City of Henderson

1st Addendum – 2019
Design and Construction Standards for Wastewater Collection Systems
4th Edition – 2019
Effective: May 7, 2019

GENERAL STATEMENT:

The "Design and Construction Standards for Wastewater Collection Systems" (DCSWCS) addresses the design and construction requirements for wastewater collection systems. Generally, this shall include sewer mains and appurtenances 21-inches in diameter and smaller. For design and construction requirements related to mains larger than 21-inches in diameter, contact the City of Henderson Department of Utility Services, Infrastructure Planning Division for specific details.

The intent of this addendum is to clarify specific City of Henderson (City) requirements that may not be fully addressed within the DCSWCS document. Where discrepancies exist between the requirements of DCSWCS and this addendum, this addendum shall apply. If not amended by this addendum, the requirements as specified in DCSWCS shall apply. This addendum supersedes all previous DCSWCS addenda.

1.5 Right-of-Way

Unless otherwise allowed by the City, all utility easements in a subdivision, not within a public or private street, shall be within a common element.

1.14 Rules and Regulations

The City of Henderson's "rules and regulations" are incorporated in: Title 14 of the Henderson Municipal Code, the City of Henderson Service Rules, this Addendum and the City's Approved Materials List. Electronic copies are available on the City's web site (www.cityofhenderson.com).

2.3 Design Criteria For Gravity Sewers

2.3.1 Calculation of Peak Wastewater Flow

Table B of this Addendum shall be used for calculating wastewater flows within the City.

2.3.3 Pipe Slope Requirements

2. Design d/D ratio shall be 0.75 when transporting the Peak Wet Weather Flow (PWWF) for the Project and upstream tributary flows, if any.

PWWF = PDWF x 1.25

2.3.4 Curved Sewers

Lateral connections may be constructed on curved sewer. Locator ribbon is required for curved sewer location.

Marker balls are not required.

Survey shots for laterals and joint deflection are not required.

2.3.7 Shallow Mains and Laterals:

The City will allow concrete encasement of C900 sewer mains and laterals if no other practical option exists. Structural calculations shall be provided to the City for review and approval if less than 3 feet of cover cannot be maintained. Refer to SD-14 for concrete bedding and reinforced encasement.

2.3.8 Sewer Main Connections

In any ground water type application a double seal shall be used. The manhole base of any modified manhole shall conform to drawing SD-9 after modification.

2.3.10 C. Lateral Connection to Manholes:

The City does not allow laterals 6 inches in diameter and smaller to connect to manholes.

2.3.13 Siphons:

The City does not allow siphons.

2.3.15 Standard Manholes:

E. Monitoring, Pretreatment Sampling, and Debris Screen Manholes:

Debris screens are not allowed unless approved by the City.

2.3.19 Manhole and Manhole Appurtenances

B. Additional Requirements for Manhole Bases:

1. COH will require a “through” manhole, per this section, for sewer slopes greater than 5% for “straight-through” sewers.

G. Connections to Manholes:

Where new sewers enter existing manholes, the wall of the manhole shall be core drilled and an appropriate seal boot (Link-Seal or an approved equal) shall be used to positively seal against infiltration and exfiltration. Any remaining annular space shall be filled in with non-shrink grout. In any ground water type application a double seal shall be used. Sewers larger than 15-inches entering an existing manhole will be considered on a case by case basis.

2.4 Design Criteria For Pumping Stations

All wastewater pumping stations within the City are reviewed on a case-by-case basis. The City does not accept any standard design for wastewater pumping stations. Refer to the Henderson Utility Guidelines (HUGs).

2.5 Design Criteria For Force Mains

In addition, design of force mains shall conform to Henderson Utility Guidelines (HUGs).

3.9 Construction Staking

In addition, all sewer mains designed at a slope less than 1% shall be staked at an interval not to exceed 25 feet.

3.11 Bypass Pumping Requirements

Reference the online Henderson Utility Guidelines (HUGs) Chapter 9 – Wastewater Bypass Pumping for requirements.

3.12 Agency Pipeline Encroachment – Blasting

Contact COH Building and Fire Safety Division for blasting requirements.

3.14.6 Pipe Locator Ribbon

Tracer wire shall also be installed in addition to locator ribbon for all reuse/reclaimed mains and force mains.

3.14.7 Marker Balls

Marker balls are not used in the City.

3.16 Manhole and Cast-in-Place Structure Installation

3.16.9 Debris Trap

During construction of new facilities, the contractor shall put plywood in the manhole to protect against debris getting into the invert. A trap or plug must be installed within the manhole immediately upstream of each point of connection to existing mains. This trap must be constructed, installed and maintained such that construction debris is prevented from entering existing mains. The trap shall be relocated to the manhole immediately downstream

of each point of connection prior to any flushing and balling operations within the new facilities.

3.19 Testing

3.19.1.e Sewer Televising

Prior to sewer televising, a Public Works Quality Control Inspector shall be present. The sewer televising operator shall be PACP certified. Video encoding shall be in the GRANITE NET software format.

SECTION 5
STANDARD DRAWINGS

UDACS Plate No.	**Changes/Additions/Deletions**
No. SD-1	Steps are not utilized for any sanitary sewer manholes within the City. Only the bottom step is required for any sanitary sewer manhole within the City.
No. SD-4	Amend Note 2 to add the following: "Concrete collars shall be required on all sewer manholes."
No. SD-15, SD-16, SD-17, SD-18, and SD-19	Tracer wire shall also be installed in addition to locator ribbon for all reuse/reclaimed mains and force mains.
No. 26A	Easements shall not be less than 20 feet in width and shall be contained within a single parcel of land. The easement shall increase by 10 feet in width for each utility main added to the easement beyond a single main. All mains shall be centered in the available easement space. Unless otherwise allowed by the City, all utility easements in a subdivision not within a public or private street, shall be within a common element. The easement width required may increase with a main deeper than standard depth.

Table B, Page T-2 calculating wastewater flows in the City of Henderson.

UC	CUSTOMER CLASS	ERUs	BILLING
10	Single Family	1.00	Each Unit
11	Townhouse, Condo (individually billed)	.70	Each Dwelling Unit
12	Multiple Residential	.70	Each Dwelling Unit
13	Townhouse, Condo (association billed)	.70	Each Dwelling Unit
14	Trailer Estates	1.00	Each Lot
15	Trailer Estates (association billed)	1.00	Each Lot
16	Trailer Courts (RV Parks)	.70	Each Space
18	Hotels/Motels	.60	Each Room
	Plus fixtures outside of rooms	1.50	Each Fixture
20	Casinos	1.50	Each Fixture
21	Restaurant (disposal)	1.33	Each Fixture
22	Restaurant (with or without bar)	1.33	Each Fixture
	TYPE A - 50		
51	Dry Cleaners	1.00	Each Fixture
52	Markets with disposal	1.00	Each Fixture
53	Bars/Taverns with food facilities	1.00	Each Fixture
55	Motor Vehicles Sales with automated car wash	1.00	Each Fixture
56	Miscellaneous	1.00	Each Fixture
	TYPE B - 60		
61	Bars/Taverns without food sales	.65	Each Fixture
63	Service Stations	.65	Each Fixture
64	Misc Business (includes shopping centers)	.65	Each Fixture
66	Retail Sales (includes motor vehicle sales without automated car wash)	.65	Each Fixture
67	Drug Stores	.65	Each Fixture
	TYPE C - 70		
71	Offices	.45	Each Fixture
72	Service-Alterations/Dry Cleaner Pickup Stations	.45	Each Fixture
73	Maintenance/Repairs	.45	Each Fixture
74	Theaters	.45	Each Fixture
75	Common areas for TYPE C category	.45	Each Fixture
76	Office/Warehouse	.45	Each Fixture
77	Laundromats	.45	Each Fixture
	TYPE D - 80		
81	Beauty/Barber/Nail Shops and Tanning Salons	.25	Each Fixture
82	Medical (M.D.)	.25	Each Fixture
83	Dental (D.D.S.)	.25	Each Fixture
84	Medical/Dental (Physician on staff seeing patients)	.25	Each Fixture
85	Veterinarian	.25	Each Fixture
86	Pet grooming/Common areas for TYPE D	.25	Each Fixture
30	Hospital	1.20	Each Bed
32	Convalescent/Rest Home	.75	Each Bed
34	School (includes day care centers)	.10	Each Student
36	Church	.50	Each Fixture
40	Large Continuous Car Wash	Average ERUs of all similar car washes (for SDAs only)	
40	Car Wash (per bays or stalls)	1.275 ERUs x no. of bays or stalls (for SDAs only) (135,000gal per bay)	
40	(Laundry) (Car Wash) (SDA+SS) (SS only)	(Annual Water Use) x .85 = No. of ERUs 90,000 gallons (Must have meter on all sources of water)	
Large Commercial (Over 250,000 gallons per day)		(Annual Water Use) = no. of ERUs 90,000 gallons (Must have meter on all sources of water)	

Swimming Pools including nonresidential spas, hot tubs, and jacuzzis

Type	Size (in Gallons)	ERUs
1	30,000 gallons and less	0.10 (includes non-residential decorative fountains)
2	30,001 - 99,999	0.25
3	100,000 - 149,999	0.50
4	150,000 - 199,999	0.65
5	200,000 - 249,999	0.85
6	250,000 - 299,999	1.00
7	300,000 - or more	1.30 (Add 0.25 ERUs for each additional 50,000 gallons or each fraction thereof)

For calculating wastewater flows within the City of Henderson use - one ERU = 250 gpd