

CITY OF HOUSTON

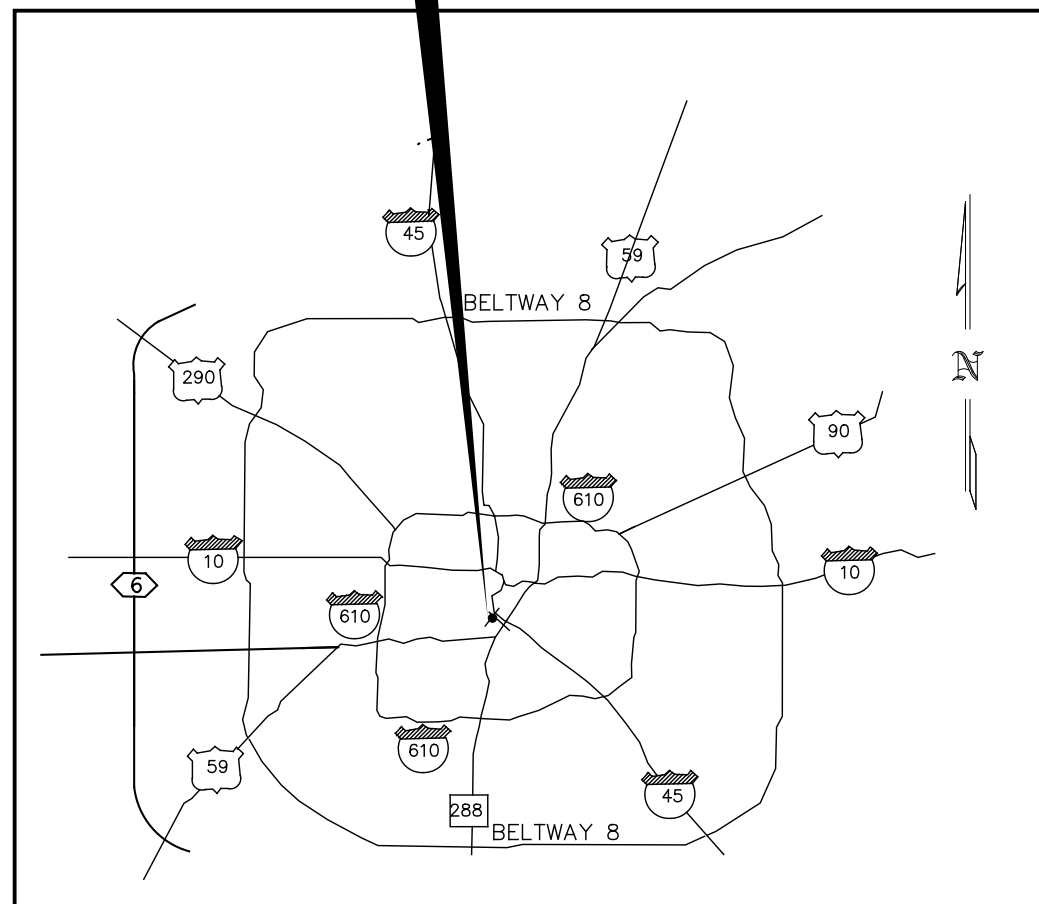
HOUSTON PUBLIC WORKS

INTERSECTION REDESIGN & SAFETY IMPROVEMENTS

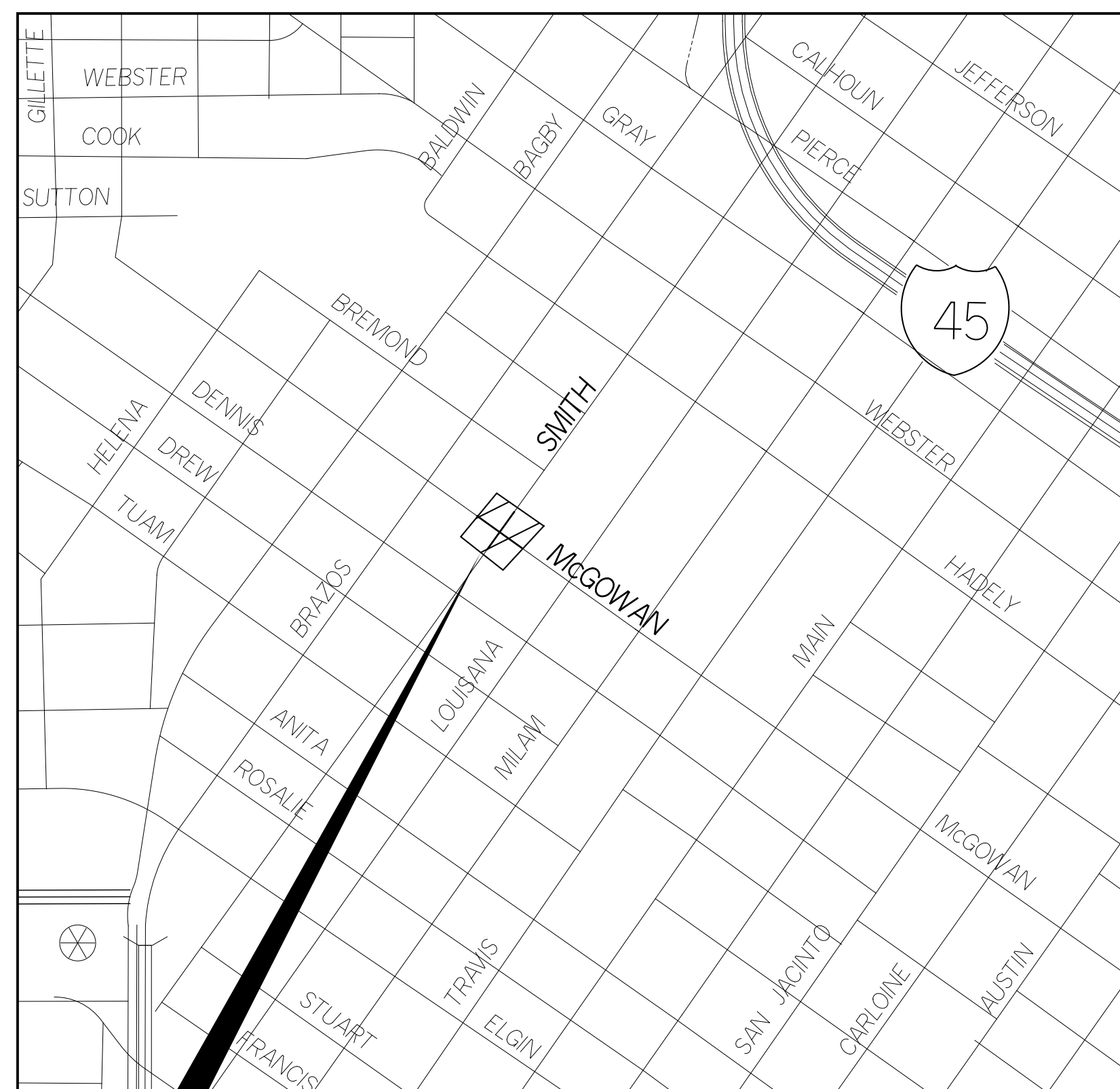
TRAFFIC SIGNAL IMPROVEMENTS

SMITH STREET AT McGOWEN STREET

PROJECT
LOCATION



LOCATION MAP

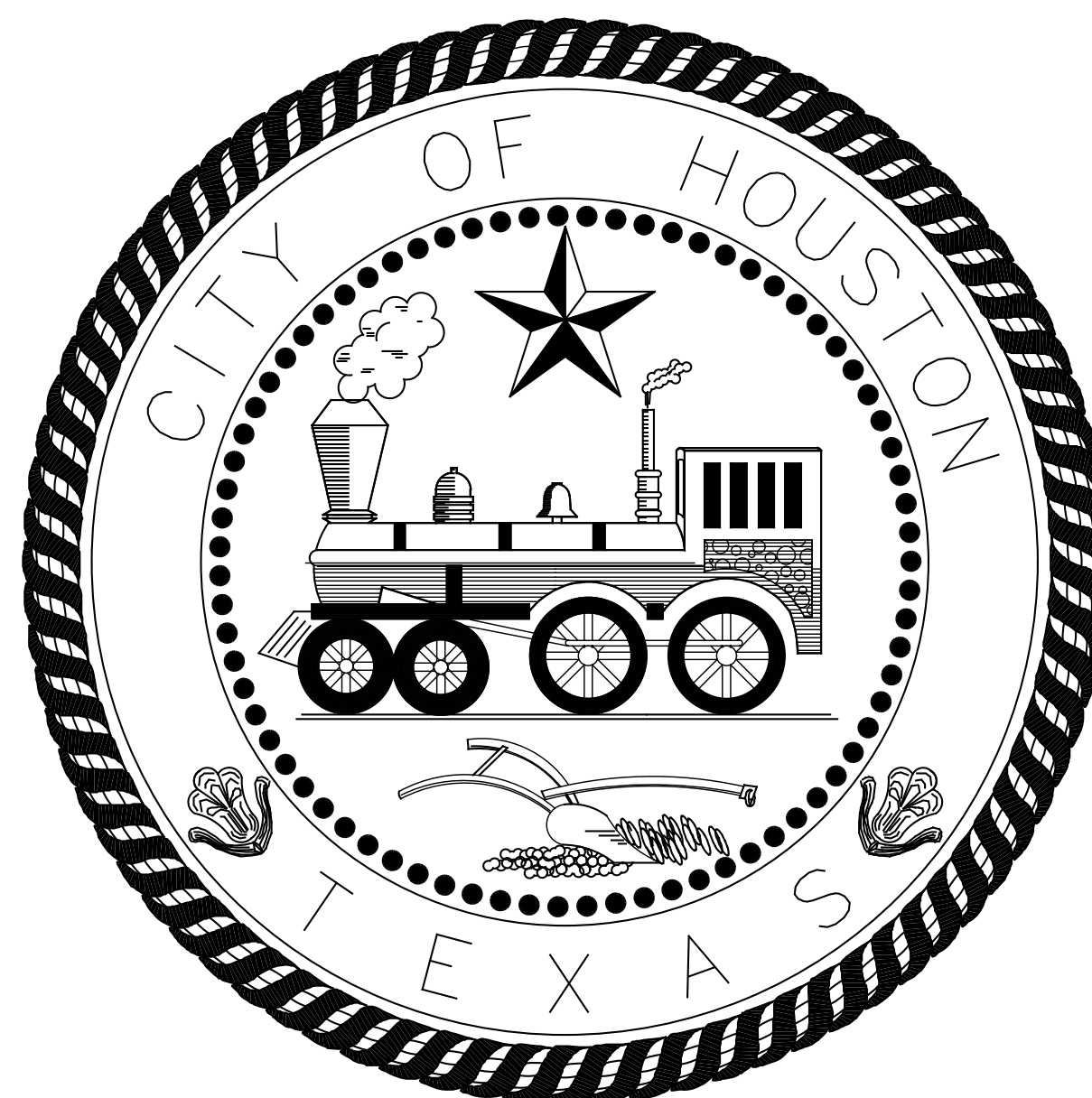


KEY MAP 493-F
CITY COUNCIL DISTRICT "I"

PROJECT
LOCATION

NOTICE:

CONTRACTOR SHALL NOTIFY THE CITY OF HOUSTON
48 HOURS BEFORE STARTING CONSTRUCTION.



MAYOR
SYLVESTER TURNER

CONTROLLER
CHRIS BROWN

DISTRICT
COUNCIL MEMBERS

AMY PECK
DISTRICT A
CAROLYN EVANS-SHABAZZ
DISTRICT D
MARY NAN HUFFMAN
DISTRICT G

TARSHA JACKSON
DISTRICT B
DAVE MARTIN
DISTRICT E
KARLA CISNEROS
DISTRICT H
EDWARD POLLARD
DISTRICT J

ABBIE KAMIN
DISTRICT C
TIFFANY THOMAS
DISTRICT F
ROBERT GALLEGOS
DISTRICT I

MARTHA CASTEX-TATUM
DISTRICT K

COUNCIL MEMBERS
AT-LARGE

MIKE KNOX
POSITION 1
MICHAEL KUBOSH
POSITION 3
SALLIE ALCORN
POSITION 5
DAVID ROBINSON
POSITION 2
LETITIA PLUMMER
POSITION 4

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100% SUBMITTAL

Document Incomplete: not intended
for permit, bidding or construction.

Engineer: MOHAMMAD IRFAN
P.E. Serial No. 89333
Date: March 10, 2022

SURVEYED BY: DENNIS CHALAIRE, LANDTECH CONSULTANTS, INC.
FB NO.: P-6100

FOR CITY OF HOUSTON USE ONLY

PROJECT MANAGER DATE

TRANSPORTATION AND
DRAINAGE DATE

CITY ENGINEER DATE

DIRECTOR OF HOUSTON
PUBLIC WORKS DATE

SHEET NO 1 OF 25 SHEETS

\$USER\$
\$DATE\$
\$FILE\$
\$PLOTTERS\$

GENERAL NOTES:

1. Utilities presented on these drawings are shown based on the best available information. Contractor shall verify the exact locations in the field prior to commencing construction. Contractor shall notify Texas One Call at 713-223-4567/811 or 800-344-8377, Lone Star Notification Center at 800-869-8344, and TEXAS ONE CALL Notification Center at 1-800-245-4545 to provide utility locations at least 48 hours before proceeding with any excavation. Utilities marked within the public right of way or in easements shall comply with TAC Title 16, Part 1, Chapter 18, Rule §18.6 and the American Public Works Administration (APWA) Uniform Color Code. All utilities (including but not limited to pipelines, natural gas lines, fiber optic cable, buried electric, telephone, television, water, sanitary sewer, storm sewer, etc.) shall be identified prior to excavation.
2. Contractor shall be responsible for damages to existing water, wastewater, storm water lines and traffic control devices. Damages shall be repaired in accordance with the City of Houston, Department of Public Works and Engineering's Standard Construction Specifications for Wastewater Collection System, Water Lines, Storm Drainage, and Street Paving and Standard Construction Details for Wastewater Collection Systems, Water Lines, Storm Drainage, and Street Paving, referenced above, at no additional cost.
3. Contractor shall notify the Office of the City Engineer, Department of Public Works and Engineering @ 832-394-9098 or via fax at 832-395-4424 for inspection at least 48 hours prior to commencing construction.
4. Adequate drainage shall be maintained at all times during construction and any drainage ditch or structure disturbed during construction shall be restored to existing conditions or better.
5. Contractor shall adequately protect existing structures, utilities, trees, shrubs and other permanent objects along the area of excavation. All costs for repair, or replacement of damage due to Contractor's performance will be paid by the Contractor at no additional cost to the project.
6. Contractor shall comply with latest edition of OSHA regulations and the State of Texas laws concerning excavation.
7. Contractor shall maintain a set of redline drawings and record as-built conditions during construction. These redline marked up drawings will be submitted to the Design Consultant who will make the changes on the original tracings, label each sheet in the set as "Record Drawings", and return it to the Office of the City Engineer.
8. These plans reflect information provided by others for the approximate location alignment and existence of existing utilities and adjacent physical features. They do not imply or affirm that all utilities or physical features are shown. Generally, utility services connections are not indicated on these plans. Contractor is responsible for notification of the owner immediately upon encountering unforeseen conflicts.
9. It is the Contractor's responsibility to verify and determined the depth, location, alignment and existence of all existing surface or underground utilities and structure in and around the vicinity of the work to be performed which may or may not conflict with the proposed construction. It is the Contractor's responsibility to located and verify all the utilities prior to construction. The Contractor shall verify all elevations prior to commencing construction. The Contractor shall notify the Owner of any conflicts found prior to commencing construction. The Contractor shall allow ample time to the Owner to determine a resolution to the conflict in an expeditious manner, but it is recognized that the nature of the conflict may affect the time to determine a resolution. The Contractor shall be aware of this potential and allow such provisions in this project cost and construction schedule. No separate payment shall be made for any downtime.
10. Trees within the street Right-of-Way shall not be removed unless noted in the Tree Protection Plan or Disturbed. Where tree roots must be cut, follow the repair method described in the Specifications. All landscaping (trees, bushes, shrubs (all kinds) damaged or removed to facilitate construction shall be replaced with equal kind at no cost the project, unless stated otherwise in the bid proposal. The Contractor shall utilize the services of a professional Urban Forester to protect existing landscaping including but not limited to trees, shrubs, bushes during the duration of the construction operate at no additional cost the project.
11. The Contractor shall maintain access to ALL Commercial properties adjacent to work areas at all times at no separate pay.
12. Any area of grass which is disturbed or dug up during the construction shall be placed with St. Augustine sod or grass matching existing removed. See the City of Houston grass sodding details.
13. When construction occurs in the City Right-of-Way, Alleys, and Easement on private property, Contractor shall take extreme care to prevent construction damage to areas. Contractor shall remove and replace fence sections as necessary to accomplish the construction at no additional cost to the project. In the event of damage to improvements, structures, plants, landscaping, etc., the Contractor will replace them with equal product, all at no additional cost to the project.
14. Relocation of existing City utilities shall be coordinated with the City of Houston 72 hours prior to relocation. This include but is not limited to water line and sanitary sewer relocations and operation of water line valves. Relocation shall be at the Contractor's expense unless stated otherwise in the bid proposal. Adjustment of individual service water lines shall be incidental to the project.
15. Valves and other utility structures in the construction area shall be adjusted to finished grade at no additional cost. Rim elevations for manholes shall be set flush with the finished grade for all manholes located in pavement. Rim elevations shall be 3 inches above natural ground for all manholes located in other areas, unless otherwise shown. For manholes outside of pavement, sloped fill shall be added for storm water drainage away from manhole rim.
16. No excavation shall be left open overnight. All excavations which cannot be backfilled overnight for the installation of manholes, sanitary sewer lines, and other utilities shall be covered with steel sheeting when in paved area; steel sheeting, wood planking or material approved by the City and pertinent entity (TxDOT or County) in other areas. The excavation area shall be protected with traffic barricades equipped with flashing yellow lights. The excavation areas must be completely cordoned off with plastic construction fencing material meeting the City's and pertinent entity's (TxDOT or County) requirements. The excavation area must be adequately protected and made safe.
17. Existing pavements, curbs, sidewalks, driveways, and landscaped areas damaged during construction by the Contractor shall be replaced by the Contractor to original or better condition at his expense, unless they are within areas designated for pavement removal and replacement identified in the specifications, in which case the replacement costs will be paid at the appropriate bid unit price.
18. When any street or any section of a street is closed, the Contractor shall furnish and maintain adequate barricades, warning and directing signs, red flags and light and/or flagmen at the end of each street and at all intersections along the street within the limit of the work area. All expense incurred for the above requirements shall be paid by the Contractor. All warning signs and barricades shall conform to the Texas Manual on Uniform Traffic Control Devices (TMUTCD), Latest Edition. A traffic control plan has been incorporated into this set of plan. This plan shall be utilized by the Contractor as a minimum requirement. The Contractor is responsible for deciding if the minimal required is adequate for the work he is doing. It is the Contractor's responsibility to determine if more is needed to give him/her a higher level of comfort. All traffic control, regardless of level, including temporary pavement for detours, shall be paid for under the lump sum item in bid proposal for traffic control. No additional payment will be made. Contractor shall include devices he will utilize over and above the minimum set in these plans in the item listed in bid proposal.
19. On all pavement to be removed, including concrete driveways and sidewalks, the pavement shall be sawcut full depth prior to removal with no separate pay.
20. When construction occurs on the street but the street is not closed completely, the Contractor shall employ, at contractor's expense, off-duty Houston Police Officers or certified flagman to maintain traffic flow. The Contractor may also employ certified flaggers at locations approved by the City or Engineer.
21. In the even a Private Utility Line is exposed due to excavation and is in need of relocation, the appropriate utility company shall be contacted by the Contractor to have status of the line verified by the utility company prior to any damage to that line. Contractor is responsible for having the utility company relocate the utility lines. The City is not responsible for any claims for any downtime lost resulting from such location.

22. Contractor shall be aware that he will work where utilities exist or may exist in the construction area which:

- a. Have not been field verified (NFV)
b. Have not been located on the drawings
c. May not be shown accurately on the drawings
d. May exist in the construction area and not shown on the drawings

It is the Contractor's responsibility to verify the location and depth of all existing utilities prior to excavation at no additional cost to the project. Contractor shall include costs in his bid to cover the costs associated with locating unknown lines and dealing with issues associated with lines that fall in the above noted category.

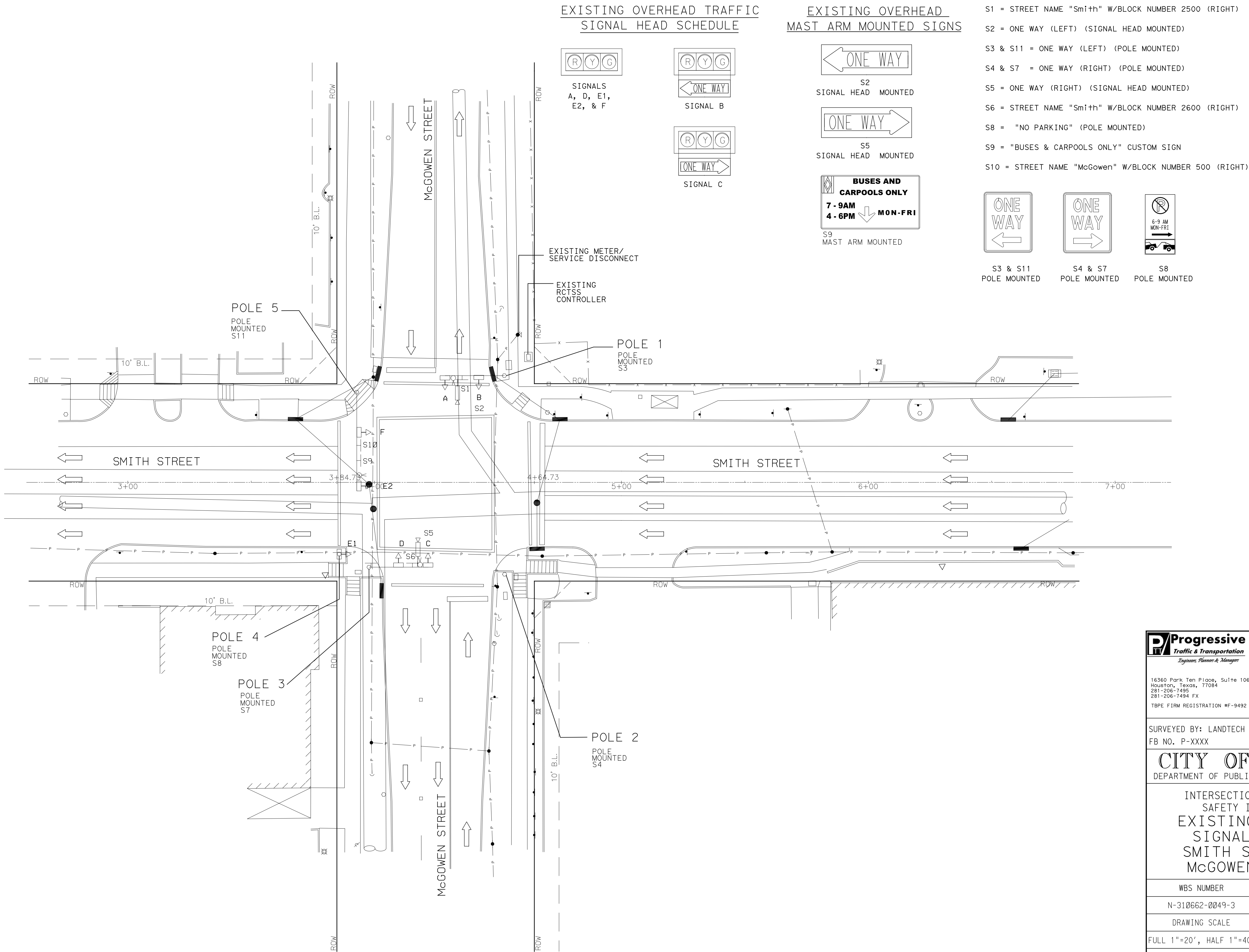
23. Texas Law Article 1436c, prohibits all activities in which persons or equipment may come within six feet of energized overhead power lines, and Federal Regulations, Title 29, Part 1910.180 (i) and Part 1926.550 (a) (15) require a minimum clearance of ten feet from these facilities. The above laws carry both criminal and civil liabilities, with contractors and owners being legally responsible for the safety of workers under these laws. If the contractor must work near overhead power lines, call (713) 207-7777 for the lines to be de-energized and/or moved at the contractor's expense.
24. Removal and replacement of street traffic signs, mail boxes and other structures to accomplish construction shall be considered incidental to the cost of the project unless specified in the bid proposal. Mail boxes shall be replaced per U.S. Postal Service Standards.
25. Contractor shall coordinate with the City as necessary, and when required, requiring iSpecial Eventsi that may be affected by construction. These events may require consideration by the Contractor (construction schedule or sequence, cleanup, street and sidewalk cleaning, removal and disposal of debris, etc.). The Contractor shall perform this work at no additional cost to the project.
26. The Contractor shall take all necessary precautions to maintain, protect and support the integrity of existing structures including but limited to gas lines, waterlines, pipelines, power cable or conduit, storm sewers (pipes, boxes, culverts), telephone lines (cable or conduit) to the pertinent company's requirements and satisfaction to facilitate the proposed construction at no additional cost to the project.
27. VERIFICATION OF STRUCTURE LIMITS: Contractor shall verify the limits of all structures which may impact the proposed improvements prior to construction. This shall include but is not limited to the horizontal and vertical limits of above ground and underground structures, supports, foundations, piers, pilings, retaining wall, etc.
28. Any damage to existing facilities and/or landscaping due to the Contractor's performance of work shall be repaired or replaced at no additional cost to the project, including but not limited to, replacement of all landscaping with larger replacement plants, sprinkler system, lighting, signs and solid grass sodding.
29. Provide one foot (11) minimum clearance between gas lines and all other utilities (New or Existing), unless otherwise noted in plans. Maintain clearance as required between the proposed storm sewer and all gas lines, petroleum lines and all other utilities proposed or existing. All clearance shall be obtained in writing from the appropriate company or utility. A copy of all documentation to the Engineer by the Contractor.
30. Contractor shall be responsible for providing required security to protect his own property, equipment and work in progress.
31. The Contractor shall conduct his operations in a manner such that trucks and other vehicles do not create a dirt nuisance or safety hazard in any streets, public or private. Clean up of streets shall be done daily at no additional cost to the project.
32. Drainage is of the utmost importance to this Project. The Contractor is responsible for the verification of key design elevations. The Contractor shall take care to obtain all grades designated on the Drawings. He/she shall also perform all transitions to existing pavements and driveways so that positive drainage is maintained and ponding is prevented. Transitions shall be performed so that a smooth driving surface is maintained. Contractor shall transition driveways so that vehicles will not ibottom outi.
33. Relocate all existing utilities as necessary for Storm, Utility and Pavement installation. Location and elevations of existing utilities shown on Drawings are approximate and shall be verified by the Contractor prior to construction. Relocation of existing utilities shall be at the Contractor's expense.
34. Traffic during construction: When construction begins on a street, the Contractor shall maintain traffic on the streets. Contractor shall also make necessary provisions to allow Ambulance, Police, Fire and other Emergency Vehicle access to the street. During Street Construction process, the Contractor shall allow resident traffic access to the street with the proper guidance, direction, flagmen and traffic control and only at such times that damage will not occur to the new street or to the vehicles.
35. Contractor shall maintain adequate drainage at all times during construction. Contractor shall reshape and regrade street ditch and re-establish all existing swale ditches to original or better condition, at the Contractor's expense.
36. The Contractor shall conduct his operations in a manner such that trucks and other vehicles do not create a dirt nuisance or safety hazard in any streets, public or private. Clean up of streets shall be done daily at no additional cost to the project.

 Progressive Traffic & Transportation <i>Engineers, Planners & Managers</i> 16360 Park Ten Place, Suite 106 Houston, Texas, 77084 281-206-7495 281-206-7494 FX TBPE FIRM REGISTRATION #F-9492		100% SUBMITTAL <u>PRELIMINARY</u> Document Incomplete; not intended for permit, bidding or construction. Engineer: <u>MOHAMMAD IREAN</u> P.E. Serial No.: <u>89333</u> Date: <u>02/28/2022</u>	
SURVEYED BY: LANDTECH FB NO. P-XXXX			
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING			
INTERSECTION REDESIGN AND SAFETY IMPROVEMENTS GENERAL NOTES CONSTRUCTION			
WBS NUMBER			
N-310662-0049-3			
DRAWING SCALE			
N/A			
CITY OF HOUSTON PM			
JOE HANAK			
SHEET NO. 2 OF 25			

TRAFFIC SIGNAL GENERAL NOTES:

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|-----|--|-----|--|-----|---|
| 18. | ALL EQUIPMENT / MATERIALS AND INSTALLATION SHALL MEET OR EXCEED THE REQUIREMENTS CONTAINED IN THE CURRENT CITY OF HOUSTON STANDARD SPECIFICATIONS AND STANDARD DRAWINGS, THE PROJECT SPECIFIC SPECIFICATIONS AND THE PLANS. | 34. | THE CONTRACTOR SHALL BAG ALL NEWLY INSTALLED VEHICULAR AND/OR PEDESTRIAN TRAFFIC SIGNAL HEADS WITH BURLAP OR OTHER APPROVED MATERIAL UNTIL THE FINAL INSPECTION AND ACCEPTANCE BY THE CITY TRAFFIC ENGINEER AND/OR APPROVED CITY OF HOUSTON REPRESENTATIVE. THE BURLAP OR OTHER APPROVED MATERIAL/DEVICE SHALL COMPLETELY COVER THE TRAFFIC SIGNAL HEAD AND SHALL OBSCURE THE VIEW OF THE TRAFFIC SIGNAL INDICATIONS SO THAT THEY CANNOT BE SEEN UNTIL THE TRAFFIC SIGNAL IS PLACED IN OPERATION. DURING CONSTRUCTION, THE TRAFFIC SIGNAL WILL BE DE-ENERGIZED WHILE NOT IN USE FOR TESTING. | 48. | 90 DEGREE ELBOWS USED IN THE CONSTRUCTION SHALL BE HOT DIPPED GALVANIZED STEEL RIGID METAL CONDUIT. |
| 2. | ALL ELECTRICAL WORK SHALL BE IN CONFORMANCE WITH THE N.E.C. AS WELL AS THE PROVISIONS AND REQUIREMENTS OF THE CITY ELECTRICAL CODE. | 35. | THE TRAFFIC SIGNAL OPERATION AT EXISTING SIGNALIZED INTERSECTIONS SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT. | | |
| 3. | ALL SIGNS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. | 36. | ALL STRIPING AND PAVEMENT MARKINGS ARE TO BE DONE UNDER THIS CONTRACT AND SHALL BE IN PLACE PRIOR TO THE ACTIVATION OF THE TRAFFIC SIGNAL. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL STOP LINES PRIOR TO THE INSTALLATION OF LOOP DETECTORS AND SENSOR DETECTORS. | | |
| 4. | THE CONTRACTOR SHALL ARRANGE THE INSTALLATION OF SIGNALS, POLES AND CONDUIT SO AS TO PERMIT THE CONTINUOUS MOVEMENT OF TRAFFIC IN ALL DIRECTIONS AT ALL TIMES. THE CONTRACTOR SHALL NOT CLOSE MORE THAN ONE LANE OF A ROADWAY AT ONE TIME WITHOUT PRIOR APPROVAL OF THE CITY. | 37. | ALL CONSTRUCTION SIGNING AND CONSTRUCTION TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. | | |
| 5. | THE CONTRACTOR SHALL CLEAN UP AND REMOVE FROM THE WORK AREA ALL LOOSE MATERIAL RESULTING FROM CONTRACT OPERATIONS EACH DAY PRIOR TO WORK BEING SUSPENDED FOR THAT DAY. | 38. | THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING THE NECESSARY CONDUIT, CONDUIT RISER, WIRING, WEATHERHEAD AND ALL INCIDENTALS NECESSARY AS REQUIRED BY THE POWER COMPANY FOR ROUTING OF THE SERVICE CONDUCTORS FROM THE METERED PEDESTAL SERVICE TO THE CENTERPOINT ENERGY POINT OF SERVICE. THE CONTRACTOR WILL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF THE ELECTRIC SERVICE CONNECTION WITH THE POWER COMPANY. THE CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRICAL CONNECTIONS AND MONTHLY ELECTRICITY BILLS UNTIL THE CITY ACCEPTS THE TRAFFIC SIGNAL. | | |
| 6. | THE CONTRACTOR SHALL CONTACT CENTERPOINT ENERGY TO ARRANGE FOR METER AND ELECTRICAL SERVICE CONNECTION. | 39. | FOR INSTALLATION OF THE GPS ANTENNA, SEE THE "GPS ANTENNA INSTALLATION DETAIL" ON STANDARD SHEETS. | | |
| 7. | ALL PEDESTRIAN PUSH BUTTON ASSEMBLIES SHALL MEET ADA REQUIREMENTS. THE SIGNS THAT SHALL BE USED ARE IDENTIFIED IN THE TMUTCD AS R10-3E. | 40. | THE CONTRACTOR SHALL LOCATE/ EXPOSE ALL UTILITIES THAT MAY BE IN CONFLICT WITH SIGNAL POLE LOCATIONS BY HAND EXCAVATION PRIOR TO CONSTRUCTION. IF UTILITIES ARE IN CONFLICT THE ENGINEER WILL BE CONTACTED TO FIND AN ALTERNATE LOCATION FOR THE SIGNAL POLES. | | |
| 8. | OVERHEAD STREET NAME SIGNS SHALL BE INSTALLED SUCH THAT THE BOTTOM OF THE SIGN IS NO LESS THAN 17 FEET ABOVE THE ROADWAY PAVEMENT OR NO LESS THAN 16 FEET ABOVE THE FINISHED GRADE BEYOND THE SHOULDER. | 41. | THE MOUNTING LOCATION OF THE UNINTERRUPTIBLE POWER SUPPLY UNIT ON THE CONTROLLER CABINET ASSEMBLY WILL BE DETERMINED BY THE ENGINEER PRIOR TO INSTALLATION OF CABINET FOUNDATION. UNINTERRUPTIBLE POWER SUPPLY UNIT SHALL BE MOUNTED ON THE CONTROLLER CABINET SUCH THAT IT IS AWAY FROM SIDEWALK. | | |
| 9. | THE LOCATION OF EACH NEW POLE FOUNDATION, PULL BOX, CONTROLLER CABINET FOUNDATION, UPS CABINET FOUNDATION AND ELECTRIC SERVICE PEDESTAL FOUNDATION SHALL BE MARKED IN THE FIELD AS SHOWN ON THE PLANS. THE EXACT LOCATION SHALL BE APPROVED BY THE ENGINEER AND/OR THE APPROVED CITY OF HOUSTON REPRESENTATIVE PRIOR TO BEGINNING INSTALLATION OF THE FOUNDATION. | 42. | THE CONTRACTOR SHALL MAINTAIN AND KEEP OPERATIONAL ALL INTELLIGENT TRANSPORTATION SYSTEMS (ITS) INFRASTRUCTURE DURING CONSTRUCTION. INFRASTRUCTURE INCLUDES, BUT NOT LIMITED TO, FIBER CABLE, COPPER, ETHERNET SWITCHES, WIMAX, BLUETOOTH, ETC. INTERRUPTION OF ITS OPERATIONS SHALL REQUIRE APPROVAL FROM THE CITY OF HOUSTON TRAFFIC OPERATIONS DIVISION / ITS SECTION AT A MINIMUM OF ONE WEEK IN ADVANCE. PLEASE CONTACT THE TRAFFIC OPERATIONS DIVISION / ITS SECTION FOR QUESTIONS AT 713.881.3172. | | |
| 10. | THE TOP OF THE POLE FOUNDATION SHALL BE LEVEL WITH THE FINISHED GRADE. IF THE SLOPE OR SHOULDER DROPS OFF FROM FINISHED GRADE, THE CONTRACTOR SHALL GRADE AROUND POLE FOUNDATION. THE TOP OF THE FOUNDATION SHALL EXTEND NO MORE THAN 4 INCHES ABOVE SURROUNDING GRADE. | 43. | CONTRACTOR SHALL USE EPOXY TO FILL IN THE HOLES IN THE PAVEMENT FORMED DUE TO THE REMOVAL OF EXISTING RAISED PAVEMENT MARKERS. | | |
| 11. | ALL CONCRETE USED FOR TRAFFIC SIGNAL POLE AND CABINET FOUNDATIONS SHALL BE CLASS "A" (REFER TO THE CITY OF HOUSTON SPECIFICATION FOR CONCRETE). | 44. | THE LIMITS OF CONCRETE WHEEL CHAIR RAMP STARTS AT THE BEGINNING OF THE 1:15 SLOPE AT THE TOP OF THE RAMP. ANY LANDING AREA AT THE TOP OF THE RAMP SHALL BE CONSIDERED AS SIDEWALK. ANY LANDING AREA AT THE BOTTOM OF THE RAMP WHERE DETECTABLE WARNING SURFACES ARE LOCATED SHALL BE CONSIDERED AS PART OF THE WHEEL CHAIR RAMP. ALSO, THE 6-INCH CONCRETE CURB ON EITHER SIDE OF THE RAMP AND THE DETECTABLE WARNING SURFACES SHALL BE CONSIDERED AS PART OF THE WHEEL CHAIR RAMP. | | |
| 12. | MAST ARM POLES SHALL NOT BE INSTALLED ON THE FOUNDATIONS LESS THAN SEVEN DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR THE FOUNDATION. | 45. | CONTRACTOR SHALL LEGIBLY MARK STATION NUMBERS ON THE PAVEMENT BEFORE BEGINING CONSTRUCTION. | | |
| 13. | ANCHOR BOLTS FOR SIGNAL POLES SHALL BE SET SO THAT TWO ARE IN COMPRESSION AND TWO ARE IN TENSION. PRIOR TO THE INSTALLATION OF THE NUT, THE THREADS OF THE ANCHOR BOLT SHALL BE COATED WITH PIPE JOINT COMPOUND. | 46. | CONTRACTOR SHALL HAVE HIS SURVEYOR STAKE THE RIGHT-OF-WAY AND LOCATIONS OF POLES AND CONTROLLER. CONTRACTOR SHALL NOTIFY THE EOR AT LEAST FIVE (5) DAYS PRIOR TO CONSTRUCTION SO THAT THE LOCATIONS CAN BE FIELD VERIFIED AND APPROVED BY THE EOR. | | |
| 14. | ALL UNDERGROUND CONSTRUCTION (CONDUIT, FOUNDATIONS AND PULL BOXES) FOR THE INTERSECTION SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF POLES, SIGNALS AND CABINETS. THE CONTRACTOR SHALL NOT PROCEED TO ABOVE GROUND WORK UNTIL THE ENGINEER AND/OR APPROVED CITY OF HOUSTON REPRESENTATIVE HAD CONFIRMED THAT THE MATERIALS FOR A COMPLETE INSTALLATION ARE AVAILABLE. | 47. | CONTRACTOR SHALL MAINTAIN THE CONDUIT HEIGHT IN PULL BOXES AS PER CITY OF HOUSTON TRAFFIC SIGNAL DETAILS DWG. NO. 02893-08. | | |
| 15. | UNDERGROUND CONDUIT FOR SIGNAL CABLE SHALL BE SCHEDULE 80 ELECTRICAL PVC CONDUIT OF THE DIAMETER SHOWN ON THE PLANS, UNLESS OTHERWISE NOTED. ALL COUPLINGS AND CONNECTIONS SHALL BE TIGHT AND WATERPROOF. | 21. | A 5/8 IN. X 10 FT. GROUND ROD SHALL BE INSTALLED IN THE PULL BOX LOCATED ON EACH CORNER. TWO GROUND ROD CLAMPS SHALL BE FURNISHED FOR GROUNDING THE GROUND WIRE. | | |
| 16. | ALL ABOVE GROUND CONDUIT FOR SIGNAL CABLE AND INTERCONNECT MEDIA SHALL BE HOT DIPPED GALVANIZED STEEL RIGID METAL CONDUIT OF THE DIAMETERS SHOWN ON THE PLANS, UNLESS OTHERWISE NOTED. ALL COUPLINGS AND CONNECTIONS SHALL BE TIGHT AND WATERPROOF. | 22. | ALL CONDUITS SHALL BE CLEANED BY COMPRESSED AIR AND A PROPERLY SIZED CONDUIT PISTON OR MANDREL SHALL BE PULLED THROUGH THE CONDUIT PRIOR TO CABLE INSTALLATION. | | |
| 17. | ONLY NEW CONDUIT AND CABLE SHALL BE INSTALLED. | 23. | WHEN PULLING TRAFFIC SIGNAL SYSTEM CABLES THROUGH CONDUIT, THE CABLES SHALL BE LUBRICATED WITH A LUBRICANT NORMALLY USED FOR THIS PURPOSE. ANY ABRASION TO ANY CONDUCTOR INSULATION WHICH OCCURS WHILE PULLING CABLE FOR THE TRAFFIC SIGNAL SYSTEM WILL BE CAUSE FOR THE IMMEDIATE REJECTION OF THE CABLE. IF THIS OCCURS, THE CONTRACTOR SHALL REMOVE AND REPLACE THE ENTIRE CABLE RUN AT THEIR EXPENSE. | | |
| | | 24. | A MINIMUM OF THREE (3) FEET OF EACH WIRE AND CABLE MEASURED FROM THE TOP OF THE PULL BOX SHALL BE LEFT IN EACH PULL BOX AND AT EACH POLE BASE. | | |
| | | 25. | ALL CABLES SHALL BE STRIPPED, FORMED AND TERMINATED IN A NEAT AND UNIFORM MANNER WHETHER IN THE SIGNAL HEAD OR CONTROLLER CABINET. ALL CABLE SHALL BE BROUGHT INTO THE TERMINAL HOUSING OF SIGNALS AND/OR CONTROLLER CABINETS AND A SUFFICIENT LENGTH OF CABLE SHALL BE LEFT SO THAT ALL TERMINAL CONNECTIONS MAY BE MADE WITHOUT THE NECESSITY OF SPLICING THE CABLE. | | |
| | | 26. | NO LOOP DETECTOR SHALL BE CUT IN A PARALLEL EXPANSION JOINT. LOOPS CUT ACROSS EXPANSION JOINTS SHALL HAVE A SLACK IN THE CABLE FOR EXPANSION. | | |
| | | 27. | ALL VEHICLE ROADWAY DETECTION LOOP CABLES SHALL BE #14 AWG IMSA 51-5-1985 CABLE. LEAD-IN CABLES SHALL BE #16 AWG IMSA 50-2-1984 CABLE. NO SPLICES SHALL BE ALLOWED IN THE ROADWAY DETECTION LOOP CABLE EXCEPT AT THE PULL BOX ADJACENT TO LOOP. THE DETECTOR LEAD-IN CABLE SHALL NOT BE SPLICED. | | |
| | | 28. | DETECTION LOOP SAW CUTS SHALL BE FLUSHED WITH WATER UNDER PRESSURE AND THEN DRIED WITH AIR UNDER PRESSURE. | | |
| | | 29. | THE HIGH VOLTAGE CABLES SHOULD BE SEPARATED FROM THE LOW VOLTAGE CABLES AS MUCH AS POSSIBLE. | | |
| | | 30. | WIRELESS MAGNETOMETER VEHICLE DETECTION SYSTEM SENSORS AND THE ASSOCIATED EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS STANDARDS AND SPECIFICATIONS. | | |
| | | 31. | THERE SHALL BE NO SPLICING IN CONDUCTORS EXCEPT FOR THE NECESSARY SPlice BETWEEN ROADWAY LOOP WIRE AND DETECTOR LEAD-IN CABLE IN THE PULL BOX ADJACENT TO THE DETECTOR. THESE SPLICES SHALL BE WATERPROOF AND SHALL BE IN COMPLIANCE WITH THE CITY OF HOUSTON STANDARD DRAWINGS FOR TRAFFIC SIGNAL CONSTRUCTION. THESE SPLICES SHALL BE MADE BY THE CONTRACTOR. DO NOT GROUND THE CABLE SHIELD AT THE PULL BOX. | | |
| | | 32. | THE EMERGENCY VEHICLE PREEMPTION SENSOR CABLE SHALL BE OPTICOM DETECTOR CABLE MODEL NO. 138. THE CABLE SHALL NOT BE SPLICED. | | |
| | | 33. | ALL VEHICLE AND PEDESTRIAN INDICATIONS SHALL BE LED. | | |

\$USER\$
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Engineer: **MOHAMMAD IREAN**
P.E. Serial No.: **89333**

Date:
03/10/2022

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

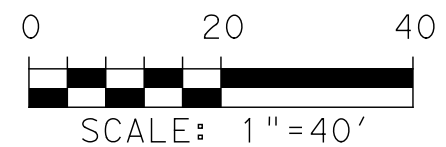
INTERSECTION REDESIGN AND
SAFETY IMPROVEMENTS
EXISTING TRAFFIC
SIGNAL LAYOUT
SMITH STREET AT
MCGOWEN STREET

WBS NUMBER	
N-310662-0049-3	
DRAWING SCALE	
FULL 1"=20', HALF 1"=40'	
CITY OF HOUSTON PM	
JOE HANAK	
SHEET NO. 4 OF 25	

- ← DIRECTION OF EXIST TRAFFIC FLOW

REMOVAL NOTES:

- 1-THE CONTRACTOR SHALL PROTECT ALL TREES IN WORK AREA.
- 2-ALL REMOVED MATERIALS SHALL BE DISPOSED OF OFF THE CONSTRUCTION SITE.
- 3-SAWCUTTING SHALL BE INCIDENTAL TO REMOVAL OF CONCRETE ASPHALT AND/OR CURB.
- 4-THE CONTRACTOR SHALL REMOVE ALL EXIST PAVEMENT MARKING BEING REPLACED AS SHOWN ON PAVEMENT MARKING PLAN.
- 5-CONTRACTOR TO REMOVE MEDIAN BY GRINDING TO AVOID DAMAGE TO PAVEMENT BELOW.



PRIVATE UTILITY LINES SHOWN

CENTERPOINT ENERGY, INC.	DATE
--------------------------	------

AT&T TEXAS/SWBT UTILITY LINES SHOWN DATE _____
APPROVED FOR AT&T TEXAS/SBC UNDERGROUND CONDUIT FACILITIES ONLY.
SIGNATURE VALID FOR ONE YEAR

CENTERPOINT ENERGY GAS

APPROVED ONLY FOR CROSSING UNDERGROUND DUCTLINES
UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.



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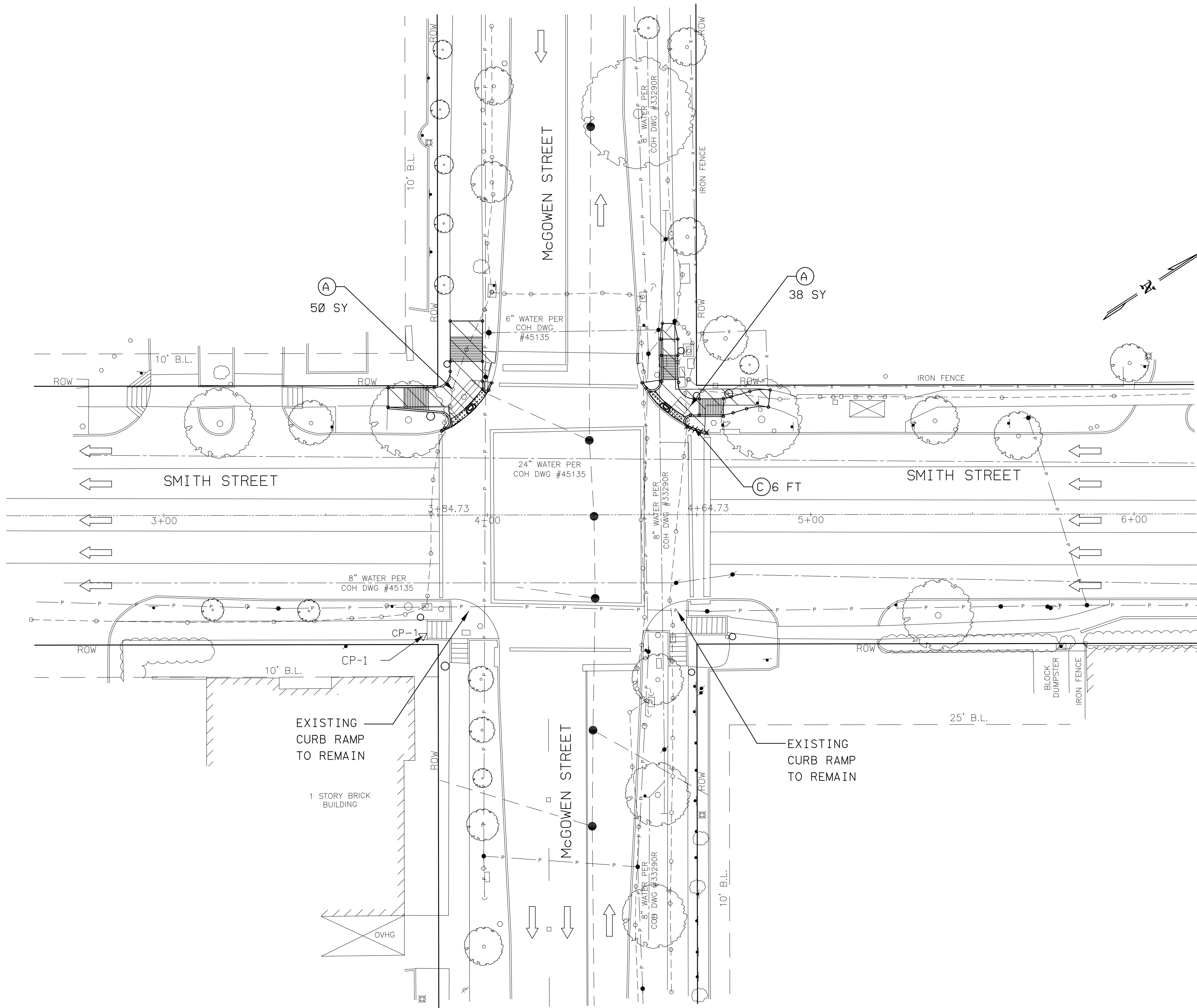
Date:
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CITY OF HOUSTON
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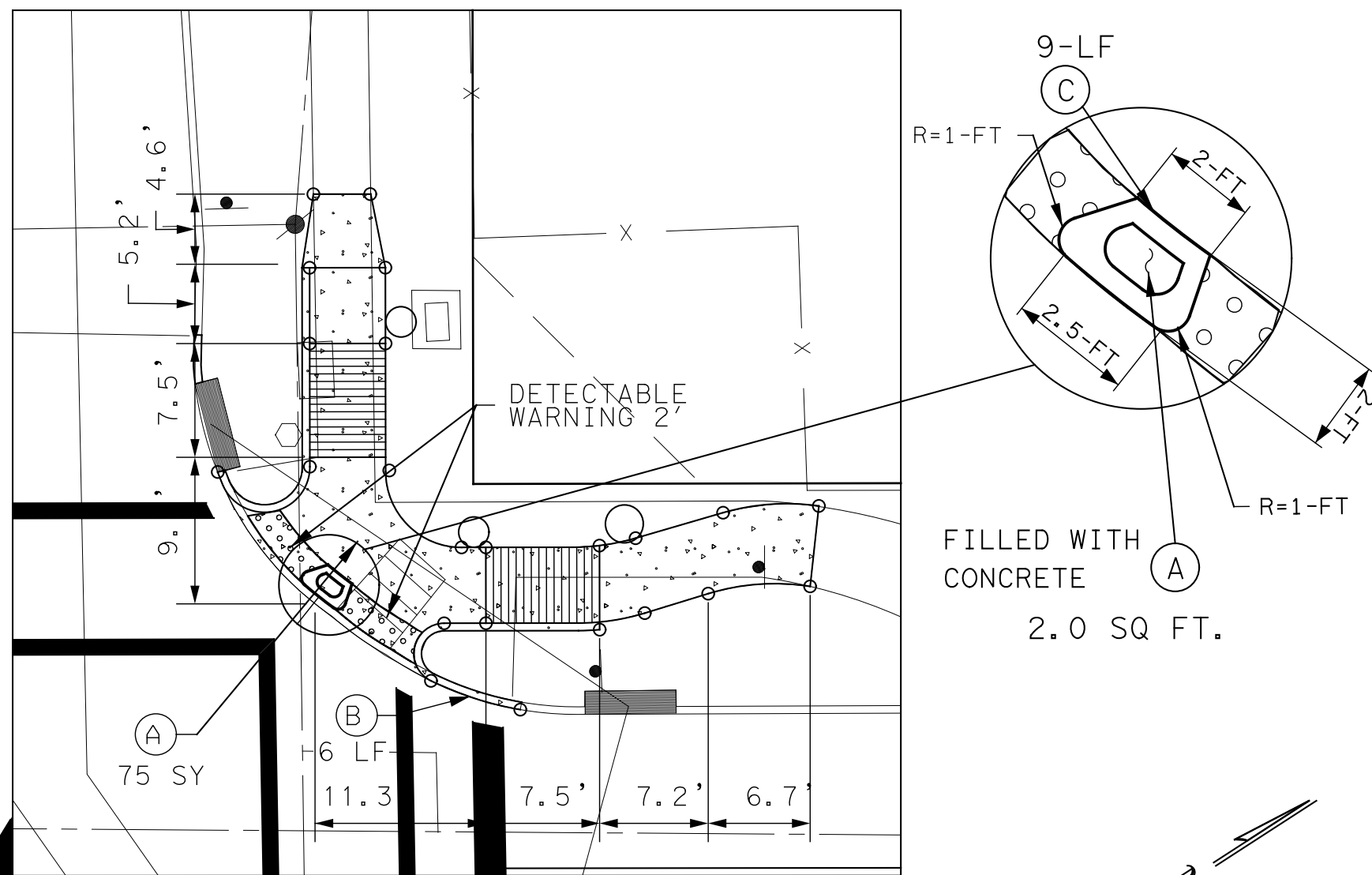
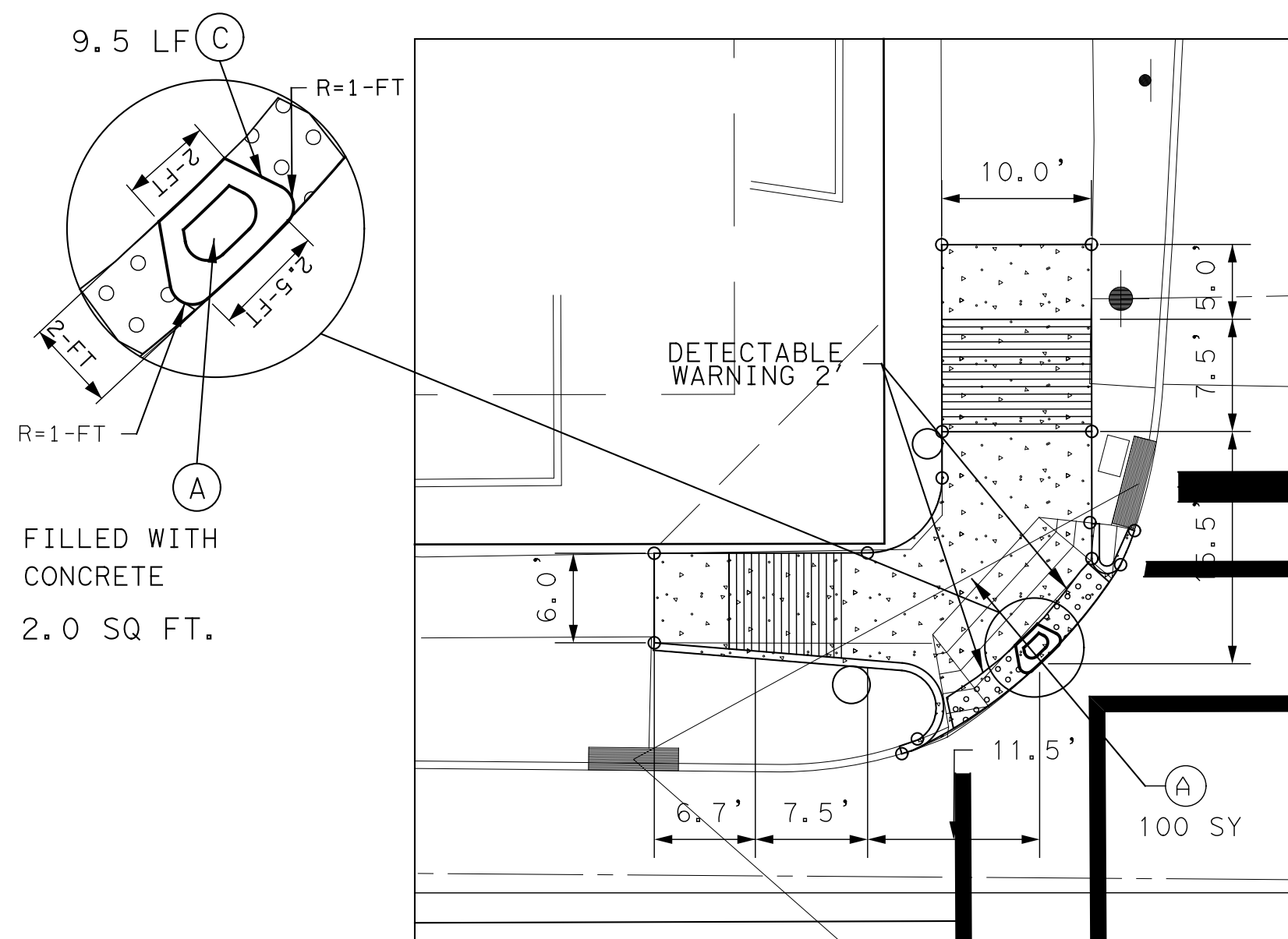
INTERSECTION REDESIGN AND SAFETY IMPROVEMENTS

REMOVAL PLAN
SMITH STREET AT
McGOWEN STREET

WBS NUMBER
N-310662-0049-3
DRAWING SCALE
FULL 1"=20', HALF 1"=40'
CITY OF HOUSTON PM
JOE HANAK
SHEET NO. 5 OF 25



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\$DATES\$
\$FILES\$
\$PLOTTERS\$



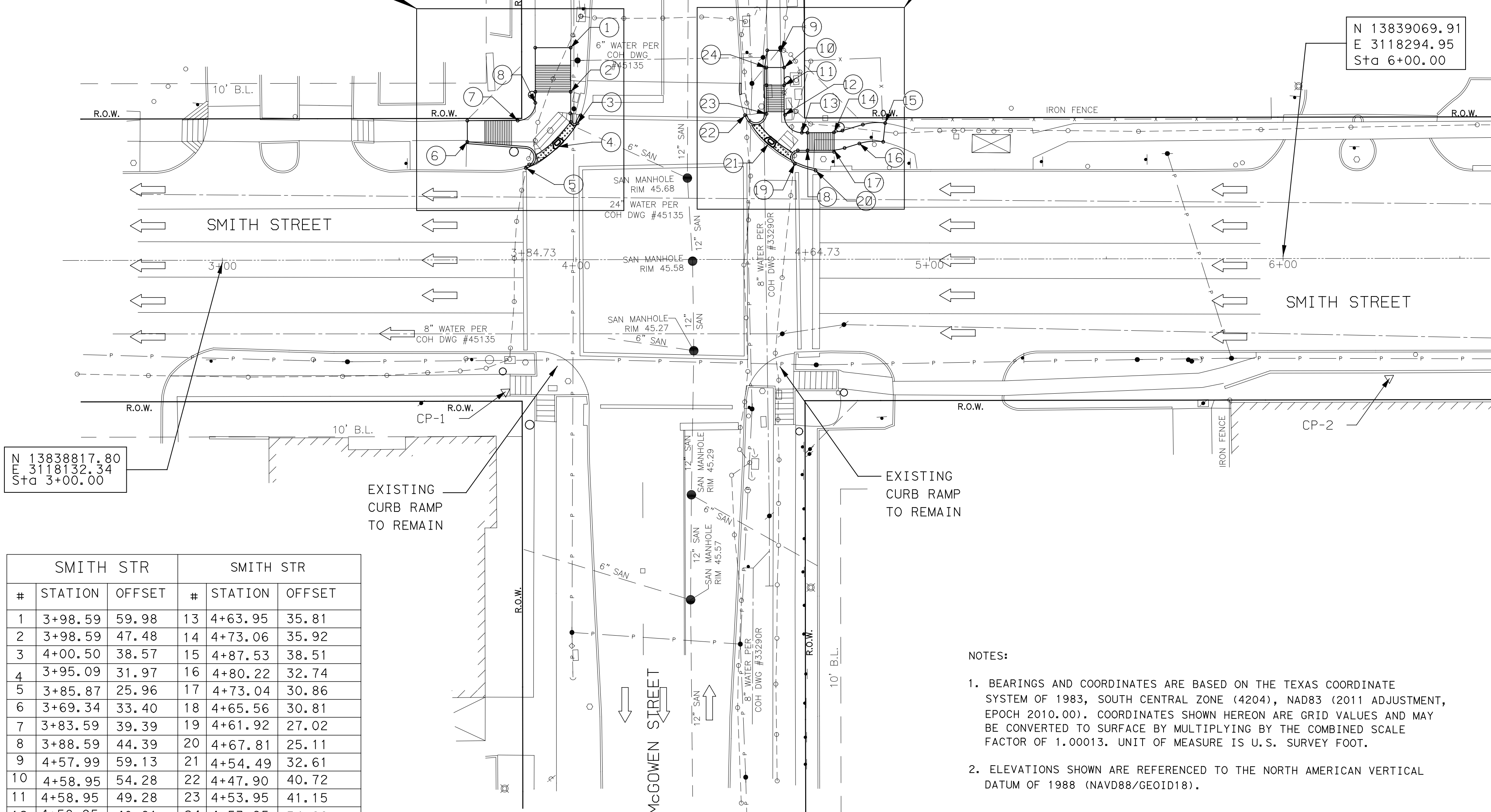
PROP. PAVEMENT LEGEND

- (A) PROP. 4.5" CONC SIDEWALK
- (B) PROP 6" MONO CURB
- (C) PROP SODDING

- EXIST DIRECTION OF TRAVEL
- PROP. DIRECTION OF TRAVEL

PLAN NOTES:

- ALL CALL OUTS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
- SEE CITY OF HOUSTON STANDARDS FOR ADDITIONAL DETAILS AND INFORMATION.
- SEE REMOVAL PLAN FOR REMOVAL LIMITS AND INFORMATION.
- THE CONTRACTOR SHALL LOCATE ALL NECESSARY UTILITIES, THAT MAY BE IN CONFLICT WITH CONSTRUCTION.



SMITH STR			SMITH STR		
#	STATION	OFFSET	#	STATION	OFFSET
1	3+98.59	59.98	13	4+63.95	35.81
2	3+98.59	47.48	14	4+73.06	35.92
3	4+00.50	38.57	15	4+87.53	38.51
4	3+95.09	31.97	16	4+80.22	32.74
5	3+85.87	25.96	17	4+73.04	30.86
6	3+69.34	33.40	18	4+65.56	30.81
7	3+83.59	39.39	19	4+61.92	27.02
8	3+88.59	44.39	20	4+67.81	25.11
9	4+57.99	59.13	21	4+54.49	32.61
10	4+58.95	54.28	22	4+47.90	40.72
11	4+58.95	49.28	23	4+53.95	41.15
12	4+58.95	40.81	24	4+53.95	54.28

NOTES:

- BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE (4204), NAD83 (2011 ADJUSTMENT, EPOCH 2010.00). COORDINATES SHOWN HEREON ARE GRID VALUES AND MAY BE CONVERTED TO SURFACE BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 1.00013. UNIT OF MEASURE IS U.S. SURVEY FOOT.
- ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88/GEOD18).

POINT	GRID NORTHING	GRID EASTING	ELEV.	DESCRIPTION
CP-1	13,837,065.97	3,117,801.78	45.52	
CP-2	13,837,277.88	3,117,934.33	46.17	SET 3/8" IRwLANDTECH CAP

PRIVATE UTILITY LINES SHOWN

CENTERPOINT ENERGY, INC. DATE

AT&T TEXAS/SWBUTILITY LINES SHOWN DATE
APPROVED FOR AT&T TEXAS/SBC UNDERGROUND CONDUIT FACILITIES ONLY.
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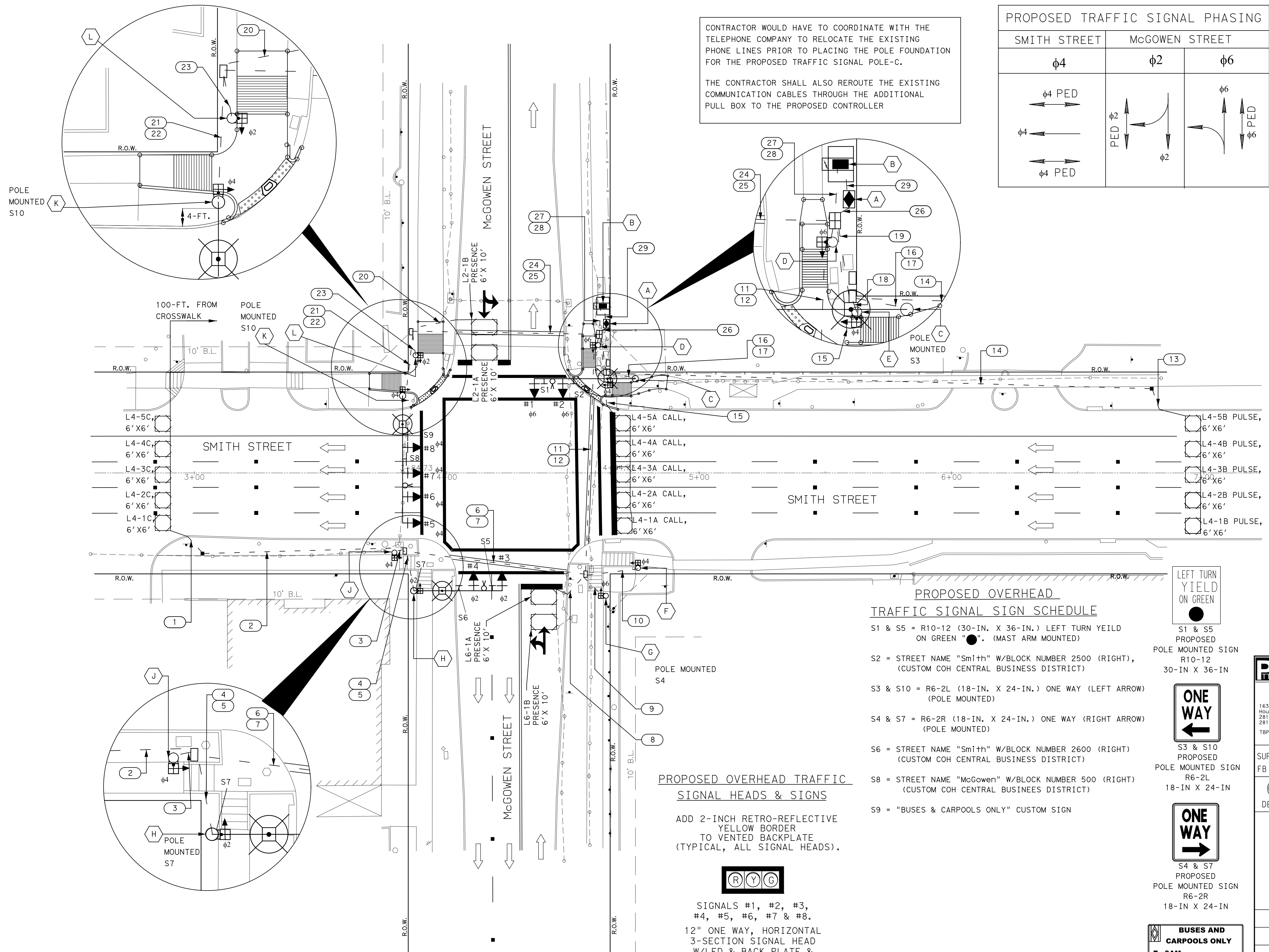
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

INTERSECTION REDESIGN AND SAFETY IMPROVEMENTS PROPOSED IMPROVEMENT PLAN SMITH STREET AT McGOWEN STREET

WBS NUMBER
N-310662-0049-3
DRAWING SCALE
FULL 1"=20', HALF 1"=40'
CITY OF HOUSTON PM
JOE HANAK
SHEET NO. 6 OF 25

\$USER\$
\$DATE\$
\$FILES\$
\$PLOTTERS\$



CONTRACTOR WOULD HAVE TO COORDINATE WITH THE TELEPHONE COMPANY TO RELOCATE THE EXISTING PHONE LINES PRIOR TO PLACING THE POLE FOUNDATION FOR THE PROPOSED TRAFFIC SIGNAL POLE-C.

THE CONTRACTOR SHALL ALSO REROUTE THE EXISTING COMMUNICATION CABLES THROUGH THE ADDITIONAL PULL BOX TO THE PROPOSED CONTROLLER

PROPOSED TRAFFIC SIGNAL PHASING

SMITH STREET	MCGOWEN STREET	
$\phi 4$	$\phi 2$	$\phi 6$
$\phi 4$ PED $\phi 4$ $\phi 4$ PED	PED $\phi 2$ $\phi 2$	$\phi 6$ PED $\phi 6$

LEGEND

- TRAFFIC SIGNAL POLE
- PEDESTAL POLE
- POLE W/MAST ARM
- VEHICLE SIGNAL HEAD
- VEHICLE SIGNAL HEAD W/BACKPLATE
- PEDESTRIAN SIGNAL HEAD
- PULL BOX - TY A
- PULL BOX - TY B
- PULL BOX - TY C
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- PRE-EMPTION SENSOR
- LUMINAIRE W/PHOTOCELL
- MAST ARM SIGN
- METERED POWER POLE
- CONTROLLER CABINET

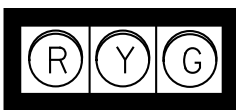
- NO SPEED LIMIT SIGN WITHIN THE PROJECT LIMIT SMITH STREET. ASSUMED 30 MPH.
- NO SPEED LIMIT SIGN WITHIN THE PROJECT LIMIT MCGOWEN STREET. ASSUMED 30 MPH.

PROPOSED OVERHEAD TRAFFIC SIGNAL SIGN SCHEDULE

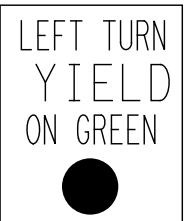
- S1 & S5 = R10-12 (30-IN. X 36-IN.) LEFT TURN YIELD ON GREEN "Y". (MAST ARM MOUNTED)
- S2 = STREET NAME "Smith" W/BLOCK NUMBER 2500 (RIGHT), (CUSTOM COH CENTRAL BUSINESS DISTRICT)
- S3 & S10 = R6-2L (18-IN. X 24-IN.) ONE WAY (LEFT ARROW) (POLE MOUNTED)
- S4 & S7 = R6-2R (18-IN. X 24-IN.) ONE WAY (RIGHT ARROW) (POLE MOUNTED)
- S6 = STREET NAME "Smith" W/BLOCK NUMBER 2600 (RIGHT) (CUSTOM COH CENTRAL BUSINESS DISTRICT)
- S8 = STREET NAME "McGowen" W/BLOCK NUMBER 500 (RIGHT) (CUSTOM COH CENTRAL BUSINESS DISTRICT)
- S9 = "BUSES & CARPOOLS ONLY" CUSTOM SIGN

PROPOSED OVERHEAD TRAFFIC SIGNAL HEADS & SIGNS

ADD 2-INCH RETRO-REFLECTIVE YELLOW BORDER TO VENTED BACKPLATE (TYPICAL, ALL SIGNAL HEADS).



SIGNALS #1, #2, #3, #4, #5, #6, #7 & #8.
12" ONE WAY, HORIZONTAL 3-SECTION SIGNAL HEAD W/L&D & BACK PLATE & BLACK POWDER COATING



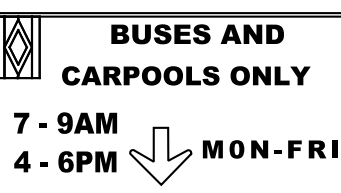
S1 & S5
PROPOSED
POLE MOUNTED SIGN
R10-12
30-IN X 36-IN



S3 & S10
PROPOSED
POLE MOUNTED SIGN
R6-2L
18-IN X 24-IN



S4 & S7
PROPOSED
POLE MOUNTED SIGN
R6-2R
18-IN X 24-IN



S9
MAST ARM MOUNTED
EXISTING SIGN TO
BE RELOCATED

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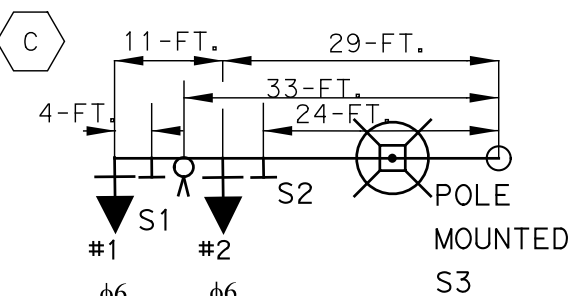
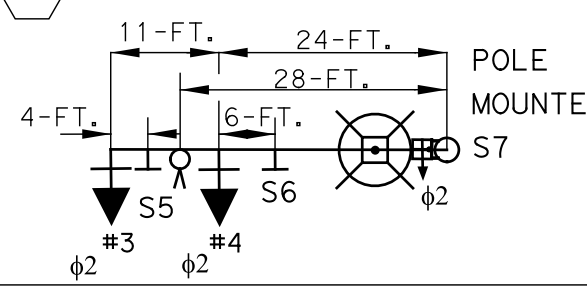
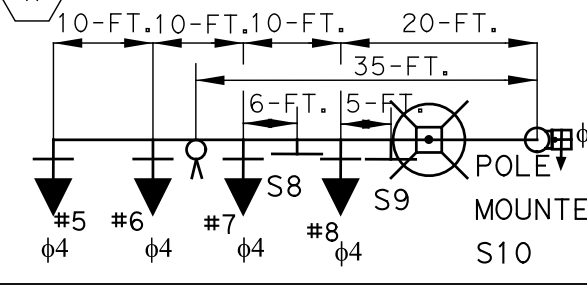
Date:
03/10/2022

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

INTERSECTION REDESIGN AND
SAFETY IMPROVEMENTS
**PROPOSED TRAFFIC
SIGNAL LAYOUT
SMITH STREET AT
MCGOWEN STREET**

WBS NUMBER	
N-310662-0049-3	
DRAWING SCALE	
FULL 1"=20', HALF 1"=40'	
CITY OF HOUSTON PM	
JOE HANAK	
SHEET NO. 7 OF 25	

\$USER\$
\$DATE\$
\$FILE\$
\$PLOTTER\$

POLE NUMBER	POLE TYPE	MAST ARM		SIGNALS		LUMINAIRE TYPE	PED PB TYPE/ SIGN	REMARKS	LOCATION	STANDARDS
		SIGNAL	LUMINAIRE	MOUNTING	FACE					
	TYPE-2	40-FT.	15-FT.	2 - ASTROBRAC	2 - H3	106 WATT SYSTEM MAX LED COBRA HEAD LUMINAIRE	-	PRE-EMPT SENSOR, SIGNS: S1=R10-12 (30"X36") S2=STREET NAME S3=R6-2L (18"X24") (POLE MOUNT)	AT APPROX. POLE C - STA. 04+74.70, 37.35-FT. LT SMITH STREET CONST. ☐	02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09 02893-12
	PED. POLE, 15-FT.	-	-	1 - SIDE OF POLE	1 - CDP	-	POLARA NAVIGATOR R10-3E (R)	-	AT APPROX. POLE D - STA. 04+59.98, 50.70-FT. LT SMITH STREET CONST. ☐	02893-02 02893-03 02893-06 02893-07
	PED. POLE, 15-FT.	-	-	1 - SIDE OF POLE	1 - CDP	-	POLARA NAVIGATOR R10-3E (L)	-	AT APPROX. POLE E - STA. 04+64.76, 36.83-FT. LT SMITH STREET CONST. ☐	02893-02 02893-03 02893-06 02893-07
	PED. POLE, 15-FT.	-	-	1 - SIDE OF POLE	1 - CDP	-	POLARA NAVIGATOR R10-3E (R)	-	AT APPROX. POLE F - STA. 04+75.75, 37.70-FT. RT SMITH STREET CONST. ☐	02893-02 02893-03 02893-06 02893-07
	PED. POLE, 15-FT.	-	-	1 - SIDE OF POLE	1 - CDP	-	POLARA NAVIGATOR R10-3E (L)	SIGN: S4=R6-2R (18"X24") (POLE MOUNT)	AT APPROX. POLE G - STA. 04+63.07, 48.68-FT. RT SMITH STREET CONST. ☐	02893-02 02893-03 02893-06 02893-07
	TYPE-1	35-FT.	15-FT.	2 - ASTROBRAC 1 - SIDE OF POLE	2 - H3 1 - CDP	106 WATT SYSTEM MAX LED COBRA HEAD LUMINAIRE	POLARA NAVIGATOR R10-3E (R)	PRE-EMPT SENSOR, SIGNS: S5=R10-12 (30"X36") S6=STREET NAME (SIGNAL HEAD MOUNT) S7=R6-2R (18"X24") (POLE MOUNT)	AT APPROX. POLE H - STA 03+86.03, 46.71-FT. RT SMITH STREET CONST. ☐	02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09 02893-12
	PED. POLE, 15-FT.	-	-	1 - SIDE OF POLE	1 - CDP	-	POLARA NAVIGATOR R10-3E (R)	-	AT APPROX. POLE J - STA. 03+79.12, 31.16-FT. RT SMITH STREET CONST. ☐	02893-02 02893-03 02893-06 02893-07
	TYPE-2	50-FT.	15-FT.	4 - ASTROBRAC 1 - SIDE OF POLE	4 - H3 1 - CDP	106 WATT SYSTEM MAX LED COBRA HEAD LUMINAIRE	POLARA NAVIGATOR R10-3E (L)	PRE-EMPT SENSOR, SIGNS: S8=STREET NAME S9="BUSES & CARPOOLS ONLY" (CUSTOM SIGN) S10=R6-2L (18"X24") (POLE MOUNT)	AT APPROX. POLE K - STA. 03+82.50, 30.57-FT. LT SMITH STREET CONST. ☐	02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09 02893-12
	PED. POLE, 15-FT.	-	-	1 - SIDE OF POLE	1 - CDP	-	POLARA NAVIGATOR R10-3E (L)	-	AT APPROX. POLE L - STA. 03+87.62, 46.67-FT. LT SMITH STREET CONST. ☐	02893-02 02893-03 02893-06 02893-07

TRAFFIC SIGNAL CONTROLLER						
CABINET	TYPE	CONTROLLER	AUX. CONTROL	REMARKS	LOCATION	STANDARDS
	METERED PEDESTAL SERVICE UL TYPE 3R	METERED PEDESTAL SERVICE WITH ONE 30 AMP AND ONE 60 AMP BREAKERS AND PHOTOCELL	-	PROVIDE METER SOCKET WINDOW 4" H X 6" W	AT APPROX. STA. 04+63.23, 59.18-FT. LT (TO CENTER OF POLE/CAB.) SMITH STREET CONST. ☐	02893-14
	TYPE 340 ITS	2070LX CONTROLLER UNIT W/2070-1C CPU MODULE WITH GPS SERIAL COMMUNICATIONS MODULE & UPS BATTERY BACK-UP SYSTEM.	-	STANDARD SPECIFICATION 16730 & 16731 UNINTERRUPTIBLE POWER SUPPLY - STANDARD SPECIFICATION 16732 GPS SERIAL COMMUNICATIONS MODULE - STANDARD SPECIFICATION 16785 FIELD HARDENED ETHERNET SWITCH - STANDARD SPECIFICATION 16733	AT APPROX. STA. 04+61.86, 66.14-FT. LT (TO CENTER OF CAB.) SMITH STREET CONST. ☐	02893-10C 16730 16731 16732 16733 16734 16785

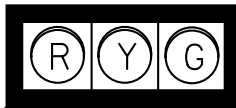
NOTES

- ADD 2-INCH RETRO-REFLECTIVE YELLOW BORDER TO VENTED BACKPLATE (TYPICAL).
- ALL SIGNAL HEADS WILL BE 12-IN. WITH LOUVERED BACK PLATES.
- POLES C, H, AND K WILL HAVE CONCRETE FOUNDATION.
- POLES D, E, F, G, J, AND L WILL HAVE SCREW-IN ANCHOR FOUNDATION.

STOP LINE & LOOP DETECTOR LOCATIONS		
ITEM BY DIRECTION	STA SMITH STEET CL	OFFSET
SOUTHBOUND SMITH STREET STOP LINE @ GUTTER (WEST SIDE) STOP LINE @ GUTTER (EAST SIDE)	STA 04+64.66 STA 04+64.47	24.32-FT. LT 24.64-FT. RT
SOUTHBOUND (THRU LANES) PH4 CALL (6'X6') LOOPS L4-1A, L4-2A LEADING EDGE PH4 PULSE (6'X6') LOOPS L4-1B, L4-2B LEADING EDGE PH4 DOWNSTREAM (6'X6') LOOPS L4-1C, L4-2C LEADING EDGE	STA 02+70.00 STA 02+70.00 260-FT. NORTH FROM SOUTHBOUND STOP LINE 100-FT. SOUTH OF CROSSWALK	CENTERED IN LANE
ITEM BY DIRECTION	STA SMITH STEET CL	OFFSET
EASTBOUND McGOWEN STREET STOP LINE @ GUTTER STOP LINE @ 4" DBL YELLOW LINE	STA 04+04.37 STA 04+25.39	42.75-FT. LT 42.75-FT. LT
EASTBOUND McGOWEN STREET PH2 PRESENCE LOOP L2-1A, LEADING EDGE (6'X10')	STA 04+14.88	CENTERED IN LANE
PH2 PRESENCE LOOP L2-1B, LEADING EDGE (6'X10')		
WESTBOUND McGOWEN STREET STOP LINE @ GUTTER STOP LINE @ 4" DBL YELLOW LINE	STA 04+45.86 STA 04+29.42	44.06-FT. RT 44.06-FT. RT
WESTBOUND McGOWEN STREET PH2 PRESENCE LOOP L6-1A, LEADING EDGE (6'X10')	STA 04+37.64	CENTERED IN LANE
PH2 PRESENCE LOOP L6-1B, LEADING EDGE (6'X10')		

PROPOSED OVERHEAD TRAFFIC SIGNAL HEADS & SIGNS

ADD 2-INCH RETRO-REFLECTIVE
YELLOW BORDER
TO VENTED BACKPLATE
(TYPICAL, ALL SIGNAL HEADS).



SIGNALS #1, #2, #3,
#4, #5, #6, #7 & #8.
12" ONE WAY, HORIZONTAL
3-SECTION SIGNAL HEAD
W/LED & BACK PLATE &
BLACK POWDER COATING



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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

INTERSECTION REDESIGN AND
SAFETY IMPROVEMENTS

PROPOSED SIGNING & PAVEMENT MARKINGS SMITH STREET AT McGOWEN STREET

WBS NUMBER	
N-310662-0049-3	
DRAWING SCALE	
FULL 1"=20', HALF 1"=40'	
CITY OF HOUSTON PM	
JOE HANAK	
SHEET NO. 8 OF 25	

HIGH VOLTAGE CIRCUIT

(X) Y" C = NUMBER, SIZE, AND TYPE OF CONDUIT
(X) = NUMBER OF CABLES (SIGNAL)
CC = #14 AWG SOLID CONDUCTOR CABLE
SL = STREET LIGHTING, 2-#10 AWG XHHW
BB = BARE BOND #8 AWG SOLID
BG = BAREGROUND, #8 AWG SOLID
SLG = STREET LIGHT GROUNDING FOR LUMINAIRE #12 AWG XHHW
SP = SIGNAL POWER, #4 AWG XHHW (SEE NOTES BELOW)

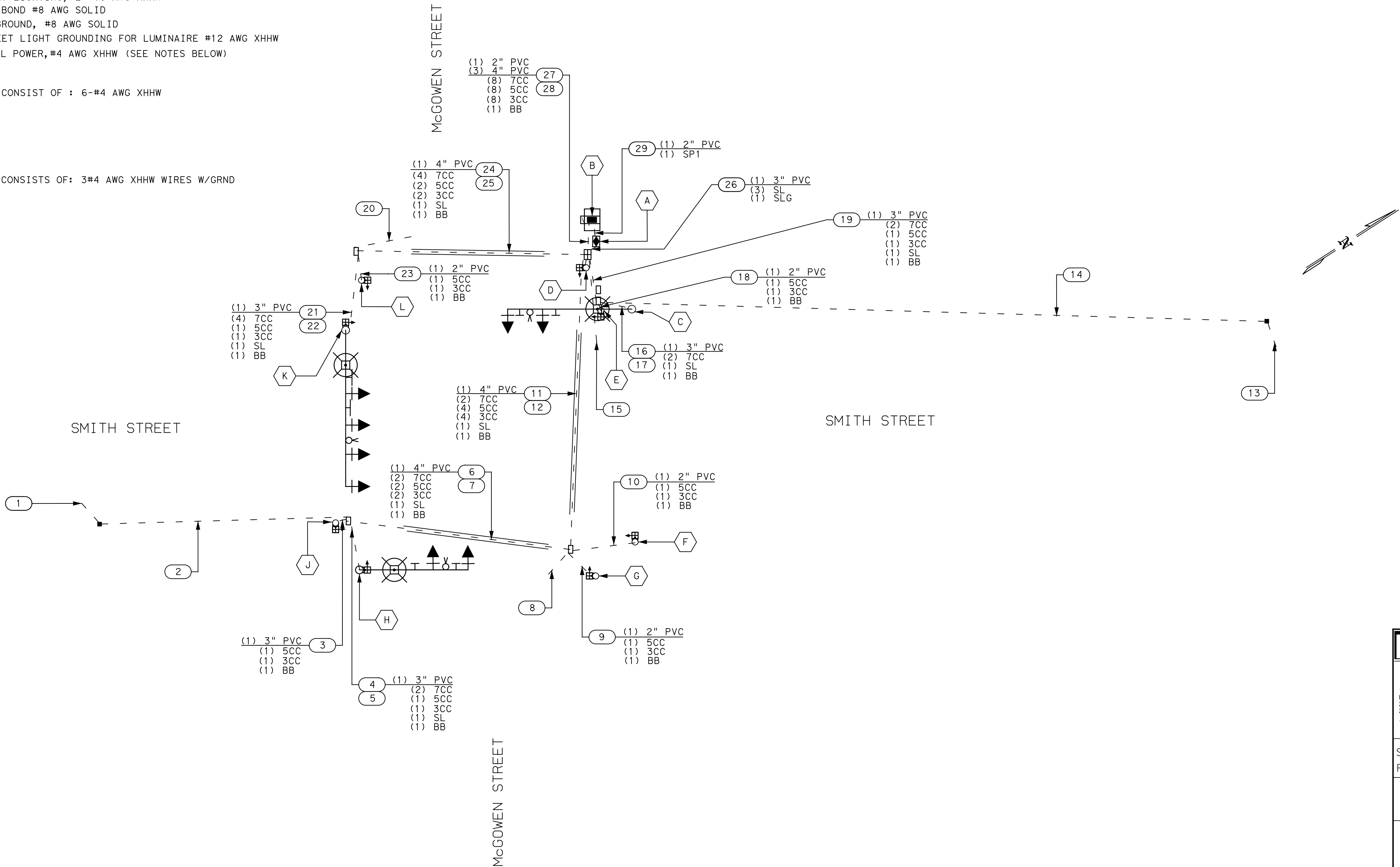
NOTE:
SP1 SHALL CONSIST OF : 6-#4 AWG XHHW

2 - WHITE,
1 - BLACK,
1 - RED,
2 - GREEN

SP2 SHALL CONSISTS OF: 3#4 AWG XHHW WIRES W/GRND

NOTES:

1. CONTACT CITY OF HOUSTON ITS OPERATIONS AND SAFETY SECTION (713-881-3052) FOR INTEGRATION SCHEDULE AND/OR SALVAGE OF ANY COMMUNICAITON EQUIPMENT.
2. ALL COMMUNICAITON EQUIPMENT ARE TO BE WIRED TO NEW CABINET.



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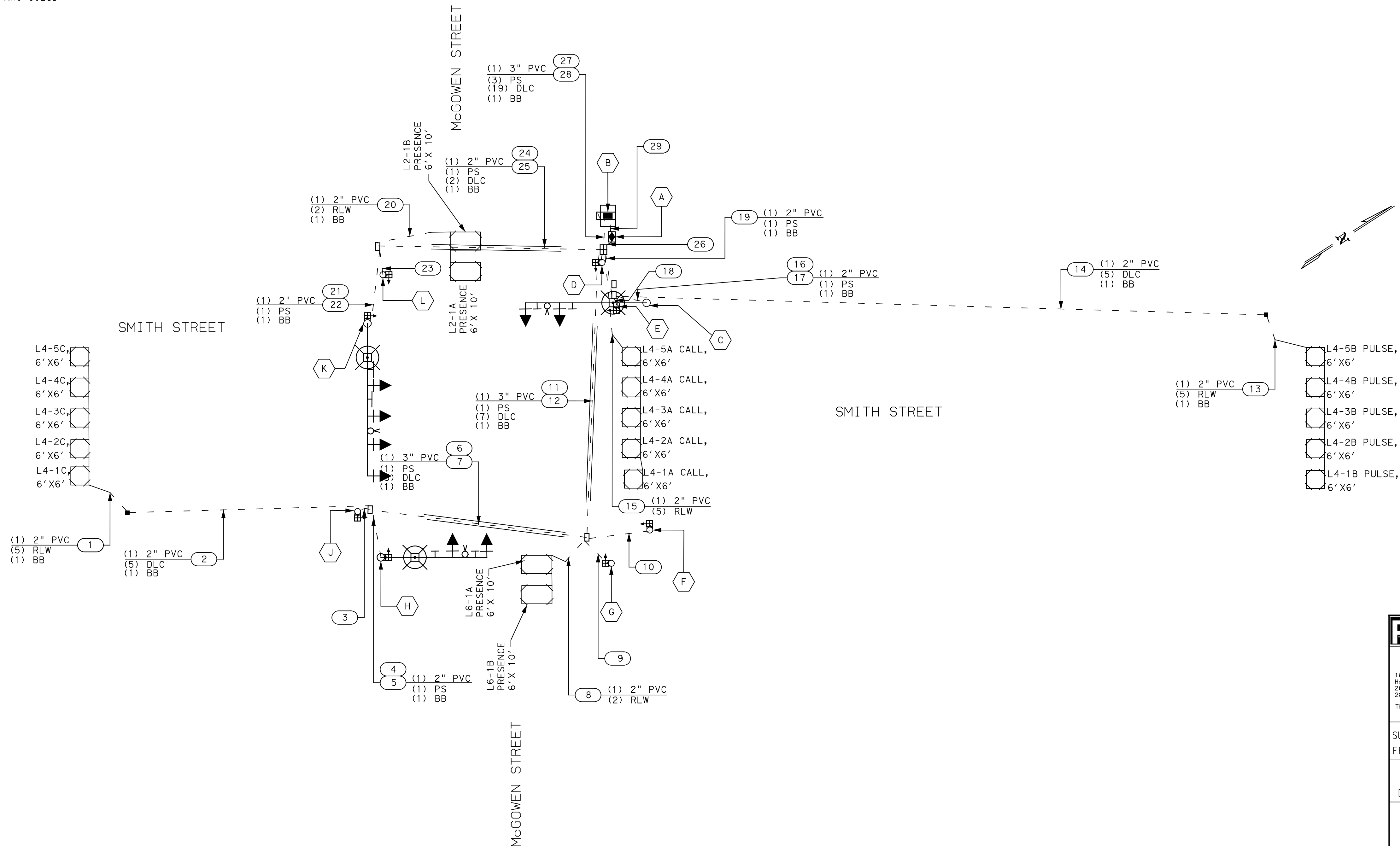
CITY OF HOUSTON
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INTERSECTION REDESIGN AND
SAFETY IMPROVEMENTS
**HIGH VOLTAGE
CABLE SCHEMATIC
SMITH STREET AT
McGOWEN STREET**

WBS NUMBER	
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FULL 1"=20', HALF 1"=40'	
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JOE HANAK	
SHEET NO. 9 OF 25	

(X) Y" C = NUMBER, SIZE, AND TYPE OF CONDUIT
 DLC = DETECTOR LEAD-IN CABLE, 1-2/C #14 AWG (I.M.S.A., 50-2-1984)
 PS = PRE-EMPT SENSOR, OPTICOM, #20 3CC-SHIELDED CABLE (3M MODEL 138)
 SRP = SPP RADIO POWER CABLE, CAT5E 24 AWG
 RLW = ROADWAY LOOP DETECTOR WIRE, 14 AWG (I.M.S.A., 50-2-1985)
 BB = BARE BOND #8 AWG SOLID

1. CONTACT CITY OF HOUSTON ITS OPERATIONS AND SAFETY SECTION (713-881-3052) FOR INTEGRATION SCHEDULE AND/OR SALVAGE OF ANY COMMUNICAITON EQUIPMENT.
2. ALL COMMUNICAITON EQUIPMENT ARE TO BE WIRED TO NEW CABINET.



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SURVEYED BY: LANDTECH FB NO. P-XXXX		Date: <u>03/10/2022</u>	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING			
INTERSECTION REDESIGN AND SAFETY IMPROVEMENTS LOW VOLTAGE CABLE SCHEMATIC SMITH STREET AT McGOWEN STREET			
WBS NUMBER			
N-310662-0049-3			
DRAWING SCALE			
FULL 1"=20', HALF 1"=40'			
CITY OF HOUSTON PM			
JOE HANAK			
SHEET NO. 10 OF 25			

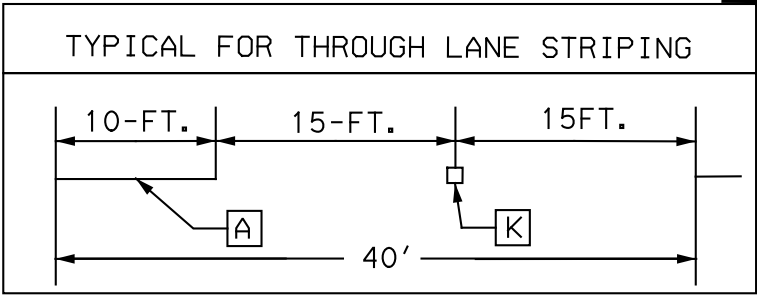
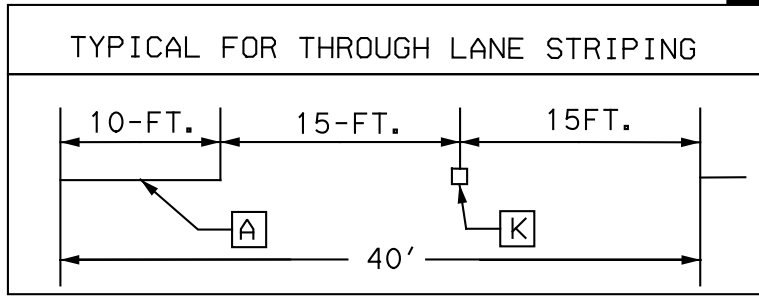
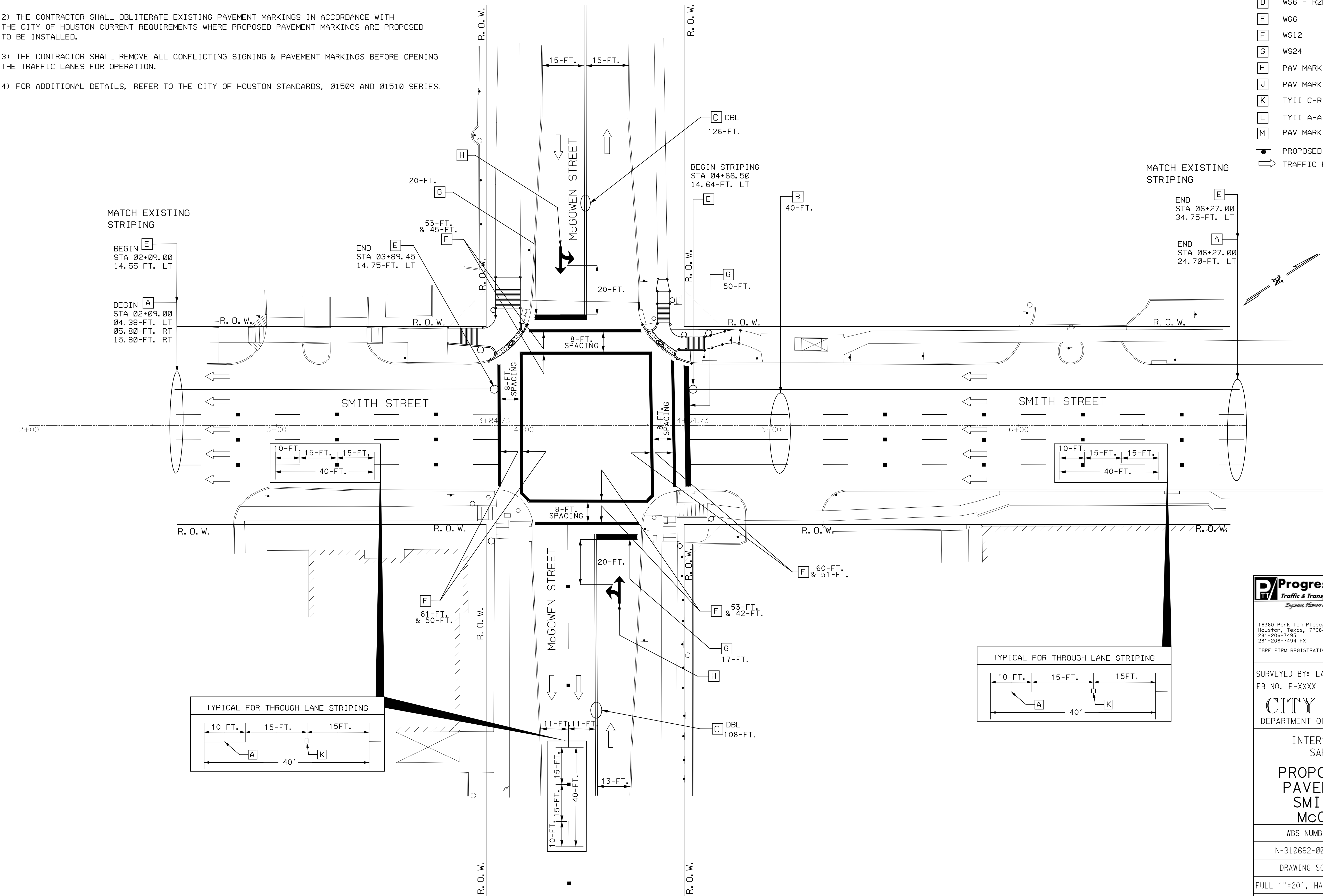
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SIGNING AND PAVEMENT MARKING NOTES:

- 1) THE INSTALLATION OF ALL SIGNING, STRIPING AND RAISED PAVEMENT MARKERS SHALL CONFORM WITH THE CURRENT STANDARDS FROM CITY OF HOUSTON AND TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) FOR STREET AND HIGHWAYS.
- 2) THE CONTRACTOR SHALL OBLITERATE EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH THE CITY OF HOUSTON CURRENT REQUIREMENTS WHERE PROPOSED PAVEMENT MARKINGS ARE PROPOSED TO BE INSTALLED.
- 3) THE CONTRACTOR SHALL REMOVE ALL CONFLICTING SIGNING & PAVEMENT MARKINGS BEFORE OPENING THE TRAFFIC LANES FOR OPERATION.
- 4) FOR ADDITIONAL DETAILS, REFER TO THE CITY OF HOUSTON STANDARDS, 01509 AND 01510 SERIES.

LEGEND

- [A] WB4 - R40 (10' STRIPE W/30' GAP)
- [B] WS4
- [C] YS4
- [D] WS6 - R20
- [E] WG6
- [F] WS12
- [G] WS24
- [H] PAV MARK - DOUBLE ARROW
- [J] PAV MARK "ONLY" WORD
- [K] TYII C-R MARKER
- [L] TYII A-A MARKER (20-FT. SPACING, C-C)
- [M] PAV MARK YELLOW MEDIAN CURB
- PROPOSED GROUND MOUNTED SMALL SIGN
- TRAFFIC FLOW



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P.E. Serial No.: 89333

Date:
03/10/2022

SURVEYED BY: LANDTECH
FB NO. P-XXXX

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

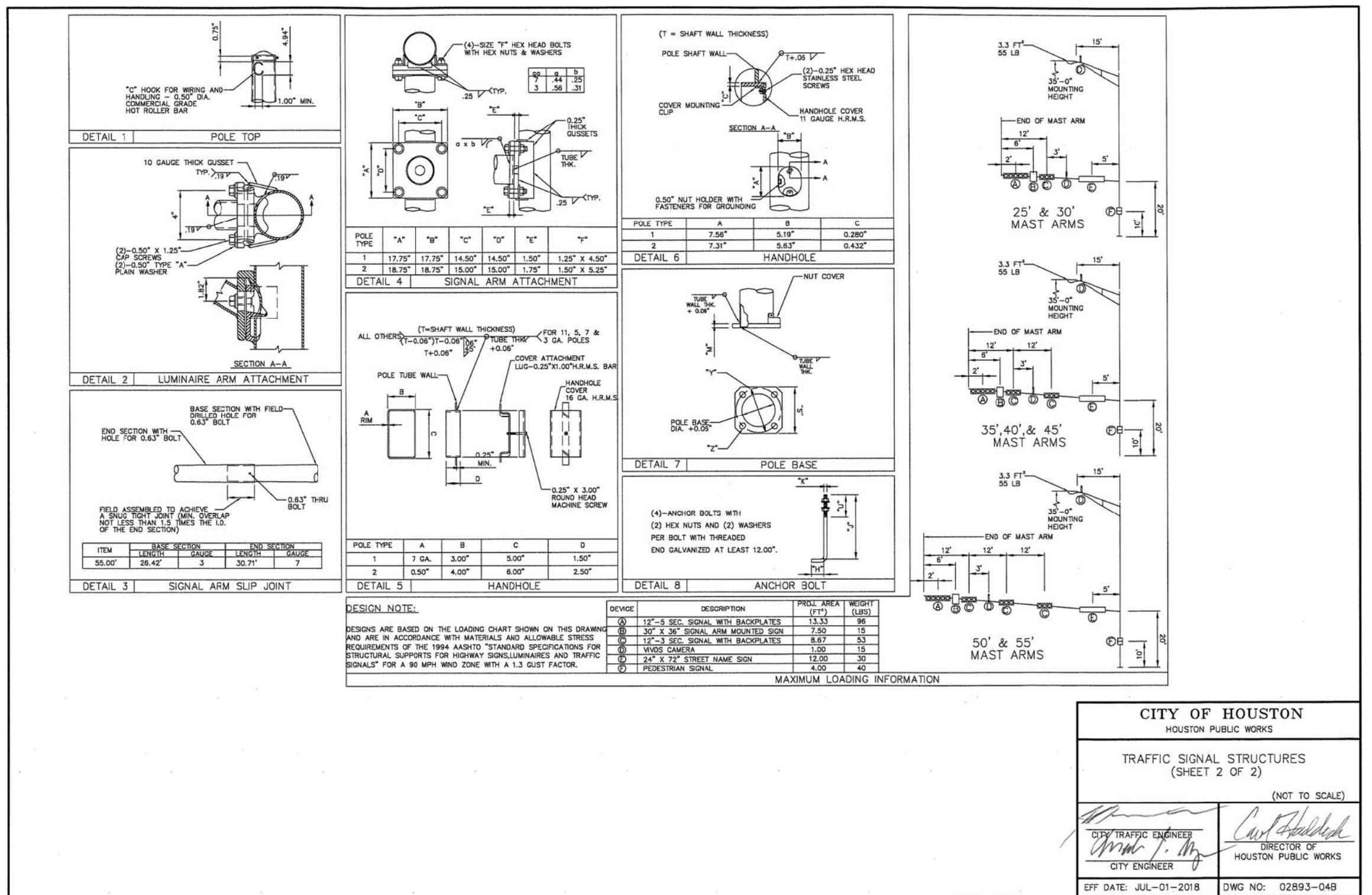
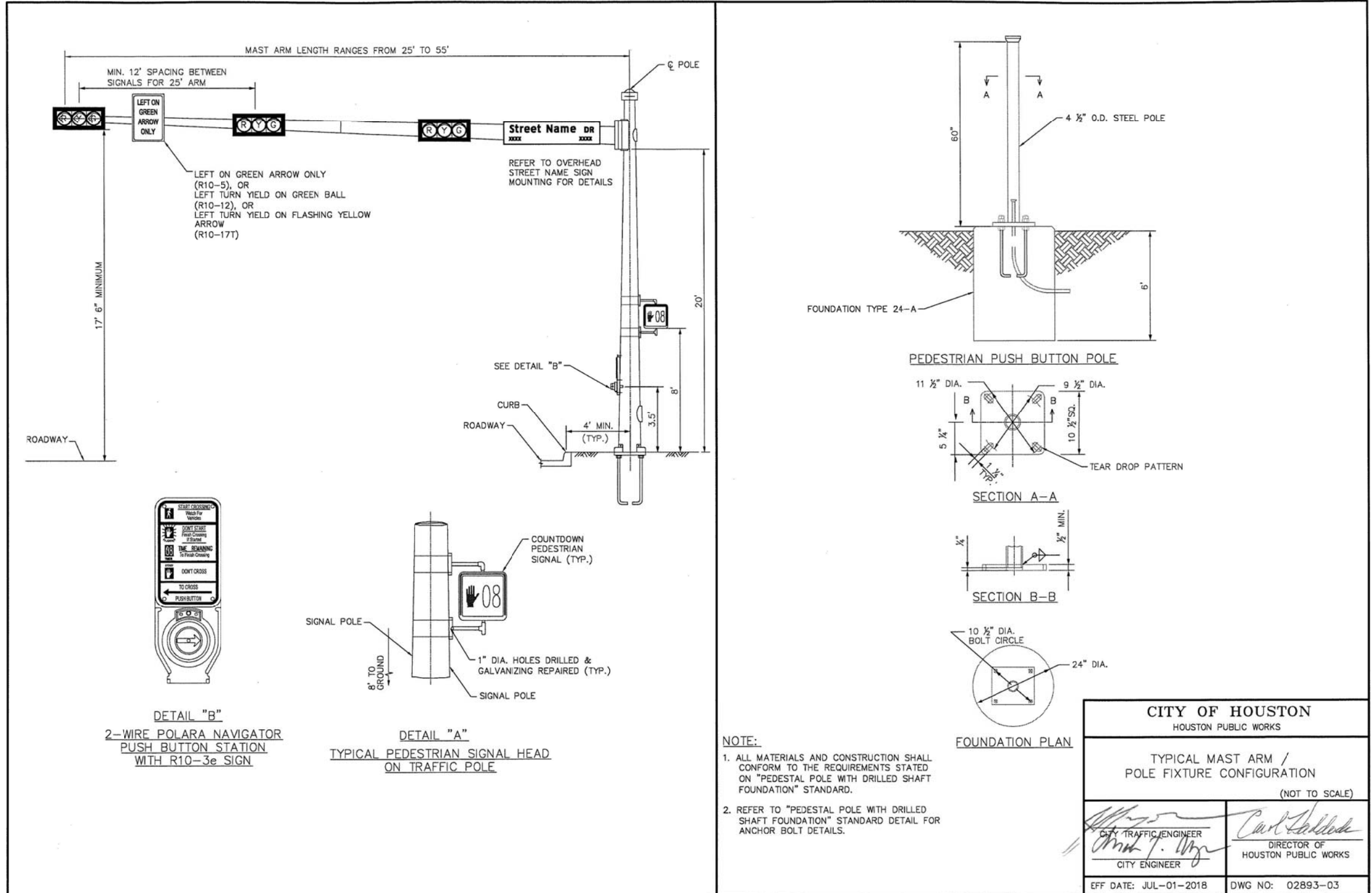
INTERSECTION REDESIGN AND
SAFETY IMPROVEMENTS

**PROPOSED SIGNING &
PAVEMENT MARKINGS
SMITH STREET AT
McGOWEN STREET**

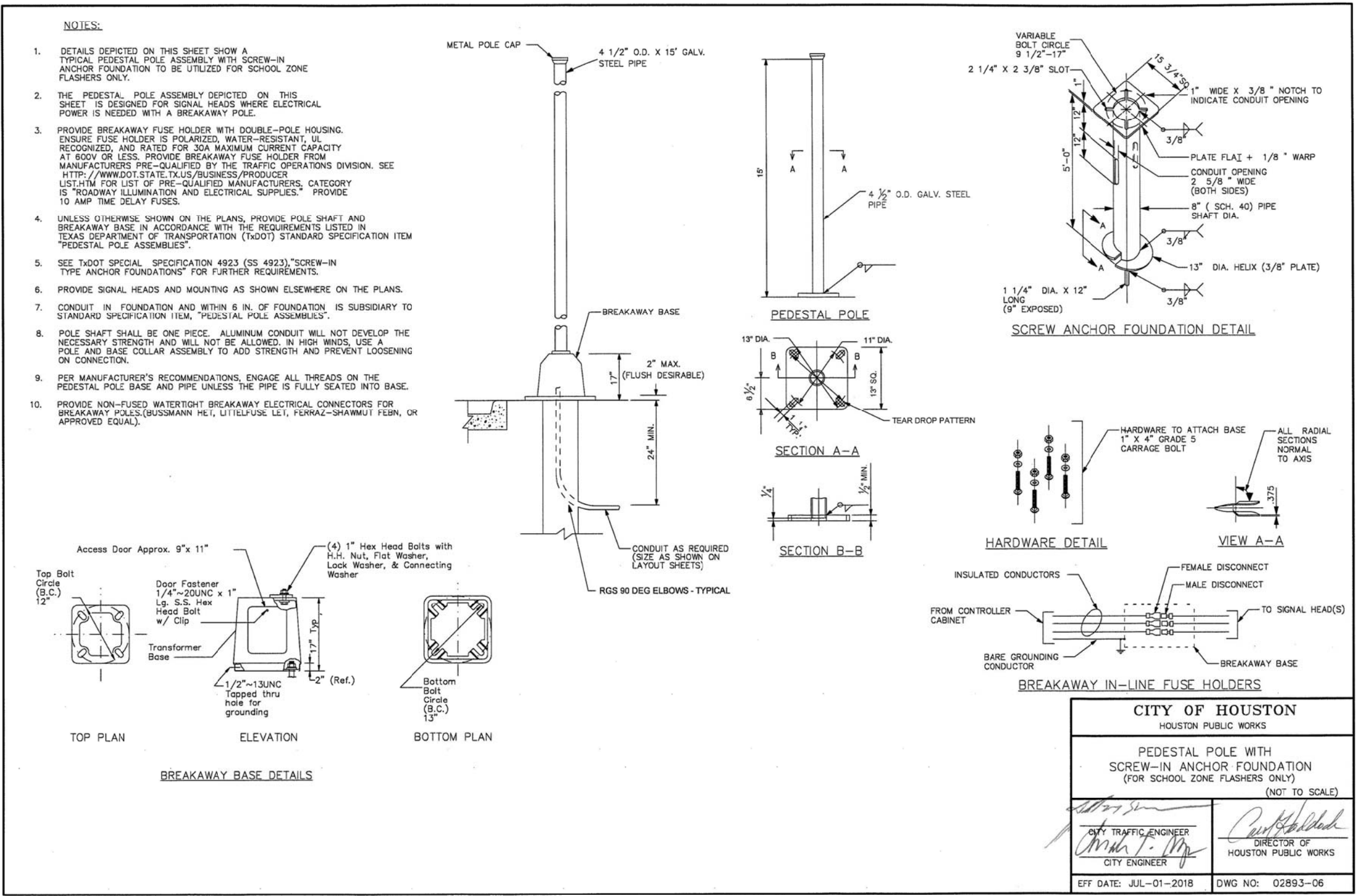
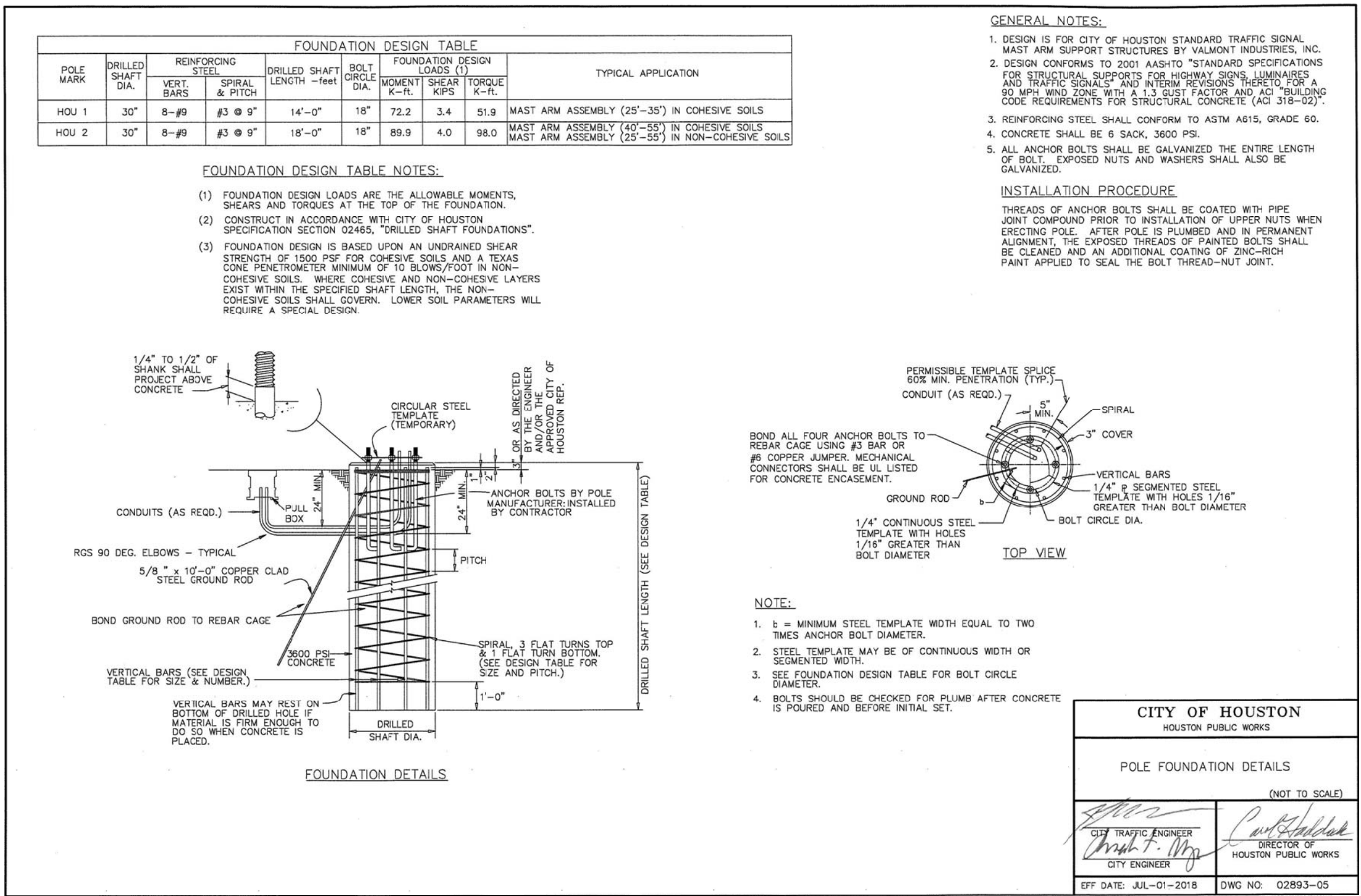
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CITY OF HOUSTON PM	
JOE HANAK	
SHEET NO. 11 OF 25	

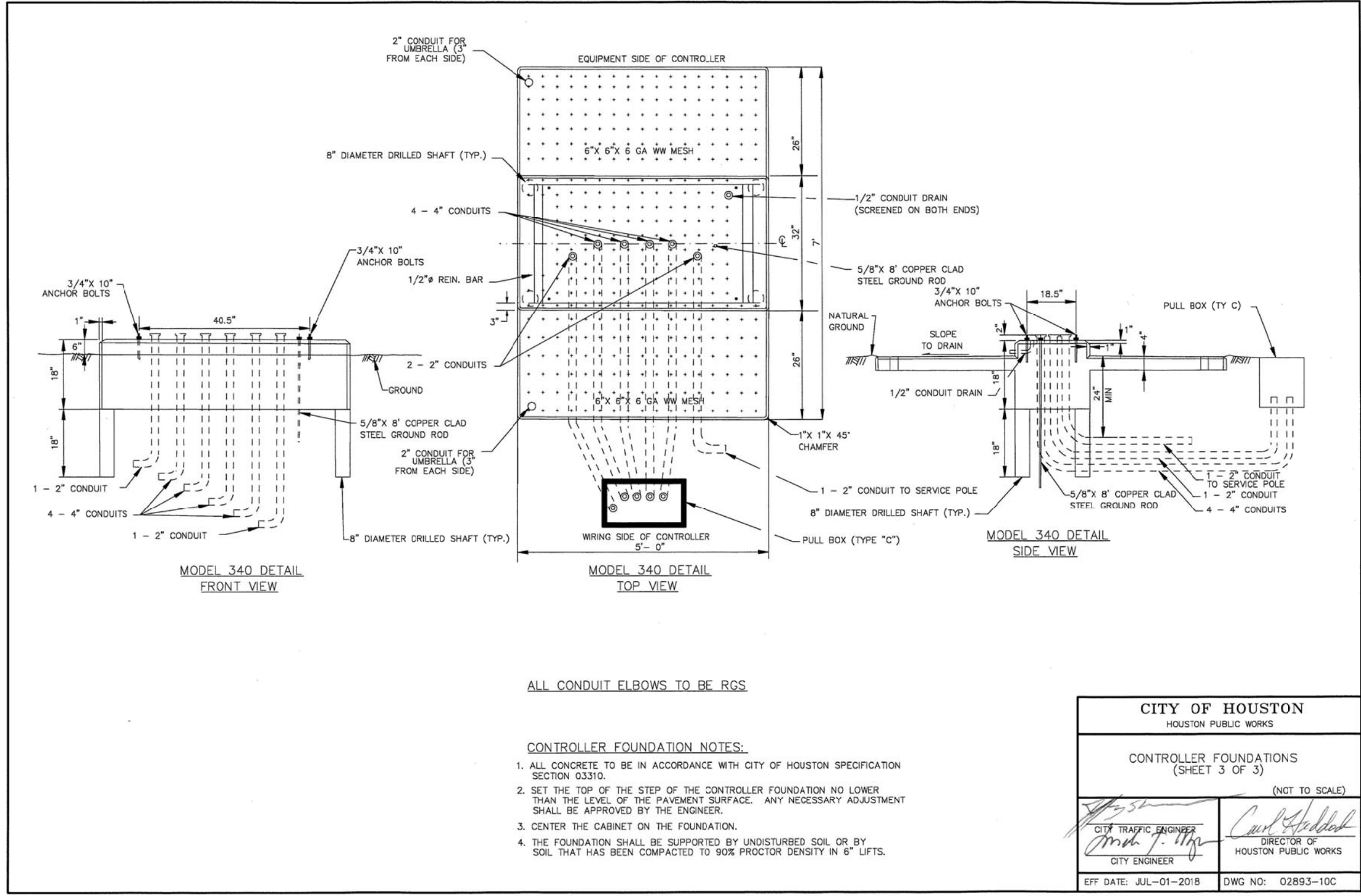
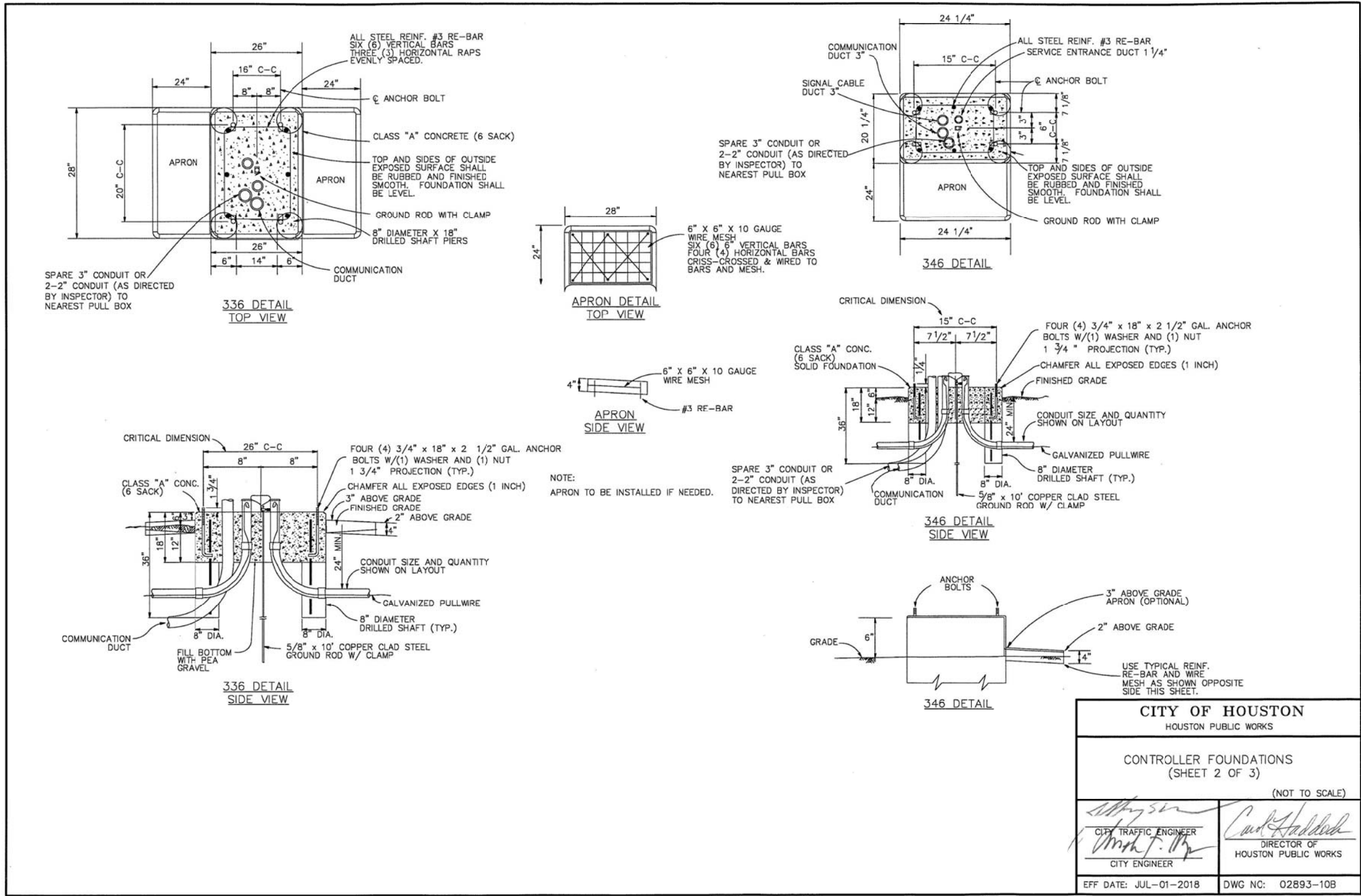
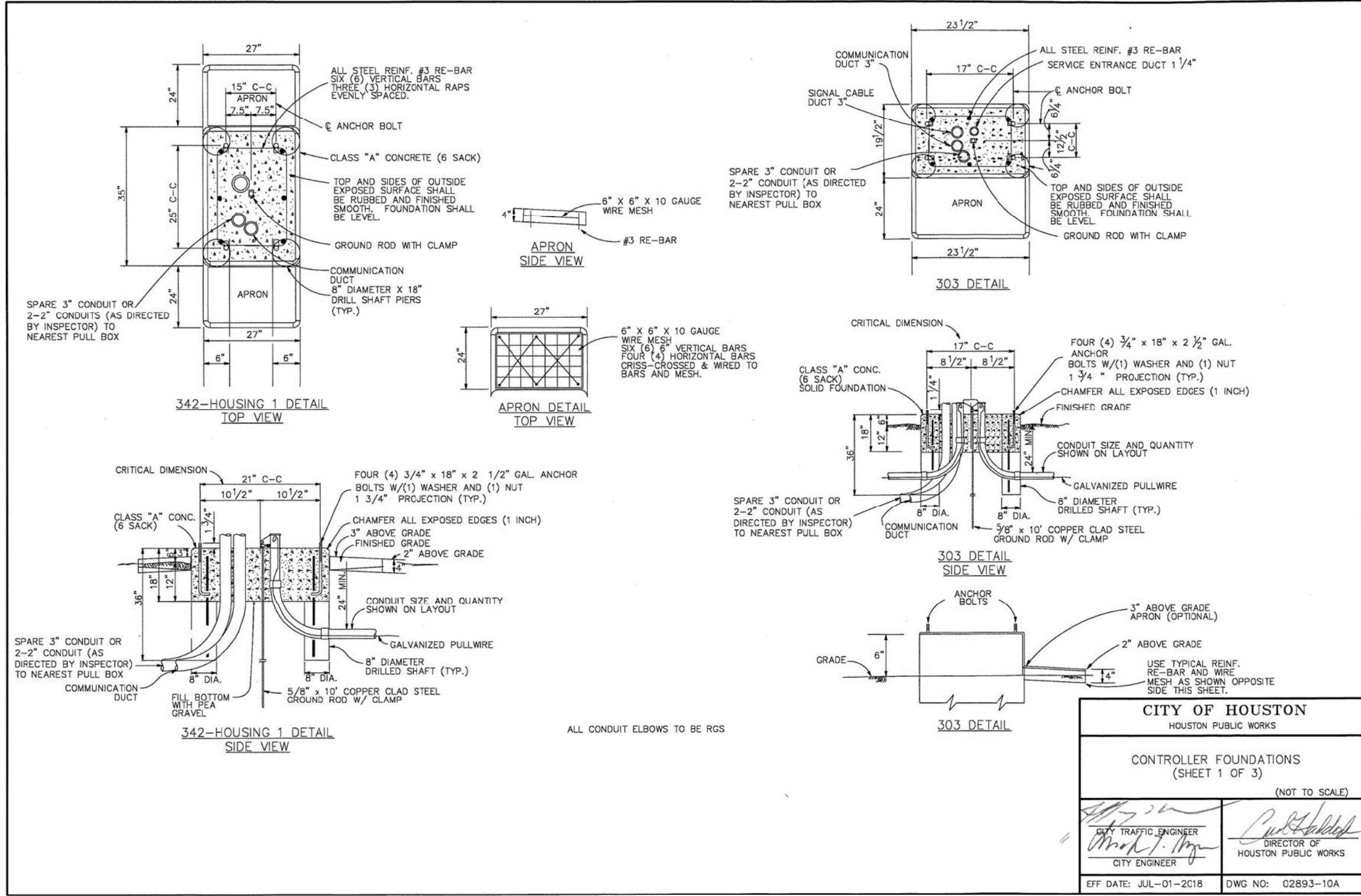
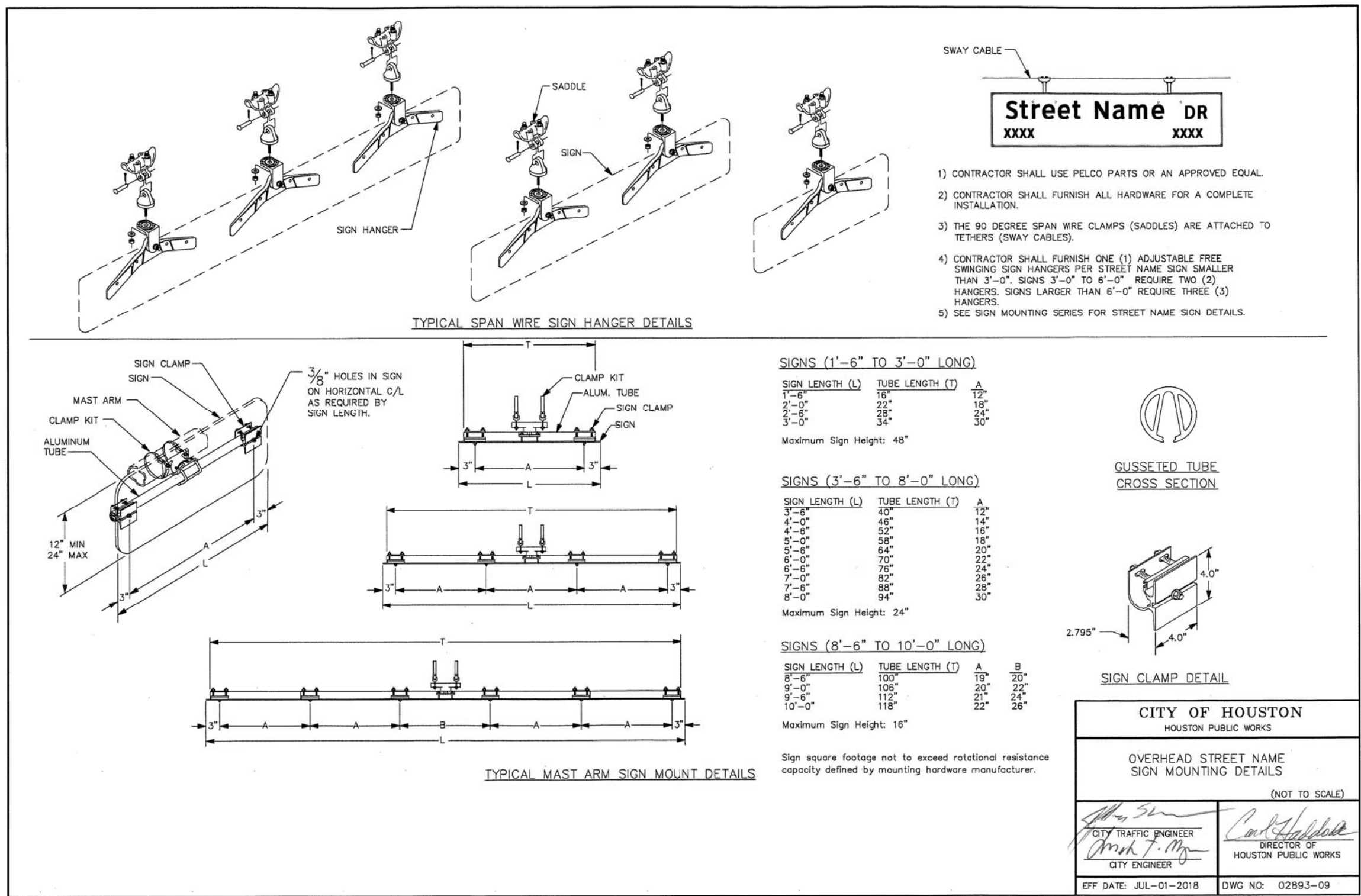
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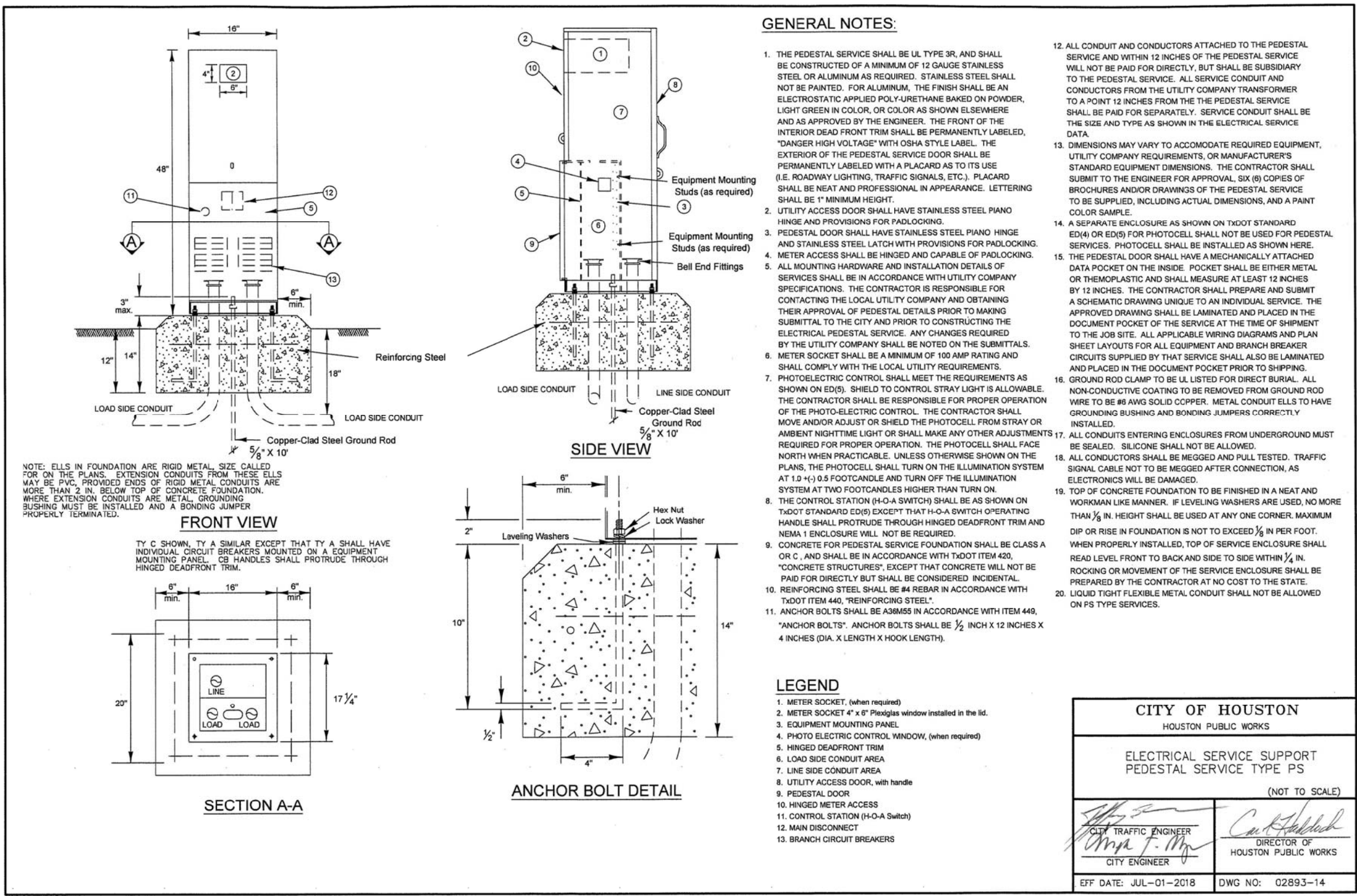
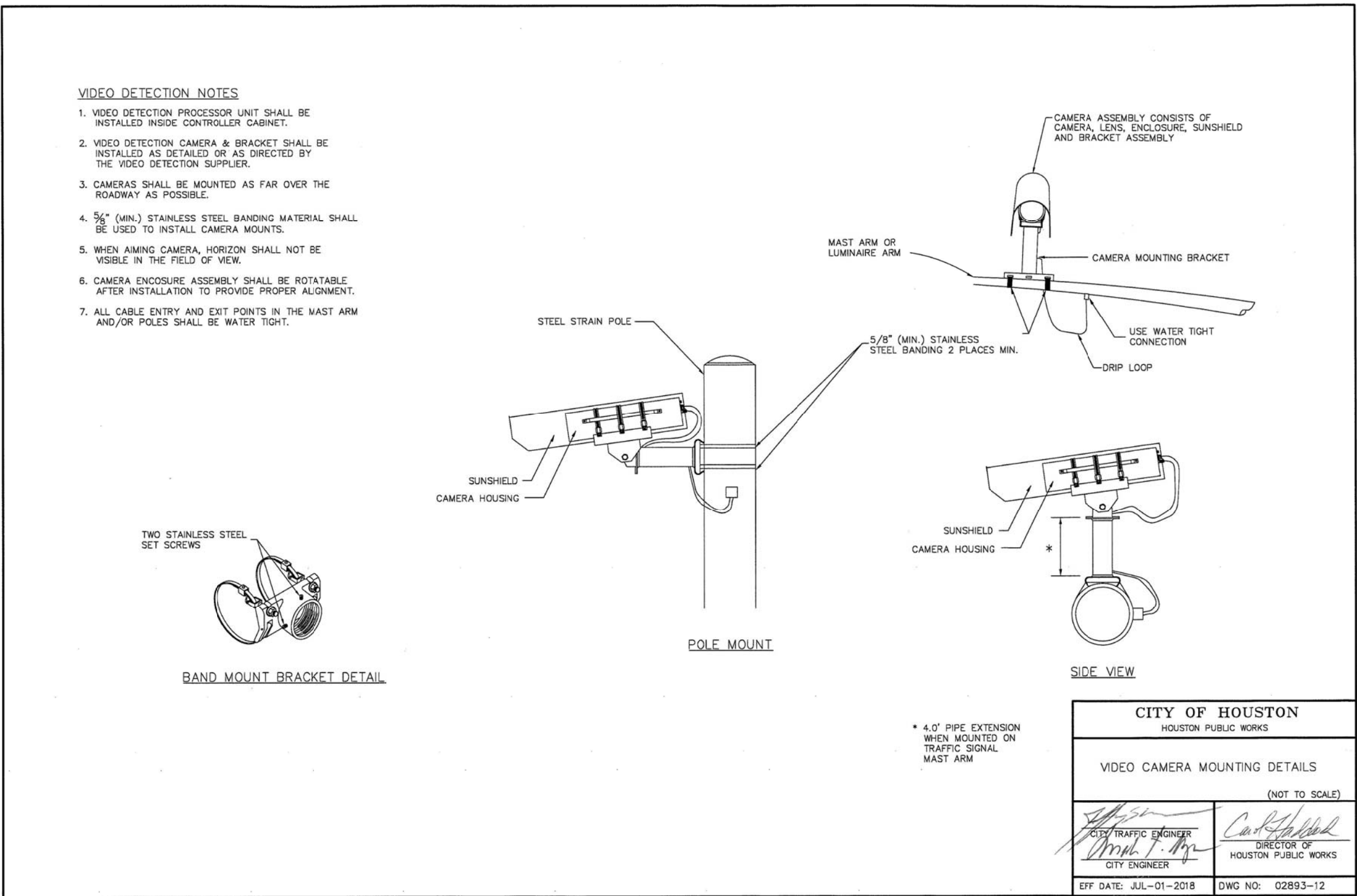
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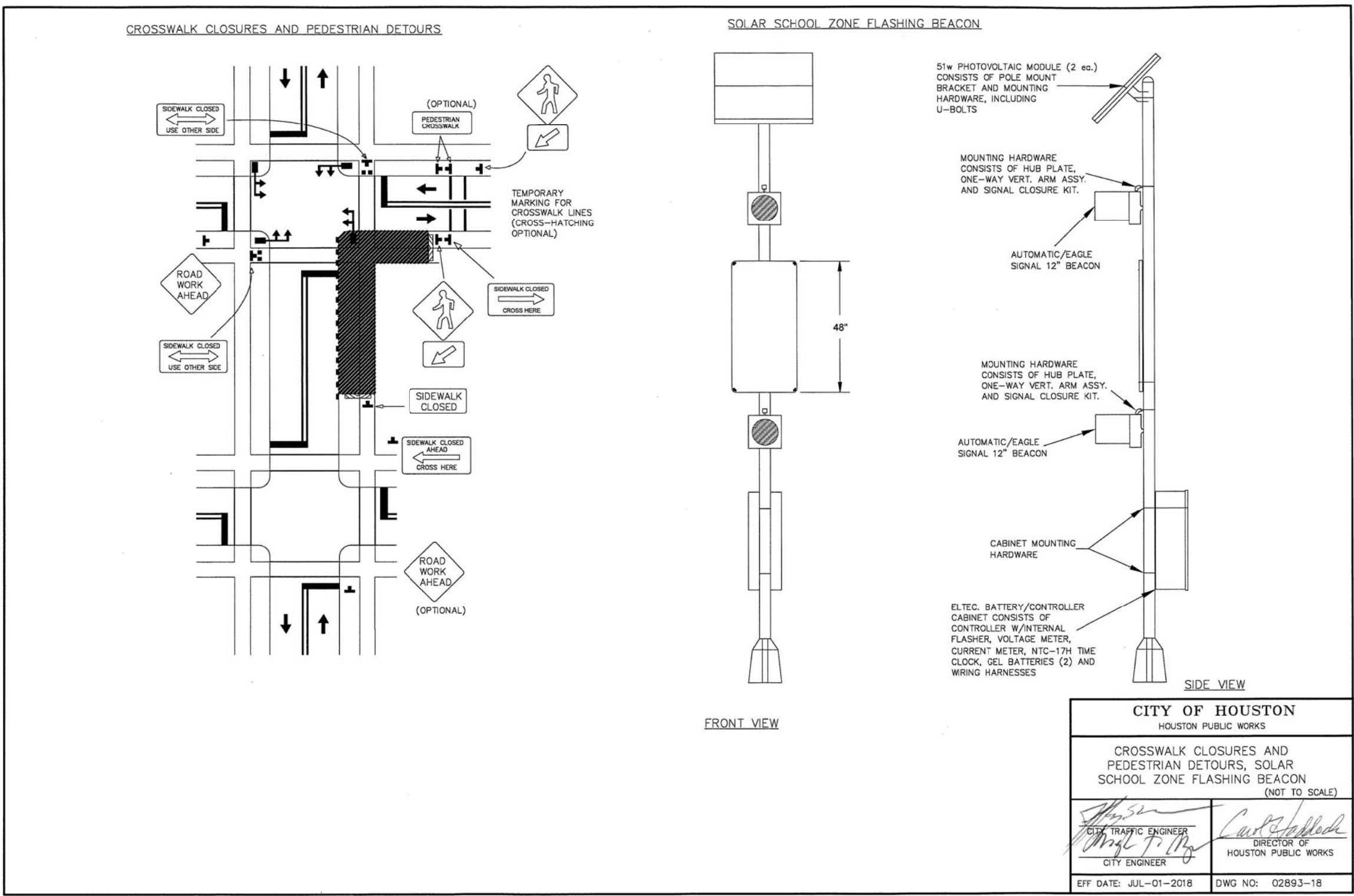
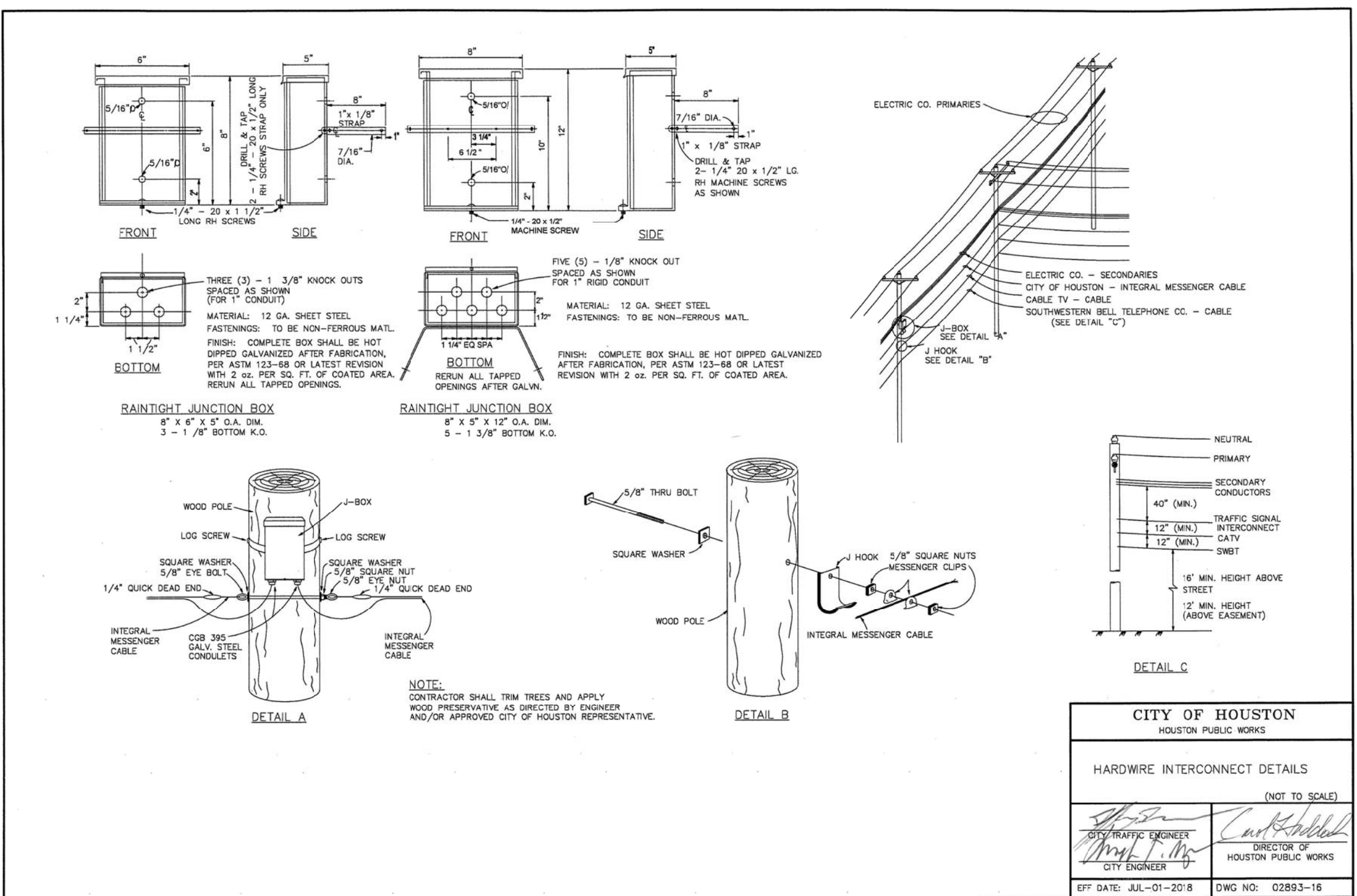
Date:
02/28/2022

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

INTERSECTION REDESIGN AND
SAFETY IMPROVEMENTS
**TRAFFIC SIGNAL
DETAILS
(3 OF 6)**

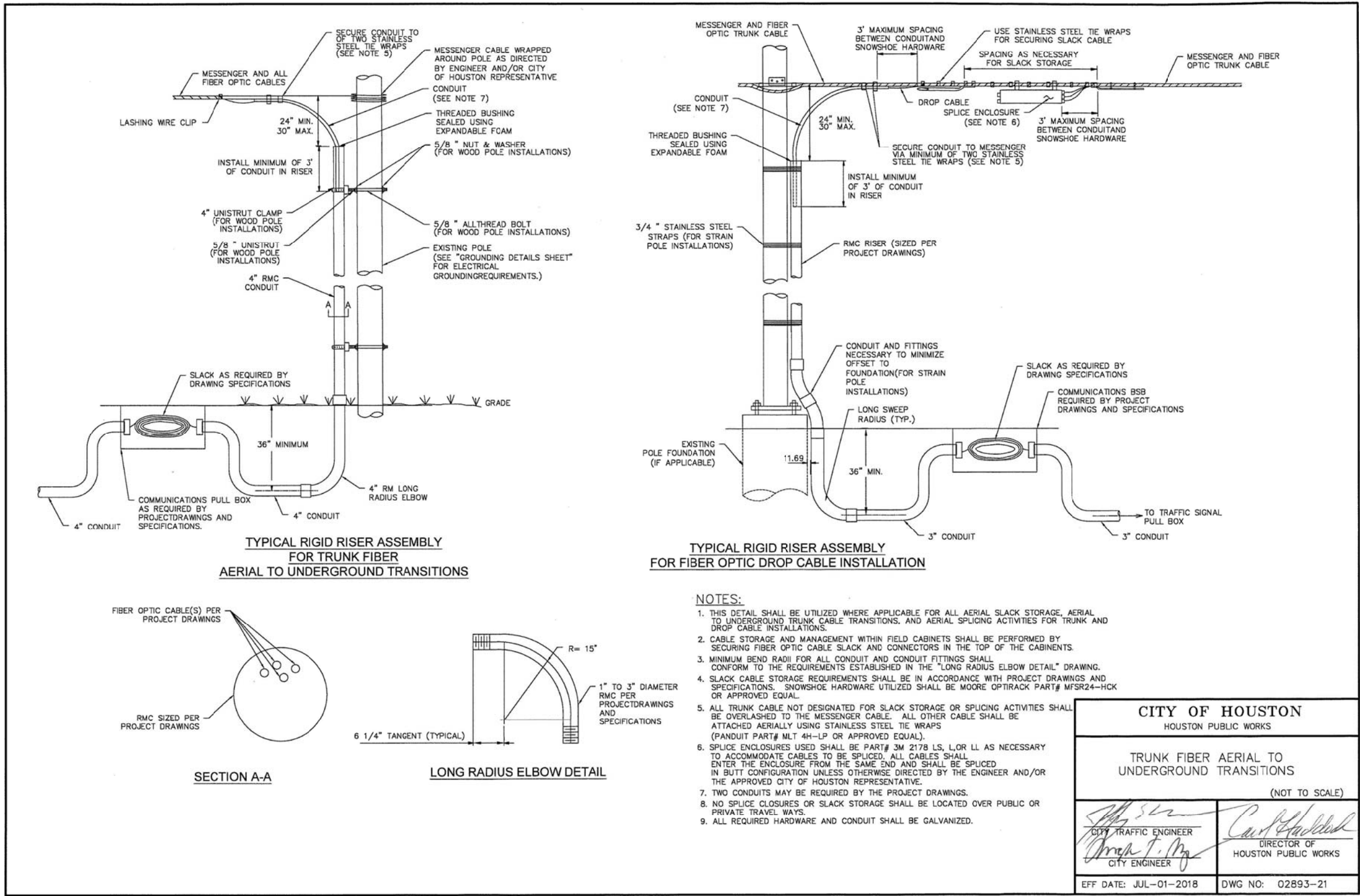
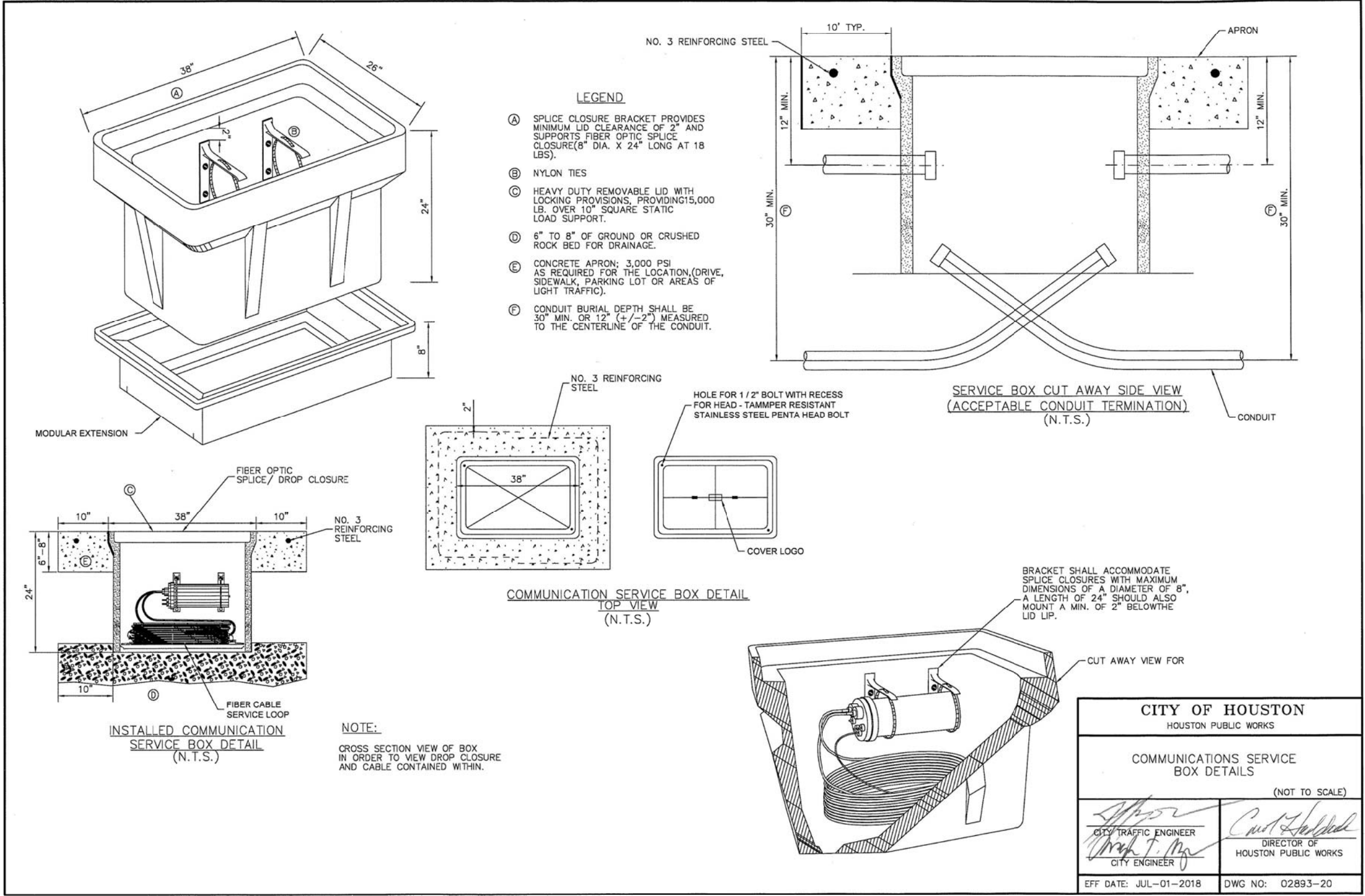
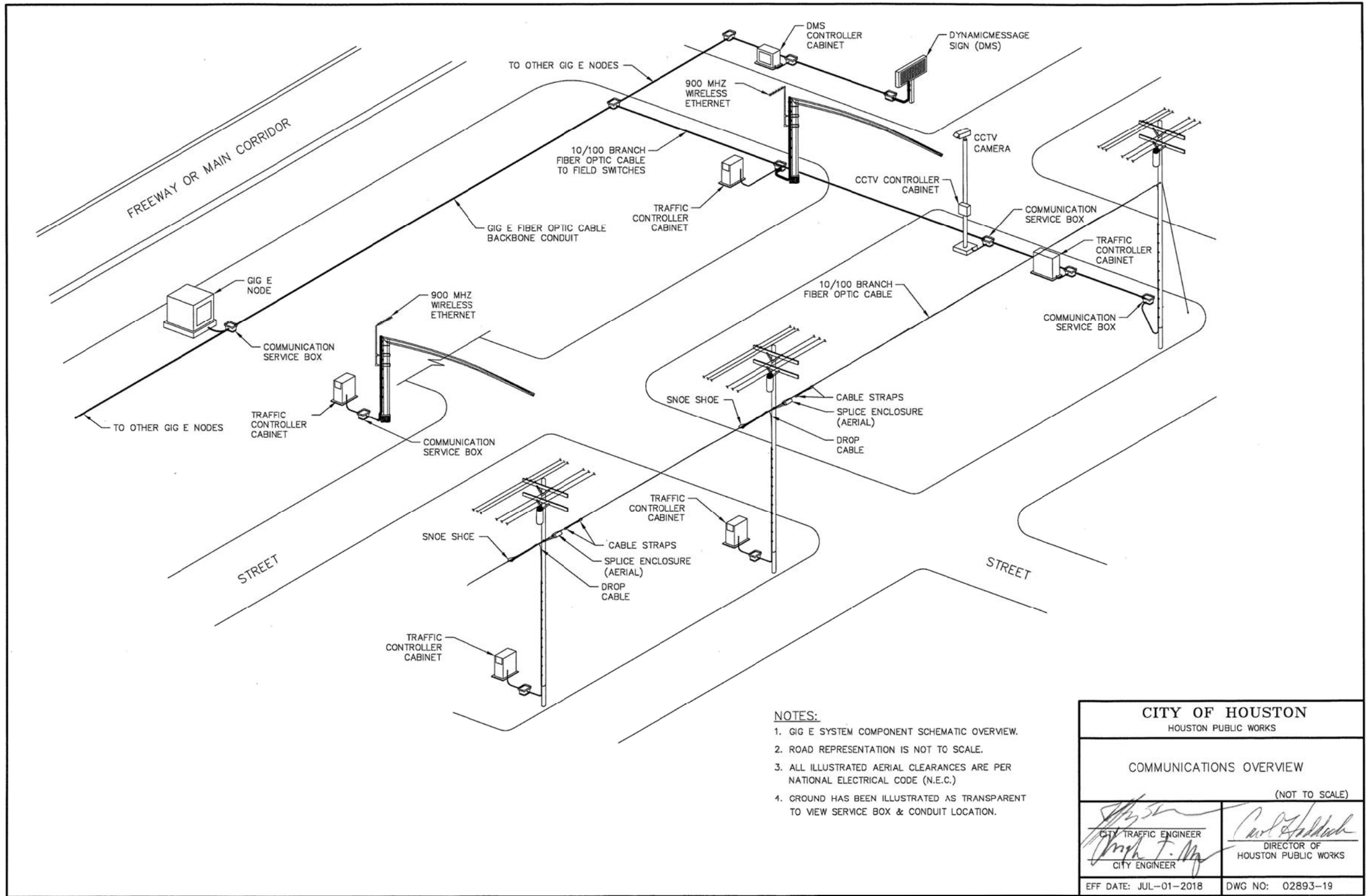
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CITY OF HOUSTON PM	
JOE HANAK	
SHEET NO. 14 OF 25	





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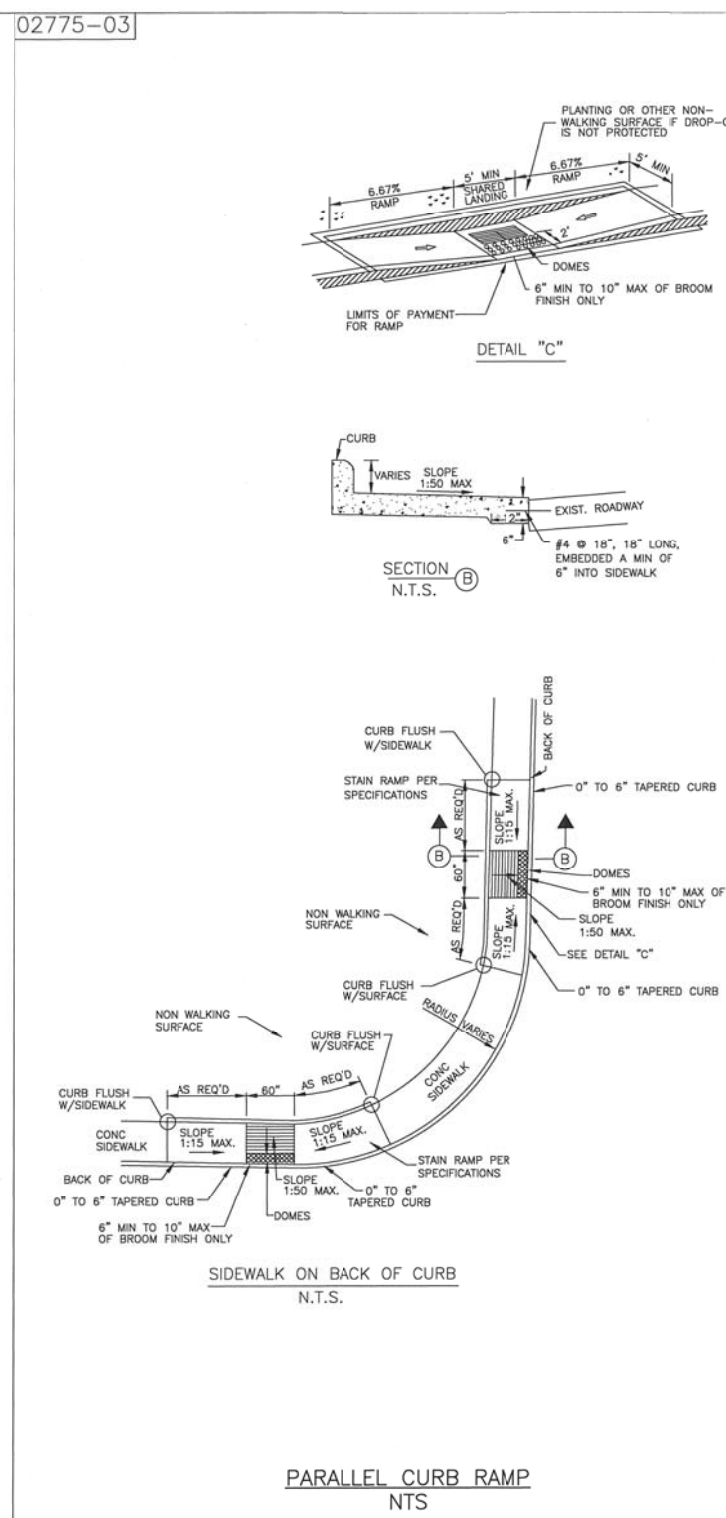
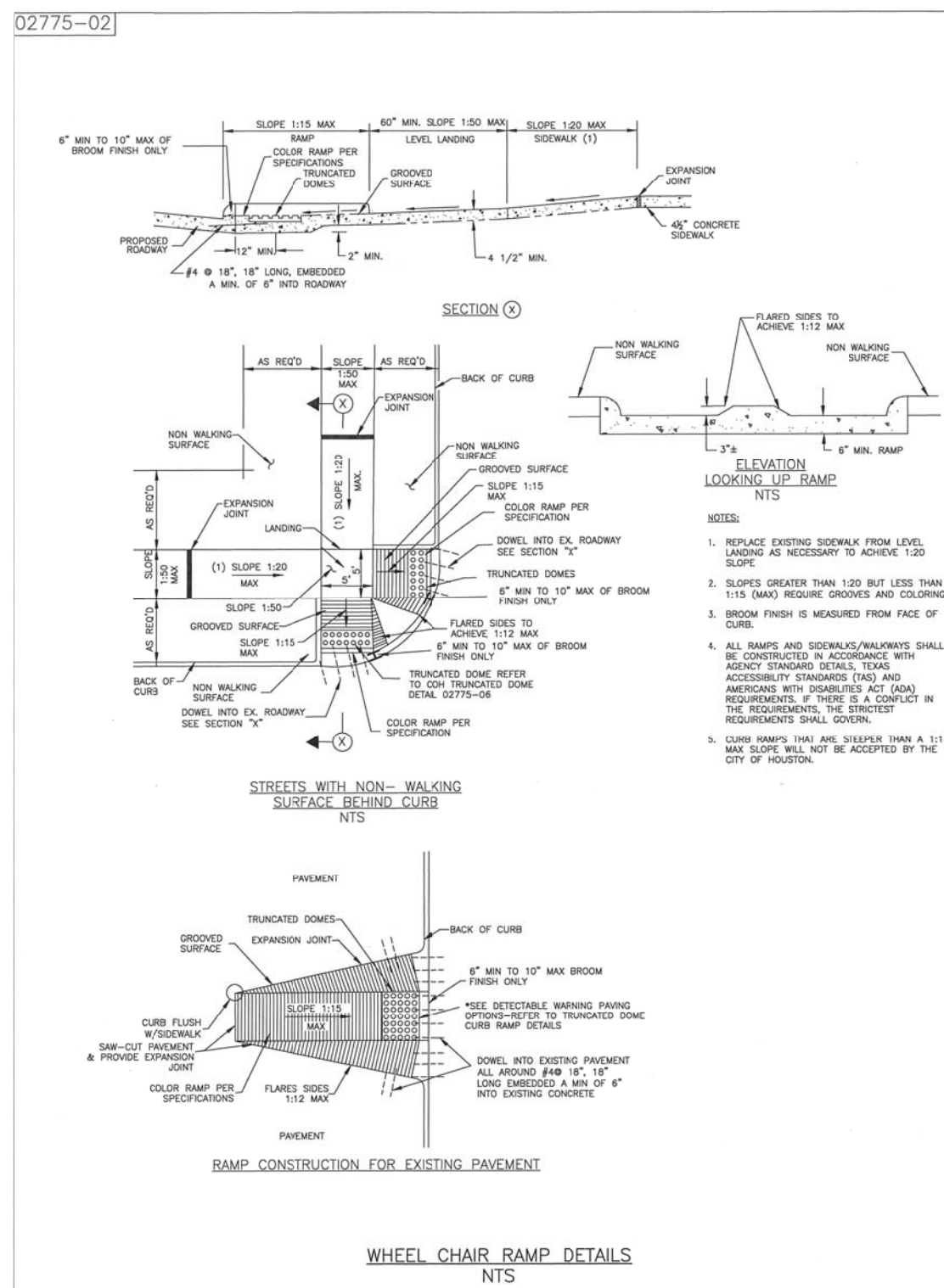
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Engineer: MOHAMMAD IREAN
P.E. Serial No.: 89333
Date:
02/28/2022

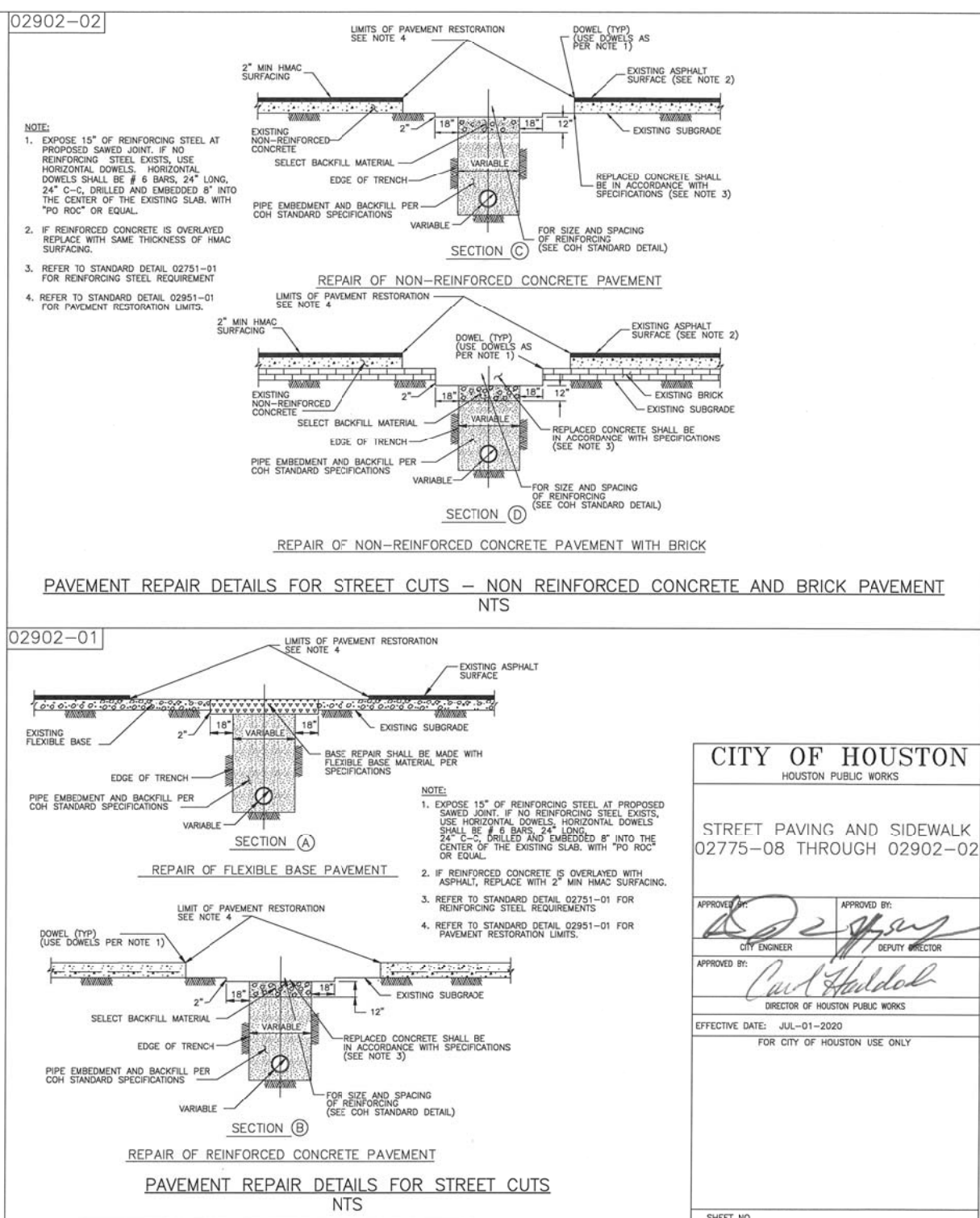
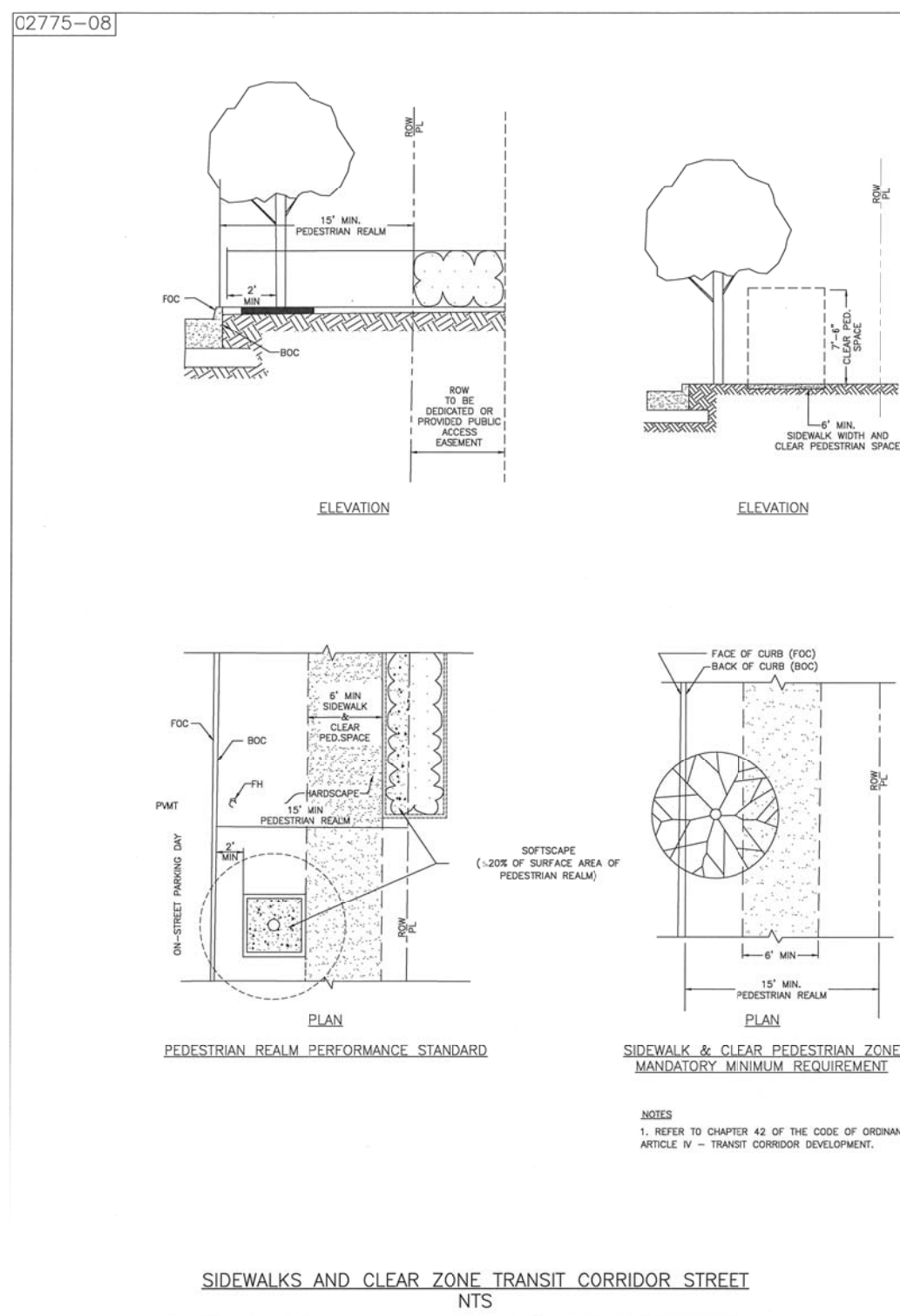
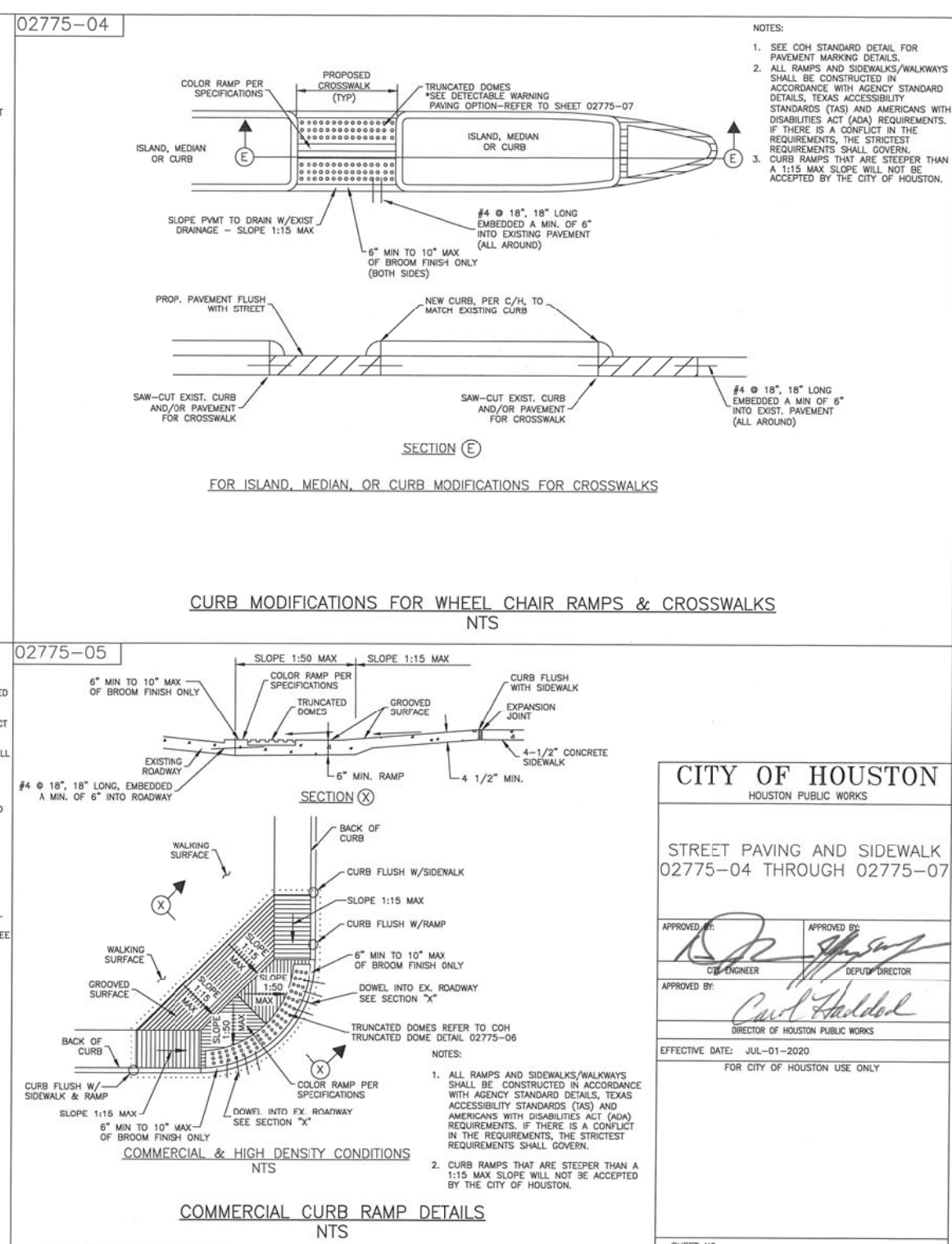
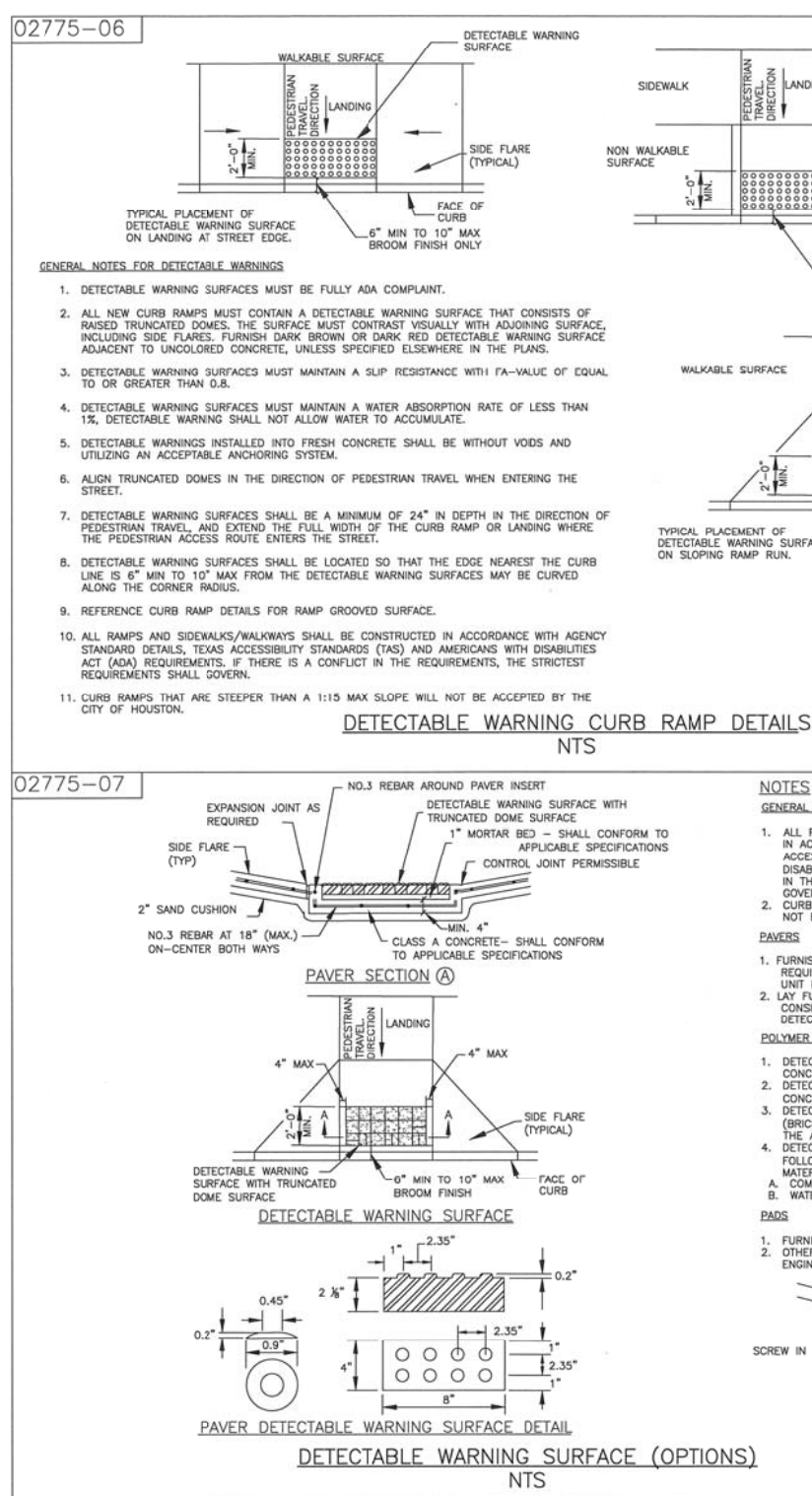
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

INTERSECTION REDESIGN AND
SAFETY IMPROVEMENTS
**TRAFFIC SIGNAL
DETAILS
(6 OF 6)**

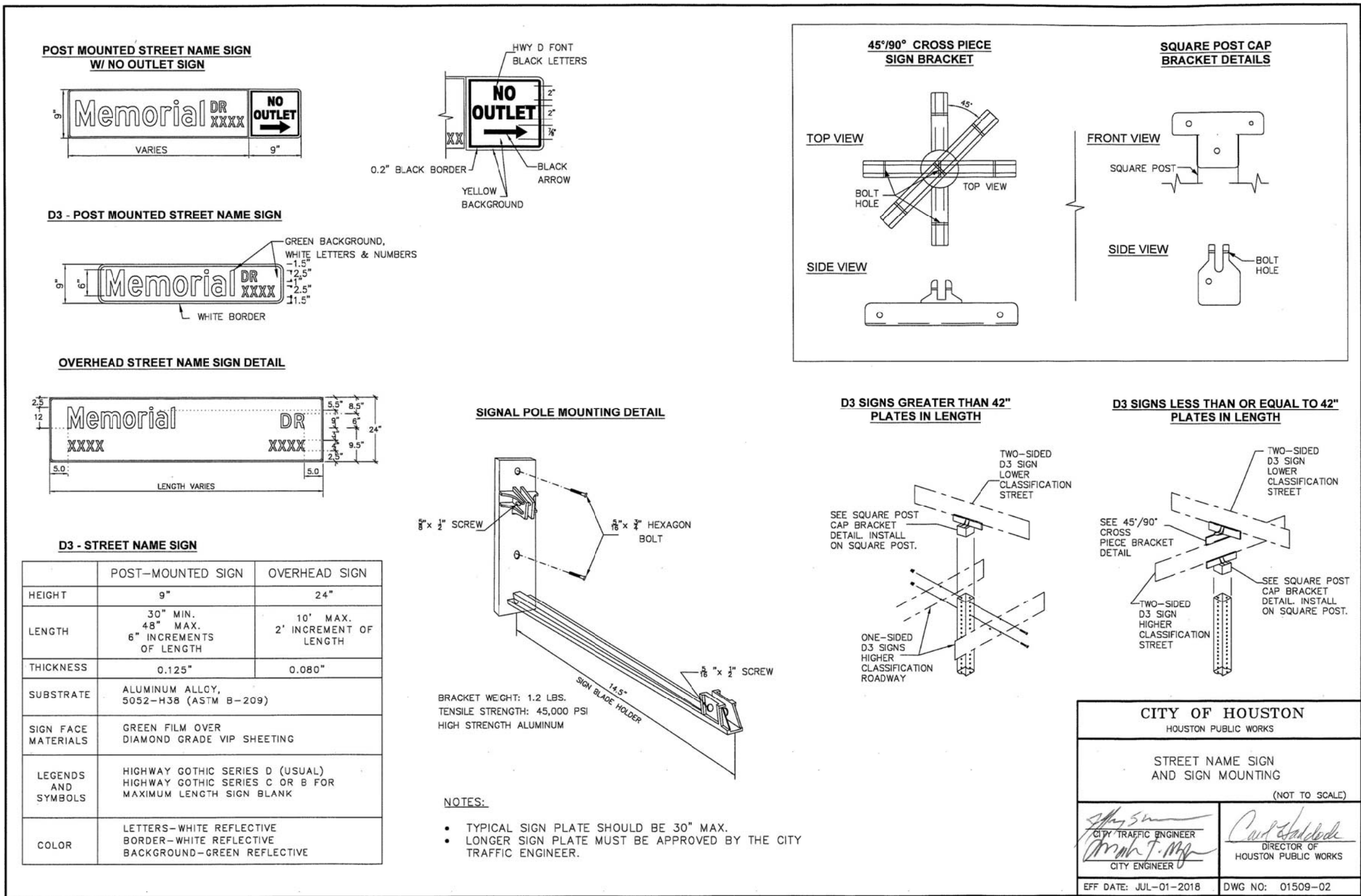
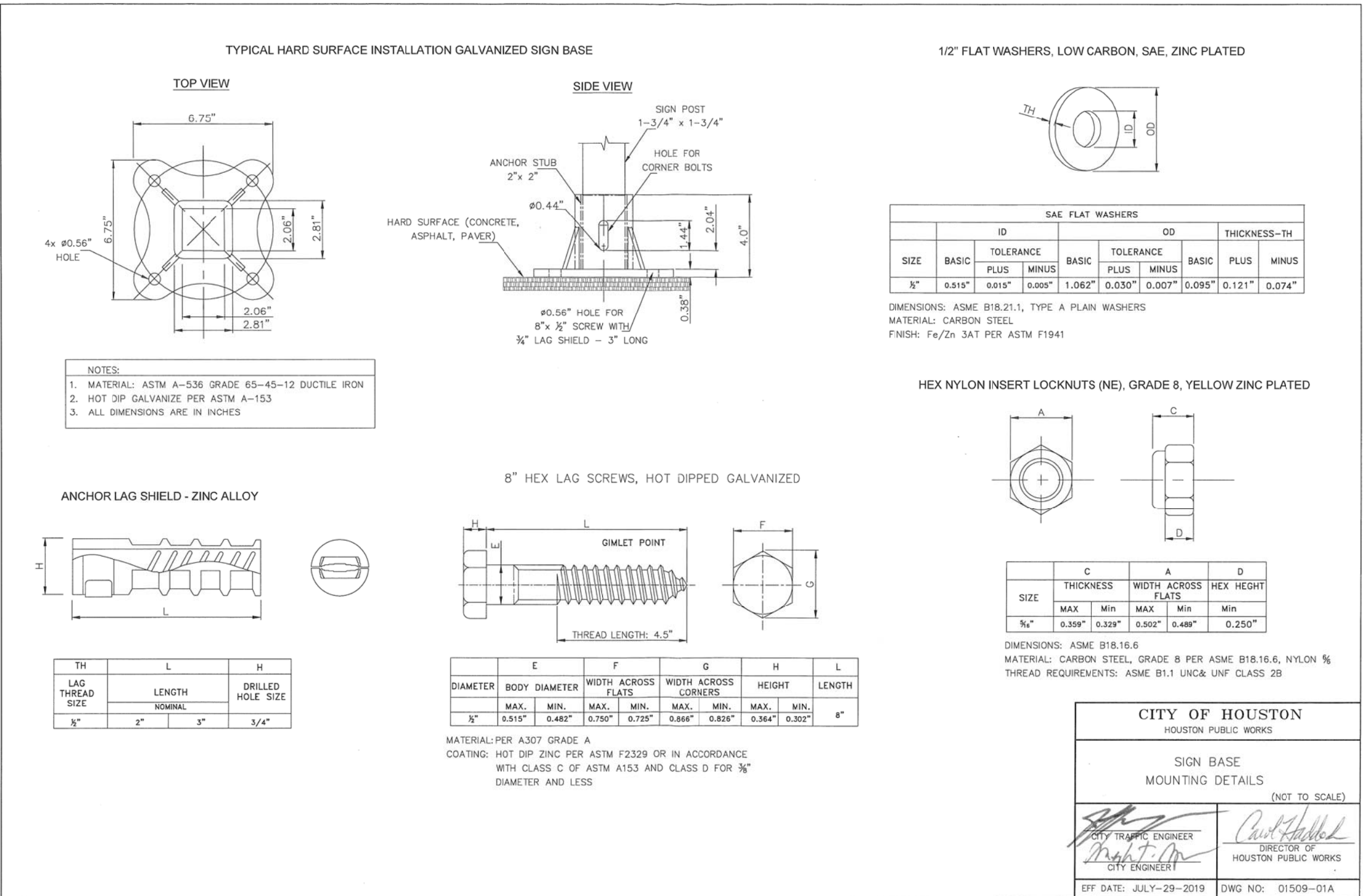
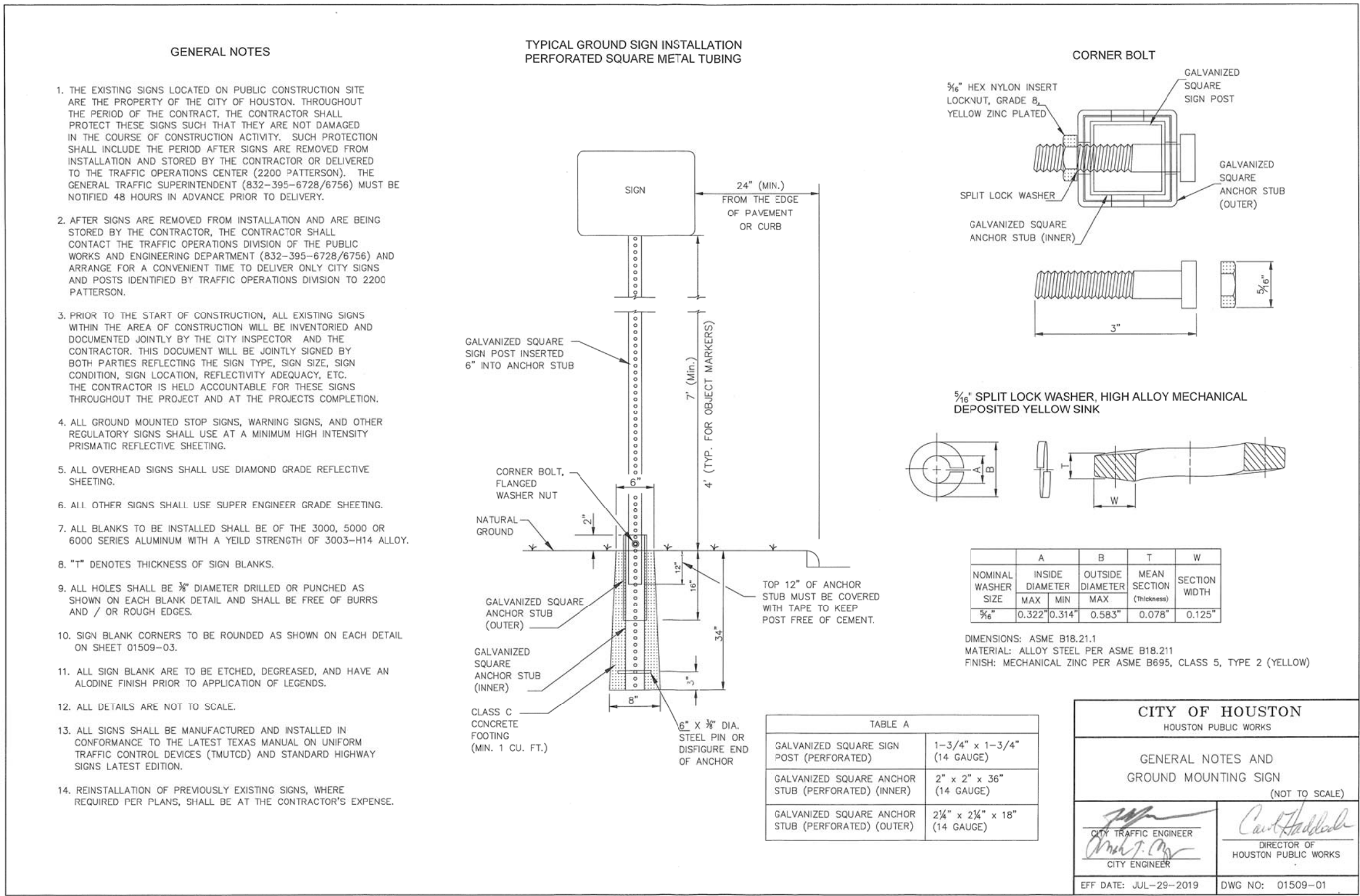
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DRAWING SCALE	
NOT TRUE SCALE	
CITY OF HOUSTON PM	
JOE HANAK	
SHEET NO. 17 OF 25	



CITY OF HOUSTON					
HOUSTON PUBLIC WORKS					
STREET PAVING AND SIDEWALK 02775-02 THROUGH 02775-03					
APPROVED BY:					
CITY ENGINEER		DEPUTY DIRECTOR			
APPROVED BY:					
DIRECTOR OF HOUSTON PUBLIC WORKS					
EFFECTIVE DATE: JUL-01-2020					
FOR CITY OF HOUSTON USE ONLY					



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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
INTERSECTION REDESIGN AND SAFETY IMPROVEMENTS STREET PAVING AND SIDEWALK DETAILS (2 OF 2)	
WBS NUMBER	
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DRAWING SCALE	
NOT TRUE SCALE	
CITY OF HOUSTON PM	
JOE HANAK	
SHEET NO. 19 OF 25	



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Engineer: MOHAMMAD IREAN
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Date: 02/28/2022

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

INTERSECTION REDESIGN AND SAFETY IMPROVEMENTS
SIGN MOUNTING DETAILS
(1 OF 2)

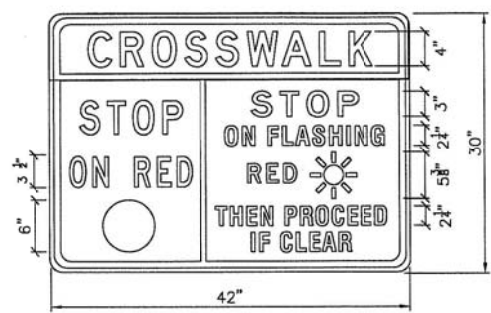
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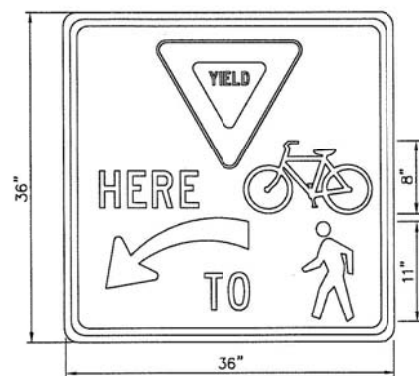
CITY OF HOUSTON PM
JOE HANAK

SHEET NO. 20 OF 25

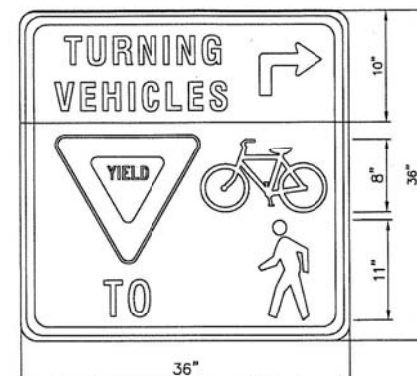
USE OF CUSTOM SIGNS MUST BE PRE-APPROVED BY THE CITY TRAFFIC ENGINEER



R10 - 23 (CoH)



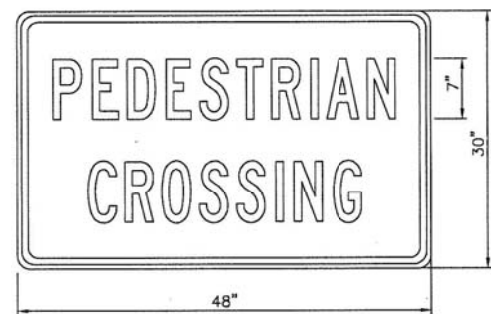
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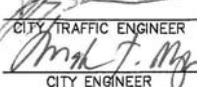
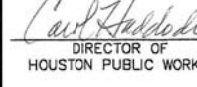
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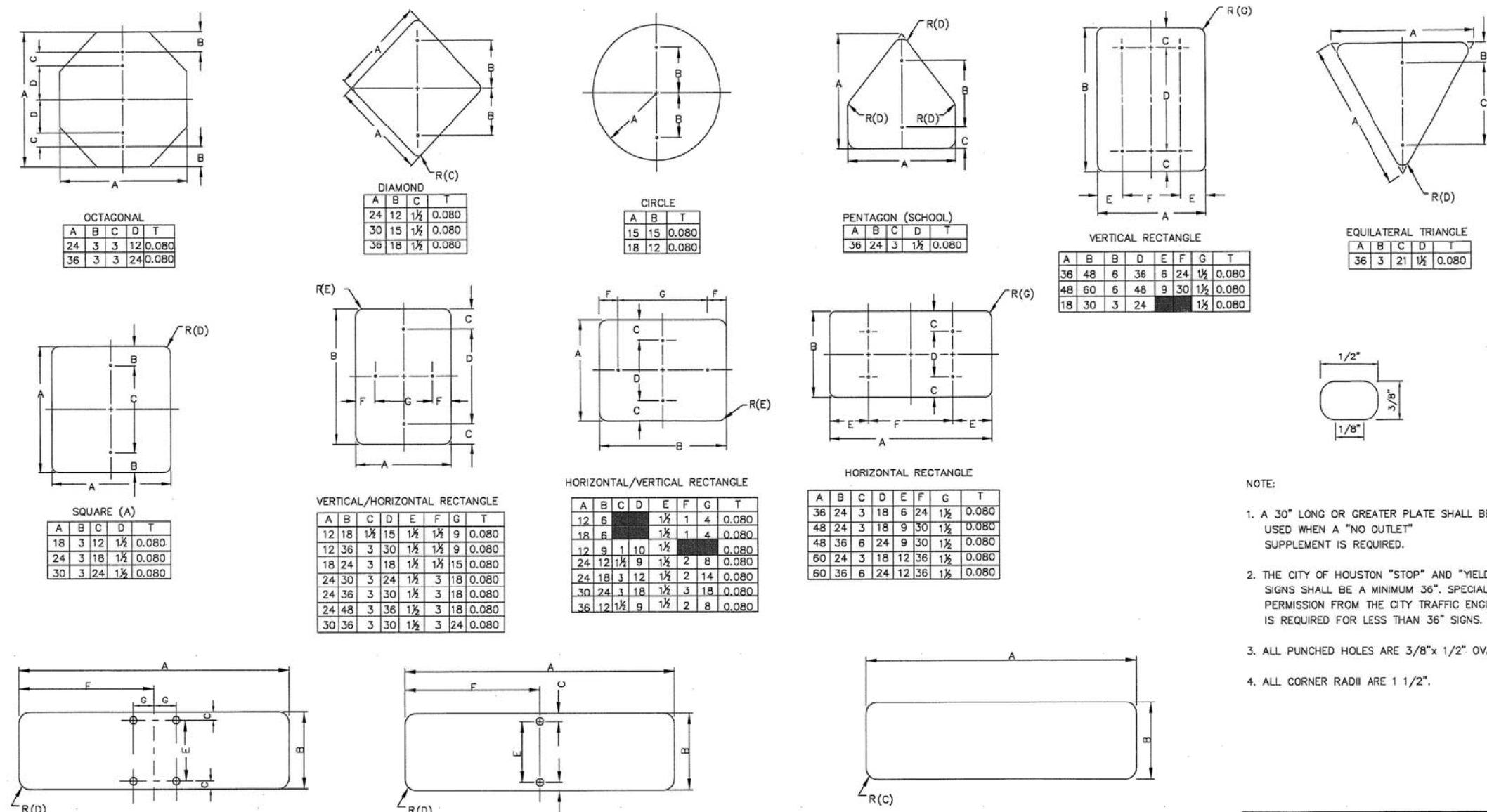


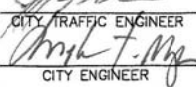
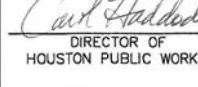
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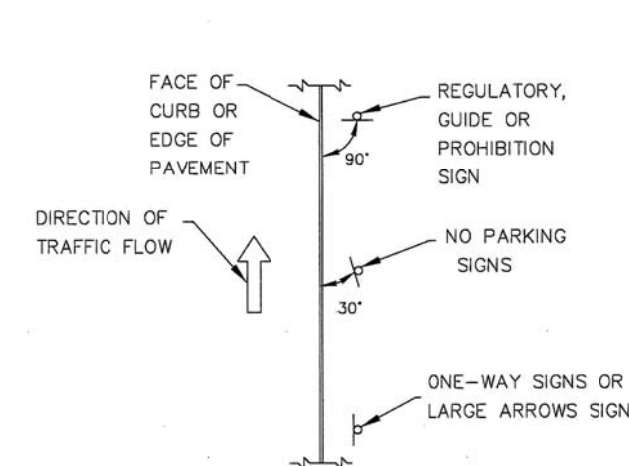
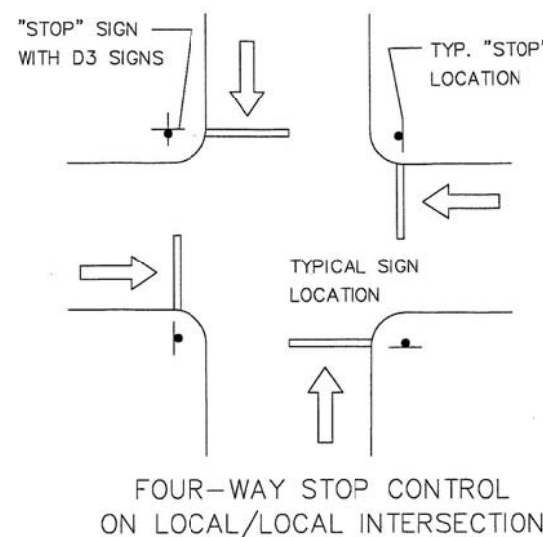
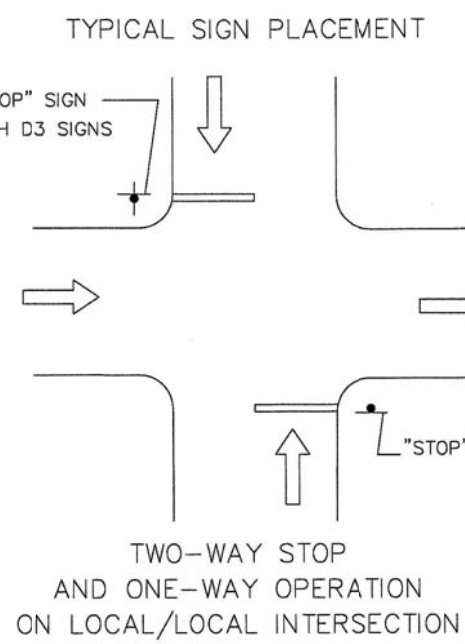
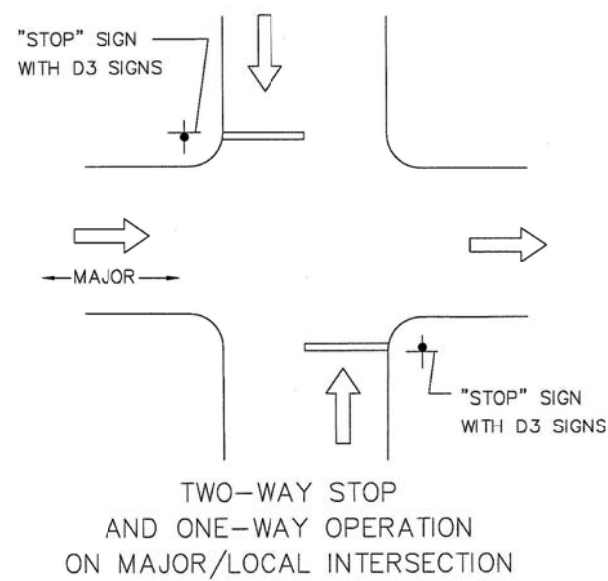


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FLUORESCENT YELLOW/GREEN

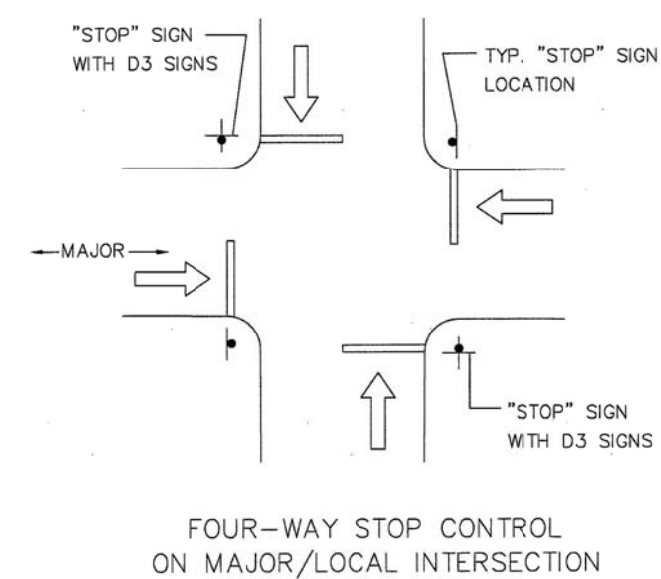
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
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 CITY TRAFFIC ENGINEER	 CITY ENGINEER
EFF DATE: JUL-01-2018 DWG NO: 01509-02A	

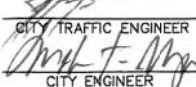
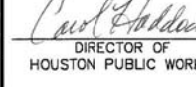


CITY OF HOUSTON HOUSTON PUBLIC WORKS	
GROUND MOUNTED SIGN SIZES (NOT TO SCALE)	
 CITY TRAFFIC ENGINEER	 CITY ENGINEER
EFF DATE: JUL-01-2018 DWG NO: 01509-03	



MAST ARM INSTALLATION
REFER TO TRAFFIC SIGNAL DETAILS
FOR ADDITIONAL INFORMATION.



CITY OF HOUSTON HOUSTON PUBLIC WORKS	
TYPICAL SIGN PLACEMENT (NOT TO SCALE)	
 CITY TRAFFIC ENGINEER	 CITY ENGINEER
EFF DATE: JUL-01-2018 DWG NO: 01509-04	


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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

INTERSECTION REDESIGN AND SAFETY IMPROVEMENTS
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SIGN MOUNTING DETAILS (2 OF 2)

WBS NUMBER
N-310662-0049-3
DRAWING SCALE
NOT TRUE SCALE
CITY OF HOUSTON PM
JOE HANAK
SHEET NO. 21 OF 25

\$USERS
\$DATES
\$FILES
\$PLOTTERS

GENERAL PAVEMENT MARKING NOTES:

1. PRIOR TO START OF CONSTRUCTION, ALL EXISTING PAVEMENT MARKINGS WITHIN THE AREA OF CONSTRUCTION SHALL BE INVENTORIED AND DOCUMENTED JOINTLY BY THE CITY INSPECTOR AND THE CONTRACTOR. THIS DOCUMENT WILL BE JOINTLY SIGNED BY BOTH PARTIES REFLECTING ALL EXISTING PAVEMENT MARKINGS AND LANE CONFIGURATIONS WILL BE Duplicated AGAIN. THIS REVIEW CAN BE DONE IN CONJUNCTION WITH SIGN INVENTORY. THE CONTRACTOR IS HELD ACCOUNTABLE FOR EXISTING AND TEMPORARY CONSTRUCTION PAVEMENT MARKINGS THROUGHOUT THE PROJECT AND AT THE PROJECTS COMPLETION.

2. ALL PAVEMENT MARKINGS SHALL CONFORM TO CITY OF HOUSTON STANDARDS AND SPECIFICATIONS AND GENERAL GUIDELINES OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).

3. THE PERMANENT PAVEMENT MARKINGS MAY BE MODIFIED AS DIRECTED BY THE CITY TRAFFIC ENGINEER.

4. THE DESIGN SPEED FOR THE ROAD IS: _____ THE POSTED SPEED LIMIT IS: _____

5. ALL LANE DIMENSIONS ARE FROM CENTER OF LANE LINE, CENTER OF DOUBLE LANE LINE, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

6. THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC ONLY. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, DETAILS, AND STANDARDS WHEN INSTALLING PAVEMENT MARKINGS AND SYMBOLS.

7. THE FINAL LONGITUDINAL STRIPINGS SHALL BE 60 MIL (0.007) THICK HOT-SPRAYED THERMOPLASTIC PLACED OVER THE TEMPORARY STRIPING WITHIN 14 TO 30 CALENDAR DAYS AFTER COMPLETION OF THE FINAL PAVEMENT SURFACE, OR AS DIRECTED BY THE CITY TRAFFIC ENGINEER. ALL OTHER PAVEMENT MARKINGS SHALL BE APPLIED AT THE SAME TIME. TEMPORARY STRIPING SHALL BE WATER BASED PAINT.

8. ALL FINAL TRANSVERSE MARKINGS SHALL BE 60 MIL (0.007) HOT-SPRAYED THERMOPLASTIC. ALL PAVEMENT ARROWS AND LEGENDS SHALL ALSO BE 60 MIL (0.007) HOT-SPRAYED THERMOPLASTIC. PREFORMED THERMOPLASTIC APPLICATIONS MAY BE USED IF ONLY APPROVED BY THE CITY TRAFFIC ENGINEER.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF PAVEMENT MARKINGS OF FINAL SURFACE COURSE FOLLOWING CONTROL POINTS THAT HAVE BEEN SET NO MORE THAN 50 FEET APART ALONG THE LINES TO BE IMPLEMENTED. IN TANGENT SECTIONS OF A ROAD WHERE THE PAVEMENT MARKING PATTERN DOES NOT CHANGE, CONTROL POINTS CAN BE SET AT 200 FEET SPACING. THE LAYOUT AND INSPECTION OF ALL PAVEMENT MARKINGS SHALL BE APPROVED BY CITY OF HOUSTON REPRESENTATIVE PRIOR TO THE APPLICATION OF MATERIALS.

10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE FINAL SURFACE COURSE IS PLACED SO THAT THE STRIPING IS OFFSET NO MORE THAN ONE FOOT CLEAR OF THE CONSTRUCTION JOINT, UNLESS OTHERWISE DIRECTED BY THE CITY TRAFFIC ENGINEER.

11. ALL RAISED PAVEMENT MARKERS (RPMs) SHALL BE INSTALLED SO THAT THE REFLECTIVE FACE OF EACH MARKER IS FACING THE DIRECTION OF TRAFFIC AND IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW. TYPE C PAVEMENT MARKERS SHALL BE INSTALLED SO THAT THE CLEAR FACE OF EACH MARKER IS FACING THE APPROACHING TRAFFIC FLOW AND PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW.

12. ALL REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED IN ACCORDANCE TO CITY OF HOUSTON STANDARD SPECIFICATION 0272: APPLYING OVER EXISTING PAVEMENT MARKINGS DOES NOT CONSTITUTE AS APPROVED OBLITERATION METHOD.

13. THE ENGINEER OF RECORD SHALL BE REQUIRED TO PRODUCE AS-BUILT OF PAVEMENT MARKING PLANS WITHIN 30 DAYS AFTER COMPLETION OF PAVEMENT MARKING IMPLEMENTATION.

14. BLUE IRMS MAY BE PLACED ADJACENT TO FIRE HYDRANTS WITH THE APPROVAL OF THE CITY TRAFFIC ENGINEER.

15. FOR ALL CONSTRUCTION, ALL PAVEMENT MARKINGS AND SIGNING SHALL BE INSTALLED AND SHALL BE PAID BY THE PROJECT OWNER/DEVELOPER.

16. FINAL INSPECTION AND ACCEPTANCE OF PAVEMENT MARKINGS SHALL BE PERFORMED BY TRANSPORTATION & DRAINAGE OPERATIONS REPRESENTATIVE (713-803-3054).

Line Series	Color	Description	Width Inches	Typical Applications
WB	White	Broken (10' stripe w/ 30' gap)	4"	- Lane lines between travel lanes in the same direction where changing of lanes is permitted.
			4"	- Edge lines to delineate the right edge of the roadway.
			6"	- Left edge of bicycle lane and lane lines between travel lanes in the same direction where changing of lanes is discouraged.
WS	White	Solid	12"	- Perpendicular crosswalk lines.
			24"	- Stop bars at intersections (signalized and unsignalized).
			12", 24"	- Hatching at high visibility crosswalks.
WG	White	Guide (2' stripe w/6' gap)	6"	- Diagonal hatching used in gores between same direction of travel lanes.
			4"	- Guide lines through intersections.
YS	Yellow	Solid	12", 24"	- Edge lines to delineate the left edge of a divided roadway, a one-way road, or ramp.
			12", 24"	- Diagonal hatching used in gores between opposing direction of travel lanes.
YDS	Yellow	Double Solid	4" - (4") - 4" (gap)	- Centerline that separates opposing travel lanes and delineation of median islands.
YDB	Yellow	Double Broken	4" - (4") - 4" (gap)	- Defines the edges of center reversible lanes that are used as TWLTLs during intermittent periods.
YB	Yellow	Broken (10' stripe w/ 30' gap)	4"	- Separates travel lanes in opposite directions where passing is permitted in both directions of travel.
YB (BIKE)	Yellow	Broken (3' stripe w/ 9' gap)	4"	- Separates bicycle travel lanes in opposite directions where passing is permitted in both directions of travel.
YSB	Yellow	Solid & Broken Broken (10' stripe w/ 30' gap)	4" - (4") - 4" (gap)	- Separates travel lanes in opposite directions where passing is permitted in one direction and prohibited in the opposite direction.
				- Used for edge of two-way left-turn lanes (TWLTL).
BICYCLE GREEN	Green	Solid Colored Pavement	Varies	- Ped/Bike crossing.
YIELD LINE	White	Triangle	16" x 24"	- Vehicle / Bike Conflict Area.
				- Mid-Block crossing.

RRPM Types	Color	COH Spec. Sec. 02764 Equivalent	Description
C	Clear	Type I-C	- Approach face that reflects white light, and the other side does not reflect.
R	Clear & Red	Type II-C-R	- Approach face that reflects white light, and the other side reflects red light.
A	Amber & Amber	Type II-A-A	- Approach face and the other side both reflect amber light.

Line Style Designation: YSB4 - A40/A40

Color: _____ RPM spacing

Pattern: _____ RPM type

Width of stripe: _____ RPM spacing

_____ RPM type

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

GENERAL NOTES
AND LEGENDS
(NOT TO SCALE)

[Signature]
CITY TRAFFIC ENGINEER

[Signature]
DIRECTOR OF
HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2018 DWG NO: 01510-01

KEY (FOR TURN LANES ONLY):
SL = STORMSE LENGTH (FEET)
D = DISTANCE BETWEEN ARROWS AND/OR WORDS (FEET)

GENERAL NOTES:
1. ALL CASES AND DETAILS ALSO APPLY TO RIGHT-TURN LANES.
2. FOR DUAL-TURN LANES, DIMENSIONS SHALL BE THE SAME FOR EACH LANE.
3. SL DIMENSION IS FROM BACK OF STOP LINE TO END OF TURN LANE. NOTE: DO NOT INCLUDE TAPER LENGTH.
4. PAVEMENT ARROWS AND "ONLY" LEGEND MARKINGS ARE TYPICALLY USED AT ALL SIGNALIZED INTERSECTIONS AND AT ALL UNSIGNALIZED INTERSECTIONS THAT HAVE TURN LANES.
5. MINIMUM SL: 100'. SL MAY BE LESS THAN 100 FEET ONLY BY APPROVAL OF THE CITY TRAFFIC ENGINEER.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LEFT/RIGHT-TURN "ONLY"
AND ARROW SPACING
(NOT TO SCALE)

[Signature]
CITY TRAFFIC ENGINEER

[Signature]
DIRECTOR OF
HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2018 DWG NO: 01510-02

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD PAVEMENT
MARKING - (WORDS)
(NOT TO SCALE)

[Signature]
CITY ENGINEER

[Signature]
DIRECTOR OF
HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2018 DWG NO: 01510-03

NOTES FOR PAVEMENT MARKINGS "SYMBOLS" AND "ARROWS":
1. MINIMUM 8 FOOT WHITE MARKINGS SHALL BE USED, UNLESS OTHERWISE NOTED. IF MESSAGE CONSISTS OF MORE THAN ONE WORD, IT SHOULD BE PLACED WITH FIRST WORD NEAREST THE DRIVER.
2. THESE DETAILS ARE STANDARD SIZE FOR NORMAL INSTALLATION. SIZES MAY BE REDUCED APPROXIMATELY ONE-THIRD DEPENDING ON CONDIITON. SPECIAL PERMISSION NEEDED BY CITY TRAFFIC ENGINEER FOR REDUCTION BELOW ONE-THIRD OF STANDARD SIZES.
3. THE LONGITUDINAL SPACE BETWEEN MARKINGS SHOULD BE 30 FEET, OR AS INDICATED ON THE PLANS.
4. MARKINGS CONSIDERED APPROPRIATE FOR USE WHEN WARRANTED INCLUDE THE FOLLOWING:
A. REGULATORY
STOP
RIGHT (LEFT) TURN ONLY, SYMBOL, ARROWS.
B. WARNING
STOP AHEAD
SIGNAL AHEAD
SCHOOL
SCHOOL X-ING
PED X-ING
8 x 8 (SEE SHEET 01510-08 DETAILS)
OTHER WORDS OR SYMBOLS MAY BE NECESSARY UNDER CERTAIN CONDITIONS. SPECIAL PERMISSION NEEDED BY CITY TRAFFIC ENGINEER FOR SPECIAL CONDITIONS.
5. UNCONTROLLED USE OF PAVEMENT MARKINGS CAN RESULT IN DRIVER CONFUSION. WORD AND SYMBOL MARKINGS SHOULD BE NO MORE THAN THREE LINES.
6. THE WORD "STOP" SHALL NOT BE USED ON THE PAVEMENT UNLESS ACCOMPANIED BY A STOP LINE AND STOP SIGN. THE WORD "STOP" SHALL NOT BE PLACED ON THE PAVEMENT IN ADVANCE TO A STOP LINE, UNLESS EVERY VEHICLE IS REQUIRED TO STOP AT ALL TIMES (ALL-WAY STOP).
7. PAVEMENT MARKINGS SHOULD GENERALLY BE NO MORE THAN ONE LANE IN WIDTH, WITH SCHOOL MESSAGES BEING THE EXCEPTION, FOR DETAILS OF SCHOOL AND SCHOOL CROSSING PAVEMENT MARKINGS, REFER TO PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
8. SPACING BETWEEN STANDARD SIZE LETTERS SHOULD BE 4 NOTCHES (AND), THE WIDTH OF NON-STANDARD SIZE LETTERS MAY VARY DEPENDING ON THE WIDTH OF THE TRAVEL LANES. APPROVAL BY CITY TRAFFIC ENGINEER. SPECIAL PERMISSION NEEDED FOR NON-STANDARD SIZE "LETTER" AND/OR "ARROWS".
9. LANE-USE ARROW MARKINGS MAY BE USED TO CONVEY OTHER GUIDANCE OR MANDATORY MESSAGES. SIGNAL TURN ARROWS USED TO CONVEY A MANDATORY MOVEMENT MUST BE ACCOMPANIED STANDARD SIGNS AND THE PAVEMENT MARKING WORD "ONLY".
10. PAVEMENT MARKINGS ARE TO BE LOCATED AS SPECIFIED IN THE DESIGN PLANS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD PAVEMENT
MARKING - SYMBOLS
(NOT TO SCALE)

[Signature]
CITY ENGINEER

[Signature]
DIRECTOR OF
HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2018 DWG NO: 01510-04

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Engineers, Planners & Managers

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Engineer: MOHAMMAD IREAN
P.E. Serial No.: 893333
Date: 02/28/2022

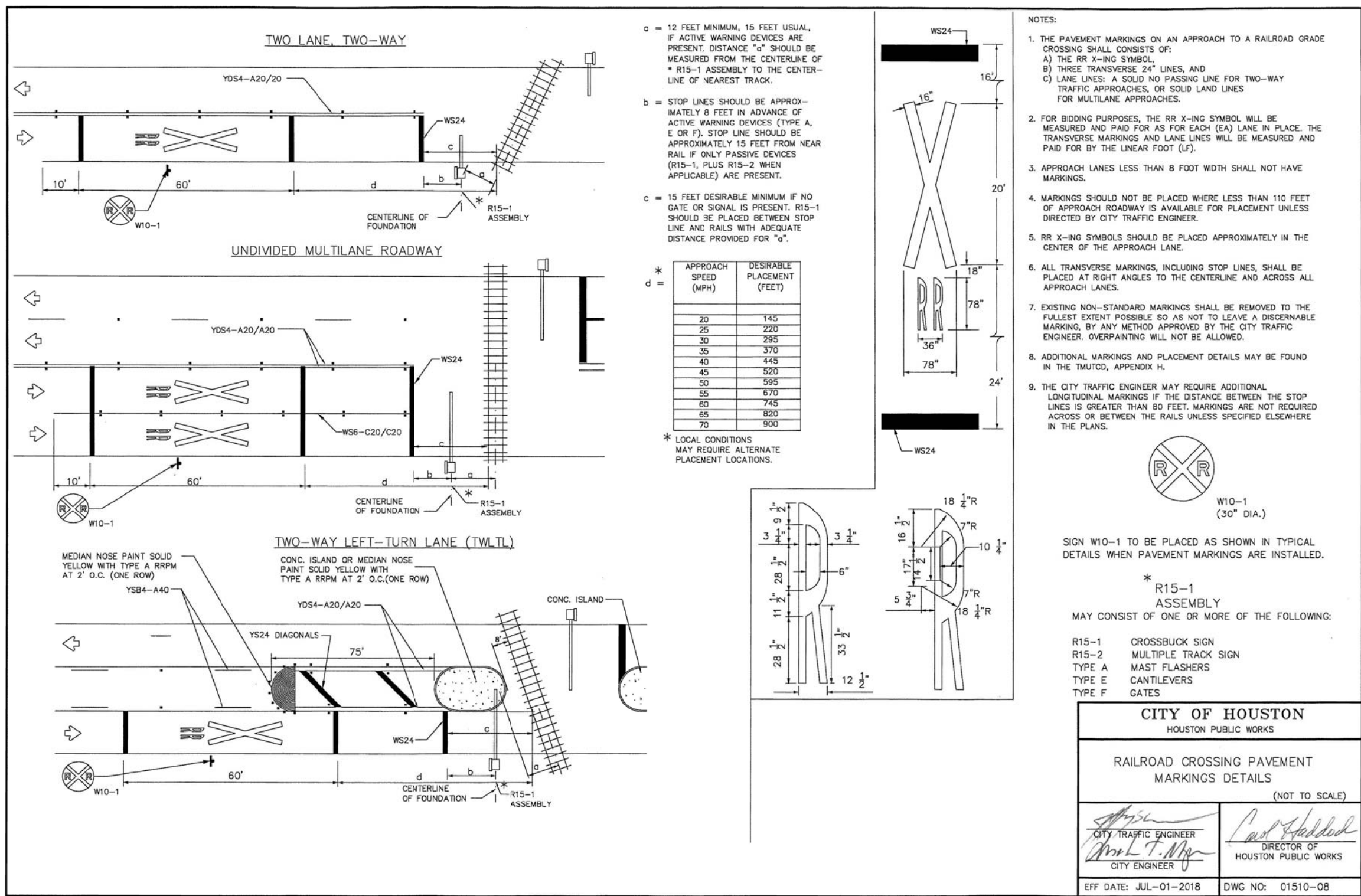
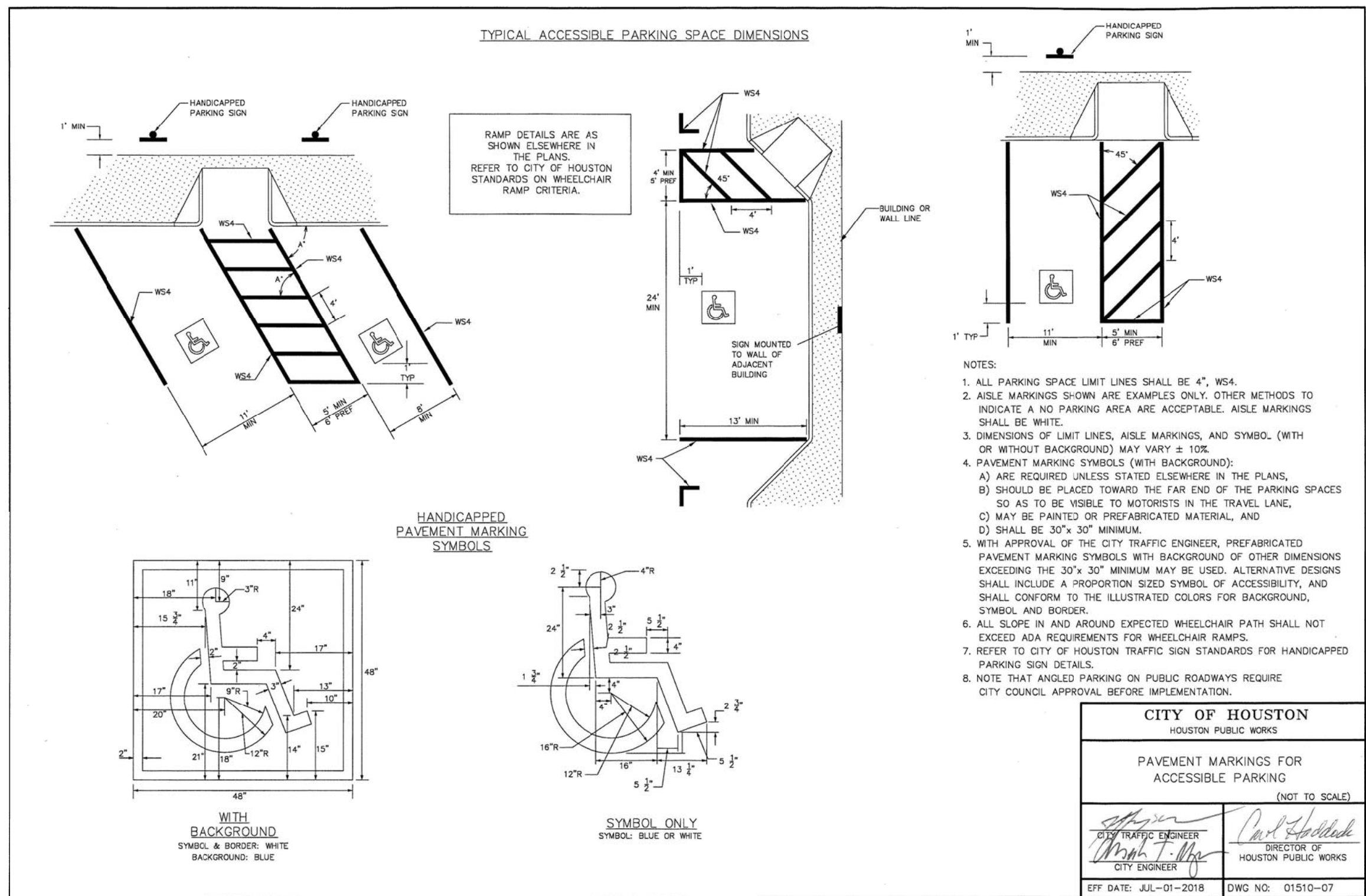
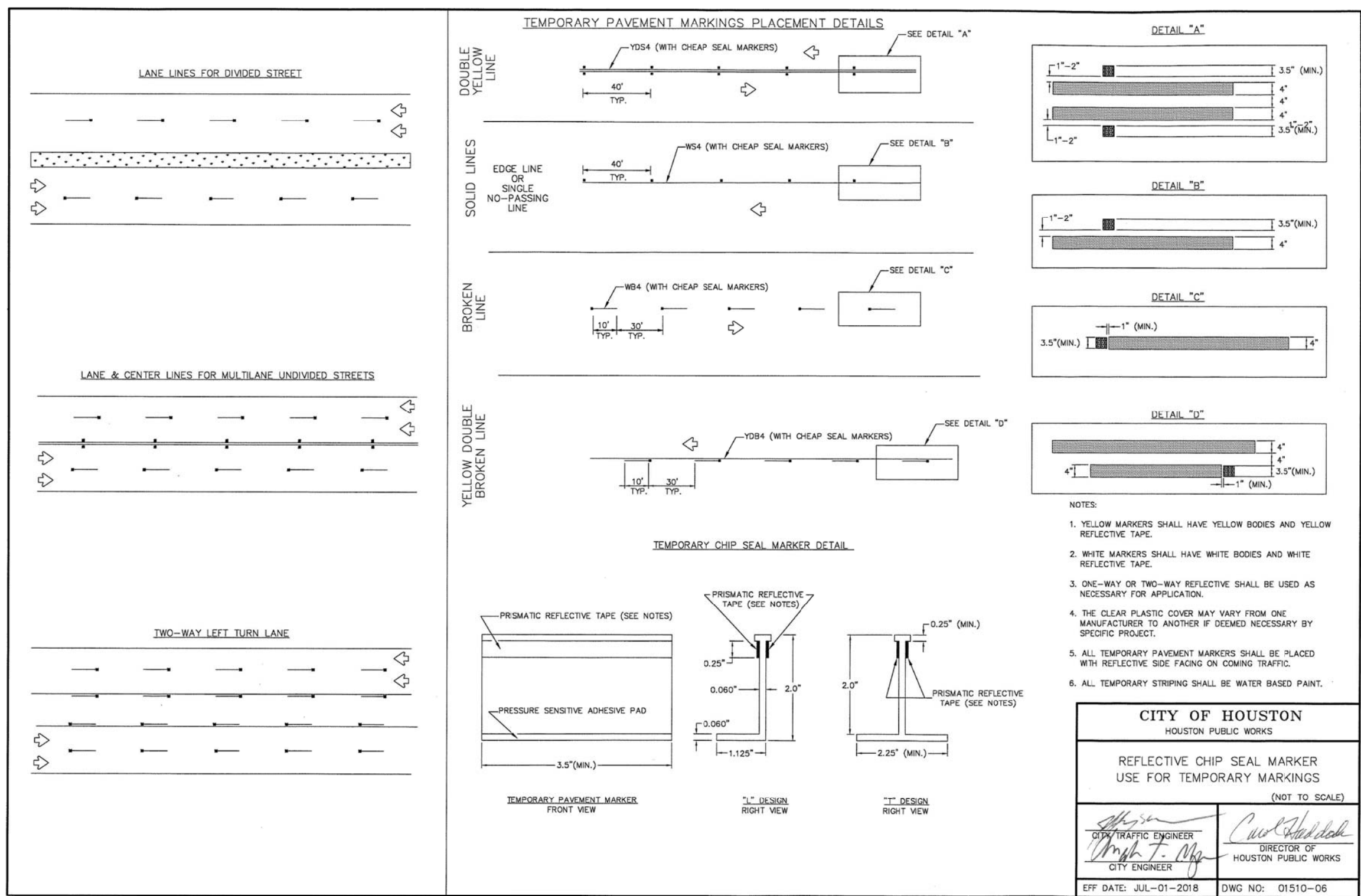
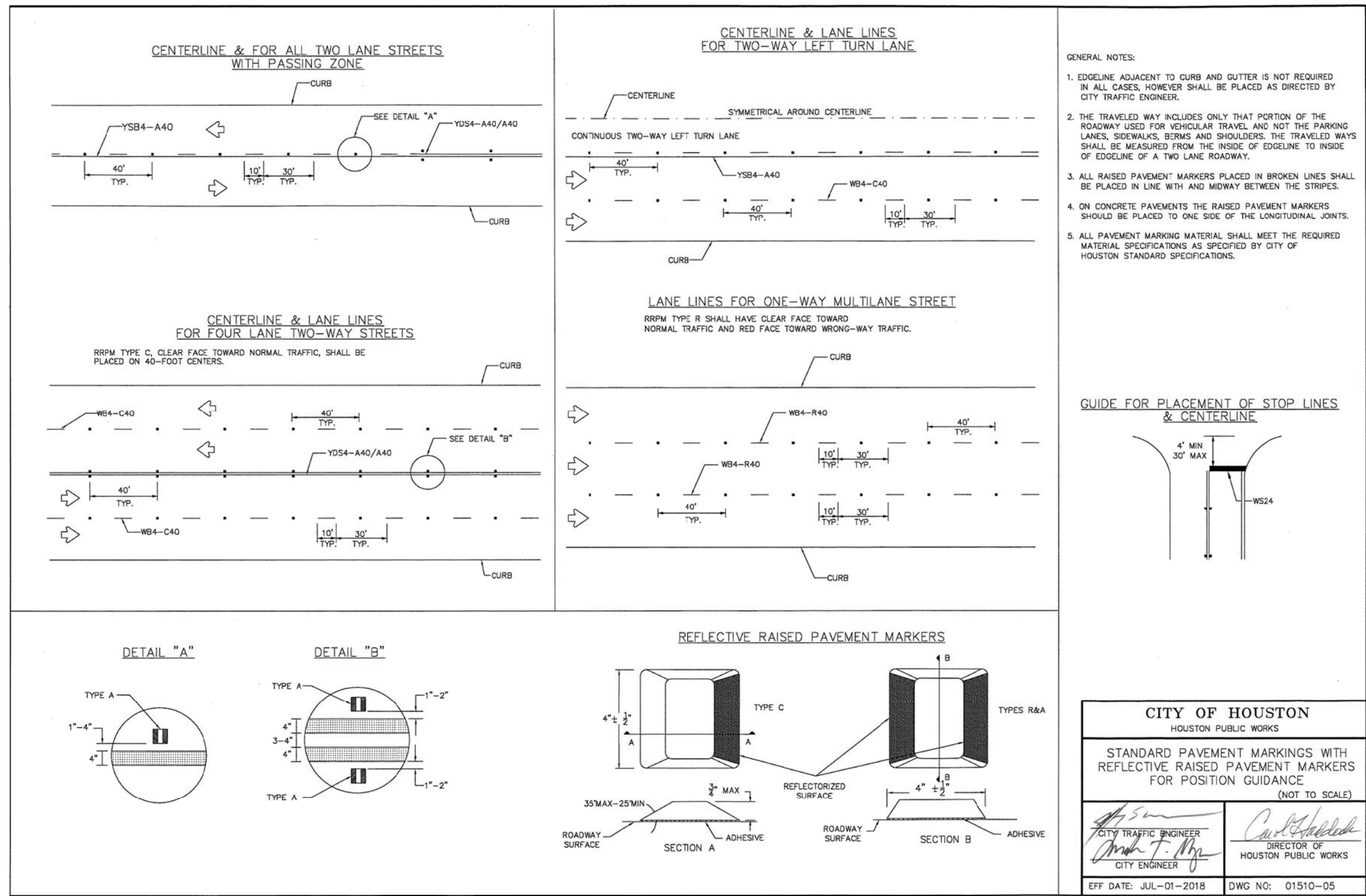
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

INTERSECTION REDESIGN AND
SAFETY IMPROVEMENTS
SIGNING & PAVEMENT
MARKINGS DETAILS
(1 OF 4)

WBS NUMBER	N-310662-0049-3
DRAWING SCALE	NOT TRUE SCALE
CITY OF HOUSTON PM	JOE HANAK
SHEET NO. 22 OF 25	

\$USERS
\$DATES
\$FILES
\$PLOTTERS



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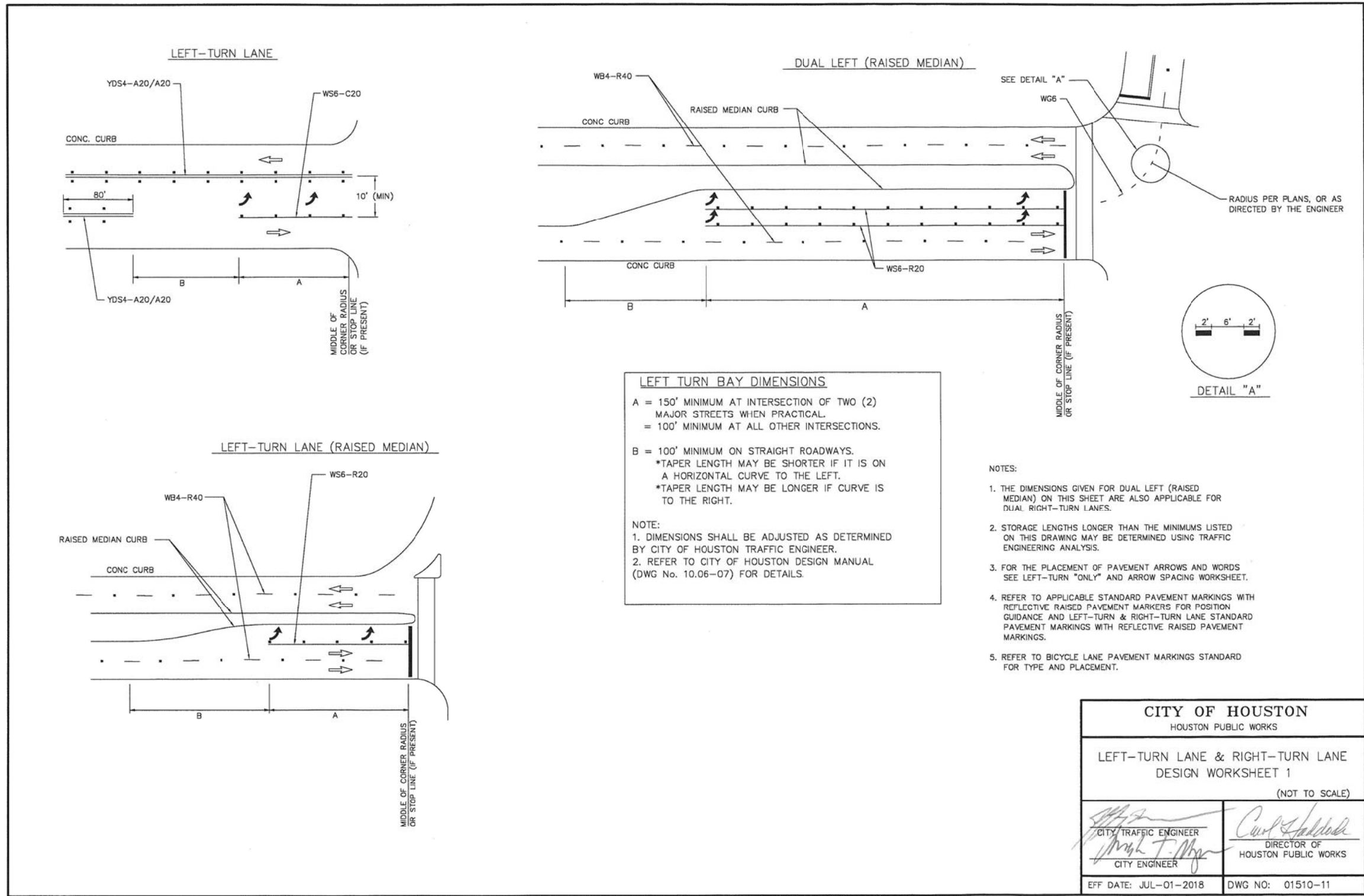
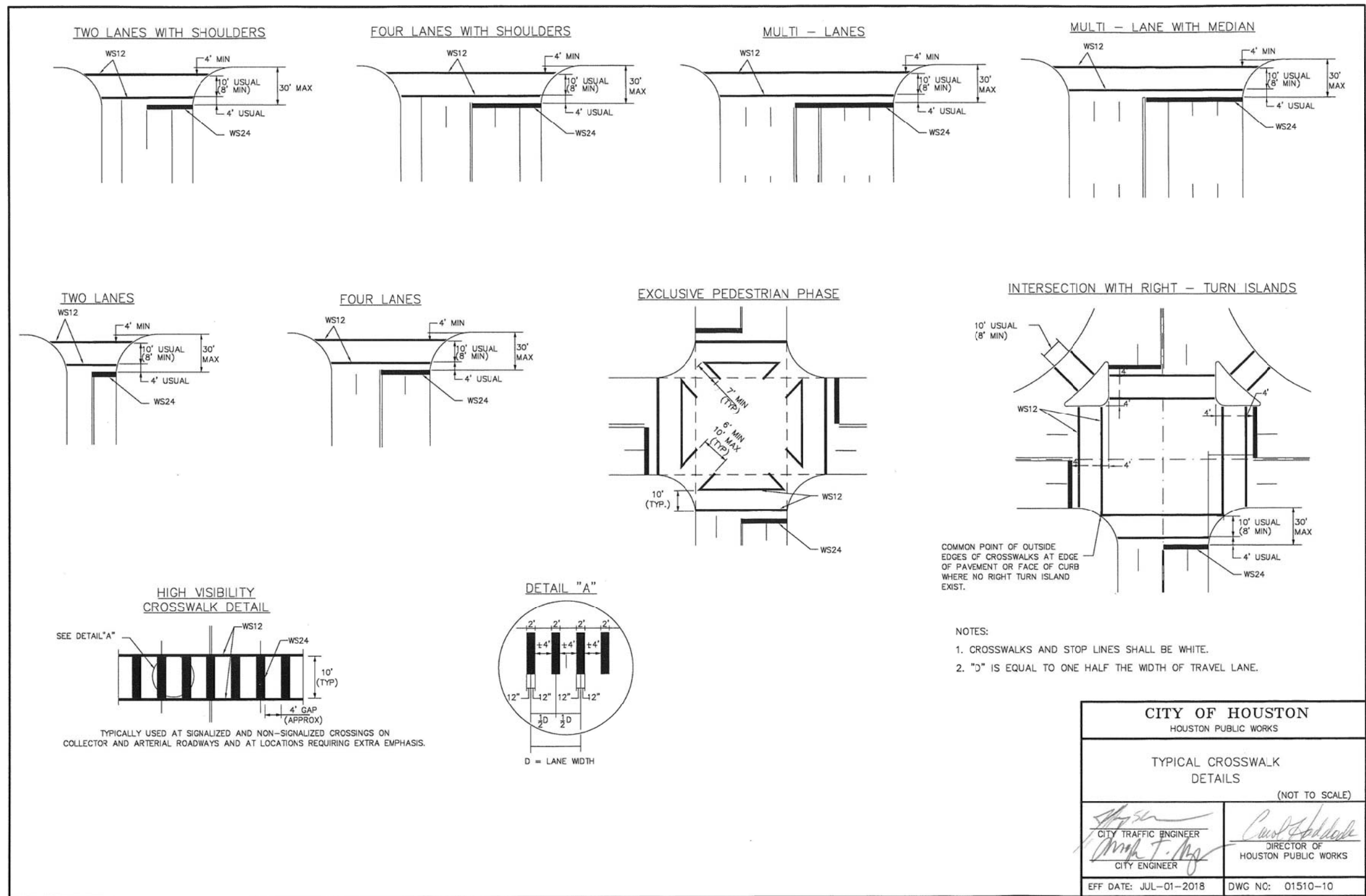
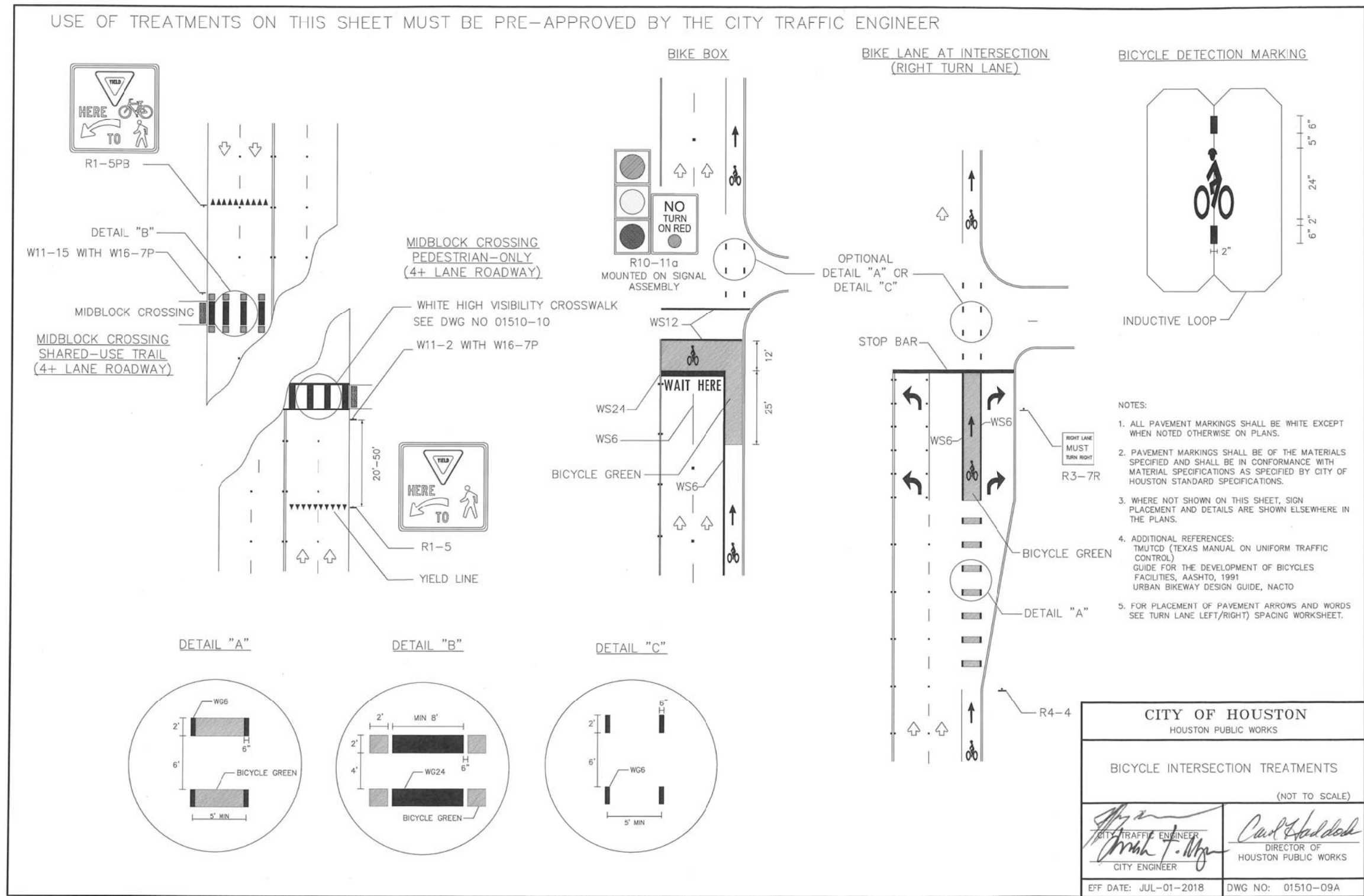
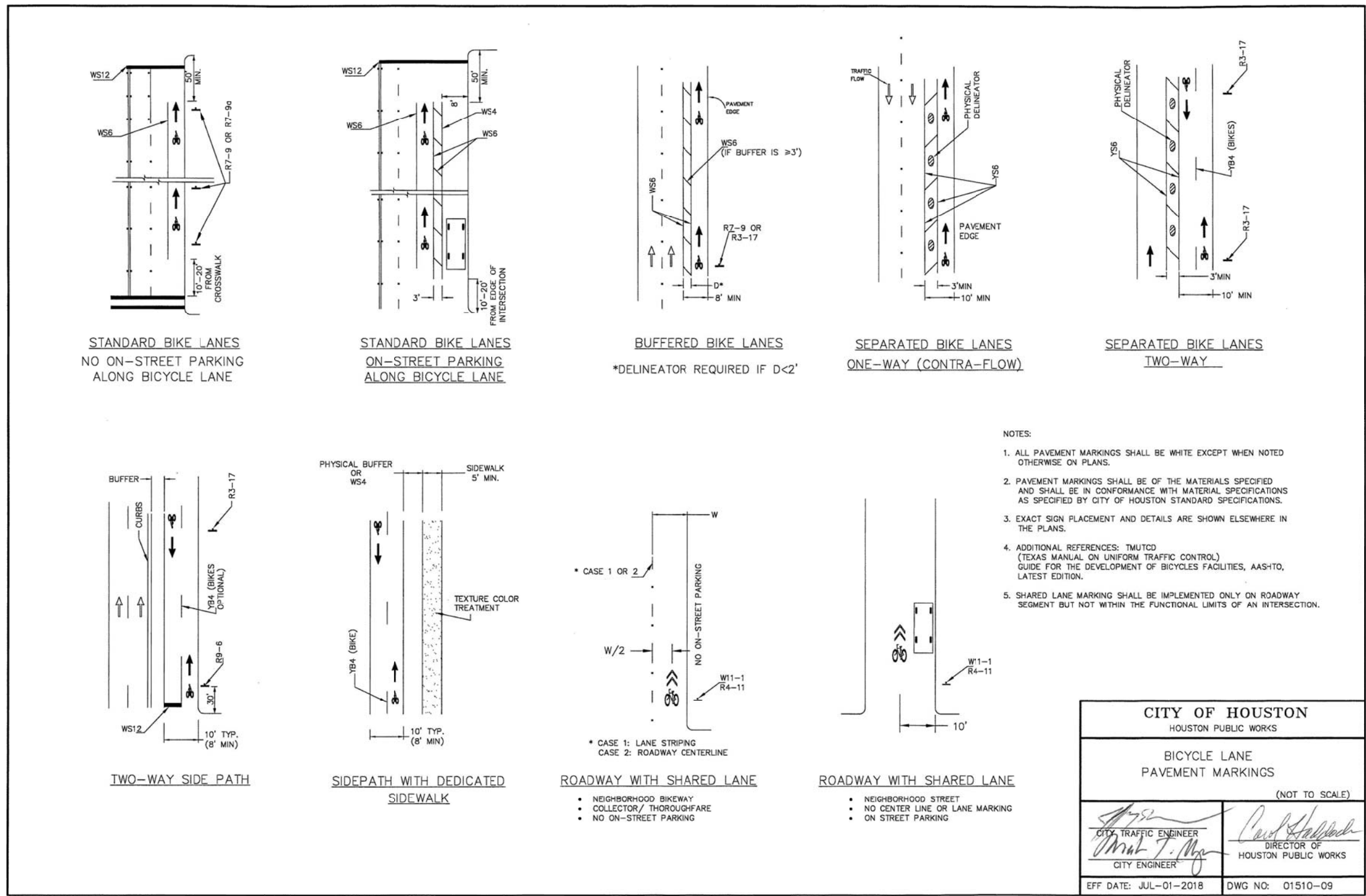
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

INTERSECTION REDESIGN AND SAFETY IMPROVEMENTS
SIGNING & PAVEMENT MARKINGS DETAILS
(2 OF 4)

WBS NUMBER	
N-310662-0049-3	
DRAWING SCALE	
NOT TRUE SCALE	
CITY OF HOUSTON PM	
JOE HANAK	
SHEET NO. 23 OF 25	

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\$DATES
\$FILES
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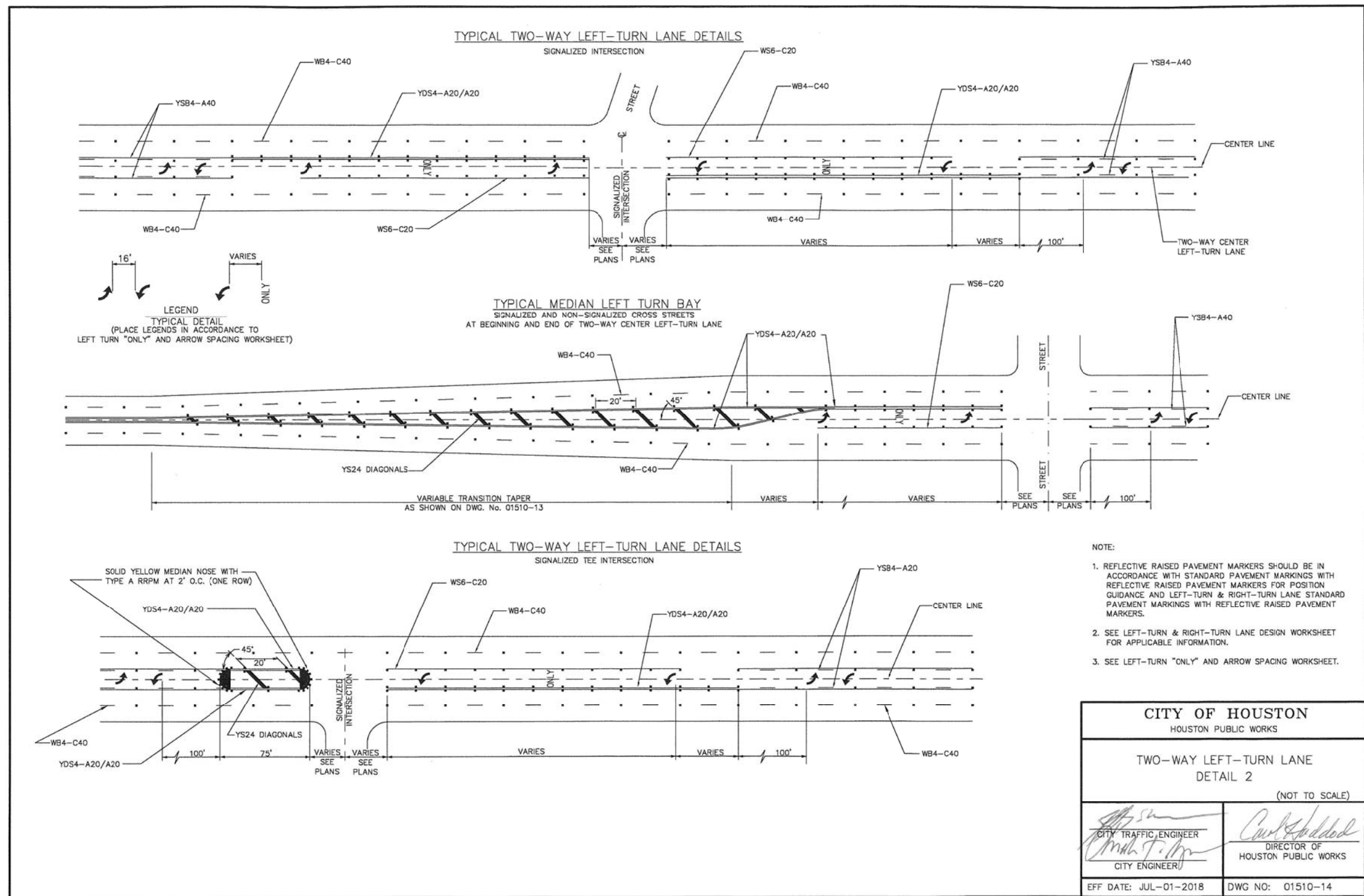
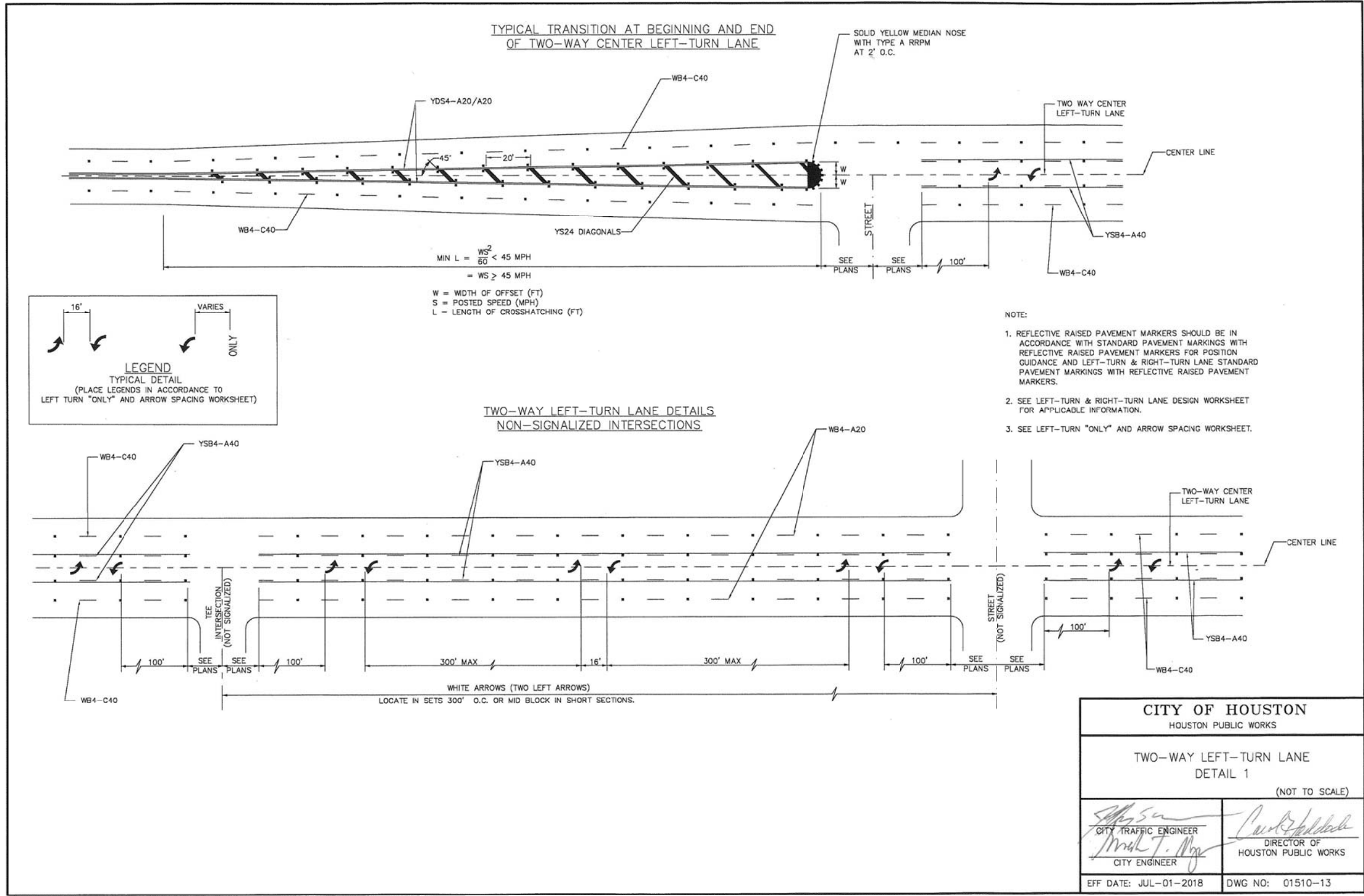
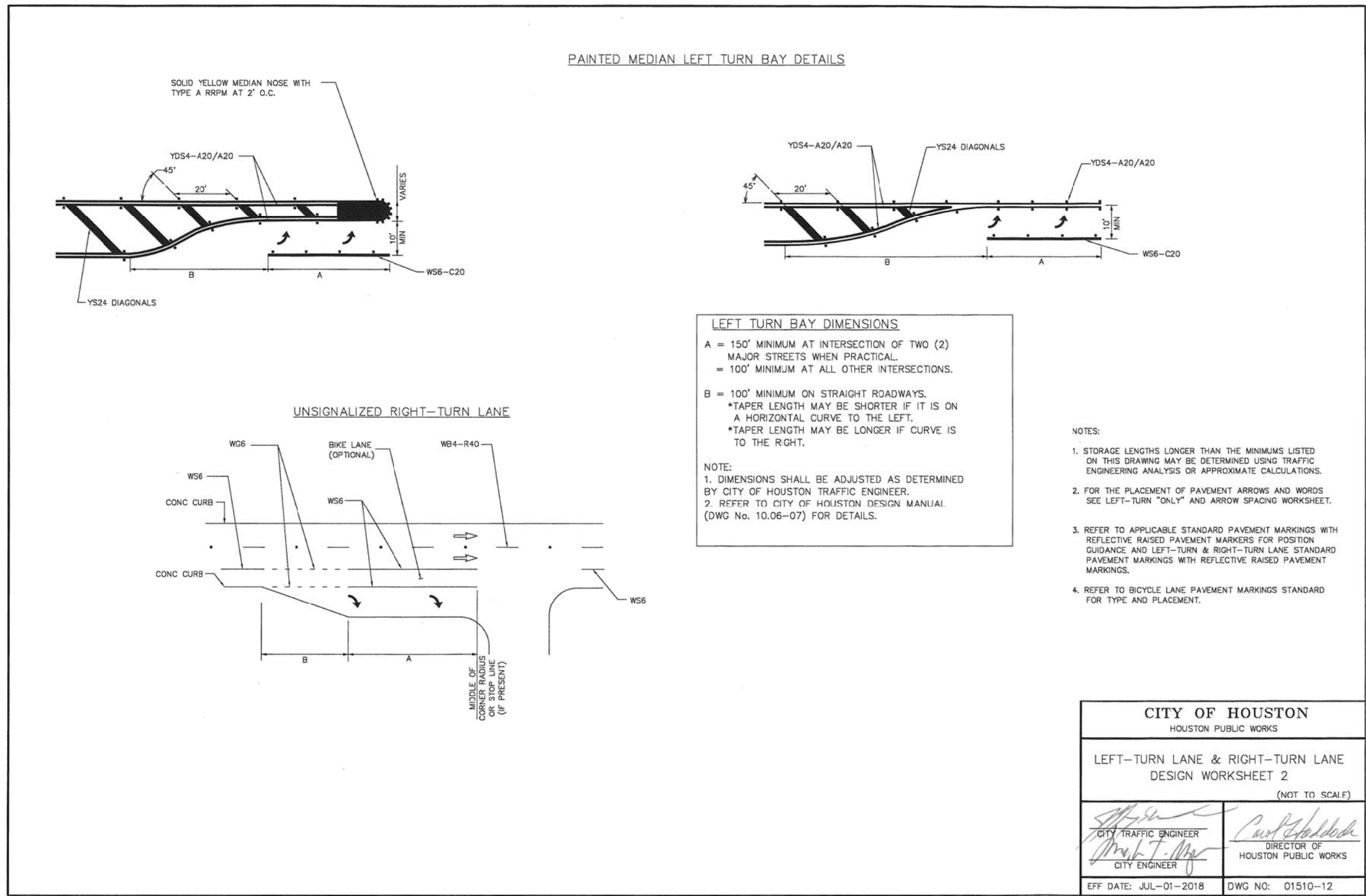
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CITY OF HOUSTON
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INTERSECTION REDESIGN AND
SAFETY IMPROVEMENTS
**SIGNING & PAVEMENT
MARKINGS DETAILS
(3 OF 4)**

WBS NUMBER	
N-310662-0049-3	
DRAWING SCALE	
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CITY OF HOUSTON PM	
JOE HANAK	
SHEET NO. 24 OF 25	

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INTERSECTION REDESIGN AND
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**SIGNING & PAVEMENT
MARKINGS DETAILS
(4 OF 4)**

WBS NUMBER	
N-310662-0049-3	
DRAWING SCALE	
NOT TRUE SCALE	
CITY OF HOUSTON PM	
JOE HANAK	
SHEET NO. 25 OF 25	