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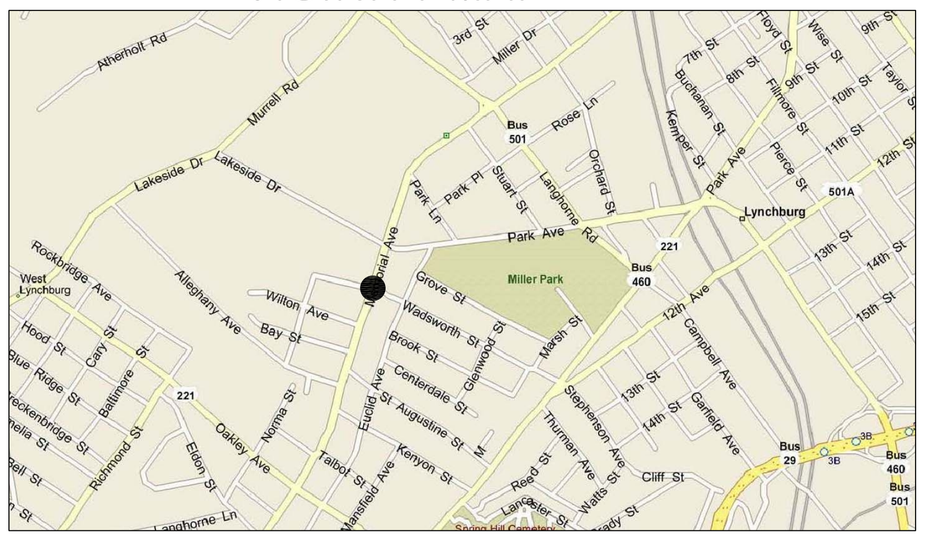
# TRAFFIC SIGNALIZATION PLAN FOR THE INTERSECTION OF MEMORIAL AVE AND WADSWORTH STREET

## CITY OF LYNCHBURG, VIRGINIA

VICINITY MAP




NTS

| NO. | DESCRIPTION | DATE | APP |
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| | | | |

COMMONWEALTH OF VIRGINIA
WILLIAM L. WUENSCH
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| | |
|---|---|
| JOB NO.: | 13-046 |
| DATE: | 03-19-2014 |
| SCALE: | AS SHOWN |
| DRAWN BY: | LLW |
| DESIGNED BY: | WLW |
| CHECKED BY: | WLW |

SIGNAL DESIGN PLANS
FOR MEMORIAL AVE AND WADSWORTH ST
LYNCHBURG, VIRGINIA

COVER

SHEET NO. S1

SHEET 1 OF 4

| SHEET NO. | MOBILIZATION | REMOVE EXISTING SIGNAL HEADS, METAL POLES W/ FOUNDATIONS, SPANWIRE, CONTROLLER CABINET W/ FOUNDATION | MAINTENANCE OF TRAFFIC | 4" WHITE TYPE B CLASS I PAVEMENT MARKINGS | 4" YELLOW TYPE B CLASS I PAVEMENT MARKINGS | 24" WHITE TYPE B CLASS I PAVEMENT MARKINGS (STOP BARS) | 24" WHITE TYPE B CLASS I PAVEMENT MARKINGS (CROSSWALKS) | TURN ARROW TYPE B CLASS 1 MARKINGS THERMO | THROUGH/TURN ARROW TYPE B CLASS 1 MARKINGS THERMO | UNINTERRUPTABLE POWER SUPPLY (CLARY) IN PONY CABINET | ELECTRICAL SERVICE VDOT SE-3 | TRAFFIC SIGNAL HEAD ASSEMBLY W/BACKPLATE, 3 SECTION, 12", SM-3 MOUNT (BLACK POLY) | TRAFFIC SIGNAL HEAD ASSEMBLY W/BACKPLATE, 5 SECTION, 12", SM-3 MOUNT (BLACK POLY) | FURNISH & INSTALL LED LIGHTS AND LENSES FOR SIGNAL HEADS | PEDESTRIAN SIGNAL HEAD ASSEMBLY, VDOT STD SP-4, MODIFIED FOR COUNT DOWN HEADS | PEDESTRIAN PUSHBUTTON (PA-2) AND SIGN R10-3E | SIGNAL POLE, MP-1 – ONE ARM 25' | SIGNAL POLE, MP-1 – ONE ARM 35' | SIGNAL POLE, MP-1 – ONE ARM 50' | PEDESTRIAN POLE (BLACK) WITH FOUNDATION (PF-2) | CONCRETE FOUNDATION FOR SIGNAL POLE PF-1 | REMOVE VIDEO DETECTOR SYSTEM & COMPONENTS FOR 360 VIEW (ALDIS) RETURN TO CITY TRAFFIC SHOP | FURNISH AND INSTALL INSYNC VIDEO DETECTOR SYSTEM INCLUDING CAMERAS, PED MODULE | EMERGENCY PREEMPTION OPTICOM TYPE IV (REUSE) | EMERGENCY PRE-EMPTION DETECTOR CABLE | VIDEO DETECTION CABLES (FOR INSYNC SYSTEM) | 14 AWG/2C CONDUCTOR CABLE | 14 AWG/3C CONDUCTOR CABLE | 14 AWG/5C CONDUCTOR CABLE | 14 AWG/7C CONDUCTOR CABLE | 3" CONDUIT (SCHEDULE 80 PVC) TRENCHED | 3" HDPE CONDUIT DIRECTIONALLY BORED | CONTROLLER CABINET FOUNDATION CF-1 | SIGNAL CONTROLLER (TS-2, TYPE II) W/TS-2 CABINET (NAZTEC) (CITY SUPPLIED) | TEST BORE | JUNCTION BOX – 3C | JUNCTION BOX – 5C | INSTALL MASTARM MOUNT STREET NAME SIGN (COORDINATE W/ CITY SIGN SHOP) | INSTALL MASTARM MOUNT SIGNS (R10-15) (COORDINATE W/ CITY SIGN SHOP) | DEMO EXISTING SIDEWALK/RAMPS FOR NEW HANDICAP RAMPS | CG-12 HANIDCAP RAMPS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOTES | 10 | 18 | 7,23 | | | | | | | 29 | | 6 | 6 | 9 | | | | 11, 13 | | | | 12,31 32 | | 12 | | | | | | | | 16 | 16 | 30 | 27 | | 26 20 | 26 20 | | | | |
| | LS | LS | LS | LF | LF | LF | LF | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA | LS | LS | LS | LF | LF | LF | LF | LF | LF | LF | LF | EA | EA | EA | EA | EA | EA | EA | SF | EA |
| 4 | 1 | 1 | 1 | 1200 | 1200 | 96 | 336 | 3 | 3 | 1 | 1 | 6 | 2 | 28 | 8 | 8 | 2 | 1 | 1 | 1 | 4 | 1 | 1 | 1 | 627 | 455 | 1065 | 1185 | 1066 | 290 | 67 | 196 | 1 | 1 | 4 | 3 | 1 | 4 | 8 | 550 | 8 |

## GENERAL NOTES

1. All work shall be in accordance with the 2009 edition of the Manual on Uniform Traffic Control Devices (MUTCD, the 2007 edition of the VDOT Road and Bridge Specifications, the 2008 VDOT Road and Bridge Standards, 2011 Edition of the VA Work Area Protection Manual, 2011 Edition of the VA supplement to the MUTCD, and City of Lynchburg Specifications (Latest Edition) in effect at the time the signal plan is approved.
2. Mast arm pole shall conform to VDOT MP-1.
3. Mast arm pole foundation shall conform to VDOT PF-1.
4. Conductor cable, conduit, trench excavation, saw cut, and signal junction boxes shall conform to Virginia Department of Transportation (VDOT) Road and Bridge Standards Volume II.
5. The location of all existing underground or overhead utilities should be considered approximate. The Contractor shall be responsible for the definite location of each utility involved within the area of his excavation for work under this contract. The Contractor shall call MISS UTILITY (1-800-552-1007) before beginning work. Where conflicts occur, the Contractor shall contact the Engineer prior to beginning work.
6. All signal heads shall be mounted in accordance with VDOT SM-3 and all signal heads shall be polycarbonate with backplates. All traffic signal heads shall be 12" and include visors.
7. It shall be the sole responsibility of the contractor to furnish and maintain, until the work has been accepted by the City, any and all signs, lights, barricades, flagmen, ect., necessary for the safety of the general public, including both vehicular and pedestrian traffic. All costs for the maintenance of traffic shall be included in the lump sum bid item. Maintenance of traffic shall be done according to the Virginia Work Area Protection Manual (latest edition).
8. All damages to existing structures, facilities, pavement, grassed areas, ect., shall be restored to existing condition by the contractor at his EXPENSE.
9. SIGNAL HEADS shall have LED indications. The LED display characteristics of LED balls shall present the appearance of incandescent type bulbs rather than discrete points of light. LED arrows shall be three-row type, (Dialite or approved equal).
10. The Contractor shall contact the City Department of Public Works (Adam Fick) at least 72 hours prior to beginning work, 434-455-4466.
11. Pole location shall be installed within 24" of the point as shown on the plan. Contractor shall stake and field verify with "MISS UTILITIY OF VIRGINIA" the pole location before ordering poles and arms. **The City Traffic Engineer or his designee shall approve staked pole location.**
12. Emergency preemption equipment shall be compatible with the City's Opticom system, and the Vehicle Detection shall be per the City's specifications for Insync equipment.
13. The pole supplier shall furnish to the City shop drawings and calculations for all poles and foundations.
14. Contractor shall be responsible for providing as-built drawings to the city.
15. The Contractor shall verify the elevations of all underground utilities to be crossed prior to jacking and boring conduits. The Contractor shall hand dig when crossing water lines, gas lines and sewer force mains.
16. All underground conduit shall be installed in accordance with VDOT Standard ECI-1.
17. This plan does not guarantee the existence or nonexistence of underground utilities. Prior to any construction, the Contractor shall verify the existence and location of, or the nonexistence of, underground or overhead utilities. Where conflicts occur, the Contractor shall contact the Engineer prior to beginning work.
18. The contractor will maintain the existing signal installation throughout the duration of the project, until the new traffic signal installation is placed into service. At that time, the Contractor will remove the existing signal installation and return all equipment to the Owner's Traffic Signal Shop at 1700 Memorial Avenue.
19. All U-bolts, nuts, and washers shall be stainless steel. All plate material shall be galvanized.
20. Conduit entering junction boxes shall not extend over 3" maximum or 2" minimum and shall be fitted with bell ends or bushings.
21. Conductor(s). The proposed pole foundation shall be permanently marked to indicate the locations of all conduits cast in the foundation. The markings shall consist of an arrow, 4 to 6 inches long, and a letter designation as follows:
    (S) – spare conduit;
    (T) – conduit with signal or detector cables;
    (E) – conduit with electrical service conductors for traffic signal;
    (G) – conduit for grounding
22. System bond wire is required only if the conduit is non-metallic. Payment shall be incidental to conduit cost.
23. Lane closures shall be approved by City Traffic Engineer.
24. The Contractor will stub and cap two each 2- inch PVC conduits for future use from each mast arm pole.
25. All conduits stubbed from junction boxes and foundations must extend a minimum of six inches beyond the box or foundation and must be capped.
26. Conduit and Pull Boxes are shown in the plan may be shifted in location to accomodate field conditions. All equipment shall be placed within the right-of-way.
27. Traffic signal controller will be supplied by the City (NAZTEC control equipment –TS2 Type 2 Controller and TS-2 Cabinet)
28. All equipment, including pedestrian detectors, poles, mastarms, luminaires, U-bolts, hardware, signal heads, bands, visors, overhead detection cameras (and riser poles) shall be semigloss black.
29. Uninterruptable power supply shall be per city specifications, Clary in pony cabinet.
30. Conduits for cabinet pad shall be configured to allow for a minimum floor space of 28" wide x 12" deep for the UPS device.
31. Insync Adaptive system shall be used on this project. The pay item shall include the processor, cameras, interface cable, brackets and mounting arm, software, and related items for a complete installation.
32. Finish shall be per VDOT specifications and shall be applied by the pole manufacturer.
33. All conductors shall be braided wire not solid (IMSA Spec.)

***Special Notes for InSync System***

This project will utilize the InSync system for detection and traffic control. This sytem works with the standard Nema equipment and functions as an add-on to the typical system.

Close coordination will need to occur between the signal contractor and Rhythm Engineering (InSync system provider) for this contract. All costs for the coordination, equipment, and installation shall be paid for through the signalization contract.

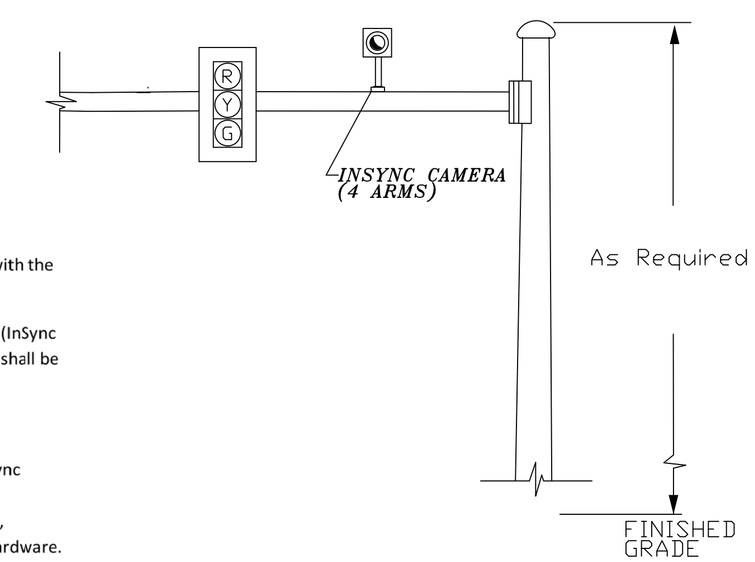
**Rhythm Engineering will be responsible for the following tasks:**

1. Provide materials consisting of InSync processors, video cameras and enclosures, InSync equipment panel and power supply, RG cable, Ethernet patch cables.
2. Provide specifications for materials to be supplied by the contractor including – wires, connectors, cameras, and specialized installation tools as well as camera mounting hardware.
3. Perform the on-site integration of the InSync adaptive system, including verification of camera views, working with the installer to make any adjustments needed and loading of the predefined software image into the processor.,. the Rhythm Engineering team will work both on-site and remotely to bring online the InSync system. The adaptive system will work "out of the box", but Rhythm Engineering will take time to monitor and modify the adaptive parameters remotely over a period of approximately one to two weeks after the activation for the arterial in order to maximize performance of InSync.

**The Contractor for the signal installation will be responsible for the following tasks:**

1. Purchase Insync Std. system with PED module from Rhythm.
2. Order and provide shielded / outdoor rated Category 5 Ethernet cable and outdoor rated 3-strand 14 AWG power wire (IMSA 20-1 Traffic Control Cable 14-3 stranded copper) per Rhythm Engineering specifications. Cut sheets to be provided by Rhythm Engineering at the appropriate time upon request.
3. Perform installation work consisting of: pulling and terminating the required power and Ethernet Cat 5E cables (Comscope 2003 shielded/outdoor rated) from the controller cabinet to the pre-approved mounting location, furnishing and installation of cameras and camera mounting hardware to the mast-arm mounting of the video cameras, connecting wires to cameras per Rhythm Engineering specifications and training, camera aiming, zooming and focusing.
4. Perform traffic cabinet installation work consisting of: installing the site equipment panel, mounting and connecting the InSync processor to the Ethernet switch, and installing InSync's detector input connection type. Wiring of the RG return cable and connection to the InSync system to the Ethernet network provided via a communication system provided by the Client of communications installer.
5. Return to the site as needed during system integration to adjust cameras or troubleshoot any cabling or other issues arising from faulty installation. (Contactor to bid two trips and provide rates for time and materials for additional trips).

TYPICAL SIGNAL POLE AND VIDEO DETECTION PLACEMENT DETAIL




**City of Lynchburg Responsibilities**

Provide an Ethernet network with TCP/IP connectivity between signals. (i.e. internet service with eight (8) Internet Protocol (IP) Addresses for each intersections equipment (cameras and processor), establish Simple Mail Transfer Protocol (SMTP) and Network Time Protocol (NTP) server connection as well as remote access to the intersections via a Virtual Private Network (VPN) connection for the support and monitoring purposes during the warranty/support period.

IP wired router shall support enabled Firewall and VPN configurations:

**VPN Requirements**

- Install and configure to enable VPN capabilities
- Multiple user access for at least four accounts
- Provide remote connectivity to Rhythm Engineering
- Requires minimum 2MBPS download and 1 MBPS upload speed
- HTTP access (port 80) to each InSync camera and processor
- Remote Desktop Protocol (EDP_ access (port 2289) to each processor

| NO. | DESCRIPTION | DATE | APP |
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CONTRACTOR SHALL CONTACT MISS UTILITY @ 1-800-552-7001 FOR LOCATION OF ALL UTILITIES, AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

COMMONWEALTH OF VIRGINIA
WILLIAM L. WUENSCH
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| | |
|---|---|
| JOB NO.: | 13-046 |
| DATE: | 03-19-2014 |
| SCALE: | AS SHOWN |
| DRAWN BY: | LLW |
| DESIGNED BY: | WLW |
| CHECKED BY: | WLW |

SIGNAL DESIGN PLANS
FOR MEMORIAL AVE AND WADSWORTH ST
LYNCHBURG, VIRGINIA

GENERAL NOTES AND QUANTITIES

SHEET NO. S2

SHEET 2 OF 4

## SIGNAL LEGEND

- CONDUIT
- NOTES
- (X) SIGNAL POLE IDENTIFIER
- (S-1) PROPOSED MAST ARM MOUNTED SIGNS
- PROPOSED CONTROLLER CABINET (Provided by City)
- EXISTING JUNCTION BOX
- PROPOSED CONDUIT
- (X) PROPOSED SIGNAL HEAD
- PROPOSED MAST ARM AND FOUNDATION
- (PX) PEDESTRIAN SIGNAL HEAD
- PROPOSED EMERGENCY VEHICLE PRE-EMPTION DEVICE
- PROPOSED VIDEO DETECTION CAMERA
- DETECTION ZONE
- EXISTING SIGNAL POLE

## CONSTRUCTION NOTES:

1. MULTIPLE CONFLICTS BETWEEN PROPOSED CONDUITS AND EXISTING UTILITIES MAY EXIST. CONTACT "MISS UTILITY" PRIOR TO EXCAVATION.
2. TOP OF POLE FOUNDATION ELEVATION SHALL BE FLUSH WITH THE ADJACENT SIDEWALK.
3. TRAFFIC SIGNAL HEADS, VISORS, LUMINAIRES AND HOUSINGS SHALL BE SEMI-GLOSS BLACK. BACKPLATES AND INSIDE OF VISORS SHALL BE SEMI-GLOSS BLACK. ALL SIGNAL HEADS SHALL BE POLYCARBONATE & HAVE POLYCARBONATE BACKPLATES. ALL POLES SHALL BE SEMI-GLOSS BLACK.
4. THE (S-5) SIGN SHALL BE POLE MOUNTED ADJACENT TO PEDESTRIAN DETECTOR. THE CONTRACTOR SHALL COORDINATE WITH THE CITY'S TRAFFIC STAFF FOR ORIENTATION OF THE SIGN ON THE POLE.
5. PEDESTRIAN POLE SHALL INCLUDE VDOT STANDARD PA-2 WITH SP-4, MODIFIED FOR COUNTDOWN HEADS.
6. REFRESH ALL PAVEMENT MARKINGS 150' FROM STOP BAR AT INTERSECTION.
7. CAMERA LOCATION FOR VIDEO DETECTION SHALL BE DECIDED AND DRILLED IN THE FIELD.
8. EXISTING POWER SERVICE DROP TO BE CHANGED TO SE-3 TO POLE E, METER TO BE MOUNTED ON MAST ARM POLE. CONTRACTOR SHALL FURNISH AND INSTALL A 2ND SERVICE ENTRANCE WEATHER HEAD AND THIMBLE EYE, WITH 1 1/4" METAL CONDUIT DOWN THE POLE TO 3' FROM GROUND LEVEL FOR FIBER OPTIC LINE (BY LUMOS). THE CONTRACTOR SHALL COORDINATE WITH LUMOS REGARDING THIS FIBER OPTIC DROP.
9. THE CITY WILL PROVIDE NEW SIGNAL TIMINGS TO THE CONTRACTOR.
10. THE ELEVATIONS OF EXISTING OVERHEAD LINES ARE APPROXIMATELY: 796.5' AT PROPOSED POLE (A) AND 802.98' AT PROPOSED POLE (B) 796.15' AT PROPOSED POLE (C) AND 798.0' AT PROPOSED POLE (E)
11. SPECIAL ATTENTION IS CALLED TO THE PRESENCE OF A GAS LINE RUNNING PARALLEL TO THE WESTERN CURB LINE ALONG MEMORIAL AVENUE.
12. THE CONTRACTOR SHALL COORDINATE WTH VERIZON TO HAVE THEIR LINES RELOCATED OUT OF THE LINE OF SITE OF THE PROPOSED SIGNAL HEADS AT POLE A. RELOCATION OF THIS LINE WILL ALSO IMPACT THE LINE RUNNING TO THE UTILITY POLE ON THE SOUTH SIDE OF WADSWORTH (NEAR THE CHURCH) TO POLE #1047084-AEP/4834-VERIZON. THE CITY WILL COORDINATE REMOVAL OF THE OLD FIRE ALERT COMMUNICATION LINE ON THAT SAME POLE.
13. THE CONTRACTOR SHALL COORDINATE WTH VERIZON REGARDING THE NEED TO ADJUST THEIR LINE ON POLE 468-G NEAR POLE E. THE EXISTING SERVICE LINE WILL ALSO NEED TO BE ADJUSTED.

## POLE SCHEDULE

| NO. | STANDARD | | | SIGNAL MOUNTING | | | | | CAMERA DISTANCE FROM POLE | | EVP DISTANCE FROM POLE | TRAFFIC SIGN MOUNTING | | | | POLE LOCATION | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TYPE | POLE HEIGHT | MASTARM LENGTH | DISTANCE FROM POLE | | | | | | | | DISTANCE FROM POLE | | | | A* | B* |
| (A) | MP-1 | 20' | 25' | 6.5' | 14' | – | – | – | 17.5' | – | 9.5' | 3.0' | 5' | 15' | – | 12.5' | 15.7' |
| (B) | MP-1 | 20' | 50' | 34.5' | 45.5' | – | – | – | 39' | – | 27' | 17' | 22.5' | 41.5' | – | 8.0' | 17.5' |
| (C) | MP-1 | 20' | 25' | 4.0' | 14' | – | – | – | 19.5' | – | 17.5' | 6.5' | 10.5' | 19' | – | 15.4' | 13.3' |
| (D) | PA-2 | 10' | N/A | – | – | – | – | – | – | – | – | – | – | – | – | 34.4' | 14.1' |
| (E) | MP-1 | 20' | 35' | 19' | 29.5' | – | – | – | 24' | – | 14' | 9.5' | 21.5' | 27' | – | 14.9' | 15.5' |
| | | | | | | | | | | | | | | | | | |

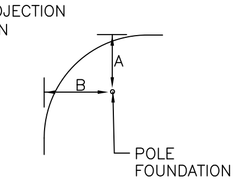
(MP-1) = VDOT STANDARD MAST ARM POLE
* SEE POLE LOCATION DETAIL

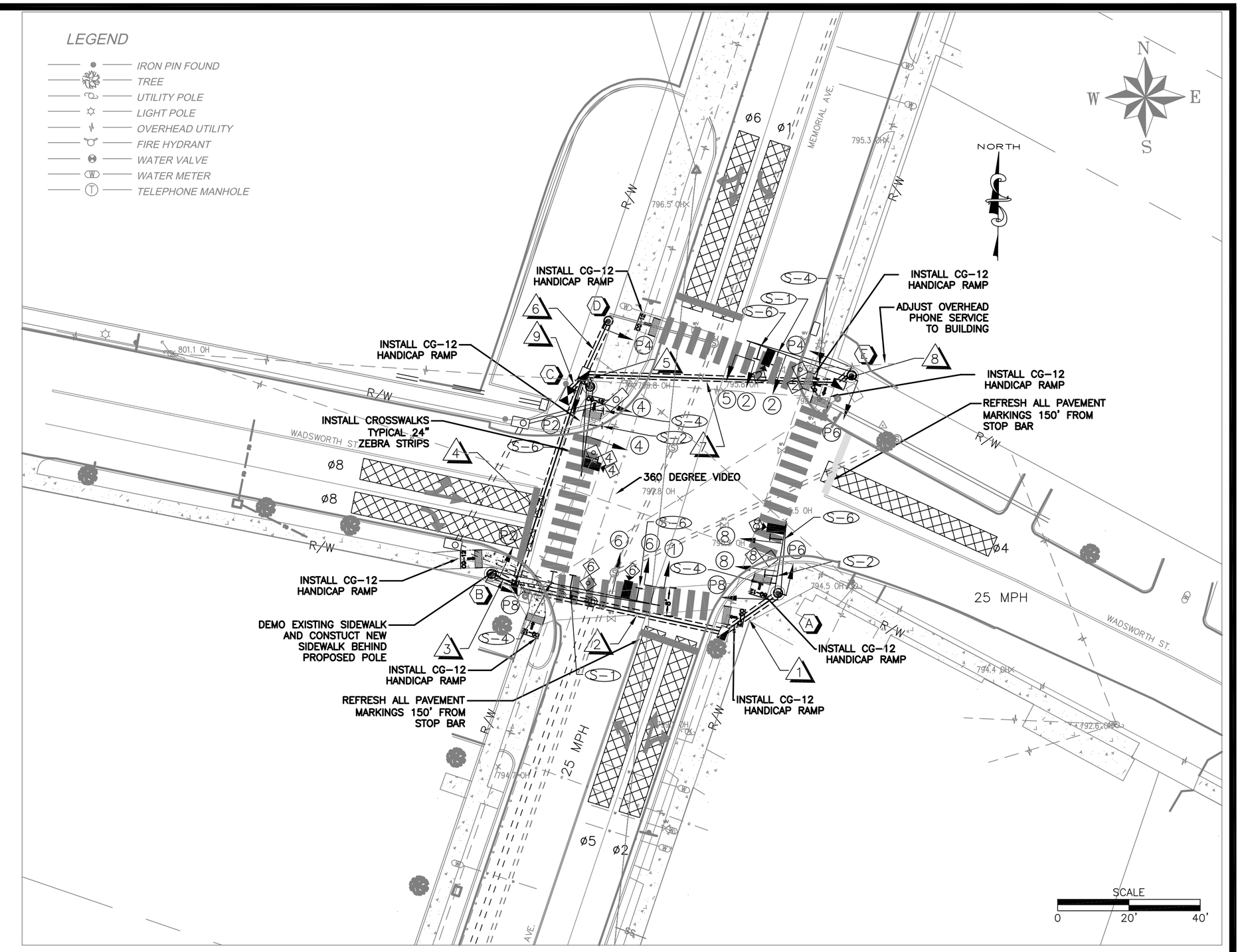
## POLE LOCATION DETAIL

NOT TO SCALE

A=DISTANCE FROM PROJECTION OF TANGENT SECTION FACE OF CURB WADSWORTH ST

B=DISTANCE FROM PROJECTION OF TANGENT SECTION FACE OF CURB MEMORIAL AVE



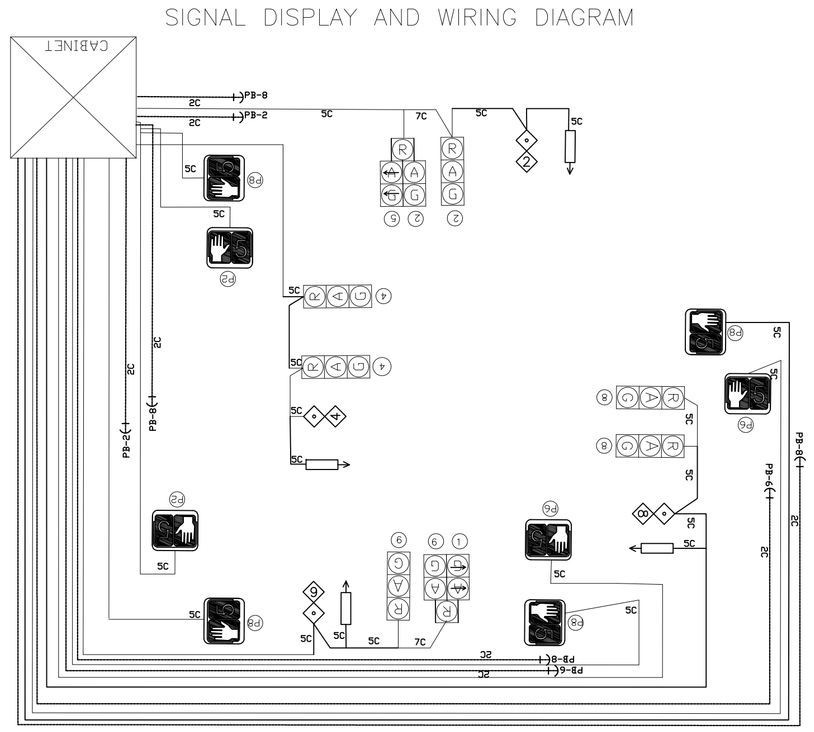




## CONDUCTOR SCHEDULE

| CONDUIT | | RUN NO. 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" | |
| TYPE | | P | H | P | H | P | P | H | P | P | – |
| AWG #10 | 3C Luminaire | – | – | – | – | – | – | – | – | – | – |
| AWG #14 | 2C PUSH BUTTON | 2 | 2 | 2 | 4 | 1 | 1 | 2 | 2 | 8 | – |
| AWG #14 | 3C PED HEAD | 2 | 2 | 2 | 4 | 1 | 1 | 2 | 2 | 8 | – |
| AWG #14 | 5C | 2 | 2 | 1 | 3 | 2 | – | 1 | 1 | 6 | – |
| AWG #14 | 7C | – | – | 1 | 1 | – | – | 1 | 1 | 2 | – |
| POWER/VIDEO CABLE** | | 1 | 1 | 1 | 2 | 2 | – | 1 | 1 | 6 | – |
| EVP CABLE | | 1 | 1 | 1 | 2 | 2 | – | 1 | 1 | 5 | – |
| #6 AWG (ECG) | | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 5 | |

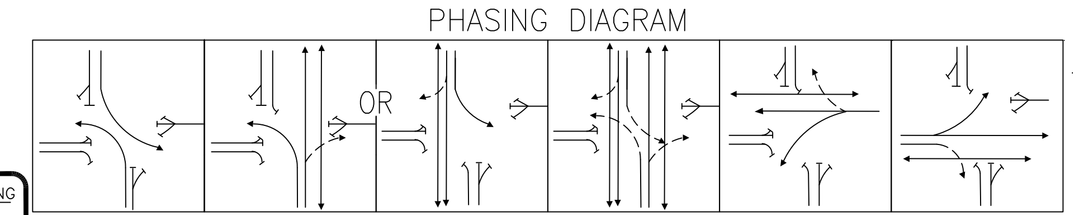
(H) = HIGH DENSITY POLYETHYLENE (DIRECTIONAL BORE)
(P) = PVC
EVP = EMERGENCY VEHICLE PRE-EMPTION CABLE (Includes cables for confirmation lights)
(M) = METAL CONDUIT
(**) = AS REQUIRED FOR SAMSUNG CAMERA MODEL SNZ-5200 PER THE INSYNC SYSTEM.

## SIGNAL DISPLAY AND WIRING DIAGRAM



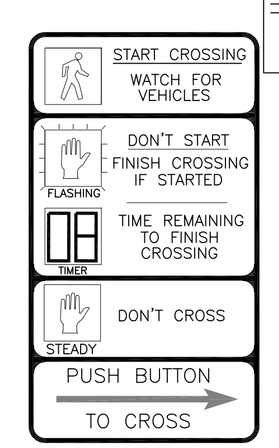

NOTES:
1. ALL PUSHBUTTON & SIGNAL HEAD CABLES SHALL BE 14 AWG.
2. PEDESTRIAN SIGNALS SHALL BE LED TYPE WITH COUNTDOWN.
3. RELOCATED SIGNAL HEADS SHALL BE CENTERED OVER LANE.

## PHASING DIAGRAM

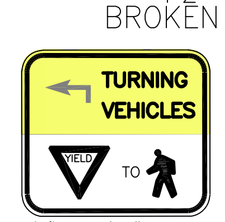



Ø5 & Ø1 | Ø5 & Ø2 | Ø6 & Ø1 | Ø2 & Ø6 | Ø4 | Ø8
P2 | P6 | P2 & P6 | P4 | P8

BROKEN LINE DEPICTS MOVEMENT MUST YIELD

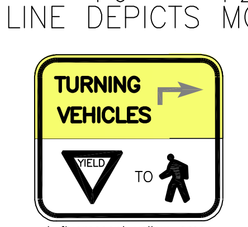



(S-5)
R10-3E
9"X12"
SEE NOTE 4




A fluorescent yellow-green background color shall be used for this sign.

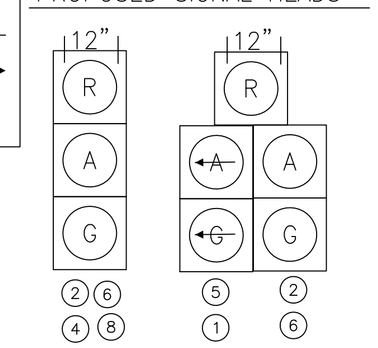
(S-6)
R10-15L
30"X30"
4 REQUIRED

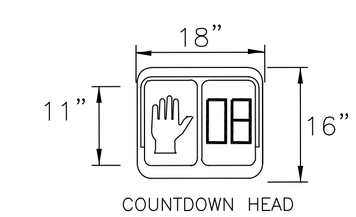



A fluorescent yellow-green background color shall be used for this sign.

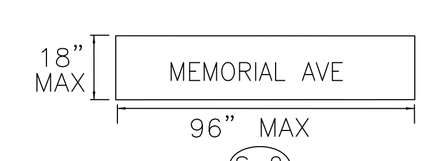
(S-4)
R10-15R
30"X30"
4 REQUIRED

## PROPOSED SIGNAL HEADS

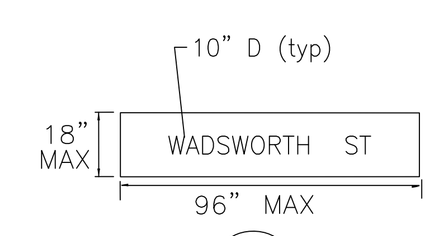



COUNTDOWN HEAD
(P2) (P4) (P6) (P8)
SEE CITY SPECIFICATIONS




(S-2)




(S-1)

| NO. | DESCRIPTION | DATE | APP |
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CONTRACTOR SHALL CONTACT MISS UTILITY @ 1-800-552-7001 FOR LOCATION OF ALL UTILITIES, AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

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EPR, P.C.
"ENGINEERING & PLANNING RESOURCES"
Civil • Stormwater • Traffic • Transportation
637 BERKMAR CIRCLE
Charlottesville • Virginia
22901 • (434) 202-5082

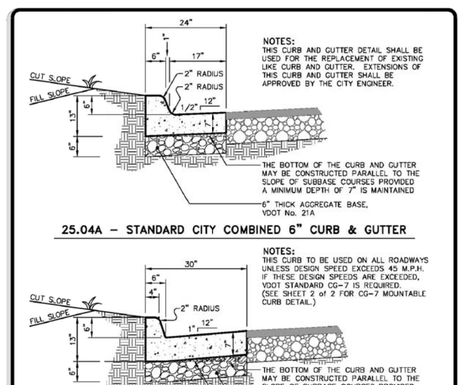

| | |
|---|---|
| JOB NO.: | 13-046 |
| DATE: | 03-19-2014 |
| SCALE: | AS SHOWN |
| DRAWN BY: | LLW |
| DESIGNED BY: | WLW |
| CHECKED BY: | WLW |

# SIGNAL DESIGN PLAN
## FOR MEMORIAL AVE & WADSWORTH ST
LYNCHBURG , VIRGINIA

## INTERSECTION PLAN SHEET

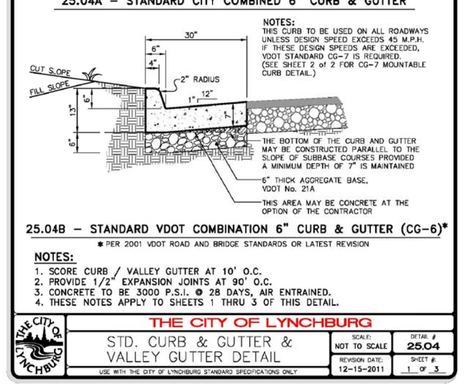
SHEET NO. S3

SHEET 3 OF 4




NOTES:
THIS CURB AND GUTTER DETAIL SHALL BE USED FOR THE REPLACEMENT OF EXISTING LINE CURB AND GUTTER. EXTENSIONS OF THIS CURB AND GUTTER SHALL BE APPROVED BY THE CITY ENGINEER.

25.04A – STANDARD CITY COMBINED 6" CURB & GUTTER



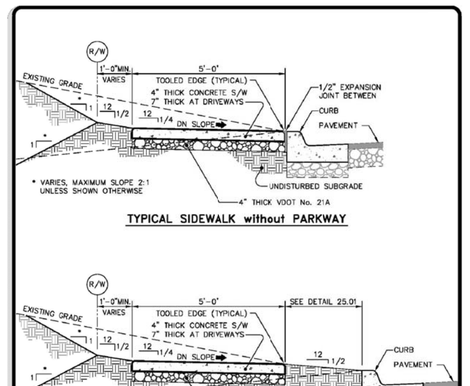

NOTES:
THIS CURB TO BE USED ON ALL ROADWAYS UNLESS DESIGN SPEED EXCEEDS 45 M.P.H. (IF THESE DESIGN SPEEDS ARE EXCEEDED, VDOT STANDARD CG-7 IS REQUIRED. SEE DETAIL 5 of 2 FOR CG-7 MOUNTABLE CURB DETAIL.)

25.04B – STANDARD VDOT COMBINATION 6" CURB & GUTTER (CG-6)*

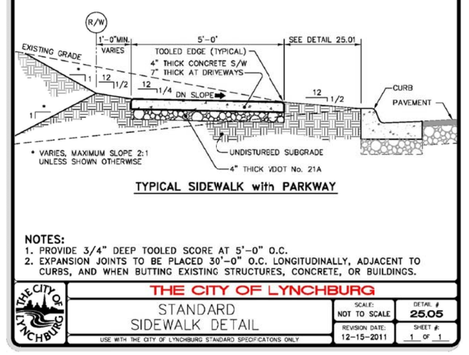
* PER 2001 VDOT ROAD AND BRIDGE STANDARDS OR LATEST REVISION

NOTES:
1. SCORE CURB / VALLEY GUTTER AT 10' O.C.
2. PROVIDE 1/2" EXPANSION JOINTS AT 80' O.C.
3. CONCRETE TO BE 3000 P.S.I. @ 28 DAYS, AIR ENTRAINED.
4. THESE NOTES APPLY TO SHEETS 1 THRU 3 OF THIS DETAIL.

THE CITY OF LYNCHBURG
STD. CURB & GUTTER & VALLEY GUTTER DETAIL
SCALE: NOT TO SCALE | DETAIL # 25.04
REVISION DATE: 12-15-2011 | SHEET # 1 OF 3
USE WITH THE CITY OF LYNCHBURG STANDARD SPECIFICATIONS ONLY



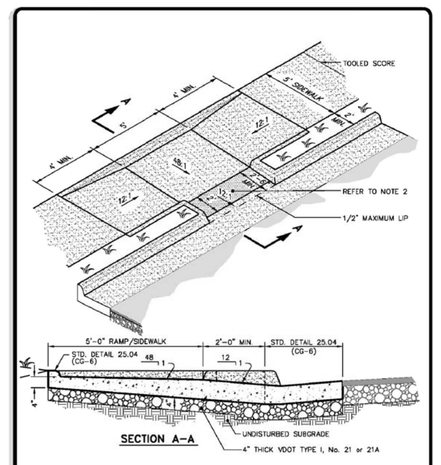

TYPICAL SIDEWALK without PARKWAY




TYPICAL SIDEWALK with PARKWAY

NOTES:
1. PROVIDE 3/4" DEEP TOOLED SCORE AT 5'-0" O.C.
2. EXPANSION JOINTS TO BE PLACED 30'-0" O.C. LONGITUDINALLY, ADJACENT TO CURBS, AND WHEN BUTTING EXISTING STRUCTURES, CONCRETE, OR BUILDINGS.

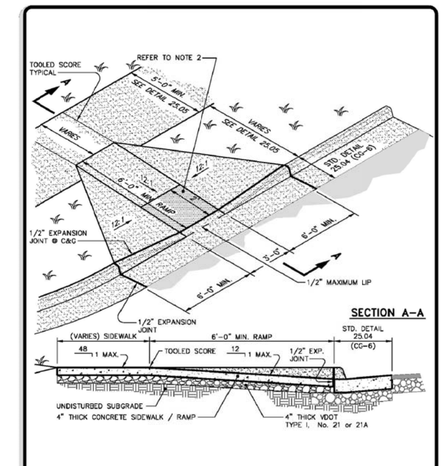
THE CITY OF LYNCHBURG
STANDARD SIDEWALK DETAIL
SCALE: NOT TO SCALE | DETAIL # 25.05
REVISION DATE: 12-15-2011 | SHEET # 1 OF 3
USE WITH THE CITY OF LYNCHBURG STANDARD SPECIFICATIONS ONLY




THE CITY OF LYNCHBURG
TYPE 1 – HANDICAP RAMP for TEE INTERSECTION with GRASS STRIP
SCALE: NOT TO SCALE | DETAIL # 25.13
REVISION DATE: 12-15-2011 | SHEET # 1 OF 3
USE WITH THE CITY OF LYNCHBURG STANDARD SPECIFICATIONS ONLY

NOTES:
1. CROSS AND SIDE RAMPS SHALL NOT EXCEED A SLOPE OF 12:1.
2. CROSS RAMP SHALL HAVE A TRUNCATED DOME PATTERN MEETING THE CURRENT AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG). THE TRUNCATED DOME PATTERN SHALL EXTEND THE FULL WIDTH OF THE CROSS RAMP BY 2 FEET IN LENGTH IN THE DIRECTION OF PEDESTRIAN TRAVEL. THE TRUNCATED DOME SURFACE SHALL BE RED IN COLOR TO PRODUCE A 70% CONTRAST WITH SURROUNDING CONCRETE SURFACES. RECOMMENDED MANUFACTURERS INCLUDE 2004 ADA COMPLIANT DETECTABLE WARNING PAVER BY PAVESTONE COMPANY AND STEP-SAFE BY TRANSPO INDUSTRIES, INC. DETECTABLE WARNING SURFACE SHALL BE INSTALLED WITH THE ELONGATED SIDE PARALLEL TO THE RAMP OPENING. PAVERS/TILES SHALL BE RECESSED TO MOUNT FLUSH WITH THE SURROUNDING CONCRETE RAMP/SURFACE.
3. CURB RAMPS ARE TO BE LOCATED WHEREVER AN ACCESSIBLE ROUTE WITHIN THE RIGHT-OF-WAY OF A ROADWAY CROSSES AS SHOWN ON PLANS OR AS DIRECTED BY CITY ENGINEER AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES, EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC.

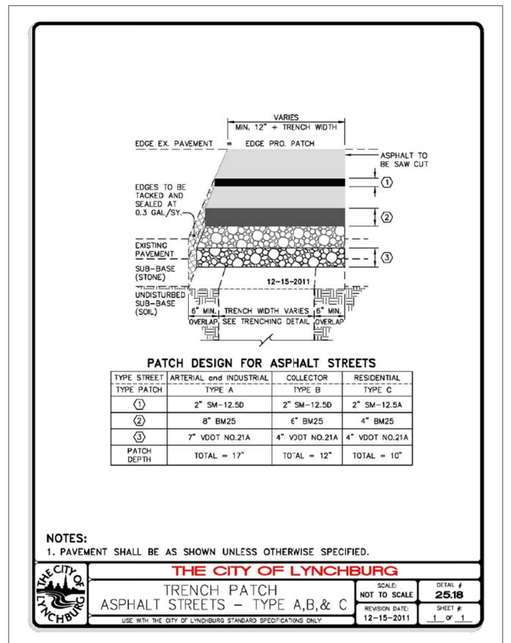
THE CITY OF LYNCHBURG
TYPE 1 – HANDICAP RAMP for TEE INTERSECTION with GRASS STRIP
SCALE: NOT TO SCALE | DETAIL # 25.13
REVISION DATE: 12-15-2011 | SHEET # 2 OF 3
USE WITH THE CITY OF LYNCHBURG STANDARD SPECIFICATIONS ONLY




THE CITY OF LYNCHBURG
TYPE 3 – HANDICAP RAMP for INTERSECTION with GRASS STRIP
SCALE: NOT TO SCALE | DETAIL # 25.16
REVISION DATE: 12-15-2011 | SHEET # 1 OF 3
USE WITH THE CITY OF LYNCHBURG STANDARD SPECIFICATIONS ONLY

NOTES:
1. CROSS AND SIDE RAMPS SHALL NOT EXCEED A SLOPE OF 12:1.
2. CROSS RAMP SHALL HAVE A TRUNCATED DOME PATTERN MEETING THE CURRENT AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG). THE TRUNCATED DOME PATTERN SHALL EXTEND THE FULL WIDTH OF THE CROSS RAMP BY 2 FEET IN LENGTH IN THE DIRECTION OF PEDESTRIAN TRAVEL. THE TRUNCATED DOME SURFACE SHALL BE RED IN COLOR TO PRODUCE A 70% CONTRAST WITH SURROUNDING CONCRETE SURFACES. RECOMMENDED MANUFACTURERS INCLUDE 2004 ADA COMPLIANT DETECTABLE WARNING PAVER BY PAVESTONE COMPANY AND STEP-SAFE BY TRANSPO INDUSTRIES, INC. DETECTABLE WARNING SURFACE SHALL BE INSTALLED WITH THE ELONGATED SIDE PARALLEL TO THE RAMP OPENING. PAVERS/TILES SHALL BE RECESSED TO MOUNT FLUSH WITH THE SURROUNDING CONCRETE RAMP/SURFACE.
3. CURB RAMPS ARE TO BE LOCATED WHEREVER AN ACCESSIBLE ROUTE WITHIN THE RIGHT-OF-WAY OF A ROADWAY CROSSES AS SHOWN ON PLANS OR AS DIRECTED BY CITY ENGINEER AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES, EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC.

THE CITY OF LYNCHBURG
TYPE 3 – HANDICAP RAMP for INTERSECTION with GRASS STRIP
SCALE: NOT TO SCALE | DETAIL # 25.16
REVISION DATE: 12-15-2011 | SHEET # 2 OF 3
USE WITH THE CITY OF LYNCHBURG STANDARD SPECIFICATIONS ONLY

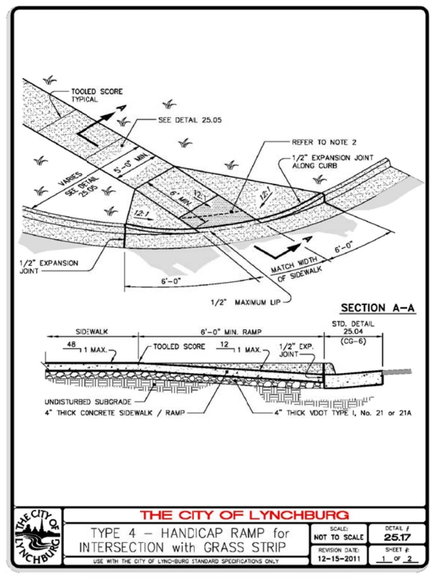



PATCH DESIGN FOR ASPHALT STREETS

| TYPE STREET / TYPE PATCH | ARTERIAL and INDUSTRIAL TYPE A | COLLECTOR TYPE B | RESIDENTIAL TYPE C |
|---|---|---|---|
| 1 | 2" SM-12.50 | 2" SM-12.50 | 2" SM-12.5A |
| 2 | 8" BM25 | 6" BM25 | 4" BM25 |
| 3 | 7" VDOT NO.21A | 4" VDOT NO.21A | 4" VDOT NO.21A |
| PATCH DEPTH | TOTAL = 17" | TOTAL = 12" | TOTAL = 10" |

NOTES:
1. PAVEMENT SHALL BE AS SHOWN UNLESS OTHERWISE SPECIFIED.

THE CITY OF LYNCHBURG
TRENCH PATCH ASPHALT STREETS – TYPE A,B,& C
SCALE: NOT TO SCALE | DETAIL # 25.19
REVISION DATE: 12-15-2011 | SHEET # 1 OF 1
USE WITH THE CITY OF LYNCHBURG STANDARD SPECIFICATIONS ONLY

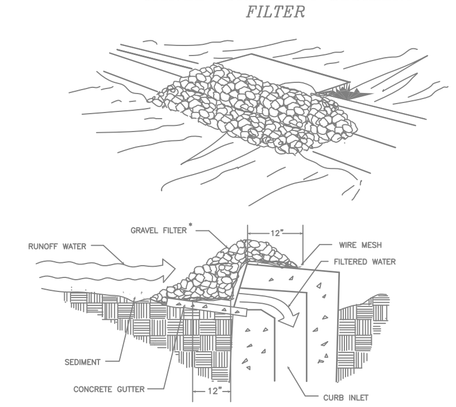



THE CITY OF LYNCHBURG
TYPE 4 – HANDICAP RAMP for INTERSECTION with GRASS STRIP
SCALE: NOT TO SCALE | DETAIL # 25.17
REVISION DATE: 12-15-2011 | SHEET # 1 OF 3
USE WITH THE CITY OF LYNCHBURG STANDARD SPECIFICATIONS ONLY

NOTES:
1. CROSS AND SIDE RAMPS SHALL NOT EXCEED A SLOPE OF 12:1.
2. CROSS RAMP SHALL HAVE A TRUNCATED DOME PATTERN MEETING THE CURRENT AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG). THE TRUNCATED DOME PATTERN SHALL EXTEND THE FULL WIDTH OF THE CROSS RAMP BY 2 FEET IN LENGTH IN THE DIRECTION OF PEDESTRIAN TRAVEL. THE TRUNCATED DOME SURFACE SHALL BE RED IN COLOR TO PRODUCE A 70% CONTRAST WITH SURROUNDING CONCRETE SURFACES. RECOMMENDED MANUFACTURERS INCLUDE 2004 ADA COMPLIANT DETECTABLE WARNING PAVER BY PAVESTONE COMPANY AND STEP-SAFE BY TRANSPO INDUSTRIES, INC. DETECTABLE WARNING SURFACE SHALL BE INSTALLED WITH THE ELONGATED SIDE PARALLEL TO THE RAMP OPENING. PAVERS/TILES SHALL BE RECESSED TO MOUNT FLUSH WITH THE SURROUNDING CONCRETE RAMP/SURFACE.
3. CURB RAMPS ARE TO BE LOCATED WHEREVER AN ACCESSIBLE ROUTE WITHIN THE RIGHT-OF-WAY OF A ROADWAY CROSSES AS SHOWN ON PLANS OR AS DIRECTED BY CITY ENGINEER AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES, EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC.

THE CITY OF LYNCHBURG
TYPE 4 – HANDICAP RAMP for INTERSECTION with GRASS STRIP
SCALE: NOT TO SCALE | DETAIL # 25.17
REVISION DATE: 12-15-2011 | SHEET # 2 OF 3
USE WITH THE CITY OF LYNCHBURG STANDARD SPECIFICATIONS ONLY

GRAVEL CURB INLET SEDIMENT FILTER




* GRAVEL SHALL BE VDOT #3, #357 OR 5 COARSE AGGREGATE.

| NO. | DESCRIPTION | DATE | APP |
|---|---|---|---|
| | | | |

CONTRACTOR SHALL CONTACT MISS UTILITY @ 1-800-552-7001 FOR LOCATION OF ALL UTILITIES, AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

COMMONWEALTH OF VIRGINIA
WILLIAM L. WUENSCH
Lic. No. 33905
PROFESSIONAL ENGINEER

EPR, P.C.
"ENGINEERING & PLANNING RESOURCES"
Civil • Stormwater • Traffic • Transportation
637 BERMAR CIRCLE
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22901 • (804) 647-7701

| | |
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| JOB NO.: | 13-046 |
| DATE: | 03-17-2014 |
| SCALE: | AS SHOWN |
| DRAWN BY: | LLW |
| DESIGNED BY: | WLW |
| CHECKED BY: | WLW |

SIGNAL DESIGN PLANS
FOR MEMORIAL AVE AND WADSWORTH ST
LYNCHBURG, VIRGINIA

DETAILS

SHEET NO. S4

SHEET 4 OF 4