

CITY STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS 1/2015 UPDATES

GENERAL SUMMARY

A short term project was performed during the month of October 2014 with the assistance of Freese and Nichols, Inc. (FNI) to review and address some known conflicts and omissions along with known dated regulatory requirements in the current City Standard Construction Specifications. The focus targeted the Standard Construction Specifications most commonly required for use on City Street Bond projects. The recommended updates and edits are generally described below.

ADDED:

- Reviewed and edited for consistent material moisture and density requirement preferences, along with tolerance limits and requirements for moisture and density maintenance until protected by subsequent layer. The general default preferences are summarized below:

Backfill outside limits of pavement or structure (NG):	95% Std @ +/- 3%
Subgrade or under structures:	95% Std @ 0-3%
Flexible Base:	98% Std @ +/-2% under concrete pvmt.
	98% Mod @ +/-2% under flex. pvmt.

Included is "Unless specified otherwise on the Drawings"

The default values provided are based on review of recent geotechnical reports, historical City practices and requirements, comparison of practices with other cities, and discussions with the Construction Group. In addition, some tighter wording was added back in requiring maintenance of moisture in the pavement sections until protected by the subsequent layer, and to backfill and compact behind the curb within 48 hours. Wording was also added to provide flexibility to allow 1 in 5 moisture or density tests to deviate up to 1% outside of the specified value, which is generally patterned after acceptable TxDOT tolerances.

- Re-introduced the former City preferred Testing Schedule, added moisture criteria, and added requirements for concrete paving, all to implement more consistent testing of City roadway construction. The Testing Schedule is to be completed by Design Consultant for each project.
- New Driveway Schedule with applicable cutback information (as determined by slope) to be completed by the Design Consultant.
- New Concrete Pavement Specification.
- New Concrete Pavement Detail Sheet with Curb and Concrete Joints for both continuous reinforced and jointed concrete.
- Added requirements for alignment of longitudinal joints to be no more than 6" away from striping in concrete pavement, and for longitudinal seam HMA seam to not be placed within the wheel path for HMA pavement.
- Added requirement of a tack coat between layers of HMA unless the subsequent layer is placed immediately after the previous layer.
- Added requirement to backfill and compact the area behind the curb within 48 hours of removal of formwork, and prior to inclement weather when forecast.
- Added scheduling requirement for concrete cylinders to be picked up within 24 hours.
- Added requirement for certified installer on all Traffic Control.
- Added requirement for Traffic Control Wayfare (Blue) signs to be in place prior to construction.
- Added the following new Wastewater Specifications per Utility Operations request:
 - 027200 Control of Wastewater Flows
 - 027611 Cleaning and Televised Inspection of Conduits
 - 027614 Cured in Place Pipe (CIPP) for Rehabilitation of Gravity Wastewater
 - 027618 Wastewater Rehabilitation – Pipe Bursting
- Added the following additional new Specifications:
 - 025620 Portland Cement Concrete Pavement
 - 026430 Bar Wrapped Steel Cylinder Pipe
- Added acceptable pipeline "belly" tolerances (5%).

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- Added requirements for buried utilities beneath the roadway to be inspected, tested, and televised (as applicable) prior to placement of the pavement section.
- Added requirement for pipe markings to be installed face up in the trench to allow for inspection.
- Added new Storm Water Detail Sheets (3) with essential and common BMP Details (including a TCEQ compliant inlet protection detail), and essential elements if the disturbed area is less than 1acre, between 1-5 acres, or greater than 5 acres.
- Updated references such as “Storm Sewer” and “Sanitary Sewer to “Storm Water” and “Wastewater”, and “Proposal” to “Bid Form”.
- Reviewed Measurement and Payment sections and edited for typical City preferences, including units of measure, with addition of “unless otherwise indicated on the Bid Form.”
- Added Storm Inlet Extensions (TxDOT based).
- Added concrete apron to Post Inlet.
- Added new Storm Water Manhole Details
- Added Storm MH riser Detail.
- Added Storm Detail for new pipe to existing RCB connection.
- Added Storm Concrete Collar Detail (only allowed for connection of like sized pipe).
- Added Storm RCP Plug Detail.
- Added Storm Trench Backfill Details for Reinforced Concrete Pipe and for Reinforced Concrete Box.

MODIFIED/CLARIFIED:

- Several Specs were edited to address some **minor administrative items** such as typos, column alignment, page numbering and footer, minor title revisions, etc.
- The obsolete numbers (S-#) were deleted from the titles of all edited Specifications.
- A single sand criteria is specified for pipe embedment.
- Conflicts in Select Material in Specifications and on Details were reviewed and edited for consistency.
- Reviewed and edited for consistency in lift criteria, generally providing for up to maximum 10” loose lifts unless otherwise indicated.
- References to Geogrid call for use of TX5 Triaxial or approved equal.
- Updated the concrete curb ramp spec to current regulatory requirements consistent with the 2012 City ADA Details and current regulatory requirements.
- Removed references to “Hasty Backfill” and provided information for cement stabilized material at 2 sacks cement per CY sand.
- Simplified some of the roadway material Specifications by referencing current TxDOT materials. (for examples, Flexible Base, Asphalts, Oils, and Emulsions, and Aggregate for Surface Treatments).
- Obsolete references to specific staff personnel such as to Danielle Converse and to Tilo Schmidt were revised to reflect more generalized preferences.
- Deleted Grade 40 steel from specs.
- Deleted 2,500 PSI concrete from specs.
- Deleted elliptical and arch Storm RCP references from specs.
- Deleted Type AWWA C500 and C509 Water Gate Valves, and updated to AWWA C515 ductile iron resilient wedge in Water specs.
- Deleted Water Thrust Blocks from specs and Water Details.
- Removed obsolete Water Fire Vault Detail and added a Note referring to Utility Operations for most current information on Water Details.
- Added notes allowing single length SDR9 polyethylene water service line to Specifications and Water Details.
- Added Backfill Table to Water Details.
- Identified Type 1 and Type 2 Fire Hydrants on Water Details
- MH rings were edited to HDPE (polyethylene), minimum 1 ring up to maximum 18”.
- Deleted references to Brick MH and VCP from Wastewater.
- Left Valley Gutter Detail in place, but added Note clarifying that Valley Gutters are not allowed for use on City roadways except for general interim use and only with specific City approval.

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- Allow for option in Backfill Tables to use tested compacted effort on last 3' of trench backfill instead of cement stabilized material for concrete roadways.
- Revised the surface slope between the back of curb and the edge of sidewalk to maximum 2"/foot instead of 1"/foot to reduce the amount of sidewalk curb required.
- Revised the Sidewalk Drain Detail to a secured trench plate, and removed the previous Sidewalk Drain detail with a 3" PVC pipe drain through the curb.
- Provided tapers on the driveway/curb to eliminate sharp corners, which tend to break.
- Updated Sheet Title Blocks on edited Drawings to Capital Programs in place of Engineering Services.

MORE SPECIFIC UPDATES, EDITS, AND ADDITIONS TO THE STANDARD DETAIL SHEETS ARE DESCRIBED BELOW:

- New and Edited City Standard Construction Detail Sheets:
 - Curb, Gutter and Sidewalk Standard Details
 - Driveway Standard Details (3 Sheets)
 - Concrete Pavement Standard Details (New)
 - Storm Water Standard Details (3 Sheets)
 - Storm Water Pollution Prevention Plan Notes (New)
 - Storm Water Environmental Permits Issued and Comments (EPIC) (New)
 - Storm Water Pollution Prevention Details (New)
 - Water Standard Details (4 Sheets)

TESTING SCHEDULE:

- Testing Schedule (Based on historical City practices and preferences including moisture, and tests for concrete pavement) (to be completed by Design Consultant and added to the first few sheets of the Drawings)

CURB, GUTTER, AND SIDEWALK (1 SHEET):

- Revised the maximum surface slope between the back of curb and the edge of sidewalk to maximum 2"/foot instead of 1"/foot to reduce the amount of sidewalk curb required.
- Added Note clarifying that Valley Gutters are not allowed for use on City roadways except for general interim use and only with specific City approval.
- Added "Type B" Header Curb Detail
- Revised the Sidewalk Drain Detail to a secured trench plate, and removed the previous Sidewalk Drain detail with a 3" PVC pipe drain through the curb.
- Added details for new to existing concrete tie-ins
- Revised Sidewalk Header Curb Detail

DRIVEWAY (3 SHEETS):

- Added Driveway Summary Table with applicable cutback information (as determined by slope) (to be completed by Design Consultant)
- Updated Notes for current TDLR compliance
- Provided tapers on driveway/curb edges to eliminate sharp corners which tend to break
- Adjusted Driveway angle shown on Detail to proportionately match scale
- Revised gutter as integral to the driveway for concrete pavements
- Added Concrete Driveway to HMA Pavement Tie-In Detail

CONCRETE PAVEMENT (1 SHEET)(NEW):

- Curb for Concrete Pavement (TxDOT Based, with straight dowels for constructability)
- Curb and Concrete Joints for both continuous reinforced and jointed concrete.
- Concrete to Asphalt Pavement Tie-In Detail

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STORM WATER (3 SHEETS):

- Updated references from Storm Sewer to Storm Water
- Added Concrete Apron to Post Inlet
- Added Type “B” through “D” MHs
- Added Inlet Throat Extension (TxDOT Based)
- Added MH Riser Detail
- Added #4 dowels around 5’ standard inlet for sidewalk connection
- Added Detail to Remove and Replace Top of Existing Inlet
- Added Detail for new RCP connection to Existing Box
- Added Detail for Concrete Collar (only allowed for connection of like sized pipe)
- Added Detail for RCP Plug
- Added Trench Backfill Details for Reinforced Concrete Pipe and for Reinforced Concrete Box.
- Added Note to allow for option under concrete pavement to use tested compacted effort on last 3’ of trench backfill instead of cement stabilized material for concrete roadways.

STORM WATER POLLUTION PREVENTION (3 SHEETS)(NEW):

- Added SWPPP Plan Notes (TxDOT Based, to be filled in by Design Consultant)
- Added EPIC Information Sheet (TxDOT Based, to be filled in by Design Consultant)
- Added City acceptable common BMPs, with TCEQ compliant Curb Inlet Protection

WATER (Combined into 4 SHEETS instead of 5):

- Added Backfill Table (previously on Storm Details)
- Added Notes for continuous SDR9 Polyethylene Service Line
- Deleted Thrust Blocks
- Deleted Fire Vault, added Note referring to Utility Operations for current information
- Labeled Type 1 and Type 2 Fire Hydrants

GENERAL RECOMMENDATIONS FOR USE AND IMPLEMENTATION:

- The Detail Sheets should be sealed by the responsible Design Consultant that has reviewed them and is recommending their use as applicable to the specific project.
- Any edits to City Standards should be based on specific project need and on specific Design Consultant recommendation that includes an explanation of the need. All edits to the Standards should be clearly identified and should be discussed with the City for approval prior to finalizing.