

# APPENDIX B:

## City of Henderson Microtrenching Guidelines



*A Place To Call Home*

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# List of Drawings

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## 1) Purpose & Background.

The City desires to promote the use of microtrenching for installation of fiber optic cable pursuant to Henderson Municipal Code Title 17 and the standards herein to minimize pavement cuts to City streets. These standards are established to describe the means and methods by which a Company will be permitted to install ducts for fiber optic cable within the City right-of-way by means of microtrenching.

## 2) Definitions.

The following terms are defined for purposes of this Policy:

“Director” means the City of Henderson Public Works Director, or his/her designee.

"Duct" means one enclosed pathway or pipe used for the installation of fiber optic cable, whether installed separately or within a larger conduit.

"Excess capacity" means additional unused ducts available for fiberoptic cable installation in existing duct infrastructure or conduit, or installed with Company's new microtrenching duct(s) that are not intended to be used by the Company or for the Company's business. Each excess capacity duct must be no smaller than the largest duct that is reserved for use by the Company.

"Shadow Duct" means one excess capacity duct reserved solely for use by the City for the City's direct benefit.

“Standard Drawings” means the attached City of Henderson Microtrenching Standard Drawings and Uniform Standard Drawings Clark County Area DWG. No. 328

## 3) Microtrenching Authorization.

- a) A Company may perform microtrenching to the extent allowed by a Use Agreement and Licensed Wireline Authorization (“LWA”) issued by the City. Company shall make every commercially reasonable attempt to place fiber in existing duct(s) or traditional conduit(s), before proposing new microtrenching.
- b) Fiber-optic cable must be placed in traditional conduit(s) when located underground on arterial and major collector roadways as identified in the Master Transportation Plan (MTP), and any new roadways, or as required by the Director at their sole discretion.
- c) The Company shall make one Shadow Duct of excess capacity available without charge or fee to the City for installation of fiber-optic cable for use by the City for the City's direct benefit. Company shall install access points (pullboxes) for City's access to the Shadow Duct, every one thousand (1,000) feet, or as otherwise agreed upon by Company and City. Pullbox materials for City's use will be provided by the City at no cost to the Company.

- d) The Company may install additional ducts of excess capacity to make available to any telecommunications Licensee for installation of fiber-optic cable to serve the telecommunications Licensee's business or customers.
- e) Company shall provide a map in CAD or GIS file format showing the street location of the ducts including the side of the street the ducts are on, the beginning and ending points of the ducts, the number of ducts, and the number of ducts of excess capacity. The map is for internal, City use only, but may be made public, by itself or in aggregation with other maps, pursuant to Nevada Public Records Law (NRS 239.001 - 239.340, NRS 239C.010 - 239C.480).

#### 4) Construction.

- a.) A copy of the LWA and all required construction permits must be kept on the job site during construction.
- b.) Company shall solely be responsible for the work performed. The Department will contact the Company for required adjustments or corrections regardless of whether the Company performed the work itself or subcontracted and assigned the work.
- c.) Inspections for all work shall be done in accordance with Section 7 herein.
- d.) Company shall ensure that all micro-trench repair will be done by conventional repair methods, or, if done by alternate methods and repaired by using a method as shown in the attached Standard Drawings, then the Contractor must warranty the repair for no less than three (3) years.
- e.) If the microtrench requires repair before the remainder of the roadway qualifies for resurfacing, then Company will be responsible for making subsequent repairs per the attached drawings. Should Company fail to maintain, repair, or reconstruct any such surface within 10 days after receiving written notice from the Director, the Department may have such surface repaired or reconstructed and will charge the cost of repair, including any costs associated with the use of any like materials used in restoration, to Company.
- f.) The Company must maintain the condition of the surface over the repair area in as good or better condition as the remainder of the street, alley, sidewalk, or right-of-way, and must repair or reconstruct the surface as often as may be necessary by conventional patch repair methods or approved alternative repair methodology as shown in the attached Standard Drawings. Should the condition of the restoration become such that additional pavement is in jeopardy of failure, then Company may be held responsible for an area larger than the original repair.

#### 5) Microtrench Specifications.

- a.) Microtrenching must follow these specifications and the Standard Drawings attached. Any deviation from these engineering specifications and Standard Drawings will be considered on a case-by-case basis by the City's Quality Control Manager and must be approved in writing prior to commencing construction.

- b.) All requirements of the Clark County Area Uniform Standard Drawings, Clark County Area Uniform Standard Specifications, and Henderson Development Code must be complied with except as specifically permitted in this Section 6. Requests that involve placement of ducts within the right of way must comply with the following supplementary requirements for microtrenching.
- c.) The microtrenching Contractor must acquire an Excavation Permit and Barricade Permit from the City prior to commencing work per HMC Title 11.
- d.) If requested in writing, City will notify all microtrench-installed Utility Owners of the upcoming year's paving and infrastructure maintenance plans at least thirty (30) days prior to commencing work to allow the Utility Owner ample time to relocate or protect its utility prior to construction.
- e.) All microtrench installed ducts must be able to be located per current location standards.
- f.) At no cost to City, Company must provide permanent on-going maintenance to the fiber routes in the project areas. Maintenance must include providing materials and labor to properly maintain, in good condition, pavement, sidewalks, curbs, curbs and gutters, shoulders, and softscape areas (dirt and landscaping), vaults and covers affected by Company's microtrenching and facilities, per City standards.
- g.) At no cost to City, Company must replace any fiber/duct that is damaged or destroyed due to any infrastructure maintenance or installation activities performed by any/all City departments. This also includes those activities necessary to maintain stormwater infrastructure, water distribution, sanitary sewer, sidewalk, roadway, paving, signal installation, or other activities that may commence at the sole discretion of City.
- h.) At no cost to City, Company must replace all existing fiber/duct damaged or destroyed in the shoulder of the roadway or ditch lines within the City right-of-way.
- i.) City will not be responsible for any damage to, or resulting from, the installation of duct construction activities by Company, its contractors, and/or others within project areas.
- j.) Company agrees to conform to the City standard specification and the Clark County Area Uniform Standard Specifications and Uniform Standard Drawings. Any changes will be at the sole discretion of the City.
- k.) If at any time the City determines that a microtrench is found to be failing or in disrepair, Company will be contacted and will be required to make subsequent repairs.
- l.) Prior to placement of any backfill, the Department must be notified, and an inspection of the trench will be made by a representative of the Department. At the completion of the backfill, the Department must be notified, and an inspection of the location will be performed to ensure compliance with this and all standard details, specifications, and procedures.
- m.) Company's Contractor must notify City inspection personnel at (702) 267-3144 no less than one (1) day prior to the request for inspection.
- n.) Existing pavement, bases, curbs and gutters, and sidewalks must be cut and brought to a neat line by use of an air hammer, saw, or other suitable equipment. All expansion joints removed must be replaced with like materials or an approved mastic.

- o.) Company is responsible for submitting the standard Excavation Permit application and Barricade Permit application at [DSCOnline.cityofhenderson.com](https://DSCOnline.cityofhenderson.com).
- p.) The Contractor will be liable and responsible for all microtrenching excavations in the roadway that are not filled, which may be a hazard to the pedestrian, bicycle, and nonvehicular community.
- q.) Microtrenches are required to be installed in the following locations:
  - i.) If available, the microtrench must be installed at the back of curb. Where a sidewalk exists at the back of curb, the microtrench must be at the expansion joint at the edge of the sidewalk. Where no sidewalk exists, the microtrench must be at the edge of the softscape abutting the curb. See COH DWG No. 101,102 & 105.
  - ii.) Where the back of curb is at the edge of the right-of-way, or the back of curb is not available, microtrenching may be allowed within the pavement at the lip of gutter. See COH DWG No. 103 & 106.
  - iii.) Any subsequent (second, third, fourth, etc.) microtrench must be located in one of the locations in subsection i. and ii. of this Section, if available, or on the opposite side of the street.
  - iv.) In rural preservation areas, where no curb or gutter exists, the microtrench must be within 6 - 24 inches of the edge of pavement. See COH DWG No. 104.
  - v.) Any microtrenching proposed for alternate locations, because none of the above options are available, will be evaluated on a case-by-case basis and must be approved in writing at the sole discretion of the Director.
- r.) All microtrenching must be linear in nature and have a shape consistent with the roadway's horizontal alignment. It is incumbent on each Utility Owner to work with future Utility Owners that wish to install in the same manner.
- s.) All microtrenching must meet minimum separations from wet utilities per Uniform Design and Construction Standards for Potable Water Systems (UDACS) 2010 and Design and Construction Standards for Wastewater Collection Systems – City of Henderson 2019 (DCSWCS 2019), and the current City of Henderson UDACS Addendum and DCSWCS Addendum.
- t.) All alternate microtrench locations within the pavement, not installed at the lip of gutter, shall require full lane width mill and paving by the Contractor. See Pavement Repair Specification CCAUSD 500.1, 500.2, 500.3, 500.4, and 500.5.
- u.) Lateral street crossings shall be at a 90-degree angle to the street centerline and are limited to one per block or a minimum spacing of every 500 feet. Company shall place crossings at the edge of valley gutters where available in the vicinity of any proposed crossing. See COH DWG No. 105 & 106.
- v.) Company shall be responsible for determining any utility conflicts prior to construction, per local standards.

## 6) Inspections.

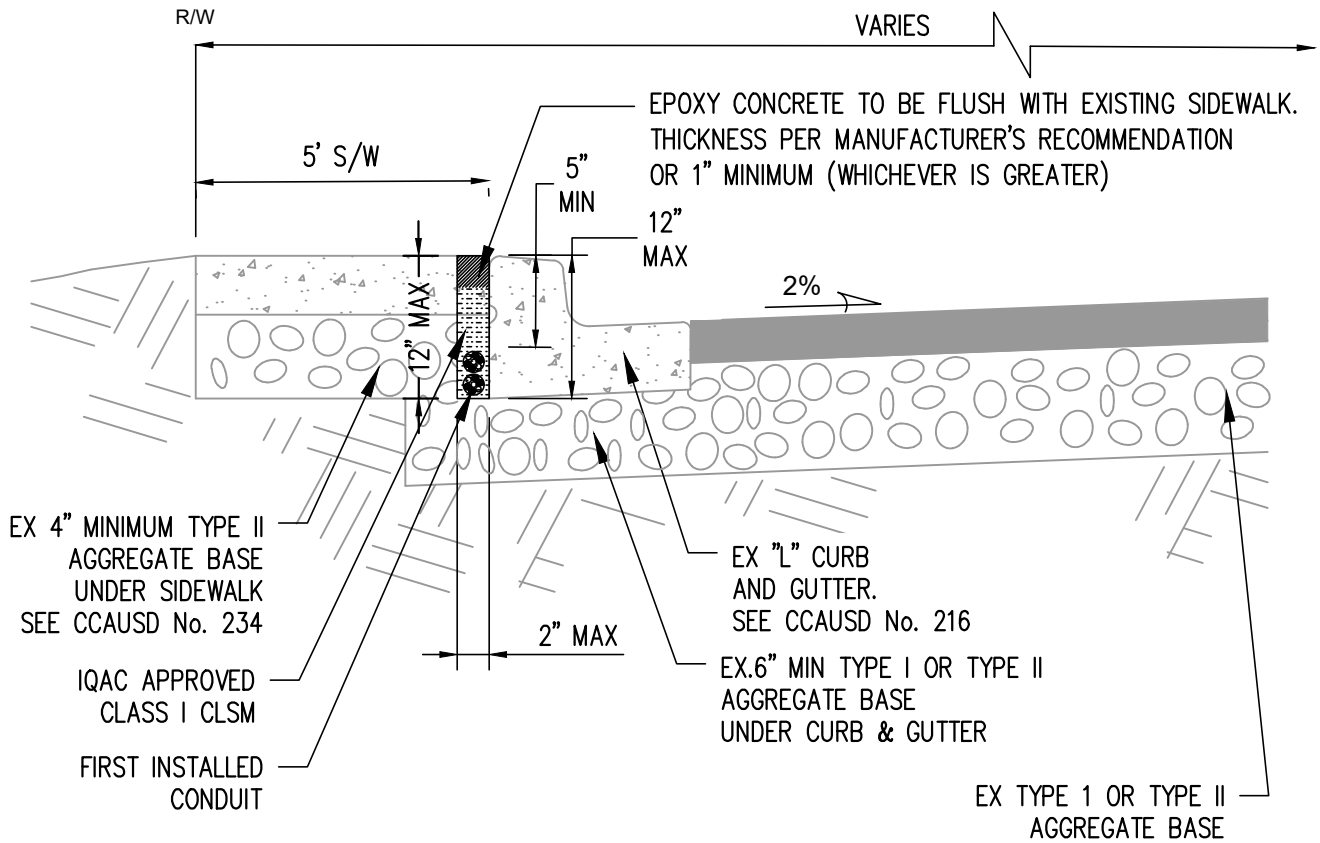
All microtrenching installations must pass the following inspections completed by City personnel:

- a.) Detached sidewalk
  - i.) Layout Inspection/Field Meet
  - ii.) Verify Utility Depths
  - iii.) Excavation Inspection
  - iv.) Backfill Inspection
  - v.) Surface Treatment Inspection
  - vi.) Final Completion
  
- b.) Attached sidewalk back of curb
  - i.) Layout Inspection/Field Meet
  - ii.) Excavation Inspection
  - iii.) Backfill Inspection
  - iv.) Surface Treatment Inspection
  - v.) Final Completion
  
- c.) Lip of curb
  - i.) Layout Inspection/Field Meet
  - ii.) Verify Utility Depths
  - iii.) Excavation Inspection
  - iv.) Backfill Inspection
  - v.) Surface Treatment Inspection
  - vi.) Patching Inspection
  - vii.) Final Completion

All microtrenching operations will require both AM and PM inspections.

## 7) Removal of Ducts.

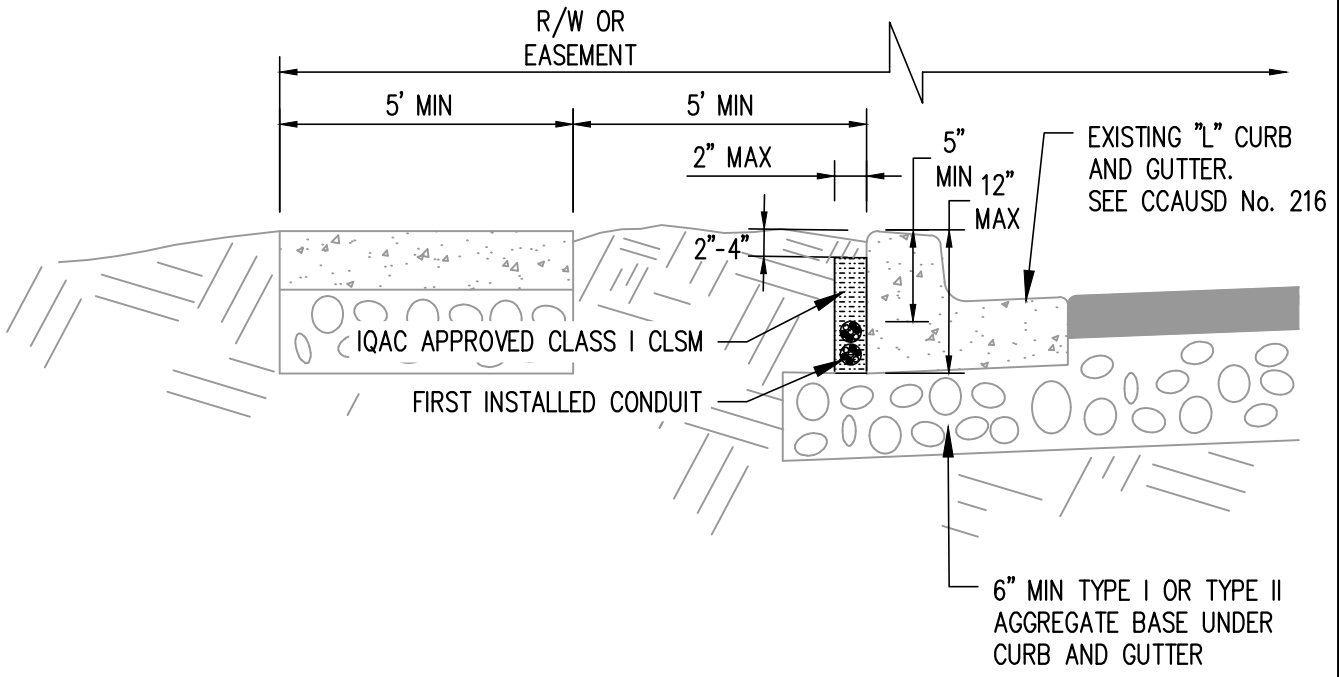
If Company no longer intends to maintain the duct in working order and good repair, the Company must notify the Director and either transfer the duct to another Company, or the City.



**NOTES:**

**ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST STANDARD SPECIFICATIONS AS DETERMINED BY THE CITY OF HENDERSON PUBLIC WORKS DEPARTMENT  
 ANY VOIDS CREATED, THAT REQUIRE BACKFILL, MUST BE IQAC APPROVED CLASS I CLSM.**

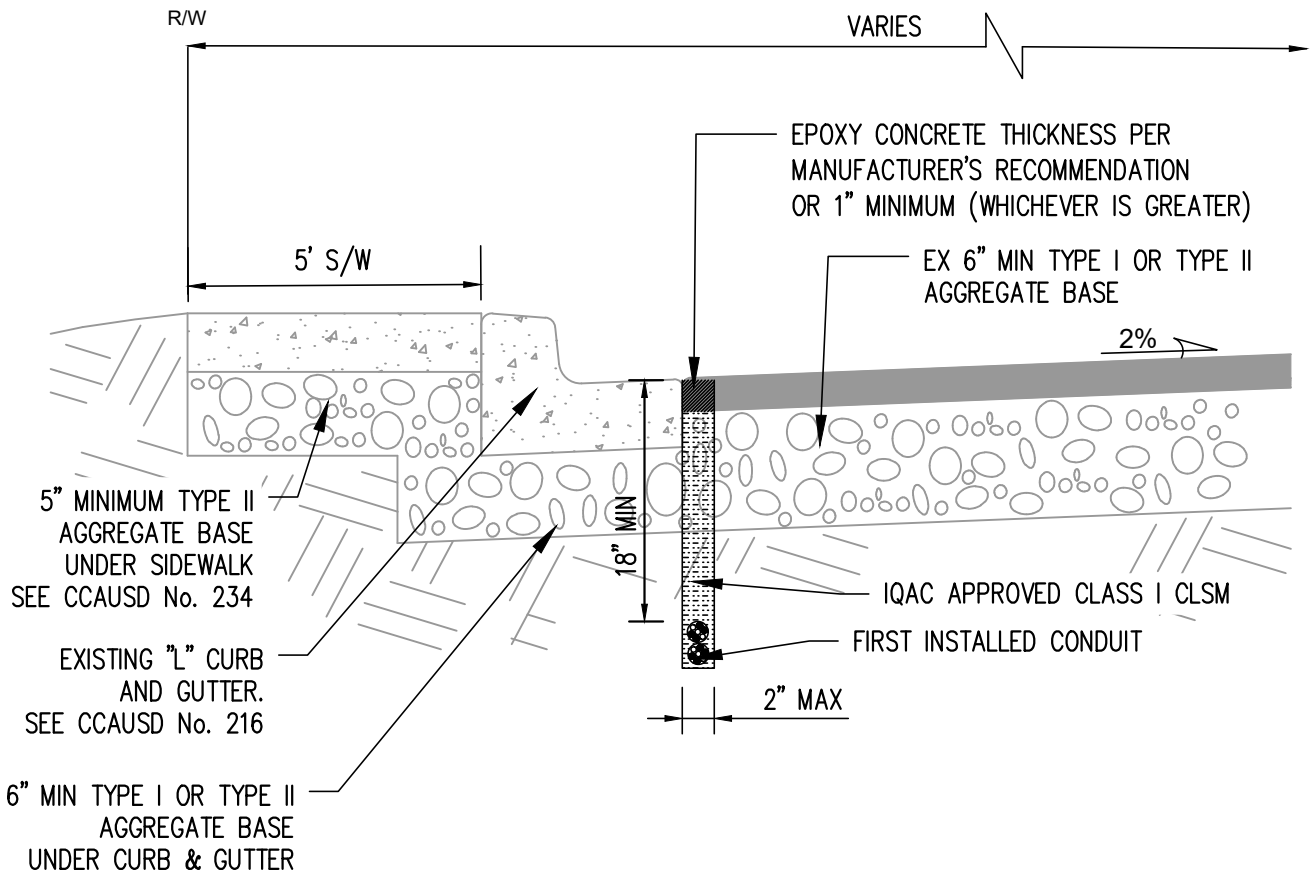
CCAUSD REFERENCE		CITY OF HENDERSON MICROTRENCHING STANDARD DRAWINGS	
302	AGGREGATE BASE	MICROTRENCHING LOCAL RESIDENTIAL WITH ATTACHED SIDEWALK	
401	BITUMINOUS PAVEMENT		
406	PRIME COAT		
407	FOG COAT		
501	CONCRETE		
		DATE 12-2023	COH DWG. NO. 101
		D-1	



**NOTES:**

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 ANY VOIDS CREATED, THAT REQUIRE BACKFILL, MUST BE IQAC APPROVED CLASS I CLSM.**

CCAUSD REFERENCE		CITY OF HENDERSON MICROTRENCHING STANDARD DRAWINGS	
302	AGGREGATE BASE	<b>MICROTRENCHING DETACHED SIDEWALK</b>	
401	BITUMINOUS PAVEMENT		
403	OPEN GRADE		
413	BITUMINOUS GAP GRADED PAVEMENT		
501	CONCRETE		
		DATE 12-2023	COH DWG. NO. 102
		D-2	

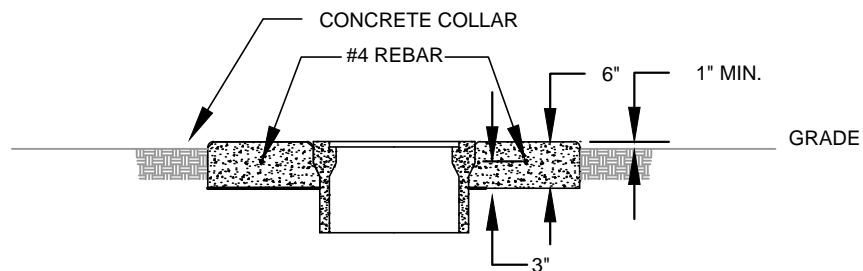
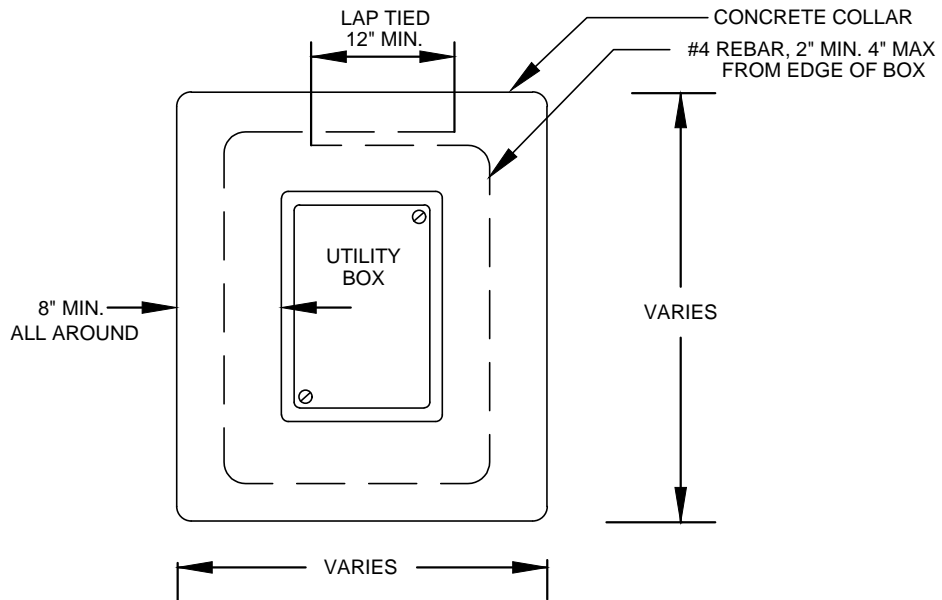


NON-RESIDENTIAL LOCAL OR MINOR RESIDENTIAL COLLECTOR

NOTES:

**ANY VOIDS CREATED, THAT REQUIRE BACKFILL, MUST BE IQAC APPROVED CLASS I CLSM.**

CCAUSD REFERENCE		CITY OF HENDERSON MICROTRENCHING STANDARD DRAWINGS		
302	AGGREGATE BASE	MICROTRENCHING NON-RESIDENTIAL LOCAL OR MINOR RESIDENTIAL COLLECTOR WITH CURBSIDE SIDEWALK		
401	BITUMINOUS PAVEMENT			
406	PRIME COAT			
407	FOG COAT			
413	BITUMINOUS GAP GRADED PAVEMENT			
501	CONCRETE	DATE 12-2023	COH DWG. NO. 103	D-3

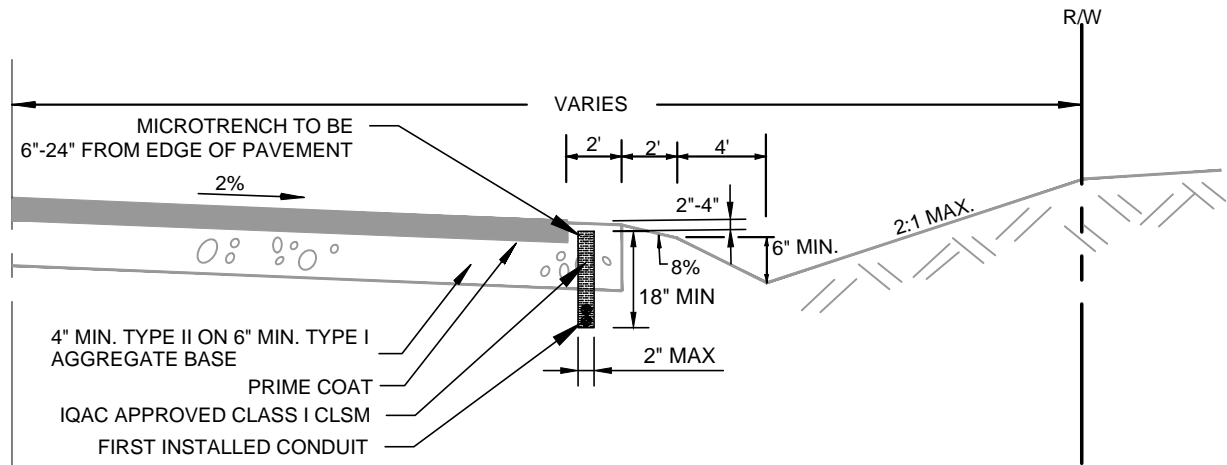


**TYPICAL SECTION**

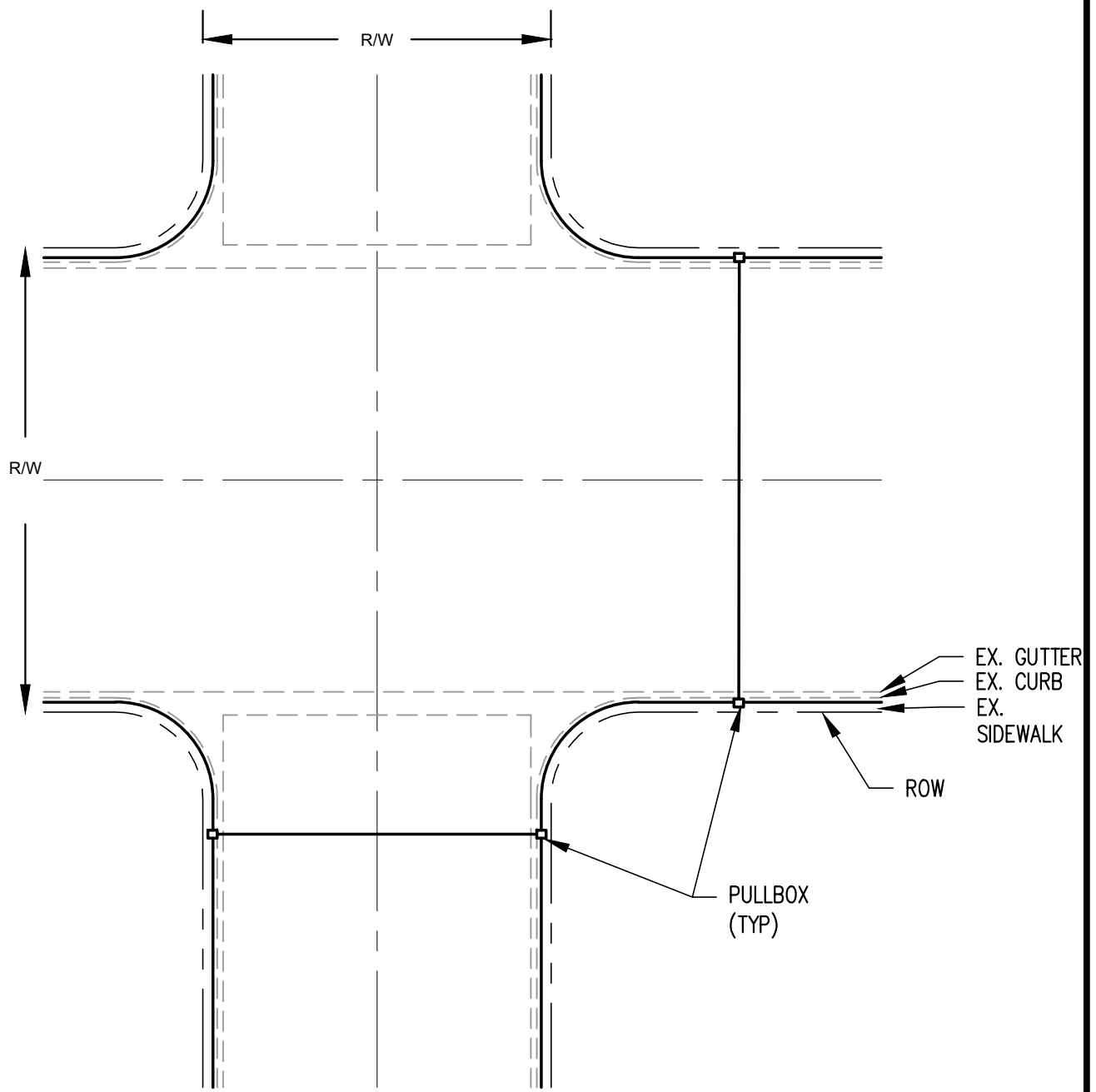
For pull box selection please refer to The City of Henderson Approved Materials List located at: [www.cityofhenderson.com/government/departments/utility-services/development/utility-services-codes-standards-guidelines](http://www.cityofhenderson.com/government/departments/utility-services/development/utility-services-codes-standards-guidelines)

**NOTES:**

**ANY VOIDS CREATED, THAT REQUIRE BACKFILL, MUST BE IQAC APPROVED CLASS I CLSM.  
ALL PULLBOXES MUST BE TRAFFIC RATED.**



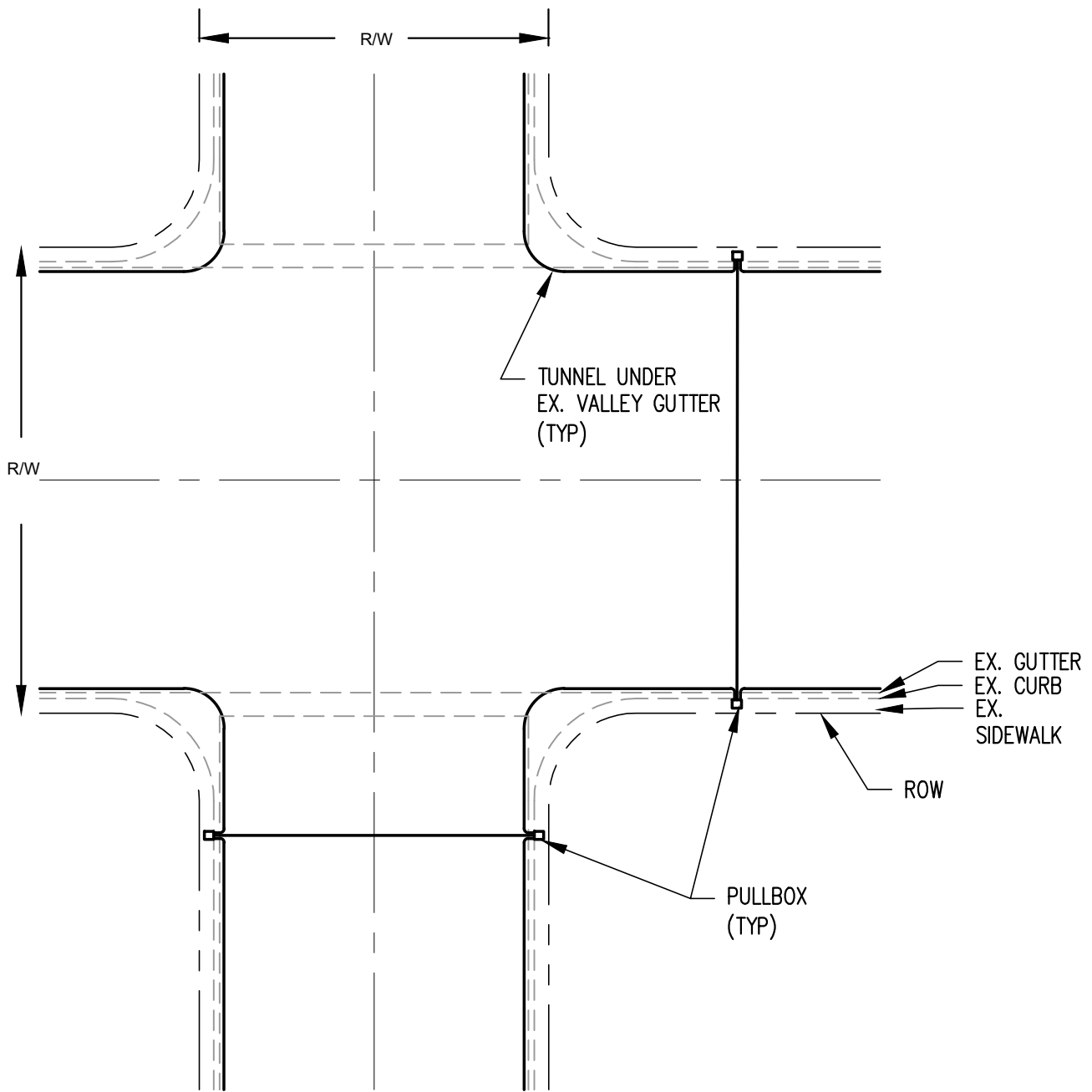
CCAUSS REFERENCE		CITY OF HENDERSON MICROTRENCHING STANDARD DRAWINGS	
302	AGGREGATE BASE	UNIMPROVED AREAS	
401	BITUMINOUS PAVEMENT		
406	PRIME COAT		
407	FOG SEAL		
		DATE 12-2023	COH DWG. NO. 104
		D-4	



**NOTES:**

**ANY VOIDS CREATED, THAT REQUIRE BACKFILL, MUST BE IQAC APPROVED CLASS I CLSM.**

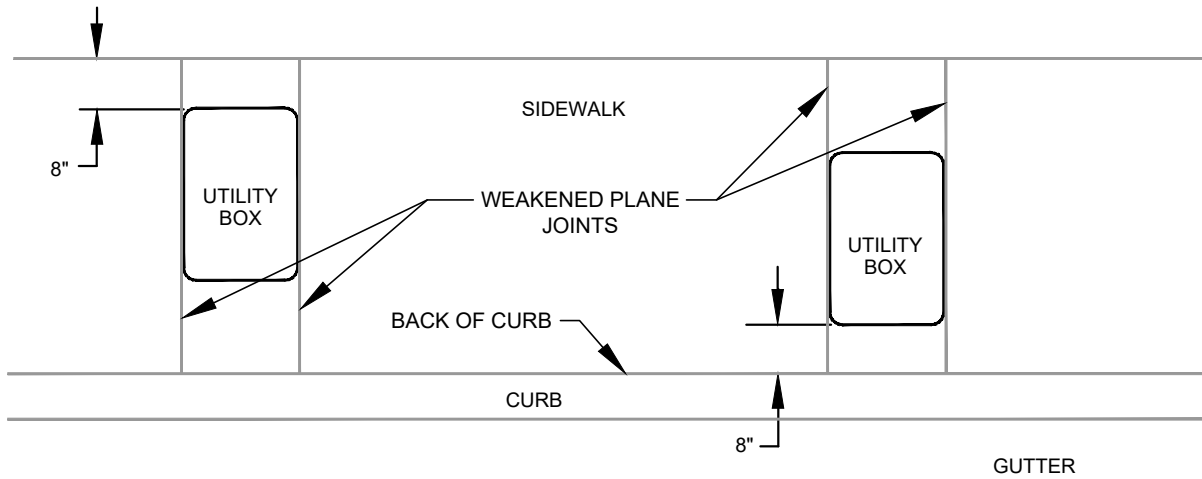
SPECIFICATION REFERENCE		CITY OF HENDERSON MICROTRENCHING STANDARD DRAWINGS	
		BACK OF CURB VALLEY GUTTER CROSSINGS OPTION 1	
		DATE 12-2023	COH DWG. NO. 105
		D-5	



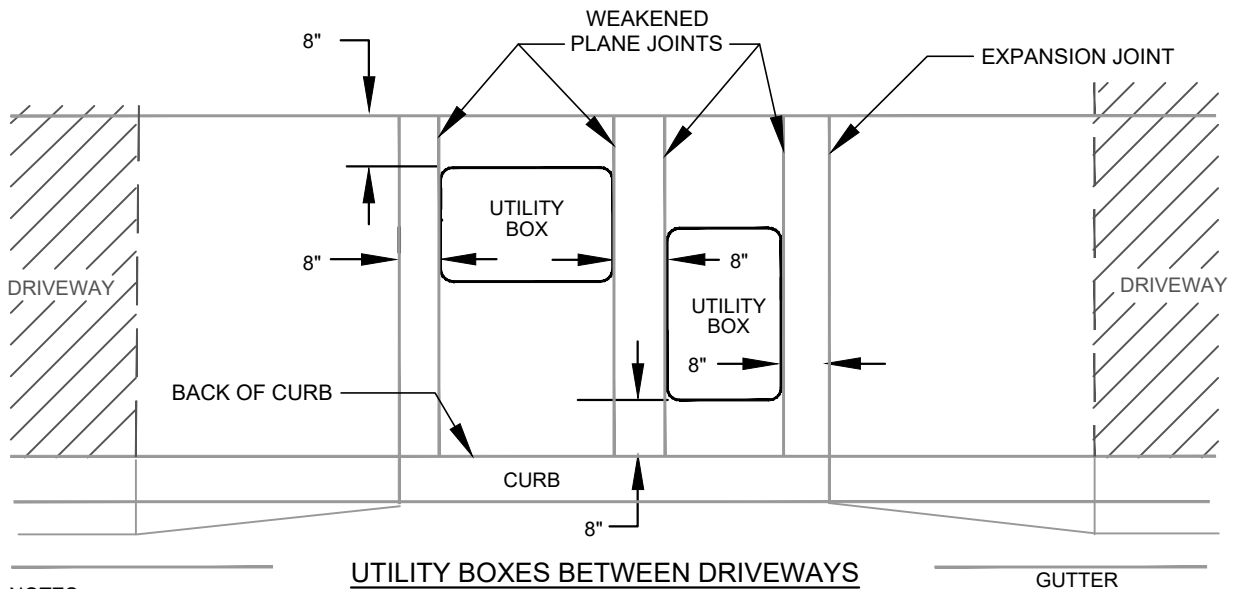
**NOTES:**

**ANY VOIDS CREATED, THAT REQUIRE BACKFILL, MUST BE IQAC APPROVED CLASS I CLSM.**

SPECIFICATION REFERENCE		CITY OF HENDERSON MICROTRENCHING STANDARD DRAWINGS	
		LIP OF GUTTER VALLEY GUTTER CROSSINGS OPTION 2	
		DATE 12-2023	COH DWG. NO. 106
			D-6



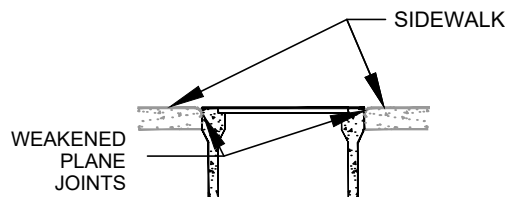
UTILITY BOXES IN SIDEWALK



UTILITY BOXES BETWEEN DRIVEWAYS

NOTES

1. PROVIDE A MINIMUM OF 8" AROUND ALL BOXES. ANY BOX SHALL NOT BE PLACED WITHIN 3'-3" OF FIRE HYDRANTS IN DRIVEWAYS OR DRIVEWAY APRONS. THIS DRAWINGS IS NOT INTENDED TO LIMIT THE NUMBER OF BOXES BETWEEN DRIVEWAYS TO TWO.
2. FOR WATER SERVICE BOXES, REFER TO UDACS PLATE 1-7.
3. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
4. ANY VOIDS CREATED, THAT REQUIRE BACKFILL, MUST BE IQAC APPROVED CLASS I CLSM.



TYPICAL SECTION

AGENCY APPROVED    B    C    H    L    M    N    R

SPECIFICATION REFERENCE

505	REINFORCING STEEL
623	TRAFFIC SIGNALS & STREETLIGHTING

UNIFORM STANDARD DRAWINGS  
CLARK COUNTY AREA

UTILITY PULL BOX LOCATIONS SIDEWALK AND  
BETWEEN DRIVEWAYS

DATE 01-09-20    DWG. NO. 328

D-7