October, 8 2018

CITY OF FLAGSTAFF
Community Development Division
Engineering Section

RE: City of Flagstaff
   Engineering Design and Construction Standards and Specifications
   Administrative Revisions

The most recent revision to the Engineering Standards were adopted by City Council in July of 2017. Since the adoption of these standards Engineering staff continues to identify sections of the standards that need to be changed due to current practices or new technologies. Rather than make a full revision to the standards for a few changes Engineering has administratively adopted the following Engineering Standards revisions. This list is expected to grow over time and these revisions will be officially adopted as part of the next round of revisions.

This document, as well as the attached supporting documentation, shall serve as a supplement to the Engineering Standards until these revisions are officially adopted.

Should you have any additional questions about these supplemental revisions please contact the Development Engineer, Gary Miller, at 928-213-2704.

Sincerely,
ENGINEERING SECTION

[Signature]

Richard A. Barrett, P.E.
City Engineer
<table>
<thead>
<tr>
<th>Revision Description</th>
<th>Pg</th>
<th>Engineering Standards Sections Revised</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revise General Notes to include survey monument protection</td>
<td>2</td>
<td>13-06-007-0001</td>
<td>Place note on all construction plans making contractors aware of newly adopted standard.</td>
</tr>
<tr>
<td>Remove steps from Manholes</td>
<td>3</td>
<td>13-21-02-0420, 13-21-02-0421, 13-21-002-0422</td>
<td>Built in manhole steps corrode and become unsafe over time. Maintenance crews utilize ladders to access all manholes regardless of whether steps are installed. Other minor revisions made to be consistent with newly adopted MAG details.</td>
</tr>
<tr>
<td>Replace Trash Enclosure Detail with corrected detail</td>
<td>5</td>
<td>13-23 Detail PW-50-10 1 of 2</td>
<td>Some of the dimensions were incorrect, and additional detail was added for clarification.</td>
</tr>
</tbody>
</table>
**13-06-007-0001 General Notes**

A. The following notes are to appear on applicable plans:

Add the following General Note:

21. All survey monuments within or around the construction area shall be protected in place. Any monuments that are disturbed or displaced by construction shall be reset by the RLS at the contractor’s expense in accordance with City of Flagstaff Engineering Standards section 13-03-005-0004 and A.R.S. 33-103.
Delete the Note "steps not required in 60" M.H."

Revise to include the following:

Manholes that have either two or more inlets or inlet/outlet pipes ranging between 12" and 18" in diameter shall be constructed using 60" inside diameter manhole material. Manholes having inlet/outlet pipes 24" to 36" in diameter shall be constructed using 72" inside diameter manhole material. Manholes for pipes greater than 36" in diameter shall be specially designed.

**Steps shall be installed in 60" manhole in accordance with 48" manhole standard.**

Steps in all manholes access point shall be placed oriented so that climber faces traffic and the steps are in the same side of the manhole the sewer pipe enters or exits the manhole.

For new manholes, the maximum dimension from the top of the lid to the top of the cone shall be 22". The maximum dimension from the top of the lid to the bottom of the flat top shall be 24".

The manhole base of all manholes shall be reinforced with #4 rebar 8" on center both ways and placed 4" above subgrade elevation.

A 1" vertical clearance shall be provided between the top of the sewer pipe and the bottom edge of all manhole barrel sections. A suitable radius shall be provided where the manhole floor joins the vertical edge of the invert channel.

Precast manhole bases may be allowed if sufficient design information is provided to enable a thorough review of the design for a recommendation of approval by the City Engineer.

Manhole bases shall be placed on a minimum 8" aggregate base course compacted to 100%.

See COF Standard Detail 9-02-092 for additional requirements of the manhole base geometry.

(Ord. 2017-22, Rep&ReEn, 07/05/2017)

Remove the Note beginning "1:3 Cement . . ."

Revise to include the following notes:

The manhole base shall be reinforced with #4 rebar 8" on center both ways and placed 4" above subgrade.

Manhole bases shall be placed on a minimum 8" aggregate base course compacted to 100%.

See COF Standard Detail 9-02-092 for additional requirements of the manhole base geometry.

(Ord. 2017-22, Rep&ReEn, 07/05/2017)

Remove the notes beginning "1:3 Cement . . ." and "M.H. step in 48" . . .."

Revise to include the following notes:

**Steps shall be installed in 60" manholes in accordance with 48" manhole standard.**

The manhole base shall be reinforced with #4 rebar 8" on center, placed 4" both ways above subgrade.
All manhole frame and cover adjustments shall be made in accordance with City of Flagstaff Detail 9-03-062.

(Ord. 2017-22, Rep&ReEn, 07/05/2017)
PW 50.10 Single and Double Trash Enclosure

**DOUBLE ENCLOSURE**

- SOLID GROUT WALL and CROWN TOP
- 8"x8"x16" CMU WALL WITH #4 HORIZ. REINF. @ 16" O.C.
- and #4 VERT. @ 48" O.C. TO FOOTINGS

**SINGLE ENCLOSURE**

- 6" CONCRETE SLAB FLUSH WITH A.C. (TYP) WITH 10" FRONT APRON

**TYP. WALL SECTION**

- 6" STL. BOLLARD 4" FROM WALL (TYP)

**TYP. STEEL BOLLARD**

- FILL WITH GROUT and CROWN TOP
- 6" SCHEDULE 40 GALV. STEEL POST

**NOTES:**

WHEN THE ENCLOSURE INCLUDES GATES, THE PLANS SHALL PROVIDE A WAY TO SECURE THE GATES OPEN AND CLOSED.
DOUBLE ENCLOSURE

SOLID GROUT WALL and CROWN TOP

8''x8''x16'' CMU WALL WITH #4 HORIZ. REINF. @ 10'' O.C. and #4 VERT. @ 48'' O.C. TO FOOTINGS

#4 HORIZ. TOP and BOTTOM COURSE

6'' STL. BOLLARD
4'' FROM WALL (TYF)

TYP. WALL SECTION

SINGLE ENCLOSURE

FILL WITH GROUT and CROWN TOP

6'' SCHEDULE 40 GALV. STEEL POST

CONCRETE POST BASE

4'' MIN. OUTSIDE POST

TYP. STEEL BOLLARD

NOTES:

WHEN THE ENCLOSURE INCLUDES GATES, THE PLANS SHALL PROVIDE A WAY TO SECURE THE GATES OPEN AND CLOSED.

City of Flagstaff

ENGINEERING DETAIL

DETAIL NO.

PW-50-010

REVISION DATE:

2/4/19

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