PROPOSED LOOP DETECTOR TO REPLACE EXISTING LOOP DETECTOR FOR BEACON STREET/SOMERVILLE AVENUE INTERSECTION

NOTE: PROPOSED INVERTS ARE FOR BIDDING PURPOSES ONLY, ACTUAL PROPOSED INVERTS SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD.
DRAINAGE STRUCTURE DATA

<table>
<thead>
<tr>
<th>NO.</th>
<th>TYPE</th>
<th>STATION</th>
<th>INIJ. ELEV.</th>
<th>OUTIJ. ELEV.</th>
<th>OD</th>
<th>CROSS</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>150</td>
<td>156+54</td>
<td>23.80</td>
<td>24.30</td>
<td>20</td>
<td></td>
<td>28</td>
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<tr>
<td>2</td>
<td>12</td>
<td>160+28</td>
<td>23.80</td>
<td>24.30</td>
<td>20</td>
<td></td>
<td>45</td>
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</tbody>
</table>

NOTE: PROPOSED INVERTS ARE FOR BIDDING PURPOSES ONLY. ACTUAL PROPOSED INVERTS SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD.
### Adjustment Curve Data

#### Table 1: Adjustment Curve Data

<table>
<thead>
<tr>
<th>Curve</th>
<th>Curve</th>
<th>Curve</th>
<th>Curve</th>
<th>Curve</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>3</td>
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<tr>
<td>41</td>
<td>42</td>
<td>43</td>
<td>44</td>
<td>45</td>
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</tbody>
</table>

### Survey Traverse Data

#### Table 2: Survey Traverse Data

<table>
<thead>
<tr>
<th>Point</th>
<th>Elev.</th>
<th>North</th>
<th>East</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT1</td>
<td>10.0'</td>
<td>29649</td>
<td>76080</td>
<td>Construction Base Line</td>
</tr>
<tr>
<td>PT2</td>
<td>15.5'</td>
<td>29646</td>
<td>76119</td>
<td>Survey Traverse Data</td>
</tr>
<tr>
<td>PT3</td>
<td>10.0'</td>
<td>29647</td>
<td>76122</td>
<td>PC +11.45</td>
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<tr>
<td>PT4</td>
<td>5.0'</td>
<td>29645</td>
<td>76100</td>
<td>PT +05.91</td>
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<td>PT5</td>
<td>10.0'</td>
<td>29649</td>
<td>76130</td>
<td>PT +42.86</td>
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</tbody>
</table>

### Construction Boundary Data

#### Table 3: Construction Boundary Data

<table>
<thead>
<tr>
<th>Limit of Work</th>
<th>North</th>
<th>East</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit of Work</td>
<td>915</td>
<td>1171</td>
</tr>
</tbody>
</table>

### Curvature Plans

- Curvature at 10.0' from PC 121+11.45
- Curvature at 14.0' from PT 121+42.86
- Curvature at 17.0' from PC 124+93.44

### Notes

- Curvature at 20.0' from PT 121+42.86
- Slight curvature at 23.0' from PC 124+93.44
- Additional curvature at 26.0' from PT 121+42.86

---

**Scale:** 1" = 20'

**Plotter:** [Plot data] 16-Apr-2015 12:44 PM

**Project File No.:** HP-002S(711)X

**Sheet No.:** 45, 47

---

**Somerville/Cambridge Beacon Street**

---

**Beacon Street**

---

**Sacramento Street**

---

**Backwith Circle**

---

**Kenton Circle**

---

**Pine Hill**

---

**Wells Street**

---

**Waverly Street**

---

**Lقدرة**

---

**Rebecca Street**

---

**City College Area**

---

**Central Square Area**

---

**Downtown**

---

**Midtown**

---

**West End**

---

**SOMERVILLE/CAMBRIDGE BEACON STREET**

---

**CURVE PLANS**
PLANTING NOTES:
1. CONTRACTOR SHALL HAVE ALL SUBSURFACE UTILITIES MARKED PRIOR TO THE START OF WORK.
2. FINAL LOCATION OF ALL PLANT MATERIAL WILL BE APPROVED BY THE RESIDENT ENGINEER PRIOR TO WORK.
3. ALL PLANT MATERIAL WILL HAVE TAGS INDICATING COMMON NAME, BOTANICAL NAME & SIZE.
4. ALL PLANTS WILL BE MULCHED PER THE PLANTING SPECIFICATIONS AND DETAILS. PLANTING DETAILS AND SPECIAL PROVISIONS.
5. ALL DISTURBED AREAS WILL BE LOAMED AND SEEDED UNLESS NOTED OTHERWISE.
7. ALL NEW PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED FOR NURSERY STOCK PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION. IN ADDITION, ALL NEW PLANT MATERIAL FOR THE PROJECT SHALL BE OF SPECIMEN QUALITY.
8. NEW PLANTS TO BE BALLED AND BURLAPPED OR CONTAINER-GROWN, UNLESS OTHERWISE NOTED ON THE PLANT LIST.
9. THE CONTRACTOR SHALL SUPPLY ALL NEW PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN ON THE DRAWINGS.
10. STAKE LOCATION OF ALL PROPOSED PLANTING FOR APPROVAL BY RESIDENT ENGINEER PRIOR TO THE COMMENCEMENT OF PLANTING.
11. NEW SHRUBS AND GROUND COVER SHALL BEAR THE SAME RELATIONSHIP TO GRADE AS IT BORE TO PREVIOUS GRADE. NO TREES SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING.
12. ALL PLANT SEEDS TO RECEIVE THREE (3) INCHES OF BARK MULCH PER SPECIFICATIONS.
13. PRUNE EXISTING AND NEW TREES IN ACCORDANCE WITH THE SPECIFICATIONS.
14. CONTRACTOR SHALL PROVIDE FULL DEPTH OF LOAM AS NOTED ON SHEETS AND AS SPECIFIED FOR ALL PLANTING.
PLANT LIST

<table>
<thead>
<tr>
<th>PLANT</th>
<th>QC</th>
<th>NAME</th>
<th>COMMENTS</th>
<th>W</th>
<th>DC</th>
<th>SENTS</th>
<th>SPACING</th>
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</thead>
<tbody>
<tr>
<td>116</td>
<td></td>
<td>BICYCLE RACK, TYP.</td>
<td>2 TOTAL</td>
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<tr>
<td>116</td>
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<td>BENCH, TYP.</td>
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<td></td>
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<tr>
<td>116</td>
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<td>TRASH RECEPTACLE, TYP.</td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

MATERIALS LEGEND

- TREE CRATE, TYP.
- BENCH, TYP.
- BICYCLE RACK, TYP.
- TRASH RECEPTACLE, TYP.

PLANTING LEGEND

- DECIDUOUS TREE, TYP.

SEE SHEET 105 FOR PLANTING NOTES

SCALE: 1" = 20'

PROJECT FILE NO. HP-002S(711)X
STATE MA
STATE MA


050 100

LANDSCAPE PLAN CONTINUED ON SHEET NO. 108

CONTINUED ON SHEET NO. 110
Tree Planting in Tree Grate with Perforated PVC Pipe and Pull Box

City of Somerville Standard Bench

City of Somerville Standard Bicycle Rack

City of Somerville Standard Trash Receptacle

Tree Grate

Perennial / Groundcover Planting
### Detectable Warning Panel

- **6" Curb Width**
- **1.5%**

**Legend:**
- LANDING AREA - 1.5% ± 0.5% CROSS SLOPE
- BUILDING OR OTHER UNALTERABLE CONDITION
- DETECTABLE WARNING PANEL

### Ramp Reference Point

- **T** INTERSECTION WHEELCHAIR RAMP

- **RAMP LENGTH:** W1 = PERPENDICULAR RAMP LENGTH
- **W1 = MIN. 5.00'**

**Legend:**
- LEVEL ENTRANCE - 1.0% SLOPE FOR DRAINAGE
- DETECTABLE WARNING PANEL

- **TOLERANCE FOR CONSTRUCTION ± 0.5%**
- **ACTUAL LENGTH DETERMINED FROM TABLE M/E 107.9.0**

### Table: Detectable Warning Panel

<table>
<thead>
<tr>
<th>WCR #</th>
<th>Ramp Reference Point</th>
<th>Width of Sidewalk Min.</th>
<th>Curve Reverse</th>
<th>Ramp Reference Point</th>
<th>Width of Sidewalk Min.</th>
<th>Curve Reverse</th>
<th>Ramp Reference Point</th>
<th>Width of Sidewalk Min.</th>
<th>Curve Reverse</th>
<th>Ramp Reference Point</th>
<th>Width of Sidewalk Min.</th>
<th>Curve Reverse</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOT TO SCALE**
1. FOR FULL PROJECT LENGTH, ALL EXISTING SIGNS & SIGN POSTS ARE TO BE REMOVED & STACKED EXCEPT PRIVATE SIGNS UNLESS OTHERWISE NOTED, OR AS DIRECTED BY FIELD ENGINEER.
2. ALL EXISTING SIGNS ON UTILITY POLES SHALL BE REMOVED & STACKED. NO NEW SIGNS TO BE MOUNTED ON UTILITY POLES.
3. WHERE THE EXISTING SIGNS ARE TO BE RETAINED BUT THE SIGNS ARE NOT IN GOOD CONDITION, THE SIGNS SHALL BE REPLACED WITH NEW SIGNS & NEW POST OF SAME SIGN LEGEND, OR AS DIRECTED BY FIELD ENGINEER.
4. WHEN MOUNTING NEW SIGNS & POSTS, CONTRACTOR SHALL NOT PLACE THEM WHERE THE VISIBILITY OF THE SIGNS WILL BE OBSTRUCTED. THE SIGNS SHALL BE UNOBSTRUCTED TO ALL ROAD USERS. IF THE NEW SIGN POST IS IN CONFLICT WITH OTHER SURFACE STRUCTURES, THE PROBLEM SHALL BE REPORTED TO THE FIELD ENGINEER IMMEDIATELY.
5. IF NECESSARY, CONFLICTING EXISTING PAVEMENT MARKINGS SHALL BE REMOVED BY USING MASSDOT APPROVED METHODS ONLY.
6. MATCH EXISTING PAVEMENT MARKING WITH NEW MARKINGS (DYCL, SWEL, ETC) WHERE NECESSARY, OR AS DIRECTED BY FIELD ENGINEER.
NOTES:

1. WORK ON THE TRAFFIC SIGNAL SYSTEM SHALL BE IN ACCORDANCE WITH THE TRAFFIC MANAGEMENT PLANS, STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS AND AS REQUIRED BY THE ENGINEER.

2. PROPOSED CONTROLLER SHALL BE AN 8DW, TS-2, TYPE 1, KEYBOARD ENTRY, MENU-DRIVEN TYPE WITH INTERNAL COORDINATION CAPABILITIES.

3. POST-MOUNTED SIGNALS SHALL HAVE A TWO FOOT MINIMUM CLEARANCE BETWEEN VERTICAL PROJECTION OF THE CURB LINE AND THE SIGNAL VISOR.

4. ALL SIGNAL EQUIPMENT INCLUDED IN THIS PROJECT SHALL BE LISTED ON THE CURRENT MASSDOT APPROVED LIST AND IS SUBJECT TO APPROVAL OF THE ENGINEER.

5. THE FINAL LOCATION OF PROPOSED PREEMPTION RECEIVERS AND CONFIRMATION STROBE LIGHT SHALL BE COORDINATED WITH THE SOMERVILLE FIRE DEPARTMENT AND APPROVED BY MASSDOT.

6. FIRE PREEMPTION TIMING SHALL BE COORDINATED WITH THE SOMERVILLE FIRE DEPARTMENT AND APPROVED BY MASSDOT.

7. THE FINAL LOCATION OF SIGNAL EQUIPMENT MAY BE ADJUSTED IN THE FIELD AS NECESSARY WITH THE APPROVAL OF THE ENGINEER. SIGNAL EQUIPMENT SHALL ALLOW A MINIMUM OF 3'-3" CLEARANCE FOR PEDESTRIAN TRAVEL.

8. ALL TRAFFIC SIGNAL CONDUIT SHALL BE 3" TYPE NM PLASTIC (UL) UNLESS OTHERWISE NOTED.

9. UTILIZE ONE TRENCH FOR MULTIPLE CONDUITS WHEREVER POSSIBLE.

10. CONTRACTOR TO COORDINATE ALL SERVICE CONNECTIONS WITH THE UTILITY COMPANY.

SEQUENCE AND TIMING NOTES:

1. ALL SIGNALS SHALL HAVE TUNNEL VISORS.

2. ALL SIGNALS SHALL HAVE 12" LED INDICATIONS WITH 5" NON-LOUVERED BACK PLATES WITH A 3 INCH RETROREFLECTIVE BORDER.

ABBREVIATIONS:
FY = FLASHING YELLOW
SY = STEADY YELLOW
SR = STEADY RED
AFR = ALTERNATING FLASHING RED
W = WALK
FDW = FLASHING DON'T WALK
DW = DON'T WALK

PREFERENTIAL PHASING SEQUENCE:

1. DARK UNTIL ACTIVATED.

2. FLASHING YELLOW UNTIL ACTIVATION.

3. STEADY YELLOW FOR VEHICLE CLEARANCE.

4. STEADY RED DURING PEDESTRIAN CLEARANCE INTERVAL.

5. ALTERNATING FLASHING RED DURING PEDESTRIAN BUFFER INTERVAL.

6. DARK UNTIL ACTIVATED AGAIN.

PEDESTRIAN HYBRID BEACON & PEDESTRIAN INDICATION SEQUENCE:

1. DON'T WALK.

2. DON'T WALK.

3. DON'T WALK.

4. WALK.

5. FLAShING DON'T WALK WITH COUNTDOWN.

6. DON'T WALK.

ABBREVIATIONS:
FY = FLASHING YELLOW
SY = STEADY YELLOW
SR = STEADY RED
AFR = ALTERNATING FLASHING RED
W = WALK
FDW = FLASHING DON'T WALK
DW = DON'T WALK

PEDESTRIAN HYBRID BEACON & PEDESTRIAN INDICATION SEQUENCE:

1. DARK UNTIL ACTIVATED.

2. FLASHING YELLOW UNTIL ACTIVATION.

3. STEADY YELLOW FOR VEHICLE CLEARANCE.

4. STEADY RED DURING PEDESTRIAN CLEARANCE INTERVAL.

5. ALTERNATING FLASHING RED DURING PEDESTRIAN BUFFER INTERVAL.

6. DARK UNTIL ACTIVATED AGAIN.

PROPOSED SIGNAL LAYOUT

MAJOR ITEMS REQUIRED

1. PROPOSED TRAFFIC SIGNALS

2. PROPOSED TRAFFIC SIGNALS INSTALLATION

3. PROPOSED TRAFFIC SIGNALS CONNECTIONS

4. PROPOSED TRAFFIC SIGNALS TESTING AND INSPECTION

5. PROPOSED TRAFFIC SIGNALS COMMISSIONING

6. PROPOSED TRAFFIC SIGNALS OPERATION AND MAINTENANCE

7. PROPOSED TRAFFIC SIGNALS MONITORING AND EVALUATION
SEQUENCE AND TIMING FOR PROPOSED HYBRID BEACON

TOTAL SHEETS
607209

SCALE 1" = 20'

SOMERVILLE/CAMBRIDGE
BEACON STREET

STATE
MA

PROJECT FILE NO.
HP-002S(711)X

TOTAL
607209

Plotted on
PROPOSED SIGNAL LAYOUT

SIGNAL HEAD DATA

PREFERENTIAL PHASING SEQUENCE

PEDESTRIAN HYBRID BEACON & PEDESTRIAN INDICATION SEQUENCE

1. DON'T WALK.
2. DON'T WALK.
3. DON'T WALK.
4. WALK.
5. ALTERNATING FLASHING RED DURING PEDESTRIAN CLEARANCE INTERVAL.
6. ALTERNATING FLASHING RED DURING PEDESTRIAN BUFFER INTERVAL.
7. DON'T WALK.

ABBREVIATIONS:
FY = FLASHING YELLOW
SY = STEADY YELLOW
SR = STEADY RED
AFR = ALTERNATING FLASHING RED
FDW = FLASHING DON'T WALK
DW = DON'T WALK

1. THE VEHICULAR SIGNALS SHALL REMAIN DARK UNTIL THE PEDESTRIAN HYBRID BEACON IS ACTIVATED WITH PUSH BUTTON
ACTIVATION.
2. THE PEDESTRIAN CLEARANCE INTERVAL SHALL ONLY DISPLAY THE 3 CONDUITS ALONG THE PEDESTRIAN CLEARANCE INTERVAL.

PEDESTRIAN HYBRID BEACON & PEDESTRIAN INDICATION SEQUENCE

1. DARK UNTIL ACTIVATED.
2. FLASHING YELLOW UPON ACTIVATION.
3. STEADY YELLOW FOR VEHICLE CLEARANCE.
4. STEADY RED DURING PEDESTRIAN WALK INTERVAL.
5. ALTERNATING FLASHING RED DURING PEDESTRIAN CLEARANCE INTERVAL.
6. ALTERNATING FLASHING RED DURING PEDESTRIAN BUFFER INTERVAL.
7. DARK UNTIL ACTIVATED AGAIN.

MAJOR ITEMS REQUIRED

1. CONTROLLER BOX W/o Rls, W/ 16 PIN & T/B
2. VEHICLE CLEARANCE CONTROL
3. PEDESTRIAN HYBRID BEACON
4. PULL BOX, 16 PIN, 6 PIN, FLASHING RED, 12' LCD
5. PULL BOX, 16 PIN, 6 PIN, 12' LCD
6. APARTMENT PUSH BUTTON, 6 PIN & T/B
7. PULL BOX, 16 PIN, 6 PIN
8. ELECTRIC SIGNAL TOWER, 6 PIN, 6 PIN, 6 PIN & T/B

The above items do not include labor, materials, supervision and equipment to complete the installation.