

# THE CITY OF CELINA, TEXAS

## CONSTRUCTION PLANS

### FOR

# SH 289 WATER LINE RELOCATION

## AT CR 98

CITY COUNCIL

SEAN TERRY, MAYOR  
 CARMEN ROBERTS, MAYOR PRO TEM  
 GEORGE KENDRICK  
 WAYNE NABORS  
 VINCENT RAMOS  
 LORI VADEN  
 CHAD ANDERSON

CITY ADMINISTRATION/STAFF

MIKE FOREMAN, CITY MANAGER  
 VICKI FAULKNER, CITY SECRETARY

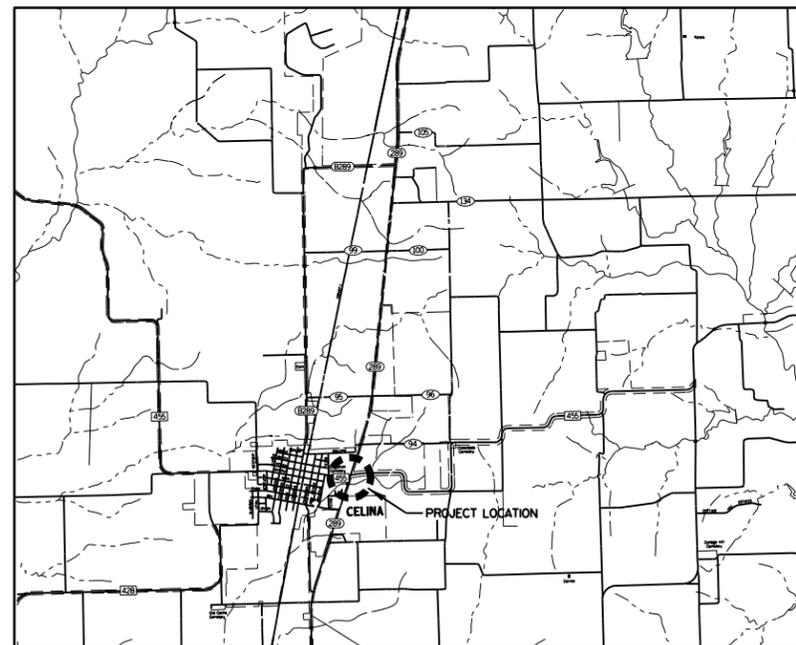
DIRECTOR OF PUBLIC WORKS

JOSEPH JOHNSON

CITY ENGINEER

GABE JOHNSON, PE, PH, CFM

CITY OF CELINA, TEXAS  
 302 W. Walnut Street  
 Celina, Texas 75009  
 (972) 382-2682



LOCATION MAP

N.T.S.

**RECORD DRAWING**  
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**BROWN & GAY ENGINEERS, INC.**  
 TEXAS REGISTERED ENGINEERING FIRM F-1046  
 By: \_\_\_\_\_ Date: \_\_\_\_\_

2014



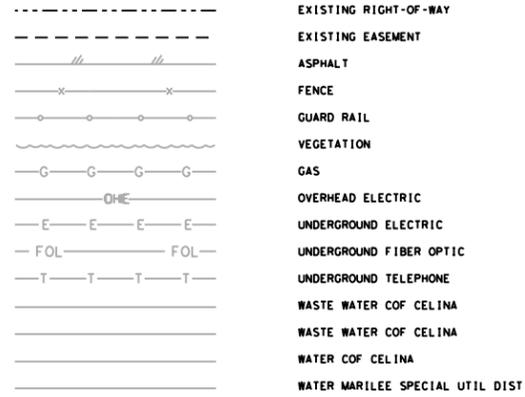
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 — Civil engineers and surveyors —  
 TBPE Registration No. F-1046

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**LEGEND**

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**ABBREVIATIONS**

- CI - CAST IRON
- CO - CLEAN OUT
- DIA - DIAMETER
- DI - DUCTILE IRON
- DW - DRIVEWAY
- EA - EDGE OF ASPHALT
- FH - FIRE HYDRANT
- FBC - FRAME & COVER
- GT - GUTTER
- L - LATERAL
- MB - MAIL BOX
- M - MAIN
- PP - POWER POLE
- PVC - POLYVINYL CHLORIDE
- SD - STANDARD DETAILS
- SH - SPRINKLER HEAD
- SSMH - SANITARY SEWER MANHOLE
- SSTL - STAINLESS STEEL
- SV - SPRINKLER VALVE
- SW - SIDEWALK
- TC - TOP OF CURB
- WL - WATER LINE
- WM - WATER METER
- WV - WATER VALVE

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REV.	DESCRIPTION	BY	DATE

**CITY OF CELINA, TEXAS**  
 142 N. Ohio Street  
 Celina, Texas 75009  
 (972) 382-2682

SH 289 WATER LINE RELOCATIONS AT CR 98

**LEGEND & INDEX OF SHEETS**

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SH 289 WATER LINE RELOCATIONS AT CR 98

City of Celina  
CONSTRUCTION GENERAL NOTES - Revised 4/3/2014

**GENERAL**

- All construction shall be in accordance with the latest revision of the North Central Texas Council of Governments "Standard Specifications for Public Works Construction" including the Standard Drawings therein and the City of Celina's addendum thereto. Contractor shall have at least one set of approved Engineering Plans and Specifications on-site at all times.
- Before beginning construction, the contractor shall prepare a construction sequence schedule. The construction schedule shall be such that there is minimum interference with traffic along or adjacent to the project.
- Construction may not begin earlier than 7:00 A.M. on weekdays nor continue after dark without permission from the City of Celina. Construction on holidays and Saturday must be approved two days in advance. A fee of \$300.00 a day for working on holidays and Saturday will be assessed payable to the city before work is performed. Work may not begin before 8:00 A.M. on holidays and Saturday and work on Sunday is prohibited without special permission and payment of fees.
- Utilities shown on the plans were taken from field surveys and information provided by the utility companies. The completeness and the accuracy of this data is not guaranteed.

The contractor is responsible for verifying the location of all underground utilities and structures and protecting them from damage during construction.

It will be the responsibility of each contractor to protect all existing public and private utilities throughout the construction of this project. Contractor shall contact the appropriate utility companies for line location prior to commencement of construction and shall assume full liability to those companies for any damages caused to their facilities.

DIG TESS	800-DIG-TESS
GCEC-TELECOM	903-482-7274
GCEC-ELECTRIC	903-821-3007
AT&T	972-569-3013
ATMOS ENERGY	972-881-4161
ATMOS ENERGY	214-341-9900
CROSSTEX ENERGY	817-570-6753
ONEOK	903-257-6594
COSERV-ELEC	940-321-7800
COSERV-GAS	940-321-7800
CITY OF CELINA	972-382-2682
TOWN OF PROSPER	972-347-9969
MARILEE SUD	972-382-3222
GRANDE	972-410-0583
SUDDEN LINK	469-853-0486

- Work may not be backfilled or covered until the City has inspected it.
- Material testing shall be performed by an independent testing laboratory and paid for by the Contractor. The following material tests shall be provided by the Contractor:
  - Embankment - One soil density test shall be performed at each location for each 500 C.Y. of backfill placed.
  - Pavement Sub grade - One gradation test (where lime stabilized) and one soil density test shall be performed for each 300 linear feet of pavement unless otherwise noted. Gradations must pass 100% through a 1 3/4" sieve and 60% through a #4 sieve.
  - Utility Trench Back fill - One soil density test shall be performed at 300 feet intervals or as directed by the Inspector.
  - Concrete Tests:
    - Compressive Strength - Four test cylinders shall be taken from a representative portion of the concrete being placed for every 150-cubic yards of concrete pavement placed, but in no case shall less than 2 sets of cylinders be taken from any one day's placement.
    - Air, slump, and temperature tests shall be taken for every set of cylinders made. Concrete with a temperature above 95° F will be rejected.
    - Additional cylinders and/or tests may be required at the Inspector's discretion.

The City shall select the location and depth of each soil density test unless otherwise directed.

- All excavation on the project is unclassified.
- Temporary erosion control shall be used to minimize the spread of silt and mud from the project on to existing streets, alleys, drainage ways and public and private property. Temporary erosion controls may include silt fences, rock check dams, stabilized construction entrances, straw bales, berms, dikes, swales, strips of undisturbed vegetation, check dams and other methods as required by the City Manager or his representative and shall conform to the Storm Water Quality Best Management Practices for Construction Activities as published by the North Central Texas Council of Governments and the City of Celina Erosion and Sediment Control Manual.
- Finished slopes on public rights-of-way and easements shall not be steeper than 4:1. All slopes steeper than 6:1 shall be covered with erosion control matting and are hydro mulched and maintained by the contractor until grass covers all parts of the slope.
- The contractor shall maintain two-way traffic at all times along the project.
- Remove, salvage and replace all street and traffic control signs, which may be damaged by the construction of the project.
- All trenching and excavation shall be performed in accordance with OSHA standards. Trench safety design will be the responsibility of the Contractor. Contractor shall submit a trench safety design approved by a professional engineer to the City for review prior to the start of any underground utility construction.

**PAVING**

- All embankments shall be compacted to 95% Standard Proctor density.
- All streets and alleys shall be placed on lime stabilized sub grade with a lime content of not less than 7 1/2% or as approved by the city engineer.
- The minimum 28 day compressive strength of concrete street paving shall not be less than 3600 psi and shall be air entrained. Water may not be applied to the surface of concrete paving to improve workability.
- All curb and gutter shall be integral with the pavement.
- Parabolic crowns are required on all street pavements except on major thoroughfares where straight sections are required.
- Streets and alleys shall be constructed with provisions for sidewalk ramps at all intersections.

**DRAINAGE**

- Storm sewer pipe shall be reinforced concrete, Class III unless otherwise noted.
- All structural concrete shall be Class "C" (3600 psi compressive strength at 28 days), air entrained.
- The contractor shall install plugs in storm sewer lines or otherwise prevent mud from entering the storm sewer system during construction.

**WATER AND SANITARY SEWER**

- Water mains shall be AWWA C-900 or 905 PVC Class 200 unless otherwise noted. Minimum cover for waterlines is 48" below top of curb, 60" where no curbed street is present or as required to clear existing utilities, whichever is greater. Class B+ embedment unless otherwise noted.
  - All utility trench backfill shall be performed in 12" loose lifts and mechanically compacted with approved vibratory methods.
  - Marking tape shall be installed one foot above and over PVC water lines.
  - Fittings for PVC water lines shall be ductile iron and be encased in a polyethylene sheath.
  - All Mechanical Joints will be restrained. (Mega-Lug etc.)
  - Valves, including tapping valves shall be resilient seat gate valves, unless noted otherwise.
  - All direct burial valves shall be provided with cast iron valve boxes with PVC stacks. Valve stacks shall be vertical and concentric with the valve stem. Stainless steel valve extensions are required on all valves where the operating nut is greater than 4 feet below finished grade.
  - Fire hydrants shall be Watrous or equal as directed or approved by the City of Celina on a case by case basis and field painted silver with bonnet and caps color-coded to pipe size.
    - Six inch line- silver body with RED bonnet and caps.
    - Eight inch line- silver body with BLUE bonnet and caps.
    - Ten inch line- silver body with GREEN bonnet and caps.
    - Twelve inch and larger- silver body with YELLOW bonnet and caps.
  - All exposed bolting on any buried equipment or material shall be stainless steel. Included are:
    - Bonnet and stuffing box bolts on valves.
    - Shoe bolts on fire hydrants.
    - Flange bolts.
    - "Cor-ten" mechanical joint "T" bolts are acceptable for direct burial service.
  - Depending on meter size; meter boxes shall be DFW37C-12-1SAF, DFW38C-14-1SAF, DFW65C-14-1SAF, or approved equal, and shall incorporate the Celina logo in the lid.
  - One sample station shall be provided to the city for every 250 connections.
- Sanitary sewer mains shall be DR 35 PVC. Embedment shall be Class H unless otherwise noted.
- The contractor shall install and maintain watertight plugs in all connections to the City's sanitary sewer system until the City accepts the project.
  - All sanitary sewer lines and manholes shall be leak tested before the project is accepted. Deflection testing of PVC sewer lines is required. Deflection shall be tested with a mandrel for 5% deflection.
  - All sewer lines shall be video inspected with a copy of the video and station report submitted to the Inspector.
  - Mandrel, Air Test, and Video inspection shall not be performed until all utilities are complete, in place, and backfilled.

Specifications are not meant to exclude any other manufacturer. Any specification may be replaced with an approved equal upon approval by the City of Celina

**CONSTRUCTION AND PHASING**

- WATER LINES 1 AND 2 SHALL HAVE CONNECTIONS MADE AT NIGHT. THE LINE MAY BE OUT OF SERVICE FOR A MAXIMUM OF 6 HOURS BETWEEN THE HOURS OF 10PM-5AM.
- ALL OUTAGES ARE TO BE COORDINATED WITH THE CITY OF CELINA AND WILL REQUIRE A MINIMUM 3 WORKING DAYS NOTICE.

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 142 N. Ohio Street  
 Celina, Texas 75009  
 (972) 382-2682

SH 289 WATER LINE RELOCATIONS  
AT CR 98

CITY OF CELINA  
GENERAL CONSTRUCTION NOTES

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**DAL SPECIAL PROVISION 3-BORING**

- GENERAL – WATER JETTING OR JACKING WILL NOT BE PERMITTED.** All paved streets which are maintained by TxDOT must be bored & encased unless it is specifically stated on the permit that an exception for open cutting and/or no encasement is granted.  
  
At no time shall the boring operation interfere with the traveling public. The safety of the traveling public and maintaining the integrity of the roadway is the primary concern.
- BORE PIT LOCATIONS** – No excavations for bore pits will be allowed to be any closer to the edge of the pavement (travel lane) than as outlined in the "TRENCH EXCAVATIONS AND PIT LOCATION" specification. If the required clear zoned distance is closer than outlined in the above mentioned specification, then appropriate traffic control devices such as barricades, signs, barrel mounted guard fence and/or concrete traffic barriers will be required as deemed necessary by the TxDOT inspector.  
  
No excavated material will be stored closer to the traveled way than the bore pit. All pits and trenches shall be backfilled immediately after the encasement and carrier pipes have been installed. Upon completion of the backfill, all excess material will be removed from the right of way.
- METHOD OF INSTALLATION** – Crossings are to be installed by the AUGER or "DRY" BORE method and shall be accomplished by use of a laser sighted bore machine or a bore machine requiring a pilot hole. The pilot hole will serve as the centerline of the large diameter hole to be bored. The user of water or fluids in the boring operation will only be allowed for lubricating the cutting head.  
  
The boring operation shall be performed from the low or downstream end. Lateral or vertical variation of the encasement pipe from the proposed line and grade will be permitted only to the extent of one (1) inch in ten (10) feet, provided that such a variation shall be regular and only in one direction.  
  
The encasement pipe shall be approximately the same diameter as the bore hole. Over cutting in excess of one (1) inch shall be remedied by pressure grouting the entire length of the installation with a mixture consisting of two (2) sacks of cement per yard of sand.
- OPTIONAL WET BORE** – The utility or contractor may request installation by the Slurry or "Wet" bore method. The approval to wet bore is granted by the Area Engineer or his designated representative on an individual permit basis. If the area office allows wet bores in their designated area, approval will be based on bore size and soil conditions. Wet bores should be restricted to areas of rock or other suitable material which will prevent the sides of the bore hole from "caving in". A geotechnical report may be required prior to approval. In no instance will wet bores be allowed to exceed eighteen (18) inches in diameter.  
  
The amount of water used for creating the slurry will be such that little or no runoff is encountered. If, in the opinion of the TxDOT inspector, at any time during the boring operation inadequate conditions are encountered for performing the wet bore, the process will be stopped and the bore will be completed by Auger bore.  
  
The slurry material removed from the bore may not be used in the backfilling of the bore pit.

**DAL SPECIAL PROVISION 12-WATER & SANITARY SEWER**

- GENERAL** – Longitudinal water and sanitary sewer pipelines shall be placed on uniform alignment three (3) to ten (10) feet from the right of way line. The minimum depth of cover shall be twenty-four (24) inches for non-plastic lines and thirty (30) inches for plastic lines. If a nonmetallic line is installed, a durable metal wire or other device shall be concurrently installed for detection purposes.  
  
Each line may be installed with enough vertical flexibility to prevent stresses; however, horizontal "snaking" of the line is prohibited.  
  
The utility agency shall place identification markers at the right of way line in sufficient number for longitudinal installations and at each highway crossing.  
  
All paved side streets crossed by a longitudinal line within TxDOT right of way must be installed as outlined in item #2 below.
- CROSSING** – Highway crossings are to be installed at or near right angles to highway and must be installed with an encasement pipe. Encasement pipe is also to be installed under normal center medians, extend from the top of back slope for cut sections, and five (5) feet beyond the toe of slope for fill sections, unless an additional length is required as outlined in the "TRENCH EXCAVATION AND PIT LOCATION" specification.  
  
All crossings under existing pavement must be installed as outlined in the "CONSTRUCTION OF HIGHWAY CROSSINGS BY BORE" specification.  
  
The depth of cover for crossings shall be twenty-four (24) inches for non-plastic pipe and thirty (30) inches for plastic pipe under ditches. The encasement pipe must be a minimum of eighteen (18) inches or 1/2 the diameter of the pipe, whichever is greater, below the bottom of the pavement structure.  
  
The encasement shall consist of a steel pipe around and outside the carrier pipe and support the load of the ground above the pipe, the highway, and the superimposed loads there on, including construction equipment. HDPE pipe with a SDR ratio of 11 or greater may be used for encasement of water service lines. The HDPE pipe must be a single continuous piece with no joints. The strength of the encasement pipe shall equal or exceed the structural requirements for highway drainage culverts covered under ASTM specifications.
- ABOVE GROUND APPURTENANCES** – Fire hydrants, air release valves, and other similar appurtenances should be located at or near the right of way line. All fire hydrants will be equipped with breakaway bases and should not be located in the sidewalk. Any appurtenances may not be located any closer than 3 ft from back of curb.  
  
Pumps, wells, and other structures associated with lift stations and pump stations will not be permitted within the limits of TxDOT right of way.
- MANHOLES** – The outside diameter of the manhole chimney at ground level shall not exceed thirty-six (36) inches. The inside diameter of the manhole for lines up to twelve (12) inches shall not exceed four (4) feet. For any increase in line size greater than twelve (12) inches the manhole may be increased a like amount. The manhole cover shall be installed flush with the ground, meet HS-20 load requirements, and weigh at least 175 pounds.

**DAL SPECIAL PROVISION 8-TRENCH EXCAVATE PIT**

- GENERAL** – No dirt from a trench or pit excavation shall be placed on the roadway or shoulders. All equipment and stockpiled dirt shall meet the safety clear zone distances listed below or have adequate barricades and warning devices to protect the traveling public.  
  
Topsoil shall be kept separate from other excavation material, and be replaced in accordance with "BACKFILLING" specification.  
  
All pits and trenches shall be kept free from standing water. If trenches and/or bore pits are left open for extended periods of time without a continuous progression of work, the utility will be required to backfill the trench and/or bore pits. Any other pit will not be left open for more than a forty eight (48) hour period.  
  
In all excavations where sloughing is likely to occur, shoring will be utilized to prevent damage to the highway structure(s). The utility agency or contractor shall be responsible for maintaining trench excavation protections as required by provisions of Part 1926, Subpart P – Excavations, Trenching and Shoring of OSHA Standards.
- TRENCHING** – Longitudinal installations must be placed as near a uniform alignment to the right of way line as possible. Trenching machine or backhoe may be used. A backhoe will be required if a uniform alignment can't be maintained by use of a trenching machine.
- SAFETY CLEAR ZONE DISTANCES** – Minimum clear zone distances required for trench excavations and bore pit locations are as follows:  
  
For UNCURBED Highways  
  - Thirty (30) ft. from the edge of pavement (traveled lane) of high-speed (more than 40 mph), high volume (more than 750 vehicles per day) highways.
  - Sixteen (16) ft\* from edge of pavement of high-speed, low volume (less than 750 vehicles per day) highways.
  - Sixteen (16) ft\* from ramps.
  - Ten (10) ft\* for low-speed (40 mph or less) highways.
  - Ten (10) ft\* for any paved intersections side streets.

\* Five (5) ft MINIMUM from edge of any shoulder.

For CURBED Highways  
  - Thirty (30) ft from the back of curb for high-speed highways
  - Five (5) ft from the back of curb, plus any additional distance to clear sidewalks, for low-speed highways
  - Five (5) ft from the back of curb for intersecting side street.

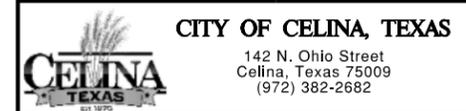
**DAL SPECIAL PROVISION 14-BACKFILL**

- GENERAL** – As soon as practical, all portions of the excavation shall be backfilled. Trenches and pits shall be backfilled with the material obtained from the excavation or from other sources. Backfill material will be free from stones of such size as to interfere with compactions; free from large lumps which will not break down readily under compaction; and free from frozen lumps, wood or other extraneous material. The TxDOT inspector may reject any material containing more than twenty (20) percent by weight of material retained on a three (3) inch sieve.  
  
The portion of top soil removed from the original excavation shall be replaced, as nearly as feasible, in its original position.
- DEPTH OF LIFTS** – The portion of backfill below the top of pipe shall be placed in uniform layers not to exceed eight (8) inches in depth (loose measurement). Backfill above the top of the pipe shall be placed in layers not to exceed ten (10) inches in depth (loose measurement). If the backfill is to support a portion of roadway or embankment, then the material will be placed in uniform layers not to exceed eight (8) inches in depth (loose measurement).
- PROCEDURE FOR COMPACTION** – Each layer of backfill material, if dry, shall be wetted uniformly to the moisture content required to obtain a density comparable with the adjacent undisturbed soil and shall be compacted to that density by means of mechanical tampers or rammers. The use of rolling equipment of the type generally used in compacting embankments will be permitted on portions that are accessible to such equipment. Water jetting or ponding will not be permitted.  
  
Special care shall be taken to ensure thorough compaction of material placed under the haunches of the pipe.  
  
Cohesionless materials, such as sand, may be used for general backfilling purposes. Compaction of cohesionless materials shall be done with vibratory equipment.
- RESTORATION OF RIGHT OF WAY** – Prompt replacement of sod, removal of debris, and any other restoration necessary to restore the right of way to a condition equal to that which existed prior to the utility installation will be required. In areas of erosion, the use of stabilized backfill may be required. Should settlement or erosion occur within six (6) months of the utility installation, the utility agency will be required to reshape, reseed, and/or resod the area.
- EROSION CONTROL** – In order to minimize erosion and sedimentation resulting from the proposed installation, the project area will be revegetated in accordance with Items 162 for Resodding or Item 164 for Reseeding in the latest edition of TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges.  
  
Remove all erosion control devices from the State Right of Way upon concurrence with TxDOT's inspector that 70% of the vegetative coverage of disturbed areas has been established.

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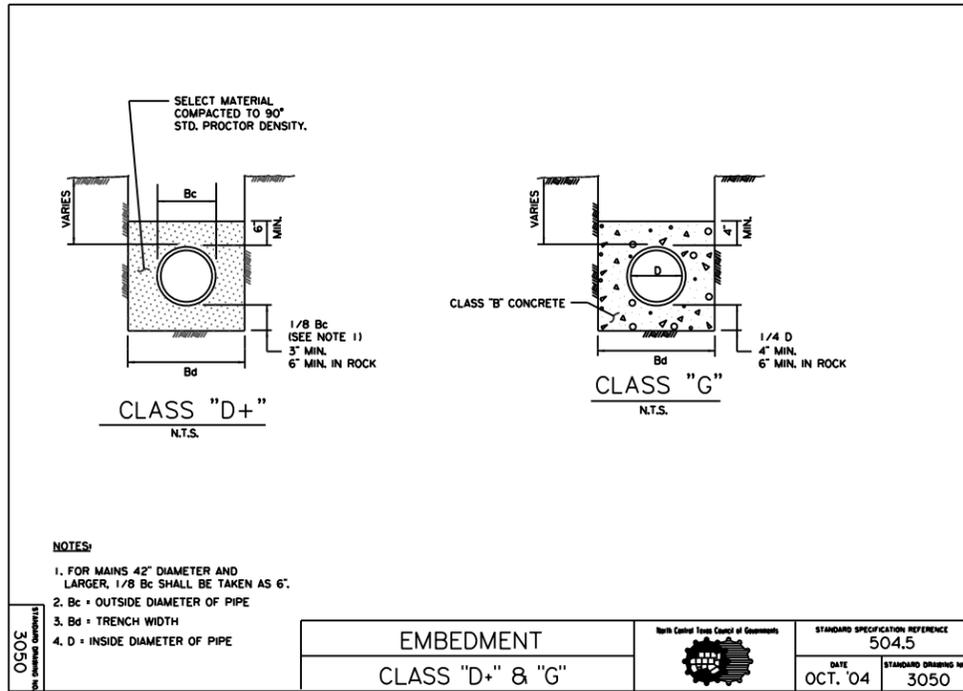
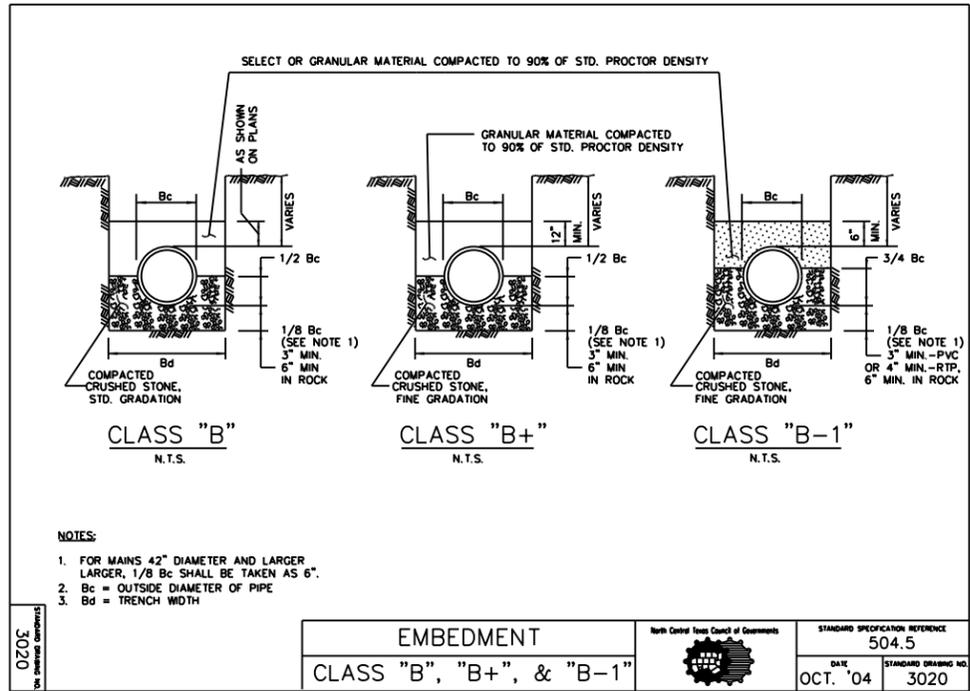
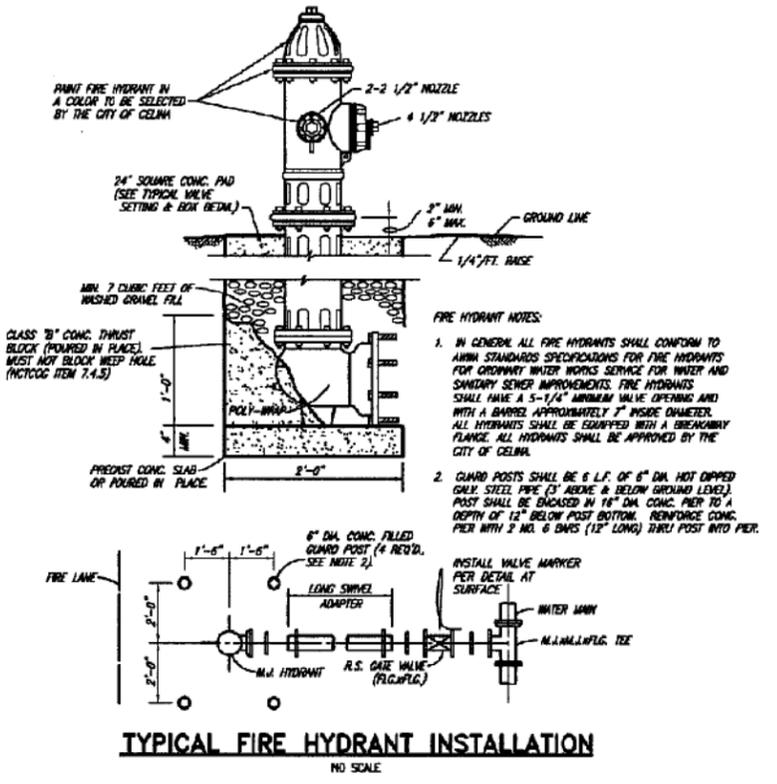
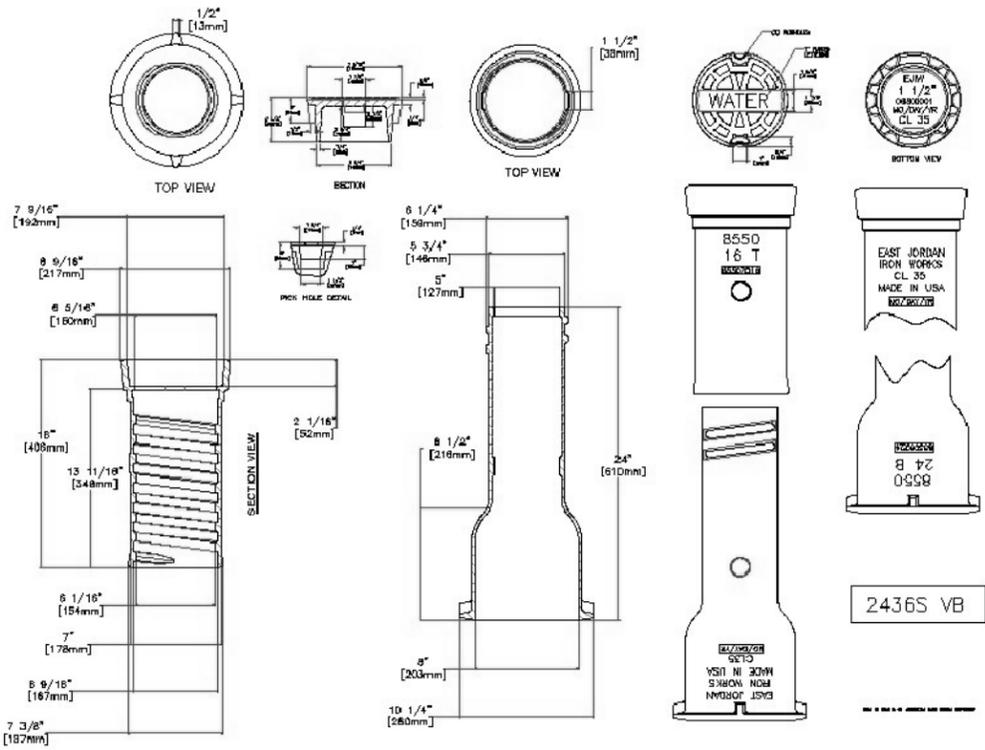
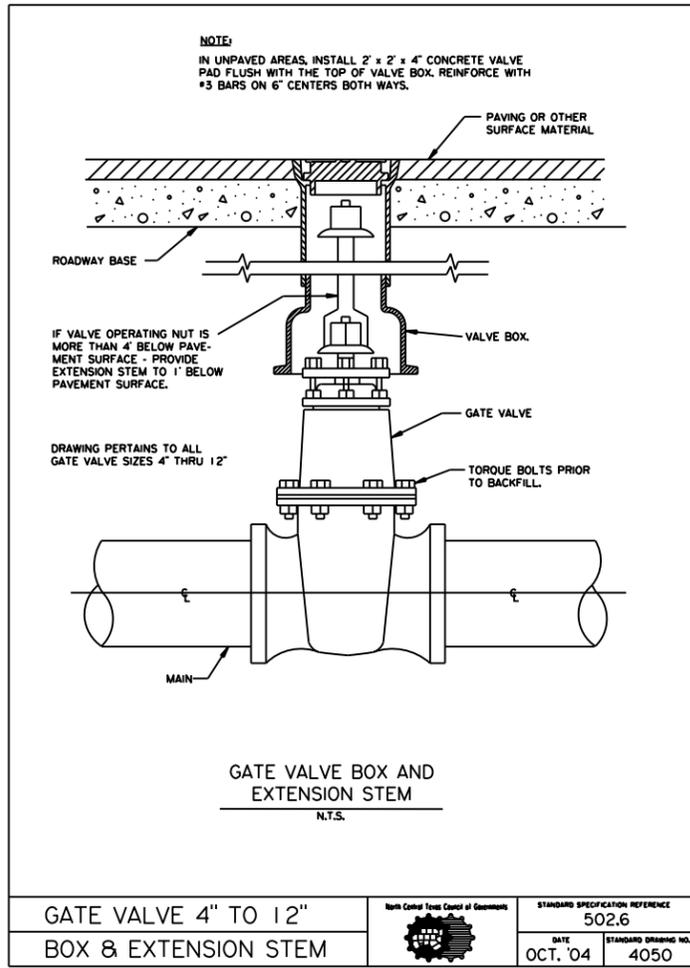
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