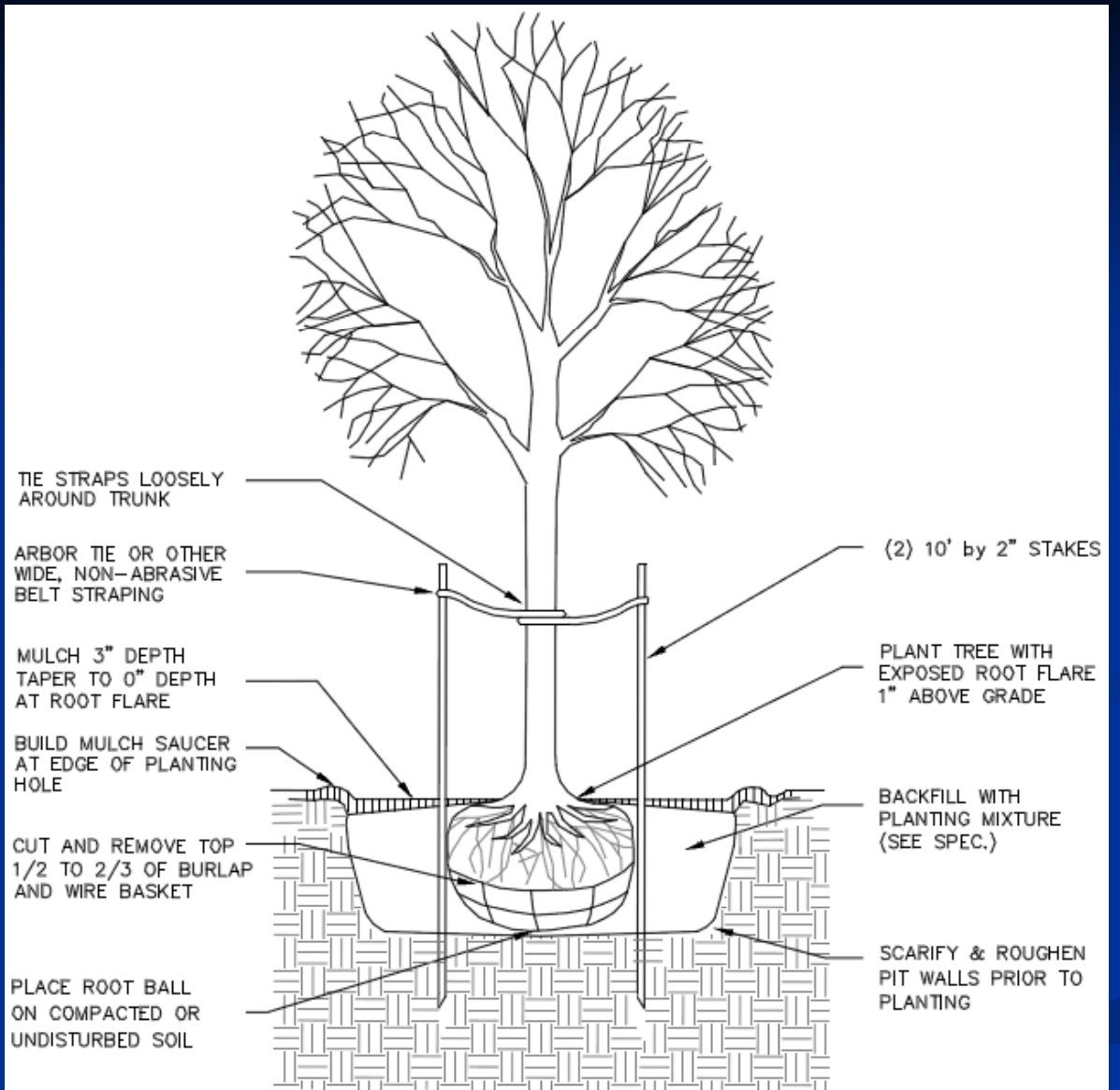


# Forming out Tree Wells





# Tree Planting



CITY OF CAMBRIDGE  
TREE PLANTING DETAIL

SEPT. 2013

# *Be a good neighbor*

## *1. Limit idling*

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

## *2. Observe work hours*

- Do not start before 7 am, work late, or on weekends without special permission
- Work hours include inspections. If you call for an inspection after 3:30 pm, it may not be possible or may have additional fees

## *3. Manage dust*

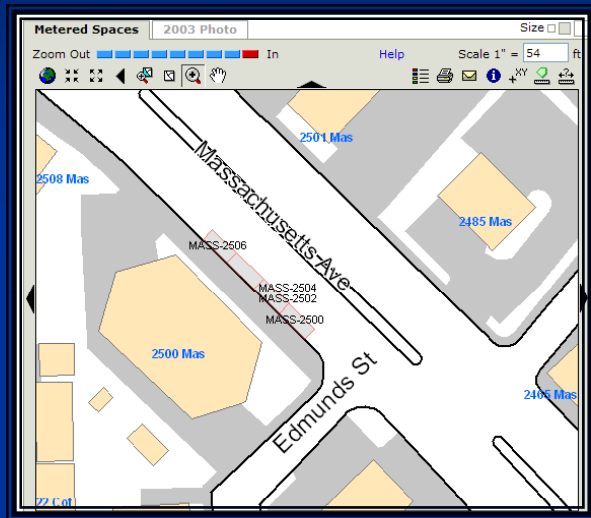
## *4. Do not enter private property without permission*

- Especially to use water, dump, or dewater

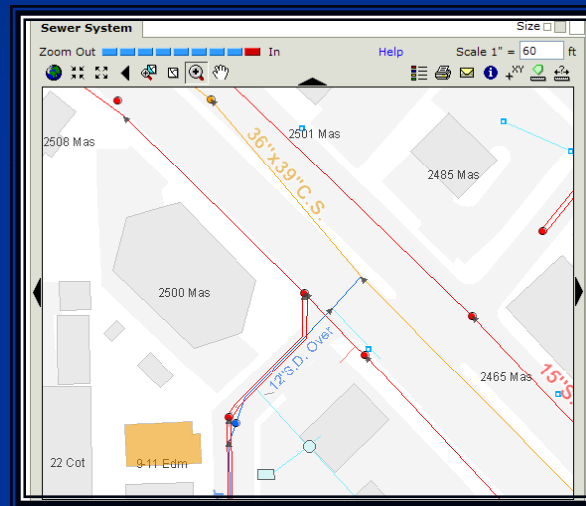
## *5. Notification & Clean up*



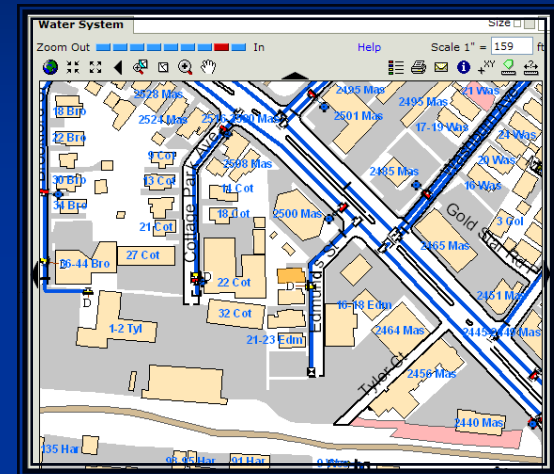
[www.cambridgema.gov/GIS](http://www.cambridgema.gov/GIS) provides...



Parking Meter #s



Sewer & Drain Data



Water System Info

...and much more!

# Questions?

Please feel free to contact us with any questions:

- Rob Linke, Permit Administrator  
617-349-4833/ [rlinke@cambridgema.gov](mailto:rlinke@cambridgema.gov)
- Yilkal Bekele, Engineer  
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- Chris Neil, Community Relations  
617-349-4825/ [cneil@cambridgema.gov](mailto:cneil@cambridgema.gov)
- David Lefcourt, City Arborist  
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