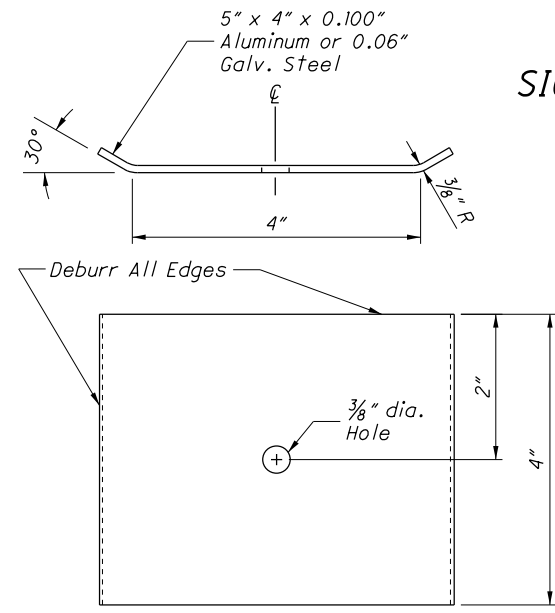
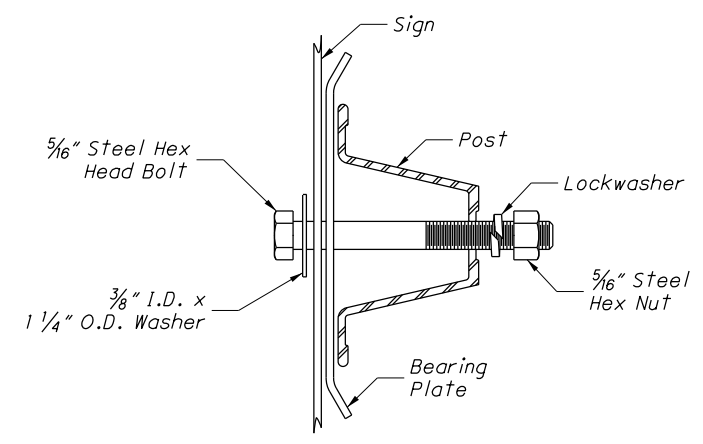


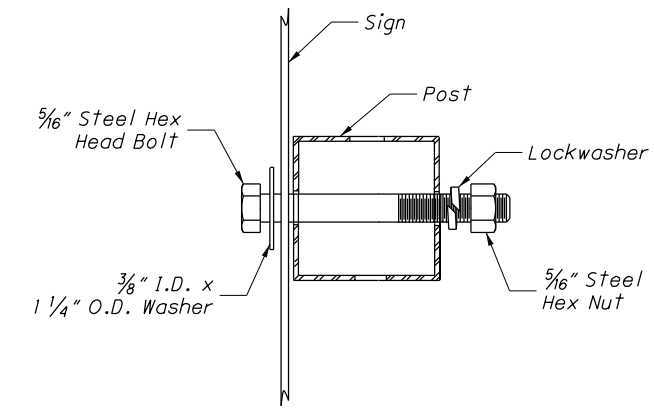
POST NO.	TYPE	LB/FT	POST DIMENSIONS (INCHES)			ANCHOR DIMENSIONS			# OF POSTS PERMITTED IN 7' PATH IN EXPOSED LOCATIONS
			A	B	C	A	B	C	
1	F	1.12	0.875	2.063	0.813				
2	P	2.00	1.469	3.063	1.281				2
	F	2.00	1.516	3.125	1.250				2
	S		1.750	1.750	0.083	2.000	2.000	0.105	2
3	P	3.00	1.875	3.500	1.313				2
	F	3.00	1.750	3.500	1.625				2
	S		2.00	2.00	0.083	2.250	2.250	0.105	2
4	P	4.00	TWO NO.2 POST						0
	F	4.00	TWO NO.2 POST						0
	S		2.500	2.500	0.105	3.000	3.000	0.188	1
6	P	6.00	TWO NO.3 POST						0
	F	6.00	TWO NO.3 POST						0



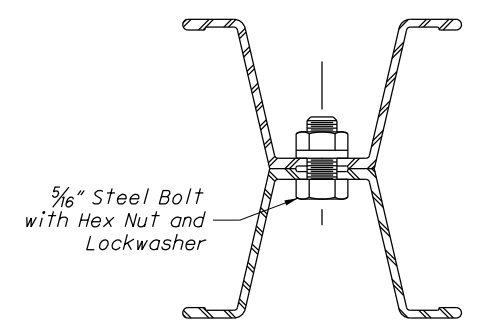
BEARING PLATE



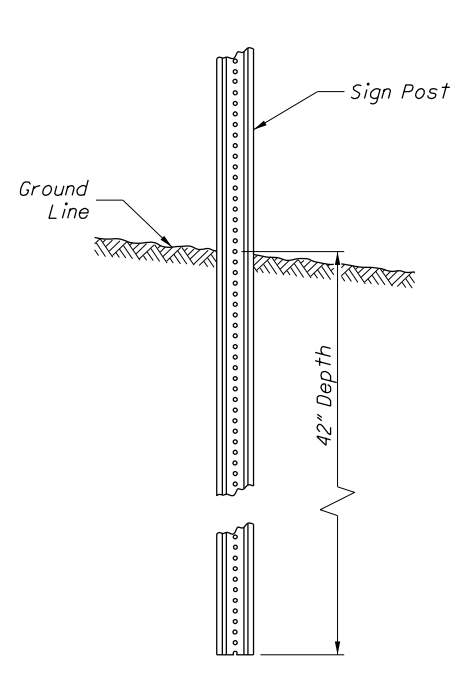
U-CHANNEL SIGN ATTACHMENT DETAIL



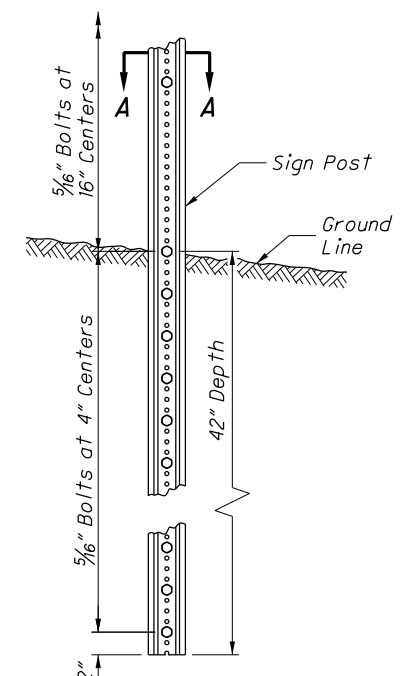
SQUARE POST SIGN ATTACHMENT DETAIL



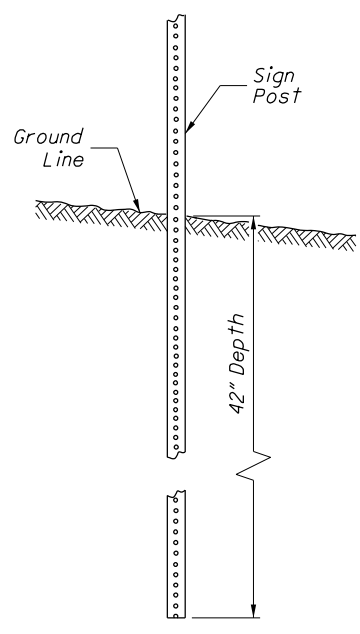
SECTION A-A



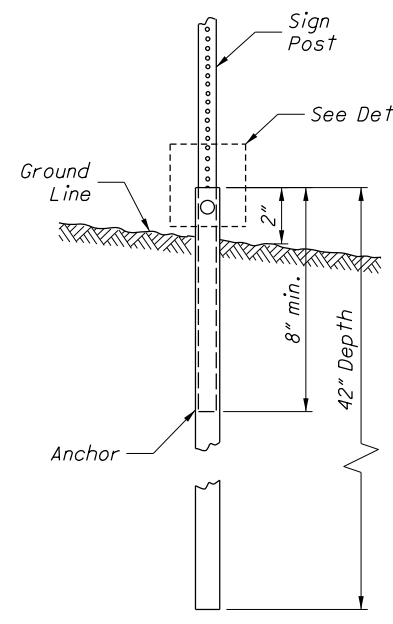
TYPICAL NO. 1, NO. 2 AND NO. 3 U-CHANNEL DRIVEN INSTALLATION



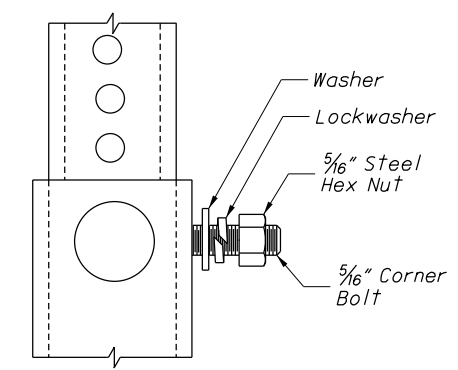
TYPICAL NO. 4 AND NO. 6 U-CHANNEL DRIVEN INSTALLATION



TYPICAL SQUARE POST DRIVEN INSTALLATION



TYPICAL SQUARE POST ANCHOR BASE INSTALLATION



DETAIL "A"

NOTES:

1. Install No. 4 type P and F posts, and No. 6 type P and F posts, only in protected locations (e.g., behind guardrail). Install two post installations of number 4 type S posts within 7 foot path only in protected locations.
2. Use of anchor base with No. 2 and No. 3 square post is optional. Use of anchor base with No. 4 square post is required.
3. Square post may have die-cut knockouts or open holes.

THIS DRAWING REPLACES TC-41.20 DATED 01-19-2001.

SD NUMBER
TC-41.20

STANDARD ROADWAY CONSTRUCTION DRAWING
YIELDING POST

OFFICE OF ROADWAY ENGINEERING

STATE ENGINEER
H. Suter

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR
James Young

REVISION DATE
10-18-2013

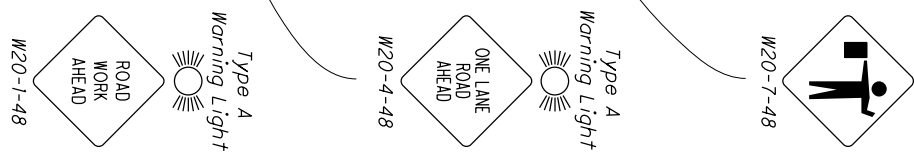
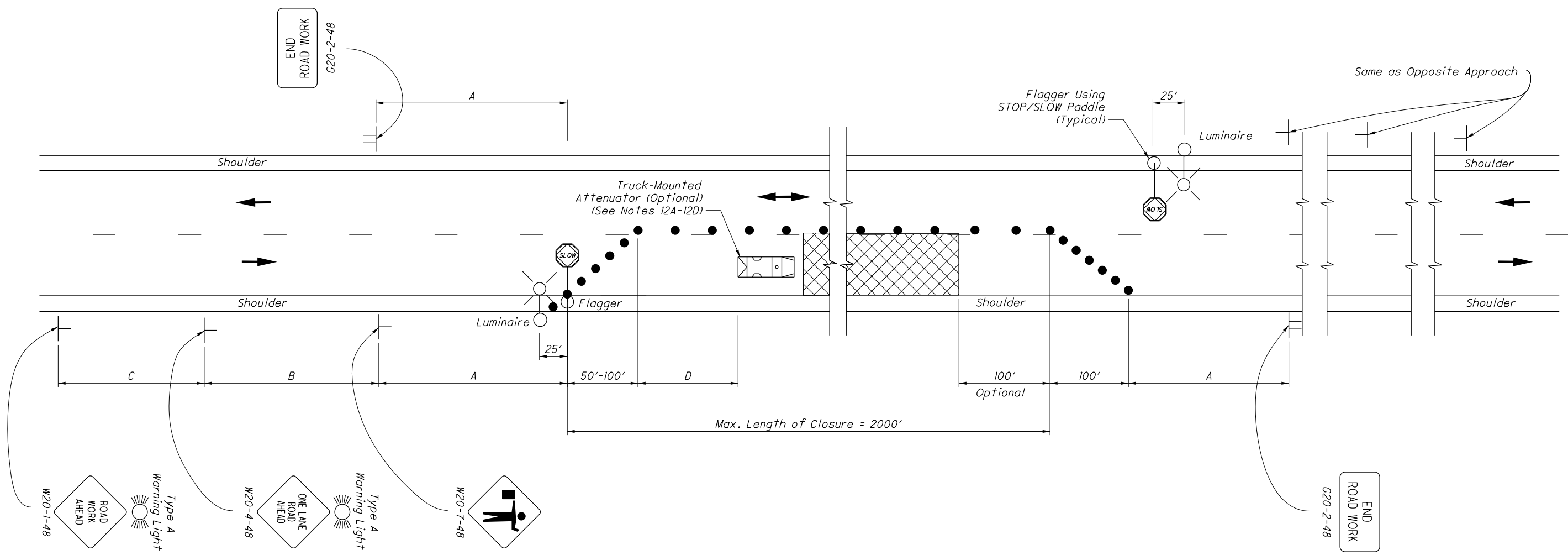


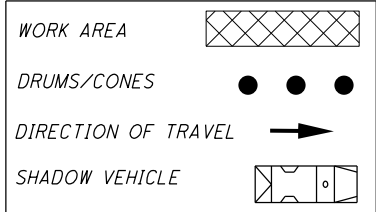
TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
Two-Lane (< 40 MPH)	100	100	100
Two-Lane (45-50 MPH)	350	350	350
Two-Lane (55-60 MPH)	500	500	500

TABLE II

SPEED LIMIT (MPH)	BUFFER (D) (FT) MIN.
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570

LEGEND



THIS DRAWING REPLACES MT-97.10 DATED 07-19-2013.

STANDARD ROADWAY CONSTRUCTION DRAWING

FLAGGER CLOSING 1 LANE OF A 2-LANE HIGHWAY - STATIONARY OPERATION

SCD NUMBER
MT-97.10

OFFICE OF ROADWAY ENGINEERING

STATUS
ENGINEER
Soisson

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR
Reynaldo Stargell

REVISION DATE
07-18-2014

NOTES:

FLAGGERS

- 1. *Flaggers, one for each direction, shall be used to control traffic continuously for as long as a one lane operation is in effect. The flaggers shall be able to communicate with each other at all times.*

LENGTH OF CLOSURE

- 2. *Several small work areas close together should be combined into one work zone. However, the closure shall not be more than 2000' long unless approved by the Engineer. The minimum length between closures shall be 2000'. Only one side of the road shall be closed in any one work zone.*

SIGN LOCATION AND SPACING

- 3A. *The minimum spacing between work zone signs is shown in Table 1. Maximum spacing should not be greater than 1.5 times the distances shown in Table 1.*
- 3B. *Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200' for speeds of 45 mph or less and a minimum of 400' for speeds of 50 mph or greater.*
- 3C. *The location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.*

ADJUSTMENTS FOR SIGHT DISTANCE

- 4. *The location of the flagger station and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.*

BASIC SIGNING

- 5A. *ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.*
- 5B. *END ROAD WORK (G20-2) signs are only required for lane closures of more than 1 day. If is intended that these signs be placed on the mainline, on all exit ramps, and on roadways exiting the work limits.*
- 5C. *Overlapping of signing for adjacent projects should be avoided where the messages could be confusing. Any ROAD WORK AHEAD (W20-1) or END ROAD WORK (G20-2) sign which falls within the limits of another traffic control zone shall be omitted or covered during the period when both projects are active.*

SIGNING DETAILS

- 6A. *The Advisory Speed (W13-1P) plaque shall be used when specified in the plan.*
- 6B. *36" warning signs may be used when the approach speed limit is 40 mph or less.*

FLASHING WARNING LIGHTS

- 7. *Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs and on the LANE CLOSED AHEAD (W20-5) signs are required whenever a night lane closure is necessary.*

DRUMS / CONES

- 8A. *Drum spacing shall be as follows:*
 - a) *Spacing along the closure shall be 40' center-to-center.*
 - b) *Spacing along the approach taper shall be 10' center-to-center.*
- 8B. *Cones may be substituted for drums as follows:*
 - a) *Cones used for daytime traffic control shall have a minimum height of 28".*
 - b) *Cones used for nighttime traffic control shall have a minimum height of 42".*
 - c) *Use of cones at night shall be prohibited along tapers.*
- 8C. *Provisions shall be made to stabilize the cones and drums to prevent them from blowing over.*
- 8D. *A minimum of two drums shall be used to close the paved shoulder.*

(RESERVED FOR FUTURE USE)

- 9A. *(intentionally blank)*

AREA ILLUMINATION

- 10A. *Adequate area illumination of each flagger station shall be provided at night. Use of portable flood lighting is acceptable. Luminaires shall be located adjacent to each flagger station.*
- 10B. *To ensure the adequacy of floodlight placement and the elimination of glare, the Contractor and the Engineer shall drive through the worksite each night when the lighting is in place. Light placement and shielding shall be adjusted to the satisfaction of the Engineer.*

INTERSECTION / DRIVEWAY ACCESS

- 11. *Within the length of closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The Contractor shall:*
 - a) *Place across the closed lane, either three drums (cones) or barricades, and/or*
 - b) *Provide an additional flagger at every public street intersection and major driveway.*
- Drums (cones) placed across the closed lane shall be located 25' beyond the projected pavement edges of the driveway or cross highway, as shown in Standard Construction Drawings (SCDs MT-97.11 or MT-97.12. For barricades, see SCD MT-101.60.*
- Existing STOP signs shall be relocated as necessary to assure proper location for the traffic conditions.*
- The method of control shall be subject to the approval of the Engineer.*

SHADOW VEHICLE

- 12A. *The shadow vehicle shall be in place and unoccupied whenever workers are in the work area. This vehicle shall be removed from the pavement whenever workers are not in the work area.*
- 12B. *The shadow vehicle shall be equipped with a high-intensity yellow rotating, flashing, oscillating, or strobe light(s).*
- 12C. *The vehicle shall be equipped with a truck-mounted attenuator when called for in the plans.*
- 12D. *Other protective devices may be used in lieu of the shadow vehicle shown when approved by the Engineer.*

CHIP SEAL OPERATIONS

- 13. *For chip seal operations, additional signing shall be incorporated in the advanced warning area.*
 - a) *The LOOSE GRAVEL (W8-7) and FRESH TAR (W21-2) signs shall both be used in advance of the chip seal operation.*
 - b) *Repeat the LOOSE GRAVEL sign with a 35 mph Advisory Speed (W13-1) plaque every half mile per CMS 422.09.*
 - c) *The FRESH TAR and the LOOSE GRAVEL signs shall both be used for signing of side roads intersecting the work area.*

THIS DRAWING REPLACES MT-97.10 DATED 07-19-2013.

SCD NUMBER

MT - 97.10

STANDARD ROADWAY CONSTRUCTION DRAWING

FLAGGER CLOSING 1 LANE OF A 2-LANE HIGHWAY - STATIONARY OPERATION

OFFICE OF ROADWAY ENGINEERING

STATE ENGINEER

Soisson

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR

Reynaldo Stargell

REVISION DATE

07-18-2014

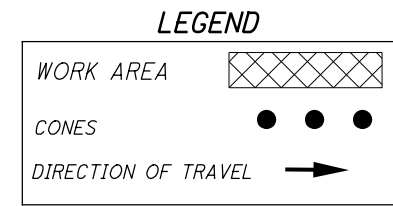
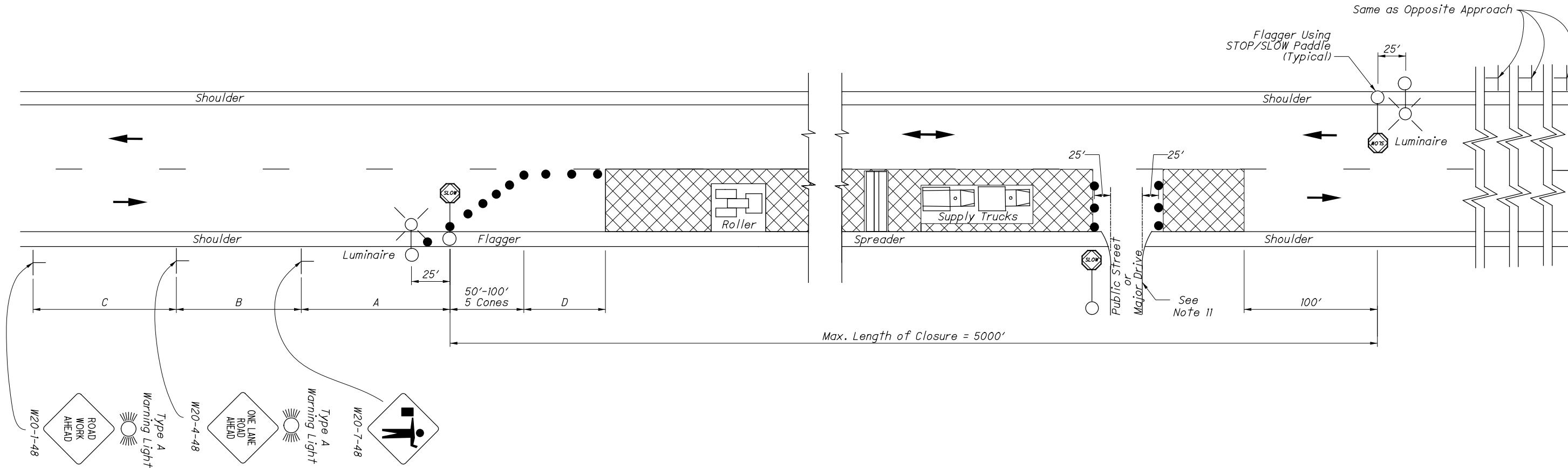


TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
Two Lane ≤ 40 MPH	100	100	100
Two Lane 45-50 MPH	350	350	350
Two Lane 55-60 MPH	500	500	500

TABLE II

SPEED LIMIT (MPH)	BUFFER (D) (FT) MIN.
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570



NOTES:

FLAGGERS

- 1. *Flaggers, one for each direction, shall be used to control traffic continuously for as long as a one lane operation is in effect. The flaggers shall be able to communicate with each other at all times.*

LENGTH OF CLOSURE

- 2. *It is required that the length of closure be kept to a minimum at all times, as directed by the Engineer, with a maximum allowable length of 5000'.*

When the ambient temperature exceeds 80 degrees Fahrenheit the Engineer may increase the maximum allowable length of closure to allow for sufficient cooling of new pavement.

The Engineer may shorten the maximum allowable length of closure to relieve excessive traffic backups or to improve traffic operation.

SIGN LOCATION AND SPACING

- 3A. *The minimum spacing between work zone signs is shown in Table I. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.*
- 3B. *Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200' for speeds of 45 mph or less and a minimum of 400' for speeds of 50 mph or greater.*
- 3C. *The location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.*

ADJUSTMENTS FOR SIGHT DISTANCE

- 4. *The location of the flagger station and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.*

BASIC SIGNING

- 5A. *ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.*
- 5B. *END ROAD WORK (G20-2) signs are only required for lane closures of more than 1 day. If is intended that these signs be placed on the mainline, on all exit ramps, and on roadways exiting the work limits.*
- 5C. *Overlapping of signing for adjacent projects should be avoided where the messages could be confusing. Any ROAD WORK AHEAD or END ROAD WORK sign which falls within the limits of another traffic control zone shall be omitted or covered during the period when both projects are active.*

SIGNING DETAILS

- 6A. *The Advisory Speed (W13-1P) plaque shall be used when specified in the plan.*
- 6B. *36" warning signs may be used when the approach speed limit is 40 mph or less.*

FLASHING WARNING LIGHTS

- 7. *Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs and on the LANE CLOSED AHEAD (W20-5) signs are required whenever a night lane closure is necessary.*

CONES

- 8A. *Cone spacing shall be as follows:*
 - a) *Spacing along the buffer shall be 40' center-to-center.*
 - b) *Spacing along the approach taper shall be 10' center-to-center.*
- 8B. *Cone sizes shall be as follows:*
 - a) *Cones used for daytime traffic control shall have a minimum height of 28".*
 - b) *Cones used for nighttime traffic control shall have a minimum height of 42".*
- 8C. *Provisions shall be made to stabilize the cones to prevent them from blowing over.*
- 8D. *A minimum of two cones shall be used to close the paved shoulder.*

(RESERVED FOR FUTURE USE)

- 9A. *(intentionally blank)*

AREA ILLUMINATION

- 10A. *Adequate area illumination of each flagger station shall be provided at night. Use of portable flood lighting is acceptable.*
- 10B. *To ensure the adequacy of floodlight placement and the elimination of glare, the Contractor and the Engineer shall drive through the worksite each night when the lighting is in place. Light placement and shielding shall be adjusted to the satisfaction of the Engineer.*

INTERSECTION / DRIVEWAY ACCESS

- 11. *Within the length of closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The Contractor shall:*
 - a) *Place across the closed lane, either three cones or barricades, and/or*
 - b) *Provide an additional flagger at every public street intersection and major driveway.*
- Cones placed across the closed lane shall be located 25' beyond the projected pavement edges of the driveway or cross highway. For barricades, see Standard Construction Drawing MT-101.60.*

Existing STOP signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

CHIP SEAL OPERATION

- 12. *For chip seal operations, additional signing shall be incorporated in accordance with CMS 422.09.*

THIS DRAWING REPLACES MT-97.11 DATED 07-18-2014.

STANDARD ROADWAY CONSTRUCTION DRAWING

FLAGGER CLOSING 1 LANE OF A 2-LANE HIGHWAY FOR PAVING OPERATIONS (NON-FED ONLY)

OFFICE OF ROADWAY ENGINEERING

STATE ENGINEER
Soisson

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR
David L. Holstein

REVISION DATE
01-20-2017

SD NUMBER
MT-97.11

TEMPORARY SIGN SUPPORT REQUIREMENTS

PLACEMENT OF SIGNS

- 1A. Lateral placement to nearest edge of signs shall be as follows:
- a) On the right side of the road for approaching traffic (except for dual-mounted signs and signs designated in the plans for left-side mounting).
 - b) Curbed roadway - minimum 2' behind face of curb.
 - c) Uncurbed roadway - 12' from edge of traffic lane or 6' from edge of paved or useable shoulder, whichever is greater.
 - d) Behind guardrail or portable barrier - See table

SIGN OFFSET

Barrier Type Support Class	BEHIND FACE OF GUARDRAIL	BEHIND FACE OF PORTABLE BARRIER
Class A Supports	2' Preferred 1' Minimum	1' Minimum*
Class B Supports	6.5' Minimum	1' Minimum*

*unless barrier top mounting is required by the plans

- 1B. Vertical clearance of signs, as measured from near side roadway edge, shall be as follows:
- a) Rural - 5' when parked cars, construction equipment, etc. will not obscure sign visibility.
 - b) Rural areas with parked cars or construction equipment - 7'
 - c) Urban - 7'
 - d) Care shall be taken to assure that signs will not be obscured by construction equipment, trees, weeds or other obstacles. Brush, weeds or grass within the right-of-way shall be trimmed as necessary.
 - e) For signing which will remain for three days or less, minimum vertical clearance shall be 1' from the roadway to bottom of sign.

CLASSES OF SUPPORTS

- 2A. The Contractor shall choose sign supports of adequate strength and with adequate foundations and anchorage to support the sign sizes erected. Sign supports which fail under typical wind load conditions shall be immediately modified or replaced with a support of adequate strength.
- 2B. All temporary sign supports shall be of the following types:

CLASS A:

Class A supports shall include the following:

- a) All No. 2 and No. 3 posts when installed singly or in pairs (side-by-side) according to the details of Standard Construction Drawings (SCDs) TC-41.10 and TC-41.20.
- b) Wood posts as shown in Solid Wood Posts detail.
- c) All breakaway connection beam supports, when installed according to the proper details shown on SCD TC-41.10 with a minimum clear distance between supports of 7' for supports larger than 6 x 9.
- d) Any breakaway post or post and connection which are certified as per CMS 614.03.
- e) Portable supports.

Use of Class A supports shall be required at unprotected locations on ODOT's roadway system. They may also be used on other roadway systems.

CLASS B:

Class B supports shall include the following:

- a) All beam type supports without breakaway connections.
- b) Supports similar to but larger than permitted for Class A.

Class B supports shall be used only at the following locations:

- a) Within the clear zone where protected by guardrail or concrete barrier or where positively protected from traffic such as on retaining walls.
- b) Outside the clear zone.

- 2C. All Class A and B supports shall be NCHRP 350 compliant.

SUPPORTS AND SIGNS

- 3A. Supports for signs which will remain in place more than three days should be fixed rather than portable except in situations where the sign must rest on permanent pavement or other surface which would be damaged by insertion of post type supports.
- 3B. Portable signing, including portable supports, ballasting of the supports, and signs shall be NCHRP 350 compliant.
- 3C. Ballasting of portable supports shall be in accordance with NCHRP 350 testing of the subject support.

THIS DRAWING REPLACES MT-105.10 DATED 07-20-2012.

SCD NUMBER

MT -105.10

STANDARD ROADWAY CONSTRUCTION DRAWING

TEMPORARY SIGN SUPPORT

**OFFICE OF
ROADWAY
ENGINEERING**

STATS
ENGINEER

Stargell

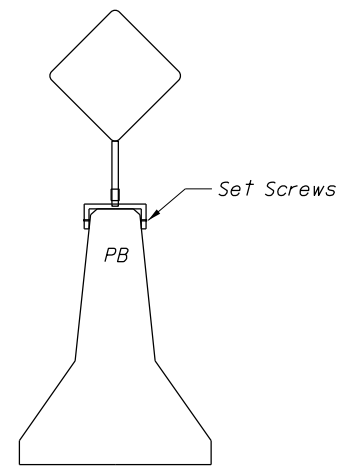
STATE OF OHIO DEPARTMENT OF
TRANSPORTATION ADMINISTRATOR

Michael Blaine

REVISION DATE

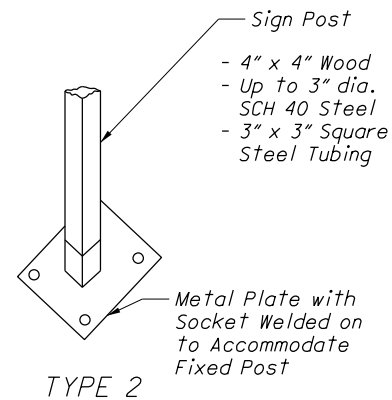
07-19-2013

CLASS A SUPPORTS FIXED



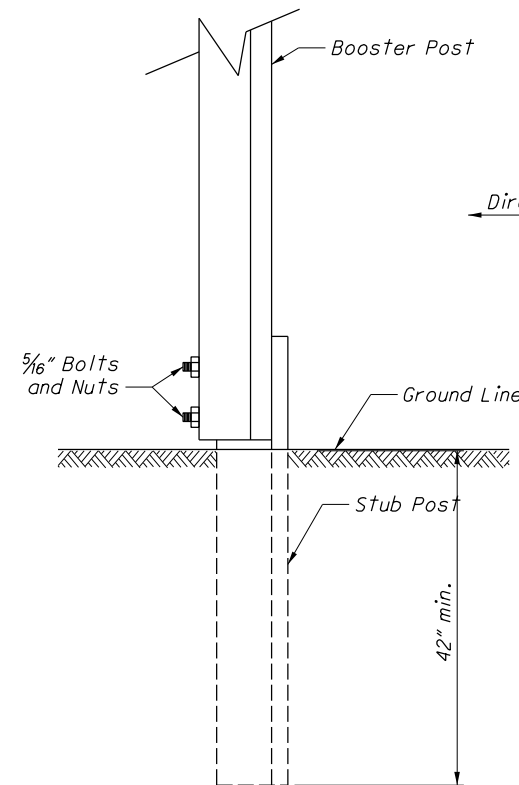
TYPE 1

Fasten to Top of PB
with Expansion Bolts, etc.



TYPE 2

CLASS A SUPPORTS STUBBING STANDARD



NOTES:

1. For use with No. 2 or No. 3 posts.
2. Booster post shall be the same or 1 lb/ft less than stub post.
3. When the booster post is smaller than the stub post, the booster post shall be mounted in front of the stub post.
4. When the booster post is the same size as the stub post, the booster post shall be mounted behind the stub post.
5. Bolts and nuts and other fasteners shall be steel or aluminum.
6. A minimum of two bolts and nuts or other fasteners shall be used per post assembly.
7. With steel bolts, the minimum center-to-center spacing between bolts shall be 4".
8. Stub height should be limited to 4" above the ground when using the aluminum bolts for the connection.

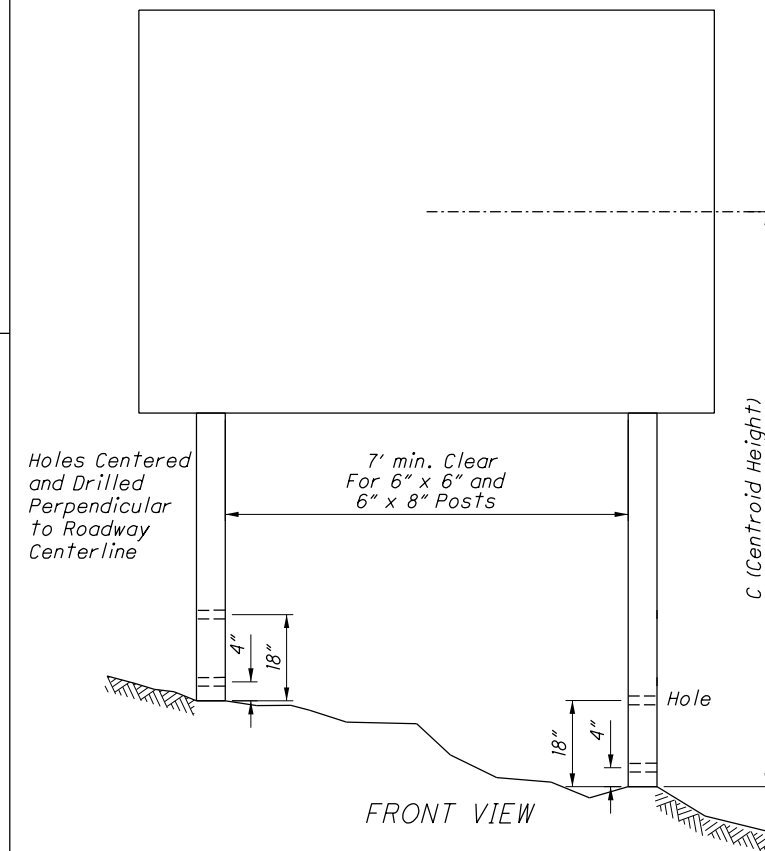
SOLID WOOD POSTS



TOP VIEW

When flat sheet signing is provided, bolt the flat sheet directly to the wood posts. Do not use U-Channels.

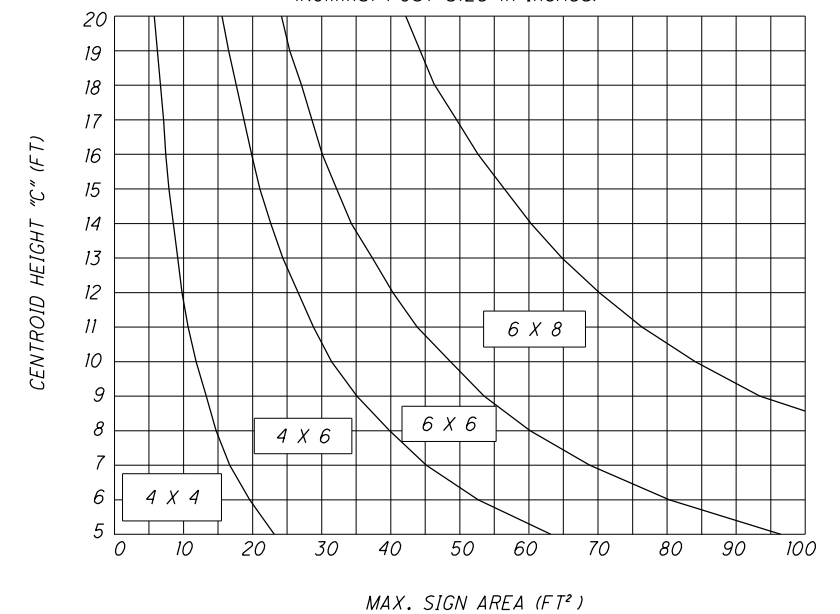
NORMAL POST SIZE (IN)	HOLE DIAMETER (IN)	NO. OF POSTS PERMITTED IN 7' PATH IN EXPOSED LOCATIONS	MINIMUM RECOMMENDED EMBEDMENT DEPTH (FT)
4 X 4	NONE	2	3.5
4 X 6	1 1/2	2	4
6 X 6	2	1	4.5
6 X 8	3	1	5

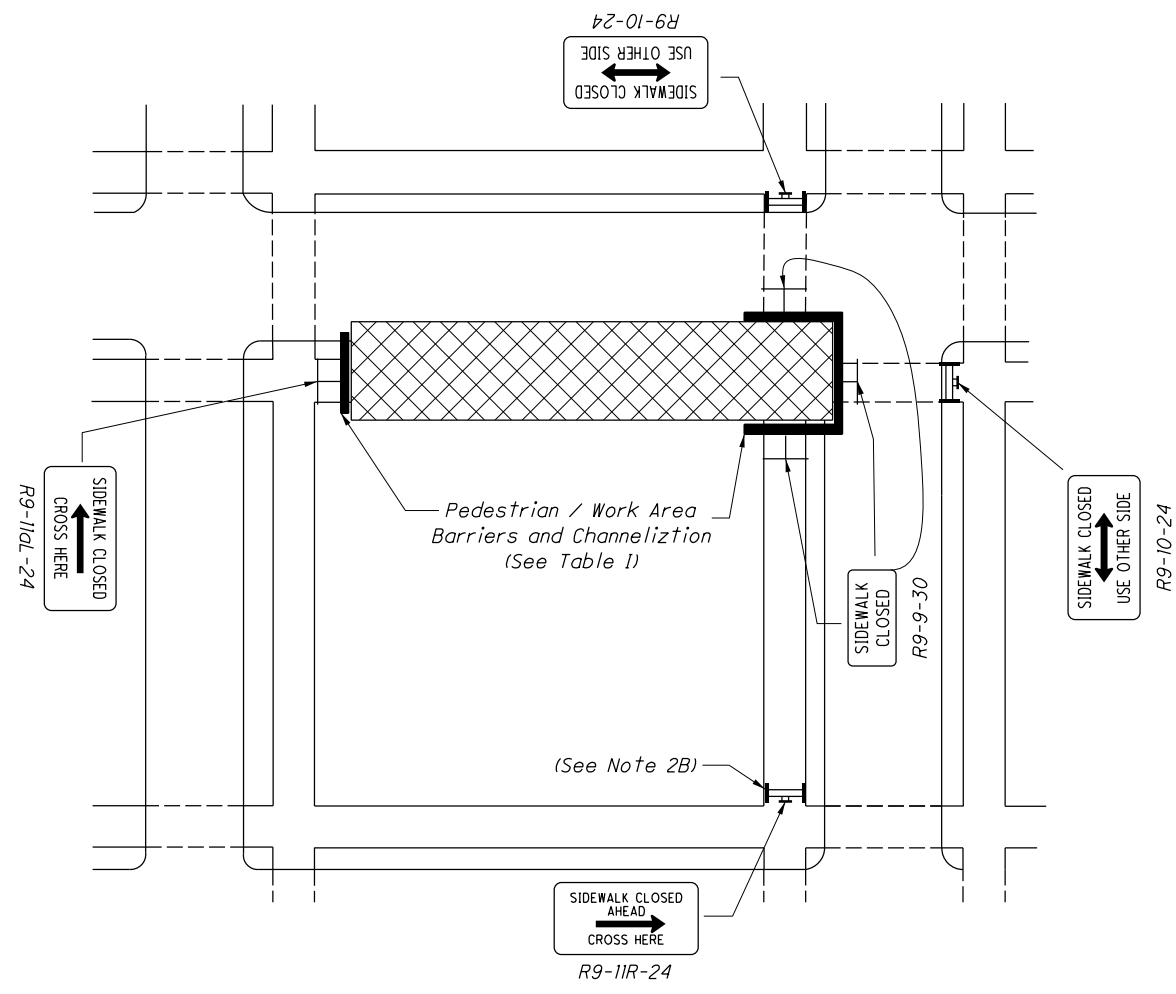


FRONT VIEW

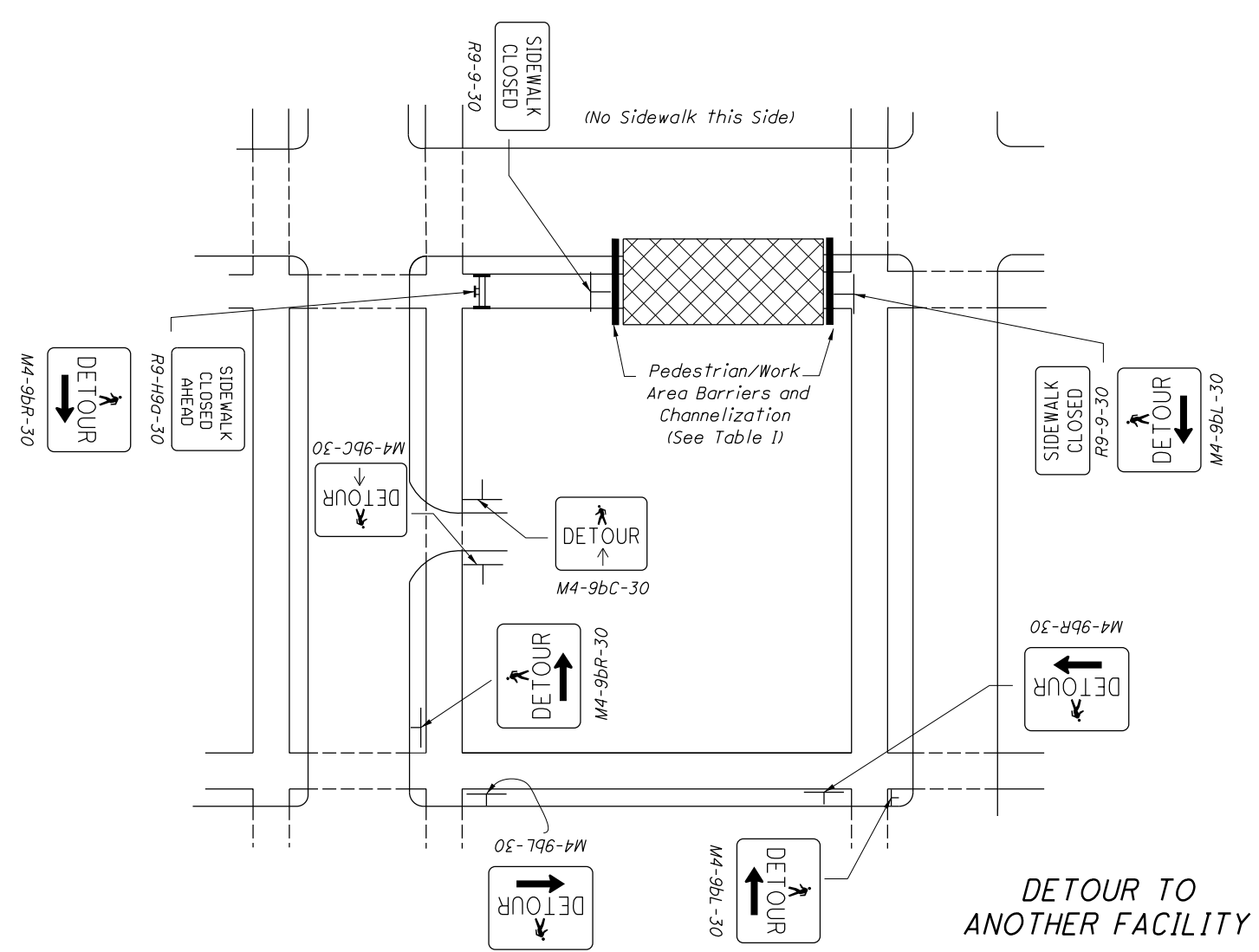
DESIGN CHART FOR WOOD POSTS TWO-POST INSTALLATIONS

(Nominal Post Size in Inches)

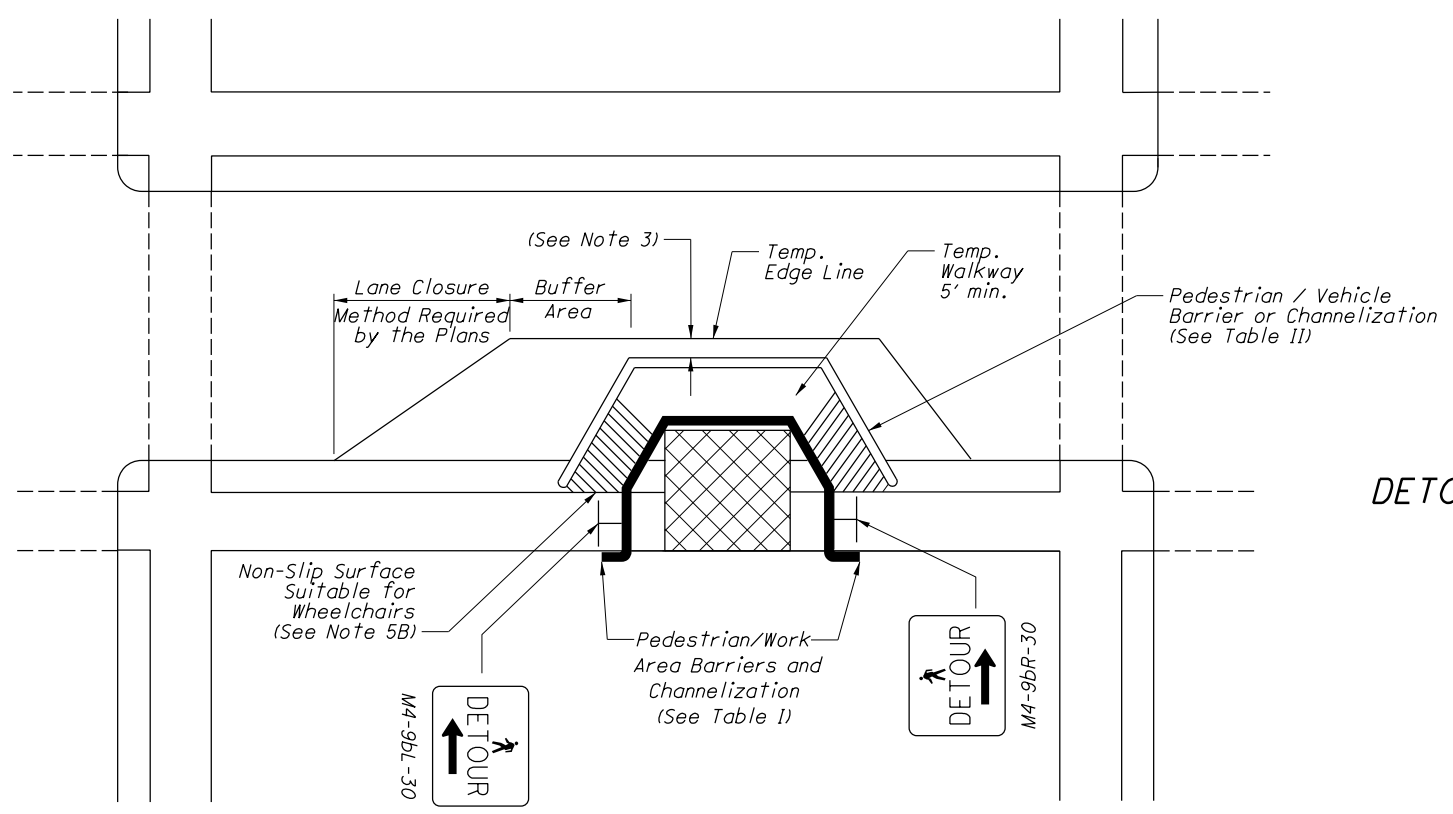




DETOUR TO OTHER SIDE OF STREET





DETOUR TO ANOTHER FACILITY



DETOUR TO TEMPORARY WALKWAY ("RUNAROUND") ON ROADWAY

LEGEND

WORK AREA 

TYPE I BARRICADE WITH SIGN 

THIS DRAWING REPLACES MT-110.10 DATED 07-20-2012.

SD NUMBER
MT-110.10

STANDARD ROADWAY CONSTRUCTION DRAWING
PEDESTRIAN DETOUR METHODS

OFFICE OF ROADWAY ENGINEERING

STDS. ENGINEER
Stargell

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR
Michael Blaine

REVISION DATE
07-19-2013

NOTES:

GENERAL

- 1A. This drawing presents traffic controls only for pedestrian traffic. Vehicular traffic control shall be provided as required.
- 1B. The purpose of the traffic control devices provided herein is to divert and guide pedestrians whose path would otherwise enter the work area. The Contractor must take additional precautions as appropriate to protect other pedestrians or residents (including children) from exposure to hazards resulting from construction operations.

SIGNS AND BARRICADES

- 2A. All signs and barricades shall be placed so that they do not cause a hazard for pedestrians. All signs, not on barricades or channelizing devices, near or over active sidewalks shall have a minimum 7' vertical clearance. Signs mounted on barricades or channelizing devices shall have a minimum 1' clearance above the sidewalk.
- 2B. Advance signing for sidewalk closure shall be mounted on Type I Barricade, placed such that they will not block more than one-half the sidewalk.

PAVEMENT MARKING

- 3. Maintain 2' minimum when possible, between the work zone edge line and the barrier or channelizing device separating the pedestrian path from the vehicle path.

STAGED WORK

- 4. For repair or reconstruction work involving sidewalks on both sides of the street, the work shall be staged so that one side is rebuilt before the other is disrupted.

TEMPORARY WALKWAYS

- 5A. Pedestrian walkways constructed by the Contractor shall be kept free of any obstructions or hazards including holes, debris and mud. Other walkways damaged or dirtied by the Contractor shall be immediately repaired or cleaned.
- 5B. For construction of temporary walkway the maximum grade shall be 5 percent unless specified otherwise in the plans. The maximum cross slope shall be 2 percent.

LIGHTING AND DELINEATION

- 6A. At night, in otherwise unlighted areas, pedestrian-channelizing devices and barricades and pedestrian detour signs shall be provided with lighting as follows:
 - a) Illumination shall provide a minimum of 1.2 foot-candles on temporary walkways.
 - b) Illumination shall be controlled by photocells.
 - c) Illumination fixtures may consist of floodlights or other protected fixtures mounted at least 10' above ground.
 - d) Illumination supports may be standard highway lighting poles, 4" x 4" wood posts or other supports approved by the Engineer.
- 6B. For barricades and channelizing devices located between the pedestrian way and the vehicle travel lane in unlighted areas, the devices shall be delineated or lighted at night as follows:
 - a) Delineation of the portable barrier (PB) located between the vehicle lane and the pedestrian path shall be by barrier reflectors on the vehicle side of the PB and by object markers as per Standard Construction Drawing (SCD) MT-101.70.

b) Channelizing devices other than PB shall be provided with Type C steady burning lights on the vehicle side of the channelizer.

CHANNELIZATION REQUIREMENTS

- 7A. All channelization devices used to separate pedestrians from the work area or from the vehicular lane shall be as determined from the adjacent tables.
- 7B. Wood railing shall be a min. of a 2" x 4" rail at 32" above ground. It shall be secured to 2" x 4" posts at not more than 6' spacing with secure attachment hardware. It shall be installed and braced to be essentially rigid and able to support the following loads:
 - a) A horizontal transverse load of 100 pounds at each post top.
 - b) A vertical load of 250 pounds at midpoint between each post.
- 7C. Wood snow fence shall be nominally 42" high, securely supported by wood or steel posts at 6' maximum spacing. Plastic/nylon construction fence shall be bright orange. It shall be securely fastened to wood or metal posts at not more than 6' spacing. It shall be nominally 42" high and the top edge shall not sag below 30" (12" max. sag). Either of the fence sections with extensive broken slots or holes greater than 12" x 12" shall be repaired or replaced.
- 7D. Chain link fence, Type CLT shall conform to CMS 607 and appropriate details on Roadway Standard Construction Drawings F-1.1, F-3.1 and F-3.2, except that materials need not be new nor shall certification and tests be required.
- 7E. Plywood walls shall be a minimum of 5/8" exterior plywood, supported by a 2" x 4" or heavier framing securely anchored and buttressed to resist wind load and/or persons. They shall be designed for a minimum wind loading of 30 pounds per square foot (or larger if local codes require). Height of the wall shall be not less than 7' above the walkway and if within range of thrown objects, shall be of sufficient height to screen pedestrians and passing cars.
- 7F. When PB is provided, it shall be 32" PB as per CMS 622. Delineation of PB shall be as per SCD MT-101.70.
- 7G. Barrier located along a "runaround" within the roadway pavement shall meet the following requirements:
 - a) Be a minimum of 36" in height and continuous with the ground surface.
 - b) Extend along the entire length of the runaround.
 - c) Have no breaks or gaps along the full length of the barrier.
 - d) Have a solid, continuous bottom rail between 4" and 12" in height.
 - e) Be of high contrast color and material.
 - f) Provide temporary ramps and boardwalks as required to ensure a smooth and continuous surface that complies with Americans with Disabilities Act Accessibility Guidelines.

BARRIER AND CHANNELIZING DEVICE SELECTION TABLES

TABLE I - CHANNELIZATION TYPE WHEN USED BETWEEN THE PEDESTRIAN WALKWAY AND THE WORK AREA

DISTANCE FROM WORK ACTIVITY TO CHANNELIZATION	WORK CHARACTERISTICS *					
	< 2 FT DROPOFF	2 - 5 FT DROPOFF	> 5 FT DROPOFF	DIRT/MUD SPLASHED	EQUIPMENT WHICH MOVES OR HAS EXPOSED MOVING PARTS	OPERATION WHICH THROWS STONE/ETC.
< 5 ft.	A-E	B-E	C-D	D	D-E	D
5 - 10 ft.	A-E	B-E	B-E	D	B-E	D
> 10 - 30 ft.	A-E	A-E	B-E	N/A	A-E	D
> 30 ft.	N/A	A-E	B-E	N/A	A-E	D

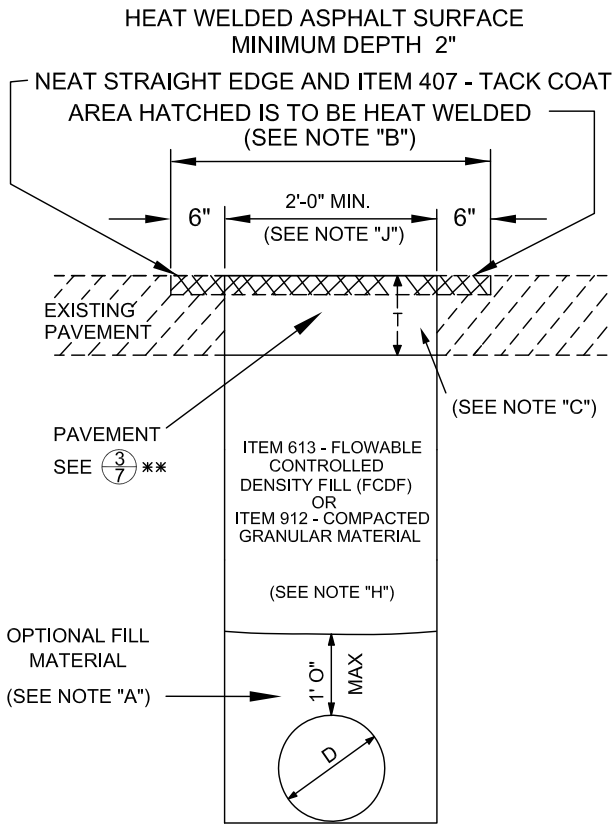
* These requirements shall not apply to paving, grinding or other similar operations.

TABLE II - CHANNELIZATION TYPE WHEN USED BETWEEN THE PEDESTRIAN WALKWAY AND THE VEHICULAR LANE

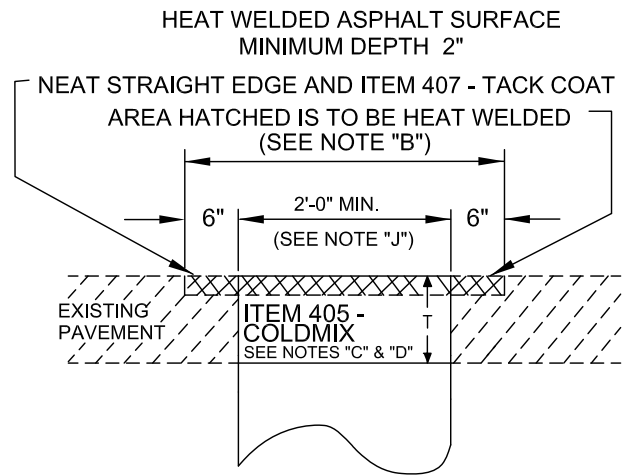
DISTANCE FROM EDGE OF TRAFFIC LANE TO FACE OF CHANNELIZATION	SPEED LIMIT (MPH)		
	25	30 - 40	> 40
0 - 2 ft.	E	E	E
> 2-6 ft.	B-E	E	E
> 6 ft.	B-E	B-E	E

SELECTION LIST

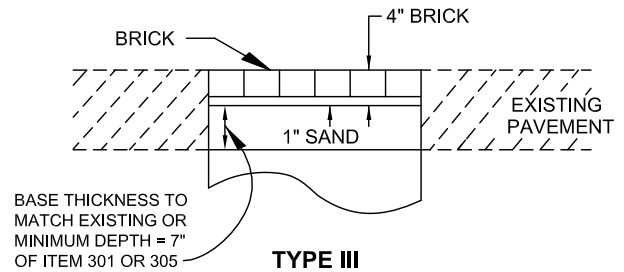
- A. Wood Railing
- B. Snow Fence, Wood or Orange Plastic Construction Fence.
- C. Chain Link Fence, Type CLT
- D. Plywood Wall
- E. Portable Barrier



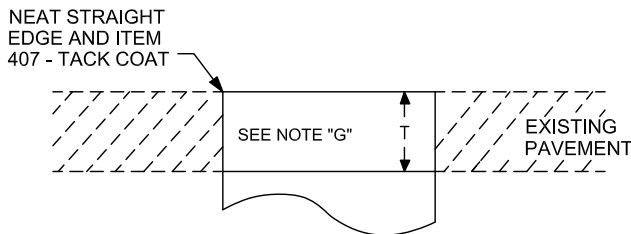
TYPE I
STANDARD FLEXIBLE ASPHALT REPAIR
WITH HEATWELD SURFACE
(SEE NOTE "B")



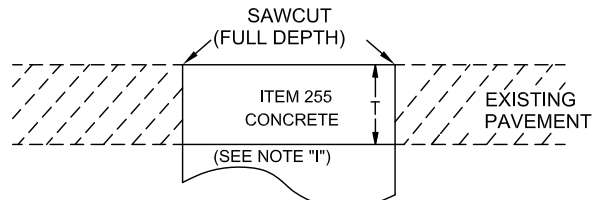
TYPE II
WINTER OPERATIONS FLEXIBLE ASPHALT
REPAIR WITH HEATWELD SURFACE
(SEE NOTE "E")



TYPE III
BRICK STREET REPAIR
(SEE NOTE "F")



TYPE IV
ALLEY REPAIR



TYPE V
CONCRETE STREET REPAIR
OR
CONCRETE BUS PAD

BACKFILL FOR ALL TYPES SHALL MEET THE REQUIREMENTS SHOWN IN TYPE I ABOVE.

T: MATCH EXISTING PAVEMENT THICKNESS, HOWEVER, MINIMUM OF 10" ON ALL STREET CUTS AND 6" ON ALL ALLEYS.

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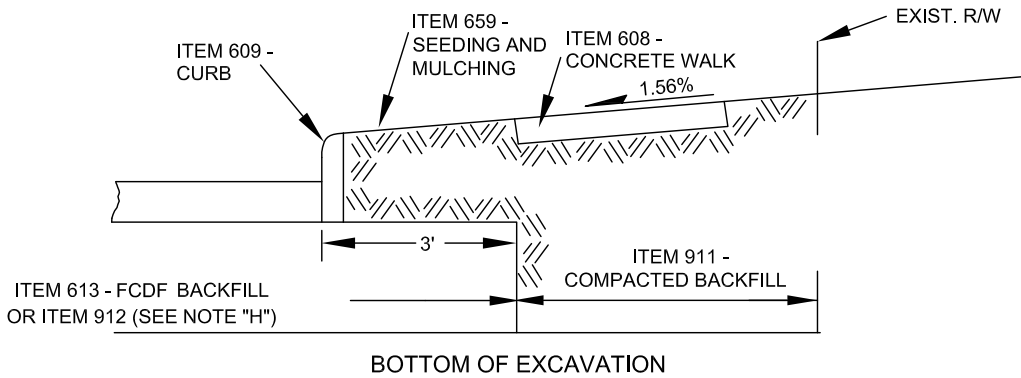
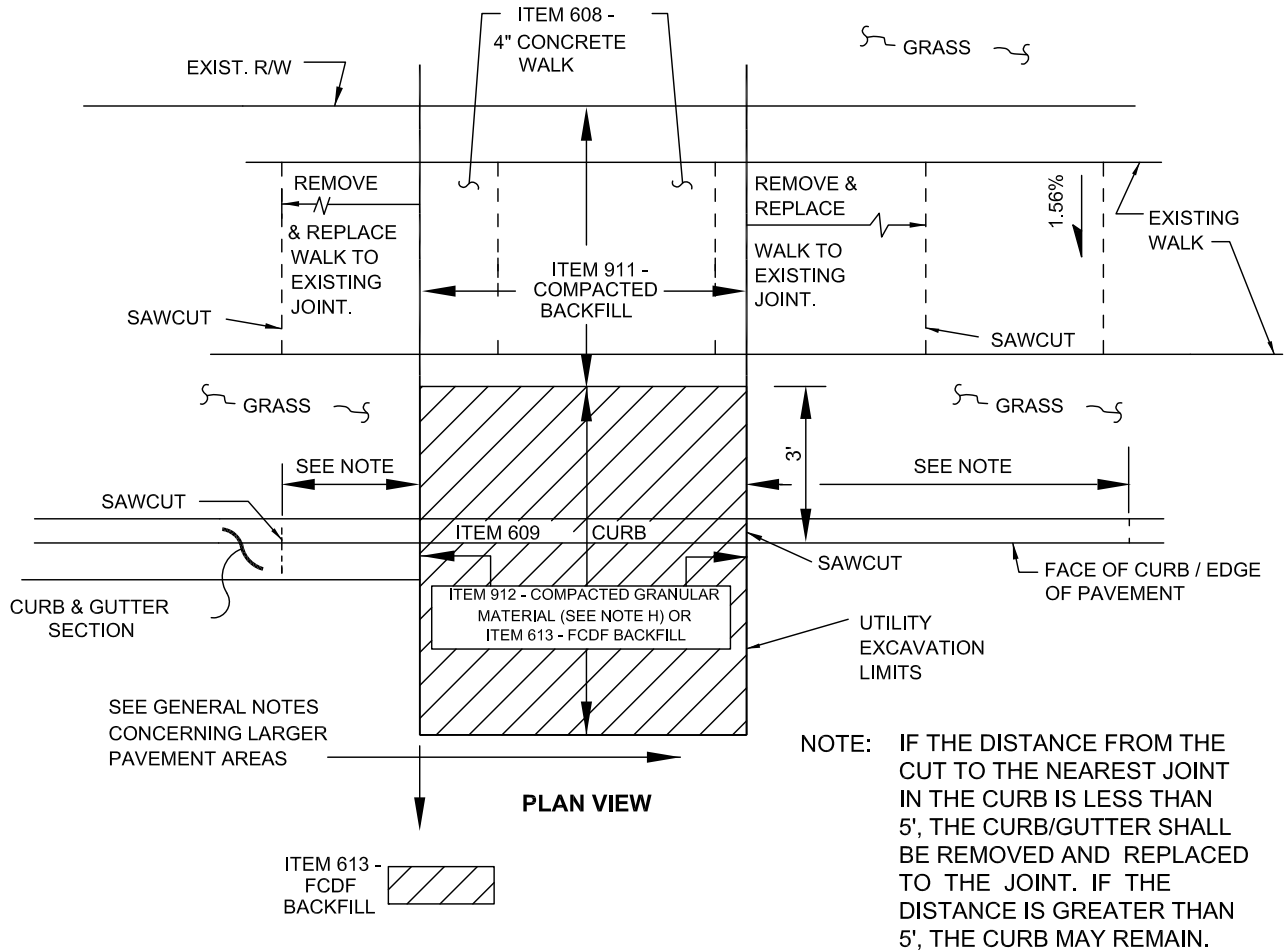
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Hassan Zahran
 CITY ENGINEER

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SIDEWALK AND CURB REPAIR DETAILS



ALL GRASS AREAS SHALL BE SEEDING IN ACCORDANCE WITH ITEM 659 - SEEDING AND MULCHING.

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GENERAL NOTES

EXCAVATION PERMIT REQUIRED: A CITY OF COLUMBUS STREET EXCAVATION PERMIT IS REQUIRED FOR ALL EXCAVATIONS WITHIN THE PUBLIC RIGHT-OF-WAY, AS SET FORTH BY COLUMBUS CITY CODE, CHAPTER 903 AND ISSUED IN ACCORDANCE WITH PROVISIONS IN THE GENERAL RULES AND REGULATIONS OF THE DEPARTMENT OF PUBLIC SERVICE.

SCOPE OF WORK

THIS WORK SHALL CONSIST OF PAVEMENT REMOVAL, NECESSARY EXCAVATION, AND PAVEMENT REPLACEMENT IN ACCORDANCE WITH THE DETAILS SHOWN HEREIN. ALL WORK AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT CITY OF COLUMBUS CONSTRUCTION AND MATERIALS SPECIFICATION (CMSC).

PROCEDURES USED FOR THE PAVEMENT REMOVAL AND REPLACEMENT SHALL NOT CAUSE SPALLING OR CRACKING OF ADJACENT PAVEMENT.

WHEN THE PAVEMENT IS REMOVED AND THE CONTRACTOR IS UNABLE TO COMPLETE THE REQUIRED REPLACEMENT IN TIME FOR IT TO BE OPENED TO TRAFFIC AS INDICATED ON THE PERMIT, THE EXCAVATION SHALL BE FILLED WITH A BITUMINOUS PATCH MATERIAL WITH A DURABLE SURFACE OR PROPERLY PLATED. (AS PER CITY CODE CHAPTER 903 &/OR SHEET 7 OF THIS STANDARD DRAWING) THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN THESE PATCHES WHILE THEY ARE IN SERVICE. THE COST OF PLACING, MAINTAINING, AND REMOVING AND DISPOSING OF THE TEMPORARY PATCHES OR PLATES WILL BE AT THE CONTRACTOR'S EXPENSE.

WHEN ITEM 613 FCDF IS USED AS A BACKFILL, NO PAVEMENT SHALL BE PLACED UNTIL BLEED WATER HAS BEEN EVAPORATED FROM THE FCDF SURFACE OR HAS BEEN DRAINED OR REMOVED FROM THE SURFACE. ITEM 613 FCDF IS NOT PERMITTED AS A TEMPORARY DRIVING SURFACE.

THE BACKFILLING PAVEMENT REPAIR AND/OR HEAT WELDING SHALL BE DONE BY THE CONTRACTOR OR PERMITEE IN ACCORDANCE WITH CITY SPECIFICATIONS. IF DESIRED, ANY OR ALL OF THIS WORK CAN BE PERFORMED BY THE CITY OF COLUMBUS. THE CITY SHALL COLLECT APPROPRIATE FEES AT THE TIME THE PERMIT IS ISSUED FOR SAID WORK.

RESTORATION OF ANY SIDEWALK, CURB, STREET PAVEMENT, ETC., SHALL OCCUR NO LATER THAN 30 DAYS AFTER CONCLUSION OF ANY UTILITY REPAIR OR INSTALLATION ACTIVITY. CONSTRUCTION ACTIVITY COMPLETED DECEMBER THROUGH APRIL SHALL BE RESOLVED NO LATER THAN MAY 31ST. ADDITIONAL PERMITS SHALL NOT BE ISSUED UNTIL THE VIOLATIONS ARE CORRECTED TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC SERVICE. IN ADDITION, EACH VIOLATION MAY BE DEALT WITH IN ACCORDANCE WITH SECTION 903.99 OF THE COLUMBUS CITY CODE.

**** PAVING STANDARDS FOR LARGE TRENCHES OR PAVING AREAS**

THE PAVEMENT REPAIR SECTION SHALL CONFORM TO 3" OF ITEM 448 - ASPHALT CONCRETE ON EITHER 7" OF ITEM 301 - ASPHALT CONCRETE BASE OR ITEM 305 - PORTLAND CEMENT CONCRETE BASE.

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WHEN A TRENCH EXCEEDS 100 FT. IN LENGTH, THE REPAIR SHALL INCLUDE PLANING A FULL LANE WIDTH (OR ANY OTHER LANE WIDTH AS DIRECTED BY THE DEPARTMENT OF PUBLIC SERVICE) TO A DEPTH OF 1½" FOR THE ENTIRE LENGTH OF THE TRENCH. THE PLANED AREA SHALL THEN BE REPAVED WITH A PAVER IN ACCORDANCE WITH CURRENT CITY STANDARD SPECIFICATIONS. ITEM 423 - CRACK SEALING, TYPE 1 SHALL BE APPLIED TO EXPOSED JOINTS ONCE THE PAVING OPERATION HAS BEEN COMPLETED.

WHEN TRENCHING WORK CROSSES LANES, ALL AFFECTED LANES SHALL REQUIRE PLANING AND RESURFACING AS DESCRIBED ABOVE. THIS WORK SHALL INCLUDE ALL OF THE AFFECTED PAVEMENT AREA.

SPECIAL NOTES

NOTE 'A' : WHEN USING FLOWABLE CONTROLLED DENSITY FILL (FCDF), THE OPTIONAL FILL AREA OVER THE CONDUIT MAY BE BACKFILLED WITH SAND, GRANULAR MATERIAL, OR OTHER SUITABLE 912 MATERIAL, FOR A DISTANCE NOT TO EXCEED 1 FT. A PROTECTIVE BARRIER OF VISQUEEN OR SIMILAR MATERIAL IS PERMITTED.

NOTE 'B' : FOR TYPE I AND TYPE II CUT REPAIRS, THE AREA TO BE HEAT WELDED IS TO INCLUDE THE CUT AND EXTEND FOR 6" BEYOND EACH SIDE OF THE CUT FOR A NOMINAL DEPTH OF 2".

NOTE 'C' : FOR TYPE I AND TYPE II PAVEMENT REPAIR, THE ITEM 448 - HOT ASPHALT CONCRETE OR ITEM 405 - COLD MIX SHALL BE PLACED IN LIFTS NOT EXCEEDING 3" AND COMPACTED WITH A COMBINATION VIBRATORY PLATE COMPACTOR, OR A VIBRATORY STEEL WHEELED ROLLER WITH A MINIMUM CERTIFIED FORCE OF 2000 POUNDS. IN ALL CASES THE SURFACE LIFT SHALL BE COMPACTED WITH THE VIBRATORY STEEL WHEELED ROLLER. WHEN PLACING ITEM 405 - COLD MIX FULL DEPTH, MATERIAL TEMPERATURE SHALL BE 70 DEGREES OR ABOVE.

NOTE 'D' : COLD MIX SHALL BE ITEM 405 - COLD MIX OR OTHER COLD MIX APPROVED BY THE CITY OF COLUMBUS. IN LIEU OF COLD MIX, THE CONTRACTOR MAY STOCKPILE ITEM 448 - ASPHALT CONCRETE AND REHEAT IT TO PLACE IN CUT AS PAVEMENT REPAIR. TYPE II PAVEMENT REPLACEMENT SHALL CONSIST OF FULL DEPTH ITEM 405 - COLD MIX FOR SMALL EXCAVATIONS. LARGE EXCAVATIONS SHALL REQUIRE A MINIMUM OF 7" OF FAST SETTING PORTLAND CEMENT AND 2" OF ITEM 405 - COLD MIX.

NOTE 'E' : THE COLD MIX IS TO BE REPLACED WITH ITEM 448 - ASPHALT CONCRETE WHICH IS TO BE HEAT WELDED AS SET FORTH IN NOTE 'B'. THIS WORK SHALL BE PERFORMED AS SOON AS ASPHALT IS AVAILABLE.

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NOTE 'F': REPAIR OF BRICK STREETS

1. BRICKS REMOVED FROM A REPAIR AREA SHALL BE STORED IN A SAFE PLACE BY THE CONTRACTOR FOR REUSE. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPLACING ANY BRICKS THAT ARE STOLEN OR DAMAGED, AT NO ADDITIONAL COST TO THE CITY.
2. IF BRICKS ARE SUPPLIED BY THE CONTRACTOR, THEY MUST FIRST BE APPROVED BY THE CITY BEFORE THEY ARE USED.
3. SAW CUTTING: ALL PARTIAL BRICKS SHALL BE SAWCUT. FURTHER, NO BRICK WILL BE PERMITTED TO BE CUT, FOR REPLACEMENT, TO A LENGTH LESS THAN 1/2 ITS ORIGINAL LENGTH. THIS MAY REQUIRE SAW CUTTING OF ADJACENT UNDISTURBED BRICK(S).
4. THE EXISTING BASE MATERIAL SHALL BE CUT BACK TO AS NEARLY VERTICAL AS POSSIBLE. IF SHEARING OF THE ADJACENT BASE RESULTS, THE CONTRACTOR SHALL REMOVE ADDITIONAL BASE MATERIAL UNTIL A VERTICAL FACE IS ACHIEVED.
5. THE MAXIMUM WIDTH OF A BRICK MORTAR JOINT SHALL BE 1/2". THIS RESTRICTION SHALL ALSO APPLY TO THE JOINT FORMED ADJACENT TO THE PERIMETER OF A REPAIR AREA, WHERE THE ROWS MAY NOT BE PARALLEL TO ONE ANOTHER.
6. MORTARING OF JOINTS: ALL JOINTS SHALL BE MORTARED WITH A 50/50 MIXTURE BY VOLUME OF SAND AND CEMENT SO AS TO PROVIDE A FLUSH FINISH. THIS MAY REQUIRE MORE THAN ONE APPLICATION. FURTHER, MECHANICAL VIBRATION WILL BE REQUIRED FOR CONSOLIDATION OF DRY MORTAR MIX.

NOTE 'G': FOR ALLEY REPAIRS, THE PAVEMENT REPLACEMENT SHALL CONFORM TO THE TYPE AND THICKNESS OF THE EXISTING PAVEMENT. CHIP AND SEAL TYPE ALLEYS SHALL REQUIRE MATCHING THE EXISTING THICKNESS OF PAVEMENT WITH THE APPROPRIATE COMBINATION OF MATERIALS BASED ON THE SIZE OF THE EXCAVATION. THE MINIMUM SHALL CONSIST OF 6" OF ITEM 448 - ASPHALT CONCRETE. FINISHED CONCRETE PAVEMENT IS NOT PERMITTED. MATERIALS USED SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT CMSC.

IF MORE THAN 1/3 OF THE WIDTH OF AN ALLEY IS REMOVED, THE PAVEMENT SHALL BE REPLACED AS PER TYPE 1 AND THEN OVERLAYED OVER THE TOTAL WIDTH OF PAVEMENT AND LENGTH OF TRENCH.

NOTE 'H': ITEM 912 - COMPACTED GRANULAR MATERIAL:

THIS METHOD OF BACKFILL CAN ONLY BE USED WITH FULL TIME CITY INSPECTION. AN INSPECTION FEE MUST BE POSTED WHEN THE PERMIT IS ISSUED.

NOTE 'I': CONCRETE BASE OR PAVEMENT

IF PAVING REQUIREMENTS ALLOW FOR SUFFICIENT CURING TIME SO THAT FAST SETTING CONCRETE IS NOT NEEDED, STANDARD CONCRETE BASE OR PAVEMENT MAY BE PLACED AS PER THE CMSC. THIS OPTION MUST BE NOTED ON THE PERMIT APPLICATION AND APPROVED BY THE CITY OF COLUMBUS.

NOTE 'J': THE TRENCH WIDTH FOR SMALL PIPES AND CONDUITS SHALL BE OF SUFFICIENT WIDTH TO ALLOW FOR THE PROPER PLACEMENT OF THE BACKFILL MATERIAL. THE PAVEMENT PORTION OF THE TRENCH SHALL BE A MINIMUM OF 2 FT. IN WIDTH. THIS IS TO ALLOW FOR THE PROPER COMPACTION OF THE ASPHALT PAVEMENT. IF THE TRENCH FOR PLACING CONDUIT IS NARROWER THAN 2 FT. THEN THE PAVEMENT PORTION SHALL BE CUT BACK TO PROVIDE THE 2 FT. MINIMUM FOR PAVING OPERATIONS.

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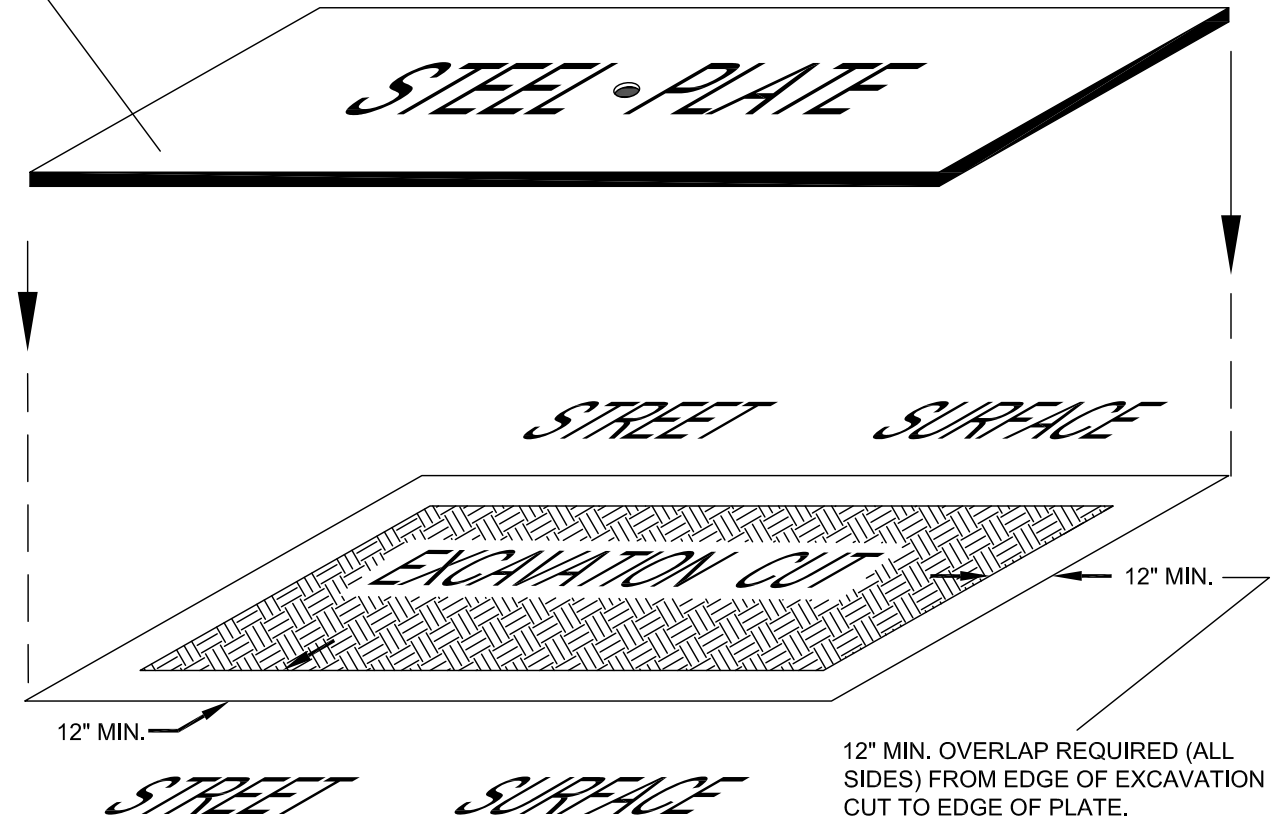
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1. OWNER'S NAME.
2. A 24 HOUR EMERGENCY CONTACT PHONE NUMBER.



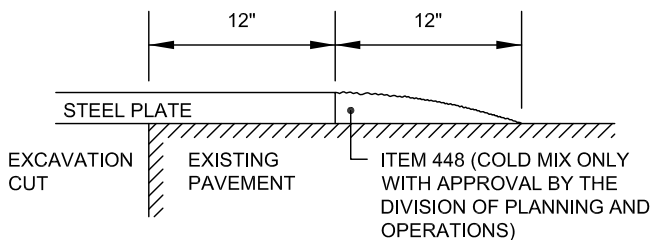
ALL STEEL PLATES MUST HAVE THE FOLLOWING INFORMATION CLEARLY AND LEGIBLY 'ETCHED' INTO THEIR TOP SURFACE:

1. OWNER'S NAME.
2. A 24 HOUR EMERGENCY CONTACT PHONE NUMBER.

MINIMUM THICKNESS OF STEEL PLATES	
SIZE OF PLATE	THICKNESS
4' x 4'	1/2"
4' x 6'	3/4"
LARGER	1"

NO STEEL PINS ARE PERMITTED.

SEE SHEET 7 FOR SIGNING REQUIREMENTS.



STEEL PLATE REQUIREMENTS

PAVEMENT & UTILITY CUT REPAIR STANDARDS

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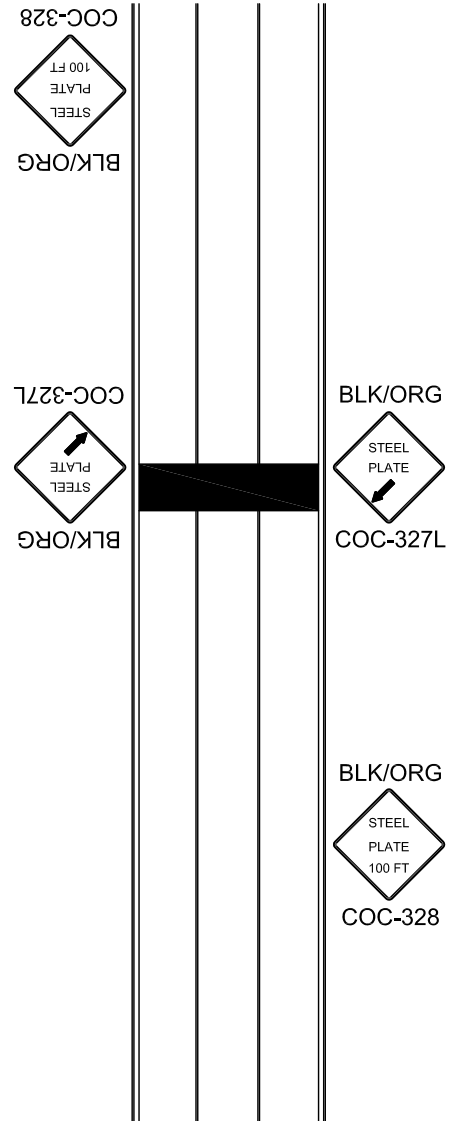
SIGNS ARE TO BE 36"x36" FOR RESIDENTIAL AND DOWNTOWN AREAS AND 48"x48" ON MULTI-LANE, HIGH SPEED (45 MPH OR GREATER) ROADWAYS.

SIGN COC-327 (R/L) IS REQUIRED AT ALL PLATE LOCATIONS. SIGN COC-328 IS REQUIRED WHEN POSTED SPEED IS 35 MPH OR GREATER.

SIGNS SHOULD BE PLACED IN ALL DIRECTIONS THAT ARE AFFECTED.

SIGNS SHOULD BE DUAL MOUNTED ON MULTI-LANE, ONE-WAY ROADWAYS.

ALL SIGNS SHALL BE MOUNTED IN ACCORANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD).



STEEL PLATE REQUIREMENTS

PAVEMENT & UTILITY CUT REPAIR STANDARDS

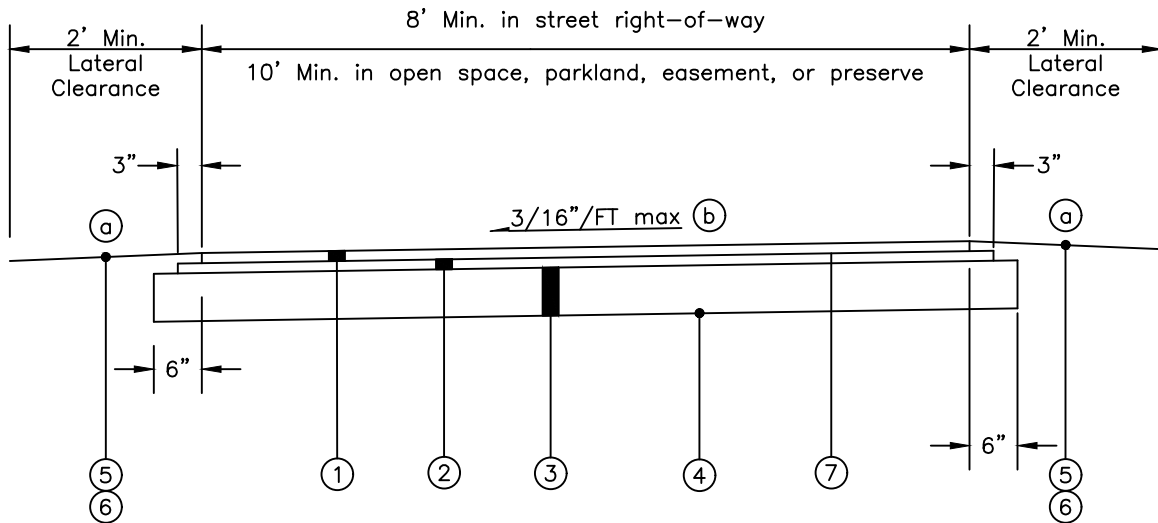
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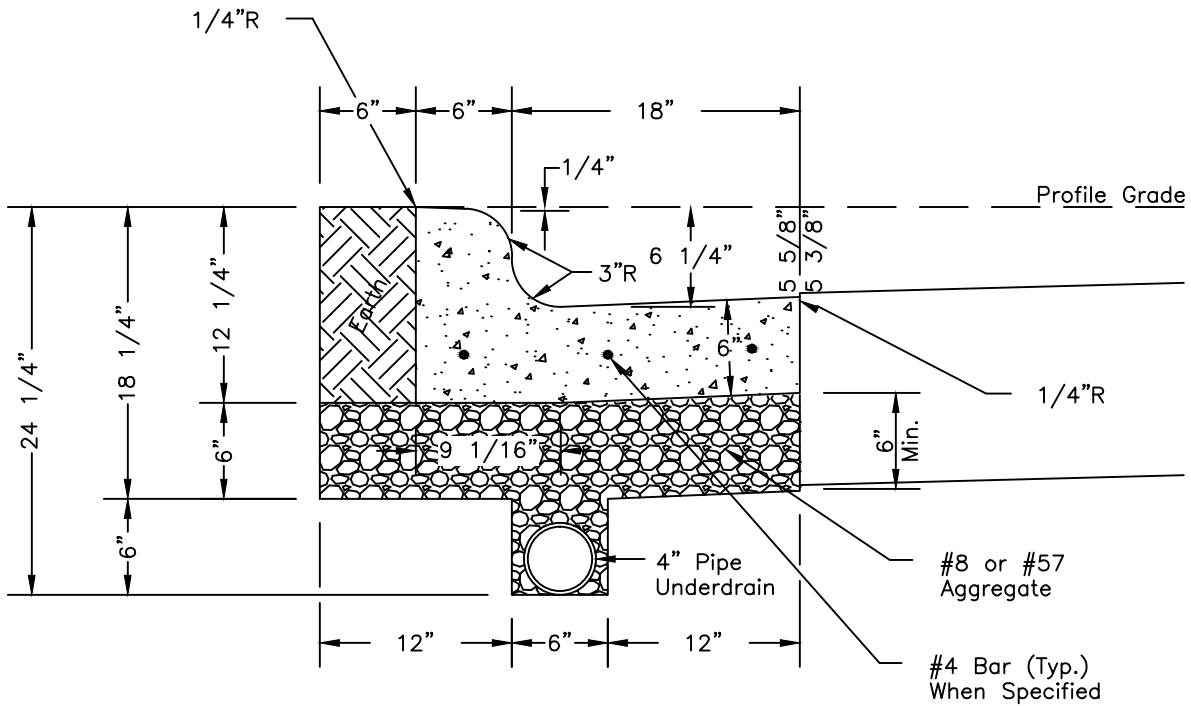
- ① Item 448 – 1 1/2" Asphalt Concrete, Surface Course, Type I, PG64-22, Medium Traffic
 - ② Item 448 – 2 1/2" Asphalt Concrete*, Intermediate Course, Type 2, PG64-22, Medium Traffic
 - ③ Item 304 – 6" Aggregate Base
 - ④ Item 204 – Subgrade Compaction
 - ⑤ Item 659 – Seeding & Mulching, As Per Plan
 - ⑥ Item 653 – 3" Min pulverized topsoil, furnished & placed, As Per Plan or approved equal
 - ⑦ Item 407 – Tack coat, type and rate as directed by the engineer. May be omitted if surface course is applied immediately following intermediate course of asphalt
- Ⓐ – Side slopes per typical section of plan
– All seeding/mulching and topsoil shall be free of weeds to ensure quality growth of grass
 - Ⓑ For multi-use paths, 12' in width or greater, consideration should be given to provide a center crown

* Note: Asphalt concrete intermediate course may be reduced to 1 1/2" min. in locations where utility, maintenance, or construction vehicle use of the path is expected to be minimal. City Engineer approval is required for this reduction.

		CITY OF HILLIARD, OHIO	
		STANDARD CONSTRUCTION DRAWING	
DATE: July 29, 2016		1/1	
SCALE: 1" = 2'		BP-1	
MULTI-USE PATH DETAILS			

Notes:

1. Concrete shall be per Section 499 – P.C. Concrete, Class G.
2. 1.25 CF of concrete per LF.
3. All exposed surfaces of concrete curb & gutter shall have a brush finish.
4. When specified, 3-#4 bars spaced at 9" on center shall be used for reinforcement.



APPROVED

CITY ENGINEER DATE

SCALE: 1" = 1'

ITEM 609
STANDARD 6" CONCRETE
COMBINED CURB &
GUTTER

CITY OF
HILLIARD, OHIO
STANDARD
CONSTRUCTION DRAWING

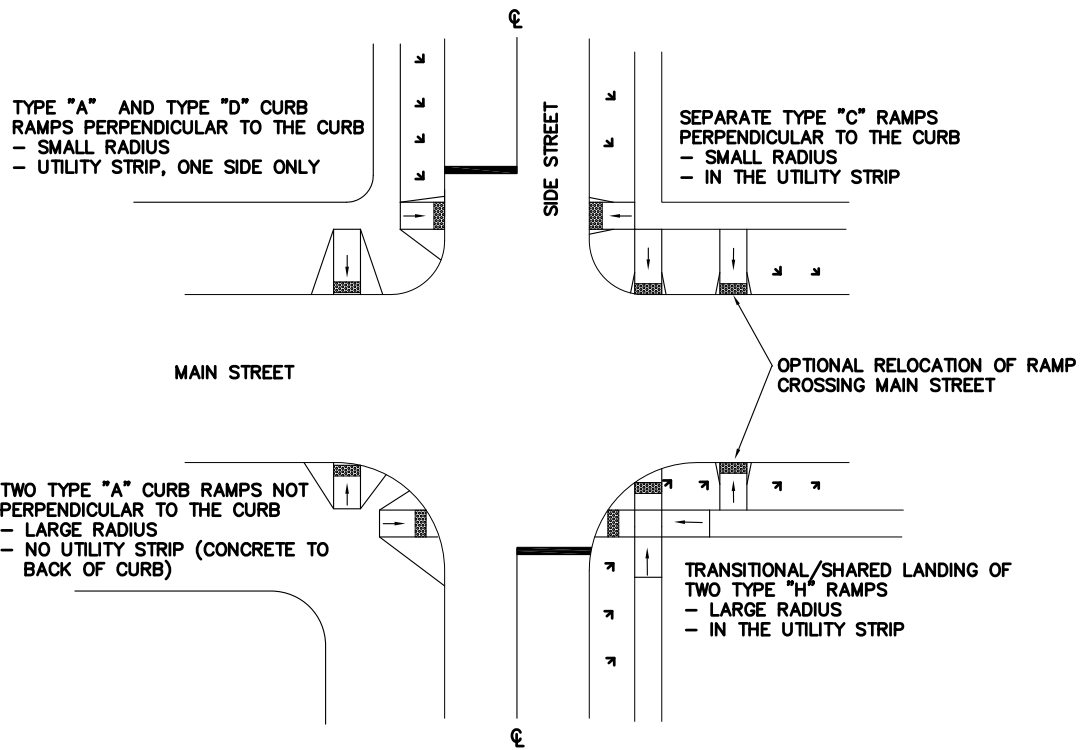
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GENERAL NOTES. CURB RAMPS

1. CURB RAMP COMPONENTS: THE CURB RAMP INCLUDES THE RAMP PANEL, FLARED SIDES, AND LANDING WHEN NEEDED.
2. MATERIAL: THE RAMP PANEL AND FLARED SIDES SHALL BE CONCRETE. THE USE OF BRICK OR PAVERS IS NOT PERMITTED.
3. CURB RAMP TYPE: CURB RAMPS SHALL BE SPECIFIED BY THE APPROPRIATE TYPE AND SHALL BE PERPENDICULAR TO THE CENTERLINE OF THE CROSSING STREET
 - TYPE A – RAMP WITH LONG FLARES
 - TYPE C – RAMP IN UTILITY STRIP
 - TYPE D – RAMP OBSTRUCTED ON ONE SIDE
 - TYPE G – RAMP WITH RECESSED LOWER LANDING.
 - TYPE H – RAMP WITH RECESSED LOWER LANDING IN A UTILITY STRIP
 - TYPE L – MEDIAN RAMP WITH CENTER LANDING
 - TYPE P1 – COMBINED PERPENDICULAR AND PARALLEL RAMP
 - TYPE P2 – COMBINED PERPENDICULAR AND PARALLEL RAMP IN ONE DIRECTION

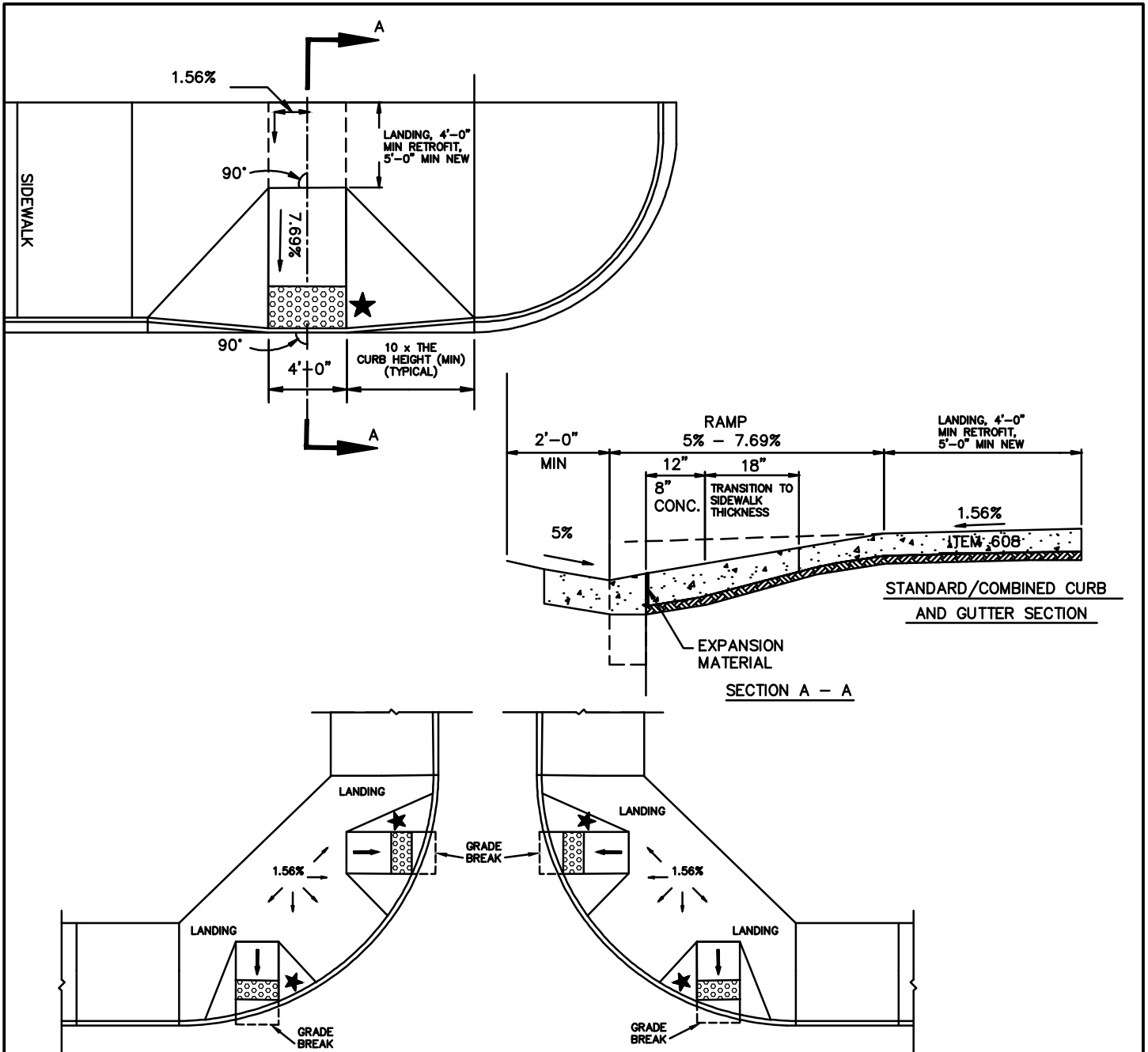
NOTE: CITY OF HILLIARD ORDER OF PREFERENCE IS (1) KEEP RAMPS IN LINE WITH APPROACH WALKS AND (2) KEEP RAMPS IN FRONT OF SIDE STREET STOP SIGNS. RAMPS THAT DIRECT PEDESTRIANS INTO THE MIDDLE OF AN INTERSECTION AT AN ANGLE ARE NOT PERMITTED. WHEN RAMPS ARE NOT PERPENDICULAR TO THE CURB, A LANDING RECESSED SHALL BE PROVIDED AT THE BOTTOM OF THE RAMP & THE GRADE BREAK SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL. EXAMPLES OF RECOMMENDED CURB RAMP ALIGNMENTS ARE SHOWN BELOW:



	CURB RAMP GENERAL NOTES	CITY OF HILLIARD, OHIO	
DATE: March 6, 2015		STANDARD CONSTRUCTION DRAWING	
SCALE: NTS		1/12	CR-1

4. CURB RAMPS AT ALLEY AND ARTERIAL CROSSINGS SHALL BE 8" THICK CONCRETE
5. RAMP RUNNING SLOPE: THE RUNNING SLOPE SHALL BE 5% TO 7.7%. THE RUNNING SLOPE MAY BE INCREASED TO 10 % WITH PRIOR WRITTEN CITY APPROVAL.
6. RAMP CROSS SLOPE: THE MAXIMUM CROSS SLOPE SHALL BE 1.56%.
7. FOR NEW CONSTRUCTION, MINIMUM RAMP WIDTH AND LANDING SIZE SHALL BE:
 - SIDEWALKS: 5' RAMP AND 5'X5' LANDING
 - MULTI-USE PATHS: 8' RAMP AND 5'X8' LANDING
 - LANDING AT INTERSECTING SIDEWALKS – WHEREVER SIDEWALKS INTERSECT, THERE SHALL BE A LANDING MEETING THE ABOVE REQUIREMENTS.
10. IN RETROFIT SITUATIONS, THE RAMP WIDTH MAY MATCH THE EXISTING APPROACH SIDEWALK OR MULTI-USE PATH OR 4' MINIMUM, WHICHEVER IS GREATER. THE MINIMUM LANDING SIZE SHALL BE 4' BY THE WIDTH OF THE EXISTING APPROACH WALK OR MULTI-USE PATH.
11. ALL JOINTS BETWEEN NEW AND EXISTING MATERIALS SHALL BE FLUSH.
12. LONG FLARES: THE LENGTH MEASUREMENT OF THE FLARE AT THE FACE OF CURB SHALL BE A MINIMUM OF 10 TIMES THE CURB HEIGHT
13. 1-FT FLARES: THE MEASUREMENT OF THE FLARE AT THE FACE OF CURB SHALL BE A MINIMUM OF 1-FT.
14. STREET COUNTER SLOPE: THE COUNTER SLOPE AT THE BASE OF THE RAMP SHALL BE A MAXIMUM OF 5% FOR A MINIMUM OF 2-FT.
15. RAMPS AT MARKED AND UNMARKED CROSSINGS: AT MARKED CROSSINGS THE RAMP AND STREET LANDING MUST BE FULLY CONTAINED WITHIN THE MARKED CROSSWALK. AT UNMARKED CROSSINGS THE RAMP AND STREET LANDING MUST BE WITHIN THE PEDESTRIAN RIGHT-OF-WAY AS DEFINED BY CITY CODE.
16. SURFACES: RAMP, FLARE, AND LANDING SURFACES MUST BE STABLE AND SLIP RESISTENT. RAMPS SHALL BE MEDIUM BROOMED TRANSVERSE TO THE DIRECTION OF TRAVEL. GRATINGS, VALVE BOXES, AND UTILITY BOXES SHALL NOT BE LOCATED IN THE RAMP, LANDING, OR TRANSITION AREAS.
17. OFFSET INTERSECTIONS: AT OFFSET 'T' INTERSECTIONS RAMPS BETWEEN OFFSET STREETS MAY BE DELETED IF THE CENTERLINES OF OFFSET STREETS ARE NO MORE THAN 200-FT APART.
18. OPPOSING RAMPS SHALL HAVE A PEDESTRIAN WALKWAY ACROSS THE STREET, ATLEAST 7' WIDE, WITH A CROSS SLOPE (LONGITUDINAL STREET SLOPE) OF NO GREATER THAN 1.56%. VERTICAL CURVES SHALL BE INSTALLED AS NEEDED.
19. FOR SIDEWALK OR MULTI-USE PATH CROSSINGS OF PRIVATE DRIVEWAYS:
 - PEDESTRIANS HAVE THE RIGHT OF WAY FOR CROSSINGS OF UNSIGNALIZED PRIVATE DRIVEWAYS (RESIDENTIAL AND COMMERCIAL): THEREFORE, THE SIDEWALK OR PATH SHOULD EXTEND THROUGH THE DRIVEWAY AT GRADE WITH NO CURB RAMP OR DETECTABLE WARNING.
 - IN LOCATIONS WHERE TREE LAWN WIDTHS ARE NARROW MAKING THE DRIVEWAY APPROACH TOO STEEP TO PROVIDE A SAFE TRANSITION FOR VEHICLES BETWEEN THE STREET AND DRIVEWAY, THE SIDEWALK OR PATH MAY DROP IN ELEVATION 10'-15' ON EITHER SIDE OF THE DRIVEWAY. NO CURB RAMP OR DETECTABLE WARNING IS REQUIRED IN THIS CASE. THE MAX CROSS SLOPE SHALL BE 1.56%.
 - AT LARGE COMMERCIAL UNSIGNALIZED DRIVEWAYS, PROVISIONS FOR SIDEWALKS AND PATHS AND THE NEED FOR RAMPS AND DETECTABLE WARNINGS SHALL BE EVALUATED ON A CASE-BY-CASE BASIS.
 - LARGE COMMERCIAL SIGNALIZED DRIVEWAYS SHALL BE TREATED AS PUBLIC STREET INTERSECTIONS WITH RESPECT TO LOCATION AND DESIGN OF ALL SIDEWALKS, MULTI-USE PATHS, CURB RAMPS, AND DETECTABLE WARNINGS.

	CURB RAMP GENERAL NOTES	CITY OF HILLIARD, OHIO	
DATE: March 6, 2015		STANDARD CONSTRUCTION DRAWING	
SCALE: NTS		2/12	CR-1

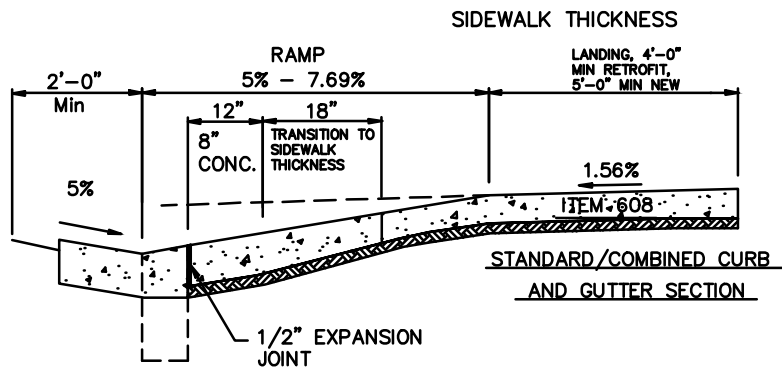
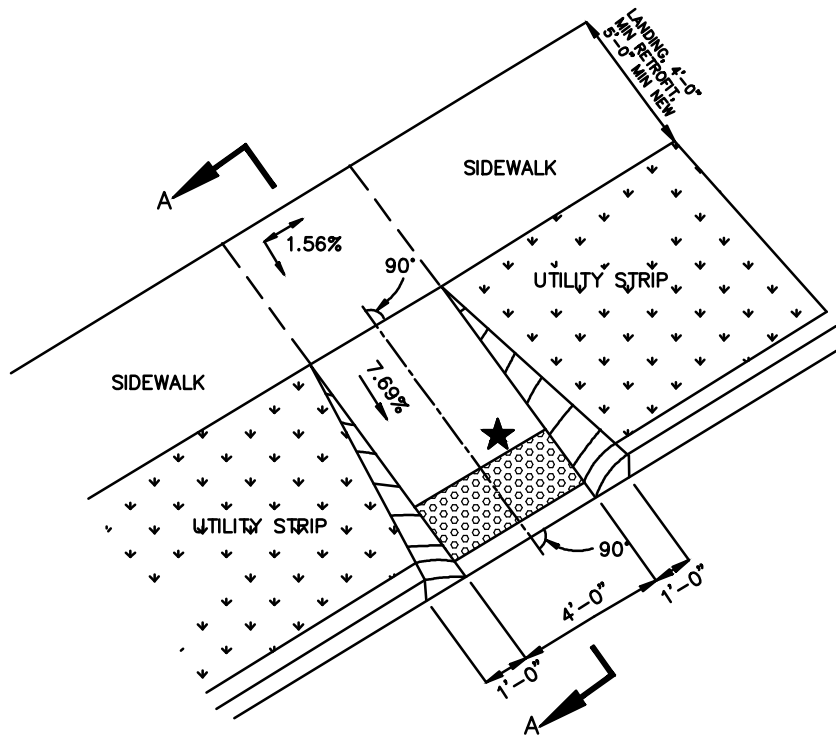


NOTES:

1. RAMP SHALL NOT ORIENT PEDESTRIANS INTO THE CENTER OF AN INTERSECTION. WHEN PLACED WITHIN THE RADIUS, A TYPE A RAMP SHALL BE ORIENTED DIRECTLY ACROSS FROM THE OPPOSING RAMP, PERPENDICULAR TO THE CENTERLINE OF THE CROSSING STREET.
2. THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS
3. WHEN RAMPS ARE NOT PERPENDICULAR TO THE CURB, A RECESSED LANDING SHALL BE PROVIDED AT THE BOTTOM OF THE RAMP AND THE GRADE BREAK SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	<p>CURB RAMP TYPE A</p>	<p>CITY OF HILLIARD, OHIO</p>	
DATE: March 6, 2015	RAMP WITH LONG FLARES	STANDARD CONSTRUCTION DRAWING	
SCALE: NTS		3/12	CR-1



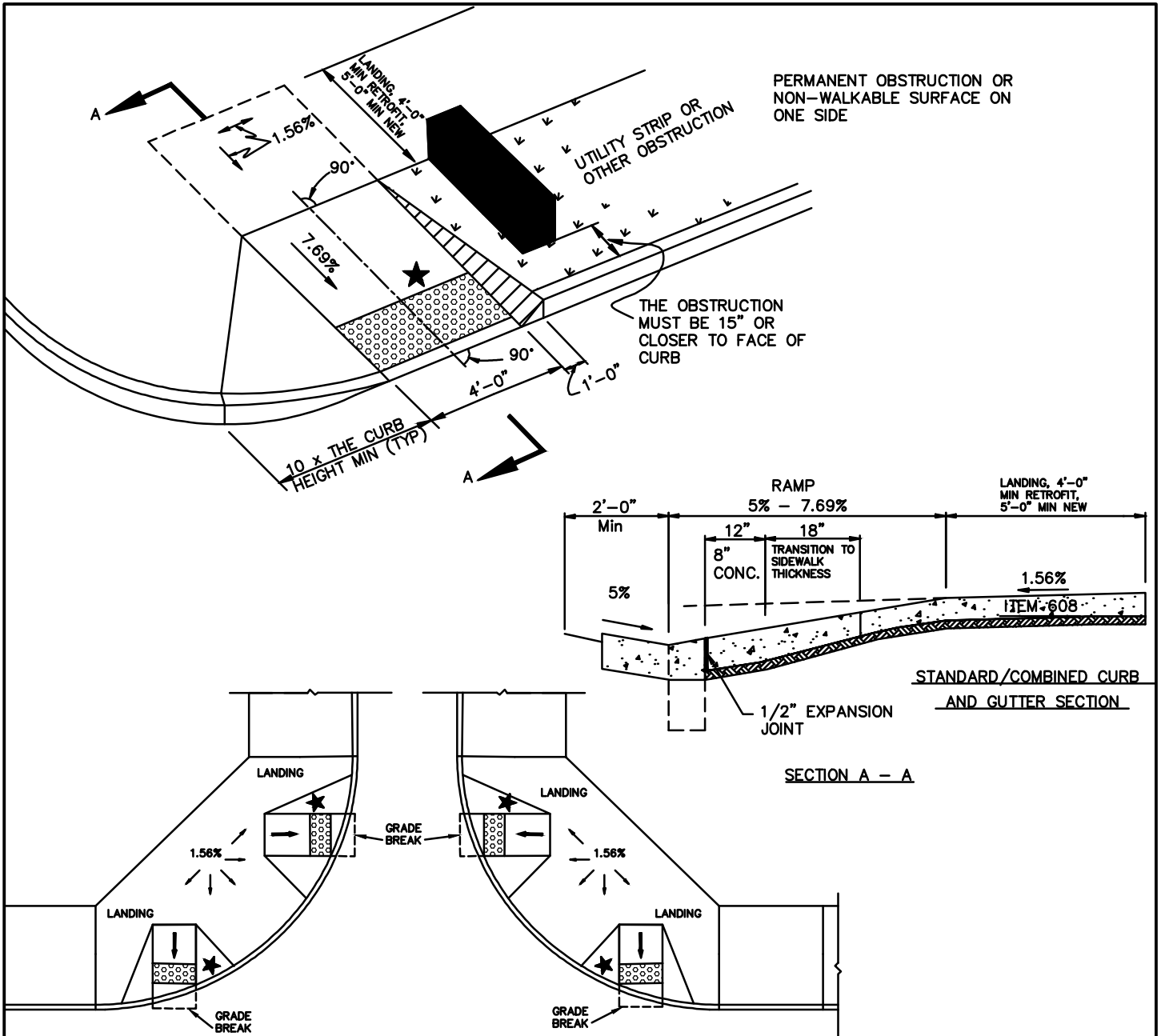
SECTION A - A

NOTES:

1. RAMP SHALL NOT BE PLACED IN FRONT OF A STOP SIGN OR IN FRONT OF THE NORMAL STOPPING LOCATION OF VEHICLES AT A STOP OR SIGNAL CONTROLLED INTERSECTION. A TYPE H RAMP SHOULD BE USED INSTEAD.
2. THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE C	CITY OF HILLIARD, OHIO	
DATE: March 6, 2015	RAMP IN UTILITY STRIP	STANDARD CONSTRUCTION DRAWING	
SCALE: NTS		4/12	CR-1



PERMANENT OBSTRUCTION OR NON-WALKABLE SURFACE ON ONE SIDE

THE OBSTRUCTION MUST BE 15" OR CLOSER TO FACE OF CURB

STANDARD/COMBINED CURB AND GUTTER SECTION

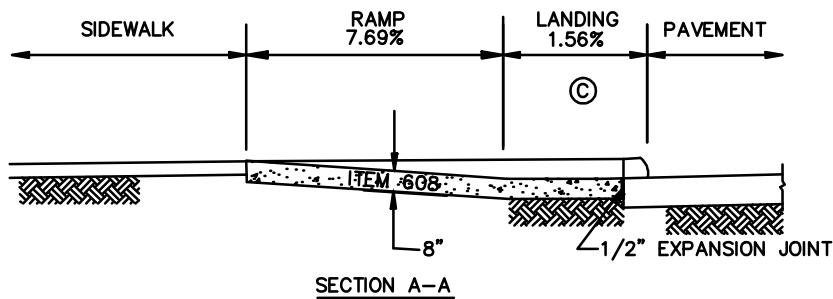
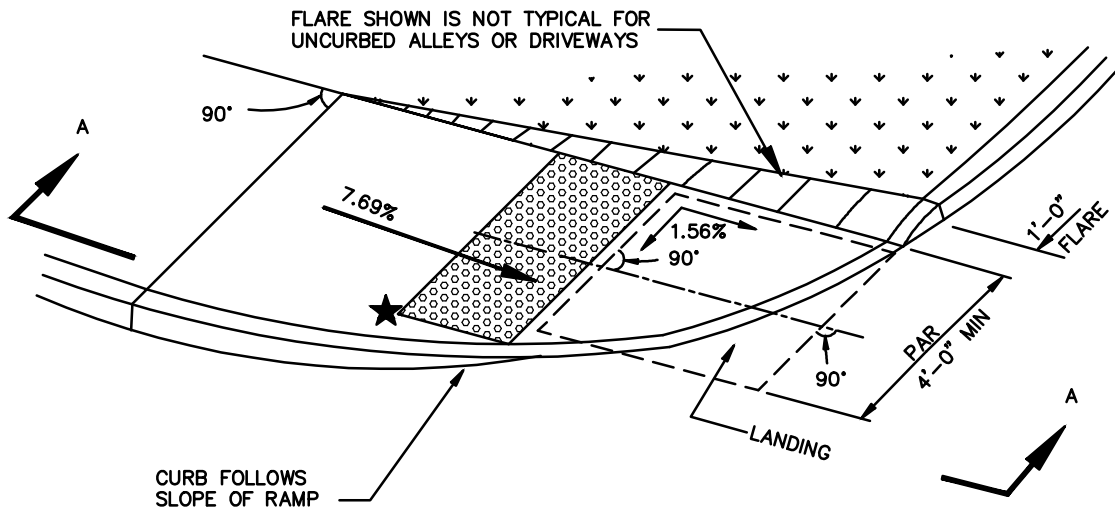
SECTION A - A

NOTES:

1. RAMP SHALL NOT ORIENT PEDESTRIANS INTO THE CENTER OF AN INTERSECTION. WHEN PLACED WITHIN THE RADIUS, A TYPE "D" RAMP SHALL BE ORIENTED DIRECTLY ACROSS FROM THE OPPOSING RAMP, PERPENDICULAR TO THE CENTERLINE OF THE CROSSING STREET.
2. THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS
3. WHEN RAMPS ARE NOT PERPENDICULAR TO THE CURB, A RECESSED LANDING SHALL BE PROVIDED AT THE BOTTOM OF THE RAMP AND THE GRADE BREAK SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	<p>CURB RAMP TYPE D</p>	<p>CITY OF HILLIARD, OHIO</p>	
<p>DATE: March 6, 2015</p>	<p>RAMP OBSTRUCTED ON ONE SIDE</p>	<p>STANDARD CONSTRUCTION DRAWING</p>	
<p>SCALE: NTS</p>		<p>5/12</p>	<p>CR-1</p>

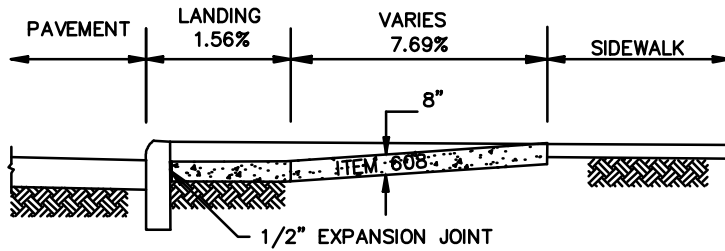
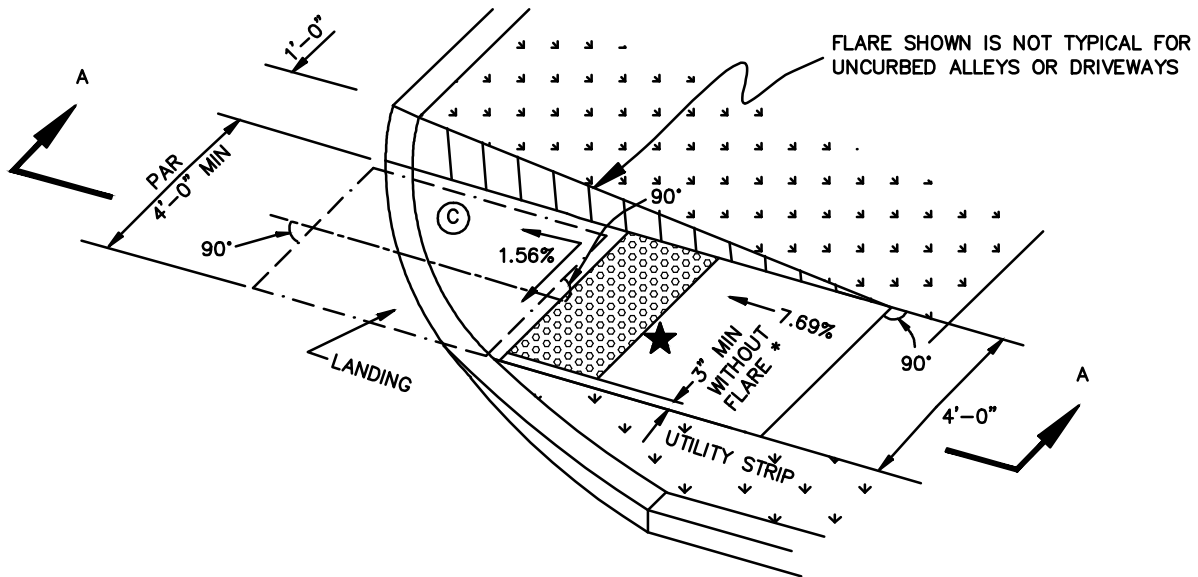


SUPPLEMENTAL NOTES

- A. THE BOTTOM EDGE OF THE RAMP SHALL CHANGE PLANES PERPENDICULAR TO THE LANDING.
- B. THE EDGE OF THE CURB SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER.
- C. THE LANDING AT THE BOTTOM OF THE RAMP SHALL BE \geq 2.5-FT BY 4-FT WITH A MAXIMUM CROSS SLOPE OF 1.56% IN TWO DIRECTIONS.
- D. THE PEDESTRIAN ACCESS ROUTE (PAR) BETWEEN THE TWO RAMPS SHALL HAVE A MAXIMUM OF 1.56% CROSS SLOPE WITH A 5% MAXIMUM RUNNING SLOPE
- E. THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE G	CITY OF HILLIARD, OHIO	
DATE: March 6, 2015	RAMP WITH RECESSED LOWER LANDING	STANDARD CONSTRUCTION DRAWING	
SCALE: NTS		6/12	CR-1



SECTION A-A

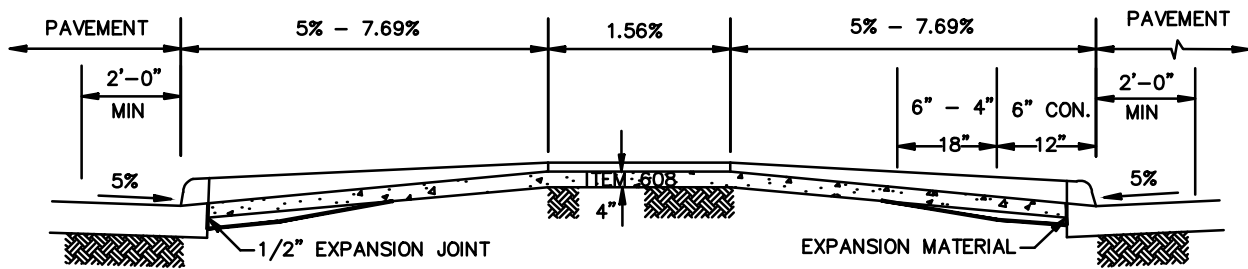
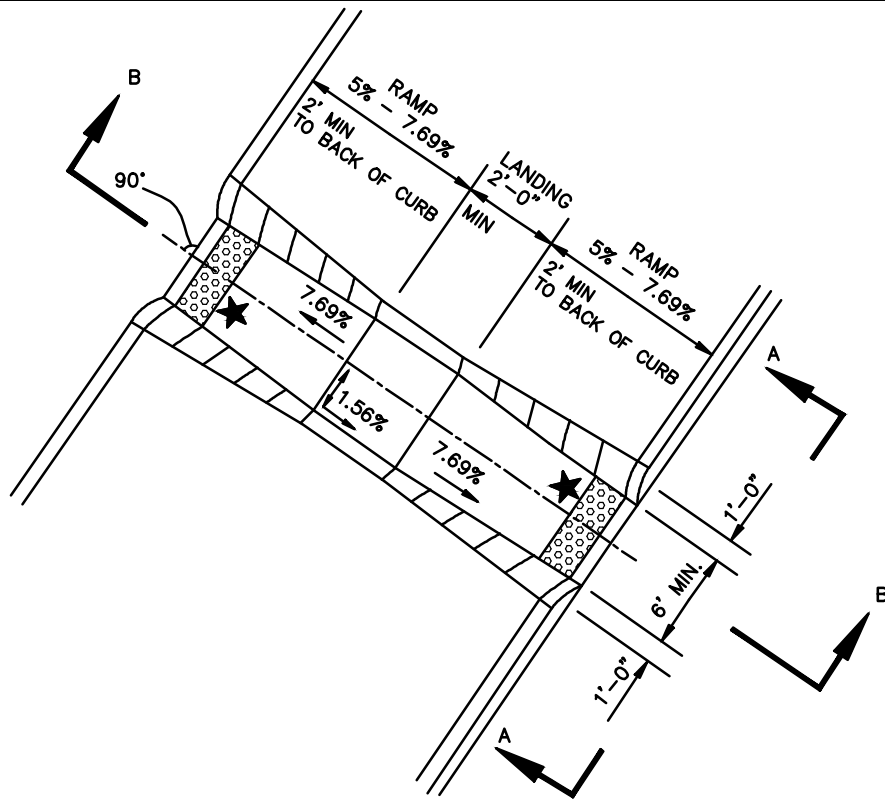
SUPPLEMENTAL NOTES

- A. THE BOTTOM EDGE OF THE RAMP SHALL CHANGE PLANES PERPENDICULAR TO THE LANDING.
- B. THE EDGE OF THE CURB SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER.
- C. THE LANDING AT THE BOTTOM OF THE RAMP SHALL BE \geq 2.5-FT BY 4-FT WITH A MAXIMUM CROSS SLOPE OF 1.56% IN TWO DIRECTIONS.
- D. THE PEDESTRIAN ACCESS ROUTE (PAR) BETWEEN THE TWO RAMPS SHALL HAVE A MAXIMUM OF 1.56% CROSS SLOPE WITH A 5% MAXIMUM RUNNING SLOPE
- E. THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS

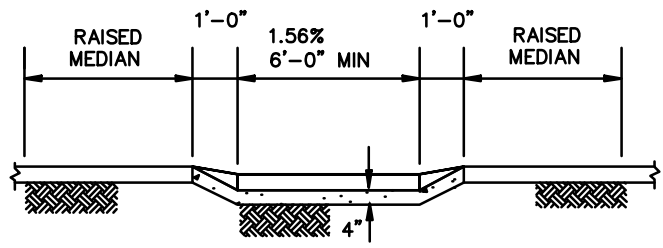
* THIS IS FOR EMBEDDED (NON-SURFACE APPLIED) DETECTABLE WARNINGS ONLY

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE H	CITY OF HILLIARD, OHIO	
DATE: March 6, 2015	RAMP WITH RECESSED LOWER LANDING IN UTILITY STRIP	STANDARD CONSTRUCTION DRAWING	
SCALE: NTS		7/12	CR-1



SECTION B-B

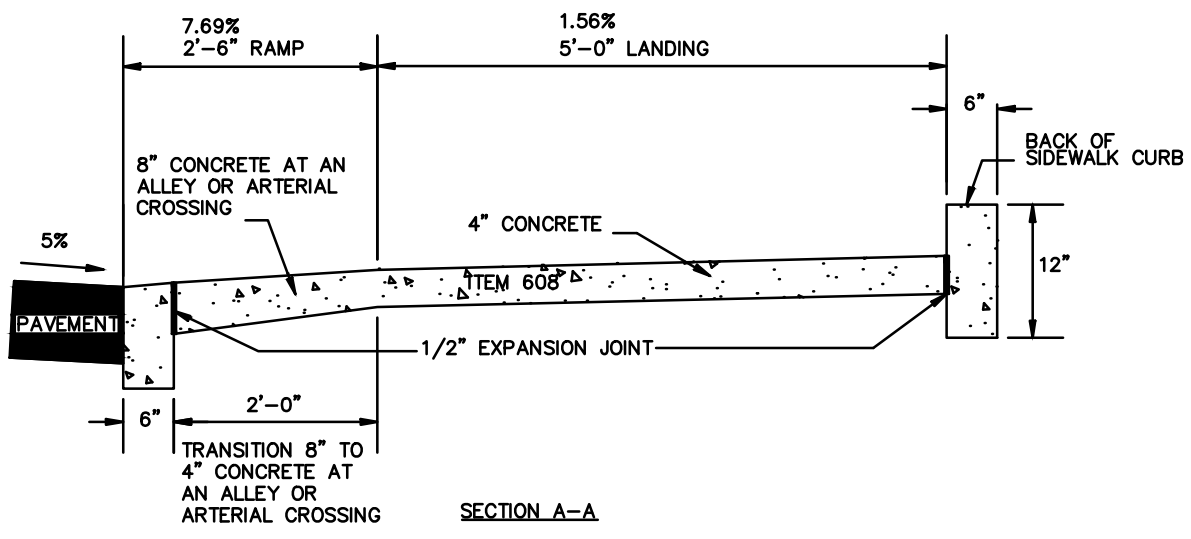
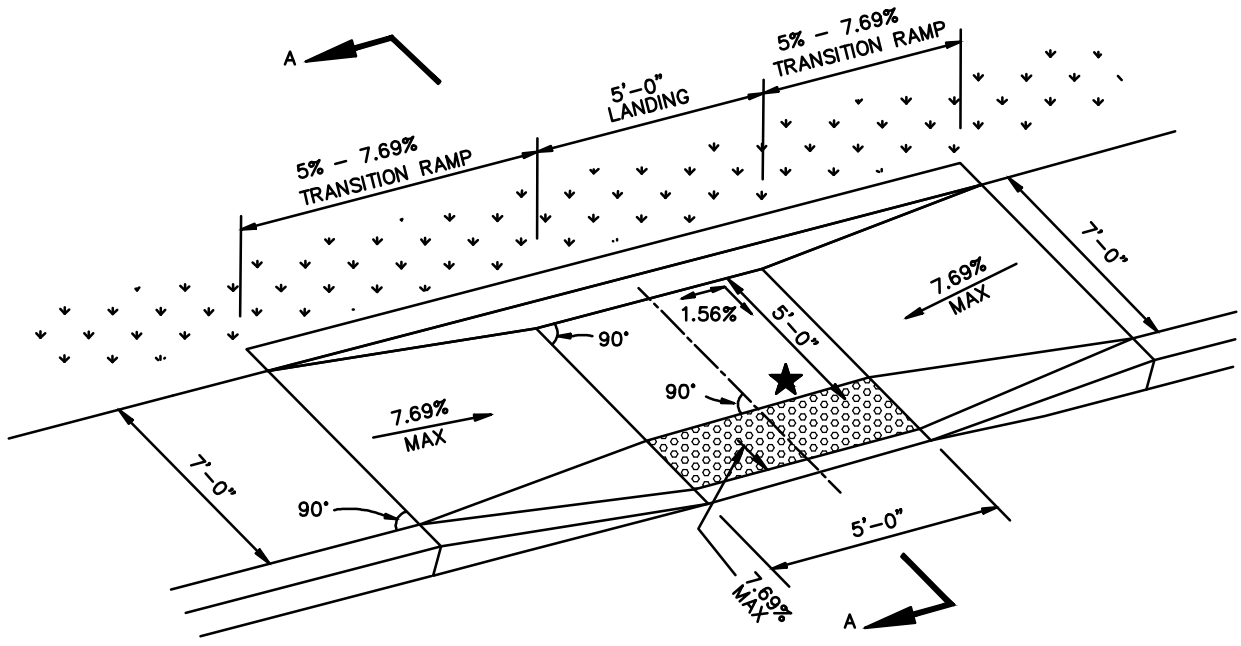


SECTION A-A

RAMPS MAY BE OMITTED IN MEDIANS IF PEDESTRIANS CAN CROSS THROUGH THE MEDIAN AT STREET GRADE

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

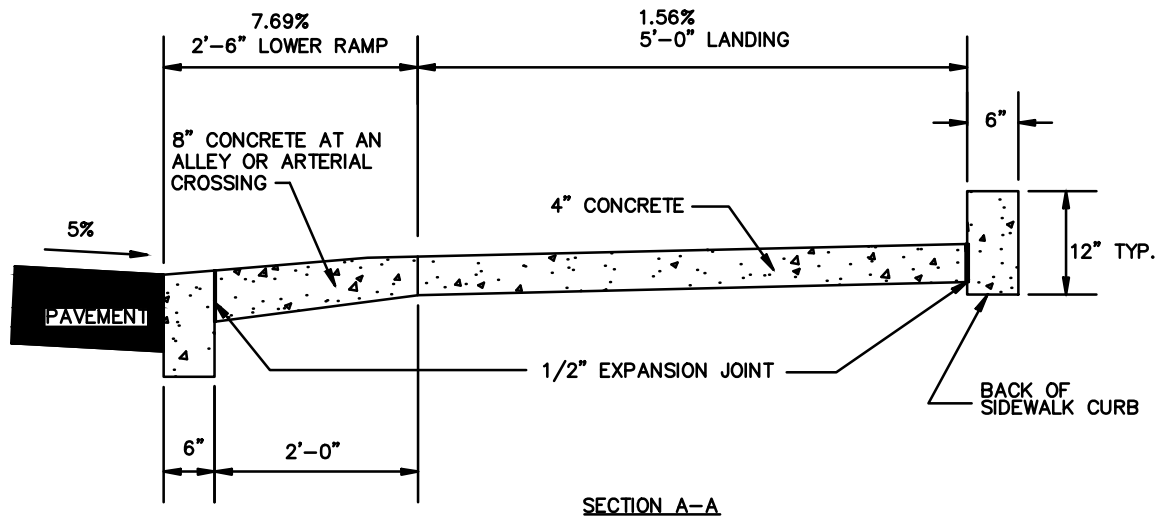
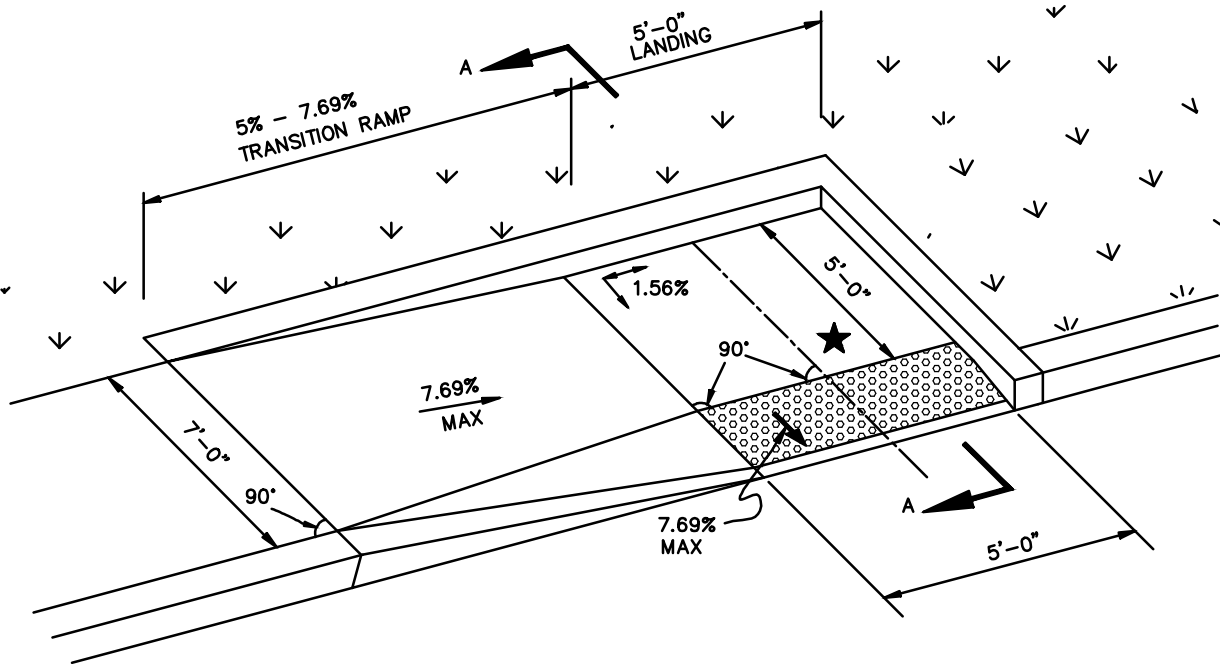
	<p>CURB RAMP TYPE L</p>	<p>CITY OF HILLIARD, OHIO</p>	
<p>DATE: March 6, 2015</p>	<p>MEDIAN RAMP WITH CENTER LANDING</p>	<p>STANDARD CONSTRUCTION DRAWING</p>	
<p>SCALE: NTS</p>		<p>8/12</p>	<p>CR-1</p>



THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE P1	CITY OF HILLIARD, OHIO	
DATE: March 6, 2015	COMBINED PERPENDICULAR & PARALLEL RAMP	STANDARD CONSTRUCTION DRAWING	
SCALE: NTS		9/12	CR-1



THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS

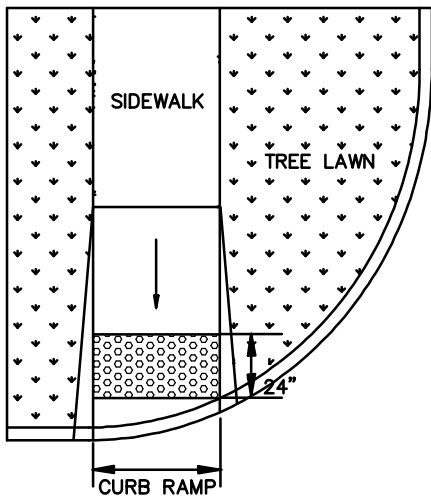
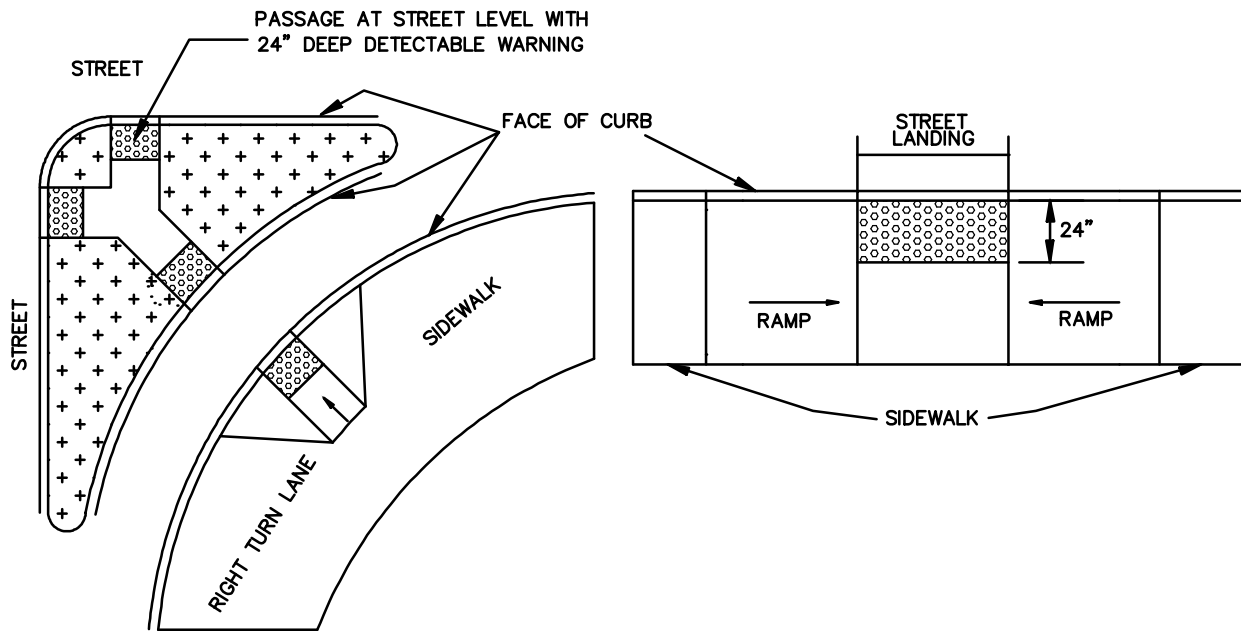
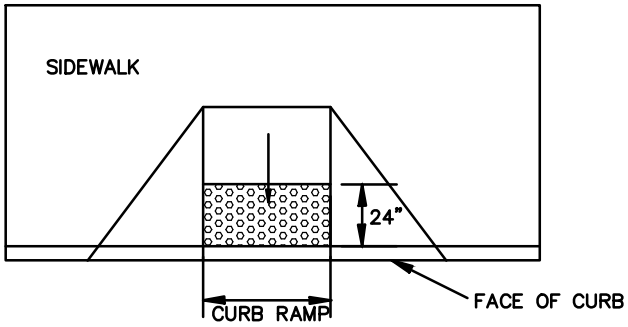
★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE P2	CITY OF HILLIARD, OHIO	
DATE: March 6, 2015	COMBINED PERPENDICULAR & PARALLEL RAMP IN ONE DIRECTION	STANDARD CONSTRUCTION DRAWING	
SCALE: NTS		10/12	CR-1

NOTES

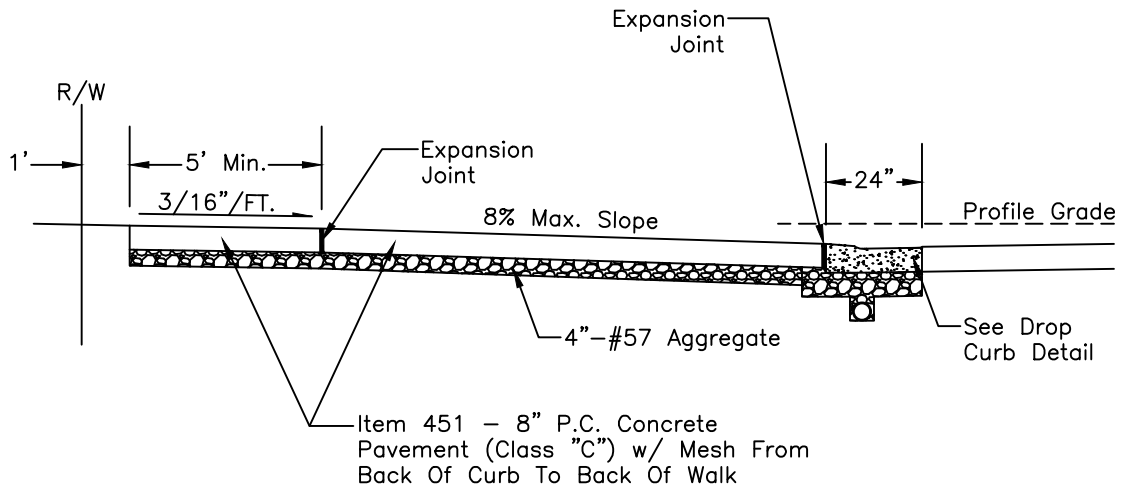
1. DETECTABLE WARNINGS SHALL BE PROVIDED WHEREVER A CURB RAMP CROSSES A VEHICULAR WAY. EXCLUDING UNSIGNALIZED DRIVEWAY CROSSINGS. SEE #19 OF GENERAL CURB RAMP NOTES.
2. DETECTABLE WARNINGS SHALL BE PROVIDED 24" IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE. THE DETECTABLE WARNING SHALL BE LOCATED ADJACENT TO THE CURB LINE.
3. DETECTABLE WARNINGS SHALL BE PLACED 6" TO 8" BEHIND THE FACE OF CURB AND BEHIND CURB JOINT
4. CAST IN PLACE OR ANY NON-SURFACE APPLIED DETECTABLE WARNING SHALL HAVE A MIN OF 3" OF CONCRETE ON EACH SIDE OF THE WARNING.
5. MATERIALS SHALL COMPLY WITH C.O.C. SUPPLEMENTAL SPECIFICATION 1551 WITH THE FOLLOWING NOTED EXCEPTIONS:
 - A. BRICK RED IS THE ONLY APPROVED COLOR UNLESS OTHERWISE APPROVED IN ADVANCE IN WRITING BY THE CITY ENGINEER
 - B. TYPE "A", "B" AND "C" DETECTABLE WARNING SURFACES ARE NOT APPROVED
 - C. TYPE "D" THIN TILE AND THIN MOLDED SHEET GOODS ARE APPROVED ON RETROFIT INSTALLATIONS ONLY.
 - THE PRE-APPROVED TYPE "D" MATERIAL IS "ARMOR TILE TACTILE SYSTEMS" FLAT SURFACE APPLIED MAT.
 - OTHER MATERIALS MAY BE SUBSTITUTED FOR THIS PRODUCT IF PRIOR APPROVAL IS GRANTED TO THE CITY ENGINEER
 - D. TYPE "E" PRE-MANUFACTURED WET-SET PROJECTS ARE APPROVED FOR USE ON NEW CONSTRUCTION ONLY. THESE PRODUCTS MUST BE 24" WIDE AND 1/2" THICK. ONE PIECE PANELS SHOULD BE USED FOR SIDEWALK INSTALLATIONS. ALL PRODUCTS MUST BE APPLIED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS AND GUIDELINES. THE TYPE "E" PRODUCTS PRE-APPROVED FOR USE IN THE CITY OF HILLIARD ARE LISTED BELOW.
 - ENGINEERED PLASTICS, INC. - ARMOR-TILE CAST IN PLACE SYSTEMS
 - ADA SOLUTIONS, INC. - COMPOSITE (WET SET) REPLACEABLE TWS UNIT
 - ARMORCAST PRODUCTS COMPANY - CAST IN PLACE DETECTABLE WARNING PANEL
 - OTHER MATERIALS MAY BE SUBSTITUTED FOR THE ABOVE LISTED PRODUCTS IF PRIOR APPROVAL IS GRANTED BY THE CITY ENGINEER.
 - E. DETECTABLE WARNINGS SHALL EXTEND THE ENTIRE WIDTH OF THE CURB RAMP FOR SIDEWALKS AND MULTI-USE PATHS LOCATED PARALLEL TO A PUBLIC STREET (SIDE PATHS).
 - F. DETECTABLE WARNING STRIPS MUST COMPLY WITH ADA SPECIFICATIONS FOR RAMP AREA, INCLUDING RUNNING SLOPE, CROSS-SLOPE, FLATNESS AND SMOOTHNESS CRITERIA AS WELL AS FLUSH TRANSITIONS BETWEEN THE CONCRETE RAMP AND THE DETECTABLE WARNING SURFACE.
 - G. ALL DETECTABLE WARNING STRIP INSTALLATIONS SHALL BE WARRANTED BY THE INSTALLING CONTRACTOR AND MANUFACTURER TO BE FREE OF DEFECTS FOR A PERIOD OF THREE (3) YEARS FROM THE DATE OF INSTALLATION. THE DETECTABLE WARNING STRIP SHALL LOSE NO MORE THAN FIVE PERCENT (5.0 %) OF TRUNCATED DOMES DUE TO DELAMINATION BECAUSE OF PRODUCT FAILURE. SURFACE SHALL BE WARRANTED FOR THAT 3-YEAR PERIOD FROM FADING, CHIPPING, CRACKING, PEELING, OR LOSS OF COLOR DUE TO THE EXPOSURE TO WEATHERING, DE-ICING SALTS, AND SUNLIGHT.

	CURB RAMP	CITY OF HILLIARD, OHIO	
DATE: March 6, 2015	DETECTABLE WARNING NOTES	STANDARD CONSTRUCTION DRAWING	
SCALE: NTS		11/12	CR-1

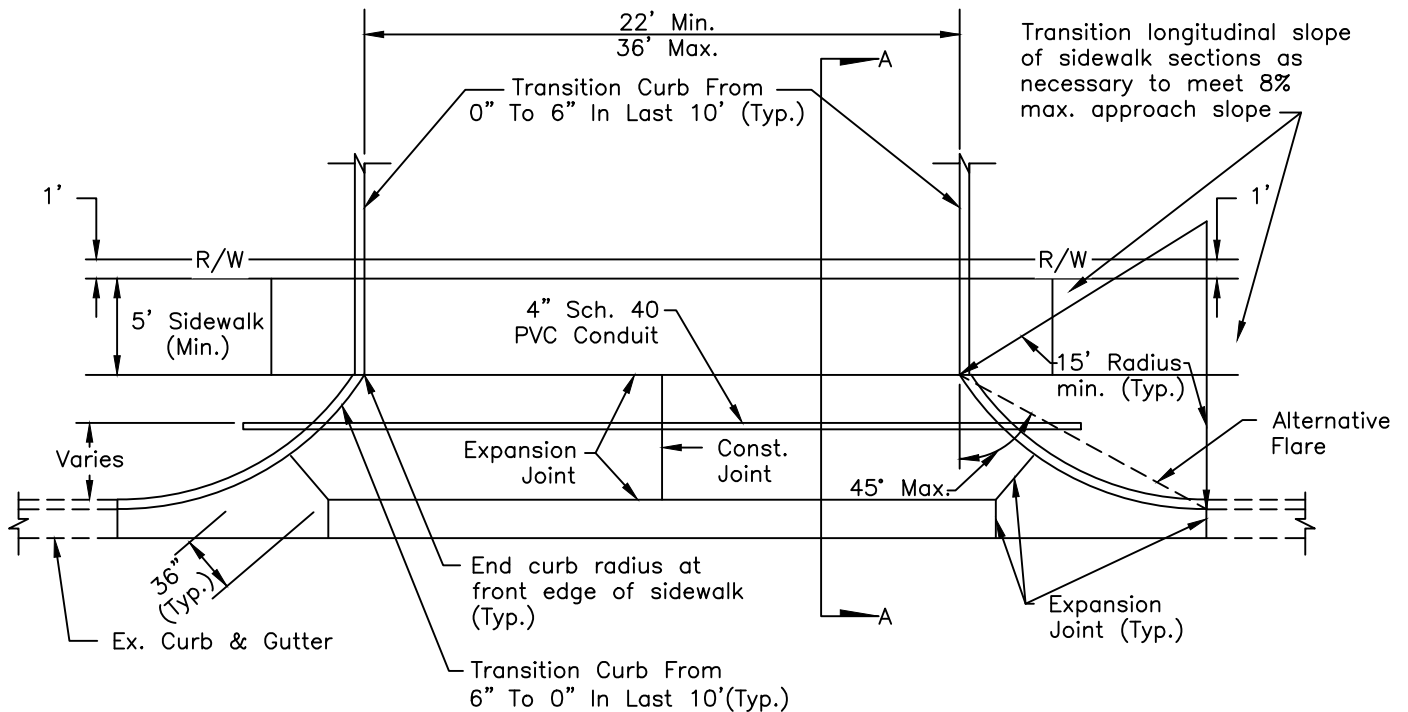


	<p>CURB RAMP DETECTABLE WARNINGS</p>	<p>CITY OF HILLIARD, OHIO</p>	
<p>DATE: March 6, 2015</p>		<p>STANDARD CONSTRUCTION DRAWING</p>	
<p>SCALE: NTS</p>		<p>12/12</p>	<p>CR-1</p>

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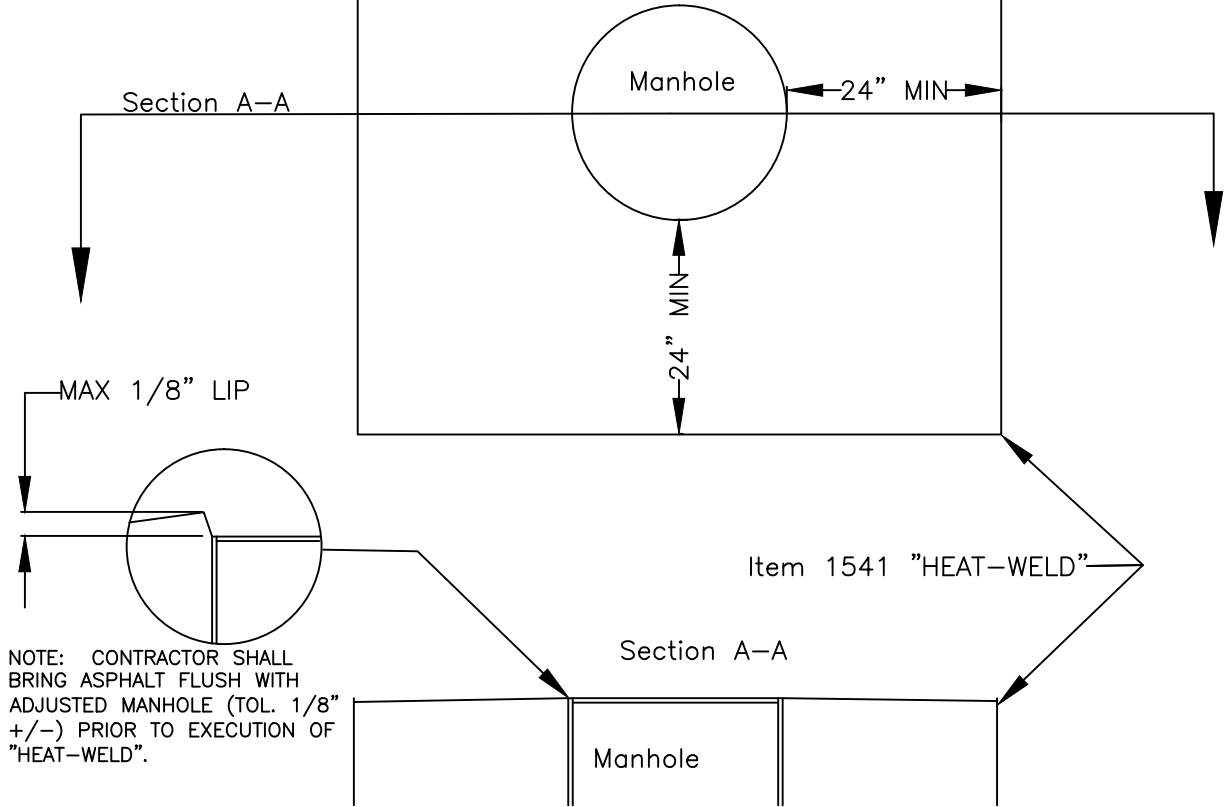


SECTION A-A

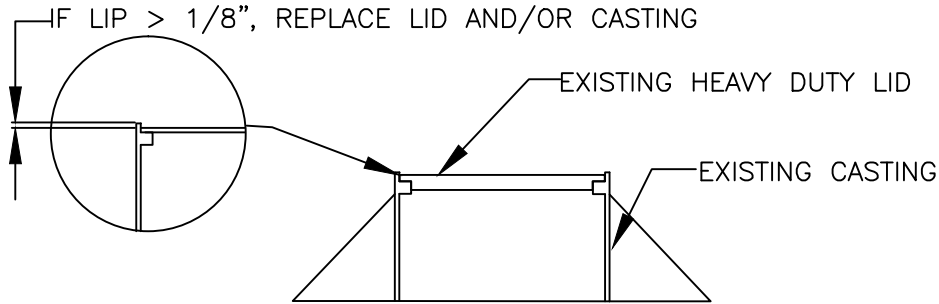


APPROVED	DRIVE DETAIL COMMERCIAL ENTRANCE	CITY OF HILLIARD, OHIO	
CITY ENGINEER _____ DATE _____		STANDARD CONSTRUCTION DRAWING	
SCALE: NTS		1/1	DD-1

AFTER MANHOLE IS ADJUSTED, AND ASPHALT CONCRETE HAS BEEN BROUGHT TO GRADE, CONTRACTOR SHALL PERFORM A "HEAT-WELD" IN ACCORDANCE WITH COLS SUPPLEMENTAL SPECIFICATION 1541 TO ENSURE A UNIFORM AND FLUSH TRANSITION.



NOTE: IF LID DOES NOT FIT FLUSH (1/8" +/- TOLERANCE), CONTRACTOR SHALL REPLACE CASTING AND/OR LID TO PROVIDE FLUSH FIT (1/16" +/-). REPLACEMENT SHALL FIT SPECIFICATIONS AND PERFORMANCE OF EXISTING STRUCTURE. IF SUITABLE REPLACEMENT DOES NOT EXIST, BOTH CASTING AND LID MUST BE REPLACED.



APPROVED

MANHOLE ADJUSTED
TO GRADE

CITY OF
HILLIARD, OHIO

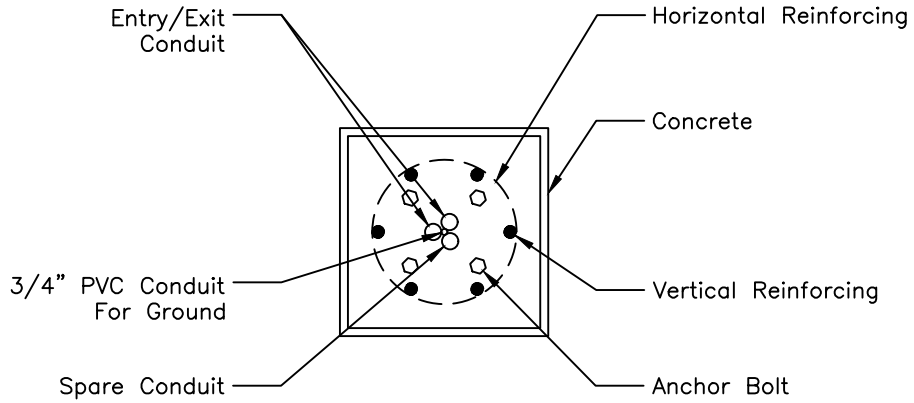
STANDARD
CONSTRUCTION DRAWING

CITY ENGINEER DATE

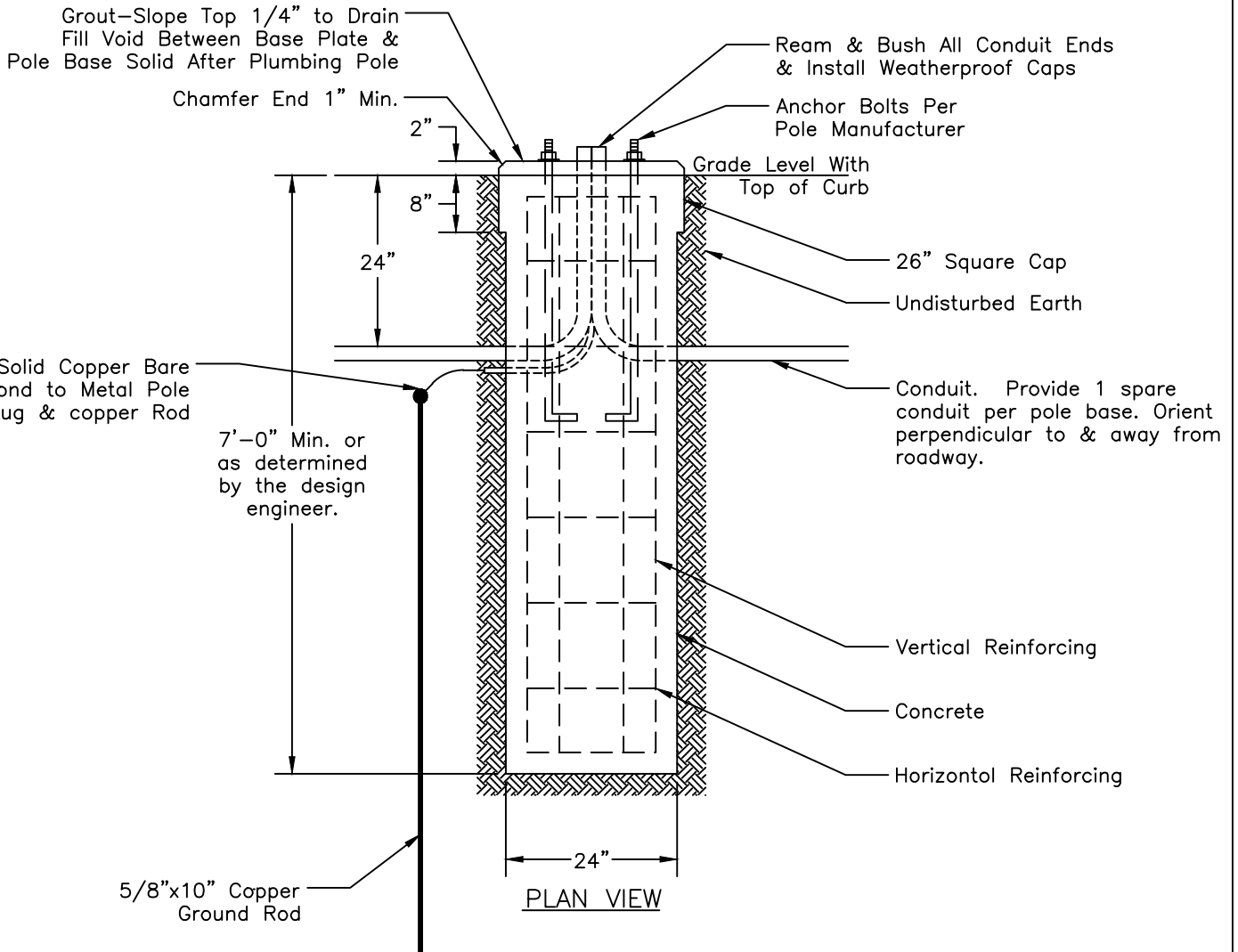
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MHA-1



TOP VIEW



PLAN VIEW

APPROVED

Clyde R. Seidle 9-1-15
 CITY ENGINEER DATE

SCALE: 1/2" = 1'

THOROUGHFARE STREET
 POLE BASE

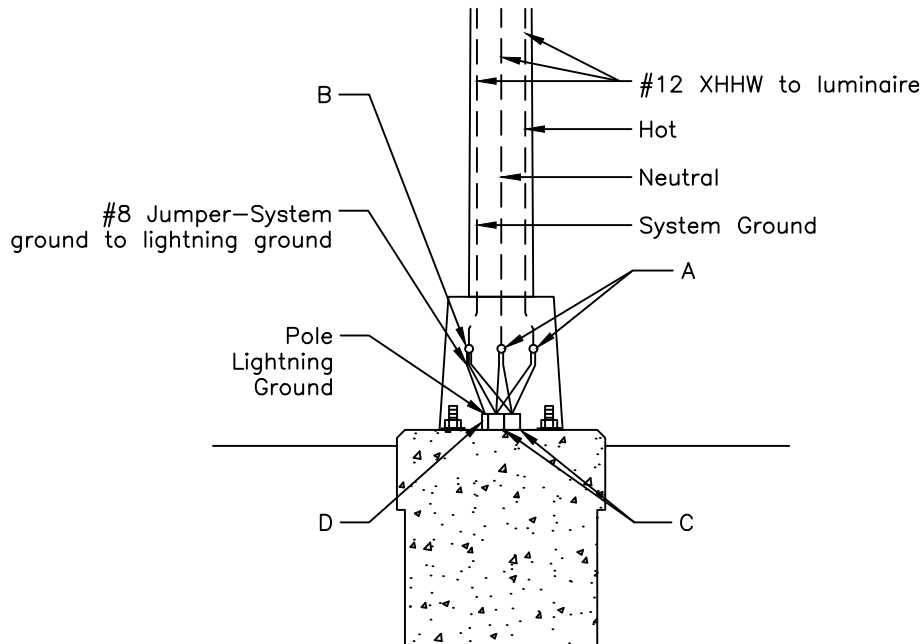
CITY OF
HILLIARD, OHIO
 STANDARD
 CONSTRUCTION DRAWING

1/1

SL-1

Notes:

1. Transformer Base: Provide a one-piece cast aluminum alloy
2. Grounding: Each transformer base shall contain an internal lug with drilled hole for attaching a ground conductor.
3. Nameplate: Stainless steel, screw attached, provide permanent weather resistant engraved Lamicoid nameplate 3" square minimum 3/4" helvetica white letters on a dark bronz background with pole number, circuit and station embossed into it per plan schedule. To be installed on the base door.
4. Connections:
 - A. Fused – Inline Y connector kit type II with waterproof boots and breakaway receptable. Fuse at 10 Amps, Homac FYU-M and DYU-M, Buss KTK-10 fuse or approved interchangeable equal.
 - B. Unfused – Inline Y connector kit type III flood seals with waterproof boots and breakaway receptacle, Homac DY series.
 - C. Provide molded plastic or rubber capping device that only permits wire pass through while preventing dirt, water, etc. entry.
 - D. Pole lighting ground lug uninsulated copper compression terminal UL listed for 600V. Size for wire specified. Drill, tap, and bolt to transformer base Burndy YA series. Bond system ground to lightning rod ground.
 - E. Deliver transformer to city.
5. Provide 2' service loop in all wiring to bring connectors and fuse holders out thru handhole.



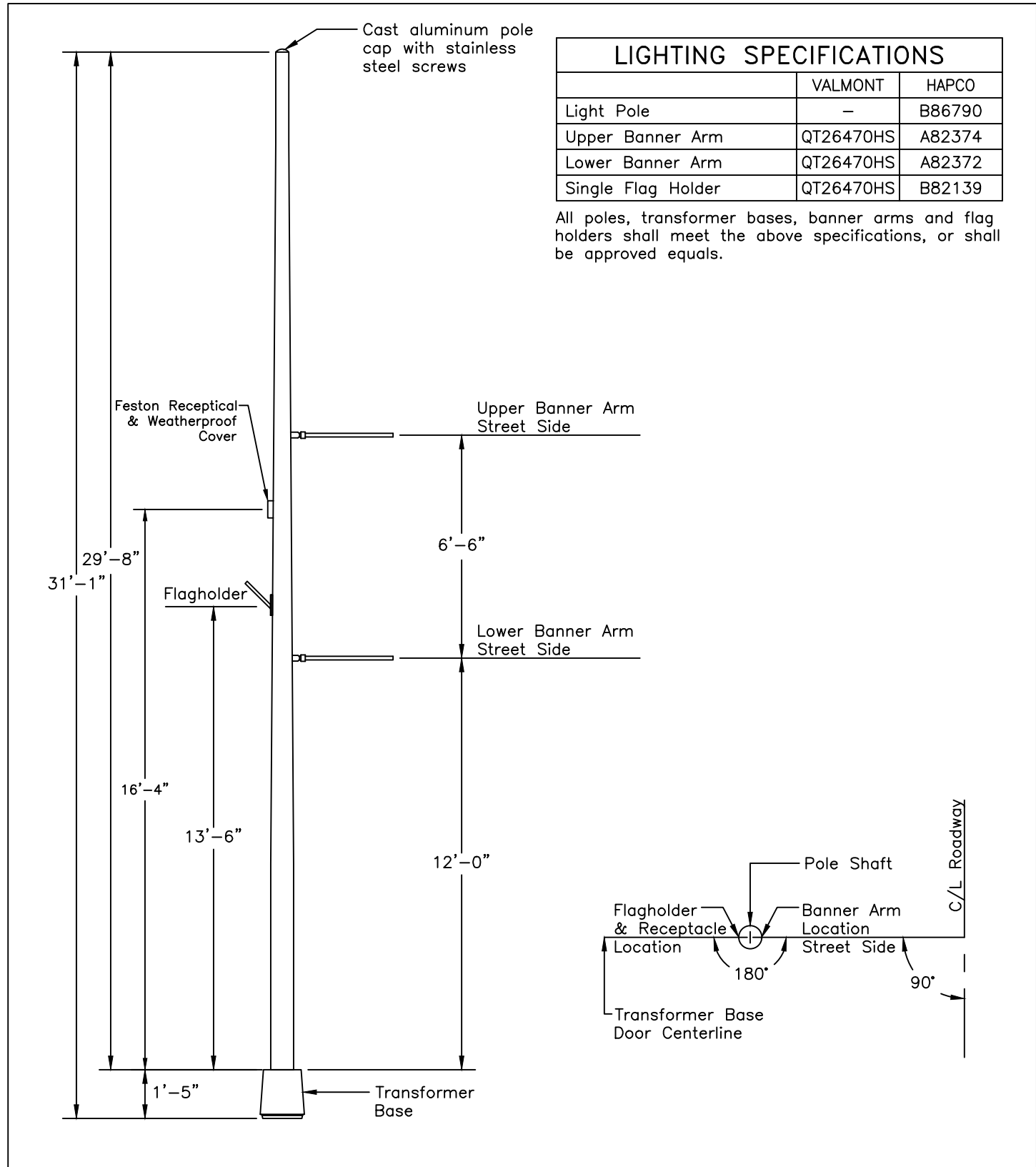
<p>APPROVED</p> <p><i>Clyde R. Seidle</i> 9-7-99 CITY ENGINEER DATE</p>	<p>THOROUGHFARE STREET TRANSFORMER BASE WIRING DETAIL</p>	<p>CITY OF HILLIARD, OHIO STANDARD CONSTRUCTION DRAWING</p>		
<p>SCALE: 1/2" = 1'</p>		<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center; border: none;">1/1</td> <td style="width: 50%; text-align: center; border: none;">SL-2</td> </tr> </table>	1/1	SL-2
1/1	SL-2			

Notes:

1. General Description: Aluminum round tapered anchor base with finish: A dark bronze approved by the City Engineer. The paint shall be a powder paint finished to a gloss of 35% (at 60 degrees) spun aluminum finish with pole cap, transformer base, base cover and bolt covers.
2. Pole Cap: Provide an ornamental aluminum alloy cap fastened via stainless steel screws.
3. Pole Damper: Provide a second mode vibration damper attached to midpoint via welding. Locate inside pole. Factory installed.
4. Base Flange: Provide a one piece cast socket of aluminum alloy 356-T6. The flange shall be joined to the shaft by means of continuous weld externally and internally.
5. Base Cover: Provide bolt covers of aluminum alloy 43 and stainless steel screws for attachment.
6. Miscellaneous Hardware: All nuts, bolts, and washers used in the fabrication of the pole shall be grade 18-8 stainless steel except for anchorage hardware.
7. Wrapping: Each pole shaft shall be wrapped with protective material during shipping & remain wrapped until pole is to be erected. All parts shall be boxed and/or banded.
8. Pole Shaft: The shaft shall be one piece seamless with a minimum wall thickness of 0.156 inches, round tapered tube of alloy 6063-T6 and shall be full-length tempered after welding on top base flange to produce the T6 temper. The entire pole assembly shall be rated @ 80 mph with a 30% gust factor for on EPA. Minimum of 2.7 template cut for luminaire.
9. Hand Hole Placement: The pole shall be orientated so that the hand hole is located on the sidewalk side of the pole away from traffic.
10. Banner Arm Placement: The pole shall be orientated so that the banner arms are located on the curb side of the pole facing traffic.
11. Flag Holder Placement: The pole shall be orientated so that the flag holder is located on the side of the pole away from traffic.
12. Feston receptacle:
 1. Box shall be welded to pole.
 2. Pole shall be wired with 3-#12 THHN wires (green, black & white) from the feston to the transformer base. A 2' service loop shall be provided at transformer base. Service loop shall be coiled and taped.
 3. A 2"x4" blank weatherproof cover shall be installed on the feston.

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APPROVED  9-1-15 CITY ENGINEER DATE	THOROUGHFARE STREET POLE	CITY OF HILLIARD, OHIO STANDARD CONSTRUCTION DRAWING		
SCALE: N/A		<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">1/2</td> <td style="width: 50%; border: none;">SL-3</td> </tr> </table>	1/2	SL-3
1/2	SL-3			



APPROVED

Clyde R. Seidle 9-1-15
 CITY ENGINEER DATE

SCALE: 1/4" = 1'

THOROUGHFARE STREET
 POLE

CITY OF
HILLIARD, OHIO
 STANDARD
 CONSTRUCTION DRAWING

2/2

SL-3

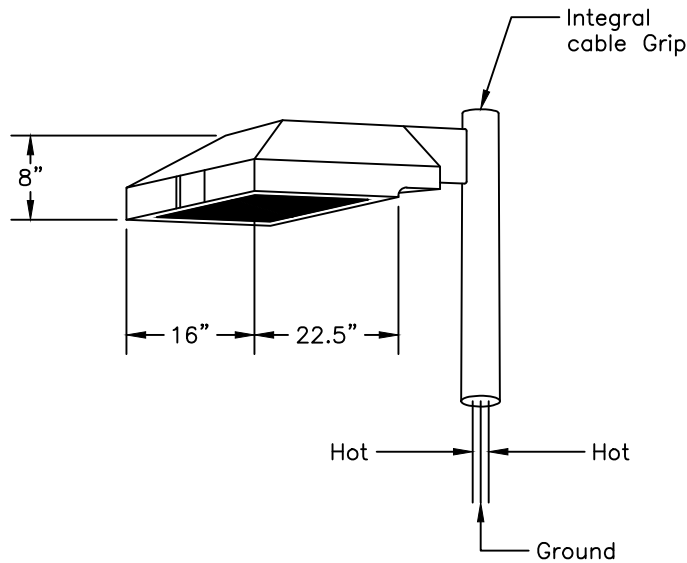
Notes:

1. General Description: LED Roadway Fixture, 4000K color temperature.
2. Housing: One piece die cast aluminum integral heat sink. Meet 2G vibration per ANSI C136.32-2001.
3. Finish: Corrosion resistant polyester powder paint, minimum of 2.0 mil thick. Black or Dark Bronze.
4. Mounting: Slipfitter with +/- 5 degree of adjustment for leveling. Adjustable for 1¼"-2" mounting pipe.
5. Labeling: UL listed for wet locations.
6. Distribution: Structured LED array optimized for roadway photometric distribution.
7. Approved Manufacturer: G.E. EANA LED Roadway Light, or approved equal.
*Voltage: 480V
8. Lamp: Rated L75 at 50,000 hours.

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APPROVED	THOROUGHFARE STREET LUMINAIRE	CITY OF HILLIARD, OHIO	
<i>Clyde R Seidle</i> CITY ENGINEER		9-1-15 DATE	STANDARD CONSTRUCTION DRAWING
SCALE: N/A		1/2	SL-4

9. Cable: Provide #12 THWN, stranded copper 600V, 90 degrees Celsius conductors. Wire to luminaire. Secure pole wiring with cable grip provided with luminaire. Provide adequate length to extend minimum 2 feet out of hand hole.
10. Execution: All luminaires shall be plumb and level. Adjust lamp socket assembly to Type II or Type III cutoff. All lamps shall be operational prior to inspection. All surfaces shall be cleaned of dirt, debris, etc. free of scratches, dents, etc.
11. Method of Measurement: See City of Columbus specifications section 1000.19 or ODOT section 625.20.
12. Basis of Payment: See City of Columbus specifications section 1000.20 or ODOT section 625.21.



APPROVED

Clyde R. Seidle 9-1-15
 CITY ENGINEER DATE

SCALE: 1/2" = 1'

THOROUGHFARE STREET
 LUMINAIRE

CITY OF
HILLIARD, OHIO
 STANDARD
 CONSTRUCTION DRAWING

2/2

SL-4

Notes.


1. Coordination: Coordinate location of transformer and pad with power company.
2. Transformer: Provided, installed and wired by power company.
3. Transformer Pad: Install per power company requirements for size and location. Refer to service enclosure pad for material specifications.
4. Service Enclosure Pad: Structure shall be set not less than 3'-0" nor more than 5'-0" from power company transformer pad. Concrete shall be class "C", 4000 PSI, 5-7% air entrained. Fill all exposed surface voids. Chamfer all edges. Slope top 1/4" to drain water. Hot or cold weather - follow City of Columbus Construction and Material Specifications, Section 1000. Finish - remove all form marks, provide floated and steel troweled finish.
5. Welded Wire Fabric: Provide 6x6-6x6. Mount on all sides and top. Maintain 3" minimum cover.
6. Service Enclosure: Provide a NEMA watertight stainless steel enclosure, 30"H x 18"W x 15"D. Having a single continuous hinged locking door, interior mounting panel. 6" minimum matching floor stand. Concrete and or bolt type anchor and level to pad via stainless steel machine bolt, nuts & lockwashers. Drill bottom of enclosure with 1/4" weep hole at low point.
7. Service Enclosure Finish: A dark bronze approved by the City Engineer. The paint shall be a powder paint finished to a gloss of 35% (at 60 degrees).
8. Service Enclosure Lock:
 - A. Internal: Key all locking mechanisms alike to NEMA traffic signal number 2 key.
 - B. External: All pad locks shall be American Lock, Model No. 1207B, Key No. 43737.
9. Lighting Controller: A class R fusible combination lighting contactor type controller assembly rated according to the total ampacity of the lighting phase, 60HZ with solid neutral, electrically held with control fuse, 120 volt control voltage, 3 position hand - off auto selector switch and photocell control. Mount all devices in a service enclosure less photo control.

Approved Manufacturer: Square "D" Night-Master SPG-60, or approved equal.
10. Photocell Controller: Provide an on-off photo-initated controller with sealed cadmium sulfide photocell to operate in -30 degrees F to +140 degrees F temperatures, thermal inertia of 15 seconds minimum, threaded pipe nipple, rated 16 Amps, 2000 Watts at 120V, and single pole single throw switch. Turn-ON shall be 1-3 footcandles and Turn-OFF to Turn-ON ratio is 5 maximum. Provide in weatherproof enclosure. Load shall remain "ON" in case of cell failure. Mount atop first pole from service enclosure.

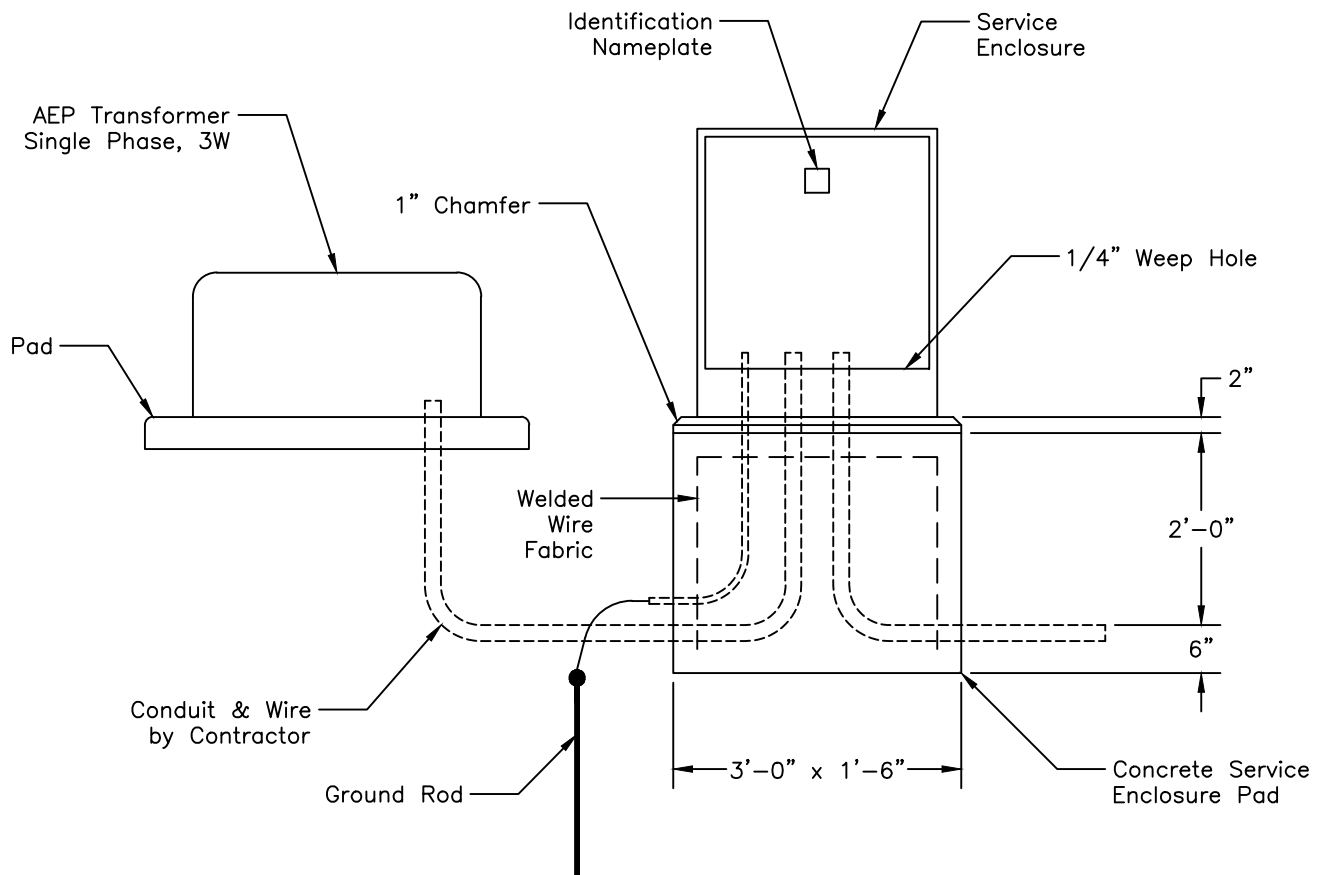
Approved Manufacturer: Tork
11. Grounding: Provide 5/8" x 10'-0" copper weld one piece ground rod. Drive a minimum of 2'-0" below grade. Run #8 AWG solid copper grounding electrode conductor in 3/4" PVC conduit from rod to enclosure ground bar. "Thermo" or "Cad" weld wire connection to rod.
12. Fusing: Service entrance - provide dual element, time delay fuses, UL Class RK-1, 600V, rejection type.

Approved Manufacturer: Buss #LPN-RK.
13. Control Circuit: Provide single element, fast acting-type fuse UL Class CC, 250V, rejector type.

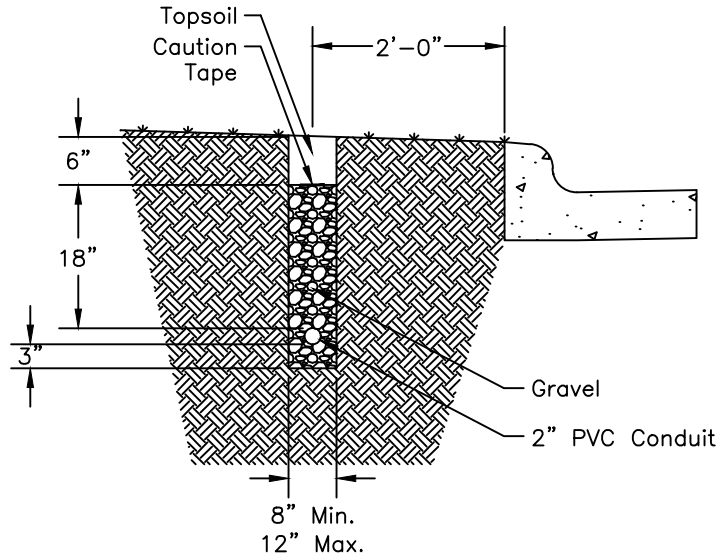
Approved Manufacturer: Buss #KTK-R.

APPROVED  9-1-15 CITY ENGINEER DATE	THOROUGHFARE STREET/ OLD HILLIARD SERVICE ENCLOSURE	CITY OF HILLIARD, OHIO STANDARD CONSTRUCTION DRAWING		
SCALE: N/A		<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">1/2</td> <td style="width: 50%; border: none;">SL-5</td> </tr> </table>	1/2	SL-5
1/2	SL-5			

14. Nameplate: Stainless steel screw attached. Provide permanent weather resistant engraved laminoid nameplate 3" square minimum 3/4" helvetica white letters on a dark bronze background with cabinet circuit embossed into it per plan schedule.
15. Conduit: Shall be heavy wall 2". rigid nonmetallic schedule 40 PVC for use above and below ground or concrete encased. Rated for 90 degrees Celsius conductors and use in direct sunlight. Material shall be UL listed and comply with NEMA TC2-1978 and F.S. #WC-1094A. Provide in 10 foot sections. Seal all joints watertight. Glue joints with PVC cement. Bush all ends. All bends shall use long radius preformed elbows. Extend conduit to minimum 2'-0" below grade. Location to be coordinated with landscaping and utilities.
16. Weatherproofing: Provide penetrating surface applied, 1 coat concrete waterproofing agent. Material shall be clear penetrating, water based, alkyalkoxysilane and contain a minimum of 40% by weight solids and be applied per manufacturer's directions. Coverage shall be 150 square feet per gallon (provide Hydrozo Enviroseal 40 or approved equal). Apply 1 coat to all concrete surfaces above grade.
17. Wiring: Refer to general specifications.



APPROVED	THOROUGHFARE STREET/ OLD HILLIARD SERVICE ENCLOSURE	CITY OF HILLIARD, OHIO	
<i>Clyde R. Seidle</i> CITY ENGINEER		STANDARD CONSTRUCTION DRAWING	
SCALE: 1/2" = 1'		2/2	SL-5

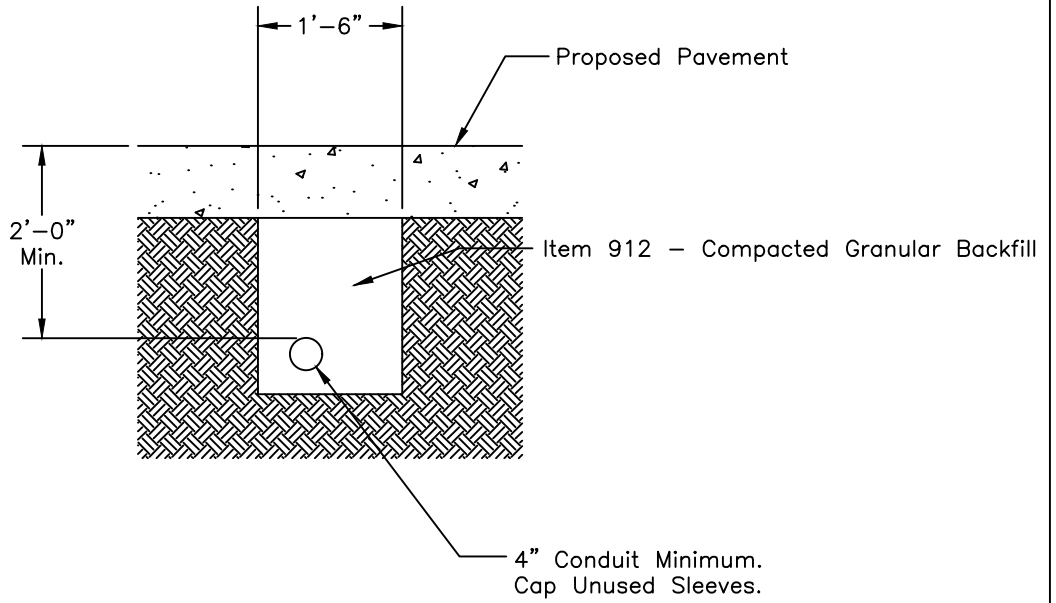


CONDUIT PARALLEL TO BACK OF CURB

Notes:

1. Trenching: Conduit trenches shall have vertical walls and be excavated to a depth that permits conduit to be laid at 2'-0" below finished grade with a gravel cover, above and below. Backfill gravel to topsoil limit. Trenches shall be located adjacent to and parallel with curbs or pavements and shall not deviate more than 6" from the lines designated. Trenches shall not exceed 12" in width. Remove excess soil after backfilling.
2. Gravel: Shall be uncrushed washed gravel and pass a 1/2" sieve. Pour in place and compact to 95% standard proctor in layers not exceeding 6" each. City to inspect during construction.
3. Topsoil: Shall be clean, loose friable, loamy topsoil free of subsoil or refuse. Topsoil may be from the site or imported. Topsoil shall be placed and spread over the areas designated to a depth sufficiently greater than that shown so that after natural settlement the compacted work will conform to the elevations shown.
4. Conduit: Shall be heavy wall rigid nonmetallic schedule 40 PVC for use above and below ground or concrete encased. Rated for 90 degrees Celsius conductors and use in direct sunlight. Material shall be UL listed and comply with NEMA TC2-1978 and F.S. #WC-1094A. Provide in 10' sections. Seal all joints watertight. Glue joints with PVC cement. Bush all ends. All bends shall use long radius preformed elbows.
5. Conduit caps: Provide molded plastic or rubber capping device that only permits wire to pass through while preventing dirt, water, etc. from entering.
6. Pull wire: All empty conduit installed for future lighting shall contain a No. 10 AWG copper-clad pull wire.
7. Caution tape: 3" wide red plastic tape with black letters reading "CAUTION BURIED LINE BELOW". Bury above conduit 6" maximum below grade. Run continuous in all trenches not covered by pavement. City to inspect prior to burying.

APPROVED	UNDERGROUND CONDUIT/TRENCH DETAILS	CITY OF HILLIARD, OHIO	
<i>Clyde R. Seidle</i> CITY ENGINEER		STANDARD CONSTRUCTION DRAWING	
9-1-15 DATE		1/3	SL-6
SCALE: 1/2" = 1'			

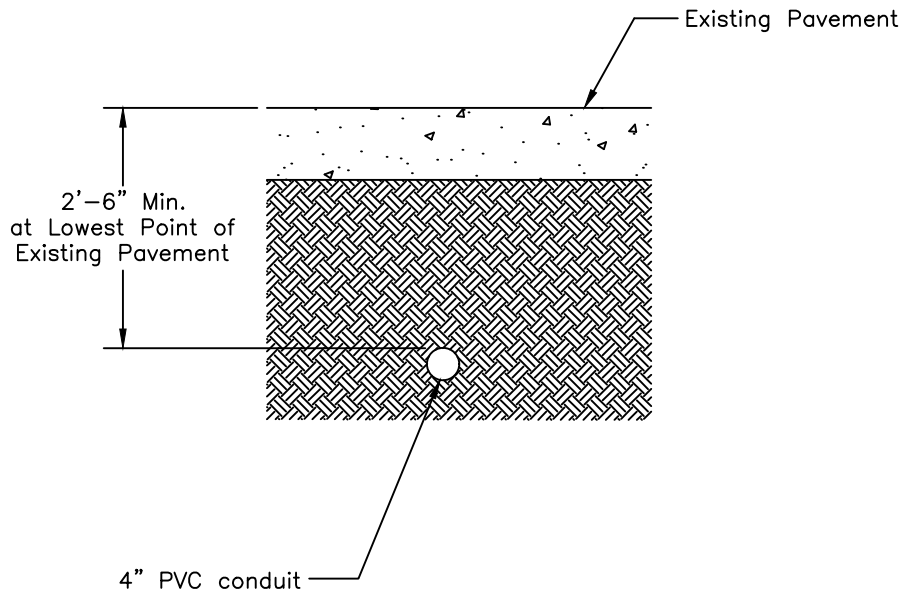


4" CONDUIT UNDER PROPOSED PAVEMENT & UNDER COMMERCIAL DRIVES BY OPEN TRENCH

Notes:

1. Trenching: Sleeve trenches shall have vertical walls and be excavated to a depth that permits sleeves to be laid at 2'-0" below finished grade with 3" concrete encasement around conduit sleeves. Sleeve trenches shall be located perpendicular to the road centerline unless otherwise specifically noted. Maintain in line with conduit setback dimensions at intersections and at curb cuts. gravel cover, above and below.
2. Conduit: Shall be a minimum of 4-inch Schedule 40 PVC conduits and fittings.
3. Conduit caps: Provide molded plastic or rubber capping device that only permits wire to pass through while preventing dirt, water, etc. from entering.
4. Pull wire: All empty conduit installed for future lighting shall contain a No. 10 AWG copper-clad pull wire.

<p>APPROVED</p> <p><i>Clyde R. Seidle</i> 9-1-15 CITY ENGINEER DATE</p>	<p>UNDERGROUND CONDUIT/TRENCH DETAILS</p>	<p>CITY OF HILLIARD, OHIO STANDARD CONSTRUCTION DRAWING</p>		
<p>SCALE: 1/2" = 1'</p>		<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center; border: none;">2/3</td> <td style="width: 50%; text-align: center; border: none;">SL-6</td> </tr> </table>	2/3	SL-6
2/3	SL-6			



**4" CONDUIT UNDER PROPOSED PAVEMENT & UNDER
COMMERCIAL DRIVES BY HORIZONTAL DRILLING**

Notes:

1. Conduit sleeves placed under existing pavement or paved shoulders shall be installed by drilling, subject to approval of the City Engineer. If placed by drilling, the bore shall not exceed the conduit diameter by more than 5 percent. Conduit shall be placed with a minimum amount of disturbance to the roadway.
2. Conduit: Shall be heavy wall rigid nonmetallic Schedule 40 PVC (725.05) for use above and below ground or concrete encased. Rated for 90 degrees Celsius conductors and use in direct sunlight. Material shall be UL listed and comply with NEMA TC2-1978 and F.S. #WC-1094A. Provide in 10' sections. Seal all joints watertight. Glue joints with PVC cement. Bush all ends. All bends shall use long radius preformed elbows.
3. Conduit caps: Provide molded plastic or rubber capping device that only permits wire to pass through while preventing dirt, water, etc. from entering.
4. Pull wire: All empty conduit installed for future lighting shall contain a No. 10 AWG copper-clad pull wire.

<p>APPROVED</p> <p><i>Clyde R. Seidle</i> 9-1-15 CITY ENGINEER DATE</p>	<p>UNDERGROUND CONDUIT/TRENCH DETAILS</p>	<p>CITY OF HILLIARD, OHIO</p> <p>STANDARD CONSTRUCTION DRAWING</p>		
<p>SCALE: 1/2" = 1'</p>		<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center;">3/3</td> <td style="width: 50%; text-align: center;">SL-6</td> </tr> </table>	3/3	SL-6
3/3	SL-6			

Notes.


1. Coordination: Coordinate location of transformer and pad with power company.
2. Transformer: Provided, installed and wired by power company.
3. Transformer Pad: Install per power company requirements for size and location. Refer to service enclosure pad for material specifications.
4. Service Enclosure Pad: Structure shall be set not less than 3'-0" nor more than 5'-0" from power company transformer pad. Concrete shall be class "C", 4000 PSI, 5-7% air entrained. Fill all exposed surface voids. Chamfer all edges. Slope top 1/4" to drain water. Hot or cold weather - follow City of Columbus Construction and Material Specifications, Section 1000. Finish - remove all form marks, provide floated and steel troweled finish.
5. Welded Wire Fabric: Provide 6x6-6x6. Mount on all sides and top. Maintain 3" minimum cover.
6. Service Enclosure: Provide a NEMA watertight stainless steel enclosure, 30"H x 18"W x 15"D. Having a single continuous hinged locking door, interior mounting panel. 6" minimum matching floor stand. Concrete and or bolt type anchor and level to pad via stainless steel machine bolt, nuts & lockwashers. Drill bottom of enclosure with 1/4" weep hole at low point.
7. Service Enclosure Finish: A dark bronze approved by the City Engineer. The paint shall be a powder paint finished to a gloss of 35% (at 60 degrees).
8. Service Enclosure Lock:
 - A. Internal: Key all locking mechanisms alike to NEMA traffic signal number 2 key.
 - B. External: All pad locks shall be American Lock, Model No. 1207B, Key No. 43737.
9. Lighting Controller: A class R fusible combination lighting contactor type controller assembly rated according to the total ampacity of the lighting phase, 60HZ with solid neutral, electrically held with control fuse, 120 volt control voltage, 3 position hand - off auto selector switch and photocell control. Mount all devices in a service enclosure less photo control.

Approved Manufacturer: Square "D" Night-Master SPG-60, or approved equal.
10. Photocell Controller: Provide an on-off photo-initated controller with sealed cadmium sulfide photocell to operate in -30 degrees F to +140 degrees F temperatures, thermal inertia of 15 seconds minimum, threaded pipe nipple, rated 16 Amps, 2000 Watts at 120V, and single pole single throw switch. Turn-ON shall be 1-3 footcandles and Turn-OFF to Turn-ON ratio is 5 maximum. Provide in weatherproof enclosure. Load shall remain "ON" in case of cell failure. Mount atop first pole from service enclosure.

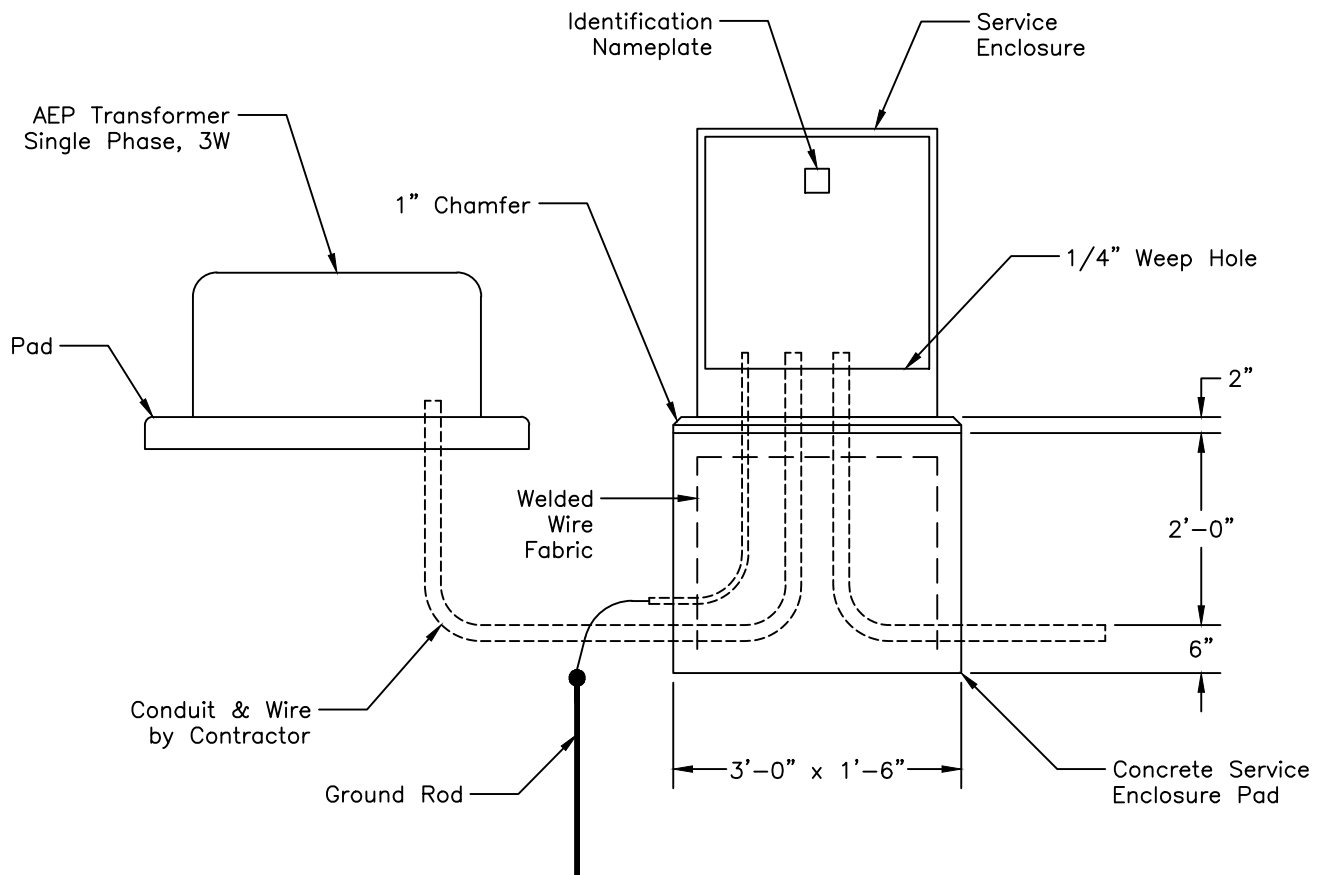
Approved Manufacturer: Tork
11. Grounding: Provide 5/8" x 10'-0" copper weld one piece ground rod. Drive a minimum of 2'-0" below grade. Run #8 AWG solid copper grounding electrode conductor in 3/4" PVC conduit from rod to enclosure ground bar. "Thermo" or "Cad" weld wire connection to rod.
12. Fusing: Service entrance - provide dual element, time delay fuses, UL Class RK-1, 600V, rejection type.

Approved Manufacturer: Buss #LPN-RK.
13. Control Circuit: Provide single element, fast acting-type fuse UL Class CC, 250V, rejector type.

Approved Manufacturer: Buss #KTK-R.

APPROVED  9-1-15 CITY ENGINEER DATE	LOCAL STREET - COMMERCIAL/MIXED USE SERVICE ENCLOSURE	CIT <input type="checkbox"/> OF HILLIA <input type="checkbox"/> D, OHIO STANDARD CONSTRUCTION DRAWING		
SCALE: N/A		<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">1/2</td> <td style="width: 50%; border: none;">SL-10</td> </tr> </table>	1/2	SL-10
1/2	SL-10			

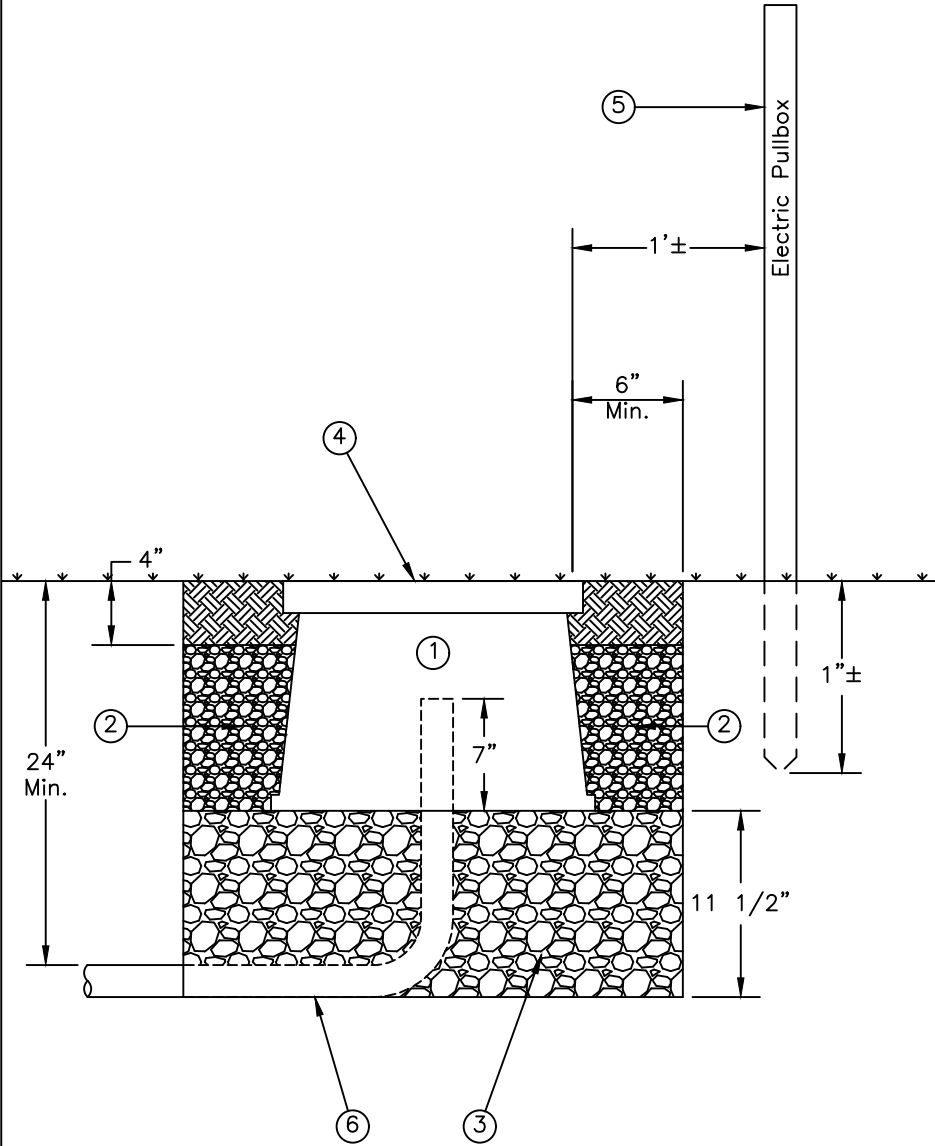
14. Nameplate: Stainless steel screw attached. Provide permanent weather resistant engraved laminoid nameplate 3" square minimum 3/4" helvetica white letters on a dark bronze background with cabinet circuit embossed into it per plan schedule.
15. Conduit: Shall be heavy wall 2". rigid nonmetallic schedule 40 PVC for use above and below ground or concrete encased. Rated for 90 degrees Celsius conductors and use in direct sunlight. Material shall be UL listed and comply with NEMA TC2-1978 and F.S. #WC-1094A. Provide in 10 foot sections. Seal all joints watertight. Glue joints with PVC cement. Bush all ends. All bends shall use long radius preformed elbows. Extend conduit to minimum 2'-0" below grade. Location to be coordinated with landscaping and utilities.
16. Weatherproofing: Provide penetrating surface applied, 1 coat concrete waterproofing agent. Material shall be clear penetrating, water based, alkyalkoxysilane and contain a minimum of 40% by weight solids and be applied per manufacturer's directions. Coverage shall be 150 square feet per gallon (provide Hydrozo Enviroseal 40 or approved equal). Apply 1 coat to all concrete surfaces above grade.
17. Wiring: Refer to general specifications.



APPROVED	LOCAL STREET – COMMERCIAL/MIXED USE	CITY OF HILLIARD, OHIO	
<i>Clyde R Seidle</i> CITY ENGINEER		STANDARD CONSTRUCTION DRAWING	
SCALE: 1/2" = 1'	SERVICE ENCLOSURE	2/2	SL-10

Notes:

1. Pull box, green, high density polyethylene, rectangular, minimum dimensions 14" wide, 19" long, 15" deep with polymer concrete top ring and lid. Lid shall be bolt down with stainless steel fittings and embossed with "ELECTRIC" or "E". Carson Industries LLC, Model 1419-12, or an approved interchangeable equal.
2. COLS Item 304 - Aggregate Base on all sides of pull box, compacted in 6" layers, against undisturbed earth, to within 4" of finished grade. Top 4" compacted earth per COLS Item 203.
3. Minimum 11.5" - #57 stone under pull box.
4. Top of pull box to be set at finished grade (1/2" above top of curb along street).
5. 2"x2"x4' wooden stake, labeled electric pullbox, driven 1'± away from pull box. Exposed part of stake to be painted red.
6. 1 1/2" schedule 40 PVC conduit.
7. A 4' minimum service loop shall be provided in all pull boxes.
8. Only waterproof connections shall be allowed in pull boxes. No wire nuts or electric tape allowed.
9. Conduit elbow shall extend 7" up into pullbox.



APPROVED

Clyde R. Seidle 9-1-15
 CITY ENGINEER DATE

SCALE: 1" = 1'

LOCAL STREET
 -RESIDENTIAL

PULL BOX

CITY OF
 HILLIARD, OHIO

STANDARD
 CONSTRUCTION DRAWING

1/1

SL-11

1. Wiring to be 600V type THWN Cu per the table below.

THOROUGHFARE							
Cond. Size	Cond. Material	No. of Fixture	Typical Fixt Spacing	Voltage	Watt / Fixt	Voltage Drop	% Drop
#4	Cu	10	90	480	89	1.3	0.3%
		15	90	480	89	2.9	0.6%
		20	90	480	89	5.2	1.1%
#6	Cu	10	90	480	89	2.0	0.4%
		15	90	480	89	4.4	0.9%
		20	90	480	89	7.8	1.6%
#8	Cu	10	90	480	89	3.1	0.6%
		15	90	480	89	6.9	1.4%

OLD HILLIARD							
Cond. Size	Cond. Material	No. of Fixture	Typical Fixt Spacing	Voltage	Watt / Fixt	Voltage Drop	% Drop
#4	Cu	10	90	240	75	2.5	1.0%
		15	90	240	75	5.6	2.3%
#6	Cu	10	90	240	75	2.5	1.0%
		15	90	240	75	5.6	2.3%
#8	Cu	10	90	240	75	2.5	1.0%
		15	90	240	75	5.6	2.3%

RESIDENTIAL							
Cond. Size	Cond. Material	No. of Fixture	Typical Fixt Spacing	Voltage	Watt / Fixt	Voltage Drop	% Drop
#8	Cu	3	150	120	80	0.5	0.4%

APPROVED	CONDUCTOR DETAILS	CITY OF HILLIARD, OHIO	
<i>Clyde R Seidle</i> CITY ENGINEER		9-1-15 DATE	STANDARD CONSTRUCTION DRAWING
SCALE: N/A		1/1	SL-17